



---

Russian Agriculture in the Last 150 Years of Serfdom

Author(s): Jerome Blum

Reviewed work(s):

Source: *Agricultural History*, Vol. 34, No. 1 (Jan., 1960), pp. 3-12

Published by: [Agricultural History Society](#)

Stable URL: <http://www.jstor.org/stable/3740859>

Accessed: 26/11/2012 11:19

---

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at  
<http://www.jstor.org/page/info/about/policies/terms.jsp>

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.



*Agricultural History Society* is collaborating with JSTOR to digitize, preserve and extend access to *Agricultural History*.

<http://www.jstor.org>

# Russian Agriculture in the Last 150 Years of Serfdom

JEROME BLUM

The reigns of Peter I (1689–1725) and of Alexander II (1855–1881) marked the opening and closing of an era of Russian history. Peter's reforms and innovations laid the foundation for the transformation of the tsardom of Muscovy into a modern empire. Russia became one of the great powers of Europe; her area and population grew mightily; domestic and foreign trade increased many times over; factory industry was introduced; and Russian culture and learning entered into the mainstream of European thought. Yet, because Peter's reforms did not extend to serfdom, Russia remained a "medieval" society. Peter and the rulers who followed him on the throne intensified the bonds of serfdom, forced it upon millions who had been free men, and transformed others into the less onerous but still servile social category of state peasants. Serfdom became, more than it had ever before been, the basis of the entire social order. During the first half of the nineteenth century slight ameliorations were made in the status of some of these people. But not until 1861, in the reign of Alexander II, did Russia free her bondsmen. When that happened the old order, built as it was upon serfdom, disappeared and Russia entered upon a new stage in her troubled history.

During this era from Peter to Alexander the overwhelming majority of Russia's people were peasants who earned their livings from the soil and paid dues in cash, kind, and labor to their lords to whom the land belonged. On the eve of the emancipation only about 8 per cent of the empire's population of 74 millions lived in cities, and less than a million people were employed in factory industry.<sup>1</sup> Agriculture was far and away the chief industry of the country. The nation's economy was almost entirely dependent upon it. Yet during the 150 years from Peter to Alexander, when so many innovations were introduced into other sectors of national life, agriculture remained all but

unchanged from what it had been for centuries.

The backward state of farming was recognized and freely commented upon by many competent observers among the landowning class and the bureaucracy of the era. In the instruction manuals drawn up by great proprietors in the first half of the eighteenth century for the guidance of their estate managers, concern was often expressed about small yields, soil exhaustion, and the inefficient methods of cultivation used by the peasants.<sup>2</sup> Around the middle of the century a number of writers, including some of the era's most knowledgeable men, discussed the shortcomings of the nation's agriculture.<sup>3</sup> In 1765 a group of noble landowners, most of whom held important government posts and were close to the throne, formed the Free Economic Society for the Encouragement of Agriculture and Household Management. In the Society's meetings, in the pages of its journal that began to appear in 1766, and in the essays submitted in the prize competitions it conducted, frequent expression was given to the dissatisfaction of landlords and government officials with the existing conditions of agricultural production. Other journals, too, that began to appear around this time, published articles on this theme.<sup>4</sup> In the nineteenth century the chorus swelled, with men like A. A. Shakhmatov, one of Russia's leading agriculturists, pointing out to his fellow landlords that the welfare of the empire depended upon the con-

<sup>1</sup> P. I. Liashchenko, *History of the National Economy of Russia* (New York, 1949), 273; K. A. Pazhitnov, "K voprosu o roli krepostnogo truda v doreformennoi promyshlennosti", *Istoricheskie Zapiski*, 7:236–237, 243–244 (1940).

<sup>2</sup> P. K. Alefirenko, "Russkaia obshchestvennaia mysl pervoi poloviny XVIII stoletia o sel'skom khoziaistve," Ak. Nauk, Institut Istorii, *Materialy po istorii zemledelia SSSR*, 1:528–529 (1952).

<sup>3</sup> I. Bak, "Vozniknovenie russkoi sel'skokhoziaistvennoi ekonomii," *Sotsialisticheskoi Sel'skoe Khoziaistvo*, no. 9, 1945, 53–62.

<sup>4</sup> K. V. Sivkov, "Voprosy sel'skogo khoziaistva v russkikh zhurnalakh poslednei treti XVIII v.," Ak. Nauk, Institut Istorii, *Materialy*, 1:553–560.

dition of its agriculture, and Count P. D. Kiselev, chief of the Ministry of State Domain, in reports to the tsar calling the sovereign's attention to the lagging economic development out on the land.<sup>5</sup>

There were a number of reasons, many if not all of them mentioned by contemporary observers and critics, that explained this backwardness. Surely one of the most important was the niggardliness of nature herself. The soils of the forest zone north of the River Oka, where until the nineteenth century most of Russia's people lived, were relatively infertile and much of the region was covered by great bogs. In the open steppes that lay to the south the soil was far more fertile, for this was the land of the chernozem—the black earth. But the rigors of Russia's continental climate reduced the growing season in even these more favored zones and inadequate rainfall nearly everywhere held back crop yields.

These disadvantages of soil and climate were aggravated by the attitude of the people who owned the land and the techniques of those who worked it. Most Russians, whether lords or peasants, seemed content with the traditional pattern of agricultural exploitation. Though there seems to have been some decline in landlord absenteeism in the last part of the eighteenth and in the nineteenth centuries, many proprietors, as in previous centuries, spent little or no time on their estates, either because the demands of government service kept them away or because they preferred urban life. The only interest most of these men had in their properties was in the revenues in cash and kind they drew from them.

