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MANAGEMENT OF AGRICULTURAL ESTATES
IN TSARIST RUSSIA

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MANAGEMENT OF AGRICULTURAL ESTATES
IN TSARIST RUSSIA
(For a symposium on entrepreneurship to be edited
by Prof. Cyrus Black)

It is one of those paradoxes of academic research that compared with the number and the quality of studies of the industrial and financial aspects of Imperial Russia which have appeared in the West in the last two decades, research on agriculture, the most important industry in Russia, has been neglected. Even more understudied is the subject of large scale farming.

Soviet scholars have done some valuable work in this field, to mention only L.M. Ivanov, Kovalchenko, Litvak, Minarik and the indefatigable A.M. Anfimov. However, in studying agricultural estates Soviet scholars have been largely involved in a debate about the nature of the socio-political system of pre-1917 Russia and eo ipso about the character of the October Revolution rather than about a study of estate farming for its own sake. In the process of debate excellent studies of individual estates or of areas have made their appearance and a great deal of detailed information unearthed. Nevertheless, the Western student of Russia may be forgiven if he sometimes feels like Coleridge's Ancient Mariner that though there is "water, water everywhere. Nor a ^{ny} drop to drink." The frequently wide ranging and detailed material proves tantalizingly inadequate in supplying answers to some basic questions concerning estates.

Detailed studies of individual estates are very few in number. They relate inevitably to very large estates because records of such estates are more likely to be found in central archives. Even then the data provided are selective in accordance with the alluded to pre-occupations of Soviet scholars. Excepting occasional references of an impressionistic kind or for illustrative purposes and some aggregate information relating to "non-allotment land," the student is singularly starved of precise information relating to farming units of less than a 1,000 dessiatins each. As will be shown below, though large estates accounted for an appreciable share of the land area, they formed only a minute proportion of farming units. Furthermore, the individual studies do not allow sufficiently for change over time and for the various influences of a domestic and international economic nature which affected the decisions and practice of managers of agricultural estates. The emphasis of recent Soviet studies is almost entirely on the decade and a half preceding the Revolution. ⁴ Equally, pre-Revolutionary studies can not supply the student with the systematic guidance he craves. Studies of estate farming, if any, were strongly influenced by the high hopes and expectations attaching to the liberation of the serfs in 1861. The result of disappointed hopes was often wholesale condemnation of estate-owners as incompetent, indolent and parasytic on the one hand, and a defensive, responsibility-shifting, accusatory or defeatist attitude on the

other. After 1900 a dispassionate approach was made difficult because of pre-occupation with the socio-political aspects of land-distribution and the growing weight of the theories of the "production and organization" school of peasant agriculture, associated with the names of Chayanov, Chelintsev and others, backed by the growing weight of peasant farming in sowings, output and marketings.

What we need are systematic studies of estates grouped in accordance with some well thought out criteria to allow for comparability. Our interest would be best served by a series of collections of documents relating to individual estates over a period of time, containing not only the original estate accounts, but also correspondence and minutes of meetings of management. Oblique references in the writings of Anfimov and Minarik suggest that such information may exist, if only -- regrettably -- for the largest estates. Only then would it be possible to assess the behaviour of estate managers, consider the options open to them and attempt to determine to what extent differential performance was due to managerial skills.

As things stand now the student of Russia can only attempt to discuss estate management by inference from aggregate data. The aggregation is often so great as to make the exercise virtually meaningless. For, even though overall performance of large scale agriculture in Russia (if and when we can isolate from agricultural aggregates data pertaining to it specifically), was not much to

write home about especially if compared to contemporary practice in European countries, there is no denying that there were individual estates and even whole regions which performed well above the average. If all the relevant information pertaining to the few successful estates could be evaluated we might be able to pinpoint more effectively the specific factors in the general under-performance of large scale farming in Russia.

This paper is a very modest exercise based on the original accounts of one single estate over a period of five years. An attempt will be made to analyze the performance of the estate in question and to draw upon the two fairly systematic case studies of estates by Anfimov and Minarik, which cover a later period and on a variety of data of a specific and general nature with a view to explaining managerial behaviour and eliciting the specific factors making for success or failure. As a preliminary, two definitions and some general reflection may be in order. What is meant by entrepreneurship in the context of this paper? What do we mean by "estate"?

So far the term "entrepreneurship" has not been used. As is well known the Schumpeterian view is to draw a distinction between entrepreneurial and managerial activity. The first involves the making of strategically important creative or innovating decisions while the managerial function entails maintaining the more routine operations of a business organisation. Arthur H. Cole

equated entrepreneurship with the continuing general activities of management. It is "the purposeful activity (including an integrated sequence of decisions) of an individual or group of associated individuals, undertaken to initiate, maintain or aggrandize a profit oriented business unit for the production or distribution of economic goods and services." (Cole, A.H., Business Enterprise in its Social Setting, Cambridge, Mass., p. 7). "Novelty is successful in the business world if the institution introducing it is being effectively maintained " (p. 15). Hugh G.J. Aitken went further. For him typical characteristics of entrepreneurship may differ in different cultures. Entrepreneurship can be said to exist when the behaviour of a business organisation is organised (formally or informally); if it's behaviour is "disorganised," "random or self-defeating" to that extent entrepreneurship is lacking.

The Aitken definition seems to be the most appropriate for the study of Russian agricultural estates. In as much as many agricultural estates in Russia were inherited, many from the remote "feudal" past, and in as much as for the majority of their owners an agricultural estate used to be in the not so distant past a way of life, a status symbol or a place for leisure activities rather than a business organisation, dis-organized, random or self-defeating activity was more likely to be the norm, at least in the early post-Reform years. Organised, purposeful activity

with a view to rational utilization of resources with profit as an end product was at a premium and required entrepreneurial skill.

Soviet students of estate farming seem to have a Schumpeterian concept of entrepreneurship. They tend to deride behaviour of estate management as routine or conservative, however rational in economic terms and however organized or purposeful, at least if looked at from the angle of private gain. In their assessment of the performance of estate farming they put a premium on activities entailing innovation and risk-taking. Indeed they seem to have a concept of entrepreneurial behavior as being entirely independent of economic circumstances, as being almost in itself sufficient to create the desired economic conditions by virtue of using the most progressive methods and the most advanced technology. Thus Anfimov piles on the evidence on the conservatism and routine-mindedness of estate owners who only submitted to the need to modernize under pressure of economic necessity such as e.g. shortage of labour or high wages. The implicit assumption is that advanced technology is a good in itself whatever the labour market, demand, or other economic circumstances. It must be said, however, that the concern of the Soviet student is not with entrepreneurship as such. He is anxious to pinpoint the growth of capitalist elements in post-Reform agriculture and/or to indicate the extent to which management of agricultural estates continued to display strong traces of

the serf-dominated past and of parasitism vis a vis the land hungry peasants.

Turning to the second question one finds that Imperial Russia had no single register of farming units. Russian official statistics classified land according to three main juridical categories, viz. 1. land belonging to the state, Imperial family and foundations 2. allotment land (nadyel) and 3. privately owned land (chastno-vladel'cheskaya). Large tracts of land in the first category were in the northern and north-eastern parts of European Russia and in Siberia. Much of it was covered in forest and only a relatively small portion was immediately suitable for agricultural purposes. The state land served as a reserve out of which land in the second category was enlarged from time to time. Some of this land was also under long leases to peasants.

The second category consisted of farming units allotted to former serfs and crown peasants under the provisions of the Emancipation Edict of 1861. Until 1906 allotment land was not a marketable commodity. Even after 1906 there were still certain limitations on this type of property in that any one individual could not acquire more than a specified number of allotments.

The third type of property is properly our concern. In 1877 out of a total area of 377 million dessyatins in the fifty provinces of European Russia this category accounted for just under a quarter (24.9 percent) of the total, the other two categories

made up 44 and 31 percent respectively. In 1905 in a somewhat enlarged area of 395 million dessyatins the percentages were 26, 35 and around 39 percent respectively.

In 1905 about 86 million dessyatins of land in fifty provinces of European Russia were classified as privately owned and consisted of over 752 thousand units giving an average of 114 dessyatins per unit. Many were very small and cannot by any stretch of the imagination be labelled "estates." Some 619 thousand or over 82 percent of the total number were less than fifty dessyatins in size and covered an area of some 6.5 million dessyatins or 7½ percent of the total land area of privately owned land.

Below is the structure by size of privately owned land in 1905.

Dessyatins	Number of Units	Percent	Total Land Area in 1000 Dessyatins	Percent
0 - 50	618,983	82.2	6,516.2	7.5
50 - 100	44,877	6.0	3,230	3.8
100 - 200	31,388	4.3	4,577	5.4
200 - 500	29,800	3.9	9,520	11.4
500 - 1,000	13,982	1.8	9,816	11.6
over 1,000	13,851	1.8	52,175	60.3
	752,881	100.0	85,834	100.0

Svyatlovsky grouped land properties in the fifty provinces of European Russia in 1905 on the basis of land transaction as follows:

Groups by size in dessyatins	Number of Properties	Percent	Area in Million dessyatins	Percent
1. Small (0-100)	663,860	88.18	9.7	11.30
2. Medium (100-1000)	75,170	9.98	23.9	27.86
3. Large	13,851	1.84	52.2	60.84
Average : 114	752,881	100.0	85.8	100.0

~~Thus~~ between 1877/8 and 1905 there occurred an increase in the numbers of smaller properties. The average size of a unit of private land shrank from 190 dessyatins in 1877/8 pointing to fragmentation of ownership.

In 1877/8 the average size of privately owned lands by merchants was 775 dessyatins, by gentry -- 638, by German colonists -- 33 and by peasants -- 18. In 1905 the average merchant and gentry units shrank to 564 and 496 respectively, that by the other two groups rose to 44 and 27 respectively.

Unfortunately, whatever grouping we use we still do not have the size of the farming unit as distinct from the property. The correlation between the farming unit and the property size was closest in the smaller units. Among the larger properties were those

purchased by peasants organised in associations (tovarishchestva) or by rural communities (sel'skiye obshchestva), which though farmed as small units were listed according to size at the point of acquisition. Properties acquired by merchants were frequently acquired with a view to selling in small parcels. Estates owned by several owners were often treated as one property which obscures the actual structure. Large gentry estates, though after 1900 they increasingly farmed their land directly, had a sizeable proportion of their land under short-term, small parcel tenancies, which meant a reduced role of large scale units in farming operations. The higher proportion of forests or rough grazing on larger properties equally affected the weight of larger landed properties in total agricultural output and activity

On the other hand the structure of holdings on allotment land does not mirror exactly the structure of peasant farming as latter also included farming on rented and on purchased land. The amount of rented land is not known exactly though it undoubtedly made a considerable contribution to peasant farming, in particular renting of meadow and pasture land in the black-earth central regions. In 1905 peasants owned 44 percent of the privately owned properties under 100 dessyatins, the average being twenty-seven dessyatins. Their share of privately owned land in forty-seven provinces of European Russia grew from 6.2 percent in 1877, to 12.6 in 1887, to 24.8 in 1905 and to 30.4 percent in 1911.

Unfortunately, we do not know to what extent this purchased land when added to allotment and rented land, made for sizeable units which might be the legitimate object of study of agricultural estates.

Though there were in Russia in 1905 ^{nearly 700} estates of over 10,000 dessyatins each and though these giant estates took up nearly one-quarter of the land area of privately owned land in European Russia in 1905, farming in Russia was on the whole carried on in small units. If we consider the combined area of allotment and privately owned land, we find that over 60 percent of the land area was under units of less than fifty dessyatins each. On the allotment land alone nearly 68 percent of all holdings were under ten dessyatins, whilst among the privately owned properties units under ten dessyatins accounted for over 54 percent of all properties though only for 2 percent of the area of privately owned land.

The weight of properties over fifty dessyatins each was highest in the Baltic Region where they accounted in 1905 for 59.4 percent of the combined area of allotment and privately owned land as against an average of 36.2 in European Russia. The Western Region with 52 percent, the North-Western with 48.8, the Southern Steppe Region with 47.8 percent and finally the South-Western with 44.8 percent followed in descending order. It is not without significance perhaps that precisely in these areas the performance of

farming was above the average for the country in terms of techniques of agriculture, yields and connection with the market.

Though the land structure was dominated by small units, our information about small or medium estates is very sketchy and inadequate. Nevertheless, inadequate though our information is and, though given the nature of our data, we are obliged to use aggregates relating to privately owned land in general, it seems to us that in economic terms all properties under 200 dessyatins must in conditions of Russian agricultural techniques be considered small, those between 200 and 500 or a 1000 medium and those above 500 or a 1,000 large.

