

Feeding the Cities

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Spokesman recently published a new edition of Dr Medvedev's pioneering study, The Legacy of Chernobyl. Here he recounts his experiences on his London allotment, and reflects on urban food supply worldwide.

Agricultural London

The National Institute of Medical Research, where I started work during the winter of 1973, is located in the North London suburb of Mill Hill. It is so named because a windmill actually stood here in the sixteenth century, located at the top of the hill and overlooking the village.

I settled with my wife, Rita, and son, Dima, not far from the Institute. At first we rented, and then we bought a small house from where I could walk through the local park to my place of work. On the right-hand side of the park there was a children's playground with tennis courts, whilst to the left there was a vegetable garden co-operative, occupying about four hectares of land on a hillside, enclosed by a light metal mesh fence. On the gates, there hung an advertisement announcing that the 'Allotment Association' had vacant plots which could be rented by phoning the local council. There were small plots of cultivated land clearly visible behind the fence; vegetable gardens with various crops and fruit trees. On each plot there was a small, standard shed. There were no barriers between the plots.

Seventeen years' work at the Institute's Department of Genetics passed very quickly and, in 1990, I was approaching the critical age of sixty-five, when scientific researchers of all ranks in England were then obliged to retire with a pension. Joining a vegetable garden co-operative was the most fitting alternative to laboratory research for my wife and I. Forty years before this change in our life, we had both graduated from the K.A. Timiryazev Agricultural Academy in Moscow and had worked in the same place

until 1962. It was now possible to break away from experimental work and start growing fruit and vegetables. I called the number indicated on the co-operative's gates and on the following day received a contract form for renting a 300 square yard plot of land. Annual rent was no more than the cost of a box of tomatoes, and pensioners received a fifty per cent discount. A year later, we added another plot, and then a third. There were about eighty members in the co-operative at that time, occupying 150 plots of land. British welfare grew rapidly at the beginning of the 1990s; pensions and benefits were increasing, and citizens, even the unemployed, preferred to buy fruit and vegetables in the nearest supermarkets.

Over time the first plot came to be dominated by fruit trees: four apple tree cultivars, plums, pears and berries – mainly blackcurrants and gooseberries, as well as strawberries. Perennial flowers also grew here. The remaining land was set aside for potatoes, vegetable and bean crops, and sweetcorn. Selecting cultivars and growing seedlings became my hobby and we assembled a small greenhouse for this work. In some years I planted more than ten tomato cultivars and seven potato cultivars. For cabbage, beet and onion, combinations of early and late cultivars enabled us to have fresh vegetables all year round, the mild climate of England allowing us to gather the harvest of some vegetables in winter or early spring. Cabbage went in sauerkraut; cucumbers were pickled. The best varieties of cabbage were Belorussian.

Commercial vegetables, especially tomatoes, lost their original, natural flavour long ago. For many years, their selection was determined by their transportability and shelf-life, which required the fruits to have very thick and firm skin, and for them to be picked long before they were fully ripe. A natural tomato, upon ripening, exudes through its thin skin around twenty different aromatic substances in order to attract animals, which spread the seeds after eating the fruit. For supermarkets, the most important things are appearance and 'keeping quality'. Tomatoes, retaining their natural flavour, have come to us from various places, from the Caspian steppes, from the Kiev Institute of Cytology, from a restaurant in Milan, and even from our old friends' anniversary dinner in London.

We don't refuse granular mineral fertilisers. But we don't accept herbicides and pesticides.

One particularity of the British tradition of gardening co-operatives is that allotments are allocated on municipal land in the city, rather than in rural areas, where the land is divided between small farms and is usually owned privately. Between plots in the co-operative, usually 300 square yards each, there are no fences, only narrow green walkways. The sale of

crops is forbidden, even at vegetable markets. Surplus produce can be given away, for example, to schools or hospitals. In London, vegetable garden co-operatives existed in the central areas only during the war years. After the war the co-operatives were forced out of central London. These oases of organic agriculture were preserved in twenty areas of London, beyond the limits of the Underground's Circle Line. In Barnet, one of the city's northern regions, which includes Mill Hill, there are about 200,000 residents and 55 vegetable garden co-operatives, each with between 70 and 200 members. In total, around a thousand co-operatives have been preserved in Greater London, many of which are located not far from tube stations on the radial lines. Among the European capitals only Berlin can be compared to London. Here and now there are thousands of gardening co-operatives within that city. Many were created during the war in clearings caused by bombing, as well as during the blockade of West Berlin in 1948-49 and after the erection of the Berlin Wall.