As for the peasants, whether serfs on privately-owned land or half-free peasants who lived on state land, the techniques of tillage they employed were virtually unchanged from what they had been in the middle ages. Inadequate or no fertilizing, primitive tools, and all the other accoutrements of obsolescent farming combined to hold back productivity. The open field system, with its division of the arable land into small strips and parcels, offered serious obstacles to agricultural improvements. The strips themselves were only about 10 to 14 feet wide, so that cross plowing

was impossible. A sizable amount of arable land was lost to cultivation because it had to be used for boundaries between the strips and for the access roads and paths to the many individual parcels. Communal tillage was the rule, everyone growing the same crops and performing the same farming operations at the same time. A well-nigh military precision was followed, with all the workers leaving the village and returning to it at the same times each day. Each peasant's holding was divided into strips scattered through the fields of the manor. Some of them were at a considerable distance from the village so that often much time was lost in going to and from the work site. In some places the peasants' strips lay as much as 15 to 20 versts from their homes, and in one extreme instance they were 70 versts away. (In this particular instance the peasants leased their land at a low rental.) In the Lower Volga provinces, where the villages often were large and lay far from some of their plowlands, sometimes the entire settlement with its cattle and implements camped out near the fields in spring for plowing and sowing, and in fall for harvesting.<sup>6</sup>

The handicaps of the open field system, and particularly its effects upon individual initiative, were found in all countries where this method of tillage was used. But in Russia its disadvantages were intensified by the practice of periodic redistribution of holdings that became especially widespread in the eighteenth and nineteenth centuries. The peasant was converted into the temporary occupant of the strips allotted him by his commune. He had little or no interest

<sup>5</sup> Cf. E. N. Kusheva, "Proekt uchrezhdeniia aktsionernogo 'Obshchestva Uluchsheniia Chastnogo Sel'skago Khoziaistva' 30-x godov xix v.," *Istoricheskii Arkhiv*, 7: 60 (1951); *Sbornik Imperatorskago Russkago Istoricheskago Obshchestva*, 98: 489–490 (1896).

<sup>6</sup> M. Baranovich, *Materialy dlia geografii i statistiki Rossii sobrannye ofitserami General'nago Shtaba. Riazanskaia Guberniia* (St. Petersburg, 1860), 237–239; A. von Haxthausen, *Studien über die innern Zustände, das Volksleben und insbesondere die ländlichen Einrichtungen Russlands* (Hannover, Berlin, 1847–1852), 1: 157, 2: 10; A. von Buschen, "Die Freibauern Russlands," *Zeitschrift für die gesammte Staatswissenschaft*, 15: 232–233 (1859), and note; K. N. Shchepetov, *Krepostnoe pravo v votchinakh Sheremetevykh* (Moscow, 1947), 57; N. M. Druzhinin, *Gosudarstvennye krest'iane i reforma P. D. Kiseleva* (Moscow, Leningrad, 1946), I: 325.

The verst was equal to two-thirds of a mile.

in increasing their fertility because in all likelihood they would be assigned to some other household at the next repartition. Land that needed improvement, such as draining, before it could be planted, and fields that gave only mediocre yields, often were left empty because no one was willing to expend the effort involved in reclaiming or improving them when the rewards of his labor were likely to go to someone else. Meadows frequently were divided anew each year just before haying, so no one bothered to drain or clear them. Consequently, their productivity was much less than it might have been.<sup>7</sup>

Finally, the development of Russian agriculture was immeasurably retarded by the fantastically bad condition of the empire's communications system. Roads were few and usually were unsurfaced and undrained, so that in rainy weather they were often impassable. The land carriage of most goods had to wait upon the coming of winter when the snow cover allowed transport by sled. But winter travel had its perils, too, and each year many succumbed to the cold and to storms, or lost their way in the unmarked and endless snow fields and perished. And if by unlucky chance the winter was mild, with only light snowfall, sled transport became difficult and gluts piled up out in the land, while townspeople suffered from shortages and high prices.<sup>8</sup> Many parts of the river network that laced the realm could not be navigated for a large part of the year because of ice in winter, floods in spring, and low water in the summer months. An even more serious drawback was that most of the streams flowed north and south, and so were of little or no use in the east-west flow of trade across the empire. Railroad and highway construction got under way in the first half of the nineteenth century, but Russia lagged far behind other nations in carrying through these badly needed improvements.

Because of these parlous conditions in transportation, farm goods often could get to the market only with difficulty and much expense, and sometimes were unable to get there at all. The problems of reaching the market and the risk of undisposible surpluses piling up in the village acted as a brake to any interest in improvements or in increasing output. Russian observers and foreign visitors

alike stressed the need for more and better means of communication as the indispensable condition for agricultural progress.<sup>9</sup>

Low yields and frequent crop failures were the not-unexpected results of the many shortcomings of Russian agriculture. Incomplete data show there were at least 34 partial or general crop failures in the eighteenth century, and contemporary statisticians of the early part of the nineteenth century estimated that there was one total crop failure and two partial ones out of every ten years. Information on yields collected between 1759 and 1786, though imprecise, indicated that the chief cereals (rye, oats, barley and wheat) gave three to five times the seed. Data collected for 1802 showed that the average yields in the black earth for winter grains was around 4.4 times the seed and for spring cereals 3.3 to 1, while in the forest zone the comparable figures were 3.0 and 2.4.<sup>10</sup> These averages, however, conceal wide fluctuations both within each of these two regions and between them. Farmers in the richest parts of the chernozem in some years got eightfold returns on winter grains and sixfold on spring cereals. In unusually good years rye and wheat were reported to have returned as much as fourteen and sixteen times the seed, and millet yields were even higher.<sup>11</sup>

<sup>7</sup> P. von Köppen, *Statistische Reise in's Land der donischen Kosaken, durch die Gouvernements Tula, Orel und Woronesh in Jahre 1850* (St. Petersburg, 1852), 122–123; Baranovich, *Materials*, 178, 239.