The small ones though they differed from the rank and file peasant farms in that the owners and their families were not themselves cultivators, and in that they as a rule employed a general factotum, a bailiff, a "practical" to run the estate, did not stand out in any significant way from the surrounding countryside. The manner of cultivation, the equipment, the buildings except the dwelling houses differed little from those of peasant farms. On the other hand they were much more vulnerable to adverse economic conditions, because, though a large share of their output was consumed on the estate, their's was commercial farming and therefore highly sensitive to price levels. Unlike peasant farmers, they did not have the choice of subsidiary earnings to supplement falling incomes from land, though many owners of such estates were in fact

officials, journalists, or university professors. Many of these small estate owners were adversely affected by the high cost of education for their children relative to their incomes because of the isolation of their estates and the relative scarcity of secondary schools in the provinces.

To judge by the estimates ^{of} at the Finance Ministry of incomes over a 1,000 roubles each for 1905, there were just under 60,000 such incomes from land. This tallies almost exactly with the number of properties over 200 dessyatins each (57,635) as per table on page 8., which means that the majority of the 31.4 thousand farms of between 100 and 200 dessyatins did not have an annual income from land of a 1,000 roubles. It goes without saying that the properties up to a 100 dessyatins did not on the average make such an income.

It is to this group of properties that the so-called impoverishment of the gentry largely applied, though it spilled over into the group from 200 to 500 and even to a 1000 about which our data are equally very inadequate. Scattered, impressionistic evidence suggests that they were in many areas the mainstay of commercial farming especially in the cereal market, as they rarely owned processing enterprises such as sugar-mills and distilleries which for the largests landowners were the main source of income and a means of raising the quality of cultivation on their estates.

They more often than not farmed most of their land directly and, especially after 1900 seemed to own a large share of the total of improved implements used in farming, though in terms of quality and power of the technology used they yielded to the largest estates.

Official data on transfers of property, seem to suggest that smaller properties were more vulnerable. It has even been suggested by Yonov and Yasnopol'sky among others that an analysis of property transactions over time points to the fact that economically stronger owners were mobilising property sold by the economically weaker of the same class. However, it seems that Yasnopol'sky and others might have misinterpreted the data. The size of the individual transaction reflected the relative economic strength of the buyer but not that of the seller of land. More often than not estates were sold in small parcels in order to profit from a higher price per dessyatina which such sales commanded or in order to adapt to the nature of demand. Furthermore, economically viable land owners might sell parcels of land which for various reasons commanded a high price at a particular time, or they might sell part of an estate in order to acquire capital for investment in the remaining part. They might wind up an estate in one part of the country in order to acquire one in another; or if they had properties in several areas, they might sell some and concentrate on the others. There could be many permutations of this kind indicating that there

had grown up a lively land market, a process strongly assisted by the emergence of mortgage credit institutions. However, there is no doubt that one group of owners, the gentry, were net losers and that the peasants were net buyers. Even after 1906 when allotment land also entered the market, and even though occasionally privately owned peasant land was sold by auction because peasants failed to keep up mortgage payments, the peasants continued to be net gainers (See ~~Table 3~~).

Gentry ownership (inclusive of that by officers and government officials) gradually declined, so that in forty-seven provinces of European Russia they held in 1911 some 43.2 million dessyatins of land as against 87.2 million in 1862. Nevertheless, in 1905 as much as 72 percent of all estates over a 1,000 dessyatins belonged to them.

The loss of gentry ownership was not uniform. Gentry estates disappeared rapidly in the sometime centres of gentry ownership: in the provinces of Moscow, Tver, Yaroslav, Kostroma, Vladimir and Kaluga (the non-black earth central region) and in the four forest provinces: Novgorod, Pskov, Olonets, Vologda. During the period 1860-1895 gentry landowning fell by 48 percent in the Moscow province, by 60 percent in the provinces of Novgorod and Pskov, and by as much as 71 and 84 percent in Vologda and Olonets respectively. The main reason for decline was according to S.Y. Witte, who was not an impartial witness, the fact that estate owners

Average Annual Loss of Land by Gentry

Year	
1859 - 1877	517,000 dessyatins
1877 - 1892	741,000 "
1892 - 1896	785,000 "
1897	920,000 "
1898	943,000 "
1899	983,000 "
1900	1,063,000 "
1901	981,000 "

Gentry Participation in the Land Market

Year	Total Market	Gentry Sales Percent	Gentry Purchases	Net Fall of Gentry Ownership Percent
1863-1872	100	80.4	51.6	28.8
1873-1882	100	71.4	42.9	28.5
1883-1892	100	65.2	34.6	30.6
1893-1897	100	60.9	33.2	27.7
1898	100	57.1	27.4	29.7
1899	100	53.8	30.0	23.8
1900	100	54.1	26.0	28.1
1901	100	53.3	23.8	29.5

Source: Svyatlovsky, Der Grundbesitzwechsel in Russland (1861-1908), Leipzig 1909, pp. 99-100 and p. 107.

Year	Average Price Dessyatin of Land Roubles	Index	Value of Land Sales
1863-1872	17.40	100	344 million roubles
1873-1882	20.67	118.8	692.7 " "
1883-1892	36.07	212.5	990.5 " "
1893-1897	44.36	254.9	
1898	53.50	307.5	
1899	62.28	357.9	
1900	67.38	387.2	
1901	78.57	451.5	
1902	73.77	423.9	
1897-1902	66.71	385.6	

in these regions did not engage in agriculture before the emancipation; they relied on rents from their serfs who earned the cash for rents outside agriculture. They neither had the training for direct exploitation of their estates nor could they easily and profitably manage their estates through tenancies as the land was not fertile and ^{few} ~~not many~~ peasants in the first fifteen years after Emancipation were willing to rent.

Even less prepared for direct farming were owners of large forest tracts so that timber merchants frequently replaced the former owners of "obrok souls." By the mid-1890s not much over 16 percent of the land in the provinces around Moscow remained in the

ownership of hereditary nobles; in the northern provinces and in the province of Vyatka where even under serfdom there were few estates gentry ownership was not more than 1 percent (Ist Arkhiv, No. 4, 1957).

Almost as fast dwindled gentry ownership in some provinces of the black earth Volga Valley, (Kazan and Samara) and in New Russia (Yekaterinoslav, Taurida and Kherson). In Kazan gentry ownership fell from 13 percent of the total land in 1861 to only 7 percent mainly due to heavy indebtedness before the Emancipation (85 percent of the serfs mortgaged by 1861). In 1899 Kazan province headed the list of provinces with the highest proportion of debt to the value of the mortgaged estates and it was among the top ten provinces with the highest degree of debt relative to total private land; gentry estates alone were said to have 90 percent of their estates mortgaged in 1895.

Samara was an area of fairly late gentry settlement. Vast areas were granted to them in the middle of the 18th century. Partly because of the distance from markets and partly because of the absenteeism of the landlords estate farming had not developed fully in this region. Under the impact of major crop failures of the seventies, the majority of this "new gentry" sold out. By 1895 gentry estates made up not more than 10 percent of the land area of the province.

In New Russia gentry landownership was drawn into the general atmosphere of feverish speculation which characterised the economic life of the area. Lured by the continuous rise of land prices not justified by income from land they began selling especially as high profits could be made in the fast growing industry in this region. Thus in thirty-five years since the Emancipation gentry landownership was halved. Nevertheless, the tracts of land owned by the nobility in this region were so vast, that by 1895 they still held 77 percent of the land in Taurida and 26 percent in Yekaterinoslav province.

Contrary to general assumptions, landownership was much more stable in the eight black earth provinces of Central Russia (Poltava, Kursk, Orlov, Tula, Voronezh, Tambov, Penza and Simbirsk). The gentry still held in 1895, one-third of the land area in Poltava and Tula and about one-quarter in others. The loss of land was nowhere more than 1 percent per annum, though since the 1870s a rise of sales occurred in Orlov and Simbirsk. This was the more surprising as in these areas pre-Emancipation debts were so heavy that the net receipts from redemption payments were only 11 percent of the ^{principal} in Simbirsk and Penza, 8 percent in Voronezh and Kursk, about 6 percent in Tula and Poltava and under 5 percent in Orlov.

In the Western provinces the Polish gentry always owned a relatively higher proportion of the land than was the case in inner

Russian provinces (52 percent in Minsk, 48 in Kovno, over 40 percent in Mogilyev, Vilno and Volhynia, between 36 and 39 percent in Grodno, Vitebsk, Kiev and Podolye). The loss of land in these regions, even in provinces which had similar natural conditions to those obtaining in Russian provinces was very slow. However, in all forested areas (Pinsk, Vitebsk, Mogilev) there was a continuous transfer of land to other classes, the annual loss of gentry land being on the average 1 percent. Most firm was gentry ownership in Lithuanian provinces-- Kovno and Vilno and in the two South-Western ones -- Kiev and Podolye.

Where former gentry land had passed into the hands of peasant or burgesses in small units, it ceases to be within our purview as estate land. In so far as it passed in large units to merchants, individual peasants, or institutions, it might be worth considering whether these new owners as a genre were better managers and/or to what extent they were more willing than were the former owners to take risk entailing decisions.

The very act of purchasing land by social groups hitherto not associated with land was in a sense a "novelty." Its commercial use even parcelling the land for subletting to peasants or exploitation of forest land for commercial gain, whatever the long term social loss involved, was entrepreneurial behavior.

Nevertheless, as agricultural producers, these new estate owners did not as a group, differ significantly in their managerial

behavior from old established traditional landowners, except in a few individual cases or areas.

There was thus undoubtedly a regional aspect to some of these developments in that the survival test was less rigorous in areas where land was of good quality, labour relatively cheap and where commercial agriculture was well established before emancipation. In the Central Industrial Region where land needed proper management to produce an adequate income and where industry competed for labour survival might be more difficult, as it was also in areas where a cash economy was barely developed as was the case in the Lower Volga and Trans-Volga Region. However, the regional analysis does not satisfy our quest for information on the adaptability and viability of individual estates within regions.

Where large estates were concerned, however poor their management, the survival test was less rigorous or could be indefinitely postponed given the availability of large assets and ipso facto access to credit. Consequently we cannot use the survival test with any precision as evidence of viability of management. There was of course, as already indicated, a historical dimension to the whole process. Receipts of redemption payments, however much

reduced by the amount of outstanding debt and stock exchange depreciation of redemption bonds, could act well into the 1880s as a prop in some cases as could mortgage loans especially after 1885 when the Gentry Bank was founded.

Neither can we use the index of indebtedness to infer from it about the performance and quality of estate management. As is well known the overall indebtedness of landed estates to government credit institutions in 1859 was 425,503,061 roubles. 65.53 percent of the 10,844,902 male serfs recorded by the census were then mortgaged. As the bulk of this debt was amortised by way of redemption payments, most of the subsequent indebtedness can be considered new. This new indebtedness of private landownership, not included the Baltic and Vistula provinces which had separate banking institutions, had its beginning in the Empire after 1864 when the Kherson Land Bank was founded. It began to rise after 1866 when the Society for Mutual Land Credit commenced its activities; it further rose markedly after 1872 when joint stock land banks were founded, and finally the highest degree of indebtedness revealed itself with the foundation of the Gentry Bank from 1886.

During this period the continuous rise of indebtedness was as follows:

			Index	Percentage Increase relatively to previous period
1864-1869	28	million roubles	100	
1870-1874	219	" "	782.14	682.14
1875-1879	376	" "	1,342.86	71.69
1880-1884	469	" "	1,675.00	24.73
1885-1889	750	" "	2,671.57	59.91
1893	1,132	" "	4,042.86	50.93
1900	1,447	" "	5,167.86	27.83
beg. 1913	3,319	" "	11,853.57	129.37

In the enclosed table^{is} is given a more detailed record of the evolution of indebtedness of private land from 1867 to 1914 inclusive of Baltic, Polish and the Caucasian and Trans-Caucasian Regions.

On 1st January 1914 indebtedness of privately owned land in the Empire was as follows:

Inner Provinces	3,033,601,034
Baltic Provinces	142,345,388
Kingdom of Poland	255,811,563
Caucasus and Transcaucasia	<u>91,086,618</u>
Total -	3,522,844,603 roubles

Indebtedness of privately owned land in Russian Empire

[data for Siberia and Turkestan not available]

Year 1 January	Total Debt Million Roubles	Year 1 January	Total Debt Million Roubles	Index (1891-100)
1867	100.0	1891	1,036.7	100
1868	108.1	1892	1,103.5	106.43
1869	116.7	1893	1,135.7	109.55
1870	131.4	1894	1,188.1	114.60
1871	160.1	1895	1,251.7	120.74
1872	201.9	1896	1,325.7	127.88
1873	241.2	1897	1,397.9	134.89
1874	334.8	1898	1,470.2	141.81
1875	387.6	1899	1,567.0	131.15
1876	437.6	1900	1,674.1	161.48
1877	475.0	1901	1,774.4	171.16
1878	494.0	1902	1,860.1	179.42
1879	511.5	1903	1,984.4	191.41
1880	522.7	1904	2,109.0	203.43
1881	535.6	1905	2,201.7	212.37
1882	560.8	1906	2,265.1	218.49
1883	583.0	1907	2,332.2	224.96
1884	610.5	1908	2,441.7	235.53
1885	650.8	1909	2,580.5	248.91
1886	703.2	1910	2,773.1	267.49
1887	797.2	1911	3,051.7	294.37
1888	885.7	1912	3,300.2	318.34
1899	930.4	1913	3,478.8	335.56
1890	979.0	1914	3,696.8	356.59

Source: Statistika dolgosrochnago kredita v Rossi. 1905 g. Vypusk III. Dolgi po dolgosrochnym zaymam v gosudarstvennykh i chastnykh kreditnykh uchrezhdeniyakh russkago zemel'nago kredita pod red. chlena proizvodityelya dyel komiteta A.K. Golubyeva, VIII.