Some history

In the nineteenth century, when rapid industrial development was taking place in Britain, unemployment benefits did not exist. Nor were there old age pensions. The unemployed and the elderly started to grow potatoes, turnips, cabbage and carrots on vacant plots of land and even began to breed chickens and pigs in order not to starve. In the industrial cities of central England a political movement emerged with the slogan 'Allotments for all unemployed'. The first organised association appeared in Birmingham in 1882. Soon, similar associations sprang up in other industrial cities. The first legislative measures were then taken, the purpose of which was to demarcate peasant farming and proletarian horticulture. The proletariat was not allowed to buy small allotments and sell their produce. According to a 1908 Act of Parliament, no more than 300 yards (252 square metres) of land could be allocated for each adult family member.

All these restrictions were revoked during the First World War, when the British Isles were blockaded by the German navy. By 1918, there were one-and-a-half million vegetable gardens producing more than two million tonnes of vegetables. After the war the number of vegetable gardens gradually reduced threefold. At the start of the Second World War, when Britain was again blockaded by sea and air, a system of food rationing was introduced for the first time. Vigorous measures were taken on the use for vegetable gardening of all urban land, parks, stadia and golf clubs. Nearly half the urban population had a garden plot. In the vegetable garden co-operatives, including ours, breeding chickens and raising pigs was

permitted. In residential areas only cockerels were forbidden. Almost ten per cent of the country's food supply was produced in urban areas.

After the end of the war, urban arable farming began to diminish rapidly. The construction boom started and the central areas of cities became devoid of vegetable gardens. However, a large number of gardening co-operatives were saved, as laws adopted earlier prohibited their forced closure on municipal land. In 1964, the government formed a special commission to decide the fate of vegetable garden co-operatives, which still existed in the heart of urban developments. This commission worked for five years and, only in 1969, did it present a report and recommendations to Parliament. The commission's conclusions were quite positive:

‘Allotment co-operatives represent a healthy, physical form of creative activity for all age groups and people of all professions. Working in vegetable garden co-operatives has a significant therapeutic value, especially for the physical health of people living in densely populated urban settlements. Working on the land provides relief from the stresses of modern life and, at the same time, has a creative and productive nature. It is linked to mental stimulation, developing powers of observation, the art of planning, and understanding the beauty of forms, colours and scents, love of nature, and understanding the mysteries of growth and cultivation of plants.’¹

Who needs a vegetable garden in Britain?

Almost a third of the gardeners in our co-operative live in council flats. Every Briton dreams of owning his own cottage with a small garden, but not everyone is able to fulfil this dream. A vegetable garden gives them an alternative. Amongst the older generation of this group there are people living alone, so friends in the co-operative are like a big family. It is not uncommon for them to have known each other for thirty or forty years and they meet up during the spring and summer nearly every day. Communal picnics with barbecues and collective tea parties occur regularly. The oldest gardener in our group is my neighbour, Les, who is also the co-operative's Chairman. He is a former sailor who served on the ships of the Northern Fleet from 1942 to 1944, making the most dangerous voyages from Scotland to Murmansk, bringing ammunition, fuel and food supplies to the Soviet Union for the Northern Front. He will be 88 this year, one year older than me. My wife, Rita, is the third; she is only 86.

Irish gardeners make up the second distinctive group in our co-operative. Because of the poor soil and wet climate in Ireland, market gardening, rather than field crop cultivation, was in the past, and remains today, a main branch of agriculture. Potatoes were the main source of

calories. The best gardeners in our co-operative are Irish. For them vegetable gardening is not a hobby, but serious business.

In recent years, people from Eastern Europe have started to appear in our co-operative: Czechs, Poles and, recently, even Belorussians. Before 2006, there were always vacant plots in the co-operative, overgrown with weeds. But, in 2007, the price of fruit and vegetables noticeably increased and vacant plots quickly disappeared. Some had to be divided into two. With the onset of the economic crisis, in 2008, and the rise in unemployment in our and other co-operatives of London, a waiting list appeared. Some will maybe have to wait five or six years. The government is debating a plan on the allocation of new land. Vegetable gardening has unexpectedly become very popular. Spaniards, Italians, Austrians and two Korean families have appeared amongst the members of our co-operative. The majority of gardeners think more about subsistence, as opposed to a healthy lifestyle.