<sup>8</sup> R. Portal, "Manufactures et classes sociales en Russie au XVIII<sup>e</sup> siècle," *Revue Historique*, 201:169 (1949); W. Tooke, *View of the Russian Empire during the reign of Catherine II, and to the close of the eighteenth century* (London, 1799), 1: 27–28.

<sup>9</sup> A. von Haxthausen, *Die ländliche Verfassung Russlands* (Leipzig, 1866), 4; Haxthausen, *Studien*, 2: 104; Count P. D. Kiselev to Tsar Nicholas I, *Sbornik Imperatorskago Russkago Istoricheskago Obschestva*, 98:490 (1896); A. Jourdiar, *Des forces productives, destructives et inproductives de la Russie* (Paris, 1860), 36–37; X. Hommaire de Hell, *Les steppes de la mer Caspienne, le Caucase, la Crimée et la Russie méridionale* (Paris, Strasbourg, 1843–1845), 1: 46–47; J. Kulischer, "Die Leibeigenschaft in Russland und die Agrarverfassung Preussens im 18ten Jahrhundert," *Jahrbuch für Nationalökonomie und Statistik*, 127: 61 (1932).

<sup>10</sup> P. I. Liashchenko, "Krepostnoe sel'skoe khoziaistvo Rossii v XVIII veke," *Istoricheskie Zapiski*, 15: 116–117 (1945); P. I. Liashchenko, *Ocherki agrarnoi evoliutsii Rossii* (Leningrad, 1925), 1: 120.

<sup>11</sup> M. Domontovich, *Materialy dlia geografii i statistiki Rossii sobrannye ofitserami General'nago Shtaba. Chernigov Guberniia* (St. Petersburg, 1865), 183; L. de Tegoborski, *Études sur les forces productives de la Russie* (Paris, 1852–1855), 1: 39; Druzhinin, *Gosudarstvennye krest'iane*, 1: 401, 409, 417.

Estimates made for the first half of the nineteenth century show that yields were just about the same as they had been in the preceding century, and indeed as far back as the sixteenth century and probably even earlier.<sup>12</sup> The yields for European Russia averaged out at about 3.5 to 1 for both winter and spring cereals.<sup>13</sup> Comparative data collected around the middle of the century revealed that Russian yields were lower than those of any other European nation. The average in Belgium and Holland was 14 hectolitres per hectare; in Saxony, Great Britain, Württemberg, and Baden it was 13.2 hectolitres; in Austria, 10.3; France, 9.3; Sweden, 9.3; Prussia, 9.1; Italy, 9.0; Norway, 7.6; Spain, 6.2; Greece, 6.1; and in Russia it was 6 hectolitres per hectare.<sup>14</sup>

Despite the fact that yield per unit remained the same, the total output of Russian agriculture climbed steadily during the eighteenth and nineteenth centuries. This, of course, was because of the great increase in the amount of land under cultivation. The remarkable rise in the empire's population from 13 millions in the early 1720's to 74 millions in 1858,<sup>15</sup> and to a far lesser degree the development of foreign markets, provided the stimuli for this expansion. Given the inefficient techniques of cultivation then dominant, the only way to meet the heightened demands for foodstuffs was to take more land under the plow. In the older regions of settlement north of the Oka, just about all the land suitable for crops had been put into use by 1800. After that date the area of plowland there remained relatively stable. But the population kept on going up. As a result, the peasantry could no longer support itself from the land alone. Data for 1783-1784 for the province of Tver, directly northwest of Moscow, showed that the peasants' cash income from agriculture covered only 40-50 per cent of the money they needed to meet expenses.<sup>16</sup> A government survey made in Pskov in the 1830s revealed that over 70 per cent of the peasant families on state-owned land in that province did not have enough arable land and cattle to meet their minimum requirements.<sup>17</sup> The only way these people and most of the other peasants who lived in the non-black earth

provinces could make ends meet was to engage in cottage handicraft production or to leave their villages to find work elsewhere in trade and industry.

In the black earth zones, however, where the land was fertile and in many places sparsely settled, there was a large expansion in the area of plowland. During the eighteenth century the center of agricultural production had completed its shift begun in the previous century from the Muscovite center into the steppelands. By the turn of the century more than half of European Russia's sowed area lay in the black earth provinces, although the total area of these provinces was only 60 per cent of that of the non-black earth provinces. During the nineteenth century the arable zone there continued to grow and further outstrip the older regions.<sup>18</sup> The spread of settled tillage into New Russia and along the middle and lower Volga accounted for most of the increase in chernozem production. At the end of the eighteenth century those frontier regions had been very thinly populated and had been used primarily for cattle raising. During the next half-century a great wave of colonists moved into them from the center, so that by 1860 several of the provinces there had a population density as heavy as that of some prov-

<sup>12</sup> For yields in earlier centuries see Liashchenko, *Ocherki*, 1: 87 n.; P. N. Miliukov, *Ocherki po istorii russkoi kul'tury* (2nd ed., St. Petersburg, 1896-1903), 1: 73-74 n.; K. N. Shchepetov, "Sel'skoe khoziaistvo v votchinnakh Iosifo-Volokolamskogo Monastyria v kontse XVI veka," *Istoricheskie Zapiski*, 18: 107-108 (1946).