Statichesky sbornik svedeniy po zemel'nomu kreditu v Rossii, tom III, vyp. I, ed. A.K. Golubyev. St. Pet 1893, p. XII.

Komitet s'yezdov predstaviteley uchrezhdeniy russkago zemel'nago kredita, vyp. I, 1914.

Statistika dolgosrochnago kredita v. Rossii. 1915. Vyp I. St. Pet 1915, pp. 35-36.

Vestnik Finansov. Promyshlennosti i Torgovli, 1914, No. 32, 1916, No. 52. pp. 559-563.

This figure does not include private mortgages of an unknown amount. When between 1905 and 1906 preparatory work was in progress with a view to introducing an income tax, estimates were made of private indebtedness of landed estates. On the basis of data from notarial archives for 1889 and 1890, an estimate was made which assumed an 8 percent annual growth of private indebtedness of land, yielding a figure of 306,092,453 roubles for 1903. Given the very considerable changes which had occurred in the meantime both as regards supply of credit from banking institutions and as regards the nature of agricultural activity of estates, the assumptions about a regular 8 percent annual growth are obviously unacceptable. For us it is sufficient to know that the tables given above are not a maximum record of long term indebtedness of landed estates. (V.F. No. 52,1916, pp. 559-563)

The record of indebtedness over time does not allow us to draw specific conclusions as to viability of estates or the differential elements in indebtedness. The nearly ten-fold rise in indebtedness up to 1891 is clearly well correlated with supply of credit and with the rising land values, the latter also partly due to supply of credit. After 1891 there was fairly steady growth with some acceleration after 1898, a slowing down between 1905 and 1908 and then considerable acceleration until 1914. One can speculate about the reasons other than the availability of credit.

If we look at the percentage increase in indebtedness of private land in various regions of Russia between 1859 and 1899 we find that the largest increase occurred in the nine provinces of the Caucasus and Transcaucasia and in the five provinces of the south steppe regions mainly because these areas were rapidly becoming areas of internal colonization. Only in the Central Industrial Region was there a decline in the indebtedness relatively to 1859 indicating that many landowners in these regions were winding up their estates.

The years 1905 to 1907 must be considered untypical in view of agrarian disturbances. Moreover these were years of accelerated transfer of properties especially of large properties through sale directly to the peasant bank. After 1907 one can assume that mortgage credit was used to improve estates. Though Arcadius Kahan in his researches on capital formation looked at agriculture in general we can nevertheless assume that capital formation on private land was at least as fast as it was in agriculture in general. Though the correlation between capital formation as calculated by Kahan and indebtedness is not good, if only capital stock in equipment and machinery is considered the correlation between it and indebtedness is remarkably close.

This is illustrated by the table below:

Debt to Land Banks		Capital Stock Machinery and Equipment	
1907	100	1907	100
1908	104.69	1908	103.42
1909	110.65	1909	110.31
1910	118.90	1910	118.82
1911	130.85	1911	128.86
1912	141.50	1912	140.17
1913	149.16	1913	150.15
1914	158.51	1914	not available

Analysis of indebtedness of individual provinces in 1899 yields contradictory results when viewed from the angle of the level of debt relatively to the banks' assessment of the value of the mortgaged estates and from the point of view of the share of mortgage land in the total estate land in the province.

The first set of data seems to indicate that several provinces in the Baltic region, the Kingdom of Poland and the Western Region of Russia, well known for the better than average farming performance, had lower than average indebtedness per dessyatina of mortgaged estate. The average for the Empire was 55 percent. This makes sense. On the other hand it could also mean that banks in these regions lent a smaller amount relative to the assessment. As the Gentry Bank tended to lend more as a percentage of assessment than did joint stock land banks, the weight of debt of mortgaged estate may simply reflect the differences in bank policies.

The second set of data as can be seen from the adjoining table is more perplexing. The very two provinces which were among the leaders in farming had the highest level of debt relatively to the total private land. Thus, while the average of mortgage land to the total in the Empire was 45% it was 85 and 79% respectively in Estonia and Livonia. This outcome suggest that a differential approach to the question of indebtedness is required. The economic meaning of the indebtedness phenomenon undoubtedly varied from case to case, region to region and also over time. The high level of debt in the Baltic Region in the southeast and western provinces seems to be similar in nature to the

Mortgage Land as Percentage of Total Privately-Owner Land
in 1899 (in descending order)

Province	Per Cent of Total	Province	Per Cent of Total
Estonia	85	Kovno	41
Kuban	83	Smolensk	40
Livonia	79	Kieltse	39
Kherson	76	Ter obl.	39
Ufa	72	Chernigov	38
Yekaterinoslav	68	Radom	37
Podolye	67	Siedltse	37
Penza	65	Orenburg	36
Tula	62	Pyotrkov	36
Kazan	61	Ryazan	36
Minsk	61	Samara	36
Saratov	61	Kaluga	34
Kharkov	61	Lublin	34
Orlov	60	Don obl.	33
Stavropol'	60	St. Pet.	33
Bessarabia	58	N. Novgorod	32
Vitebsk	58	Pskov	32
Poltava	58	Moscow	27
Tambov	56	Lomzha	23
Volhynia	55	Tver	22
Grodno	55	Perm	21
Courland	52	Kostroma	20
Tiflis	52	Suvalki	20
Voronezh	51	Novgorod	18
Mogilev	51	Erivan	15
Simbirsk	51	Vladimir	14
Vilno	49	Yaroslav	12
Kalish	49	Chernomorye	12
Warsaw	48	Vyatka	9
Taurida	48	Vologda	6
Kursk	47	Baku	5
Astrakhan	45	Yelizavetpol'	5
Plotsk	44	Kutais	4

Source: Vestnik Finansov, promyshlennosti i Torgovli, 1902, No. 2. p. 82

indebtedness of urban estate in larger cities where it was an index of urban growth. It may also mean of course that given much lower than a average land prices in the Baltic provinces a larger proportion of the land had to be mortgaged to raise the needed capital than would be required in Kursk province for example.

By 1914 mortgage debt relatively to banks' evaluation was 58.7% a 3.7% percent rise since 1899, while the weight of indebtedness to total private land was 51.6% again a 6.6% rise since 1899. The degree of indebtedness continued to be highest in the Baltic Region followed by the South Steppe and the South Western Region.

Thus given relatively low mortgage interest and the rise of land values so-called indebtedness may denote rational behaviour if capital thus acquired was used for raising the future income of the estates. This was undoubtedly happening in some areas and also in individual cases in other areas. Furthermore in view of low incomes from farming especially before 1900 it might be rational to mortgage estates and to use the resources acquired for the purchase of other assets: Urban estate, industrial shares, foreign securities or foreign currency. To judge by the few investment portfolios known to us this was undoubtedly happening.

The security element of investment probably also played a part. The tensions in the country side which often took violent form as in 1902 and 1905, the prevailing peasantophilism of the intelligentsia and often ^{of} the authorities too especially of the courts, the growing tendency to look on estate land as simply a reserve for supplementing

peasant holdings bred a defensive attitude if not outright defeatism on the part of estate owners. In such circumstances why not cash in on assets which might be lost in any case or use them in order to acquire safer or higher yielding ones? There is evidence to show that peasants consciously exploited the insecurity of land owners and intensified pressure in the hope of inducing them to quit. In such a situation simply holding out might engage all the energy and skills of management while expanding and innovating could be described as irrational behaviour.

Nevertheless it was a fact as pointed out by the Finance Minister Witte and recently by Kahan that the landed estates sector had at its disposal significant amounts of capital from sales of land and from mortgages of which, to judge by capital formation, only a part was used for investment.

Though neither land transfers nor indebtedness can give us a clear lead to the performance of individual estates or even types of estates the data we possess, however unsystematic, suggest in rough outline the following story of estate farming in post-Reform Russia. There was no significant structural change in agriculture in Russia during the first two post-Emancipation decades. As summed up in the report of the Valuyev Commission of 1872 for the 1860s and repeated in the official report of 1883 for the 1870s agriculture was undergoing a very slow transition. The attempts of landowners to equip the estates and to use hired labor proved by and large unsuccessful. Many owners sustained heavy losses in their attempts. Use of hired labor proved unsuccessful because of "lack

of experience in estate management and because hired workers proved unreliable and incompetent". Consequently estate owners increasingly resorted to management which involved cultivation of estates by peasants using their own draft animals and tools in return for certain farming appurtenances (such as meadows, grazing lands or forest--ugod'ya). This was most widely practiced in non-black soil provinces, and was thought by the Valuyev Commission to be a form of management detrimental to progress.

Levitsky's report, while still stressing the transitional nature of developments, pointed to the appearance of a "large number of advanced estates especially in recent years". This optimistic statement was nevertheless accompanied by a caveat, that though many estates have succeeded in adapting "more or less" and in attempting rational management with a view to profitability "the present economic situation" imposed severe limitations on such progress.

The enclosed table attempts to show the growth of cereal and potato outputs during the 1860s and 1870s on private and on allotment land based on the report of an official commission of November 1901. Of course, not all private land was estate land and peasant farming was not confined to allotment land. Nevertheless, as peasant farming on purchased land was evolving very slowly mainly in non-black earth areas where it was only gradually assimilated, and renting of meadows and pastures in congested blackearth central provinces and on the still relatively undeveloped steppe regions was only limited in extent, it is fair to assume that allotment land was still the main area of peasant farming.

Average Annual Output of Cereals and Potatoes on Private and
Allotment Land in European Russian in the 1860s and 1870s

REGIONS	C E R E A L S						P O T A T O E S					
	Overall		%	Private		%	Overall		%	Private		%
	1860s	1870s	Growth	1860s	1870s	Growth	1860s	1870s	Growth	1860s	1870	Growth
Northern	21.3	21.3	--	1.0	1.4	+40.0	1.7	2.3	+35.3	0.2	0.2	--
No. Western	45.8	46.2	+ 0.9	7.2	6.7	- 6.5	7.7	14.3	+85.7	0.7	2.2	+ 214.3
Baltic	41.4	45.6	+10.1	15.3	21.7	+41.8	17.7	34.9	+97.2	7.7	18.9	+ 145.4
Western	140.3	167.1	+19.0	45.8	55.7	+21.6	51.4	91.6	+78.2	17.5	29.0	+ 65.7
Cent. non-black Earth Reg.	184.5	175.8	- 4.7	24.8	22.2	-10.5	27.8	41.0	+47.5	3.3	5.3	+ 60.6
Pri-Ural	116.9	137.4	+17.5	1.6	2.8	+75.0	5.8	9.7	+67.2	0.2	2.3	+1055.0
TOTAL NON-BLACK	550.2	539.4	+ 7.8	95.7	100.5	+15.5	112.1	193.8	+72.9	29.6	57.9	+ 95.6
Cent. Bl. Earth	443.2	488.2	+12.7	119.6	165.5	+38.4	59.4	91.7	+54.4	12.7	26.1	+ 105.5
Middle Volga	91.0	95.1	+ 4.5	20.3	14.1	-30.6	4.0	6.0	+50.0	0.6	0.6	--
Lower Volga	138.9	137.7	- 1.0	23.3	28.1	+20.6	4.5	8.0	+77.8	0.7	1.3	+ 85.7
Dnieper, Lft. Bk.	126.1	161.6	+28.1	44.7	60.4	+35.1	20.2	28.1	+39.1	3.9	7.9	+ 102.6
Dnieper, Right Bk.	137.1	178.4	+30.1	60.9	76.5	+25.6	25.2	34.5	+36.9	16.8	24.5	+ 45.8
Southern	140.2	169.4	+20.8	34.6	50.3	+45.4	6.6	9.0	+36.4	0.5	1.2	+ 140.0
South-East	68.0	65.7	- 3.4	3.9	3.8	- 2.6	3.8	3.6	- 5.3	0.4	0.4	--
TOTAL BLACK- EARTH ZONE	1,134.5	1,296.1	+14.2	307.3	398.7	+29.7	123.7	180.9	+46.2	27.2	47.5	+ 74.6
OVERALL	1,684.7	1,889.5	+12.1	403.0	509.2	+26.3	235.8	374.7	+58.9	56.8	105.4	+ 85.6

Source: Materyaly vysochayshe uchrezhdyonnoy 16 noyabrya 1901 g. komissii..., ch. 1, pp. 155-177

Estates accounted for about one quarter of the annual output of cereals in 1860s and for around 28% in the 1870s. Their share was much higher in the Baltic provinces and in the Right Bank Dnieper Region where they produced between 43 and 48 percent of the annual output and in the Western and the Black Earth Center where private land accounted for one-third of the output of cereals. These were all regions where intensification of farming had started before emancipation in connection with sugar mills and distilleries.

