

ernmental operations, while it may be irksome and at times dangerous is in general the great protection of the citizen and the taxpayer against hasty, ill advised and exceedingly expensive action on the part of his representatives." The public wants action, not delay, and it wants action based on intelligent thinking based on careful planning. How can any reasonable man assume that all prompt action must be ill advised and exceedingly expensive!

Municipalities need a general financial plan, including the financing of all of their physical needs. The municipalities which develop a complete and sound financial plan, have it adopted by the municipal councils, and finally convince the people of their community that they have a good

plan, will find they have erected the best barrier there is against hasty and ill advised action. The municipality with such a plan can place all proposals against this plan to see whether or not they are reasonable and whether or not they are in keeping with the best financial interests of the municipality. On the other hand, a municipality without any clean cut, overall financial plan does yield to expediency and makes every decision on the basis of public pressure instead of public interest. Intelligent public action in all municipalities must be based on careful thinking in advance about the needs of the community and not on a philosophy which indicates that delay is the greatest protection of the citizens.

A Look at Two Russian Farms

By CHARLES E. KELLOGG

NEAR Moscow last June I had an opportunity to see two Russian farms—a state farm and a collective. Whether or not these farms are "typical," I don't know; but I have no reason to think they were much better than others, judging by the other farms I saw from the train, auto, and plane while traveling across the country from Baku to Leningrad and from Moscow to the Bering Sea.

Naturally they were smaller than the great farms in the less humid grain-growing areas further south and east. Like everything else in the Soviet Union, these farms bore the obvious signs of the extreme shortages that reflect complete mobilization of resources for war. In fact, one lacks utterly the words to describe the enormity of the Russian sacrifice

for victory. For this reason also, these two farms probably look quite different now than they did 4 years ago or will look 4 years hence.

The General Pattern

The pattern of farming in eastern Europe and Asia is one of agricultural villages rather than scattered farms, as in most of the United States and Canada. This pattern is very old in Russia. Before the Revolution most of the peasants lived in villages and farmed the land around them. Some worked on land that was owned by the village; others worked the land of large estates that belonged to individuals, especially to members of the aristocracy. A few middle-class individual farms had been organized, especially in the years just before World War 1, but now it seems that the most of these have been absorbed into either state farms or collectives.

The land of the old villages was allotted according to the number of villagers. The total land area was first divided into sections according to soil quality and

EDITOR'S NOTE: Dr. Kellogg is Chief of the Division of Soil Survey in the United States Department of Agriculture, and author of the book, *The Soils That Support Us*. He was one of 15 American scientists who attended the Jubilee Session of the Academy of Sciences of the U.S.S.R., as their guest. At these meetings, commemorating its 220th anniversary, held in Moscow and Leningrad last June, he had some opportunity to see their agricultural research institutes. More recently, he served as Secretary to the Committee on Agriculture at the first conference of FAO in Quebec last October.

these into individual strips. Thus each family would often have several little plots miles apart.

Such strips were too small for the efficient use of machinery. Weeds grew between them and on poorly managed pieces, spreading seeds to the others. Since the land was reallocated from time to time as the population in the village changed, a peasant had no incentive to follow good longtime practices. The improvement of soil for maximum yields requires long rotations and the use of lime and fertilizer from which benefits cannot be realized for several years. Since he might not have the same strips next year, he would only be interested in practices that gave an immediate return.

It was obviously necessary to throw the land together into large fields and orchards in order to use efficient farming practices. Since the village, as a whole, really "owned" the land and had to take account of changes in population within the village, it was decided to farm the land together and divide the products.

Collective Farms

Many complications would arise from an attempt to combine several individual farms, as we have them in the United States and Canada, into a collective organization. But most farmers in the Soviet Union were already living in villages. They thought of land use in terms of village control. For them to have divided the village land into individual scattered farms, as we have them, would have been an even more radical change for most of them than was the formation of collectives. Further, the freezing of a pattern of small family units in a country of such rapidly increasing population would have planted seeds for serious trouble later.