The Rothamsted experiments on the continuous cropping of wheat "seem to indicate that the tendency of an exhausting system of cultivation . . . is to reduce the crop to a minimum in a few decades, but that this minimum, once it is reached, can be maintained almost indefinitely." R. Lennard, "The Alleged Exhaustion of Soil in Medieval England," *Economic Journal*, 32: 27 (1922).

<sup>13</sup> P. Storch, "Der Bauernstand in Russland in geschichtlicher, statistischer, staatsrechtlicher und landwirtschaftlicher Hinsicht," *Mittheilungen der kaiserlichen freien ökonomischen Gesellschaft zu St. Petersburg*, 1849, 86; Jourdain, *Des forces*, 145; Liashchenko, *History*, 324.

<sup>14</sup> Ministerstva Gosudarstvennykh Imushchestv, *Ob'iasneniia k khoziaistvenno-statisticheskomy atlasu Evropeiskoi Rossii*, I. Vil'son, ed. (4th ed., St. Petersburg, 1869), 115. Hereafter referred to as M.G.I.

<sup>15</sup> Liashchenko, *History*, 273.

<sup>16</sup> I. Bak, "K voprosu o genezise kapitalisticheskogo uklada v krepostnom khoziaistve Rossii," *Voprosy Istarii*, 1948, no. 4, 74.

<sup>17</sup> Druzhinin, *Gosudarstvennye krest'iane*, 1: 385-387.

<sup>18</sup> P. I. Liashchenko, *Istoriia narodnogo khoziaistva SSSR* (Moscow, 1947-1948), 1: 520.



inces in the oldest parts of the empire, and in a couple of provinces (Simbirsk and Saratov) it was considerably heavier.<sup>19</sup> At the outset of the nineteenth century the sowed area in New Russia was estimated to have been 800,00 desiatins, and in four Volga provinces 1,000,000 desiatins. In the 1860s these figures had risen to 6 million and 4.6 million desiatins, respectively.<sup>20</sup>

An estimated 96 per cent of the arable land in chernozem and non-chernozem alike was planted in cereals. In the eighteenth century rye was apparently by far the single most important crop. Wheat was paramount in only a few regions and in many places it trailed behind rye, barley and oats in order of importance.<sup>21</sup> By the middle of the nineteenth century, however, rye remained the dominant crop only in the north and center down to 50–52 degrees of latitude. South of this line, wheat, and particularly spring wheat, had become the chief crop. In the rye-growing zone oats were the chief spring grain, taking up as much as three-fourths of all the arable land devoted to spring cereals. Much less oats were grown in the southern provinces. Buckwheat and millet were other important spring grains, the latter being particularly popular in the black earth. In the southwest, and chiefly in Bessarabia (annexed by Russia in 1812), Indian corn was a major crop.<sup>22</sup>

Precise figures on the size of the grain harvests in the pre-1861 era are not available. In 1873, however, an official commission published the following estimates for European Russia:<sup>23</sup>

Years	Average annual harvest (millions of chetverts)
1800-1813	155.0
1834-1840	179.0
1840-1847	209.7
1857-1863	220.0

Because of the vast area devoted to cereals, Russia produced more grain per capita than did any other European land even though the yield per unit of arable land was the lowest in Europe. A mid-century estimate placed the empire's output at 9 hectolitres per capita; Sweden was next with 6.6 hecto-

litres per capita; then came France with 6.3, Prussia with 6.2, Austria, 5.7, Great Britain, 4.9, Belgium, 4.7 and Italy, 4.<sup>24</sup>

Both contemporary and later observers sometimes claimed that despite the low level of productivity Russia suffered from a chronic overproduction of grain during the first half of the nineteenth century. The inadequacy of the data made it impossible for these writers to calculate the amount of the surplus but their estimates ran as high as 10 per cent of the harvest. They claimed that this constant surplus was unmarketable and was extremely damaging to the economy, depressing prices, acting as a deterrent to the introduction of better farming methods, and contributing significantly in the creation of a "general crisis in serf agriculture" in the mid-nineteenth century. This widely-held view has been seriously questioned by P. I. Popov. Popov argued that, far from suffering from chronic overproduction in the period from 1840 to 1860, Russia did not produce enough grain to meet the needs of her people. He pointed out that the estimates of grain production in these (and earlier) decades were based upon theoretical appraisals of the

<sup>19</sup> Cf. Ministerstva Vnutrennikh Del, Tsentral'nyi statisticheskii komitet, *Statisticheskaiia tablitsy rossiiskoi imperii. Nalichnoe naselenie imperii za 1858 god* (St. Petersburg, 1863), 158-174.

<sup>20</sup> Liashchenko, *Istoriia*, 1:519; Liashchenko, "Krepостное sel'skoe khoziaistvo," 99, 106-107.

The desiatin was equal to 2.7 acres or 1.09 hectares.

<sup>21</sup> Liashchenko, *History*, 324; Liashchenko, "Krepостное sel'skoe khoziaistvo," 114-115.

<sup>22</sup> M.G.I., 116-120.

<sup>23</sup> P. A. Khromov, *Ekonomicheskoe razvitie Rossii v XIX-XX vekakh 1800-1917* (Moscow, 1950), 19. These figures are lower than other estimates made at various times during the preceding half century. Thus, Androssov in 1813 estimated the annual crop at 189 million chetverts; Arsen'ev in 1818 set it at 200 million chetverts (*ibid.*, 18-19); Köppen, on the basis of admittedly incomplete data estimated it at 186 million chetverts in the mid-thirties (P. von Köppen, "Über den Kornbedarf Russlands," *Memoires de l'Academie Impériale des Sciences de St. Petersbourg*, VIme Series, Sciences Politique, Histoire, Philologie, 5:526-527 (1845); Tegoborski's estimate was 260 million chetverts in the latter 1840's (Tegoborski, *Études*, 1:205); and Vil'on of the Ministry of State Domain estimated 265 million chetverts for the early '60's (M.G.I., 112).

