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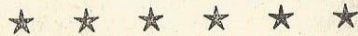
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A MARX HOUSE SYLLABUS

## The Building Industry in the U.S.S.R.

With a Preface by Mr. R. Coppock,  
(General Secretary, N.F.B.T.O)

6<sup>p</sup>

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## P R E F A C E

MARX HOUSE is to be commended for its action in preparing an account of the building industry in the Soviet Union. The building industry in war-time occupies a prominent place in war strategy, and one finds it interesting to learn how the Soviet Union has grappled with its numerous problems—difficult enough in peace, but acute now.

As will be seen, the Five-Year Plans were vitally concerned with building and dealt with it from many angles—technique as well as quantity.

It is undeniable that progress, immense progress, has been made in Russia, but those whose intention is to serve that country do it bad service by striving to hide or minimise the inevitable faults and setbacks which have hindered advance. Both indiscriminate praise and abuse are valueless as comment and criticism. I believe the pages that follow give much valuable information upon which sane judgment can be formed.

The humanist will rejoice in much, not only in what has been achieved, but in a promising future. The statistician will not view uncritically the record of progress made. It is obviously invalid to compare, as many do, a large percentage production increase in Russia with a small percentage production increase in, say, Great Britain, for the possibilities of advance may be greater in one country than in another.

But the new has much to offer the old, and we do well to make a careful study of the Soviet's vast experiment. I am specially struck by the educational and training opportunities afforded the young people in Russia.

R. COPPOCK,

General Secretary, National Federation of  
Building Trades Operatives.

November, 1942

## NOTE

This booklet has been prepared and written jointly by Mr. David Percival, President of the Association of Building Technicians, and Mr. Alex Massie, Organising Secretary of the Marx Memorial Library and Workers' School (Marx House).

# The Building Industry in the U.S.S.R.

## SECTION ONE

### RUSSIA—OLD AND NEW

In 1913 Lenin described Russia as "an incredibly backward country, backward to an unheard-of degree, poor and semi-barbarian." The rule of the Tsar, landowners and capitalists was "condemning five-sixths of the population to beggary and the whole country to stagnation and decay."

By the time the Soviets came to power, in November, 1917, this backward country had been devastated by four years of imperialist war. Before the Soviets could devote their energies to peaceful reconstruction they had to fight for the very life of the young Socialist Republic through three years of civil war against counter-revolution, intervention and blockade.

Industry, agriculture, transport, communal services, housing—all were ruined and derelict by 1921, when the victories of the Red Army won for the Soviet people a breathing space which enabled them for the first time to settle down to the reconstruction of their country. The task was colossal. It was not a question of planning on the basis of the highest level achieved by the capitalist epoch; it was a question of rebuilding from the wreck.

#### Housing Under the Tsars

Some idea of the standard of "civilisation" achieved by centuries of Tsarist mis-rule may be gained from the fact that sanitation systems existed in only eighteen cities. Housing conditions were deplorable, as bad as could be found in the entire world.

In St. Petersburg (now Leningrad), "where the workers enjoyed comparatively better conditions than elsewhere," only 40 per cent. of the textile workers had separate rooms; the remainder found shelter in overcrowded barracks, where they occupied separate bunks. On the average, a working family had only ten square feet of floor space. (For further particulars, see *Soviet Communism*, by S. and B. Webb, page 929.)

In Moscow, the city of the Kremlin and "forty times forty" churches, 500,000 people, approximately one-third of the population, were "housed" in basements, huts, shanties and factory



barracks, without any privacy, sleeping in tiers of bunks. More than 25,000 dwelling houses in Moscow had neither water nor drainage. In the working-class suburbs of the city the position was even worse.

The above facts are taken from surveys made in 1912 and 1913. The outbreak of the war in 1914 brought housing and commercial construction almost to a full stop, and greatly reduced even maintenance and repair work.

#### War-time Devastation

It is not easy to imagine, or to convey by statistics, the ruination of this primitive housing and of the pitifully backward communal services after seven years of war, of war which, moreover, was fought over such wide expanses of Russian territory, and during which constructional and even repair work was reduced almost to disappearing point.