The members on a collective farm select the governing committee and a director from among themselves. Then also certain individuals head up special activities like the dairy, the orchard, the apiary, and so on. Each family owns its own house and a small tract of land for

home production, say one-half to three-quarters of an acre, depending upon the soil. In the drier regions of extensive farming, these home gardens are larger than in the region near Moscow. This property may be sold to a new collective farmer. In addition, each family has grazing rights for a cow and two pigs. All rights of a member of the collective are inherited by the children. Any citizen over 16 years old may apply to be a member of a collective farm and only rarely is an application refused.

The detailed plans for the operation of the farm are worked out by the director and the members within the general framework suggested by the district officials. Petitions for changes in the general plan may be presented by the collective and adjustments worked out with the government officials for the district.

On a Collective Farm

The collective farm I visited near Moscow, like many others, is named after the memory of Lenin. It is a relatively small farm—about 1020 acres, with 675 acres under cultivation. The remainder is taken up with homes and gardens, farmyards, and some patches of woods and non-arable pasture. Last June there were 280 families with 322 workers besides many small children. By far the majority of the workers were women. Over 300 young men and about 75 young women from this farm had gone into the Red Army. Some other members of the families worked in the factories near Moscow; but those who work as members of the collective do no additional work, except in their own homes and gardens.

The soils were developed from gently rolling glacial drift under a mixed forest. They were naturally somewhat acid, leached, and light colored, but are responsive to management and can be built up to a good state of productivity. On the whole they are not greatly different in general character from the cultivated,

well drained loams and sandy loams of the central Lake States or eastern Canada.

The cultivated land is divided into various sections according to enterprises. When first organized, some time after the Revolution, they had no fruit; but like many farms near Moscow, this one has changed from primarily grain to primarily fruits and vegetables in recent years. Now there are small fruits, large vegetable gardens, and orchards, including about 160 acres of relatively young apple trees, interplanted with gooseberries and strawberries. (I was amazed to see that part of these had been established even during the war.)

A considerable area on this farm is under glass, including both heated greenhouses and cold frames. Under the supervision of a vigorous woman member of middle years, some 46 people work with the plants under glass. Another 17 work in seed production. Both tomatoes and cucumbers are grown in greenhouses. Then many cucumbers and tomatoes are grown in cold frames and field plots to give year-round production.

They use an interesting kind of soil block for starting the young cucumbers. The grass is removed from a layer of turf grown on highly fertile soil. The turf is pressed into individual hexagonal blocks about $2\frac{1}{2}$ inches thick and 5 inches in diameter with a little machine operated by the feet and hands. The machine also makes a hole in the center about 2 inches deep and an inch in diameter. The cucumber seeds are germinated in peat used to fill the holes. The blocks fit together snugly in the beds. Young plants can be transplanted into cold frames or in the field with no transplanting shock.

In frosty weather cold frames containing tomatoes and cucumbers are protected with coarse, heavy mats made on the farm from small bundles of long straw fastened together like the cover of a roll-top desk.

I was told that 27 per cent of the produce from the farm went to the

State as taxes. A small percentage is used to pay for seed, and the remainder is divided among the workers according to the amount and kind of work they have done. A skilled worker is credited with a larger number of standard work-day shares than an unskilled worker for the same number of calendar days of work. The director receives 52 standard work-day shares a month plus 400 rubles.¹ If the plan for the farm is exceeded, he gets a bonus of 300 standard work-day shares and the additional produce is divided among the members. Adequate opportunities are available for workers to acquire increased skill and qualify for larger shares, including training as agronomists, horticulturists, agricultural engineers, and so on.

It seemed strange to me that on this farm it was the produce itself that was shared, with each worker left to market his own products. The suggestion that it would be more efficient to market collectively was objected to on the ground that such a scheme would be an invasion of the rights of the individual to market as and when he wished.

I visited a peasant home. It was quite well built, mostly of wood, and had thick walls and several stoves. The sleeping rooms and living room were small but comfortable; but the kitchen was inconveniently arranged and had none of the modern conveniences. The house had electricity only for lights.

The farm has a first-aid station, or perhaps we should say a small field hospital, with a resident physician and a dentist. In a central position is a large clean nursery where the small children are cared for by a trained nurse while the mothers are at work.