Not far from our co-operative, next to the tube station, a large building was recently constructed to house a commercial 'health club'. It now has around three thousand members. For a respectable monthly fee, equal to a gardener's annual rent, they practise yoga, sweat on exercise machines, spin pedals on a stationary bike, and swim in the chlorinated water of a crowded pool. These people understand the importance of physical activity for their health. But this is the 'middle class', and to them working the land means no more than keeping gardens with neat lawns

The global picture

The majority of urban families do not start growing vegetables for the sake of pleasure. Cities sometimes grow to such huge sizes that the proportionally smaller farming population is unable to provide them with enough food. There are currently 430 cities in the world which have a population of more than one million. Tokyo, with a population of 26.4 million, ranks first, followed by Mexico City (19 million) and Mumbai (18 million). The slum suburbs around many South American and African cities often have a larger number of people than the cities themselves.

In the Soviet Union the absence of private land ownership enabled the problem of providing the urban population with fruit and vegetables to be solved by taking family vegetable gardens outside city limits. In this case, on six to eight acres of allotment space in the co-operatives, it was permitted to build small dachas instead of sheds, so that a family could spend not only days at the co-operatives, but also nights. The most rapid development of suburban gardening co-operatives in the Russian Federation happened between 1992 and 1996, coinciding with the sharp

decline in arable farming and stockbreeding in rural areas after the state and collective farms were dismantled. Suburban allotments were privatised and became private property. The number of allotments for city-dwellers in Russia increased from 11 million to 30 million during the 1990s. Following the collapse of the Soviet Union, suburban construction and horticulture eased social tensions in the country during the period of decline in living standards and reduced industrial and agricultural production.

During the last ten years, cities have been growing most rapidly in poor rather than wealthy countries, especially in Africa and Asia. Poverty and the destruction of villages have driven the growth of cities. Ecologists sometimes calculate the areas of surrounding land which cities require for their normal functioning in terms of the provision of water, food, waste management, sewerage, heating and electricity supply, the creation of green zones, the removal of industrial plants from residential areas, and so on. This is the so-called 'carbon footprint', a term introduced in 1992 by William Rees and quickly adopted for calculations not only for cities, but also for countries.²

For London, with its seven-and-a-half million inhabitants, the 'carbon footprint' turned out to be equal to 19.7 million hectares. This represents more than the whole territory of England, and almost two-thirds of the United Kingdom, including Scotland, Wales and Northern Ireland. Mumbai is twice the size of London in terms of population, but its ecological effect is five times smaller, due to poverty and the bad provision of sanitation services. The average American city has a population of 600,000 and absorbs 30,000 square kilometres for the maintenance of its resources. This means that for 250 million urban residents in the United States, the maintenance of their standard of living requires more than 14 million square kilometres, which is significantly greater than the territory of the country. This calculation takes into account the needs of people's lives, without considering the needs of industry.

In the Russian Federation in 2005, the 'carbon footprint' of each resident was 4 hectares, which was half the size of the 'biological capacity' of the country's territory. There is also provision for development in Canada, Australia and Kazakhstan. In China, the 'carbon footprint' of each inhabitant in 2005 was small, around 1.5 hectares. But for the whole population it was already fifty per cent higher than the 'biological capacity' of the overall territory of China. The situation is worst in Japan.

The whole population of Earth, however, has no ecological conditions for development. To maintain human life at its present level, the territory of our planet needs to increase by forty to fifty per cent. That is why it is necessary to change the circulation system for food and partially urbanise

the production of vegetables and some fruits. Urban beekeeping is also being developed intensively, not so much for the production of honey (which can be strongly polluted in cities), but for pollination of plants.

Hong Kong, a city with a population approaching seven million on a territory of 1,200 square kilometres (smaller than Moscow), has more than ten thousand vegetable gardens. They provide 45 per cent of the city's vegetable demands. Ten million chickens and 390,000 pigs are kept in Hong Kong. The island city of Singapore, with a population of 4.3 million, has a territory almost twice as small (699 square kilometres). But the urban agricultural sector provides the population with 20 per cent of its vegetable needs and has two million chickens and 250,000 pigs.

In poor countries, urban agriculture – often on wasteland and in slums – feeds almost half the families. Chickens are often kept inside houses. In Bogota, the capital of Colombia, the balconies and roofs of almost all houses are used as 'mini' vegetable gardens. More than half of all urban families in Kenya grow vegetables, keep chickens and, sometimes, geese. This practice is encouraged by the Kenyan government, as it simplifies the management of urban waste.