The achievement of victory in the civil war did not, however, mean that the Soviets could at once concentrate on restoring and expanding housing or the communal services. Large-scale housing construction and the development of communal services depend on the basic work of industry and transport. But both industry and transport had been completely dislocated.

The true measure of the achievements of the Soviet people can only be grasped if we remember the state of affairs which prevailed when they took up the work of economic restoration and construction in 1921.

In the *History of the C.P.S.U.* (p. 248), we get a vivid picture of the situation. "Agriculture was in sore straits"—production being about one-half of the pre-war output. Industry "was in a state of complete dislocation"—large-scale industry in 1920 turned out only one-seventh of the pre-war output, while the output of the iron and steel industry was only 3 per cent. of pre-war. "There was a shortage of fuel. Transport was disrupted. Stocks of metal and textiles were nearly exhausted. There was an acute shortage of articles of prime necessity."

#### Restoration of Economic Life

Inevitably, the main efforts of the Soviet Government were directed in the first place to the restoration of industry, transport and agriculture. This, of itself a gigantic undertaking, was in the main achieved by 1927, when the output of industry and agriculture and the volume of transport approximated the pre-war level.

But here it must be remembered that for Russia the pre-war output, the economic standard of 1913, was that of a weak and backward country in which agriculture predominated. The Soviet Union set its course towards industrialisation, the conversion of the country "from an agrarian into an industrial

country able to produce the machinery it needs by its own efforts," as Stalin explained.

The achievements of the Soviet Union in this sphere are really colossal, particularly in view of the fact that up to 1927 they had to concentrate on *restoration*, and only after that could go forward to *new construction* on a large scale.

#### The Five-Year Plans

These achievements are the fruits of the famous Five-Year Plans, the first of which was launched in 1928. So rapid was the progress that by the end of 1938 Soviet industry had expanded to 908 per cent. of the 1913 level, whereas in Britain industry had expanded only to the extent of 13.3 per cent. in the same period.

The fact that the main emphasis was laid on industrial construction does not mean that the construction of housing, or of communal and cultural amenities, was neglected. The essence of socialist planned economy, as expressed in the Five-Year Plans of the Soviet Union, is precisely that it has a *comprehensive* character and scope, co-ordinating development in all spheres of economy—industry, transport and agriculture—as well as in the material and cultural standards of the people.

#### Advances in Housing

Reproaches have sometimes been made against the Soviet Government on the grounds that in developing industry it neglected the housing of the people. Replying to this charge, S. and B. Webb, in *Soviet Communism* (see p. 929), point out that "some of the greatest advances are made the subjects of the bitterest reproaches. This is the case with regard to the service of housing in the Soviet Union. The living conditions of the mass of the people in the industrial centres of Tsarist Russia, as well as in the villages, were so appallingly bad, and the rapid growth of the city population during the past decade has been so overwhelming, that the utmost efforts at re-housing have so far (1935) scarcely kept pace with the ever-enlarging needs."

Referring to "really great achievements" in housing construction during 1927-1934, during which the aggregate amount of new building "steadily increased year after year," the Webbs conclude that "the U.S.S.R. has actually done more than any other nation during that period."

#### Changing the Map

The problem of the Soviet Government was not only to improve and extend housing and communal services to overcome the miserable legacy of the past and meet the needs of a rapidly expanding urban population. The growth of industry, the opening-up of natural resources, the industrialisation of the former Tsarist colonies where industrial development had been



vetoed by the Tsars—this required also the building of new cities, linked by a network of railways and roads.

Since the launching of the first five-year plan the Soviet people have built *two hundred and thirty completely new cities*. The Bolsheviks have changed the map—not in the manner of the Nazis, by the military conquest of foreign countries, but by the economic development of their own country!

In the Arctic wastes, in the Siberian Tundra, in the deserts of Soviet Asia, in the steppes of the Ukraine and the mountains of the Urals, flourishing new centres of population have grown up. Ports, hydro-electric stations, oil wells, mine-fields and steel works, tractor plants, and chemical works have been built. The Soviet people have changed the map of one-sixth of the earth's surface by their peaceful conquests over the backwardness of their past, over nature.