The chetvert was equal to 2.098 hectolitres or 5.95 U.S. bushels.

<sup>24</sup> M.G.I., 116. According to another computation, however, in 1851-60, Denmark was first in per capita output with 43 bushels, Rumania second with 23, and Russia third with 20 bushels. M. G. Mulhall, *The Dictionary of Statistics* (4th ed., London, 1899), 7.

size of the average annual harvest. Actually, sharp fluctuations in output and partial crop failures, rather than a uniform output, were the rule. The surpluses produced in the good years did not represent overproduction but were needed to meet the deficiencies of the bad years, and were carefully stored away for that purpose. These reserves, when they could be accumulated, were vitally important because the shortcomings of the transportation system often made it prohibitively expensive to bring in foodstuffs.<sup>25</sup>

After cereals, flax and hemp were the most important crops. Flax was grown everywhere in Russia save in the extreme north, but by the mid-nineteenth century the chief regions of production were the Baltic, White Russia, and Central Industrial provinces, and along the shores of the Black and Azov Seas. Hemp culture centered in the provinces of Smolensk, Mogilev, Chernigov, and in the Central Agricultural zone.<sup>26</sup> These plants had been among the chief products of Russian agriculture for centuries, their fiber and oil-yielding seeds being of prime importance in meeting the domestic demand for textiles and fats. They had also long been major items in Russia's export list. In fact, up to the mid-1840s the value of hemp and flax exports exceeded that of grain.<sup>27</sup>

Little attention was paid to the commercial production of vegetables save near large cities where the peasants raised truck for sale in the nearby urban market. Peas, beans, and lentils were sometimes planted in the spring field in lieu of a grain, and peasants grew large quantities of cucumbers and cabbages in garden plots. An Englishman who traveled in northern Russia around 1790 wrote that in summer nearly every peasant he saw had "a bit of black bread in one hand, and a cucumber in the other." Both cucumbers and cabbages had the advantage of being able to be preserved in palatable form as pickles and sauerkraut, for which delicacies the Russians had a well-developed taste.<sup>28</sup>

Potatoes were an unimportant crop until the middle of the nineteenth century. In the eighteenth century they had been all but unknown except among the German colonists in the steppe, who had brought the tuber with them when they migrated from their

homeland in the latter half of the century.<sup>29</sup> When the Westphalian Baron August von Haxthausen visited some of these colonies in 1843 he thought he was back home. "The design of the villages and all of the buildings," he enthused, "the gardens, their layout, the plants, the vegetables, and above everything else the potatoes, all is German."<sup>30</sup> The plant was also reported to have been grown in the latter eighteenth century in the far north in the province of Arkhangel, where not much else could be raised with any success. The chief barrier that stood in the way of the development of potato culture in Russia, as in other lands, was the prejudice of the peasants. With the obstinacy and unreasonableness that are supposedly traditional characteristics of their station, they resisted efforts of the government and of improving landlords to introduce the potato even when there was famine in the land and the peasants were actually starving.<sup>31</sup> The government had evinced an interest in promoting potato culture as early as 1765<sup>32</sup> but did not engage in a sustained effort until the serious crop failures of 1839 and 1840. Then the Ministry of State, only recently established to administer the vast lands owned by the state, initiated a "crash program" that combined compulsion and encouragement. The Ministry ordered potatoes planted on the common lands of all state-owned properties with the seed provided by the state. It published instruction manuals on the culture, storage, and uses of the potato for such products as starch and syrup, and it offered medals and cash awards to outstanding producers. In 1843 the Ministry announced that commons did not have to be planted with the tubers in

<sup>25</sup> L. Kritzman, P. Popov, Ia. Iakovlev, *Sel'skoe khoziaistvo na putiakh vosstanovleniia* (Moscow, 1925), 1-3, 5-15.

<sup>26</sup> M.G.I., 222-228, 261-263.

The Central Industrial provinces were Moscow, Tver, Iaroslav, Kostroma, Nizhegorod, Vladimir, Smolensk, and Kaluga. The Central Agricultural provinces were Orel, Tula, Riazan, Tambov, Voronezh, and Kursk.

<sup>27</sup> Khromov, *Ekonomicheskoe razvitie*, 97.

<sup>28</sup> A. Swinton, *Travels into Norway, Denmark, and Russia in the years 1788, 1789, 1790 and 1791* (London, 1792), 442-445; Tegoborski, *Études*, 2:98; M.G.I., 120.

<sup>29</sup> P. S. Pallas, *Voyages du Professeur Pallas*, transl. from German (Paris, 1794), 7: 304.

<sup>30</sup> Haxthausen, *Studien*, 2:172.

<sup>31</sup> Tooke, *View*, 3: 274-275; Tegoborski, *Études*, 2:104.