Both Litvak and Nifontov provide evidence undermining the theory that there was a crisis of serf-dominated agriculture in the decades preceding the emancipation. However, Litvak makes clear that the emancipation settlement was a long drawn out process and that the attitudes of both peasants and landlords were strongly influenced by the various shifts that were occurring in the economy during the two odd decades before the redemption operation became obligatory by 1883. Peasants were strongly influenced by rising land prices which made redemption payments seem relatively moderate, whilst landlords began increasingly to consider ways of securing the labor of the newly emancipated peasants for the future working of their estates.

Land prices in the black earth region rose between 1860 and 1883 and then began to fall despite the raised effective demand of peasants following the foundation of the Peasant Bank, and notwithstanding the Gentry Bank. By 1889 land prices fell in the this region by an average of 23%, from a hundred to 77 roubles per dessyatina.

Influenced by rising land prices and above all by grain prices which rose by an average of 20 percent during the 5 years from 1880 to 1884 relatively to the previous quinquennium (1875-79), many landowners began to borrow on a vast scale; some in a genuine effort to equip and adapt their estates for expanded production, others because they were carried away by the euphoria of easy credit. When ^{the} crash came and prices fell between 35 and 50% during 1885 to 1889 as Russia was experiencing for the first time the impact of the international agricultural crisis, many medium land owners with estates between 200 and 500 dessyatins found that 40% of their income was needed to meet interest payment. Falling land prices reduced the credit capacity of the debt free balance of the estate, and where second mortgages were taken out the ⁱⁿevitable arrears in interest payments [^]spelt foreclosures sooner or later. The percentage of foreclosures is said to have risen from 8.5% in 1891 to 11.2% of all borrowers in 1894.

According to Chuprov all estates felt the burden of interest payments when prices continued to fall. However, those whose estates were foreclosed had been experiencing difficulties long before the agricultural crisis. These were the landlords whose pre-emancipation debts were so high that they only received a pittance on account of redemption payments. Contributors to Chuprov's study also argue that though the net inflow of capital from redemption payment and mortgage credit was about 1,500,000 roubles, the annual outflows in lieu of interest over 30 years almost equalled inflows.

Though the evidence is insufficient and much of it is self-justificatory, it seems that the process of adaptation which went under way in the period of rising grain prices, accompanied as it was by an inflow of the final 100,000 roubles in redemption payments during the early 1880s, now came to an end. Figures for imports and domestic output of agricultural implements and machines during the 1870s and early 1880s lend some support to this claim.

To judge from testimonies of delegates to the Osoboye Sovshchaniye o Nuzhdakh Sel'sko-Khozyaystvennoy Promyshlennosti of 1902 the price of grain was the decisive element. Representatives from Kursk province maintained that only a rise in grain prices would promote improved techniques of agriculture. The best proof of it was the period from 1880 to 1884. It was then that improved tools and machines and pedigree cattle made their appearance on the estates. As soon as prices fell, land owners dropped costly improvements. "The producer is very responsive to the demand of the market, to its voice. As soon as there is a profitable market for any product the producer immediately finds the necessary knowledge; capital and entrepreneurship appear".

To what extent the plight of estate owners, as also of agriculture in general was effected by the tariff policy of the government which from 1885 hit imports of farm machinery and also effected other farm inputs, is difficult to estimate.

A comparative table of prices for agriculture machines suggests that prices were lower in 1886 after the duty was introduced than they were in 1881, and ^{that} they were even lower in 1895. The main reason

was increased productivity of the machinery industry abroad. Indeed domestic producers complained that the duty no longer offered protection to Russian industry.

Despite the agricultural crisis the decades of the 1880s and 1890s registered a substantial increase in output of cereals due not only to area expansion but also to increased yields. Moreover qualitative shifts have occurred in favor of more valuable and of commercial crops. The share of wheat, barley, maize, and sugar beet rose relatively to rye, oats, and buckwheat. ^{Furthermore} Moreover output grew both per capita of both the total population and of the agricultural population. According to Nifontov the average physical net output (net of seed) of cereals and potatoes per capita increased in European Russia by an estimated 4 and 14% respectively during the 1880s and 1890s compared with the 1870s, and by 6 and 18.3% respectively per capita of the rural population during the same period.

The share of privately owned land in the net harvest of cereals in European Russia grew from 28% of the total in 1870s to 32.2% in 1880s. Whilst yields on both allotment and private land were growing, the rate of growth of the latter was more substantial as seen from the table below:

<u>Yields in Poods</u>	<u>Allotment</u>	<u>Index</u>	<u>Private</u>	<u>Index</u>
1861-1870	29	100	33	100
1871-1880	31	106.9	37	112.1
1881-1890	34	117.2	42	127.3
1891-1900	39	134.5	48	145.4
1900-1910	43	148.3	54	163.6

In the latter 1890s agricultural prices began to pick up while land prices under the influence of population growth and of the more generous credit policy of the Peasant Bank as from 1893 started to climb again after 1898. The rise of land prices continued until stemmed by revolutionary disturbances and their aftermath. The intensified policy by the Peasant Bank of buying estates for its own ~~about~~^{benefit} succeeded for a time in preventing too drastic a fall of prices, especially as very large estates were being offered for sale. After 1907-08 estate agriculture was passing through a kind of renaissance. Lost positions, in terms of land sales to small owners could not be regained; neither could the estates share in sowings an output become significant in face of the resilience and expansion of peasant farming. Nevertheless in terms of marketings relative to output, in terms of yields, technological equipment, techniques of farming and quality of output, the estates, especially those of over 500 dessyatins in size have become leaders and a viable, if compact, sector of the agricultural scene.

As in industry a kind of dualism seemed to be feature also of the agrarian landscape in which the resilience of the small peasant family farm was matched by the growing capital intensity, managerial skill and commercial acumen of the large estate. If however the resilience of peasant farming had proved itself beyond doubt during the dark days of the 1880s and 1890s, the large estates have been largely saved by their huge assets, easy credit, rising land prices, improved markets and often by their German managers.

The Case Study

The estate in question was situated in the Kursk province, Dmitr'yev district. Its centre was the village of Prilepy in the north-western corner of the province close to the border of the Orlov province. (See Map) At the time of its description in 1896 the estate consisted of 4,256 dessyatins of land of which 4,167 odd were suitable for cultivation. 172 dessyatins which had belonged to the peasants of Yaroslavka village bordering on the home farm were only acquired in 1893 by auction from the Peasant Bank. As this newly acquired land had only recently been incorporated into the rotation plans of the estate, not much by way of yields could be expected of it, therefore for calculation purposes 4,000 dessyatins are used.

Until 1886 the estate belonged to three brothers and consisted of some 6,200 dessyatins. Though the 2,115 dessyatins had become a separate unit of ownership, the administration of the separated unit was still effected by the same management; sheep-keeping remained in joint ownership, the third brother receiving a third of the income.

The owners of the estate in question were the brothers Barons Conrad and Alexander Yegorovich Meyendorf. Unfortunately, no information is available on the assets, if any, of the owners, other than the estate. Neither do we possess information about the owners' liabilities. The accounts relate strictly to the

performance of the estate. We do not know how the resources were obtained for the very substantial capital equipment of the estate; we do not know whether the estate was mortgaged. What is certain, and the description of the estate emphasises the point, is that the estate did not sell or let (this latter claim needs qualifying) any land, and that it was farmed directly with the estate's own equipment.

For this reason alone, whatever the qualifications which will be discussed below, the Meyendorf undoubtedly belonged among the advanced estates and deserves distinction. The Kursk province where the estate was situated was among the five most densely populated provinces in the country, 68.8 persons per square merst in 1893. Moreover, it was almost entirely agricultural in character. There was practically no industry, not even kustar industry, and the local population could only seek agricultural employment or emigrate. In the 1860s 191, in the 70s 591 and in the 1880s 1,307 families annually emigrated to Stavropol', Don Territory, Taurida, and most recently to Siberia. However, given fast population growth, lack of non-agricultural employment and relatively small allotments at the time of the emancipation, there was keen demand for land on the part of peasants and most landowners managed their estates by letting land in small parcels for one season to small tenants, mainly peasants. Land for hay-making was especially in short supply not only in peasant farms but in the province in

general, as arable made up nearly 81 percent of allotment land and about 74 percent of privately owned land. Therefore, there was keen demand for renting pastures and haymaking land, often on very heavy terms, and livestock farming was everywhere in the province a subsidiary branch of the rural economy.

The estate and the province in general had excellent black-earth soil, with some admixture of clay. The province produced a considerable surplus of grain for sale; however its commercial position as a centre of agricultural and livestock products had been undermined by the development of New Russia, Kharkov gaining a pre-eminence as a commercial centre, and by the construction of railways. These factors also made for seasonal movements of peasants from these overcrowded districts for New Russia and the south-east in search of agricultural earnings in the vast estates there. Though this occasioned some times labour supply problems in the province, the density of population and the shortage of land made for cheap labour even during the season of greatest labour intensity.

The Meyendorf estate was surrounded by some twenty villages containing 5900 male souls, and moreover the estate had a considerable supply of labour from the neighboring Sevsk district of the Orlov province where not enough work was available in the forested areas. For this reason the differential in wages between seasons was less pronounced than in other provinces, though the short agricultural season, the rainy autumn which made roads impassable and

interfered with marketing and the digging and carting of sugarbeet to the mill often necessitated raising of wages. Seasonal differentials were between 25-37 percent.

The estate was not very advantageously situated as regards distance to railway lines. The station Oryel of the Moscow-Kursk railway which was regularly used for shipping sugar to Moscow was some 180 versts from the estate. The cost of carting its sugar of which only a fraction was sold locally was around 9.5 thousand roubles by sleigh and 12.7 thousand by wheeled waggons, which amounted to 3.4 and 4.6 percent respectively of the selling price of the sugar. If for sugar which was a relatively high priced product such cost was still economical, this was not always the case with other products. Therefore attempts were usually made to sell the grain on the estate and have it transported at the cost of the purchaser. However, this was not always practicable and the grain was conveyed for sale to Ryl'sk, a station on the Kiev-Voronezh line leading to the South-West, which was at a distance of about 45 versts and where there were three steam-driven flour mills and several water-driven mills. The cost of carting was between 5 to 7 kopecks which entailed an outlay of between 500 to 700,000 roubles for the conveying of the two million odd poods of wheat to the mills. Part of the grain, owing to its excellent quality and cleanliness was brought by local landowners and peasants for seed and was collected from the estate; the balance was sold in

Sevsk which though situated in the Orlov province was only 12 verst distance from the estate and entailed a cost of between 1½ to 2 kopecks per pood or was carted to Trubchevsk which was at a distance of 100 verst from the estate (7 to 9 kopecks per pood) but had a port on the river Desna whence the corn could be transported further at lower cost.

Livestock and dairy products were also sold locally as were sometimes whole animals, though sold to local butchers or peddlers. *Though more often* the animals were ~~usually~~ driven by mud road to the railway trucks and conveyed to Moscow. The cost, apart from freight, was quite substantial entailing wages and maintenance of several men.

Overall one gains the impression that marketing costs were an important consideration underlining the under-development of commercial services. A comparison with the Rakitino estate of the Yusupovs situated in the same province but in the southern-most part, for the period after 1907, suggests considerable progress in this respect in that the grain there was sold directly from the thresher and the commission costs which in previous years ran into high figures disappear from the accounts. However, the production on the Yusupovs' was on a much vaster scale and the position of the estate allowed for much easier transportation to the south for export. For the Meyendorf estate the north central markets were more advantageous than the southern at which they would have to compete with lower cost grains. The manager of the Meyendorf estate entertained

high hopes of the two feeder lines under construction: Vorozhba-Seredina Buda and L'gov-Bryansk which were at a distance of 35-40 verst from the estate. ^{Para.} The sugar mill was the central focus of the estate's activity which largely determined its crop rotation plans, the intensity and quality of cultivation and the quality of other products of the estate. Nevertheless, though the mill was the largest single item of capital and the sale of sugar a very large share of the estate's total income, products of soil cultivation, i.e. rye, wheat, oats, grasses and hay accounted for a larger share of the operating capital and of the net income of the estate. Moreover, the mill was an integral part of the estate, in that it had no separate management from the estate. The main office was about a verst from the mill and was connected with the latter by telephone. Both were incidentally lit by electricity.