#### **Transformation of Old Towns**

Many of the old towns have changed beyond recognition. The defence of Stalingrad has made us all familiar with the transformation of the country town on the Volga into a great centre of industry. The city of Stalino, the centre of the Donetz coal fields, used to be known as Hughesovka, after the name of its founder, a Welsh coal-owner. In 1913 it had a population of 40,000, but no electricity, no water-mains or sewage system, and no trams. Before its occupation by the Nazis it had grown to a city of 462,000, with ten million square feet of new apartment houses, forty miles of water mains, twenty-two miles of sewage mains, twenty-five miles of tram lines, and 1,640 acres of public gardens and boulevards.

By January 1st, 1937, the Soviet Government had built about 646 million square feet of housing space in cities and towns, amounting to more than 40 per cent. of the total housing accommodation. In Moscow 30.8 per cent. of the total housing accommodation was at that time newly built; in Gorki, 55.2 per cent.; in Stalingrad, 69.6 per cent.; in Chelyabinsk, 79.1 per cent.

#### **Reconstruction of Moscow.**

One of the most remarkable achievements of planning in the Soviet Union is the *Ten-Year Plan for the reconstruction of Moscow*, which was endorsed in 1935. Three and a half years later the preface of a book called "New Moscow" proudly announced: "The Stalinist plan for the reconstruction of Moscow is already being achieved. The great Moscow-Volga Canal has been completed. The banks of the Moscow river have been clothed in granite. Splendid new bridges span the river. Two lines of the finest underground railway in the world have been opened. Under the streets of Moscow run over twenty miles of tunnel with stations of such beauty that they astonish

tourists from all over the world. Hundreds of new houses have been built—the general contours of the Moscow of the future are already taking shape."

#### **The Basis—SOCIALISM.**

What is the fundamental basis of these splendid achievements in construction and planning? Unquestionably, it is the fact that *the U.S.S.R. is a Socialist State* which "developed and grew strong as a result of the overthrow of the power of the landlords and capitalists" and in which there is "Socialist ownership of the implements and means of production" (see Constitution of the U.S.S.R.).

It is fairly common knowledge that private landownership has always created vested interests, not only in the ownership of parcels of land, but also in irresponsible development for immediate aims of quick profit rather than for long-term aims of social development. Town planning, in so far as it has had a chance to develop in capitalist nations, has always involved the planners in spending nine-tenths of their time in coping with problems created by private interests, and only one-tenth in the solution of the actual technical problems. This jungle of vested interests which stands in the way of progress and holds the community to ransom has been torn up root and branch in the Soviet Union. Social need, and not private vested interest, determines the scope, nature, location and tempo of construction under Socialist conditions.

Town planning in the Soviet Union, therefore, is not a "side issue," nor a matter to be popularised by public-spirited citizens in face of the indifference or opposition of landowners and others with vested interests whose private property enables them to dictate to the community. It is an integral part of Soviet life and has become so because it logically fits into the economic life of the country, which is "directed by the State plan of national economy for the purpose of increasing the public wealth, of steadily raising the material and cultural level of the toilers." (See Constitution of the U.S.S.R.)

#### **A Single General Plan**

Important as it is in its own sphere, town planning is only part of (and can only be fully realised as part of) the wider, comprehensive planning of economic life, including the location and zoning of industry, the co-ordination of natural resources, industrial power, water, coal and transport. The nature of the problem has long been clear. Frederick Engels, the collaborator of Karl Marx, showed how it could be solved in his work, *Anti-Duhring*: "Only a society which is able harmoniously to dispose of its productive forces, in accordance with a single general plan, is able to organise them in such a fashion that it will be



possible evenly to distribute heavy industry all over the country in full conformity with its inner development, and preserving at the same time the development of other elements of production."

Other countries have undertaken planned distribution of industries as a temporary, partial expedient to meet the problem of areas made derelict by war or industrial slumps. To the Soviet Union falls the honour of being the first and so far the only country to regulate the development of its entire economic life "according to a single general plan."

## SECTION TWO

### BUILDING WORK IN OLD RUSSIA

The transformation of the U.S.S.R. into a foremost industrial power, which the efforts of building workers did so much to achieve, has in turn brought about the transformation of the building industry itself.

Up to the time of the revolution, and for a good number of years after it, the building trades remained one of the most backward of the backward industries of Russia. If one wished to find a comparable stage in the development of the building industry in Britain one would have to go back at least to the earliest days of the Industrial Revolution, nearly two hundred years ago.