<sup>32</sup> Cf. *Polnoe Sobranie Zakonov Rossiiskoi Imperii*, 8: no. 12406 (31 May 1765).

those villages where the peasants produced one-eighth of a chetvert per adult male on their own holdings; and in 1844 the award of prizes was discontinued save in certain southern and eastern provinces where little progress had thus far been made in potato cultivation.<sup>33</sup>

These efforts had a remarkable effect not only among the peasants on state land but also among the serfs who lived on privately-owned estates. A report of the Ministry of State Domain to the Tsar in 1850 estimated that in 1837 a million chetverts of potatoes had been sown, with over a third of this amount planted by state peasants; and in 1850, 5.8 million chetverts were sown, of which only 1.6 million had been planted by state peasants.<sup>34</sup> Other contemporary reports confirm the introduction and large increase in potato production during the '40s and '50s.<sup>35</sup> By the early 1860s an estimated 6.4 million chetverts were sown, and the crop was calculated to be 23.9 million chetverts. The chief producing areas were the Baltic and Western provinces. Only small amounts were grown in the eastern half of European Russia and in New Russia.<sup>36</sup>

Russia did not escape the potato disease of the latter 1840s, but it seems to have had much less virulence there than it had in the lands of Central and Western Europe. The blight first appeared in the Baltic provinces and in the succeeding two years spread north and east into Russia proper. Yields and total production did not fall off seriously, however.<sup>37</sup>

Sugar beets were another innovation of the first half of the nineteenth century, but the area given over to them was small.<sup>38</sup> Forage crops were of very little importance, although enterprising landlords introduced some grasses in the nineteenth century.<sup>39</sup>

Everywhere in Russia the crops grew in open, unfenced fields that sprawled across the vast plains as far as the eye could see, overwhelming the observer with the monotony of their sameness. A French visitor wrote:

The fields here have none of the life and variety that they often have in other lands. . . . There is hardly any of the juxtaposition of different crops that give so much animation to our Western countryside. It's as if everything is the same field stretching out to infinity, broken only now and then by vast fallows. Not a hamlet, not a house, not an isolated homestead. On the steppe as in the

forest the Russian seems afraid to find himself alone in the immensity of his environment. Communal property . . . augments the default of nature; it deprives the Russian of those enclosures, of those capriciously shaped hedges, which are much of the charm of the villages of England and Normandy. Instead there is the mournful flatness, the dull boredom of the impersonal and collectivized countryside where the fields lie undivided in long, equal, and symmetrical strips.<sup>40</sup>

The three-field system remained the dominant method of cultivation in the old regions of settlement, as it long had been. But in the vast steppes that reached to the south and east, field grass husbandry was in general use until the end of the eighteenth century. This wasteful technique, in which a field was cropped continuously for several harvests and then left untilled for as much as seven years or more before being worked again,<sup>41</sup> was possible so long as these regions were thinly populated. As they filled up, field grass husbandry gave way steadily to the less wasteful—albeit still inefficient—three-field system. Often during the period of transition the two methods would be in simultaneous use on a single property. By the 1860s field grass husbandry remained predominant only in some of the steppe frontiers where population was still sparse and land still plentiful. Elsewhere the three-field system prevailed.<sup>42</sup>

<sup>33</sup> Tegoborski, *Études*, 2:105; *Mittheilungen der kaiserlichen freien ökonomischen Gesellschaft zu St. Petersburg*, 1844, 261-263.

<sup>34</sup> *Sbornik Imperatorskago Russkago Istoricheskago Obshchestva*, 98: 492 (1896).

<sup>35</sup> V. Mikhalevich, *Materialy dlia geografii i statistiki Rossii sobrannye ofitserami General'nago Shtaba. Voro-nezh Guberniia* (St. Petersburg, 1862), 199; M. Poprotskii, *Materialy dlia geografii i statistiki Rossii sobrannye ofitserami General'nago Shtaba. Kaluzhskaiia Guberniia* (St. Petersburg, 1864), 459-460; Ia. Krzhivoblotskii, *Materialy dlia geografii i statistiki Rossii sobrannye ofitserami General'nago Shtaba. Kostroma Guberniia* (St. Petersburg, 1861), 286, 303; Haxthausen, *Studien*, 1: 159; cf. Druzhinin, *Gosudarstvennye krest'iane*, 1: 381; K. V. Sivkov, *Ocherki po istorii krestnogo khoziaistva i krest'ianskogo dvizheniia v Rossii v pervoi polovine XIX veka* (Moscow, 1951), 24-25.

<sup>36</sup> M.G.I., 112, 124.

<sup>37</sup> *Mittheilungen der kaiserlichen freien ökonomischen Gesellschaft*, 1847, 397-406; Tegoborski, *Études*, 2:108.

<sup>38</sup> Tegoborski, *Études*, 1:215; M.G.I., 293 ff.

<sup>39</sup> Tegoborski, *Études*, 2:1-2.

<sup>40</sup> A. Leroy-Beaulieu, *L'empire des tsars et les russes* (2nd ed., Paris, 1882-1883), 1: 160.

<sup>41</sup> Cf. Haxthausen, *Studien*, 2: 15, 164.

<sup>42</sup> M.G.I., 52-53, 56; Redaktsionny Kommissii, *Pervoe izdanie materialov* (St. Petersburg, 1859-1860), 14:9-10; Liashchenko, "Krestnoe sel'skoe khoziaistvo," 109; Bak, "K voprosu," 73.



In the forested, thinly populated, and infertile northern provinces of Arkhangel, Olonets, and Vologda, and to a lesser extent in the neighboring provinces of Novgorod, Kostroma, Viatka, and Perm, primitive slash-burn tillage was frequently employed. The peasants in these regions drew their livings primarily from such pursuits as lumbering, fishing, hunting, and trapping, but they often took advantage of the short growing season to raise a crop in a forest clearing. Following a centuries-old technique, they felled the trees in spring and the following autumn chopped off the branches and hauled away the trunks in sledges. The next spring they set fire to the brush and debris that covered the clearing and allowed the ashes to remain. Then they sowed the area, often without plowing, covering the broadcast seed by raking or by dragging tree branches across the clearing. They grew cereals and flax mainly, and the ash-enriched soil reportedly gave good and sometimes spectacular yields. The field was used continuously for from two to eight years, depending upon its fertility. When it was exhausted it was allowed to go back to forest and other burned-out patches that had been prepared beforehand were sown.<sup>43</sup>