The mill was first built in 1836 and operated on the ognevaya system; it switched to steam-press method in 1871 and to the diffusion system in 1882. Rebuilt after a fire in 1882 within two months, it was a three-story stone building with iron roof. The estate also had a small flour mill just for the use of the estate and a brickyard which produced annually some 300,000 bricks used on the estate and also sold to neighboring landowners and peasants. The workshops and a stud, which existed since the 1840s but was re-organized in the 1870s, will be discussed in another connection.

It needs emphasizing that the Meyendorff estates belonged to those which were becoming commercial already before the Emancipation largely in connection with sugar production. Nevertheless, it seems that most of the modernisation and intensification started in the 1870s and reached its culmination in the early 1880s, a period during which many landowners under the impact of rising prices and the receipt of the balance of redemption payments were adapting their estates for direct farming. As mentioned before, many gave up but the Meyendorfs were obviously persevering, though the 1890s were far from comfortable. The methods of management and book-keeping as they existed at the time of the description of the estate had been introduced in 1875. The chief manager was Viktor Yakovlevich Meyer. He managed the estate from a central office which was situated at the home farm in Prilepy village; under him were five clerks and an accountant who also acted as cashier. The estate regularly exhibited its products at all-Russian Expositions and had been awarded three silver, one gold medal and a certificate of merit.

For the convenience of management and to allow for the difference in the quality of soils and also in order to facilitate manuring, harvesting and supervision, the estate was divided into two economic sections, with further subdivision into farms. The economic management of the estate was centralised. The livestock and equipment were moved from farm to farm. In the first part, the

horses and the equipment were housed in the home farm, the oxen in one of the other farms, whilst in the second part all was housed in the most centrally placed farm. Subsidiary offices at the mill and at one of the farms in the second part were concerned with the day to day recording and accounting under the direct supervision of the accountant from the main office who received daily reports from the mill and weekly ones from the farms' office. The chief manager was kept fully informed not only about the economic but also about the technical side of the sugar mill.

The owners of the estate received weekly reports in the form of a journal, and during the production period of the mill a copy of the technical report. A statement of accounts was presented monthly, records of outgoings daily, and records of coupling, sowings, yields etc. periodically.

In the office the conduct of business was based mainly on a system of double and triple orders and covering documents, all data being entered daily into the main journal and copied into supplementary books. Service of employees, hiring and firing of workers followed strictly established procedures.

There is no doubt that the estate was managed in the sense defined above, and one might even venture to speak of entrepreneurship in that the Meyendorfs were definitely breaking with the routine and conservatism which was the feature of agricultural practice of majority of the estates in the province. They were endeavouring to

weather the agricultural crisis by improving cultivation and raising yields. It is characteristic that the estate had a German chief manager. Schultze-Gaevernitz commented on the enormous contribution which these German managers had made to Russian estate farming. He thought that they were the only mainstay of the owners pressed hard by the merchants and peasants alike. Estates managed by Germans were proverbial for their efficiency and stories were circulating about landowners who having acquired machinery hoped to influence their workers to take care of them by putting bailiffs into German uniforms. The German managers were also thought to have injected a measure of discipline and common sense into the agricultural societies and local assemblies.

However, though efficient, honest and intelligent, they tended to be pedantic, and did not always try to understand the people around them, especially the peasants. Herr Meyer commented in his report on the ^{un}reliability of the peasants, their failure to respect the work contract, and blamed landowners for failing to pursue a consistent policy of refusing to accept workers without work-books or to return passports to workers who left without working off advances.

Mackenzie Wallace similarly comments on the shrewdness and efficiency of German managers and on their lack of sympathy and understanding for the environment within which they lived and worked. They were full of sarcasm about the sentimentality and the

so-called liberalism of the intelligentsia and the authorities who condoned the dishonesty and lawlessness of the peasants in the name of "gumannost." Unfortunately, we do not know to what extent labour management was affected by these attitudes. One gets glimpses of tension in 1905 in the Karlovka Estate in Poltava, but this was an exceptional situation. It was undoubtedly true that they looked most loyally after the interests of their employers who often lived miles away, and this was unlikely to endear them to the peasants who seemed to have learned to cope with the inconsistent if occasionally harsh behaviour of their Russian employer but not with the fair if strict attitude of the German managers.

Our information about the administration of estates from an investigation of 1916 suggests rather large personnel; in many cases the share of administrative personnel to the total labour force being one to three. Especially high was the proportion in small estates which may indicate that there was something wrong with the data. Gardeners, mechanics, sometimes even all year round regular workers were classed as members of the administration. Nevertheless, it would seem that relative to their size the larger estates employed less clerical and managerial personnel. There may have been here economies of scale.

On the other hand estates such as the giant Karlovka in Poltava had several managers who in fact competed with each other in recruiting labour thereby whipping up wages. They were obviously

getting into each others' way, while attempts at centralising labour recruitment or deciding on one level of wages created rigidities and delays.

Herr Meyer was a highly paid official. He earned 4,200 roubles a year, had a free house with all appurtenances and various other fringe benefits. This brought Meyer's income to the level of the middle echelons of the judiciary whose salaries were deliberately kept high to discourage corruption. (An assistant procurator for example had a salary of 4,500). The clerks had more lowly incomes and position but they also had a variety of benefits. Overall general expenditure, which however also included items not directly connected with management, was in the region of 7.4 percent of aggregate expenditure of the estate. The effective real cost of the administration was lower as it involved also the management of the estate of the third brother whose income is not known to us.

The method of management in the Meyendorf estate was direct farming using own resources, nevertheless as shown below there was an admixture of short term letting on a crop-sharing basis, and a certain amount of "otrabotki" entailing use of peasant equipment and horses. An investigation based on data from the gentry Bank suggested that a maximum of 32 percent of the estates mortgaged to the Bank during 1886-1890 farmed directly. During 1896-1900 this percentage fell to 21. Mixed forms of running estates, i.e. combination of long term tenancies and direct exploitation of a part

of the estate was apparently 38 percent and 32 percent respectively. Land entirely under tenancies increased from 32 percent to as much as 47. The period after 1900 is difficult to assess. There was some flight from estates because of the revolution, on the other hand rise in agricultural prices, led to expansion of direct farming, which was especially pronounced on estates which had sugar mills and distilleries.

On the whole, certain regional exceptions apart, the larger the estate the less the share of direct farming, and the higher the share of land under tenancies. Long term tenancies of large parts or of whole estates were confined to certain regions only, i.e. north-western, south-western and western provinces and were met with only occasionally in ^{central & eastern} Russia, in the Saratov province for example. They were usually connected with production for distilling or milling. Sometimes these so-called long-term large scale tenancies were effectively short-term small-parcel tenancies often for the share of the crop, as "tenants-in-chief" sublet to peasants.

The majority of tenants were peasants, and excepting certain regions, short-term, small parcel tenancies were involved. In the Kursk province in the 1880s and 1890s and in the Central Agricultural Region even as late as 1911, landowners were maintaining that income from rents was higher than from direct farming. Indeed, a comparison of the net income of our estate which was 10.21 roubles per dessyatina on average during 1890-1894, with rents

payable in the Kursk province in 1892 makes one wonder whether the majority of landowners in the province who managed their estates by letting land for one harvest to small tenants were not acting rationally. Rents for arable fluctuated between 6 and 30 roubles, and between 7 and 25 roubles for meadows. Of course such short term tenancies could be harmful to the land as the tenant had no interest in improvement.

There is evidence, however, that short term tenancies could be incorporated into the rotation plans of the estates. Moreover, many landowners were not convinced that given the socio-economic level of the peasant - tenant land would be cultivated more carefully under long-term tenancies. Indeed, many maintained that under short-term tenancies the owner could maintain better control over his land and prevent complete exhaustion through continuous cropping which reduced the value of the land. Moreover, peasants themselves were unwilling to rent exhausted land, or would substantially reduce the rent for it. Preference for short term rents was also due to very considerable harvest fluctuations from year to year which made both sides unwilling to undertake long-term commitments. Most important, was the lack of financial viability and reliability of the peasant. It was this factor which explains the tendency to practice various forms of working off rents or of share-cropping systems.

Given peasant poverty, and the fact that the law did not allow debt-attachement to allotment land, or livestock, the only

recourse the landowner had was to receive an execution order through the courts to arrest the tenant's crop on the rented field. Apart from the undesirable tensions this might have produced, the outcome of such a drastic step would be gain for no one as the crop left in the fields deteriorated and was useless.

On the largest estates, even after 1900 when conditions substantially improved, some landlords evolved a system of mixed management based on what one might call economics of rents in labour form. A report of the Moscow Agricultural Society of 1902 explained how the estate Mikhaylovskoye belonging to A.A. and L.A. Bobrinsky in the Tula province had been reorganised in 1897. Until 1897 the 13,000 dessyatins (arable, meadow and pastures) were under tenancies; rent was 9 roubles a dessyatina. However, it was practically impossible to collect the rents. The new manager decided to start farming directly on a part of the estate and thus create incomes for the local population out of which they could then meet their rent payments. This worked. Not only did arrears cease but it was possible to raise rents to 12 roubles. However, the report continued, for such an organisation of the estate, one must work out a proper balance between arable for own account and the area under tenancies in such a way, that the cash earned by local people should enable them to meet the rentals and that the estate had potential for employment for all the labour offered. In this particular case 3,200 arable and 90 dessyatins of meadow under direct exploitation

were considered the right balance. It should be added, however, that the building of a distillery and the rise of prices probably helped along.

On the Meyendorf estate the 730 odd dessyatins of natural meadows were cultivated by neighbouring peasants on a share cropping basis for a half, one-third and two-fifths of the crop. According to management this was done not because it was profitable but because it was a means of securing labour at peak time and also because hay making, carting and staking were highly labour intensive. Management feared that given the very acute shortage of hay peasants tended to rent meadow land at a considerable distance from their villages and consequently might not be available at a time of intensive demand for labour. On the other hand the estate selected its tenants among those who also worked on the estate. Apart from providing a share of the crop, carting and stacking the hay, peasant tenants of the Meyendorf meadows also undertook a variety of jobs, some with their own equipment. This arrangement was not, as was the case in many estates, a substitute for the estate's own capital, or a means of avoiding the responsibility of management. Of course running estates on "otrabotki" also entailed management, risk and responsibility. In a falling market the risk associated with marketing the crop fell on the estate, while estates on money rents transferred the risk to the tenant.

Though the Meyendorf management was very much on the defensive on this point and took pains to underline the insignificance of "otrabotki" with peasants' equipment, there is no doubt that they were important at certain strategic points of the farming season.

The larger the estate the greater the difficulties of direct farming. Under the then existing technological and socio-economic conditions direct farming could create huge dis-economies of scale in terms of organisation, labour recruitment and capital. It seems to us that the best solution for such huge tracts of land were the British type of management with an entrepreneurial tenant-farmer and a landless farm worker. As this was hardly possible, various combinations of management were sought which would secure labour on that part of the estate which willy nilly had to be farmed directly because tenant farming of the optimal kind was not possible. [see Grant -

If direct farming on the largest estates was less disadvantageous than it actually was, due largely to the processing industries on the estates, which increased the productivity of the estate's capital by lengthening the period over which labour and equipment could be utilized and by adding to the quality of the soil through the use of rotations and of residues as fertiliser.

Finally, the rise in land values increased the wealth of large owners and ipso facto their credit capacity which made possible the vast investment needed for direct farming.

It was the view of contemporaries that the relatively higher profitability of estate management by way of otrabetki was due to the fact that the owner of the land received not only a rent, but also part of the entrepreneurial profit and even that of the wage of the tenant. On the other hand the peasant tended to opt for such forms of renting not only because of lack of cash but because ^{he} thereby ~~he~~ raised the productivity of his capital in the form of plough, horse and cart which were under-utilised in his small farm.

Capital

The capital of the estate consisted of land, buildings, machinery and equipment and livestock. Of the 4,165 odd dessyatins of land 54.3 percent were arable, 17.5 percent meadowland for hay, 26.5 percent was forest for timber and 0.4 percent for grazing. In addition about 50 dessyatins of land were under dwellings, vegetable gardens and orchards.

Various measures of drainage and amelioration were at hand -- those accomplished resulted in reclamation of a substantial area of land for haymaking, which gave every four years a return of 11½ percent on the capital expended. While some ten dessyatins of wasteland were planted with oak and pine.