How is this backwardness to be explained? By the time serfdom in Russia was abolished in 1861, Britain had already a century of intensive industrial development behind it, and had established itself as the "workshop of the world." Although industrial capitalism then developed fairly rapidly, Russia remained an agrarian, economically backward country. At the close of the century five-sixths of the population were engaged in agriculture, and only one-sixth in industry, trade, transport, building, etc.

#### The Builder Peasants

Because of the terrible poverty of the peasants, millions of whom were being starved off the land or compelled to supplement the produce of their tiny plots of land by seasonal work, the Russian capitalists were assured a constant flow of cheap labour. The existence of this floating mass of cheap labour became a barrier to technical development in many industries, particularly in all forms of construction work. It was cheaper

for the capitalist to employ large numbers of semi-skilled and unskilled workers than to develop technique and skill.

By 1894 the number of workers in the building industry had risen to a million, according to an estimate made by Lenin.

The overwhelming majority of these were unskilled, or at best semi-skilled, seasonal labourers with one foot in industry and the other foot still in the village.

#### Social Basis of Building

The whole tradition and character of society in Russia was such that there was only a very narrow basis for the development of a high level of technique and a permanent body of skilled building workers.

Prior to the emancipation of the serfs in 1861, during the period when Russia was still a feudal country, the only demand for any but the most primitive wooden structures came from the Monarchy, the church, the land-owning nobility and the rich merchants. Russia was a land of timber houses, with only the churches and monasteries, the palaces of the nobles, the mansions of the wealthy merchants, and the government departments in important centres built of stone.

Church architecture went in for the most remarkable shapes, derived from Byzantine tradition and developed with all that superstition and vivid imagination could contrive in the way of decoration. At the other end of the scale were the typical peasant huts, single or double-roomed structures of rough-hewn logs, built around a stove, with little pretension to decoration except perhaps some carving round doors or windows.

#### Moscow—An Overgrown Village

Even in the cities the great majority of buildings were single or double-storey timber structures. Lest this be deemed an exaggeration, it is worth quoting the case of Moscow. Right up to 1917, and until the Soviets took its reconstruction in hand, Moscow remained an overgrown village. Although it had become one of the world's great centres of population its sprawling layout, primitive communal amenities and appearance were those of the Russian village. Of the 50,000 buildings in Moscow in 1917 only 16,000 were stone-built structures. Fifty-one per cent. of all buildings had only a single storey, 40 per cent. had two storeys, and only 9 per cent. of all the fifty thousand had more than two.

#### St. Petersburg—A New Start

While Moscow was more or less typical of Russian cities, St. Petersburg (now Leningrad) had a more Western tradition. In the year 1700 Peter the Great, the first of the Tsars to turn



his attention to Europe, returned from his travels determined to transform the backward Oriental Russian Empire. He selected a site for a new capital at the mouth of the Neva—not a healthy site, but one which gave Russia a window to the Baltic and Europe. He brought to Russia Italian architects and skilled building craftsmen who, with the labour of hordes of serfs, started the planning and building of St. Petersburg. His successors continued the process. Foremost architects of many countries were commissioned (one was the Scottish architect, Charles Cameron). Skilled craftsmen from many lands performed the more intricate and technical operations and supervised the labour of the Russian builders.

#### Dependence on Foreign Countries

This dependence on foreign countries, not only for advanced technique, but also for finance, machinery and all kinds of manufactured goods which could have been made in Russia itself, was one of the biggest factors in retarding the development of the country. The key positions in the oil, coal, steel and other basic industries were in the hands of foreign financiers. Even enterprises like the St. Petersburg Waterworks were owned by companies operating from the City of London, whose one concern with Russia was to extract from the country the maximum profit in the shortest time. Bricks, fire-bricks especially, and Portland cement, were imported although it was extremely uneconomical to do so. Russia had the resources for producing at home all that was required. As well as materials, it was the practice to import building fittings of all kinds. Sanitary fittings were almost exclusively imported from England.

All the above factors combined to retard the growth of technique, large-scale organisation and operational skill in the building industry.