Old Russian cities such as Tver, Pskov, Yaroslavl, Kaluga and many others developed historically as 'big villages'. Many streets were formed from privately-owned houses, each with a garden and vegetable plot. They did not have a centralised sewerage system. Water was supplied from wells. Chickens ran around the streets with their broods. There are still territories such as these on the outskirts of Moscow. Even in London the existence of gardening co-operatives helps to maintain private stables on the outskirts of the city. They love equestrian sport in England and thousands of families, even in London, have their own horses, which are kept on the city outskirts in shared commercial stables. Gardening co-operatives have established a certain symbiosis with these stables. They provide compost to the co-operatives.

Prospects for urban agriculture

Critics of urban vegetable gardens have expressed concerns that fruits and vegetables grown in cities contain a lot of harmful substances, absorbed from the polluted urban air. These concerns are justified, but not for all cultivations. Active gas exchange in plants occurs only in green leaves. Therefore, leafy vegetables, such as spinach and green salad, are actually better cultivated further away from urban smog or major highways. Seeds, root vegetables and fruit formations, squashes, beetroot and berries do not have a system of active gas exchange with the surrounding air, and develop

as products of biosynthesis through growing tissues and the systems of internal exchange.

Active gas exchange in the environment is essential to warm-blooded animals. Plants receive the sun's heat directly from the atmosphere and convert carbon dioxide with light energy into organic matter. A human organism, in which all tissues and cells must have active gas exchange for the production of thermal energy, is less protected from harmful substances in urban air than fruits and vegetables.

In 1996, around eight hundred million people were involved in urban agriculture across the whole world. A special programme was started by the UN for the study of the influence of urban agriculture and animal breeding on employment and urban food supply.³ Recommendations soon appeared from the World Health Organisation, since almost all cases of human infection – deriving from animals and growing into epidemics and even pandemics – were registered on poultry and pig farms located in densely populated urban suburbs in China, Vietnam, the Philippines and Hong Kong. The last such pandemic came from Mexico.

Estimates have shown that, by 2025, almost fifteen per cent of global food supply will be produced in urban territories. As early as the year 2000 in South-East Asia, there were only 850 square metres of agricultural land per capita. In China this figure fell to 700 square metres, and rapidly decreased due to the creation of dams, growth of cities, and construction of roads. In Japan, a country with a population of 128 million, only thirteen per cent of the area is suitable for agriculture. This constitutes 360 square metres per capita. In South Korea and Taiwan it is even worse. Here, there is only 250 square metres of land per capita suitable for agricultural use – an amount equal to the area of land allocated to the urban unemployed in England in 1882.

There is little usable agricultural land in Western Europe. Only twenty-four per cent of the territory of Great Britain is used for agriculture, and forty-five per cent as pasture. For the cultivation of cereal and vegetable crops only six million hectares are used, amounting to just 0.1 hectares per capita. This is seven times smaller than what is allocated for the cultivation of these crops in Ukraine, which has considerably better soil. Around 150 countries provide populations their balance of nutrition through the import of foodstuffs, mainly from the United States, Canada, Brazil, Argentina and Australia. Urban agriculture will therefore always remain and expand. The global economic crisis, which began in 2008, is still increasing unemployment across the world. In the United States – where a substantial part of the population live in the suburbs and has large plots of land, often one hectare per house – horticulture has been rapidly evolving since the

beginning of 2009. A considerable number of families have started to keep chickens. This is happening not because there is a shortage of food in the country, but because people – those unemployed accounting for almost ten per cent of the working population – have no money.

Gardening and horticulture are amongst the most productive forms of healthy physical activity. In the last ten years the special discipline of ‘horticultural therapy’ has been formulated by health policy makers, which they recommend to people of all ages and for a multitude of different chronic illnesses. This therapy is especially effective for depression and children with autism.

Our modest vegetable garden co-operative came into being in 1912. This year it marks its one hundredth anniversary.

Notes

1. Garnet, Tara, ‘Growing food in cities’, *Sustainable Agriculture, Food and Environment Alliance Report*, London, June 1996, p.19.
2. Rees, William, ‘Ecological footprints’, *Environment and Urbanisation*, 1992, Vol. 4 (2), pp. 121-130.
3. United Nations Development Programme, *Urban Agriculture: Food, Jobs and Sustainable Cities*, Publication series for Habitat II, 1996, Vol.1, UNDP.

Translated from the Russian by Andrew Ramsbottom.