In the process of drainage work a discovery was made of turf. Though at the time its exploitation was judged unprofitable, the subsequent rise in wood-fuel prices for the mill encouraged the

estate to entrust the work of working the turf to a contractor at an agreed price per unit. Local peasants were in the process of acquiring a new trade which would add to their earnings and, it was scheduled, would reduce the loss of the turf in the future.

An important project of re-forestation of an area of over fifty dessyatins of land was scheduled to make good the loss of wood sold for timber cutting to merchants. The wood was very old and overgrown, and it was felt that natural re-growth from stump was impracticable. The estate calculated that the net income from the wood fuel and from cultivation over five years would provide the necessary resources for replanting.

The estate's substantial, and for the area very valuable, woods were under specialised management of a qualified forester and six assistants. The estate had careful plans for each area of wood with schedules for cutting and replacement depending on the life-cycles of each type of wood.

The area under cultivation was subject to eight year rotation plans. It was regularly manured according to yield plans, sugarbeet and winter wheat receiving the most attention but on the whole each field was manured regularly according to the yields' plans, not counting green fertiliser on some fields. As yet not much chemical fertiliser was applied. Super-phosphates were used and some experimentation was under way with phosphorites.

Residues of the sugar mill, bone meal and ashes were applied in compound with animal manure.

One could go on indefinitely quoting the details in abundance provided in the description of the estate. However, what is said so far indicated clearly that there was very careful farming and that the value of the land was increased as a result. The accounts cite no land value. However, one can calculate it by capitalising its net annual income per dessyatina (excluding the income from the mill) which was 10.21 roubles on average during 1890-1894 at 6 percent (the average of the interest rate of the Gentry Bank which was 4 percent and of the private land banks which was 8 percent). Calculated in this manner the 4,000 dessyatins of land were worth 682,640 roubles or 170.60 roubles per dessyatina. This was more than the average selling price of a dessyatina of land in the Kursk province in 1899 which was 124. It was substantially higher than the average in the Dmitryev district where the estate was situated (100 roubles). However, there was a huge differential between the lowest and the highest price indicating presumably differences in the conditions of the land and in the nature of the demand. Judging by the price differentials, the Meyendorf estate was undoubtedly among the best in the province. (Vsya Rossiya, 897)

The taxes and dues on land were fairly moderate. Taxes per dessyatina were as follows:

Land tax	19	kopecks
Provincial		
Zemstve tax	9¼	"
District tax	22	"
Gentry Levy	6 3/4	"
	<u>57.38</u>	"

In addition to the above taxes which amounted to 2,391.55 roubles, the excise tax on sugar was on average 57,000 roubles annually which amounted to about 27 percent of the gross income of the mill.

Buildings

The estate contained 120 buildings of which 86 were insured at 195,952 roubles, and the 34 uninsured buildings were valued at 16,200, giving the joint value as 212,152 roubles. Thirty-five of the buildings were dwellings: two houses of the owners (14,200), sixteen houses of the administration and employees, fifteen houses for workers and two for foremen (29,220 roubles). The combined cost of the dwelling houses was 43,420 roubles.

All the other buildings were connected directly with the economy of the estate except the bath, the hospital and school. However, with the exception perhaps of the two houses of the owners, all dwellings can be classed as productive capital in that the houses of the employees and workers were the essential infrastructure for the production side of the estate. Among the dwellings directly connected with production were 17 cattle sheds (insured

at 50,753 roubles); 11 granaries and barns (17,615 roubles), 12 lofts, cellars and ice-houses (3,900 roubles), 4 threshing sheds (6,566 roubles), 5 buildings forming a brickyard (2,050 roubles), 1 flour mill (750 roubles), and 25 buildings forming the sugarmill (insured and valued at 77,568 roubles). The combined value of all dwellings was 212,152 roubles of which the sugar mill accounted for 36.5 percent. If we exclude the two houses, the total productive capital in buildings was 197,952 roubles, of which the sugar mill accounted for 39 percent.

Essential farming lean-tos were constructed by the dwelling houses and five cattle sheds had installations and apparatus for the preparation of cattle feed. Their value was not included in the value of buildings but added to that of machines and equipment (5,000 roubles).

Capital: Machines and Equipment

The estate had accumulated a large stock of machines, equipment and tools over the years since intensive exploitation of the estate had started in the 1870s. Those in current use (as per attached list) included multi-share ploughs Sakk, Ransome, Fleter, Mentsel and Ekkert; cultivating tools by Goward, Crockswille, Mentsel'; seeding machines by Mentsel', Ekkert, Sakk, Mentsel Triumph and Guzier; sheafbinders Adarins, hay-cutters, horse-drawn rakes by Stoddard Tiger, Ekkert, straw-cutters Bentall;

reapers Jonothon Triumph, steam threshers by Clayton and Shuttleworth in Lincoln; winnowing and sorting machines by Bekker, Wilson, Ekkert, Fleter, Bobi, Penne and Blestehorn, etc. One of the two steam threshers had 4½' reel drum and a 10 HP motor traction the second a 5' drum and a 12 HP motor traction.

The estate had its own workshops employing some thirty-six men all-year round who were used both for the maintenance of the sugar-mill and for the repair of agricultural machines, instruments, waggons and carts, furnishings etc. They accepted for repair machines and tools of neighbouring landowners. In addition during the period of sugar production twenty men worked in the mill in charge of machines and apparatus. Mechanics from the sugar mill were used during threshing, during machine hay-cutting and in the flour mill. The list of implements and tools contains implements made in the estate's own workshops.

Thus the estate was still a relatively self-sufficient unit indicating lack or shortage of supporting ^esurvices through the market. This problem was often cited among the reasons for the slow spread of the use of machines in Russia. It was the more significant in that the rate at which machines broke down in Russia compared very unfavourably with other countries. It was said that in the Central Agricultural Region machines had to be replaced every five years because of careless use and also because of the nature of the soil and harvest, and that they were frequently out of use

Machines and Equipment of the
Meyendorf Estate 1890-1894

		cost	
145	ploughs	4,740	roubles
212	cultivators	2,489	"
33	seeding machines		
	27 seed-drills	4,600	"
27	harvesting machines	4,400	"
2	steam threshers, with locomobils	7,000	"
11	winnowing, sorting and cleaning machines	1,305	"
5	boiler equipment for preparation of feeds	5,000	" (not included in estate accounts)
250	waggon, carts, sleighs, water carriers	5,000	"
250	leather harness, hip- straps, yoke collars	3,500	"
250	oxen-gear	1,250	"
2,080	hand tools, (scythes, siecles, forks, spades, hatchets, crow-bars	690	"
30	scales with weights	2,000	"
	instruments, utensils & other farming appurtenances	4,000	"
20	passenger vehicles		
25	passenger sleighs with harness, rugs, etc.	6,000	"
	Barns equipment, utensils, furniture	10,000	"
		61,974	"

because of breakdowns. More will be said on this point in another connection, but it is pointed out ^{here} to indicate the advantage of a larger estate, especially one the central focus of whose activity was sugar production.

Nevertheless, there seems to be no doubt that the Meyendorf estate was well equipped relatively to other estates during this period. The Karlovka estate of the Meklenburg - Strelitsky in Poltava province described by Anfimov had in 1893 dead stock (Anfimov does not specify whether farm buildings were included) valued at 277,000 roubles. The estate covered 57,155 dessyatins of land. Thus dead stock amounted to under 5 roubles per dessyatina as against 13.75 roubles for machines and equipment alone at Meyendorf's. On the other hand as only about a quarter of the Meklenburg estate was under seed the per dessyatina equipment relative to sown area alone was only slightly in favour of the Meyendorf's.

The Rakitino estate of the Yusupovs, situated like our estate in the Central Agricultural Region, which after 1900 was intensively mechanising, claimed a value of dead stock (in this case probably only machines and equipment) of 270,000 roubles which amounted to 26 roubles per dessyatina under seed, or only slightly more than Meyendorf ten years earlier (24.3 roubles per dessyatina under seed). No allowance was made for changing prices.

Capital of the Meyendorf Estate 1890 - 1894

LAND	valued by capitalising average net income per dessyatina over 5 years at 6 percent (if net income of sugar mill added then capitalised land value)	682,640	(1,418,423)
Owner's DWELLING HOUSES		14,200	
		<u>696,840</u>	
FARM DWELLINGS	(including sugar-mill, office buildings, houses of employees and workers, school, hospital and bath)	197,952	
MACHINES, WAGGONS, EQUIPMENT	(excluding furniture -- roughly 6,974) including boiler for preparation of feed -- 5,000	55,000	
LIVESTOCK	of which Horses - 29,975		
	Large Horned		
	Cattle	23,220	
	Sheep	12,916	
	Pigs	770	64,881
			<u>317,833</u>
	TOTAL CAPITAL		
	(exclusive of land and homes)		<u>317,833</u>

Capital per dessyatina - 79 roubles 20 (if farm buildings included)

Machines etc. per dessyatina - 13.75 roubles

Livestock per dessyatina - 16.22 roubles

In the country at large average capital in machines and equipment per dessyatina of area under seed was not more than 4 roubles in 1914. (A.M. Anfimov, K voprosu o kharaktere agrarnogo stroya Yevropeyskoy Rossii v nachale XX v. - Istoricheskiye Zapiski, vol. 65 p. 140.)

The composition of the machines and equipment indicates the concentration of the estate management on the preparation of the soil (ploughing), and on sowing on which the quality and size of the crop depended. The cultivation which was very labour intensive and for which as yet not many mechanical substitutes were available (in any case good preparation of the soil, proper sowing and good seed made the task of cultivating except in sugar beet less important) and harvesting relied still to an overwhelming extent on human labour. Threshing was among the earliest most highly mechanised activities, a feature not confined to Russia alone. This seems irrational in view of the lessened pressure on labour after the height of harvest. In the UK, it is said, that it was the unwillingness of the labourers to undertake threshing with flails which demanded considerable physical effort. In Russia it was undoubtedly the need for cash as well as the desire to market the grain before the Autumn rains made roads unpassable which accounted for the relatively early use of threshers and, in the advanced estates, of steam threshers.

Subsequent technological advances, i.e. automatic passage of sheaves into the drums, special mechanisms making it possible to combine threshing with sorting and winnowing of corn, mobile threshers made such threshers especially attractive to very large producers of grain who sold their corn directly from the thresher and thus could meet the stipulations of commercial contracts which specified that the corn must be clean, dry and assorted. The Yusupovs of the Rakitino estate ~~who sold 1/2 million pods of corn annually~~ were among the first to purchase three such complex threshing machines between 1910 and 1913. Their price, even though by then the commercial services in Russia had substantially improved and payment could be spread over three years, made them nevertheless accessible to the largest producers only. Furthermore, the more complex a piece of machinery, the more attention it required, and the less easily could it be entrusted to seasonal peasant workers. Only those estates which also had workshops, qualified mechanics usually trained in looking after sugar-mills, flourmills or distillery apparatus found it worth their while to acquire such machinery as well as those who employed all-year round workers. Even then the depreciation was very fast owing to careless usage, poor repairs and inadequate storing.

Harvesting was still in the Meyendorf estate to the extent of 50 percent of the harvest effected by using scythes and sickles for summer wheat and oats. The cost per dessyatina of harvesting with sickles was much higher than with machines. Only 10 percent of the summer wheat and 5 percent of the oats were reaped with self-binders. The data do not explain why the more expensive hand labor for harvesting was resorted to.

One explanation might be that the labor costs did not include depreciation costs of machines, so that the effective cost was undoubtedly much higher than that given in the accounts. The harvesting conditions in this part of Russia might have been one of the reasons for the preference for hand-reaping. This was the view of Professor S. M. Bogdanov writing in the 1890s. He thought that the reapers then in existence were not well suited to the soil of central Russia made soft by years of manuring and frequent summer rains. Unlike southern Russia where the ground was hard and the summers hot and dry which made the corn stand high and firm, the corn in central Russia, especially winter wheat, in rainy summers, "lies low, or at best the heavy wheat-ears on their thin, helpless stems hang almost down to the ground...storms play havoc with high and water-laden straw creating a situation from which even the most brave scythe retreats. How can a machine work on such a field? He who saw it will never forget it! Horses covered in sweat, legs trembling, workers exhausted and resigned; machine stops practically every few seconds, fields half cleared, whole parts left out, cut off corn-ears lying about in handfuls...."

There was undoubtedly some exaggeration in this view of the unsuitability of the contemporary reaper to conditions of Central Russia. But the professor was on firmer ground when he stressed the high cost of depreciation; the cost of the Manila string, or where the less efficient hemp string was used, the likelihood that it would block the thresher; or where no self-binder was used, the cost and effort involved in following the machines to bind the sheaves, not counting the resentment of the workers who disliked the machines which cost them earnings and found following the machines boring.