#### The Artels of Building Workers

In general, most forms of constructional work were carried on through *artels*. In the building industry, at least, these were gangs of workers engaged for the duration of a job to carry out a portion of the job in which their trade was involved. Very often these *artels* are depicted in such a way as to give the impression that they were producers' co-operatives. It is true that they had certain aspects of a primitive co-operative character, but they were not co-operative organisations in the true sense of the term. They had neither permanent composition, nor written forms of contract. As a rule they held together only for the duration of a particular job, or for a season.

Certain features peculiar to Russia tended to give a co-operative character to the *artels*. First of all, the majority of men engaged in building were seasonal and migratory workers. Secondly, it was a peculiarity of Russia that certain districts specialised in certain crafts. Workers tended to set out together in groups to search for work when the season came round, and to stick together. Thirdly, they not only worked together, but lived together to cut down expenses and save as much as possible against the return to their village. When craftsmen from another district came, say, to St. Petersburg to work as carpenters or masons they would unite in groups of ten to fifty and settle in a house or hut together. Each group would keep a common table, each man paying his share of the expenses to the recognised leader of the *artel*.

#### Disintegration of the Artels

When *artels* of one or two hundred workers became more common, in the latter part of the nineteenth century, their primitive co-operative character began to disintegrate.

The leader of the *artel* tended to become a sub-contractor, employing the labour of the other members of the gang. This process of the break-up of the *artels* into employers and wage-workers went on steadily. Brickmakers, for instance, had combined together in small groups to facilitate their labour. Each group, commonly of five men, would have one oven shared alike by all members of the group. The rest of the work was done by each man separately. From about 1875 a new feature appeared. The wealthier of the brickmakers combined to establish small plants and installed managers. The less wealthy craftsmen, who could not compete against the machine-made bricks, became hired wage-earners.

#### Absence of Large Organisations

In general, it can be said that no modern, large-scale building industry developed in Russia under the Tsars and capitalism. In certain sections of the building materials industry, *e.g.*, brick-making and cement works, there was a growth of fairly big factories. Syndicates were formed by the owners of these factories to keep up prices and bring pressure to bear on the Government to impose heavy import tariffs to guard their inefficiency against foreign competition. But on the constructional side there was less progress. Machinery was applied only to an insignificant extent. Even the hand tools of the craftsmen were of the most primitive and clumsy character. Jobs were organised mainly by extensive sub-contracting and sub-subcontracting, with the *artel* as the main grouping of workers.



### Laying the Basis for Transformation

Such was the state of the building industry up to the coming to power of the Soviets. Any one who imagines that there was or could have been an overnight transformation of the industry under the Soviets will be disappointed. For some years, because of the civil war and intervention the industry declined. When the period of restoration set in, and later on the period of industrialisation, the industry expanded again rapidly. But the expansion was at first, and it could not be otherwise, on the basis of the traditional primitive technique and operative skill. The forms of organisation developed more rapidly, with the establishment of building trusts under the control of the various industries and Soviets.

But the *artels* for long remained a force. The building workers had to labour for years to create the pit-head installations and hydro-electric stations for power, the docks, permanent way, canals and roads for transport, the blast furnaces and rolling mills for the making of steel, the factories and works for the manufacture of machinery—all this before the material basis was ready for the transformation of the building trades themselves into a modern industry.

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### SECTION THREE

## THE FIRST FIVE-YEAR PLAN

### The Fervour of New Construction

The modern development of the building industry in the Soviet Union dates only from the launching of the First Five-Year Plan in 1928.

The "fundamental fact" of this grandiose Plan, as explained by Stalin, was "to create such an industry in our country as would be able to re-equip and reorganise not only the whole of industry, but also transport and agriculture, on the basis of Socialism" (see *History of the C.P.S.U.*, page 296).

The Plan faced up frankly to the fact that the building industry was ill-equipped to fulfil the vast constructional work envisaged. It declared that "the production of building materials is one of the Soviet industries where system and organisation are at a low level of efficiency . . . retarding and at times even completely disorganising the work of development projects."

Noting that "in these matters the Soviet Union is still very backward," the Plan emphasised that "the extent to which the methods of large-scale industry are introduced both into the production of building materials and into the building trades" must be regarded as one of the factors most essential for the success of the Five-Year Plan. The slogan and task set before all concerned with building was: "*Construction work must be industrialised. It must develop into a powerful construction industry.*"

It was decided to invest 860 million roubles in the building materials industry so as to provide large new plants near the most important construction projects and to develop local production for local requirements.