State Farms

For the most part, the collective farms have been organized where there were agricultural villages. Much of the "free"

1. The official rate of exchange is 5 rubles per U. S. dollar. So many factors vary between the U. S. S. R. and the U. S. A. that it is misleading to attempt translation of single items from one currency to another.

and, land appropriated by the State during the Revolution, has been organized into state farms. On these farms, operations are directed by paid managers appointed by the State and the workers are on a salary. The amount paid to each worker depends upon the number of days he works and his skill. In addition, each family has a garden plot and grazing rights as on the collectives, although, of course, the houses and gardens belong to the farm.

Roughly, the organization resembles that on a big "factory" farm or plantation in the United States, except that the manager is appointed by the State rather than by a private individual or board of directors, and the workers share a bonus, in kind, if production exceeds the plan.

Presumably new ideas and new practices growing out of scientific research may be applied more promptly and completely on state farms than on collective farms. Hence state farms serve partly as models or demonstrations for the collective farms. But they are going farms, not experimental farms, although some plant materials and practices may be tested on them in co-operation with research institutes. Besides the manager, one or more trained agronomists, veterinarians and the like may be employed.

I have been told that there are about 5,000 state farms in the Soviet Union, representing the various types of agricultural regions and farming systems. Some are relatively small, but many have around 25,000 acres and some as much as a 100,000. The large ones are in the drier grain-producing regions.

On the "Forest Fields" State Farm

This state farm near Moscow was organized in 1919. It has only about 2,000 acres, which is small for a state farm, but the culture is intensive, although not so much so as on the collective farm just mentioned. The soils are sandy loams, developed from rather sandy glacial terrace material, somewhat sandier

but otherwise similar to those of the collective.

On this farm 537 people were living in 175 families. Many had gone into the Red Army. Last June there were about 270 workers—more than one-half of them women.

People were living in houses of various sizes and designs. Although adequate, several of these were not in very good repair; and neither time nor materials had been available to keep up the fences and yards neatly.

Every effort is made to keep workers satisfied with conditions to avoid labor turnover. Over 10 per cent of the workers on this farm had been employed there for more than 20 years, and 70 per cent for more than 15 years. The veterinarian on the farm had been working there for 17 years. An agronomist and a trained animal husbandman are also located on this farm. Training courses are arranged for the workers to acquire greater skill in the various enterprises.

In winter the workers make beehives and mats for covering cold frames and perform similar tasks. Each family had about one-third of an acre for garden besides pasture for a cow and 2 pigs. A few do some supplementary work—at some cottage industry—for pay in their homes but not many work in the nearby factories.

Each state farm has its own budget, which is a part of the plan. This one had a total budget of about 3½ million rubles. Any surplus of products, over the plan, is divided one-half to the State and one-half to the workers on the farm.

The farm was divided into four main sections, but seemed to be run as a well-integrated unit. I was furnished the following table indicating the collection of crops for 1944, which likely includes a little double listing, such as hay and pasture:

	Hectares (=2,471 acres)	Metric Tons (=2,204.6 lbs.)
Perennial grasses:		
Hay.....	450	997
Green fodder----	50	539
Grasses on pasture..	100	1,074
Silage crops---	50	903
Annual grasses:		
Fodder--.....	100	159
Green fodder-----	40	392
Fodder roots--.....	20	1,400
Potatoes.....	20	417
Misc. vegetables.....	20	1,021

In addition, some small fruits and orchards are being established. The goal for the farm includes 15 hectares of fruit.

The largest items of income for this farm are derived from cattle breeding and dairying. Pure bred cattle raised here are sold to collective farms. In June, 1945, there were 393 head of cattle, including 185 milk cows.

The cows closely resembled Frisians. They were clean and in excellent condition. They had been tested and were said to be free of tuberculosis. Besides careful sanitary measures, the milk was regularly pasteurized. During the previous year cows averaged 3,276 liters of milk; whereas before the siege of Moscow they were averaging 5,214 liters. It was confidently expected that production could be increased this year so that with milk at 86 kopecks (1 ruble = 100 kopecks) they would receive about a million rubles for it.

Adjoining the dairy barn is an ordinary silo for storage of grass silage to be fed in winter. Cabbage has been used for silage also. The pastures were arranged in relatively small paddocks for rotation grazing according to the latest methods.

In addition to dairy cows and breeding stock, the farm also raised horses for sale, including riding horses. They had 76 of these in June and some were splendid animals. In addition to 2 tractors they also used horses for power.