Above all he was right when he stressed that the most important factor in harvesting was, apart from binding the sheaves, the carting of sheaves from fields and their stacking. Given the size of estates and above all the distance from farm buildings, even estates well equipped with their own carting equipment and horses could not attempt to gather the harvest. The carting and stacking of corn per dessyatina was almost as much as the harvesting (the average cost of harvesting and binding of oats was 1.52 per dessyatina and carting and stacking 1.44) and there was no certainty that the carts would be available at the height of harvest unless the estate could offer the peasants the job of harvesting. Furthermore, though in harvesting speed was of utmost importance, the deciding factor in speed was different for the farmer in central Russia. For him the decisive moment was the carting of sheaves. Unlike the southern farmer he could not leave the sheaves on the field and wait for the mobile threshing machine to thresh his corn on the field as he could not rely on the weather. Last but far from least, wages in the black earth central provinces during the harvest season in the 1890s were very low, the self-binders expensive and often unusable, and in the meantime the estate might lose their customary reliable workers. In the South the proximity of seaports and the stimulus of foreign demand encouraged use of machinery, as did the relative instability of labor supply. Indeed, given the availability of labor and its cheapness and the availability of peasant draft animals and implements, the question the student must ask is not why no or too few machines were used but why so many were used.

There is no doubt that fashion and prestige often accounted for the adoption of the use of machines. Harvest fluctuations which made labor supply in certain years unreliable were a very important factor, especially in areas where migratory labor was used. Ownership of machines made possible substitution for ~~missing~~^{the} workers in some years. It also helped to stabilize the price of labor over the years. Some landowners even maintained that the knowledge that machines could be used if necessary helped to temper demands of peasants workers for higher wages during bumper harvests. The large producer, especially the one who had to rely on migratory workers, faced a paradoxical situation that in years when prices were low because of a good harvest his labor costs tended to be higher. This factor was incidentally among the reasons for increasing the all-year-round labor force employed on the estate. However, given the intensity of demand for labor over a very short season, extension of the all-year-round labor force beyond a certain limit was uneconomical, even if available.

The rise of agricultural wages after 1900 undoubtedly made resort to the use of machines more profitable. Simultaneously the machines themselves were getting better and the commercial, credit, and spare parts services also improved. However, as long as on-farm transportation, the labor intensive work of spreading manure, digging beets, carting and stacking could not be replaced by mechanical power and traction, recourse to peasant labor and carts was essential to most farms. In 1893-4 in Karlovka (57,000 dess) the cost of carting grain from the estate was almost as high as ploughing and twice as high as sowing; carting of beet was among

the items of highest cost. At the Meyendorf estate the cost of harvesting a dessyatina of beet was 26.80, of which 8.80 was for carting alone.

As tractors and interior-combustion engines were only just making their appearance, the availability of working livestock was an important element of estate capital. The Meyendorf estate had 154 horses, especially for work, all the product of its stud by a mixture of half-bred trotters, and heavy carthorses of Lincshire-breed. Sixty of the best work mares were bred with Clydesdale and Suffolk carthorses. This did not include horses used for riding about the estate or passenger transportation on the estate and outside. The cost of maintenance of a horse was roughly 54 rubles per annum, which at roughly 160 working days made the cost of a working day 33-1/2 kopecks. The estate had well worked out plans of feeding which differed according to the intensity of the work involved.

The stud service was among the few estate activities which made a small loss; however, this was apparent rather than real as the horses which were regularly sent to St. Petersburg were not classed as income. (The estate valued its fully grown stallions at 300 rubles a head, and its mares at 100 rubles.)

In addition to horses the estate had 150 pairs of working oxen which were replenished by purchase and used directly for work, or they were looked after on the estate for about two years until judged suitable for work. Oxen of the Little-Russian breed were usually bought, preferably in Kharkov, Poltava or Yekaterinoslav provinces; young ones in the autumn and those to be used for work in the following spring in winter. As with horses, the estate had a carefully worked out plan of feeding according to the season of the year and

the daily work norm of a pair of oxen. Annual maintenance per ox was 20 rubles, and the cost of a working day 16 to 18 kopecks.

The oxen no longer suitable for work were fattened, to a specific plan, and then sold either directly by the estate in Moscow or through local peddlers. The estate also accepted oxen for fattening from local cattle dealers if there was room in the cattle sheds and it was able to make a modest profit on it.

The two steam threshers excepted, all machines utilized by the estate required considerable animal power, especially for ploughing. For example, the ploughing of half a dessyatina with one 14 inch plough manufactured by Sakk needed three pairs of oxen. Harrowing, rolling and sowing all required horses. Even for threshing, six horses and seven pair of oxen were required for the carting of the sheaves from the stacks, for the carting of the corn, for the pulling off the threshing floor and husks, and for the carting of the straw.

If one considers that the horses and oxen of the estate were above average quality and that the cultivation of sugarbeet for the production of sugar made possible not only production of more feeding grasses as part of crop rotation but also enrichment of feeds by residues from sugar production, one realizes the difficulties encountered by estates which concentrated on grain production only. On the whole except in certain non-ethnic Russian regions convertible agriculture had made very little headway in Russia. Growing of legumes both for the enrichment of the soil and as foodstuff for livestock farming was still at its inception.

Livestock farming in the Meyendorf estate was a relatively subordinate branch of the economy, accounting for only 5.5 percent of

gross income. In the country at large its underperformance was due among other things to the reduction of fallow on estates which reduced grazing opportunities for peasant stock too and the extension of arable on peasant land. Stable maintenance of cattle was making very slow progress partly because of the high capital cost involved and because it was also very labor intensive. Because of the failure to provide or to keep up warm sheds, to install apparatus for the preparation of feed, excellent breeds of Dutch, Swiss or Guernsey-cattle imported by some estate owners gave very disappointing results. This tended to discourage investment in livestock.

On the whole, excepting again some areas in the West, Northwest, and the Southwest, the future of livestock farming lay with the peasant rather than with the large estate. This was also the case in Hungary which had a similar agrarian structure to the Russian one with the difference that there was concentration rather than fragmentation of land. While large estates concentrated on grain production, farmers responded to the demand for meat and dairy products from the growing urban markets of Austria and Bohemia. The average Russian peasant farm, however, specially in central Russia, was usually too small to develop livestock farming on a significant scale. Nevertheless the more spacious farms in Siberia, the northern and northwestern areas (in the Baltic region the average peasant farm was about 40 dessyatina) with their good grassland and rainfall, encouraged by expanding demand and aided by cooperatives and exporting firms, were making considerable headway in the decade or so before the war.

Labor

The estate employed 100 workers all year round, all males. In addition, 100 male and 300 female workers were employed for the season, on average from 1 April to 1 November. The longer than average seasonal employment was connected with the sugarbeet, the digging of which continued until mid-October, but in a very rainy autumn, or with a very large crop, it might take longer. Autumn ploughing usually did not end before the first of November, and sometimes even later, but for ploughing regular estate workers were employed.

All-year-round workers would usually come to seek employment at the estate office. Seasonal workers were hired in the winter, between December and February, by an agent of the estate at the workers' place of residence. Terms of service would be agreed in the presence of volost' authorities and advances handed out--6 rubles for men and 4 rubles for women workers. This was roughly 10 percent of the pay of annual workers, and according to the manager's report, was considered satisfactory by reliable workers. Most of the workers came from the neighboring villages of the Kursk and Orlov provinces; in addition, women came from the Novgorod Seversk district of the Chernigov province.

During the grain harvest and the digging and cleaning of the sugar crop, women were paid per dessyatina or per weight of beet. The piecework rate differed depending upon the harvest. The bigger the grain crop, the higher the rates; the better the yield of beet, the less the rates for cleaning.

The advances were severely criticized by contemporaries as a ~~means of almost~~ ^{form of} peasant indenture, or at best a means of exploiting peasant poverty, as wages involving advance payments were lower, sometimes by as much as a third lower than wages payable under ordinary hire. However, such calculations do not take into account the interest on the money advanced, nor the risk that the advance might be lost. The Rakitin estate of the Yusupovs had records of advances which had not been honored, which ran into substantial sums every year. Even if the worker paid in advance actually turned up, there was no guarantee that he would do more than a token amount of work. He often moved on at the height of the season to another employer who offered him more. Though the 1886 law on the hire of agricultural laborers seemed to favor the employer, on the whole there was not much he could do with unreliable workers.

The management of our estate offered rewards for regular attendance throughout the season; rewards were also offered for proper work, care of machines and equipment. Though Herr Meyer was unhappy about what he considered to be a "painful area" of Russian agriculture, it seems that he was successful in securing labor at very low rates, compared with others in the central agricultural regions and certainly much more cheaply than estate owners in South Russia.

In addition to the all-year-round and seasonal workers, the estate employed daily laborers from local villages who were paid between 20 and 40 kopecks a day for male workers, depending on the season, and between 15 and 35 for women. A very long day was worked, from dawn to dark, with breaks of two hours for workers on foot and of three and a half hours for workers with draft animals.

On the farms and in the mill there were dormitories separately for men and women, a refectory, kitchen, stores and cellars. In the summer special tents and mudhuts were used for cooking and baking to avoid heat and fires. The hospital with twelve beds but with room in case of need for doubling the number, employed a feldsher, a nurse, and a visiting doctor. All those working on the estate, and their relatives if they were from neighboring villages, had free medical care and medicines.

Labor management also involved the mill workers and employees for whom an elaborate system of rations and other fringe benefits was worked out, typical of industrial establishments as described by the early factory inspectors.

The tables that follow give some indication of the nature and compass of the activity of the estate, as do the earlier tables on the capital of the estate. The average annual income was 356,900.97 rubles, or 89.22 rubles per dessyatina. Expenditure was 67.95 rubles per dessyatina, and net income was 21.27 rubles. This income included also the sugar mill, and capitalized at 6 percent would make the value of a dessyatina 351.16 rubles and the capital value of the whole estate 1,418,423.33 rubles. The items listing amortization and interest on operating capital are somewhat misleading. It seems that in the separate account for the mill a rather high rate of amortization was given, which implied amortization over five years, while in the general accounts the amounts for amortization seem rather low. If one combines the amounts allocated for amortization, one gets a more sensible percentage of overall amortization of 8.2 percent instead of

Balance of Income and Expenditure of the Meyendorf Estate

Average Annual 1890-1894

Items	Turnover		Profit	Balance	
	Income	Expenditure		Roubles	Loss
	Roubles				
Land Cultivation	110,289.47	48,537.45	61,752.02	-0-	
Orchard	506.62	909.20	-0-	402.58	
Forest	10,453.78	3,231.03	7,222.75	-0-	
Sale of Wood for Timber	5,500.00	-0-	5,500.00	-0-	
Cattle	2,347.48	1,320.22	1,027.26	-0-	
Horses	4,995.68	5,592.81	-0-	597.13	
Sheep	5,878.76	4,157.84	1,720.92	-0-	
Pigs	662.83	588.61	74.22	-0-	
Culling of Oxen	4,841.62	3,422.70	1,418.92	-0-	
Fattening of Non- estate Cattle	737.48	461.35	276.13	-0-	
Brick-yard	1,888.55	1,377.82	510.73	-0-	
Sugar Mill	208,498.70	169,731.03	38,767.67	-0-	
Rents	300.00	-0-	300.00	-0-	
General Expenses	-0-	20,265.04	-0-	20,265.04	
General Repairs	-0-	4,485.96	-0-	4,485.96	
Amortisation of Stock	-0-	2,382.70	-0-	2,382.70	
Amortisation of Buildings	-0-	3,082.29	-0-	3,082.29	
% on Half of Operating Capital	<u>-0-</u>	<u>2,249.52</u>	<u>-0-</u>	<u>2,249.52</u>	
Overall	356,900.97	271,795.57	118,570.62	33,465.22	
Profit			<u>85,105.40</u>		

Expenditure per Dessyatina on the Meyendorf Estate

R O U B L E S

	Winter Wheat	Summer Wheat	Rye	Oats	Sugar Beet
1st Ploughing	3.00	1.50	1.32	1.50	3.50
2nd Ploughing	3.00	-0-	1.50	-0-	3.00
3rd Ploughing or Extirparteure	-0-	-0-	-0-	-0-	2.00
Harrowing	0.60	0.30	0.30	0.30	0.60
Sowing	0.50	0.50	0.32	0.27	0.50
Ploughing over (parts 20% & 30%)	-0-	-0-	0.40	1.20	-0-
Rolling or Harrowing	0.30	0.12	0.30	0.12	0.12
Weeding	0.45	0.45	-0-	-0-	-0-
Cultivation	-0-	-0-	-0-	-0-	17.30
Reaping and Binding	3.45	2.10	2.05	1.52	-0-
Carting and Stacking	2.00	1.60	1.60	1.44	-0-
Threshing	4.00	3.20	3.20	2.88	-0-
Sorting	0.20	0.15	0.15	0.15	-0-
Seed	4.00	4.80	4.50	4.40	9.45
Harvesting Sugar Beet	-0-	-0-	-0-	-0-	26.80
Manuring	<u>8.00</u>	<u>-0-</u>	<u>4.00</u>	<u>-0-</u>	<u>10.00</u>
Overall	29.50	14.72	21.32	13.72	73.27