Besides these three chief methods of cultivation, a number of other tillage systems, usually variations of the three-field system, were employed locally and on a relatively small scale. Rotations designed to restore fertility by planting a crop rather than by fallowing were scarcely used at all. The technique had been introduced into the empire in the late eighteenth century, and a few progressive landlords tried it out on their estates.<sup>44</sup> But the apathy of most proprietors to agricultural improvement, and the resistance to change of the tradition-bound peasantry, operated against its general adoption. Furthermore, a capital expenditure was necessary to install the new system and the low price of grain persuaded many that such an outlay was not justified. It caught on only in the Baltic provinces, where from the 1830s it came into wide use. By the middle of the century it had begun to spread from these provinces into the neighboring Lithuanian provinces of Kovno, Vilna, and Grodno.<sup>45</sup>

Manuring had long been a standard practice in the non-black earth center. But with

the existing level of cultivation, an insufficient amount of dung was available because not enough forage was raised to support the necessary amount of cattle. Contemporary agriculturists held that ideally one third of the arable land should be manured each year, and that one desiatin of meadow for each desiatin of plowland was required to produce appropriate amounts of fertilizer. Data from the mid-nineteenth century show that in the central non-black earth provinces the ratio was less than one-fourth of a desiatin of meadow to one desiatin of arable land. The peasants tried to stretch out the available manure by mixing it with straw. Other restorative materials such as marl, chalk, and pond mud seem to have been applied only rarely.<sup>46</sup> An additional barrier to proper fertilizing, apart from the inadequacy of the supply, was the already-mentioned disinclination of the peasant to expend time and effort in improving land that would go to someone else at the next communal repartition.

In the black earth, the fields with rare exception were never manured. In fact, many there seem to have believed that fertilizing was harmful to the already very fertile soil. The dung in these treeless regions, when it was not thrown away, was dried into bricks and used for fuel. When it was put on the fields, it was applied sparingly and infrequently.<sup>47</sup>

The agricultural implements used by the peasants, like the tillage systems, changed little if at all from what they had been for centuries, and there was remarkably little interest shown in the eighteenth and for most of the nineteenth centuries in adopting more efficient tools. The most important implement in all of the non-black earth and in most of the chernozem, too, was the ancient hook-plow, the *sokha*.<sup>48</sup> This light tool, made of

<sup>43</sup> Tooke, *View*, 3:248-249; M.G.I., 49; D. Mck. Wallace, *Russia* (New York, 1878), 114-115.

<sup>44</sup> Cf. Haxthausen, *Studien*, 1:273; 2:76, 85.

<sup>45</sup> M.G.I., 65-68.

<sup>46</sup> *Ibid.*, 44-45, 48; Tooke, *View*, 3:256, 259.

<sup>47</sup> M.G.I., 69; Haxthausen, *Studien*, 2:15; Köppen *Statistische Reise*, 47, 61, 122-123; Ministertvo Gosudarstvennykh Imushchestv, *Statisticheskii obzor gosudarstvennykh imushchestv za 1858 god* (St. Petersburg, 1861), 4; Tooke, *View*, 3:264; Domontovich, *Materialy*, 182.

<sup>48</sup> Pallas, *Voyages*, 1:3-4; Tooke, *View*, 3:240-241; G. von Schulze-Gaevernitz, "Der Nationalismus in Russland und seine wirtschaftlichen Träger," *Preussische Jahrbücher*, 75:502 (1894).

wood save for its two iron shares, could be drawn by a small horse. Because of its weight and inefficient design, it could only cut a shallow furrow and could not turn over large clods nor thoroughly tear up weed roots. It was a poor tool at best, but it was particularly unsuited for working the heavy chernozem. Yet, it continued to be used because it was cheap and easy to make and, most important, because the usual peasant lacked the animals needed to pull a heavier and more efficient plow. A somewhat better implement called the *kosulia*, midway in design between a *sokha* and a true plow, was employed to a limited extent in the north and non-black earth center. Heavier than the *sokha*, but still able to be drawn by one horse, it cut deeper and was more effective in turning sod and breaking new land. In Little Russia (Kharkov, Poltava, Chernigov) the peasants used a heavy wheeled plow called the *saban*, drawn by two or four horses, or four, six, and even eight oxen. In light soils, however, the Little Russians used the *sokha*, including a two-wheeled version of that implement. Heavier plows were also used in districts bordering Little Russia and in New Russia and along the Middle Volga, where, probably, they had been introduced by the German colonists.<sup>49</sup>

The harrow used in the forested zones of the center and north was often simply branches lashed together and dragged across the sown field. In some parts of the center and in the steppe, it was a wooden frame into which wooden pegs had been driven. Rollers were hardly ever used. The sickle was the favored tool for harvesting cereals in most of European Russia, though the scythe was used for mowing hay and in some areas for grain, too. In Little Russia and in the Baltic littoral, the scythe was in general use for all harvesting. Threshing was done with flails, though sometimes horses or people were used to tread out the grain.<sup>50</sup>

Improved implements and farm machinery were only beginning to be used by the middle of the nineteenth century. Sources of the '40s and '50s contain references to new implements, and especially threshing machines, in use on properties that belonged to wealthy landowners.<sup>51</sup> The establishment in 1831 un-

der the aegis of the Moscow Agricultural Society of the firm of Butenop Brothers was a landmark in this development. Between 1833 and 1846 the value of their output of tools and machinery amounted to one million rubles, and included 1100 threshers, 6060 winnowing machines, 1600 plows, and 1200 harrows. Butenop Brothers had been the first farm tool factory in Russia, but by 1850, according to a government report, there were 19 such firms with a total annual volume of 150,000 rubles. This figure, of course, did not include the many small village shops engaged in this sort of production.<sup>52</sup>