The farm had some excellent young orchards of apples and pears. There were several large strawberry beds within which some testing of varieties was under way. In addition, there were large plantings of black currants, many raspberries, some quince, and a large planting of a new variety of cherries.

Besides fruits and field-grown vegetables, herbs, vegetables, and flowers (for sale) are grown in cold frames. Tomatoes, cucumbers, and dill were prominent in June. Near the vegetable plants I saw a small apiary with 35 hives.

As on the collective farm, a well-equipped nursery occupies a prominent place near the center. Each child has a bed and morning and afternoon naps are required. A dining room was furnished with small tables and there were the usual play rooms and medical facilities.

The workers on the farm exhibited a high degree of resourcefulness to overcome the obvious shortages of equipment and materials. For efficient production their soils need fertilizers, especially phosphate. They were able to get only a little. The manure was mixed with peat and composted in the woods. Wood ashes were used and any available rock phosphate was mixed into the compost to increase its availability.

Impressions

Conclusions cannot be drawn on the basis of such a small sample. Further, any observer's impressions are inescapably influenced by his own background—his standards of comparison—and cannot be neatly separated from more general impressions of the whole society within which the farms are operated.

The appalling shortages and desperate sacrifices of the Soviets during the war made a deep impression on me. Against that background, it seemed to me that both of these farms were doing very well—better than I had expected.

The workers were alert and confident, and were doing a competent job with both plants and animals. The fact that these farms have developed their present enter-

prises during the past few years—enterprises requiring new practices and skills—gives added significance to their results.

Neither farm is as neat as a similarly successful one in Canada or the United States would likely be. But with peace, there may be more time to repair unsightly fences and cut weeds. Certainly they had neither a day's labor nor a ruble's worth of material to use on anything but the essentials.

On the marketing side, it seemed to me they had room for much improvement in order to establish uniform grades, to have the products reach consumers in the best possible condition, and to reduce the work required.

Considering the growing population of the Soviet Union, increased agricultural production is essential. And to improve their living standards animal products, fruits, and vegetables must receive great emphasis. All in all, they shall likely require somewhere near a 40 to 50 percent increase over pre-war production within the next 25 to 30 years. Much of this increase will need to be made in the high-cost products.

My impressions of the enthusiasm of the people, of their agricultural research institutes, and of their farms add up to the prediction that they will achieve this result, provided they can have the peace they want so desperately.

Air Transportation and World Understanding

By J. PARKER VAN ZANDT

I

WHAT changes are we likely to see in the immediate post-war period, as a result of the development of international air transport? Certainly within a few years, perhaps before 1950—provided always inept politics does not intervene,—the major cities of the world will be connected by a network of trunk air routes over which daily flights will be operating at speeds in the neighborhood of 300 miles an hour.

It requires no prophetic insight to foresee schedules of 300 miles an hour or more. Transport planes are already flying, or soon will fly, which approach or exceed this speed: the Boeing Strato-cruiser, for example, developed from the B-29 bomber, or the Douglas Mixmaster with the propeller in the tail, both of which have recently flown across the United States in $5\frac{1}{2}$ to $6\frac{1}{2}$ hours; the Lockheed Constellation, in which TWA flew some 35 passengers from Washing-

ton to Paris in $12\frac{1}{2}$ hours in December, 1945; Republic's new Rainbow, which is scheduled to fly next year and is expected to cruise around 400 miles an hour; the DC-6, and other types of transport planes, both American and British.

Now, consider what daily schedules criss-crossing the globe at average speeds of 300 miles an hour will do to this world of ours: It means, for example, that you will be able to leave the capital of the United States or Canada after lunch one day and have breakfast the following morning *in any capital of any country in all of Europe or Latin America*,—in Paris, France or in Rio de Janeiro, Brazil; in Moscow, or in Santiago, Chile, in Athens, Greece or in La Paz, Bolivia.

This is the measure of our world of the next ten years—between lunch and breakfast; the world you and I have got to adjust our thinking to; the world your son or your daughter, if they are starting in school about now, will grow up with during their school years.

As startling as this may seem, however, it is only a foretaste of what will

EDITORS NOTE: J. Parker Van Zandt is Director of Aviation Research at the Brookings Institution, in Washington, D.C., and author of various books on aviation.