Yields and Prices of Main Products of the MEYENDORF Estate 1890 - 1894

Yields per Dessyatina in Poods	1890	1891	1892	1893	1894	Average
Rye	66.04	104.16	70.00	91.00	97.35	86.06
Winter Wheat	101.01	144.23	118.25	114.00	125.05	120.25
Summer Wheat	37.37	84.04	98.01	98.20	73.18	78.10
Oats	68.15	72.18	102.00	97.00	69.17	81.33
Sugar Beet Seed	116.00	67.12	76.00	81.10	108.25	89.33
Clover & Timothy Grass Seeds	14.00	7.30	10.34	13.16	15.02	12.09
Hay (sown)	164.00	111.00	73.20	127.00	129.26	121.00
Hay (meadow)	70.00	65.00	66.10	147.00	101.37	90.00
Sugar Beet	104.90	68.70	90.00	92.00	94.30	89.90
<u>Price Per Pood Roubles</u>						
Rye	0.75	1.20	0.75	0.38	0.40	0.69
Winter Wheat	0.70	1.15	0.85	0.65	0.53	0.77
Summer Wheat	0.70	1.15	0.85	0.65	0.53	0.77
Oats	0.65	0.80	0.50	0.45	0.40	0.55
Sugar Beet Seed	4.00	4.80	4.00	6.50	4.00	4.66
Clover Seed	6.00	7.50	6.00	6.00	4.00	5.90
Timothy Seed	4.00	5.00	3.00	4.00	3.00	3.60
Hay (sown)	0.20	0.25	0.15	0.10	0.10	0.16
Hay (meadow)	0.20	0.25	0.15	0.10	0.10	0.16
Sugar Beet	1.14	1.17	1.12	1.11	1.16	1.14

Yields and Prices of Main Products of the MEYENDORF Estate 1890 - 1894 (continued)

Net Income per Dessyatina Roubles	1890	1891	1892	1893	1894	Average
Rye	30.90	106.59	33.82	15.62	20.43	41.47
Winter Wheat	41.22	131.53	71.33	44.57	36.82	65.19
Summer Wheat	11.55	81.70	68.32	49.10	24.00	46.93
Oats	30.00	44.90	37.00	29.63	13.76	31.05
Sugar Beet Seed	315.00	154.04	95.00	333.80	235.50	227.68
Clover & Timonthy Grass Seeds	48.85	25.47	26.88	44.45	31.87	35.50
Hay (sown)	26.80	21.97	5.03	6.70	6.96	13.49
Hay (meadow)	13.86	11.26	8.73	14.46	9.96	12.65
Sugar Beet	47.40	8.36	29.00	30.12	36.45	30.26
The average price in the province was for rye:	0.48	0.81	0.95	0.67	n/a	
for oats:	0.43	0.53	0.59	0.55	n/a	

In 1894 the average yields in the province of Kursk and the differential in favor of the the estate were as follows:

Rye	76.82	26.7%
Winter Wheat	88.36	41.5%
Summer Wheat	58.48	25.1%
Oats	51.30	34.8%

Source: Vsyā Rossiya, Kurskaya Guberneya, pp. 897-898.

20 percent for the mill and only 2.3 percent for farm buildings. The high figure for the mill was probably an accountancy strategem.

Similarly, as regards the interest on half the operating capital, the accounts for the mill included the interest on the operating capital utilized for the cultivation of the fields under sugarbeet. If proper adjustments are made, we find that total circulating capital of the estate, including the mill, was in round figures 150,000 rubles, of which 83,000 was for the estate and 67,000 for the mill. The operating capital for the cultivation of the sugarbeet alone was 26,539.20 rubles or nearly 32 percent of the operating capital of the whole estate without the mill. This illustrates most graphically the central position of this crop in the scheme of management of the estate.

The table of yields indicates the very substantial fluctuations in yields from year to year; these fluctuations were, however, even more pronounced on peasant farms. Though yields in consequence of continuous improvement in cultivation were on an ascending curve as was the annual output of the main estate products, profitability of agriculture fell very considerably. Overall, the fall was over 30 percent over five years (average net income from cultivation for that period was 61,752 rubles; in 1894 it was 43,290 rubles), and for individual crops by 50 percent and more. Thus rye with an average yield over five years of 86 poods brought a net income of 41.47 rubles on average for five years but only 20.43 rubles in 1894, though the yield was 97.35 poods. In all other products, except

sugarbeet, profitability was falling. However, the net income from sugarbeet would have been less too if it was not processed in the estate's own sugarmill.

Only the famine year 1891 was profitable for the commercial producer. However, this was a poor harvest for sugarbeet, though the quality of the crop was excellent; in 1893 and 1894 rainy summers and autumns negatively affected the beet crop and the cost of harvesting it.

Nevertheless, yields on the Meyendorf estate were substantially higher than the average yields in the province. In 1894 the differential in favor of the estate was 26.7 percent for rye, 41.5 percent for winter wheat, 25.1 percent for summer wheat and 34.8 percent for oats. Similarly, the estate, because of the high quality of its product, succeeded in obtaining a much higher price than current in the province for rye and for oats, except in 1892. The data on prices suggest that there were still considerable differences in price between the individual districts of the same province, especially for so-called peasant grains, rye and oats, indicating certain market imperfections.

In sum, the Meyendorf estate was among the small percentage of the advanced agricultural units in Russia. In terms of contemporary norms in Russia, it was a progressive estate. It was farmed directly; it had its own capital in the form of working livestock and machinery. It employed an all-year-round workforce who were paid wages; it also employed seasonal workers who, though paid advances, were on the whole wage workers, and what is most significant in terms of contemporary norms, used estate equipment.

The estate had a well established system of crop rotation, systematic manuring and seed selection. It had a pedigree herd and good quality carthorses. The yields were above average and so were the prices commanded.

The profitability of the estate, by contemporary standards, was considerable. In 1905 the average income from land ^{in Russia} (considering only income above 1,000 rubles) was under 5,000 rubles. In 1910 there were only 3.5 thousand individual incomes over 50,000 rubles, one half of one percent of all the 697 thousand incomes above 1,000 roubles.

The management while emphasizing the reduced profits despite improved yield was nevertheless far from defeatist, and had in hand a variety of projects of expansion and improvement.

In particular, attention was focused on marketing grass seed, corn seed, and above all, sugarbeet seed. The estate had special beds for the propagation of beet seed, which was rapidly gaining a reputation and was in great demand. The distance from the Moscow-Kursk railway was a handicap, but as already mentioned, great store was laid by the spur-line.

The estate generated considerable income in the locality as an employer. It also provided an outlet for the training and expertise of the manager, accountant, foresters, craftsmen, etc., in a region where such opportunities were limited.

Up to a point it provided some leadership. The management was actively encouraging cultivation of beet in the estates around for

processing in the Meyendorf sugar mill. Gifts of molasses and other beet residues were distributed to neighboring landowners as incentive.

Estate corn seed was exchanged for peasant seed undoubtedly at a price, though not specified. Peasant seed was used in food preparation on the estate; while the estate seed was contributing to better yields on peasant farms, the estate bulls were used for servicing peasant cows, etc.

To what extent peasants actually employed on the estate, cultivating well prepared land and reaping above average yields, were also learning, is difficult to assess. Most likely the demonstration effect was more conducive to arousing envy and resentment than a wish to imitate. We are here in the realm of speculation but it would appear that farming advances on large units were not relevant to peasant experience. One hears of the demonstration effect of more advanced farming methods of German colonists or Latvian and Estonian peasants, but rarely of big landowners.

It is possible that examples of efficient and successful estates were so few, and waste, neglect and failure so evident, that peasants rarely felt the impact of the best practices. It could be, reactionary though this may sound, that the frequently "soft" or "sloppy" behavior of landowners vis-a-vis the slackness of their peasant workers (whether out of liberalism or to avoid friction) resulted in a contemptuous attitude on the part of the peasants. It often appeared to them that either the landowners did not know how to look after their interests or that they had such abundance that waste and losses did not matter.

The German colonist and his family were like the Russian peasant working farmers. They were hard taskmasters and would not tolerate slackness in the Russian peasants whom they hired for the season. This the peasant could understand and respect. (Not that he necessarily worked any better. Indeed, Schultze Gavernitz was told that resort to the use of reapers by German colonists in New Russia was prompted not so much by shortage of labor as by its unreliability.) Perhaps the most important factor in the failure of large estates to provide leadership was the memory of the serf-master relationship and the peasant's avid concentration on land acquisition rather than on improvement.

Our limited knowledge of medium size estates, especially those between 500 and 1,000 dessyatina handicaps seriously our attempt to assess enterpreneurship of estate owners. The very size of the assets at the disposal of the largest owners undoubtedly discouraged a businesslike, taut attitude to allocation of resources; it favored extravagant experimentation without sufficient prior research, a fascination for the newest method, machine or best pedigree cattle.

The success of the Meyendorf estate was due to a number of factors. Firstly, it had a long established commercial character, its sugar mill dates from before the emancipation, as did regular manuring on that part of the estate which produced sugarbeet. Secondly, it was situated in a region of excellent soil and was well provided with labor. Thirdly, though for a region where the fragmentation of holdings was very pronounced the Meyendorf estate was very large, it was nevertheless of a manageable size for direct

farming. One might almost consider it optimal but for the lack of sufficient data for other estates. Finally, there was the quality of management. One is reluctant to over-emphasize this point, as the evidence suggests considerable fluctuations in performance of estates under the same management but situated in different parts of the country. The Teveshchenko estates displayed the whole gamut of managerial behavior. In some estates he was an innovator and entrepreneur, in others he was ostensibly routine bound and relied on peasant livestock and equipment.

[The 2.3 percent of the owners of the 10.7 percent of private land (1905) who were merchants were neither more entrepreneurial nor enlightened than the average. Financially, they seemed to have been successful in that they had an eye for a quick profit. Their concept of management is well illustrated by a case reported by Schultze Gaevernitz. The new merchant-owner of an estate was presented with a statement of accounts which he refused to look at. He assumed, he said, that those who managed his affairs were bound to deceive him; consequently, he made his calculations on this assumption and made sure that his profit was such in reality and not only on paper. Schultze Gaevernitz added that surprisingly, the estate in question was a success.

As the majority of estate owners were gentry by origin, it is the attitude, capacity for adaptation and ability of gentry landowners that are mainly in question. Witte who had no love for the dvoryanstvo thought of those of them who were in the administration as ignorant, stupid or degenerate. Others believed that the administration had sucked up the best and most able elements of the class and that those

who remained on the estates were those whom none would employ in an office, the throw-aways of the bureaucratic system.

Finally, all our information suggests that after 1900, the performance of the estates, as of agriculture in general, as well as the methods of management, were progressively improving. Already in 1899 (September) a report of the All Russian Congress of Agriculturalists and Dairy Farmers pointed to the growing awareness that farming "needs knowledge, effort, and capital as much as any business enterprise:"

There was obviously a case here of learning by doing, a more realistic attitude to farming methods. For the Russians were not ignorant of what constituted advanced farming; Von Thaer, Arthur Young and others were well known and read. Russia's own agronomists, e.g., D. Shelekhov as early as 1843 chastised the tendency of Russian landowners to rely on area expansion, A. Bazhanov in 1863 laid stress on the need for a proper balance between livestock and land. Bazhanov, however, warned Russian landowners of their infatuation with readymade formulas in books without understanding the specific conditions of their estates. Hence, though many attempts of improvement were made, they ended in disillusion because western practice was followed blindly. Baron I. Manteufel's writing in 1900 (*Soobrazheniya i opyty po ustroystvu imeniy i tekhnike khozyaystva*, Riga 1900) in turn poked fun at agronomists with their talk of "rationality and ready made prescriptions." He stressed that a farmer must by experience discover a proper balance between effort and expenditure needed for various farming operations; "a farmer's law of minimum", he called it. Above all, the main criterion must be "profit, full stop." "Not

maximum production, but optimum profitability--is our slogan"--writes the baron.

Nevertheless, rising agricultural prices and better terms of trade were undoubtedly the most important factors in improvement in estate performance. The increase in the proportion of mortgaged larger estates was undoubtedly connected with capital investment on such estates, as was the expansion of the market for agricultural machines both domestically produced and imported. Though the main advance came after 1909, our estimates of income from land (considering only incomes above 1,000 rubles) suggest a rise of over 44 percent between 1905 and 1910. It was during the pre-war decades that a viable sector of large scale farming was being consolidated as the counterpart of the equally strengthening peasant sector.