Animal husbandry occupied a secondary role in agriculture in most of European Russia. It was generally conducted in an inefficient manner, partly because of the forage shortage that resulted from the prevailing modes of cultivation, and partly because of the lack of interest of both proprietors and peasants. No attention was paid to selective breeding, the animals were underfed and were given little care. As soon as the weather permitted, they were turned out to fend for themselves in the common pastures and in the stubble fields. In winter they were cooped up in ill-kept barns and fed meager rations that often were just straw. These practices produced weak and scrawny creatures who were easy victims to the frequent epizootics that swept through the land. An English traveler in the latter eighteenth century wrote that at the end of winter the cattle sometimes were too weak to rise without aid, and a hundred years later another observant Britisher made the same comment. There were a few

<sup>49</sup> Tooke, *View*, 3: 240-243, 263; *Mittheilungen der kaiserlichen freien ökonomischen gesellschaft*, 1846, 109, 110; 1849, 65, 146; 1852, 15, 461; Haxthausen, *Studien*, 2: 15, 23, 154; Domontovich, *Materialy*, 179; Druzhinin, *Gosudarstvennye krest'iane*, 401, 417; Liashchenko, "Krepostnoe sel'skoe khoziaistvo," 110.

<sup>50</sup> Pallas, *Voyages*, 1: 4, 17; Haxthausen, *Studien*, 1: 231, 247, 274, 282, 484; 2: 6, 25, 155; Tooke, *View*, 3: 244-245, 256; J. G. Georgi, *Geographisch-physikalische und naturhistorische Beschreibung des Russischen Reiches* (Königsberg, 1797-1802), 2: 187 (pt. 1); F. C. Weber, *Das veränderte Russland* (Frankfurt, Leipzig, 1738-1740), 3: 120; Baranovich, *Materialy*, 183; Alefirenko, "Russkaia obshchestvennaia mysl," 531.

<sup>51</sup> Domontovich, *Materialy*, 181; Baranovich, *Materialy*, 183; Haxthausen, *Studien* 1: 107; Sivkov, *Ocherki*, 93-94.

<sup>52</sup> *Sbornik Imperatorskago Russkago Istoricheskago Obshchestva*, 98: 491-492 (1896); P. Struve, *Krepostnoe khoziaistvo* (Moscow, 1913), 75-76.

areas in the Don steppes, in Little Russia, and in Archangel, where more attention was paid to stock raising and good animals were produced. The *kholmogor* cattle, developed in Archangel, were the best native stock. The breed originated when Peter I brought in Dutch bulls to cross with native cows, and had been maintained by subsequent importations of Dutch animals. In other parts of the empire, a corporal's guard of improving landlords brought in blooded animals from abroad to build up their herds.<sup>53</sup>

The great exception to the general disinterest in animal husbandry was sheep raising. The native animals, of which there were a large number, were small creatures and bore coarse wool. Efforts made by the government in the eighteenth century to improve the breed by importing blooded stock from England and Silesia had little effect. Then at the beginning of the nineteenth century, the government succeeded in establishing merino sheep raising as a major industry by offering vast stretches of empty land, and sometimes loans, to persons raising merinos. The land became the hereditary property of the grantee if he met certain conditions. A number of those who took advantage of these offers were foreigners who had gained experience in merino breeding in their homelands and were attracted to Russia by the lures held out by the government. A Spaniard named Rouvier was given 30,000 desiatins of land in the Crimea and a loan of 100,000 paper rubles to build up a herd of 100,000 merinos and train 100 students in sheep farming. A German named Müller

received 130,000 desiatins on condition that in three years he was to have a flock of 30,000 sheep, a third of them pure merinos and the rest of mixed blood. These men, and other foreigners with whom similar arrangements were made, became the pioneers in merino production in the empire. They did their work well, for by 1846 over 7.5 millions of the estimated 41.6 million sheep in European Russia were merinos. Despite a falling price for the fine wool, the merino flocks continued to grow so that by the early 1860s the number of merinos had risen by over 50 per cent to 11.6 millions. At that time 61 per cent of the merinos were in the four provinces of New Russia where the industry had centered from the beginning; 20 per cent were in the provinces of Little Russia and the southwest; 13 per cent were in the Great Russian provinces, and chiefly in those of the southeast; and 6 per cent were in the western and Baltic provinces.

Save for some herds owned by German colonists, the merinos belonged almost exclusively to members of the landowning class. Some of these men owned huge numbers of the animals. In the Crimea flocks of 25,000 were not unusual and at least one owner, Falz-Fein by name, owned 400,000. The flocks belonging to the peasants were of the inferior native race except in the Crimea where peasants owned better sheep, some having several hundred head in the early '60s.<sup>54</sup>

<sup>53</sup> Tooke, *View*, 3:181-188; Wallace, *Russia*, 96; M.G.I., 387, 388, 392, 393-394.

<sup>54</sup> M.G.I., 399-406; Tooke, *View*, 3:194-200; Tego-borski, *Études*, 1:485.

## PLOWING WITH ELEPHANTS

It is stated that in Ceylon elephants are employed in plowing new grounds for the cultivation of coffee, pepper, etc. One of these animals when well trained, it is said, will do the work of 20 oxen; consequently more labor is performed in a given time, and the period is hastened for putting in the crops. The price of an elephant in Ceylon varies from \$50 to \$75.

*The Genesee Farmer* (1848)