Output of the *cement* industry was to be increased from 11.9 million barrels in 1927-28 to 40 million barrels in 1932-33. In fact production rose to 22½ million barrels at the beginning of 1932, and to 30 million barrels by the end of that year. Sixty-five per cent. of this was of high grade quick-setting cement, of the type required for dams, locks and bridges. Production of *lime* rose from 500 thousand tons in 1928 to nearly three million tons in 1932. The output of *bricks*, scheduled to rise from 1.8 billion units in 1928 to 9.3 units in 1932, actually rose to 4.7 billion units. (Under the Second Five-Year Plan the more modest goal of 8 billion units was set for 1937).

During the same period the manufacture of joinery was started and in 1932 standard frame houses with a total of 30 million square feet of floor area were made. The production of nearly a billion cubic feet of lumber in 1932 represented an increase of 250 per cent. over the output at the beginning of the Plan.

During the First Five-Year Plan the number of workers engaged in the industry rose from 723,000 in 1928 to 2,515,400 in 1931. The percentage of those employed in state enterprises rose from 91.3 per cent to 93.5 per cent., while that of workers engaged in private work declined from 1.8 per cent. to 0.3 per cent. The balance were engaged in co-operative building enterprises.

At the same time the percentage of permanent workers in the industry increased. In 1928 only 53.7 per cent of building workers were permanent, the remainder being seasonal workers, or workers who did not remain in the industry. The percentage of permanent workers fell to 48.5 per cent. in 1929 and 45.3 per cent. in 1930, but leapt forward to 70 per cent. in 1931—a leap which accompanied a growth of the total number of workers in the industry from 1,623,000 to 2,515,400 in a single year.



The increase in the percentage of permanent workers in the industry made possible the training of skilled workers, improved organisation of work on the site, the mastery of new technique, increased labour productivity, and therefore reduced costs of construction.

This latter point was of great significance, for the reason that the Five-Year Plan represented "an unparalleled experiment of capital construction on an enormous scale financed out of current savings, with the aid of a regime of strict economy and at the sacrifice of present needs for the sake of historic achievements."

The Five-Year Plan, dismissed as a "gamble" that was "bound to fail" by capitalist captains of industry and press lords, was actually completed, in the main, in four years. At the beginning of January, 1933, Stalin reported that "we have succeeded by the end of the fourth year of the Five-Year Plan period in fulfilling the programme of general industrial output, which was drawn up for five years, to the extent of 93.7 per cent." Reporting again in January, 1934, after the completion of the full five years, Stalin said: "During this period thousands of new, up-to-date industrial enterprises have been built and started. Giants like the Dnieprostroi, Magnitostroi, Kuznetskstroi, Chelyabstroi, Bobriki, Uralmshstroi\* have been built. Thousands of old enterprises have been reconstructed. . . . New enterprises have been built, and industrial centres created, in the national republics and in the border regions."

In this unprecedented fever of construction the Russian building industry not only expanded, but began rapidly to shed its petty handicraft tradition and technique. It was developing on modern industrial lines.

Already in 1931, referring to the Dnieper job, on which new world records for cementing were made by the Soviet builders, Molotov remarked that "the tempo of this construction is the great merit of the leaders and organisations concerned. The reason for this success lies in the mechanisation of constructional work on American lines, plus our own Bolshevik energy."

The First Five-Year Plan was the period, as Stalin put it, of the "rapid advance of new construction," of "the rise of heroes and shock workers on construction jobs."

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\* The expression "stroi" is the Russian for construction, thus, "Dnieprostroi" stands for the great construction job of building the Dnieper dam and hydro-electric station and the complex of factories in the area.

## SECTION FOUR SECOND FIVE-YEAR PLAN

### The Mastering of New Technique

The Second Five-Year Plan (1933-1938) called for an even greater programme of capital construction than had been achieved during the First Five-Year Plan.

There was, however, an extremely important shift of emphasis. This was called for by Stalin in January, 1934. If the First Five-Year Plan had been notable for its "fervour for new construction" the Second Five-Year Plan must supplement this with "enthusiasm and fervour for mastering . . . the new technique, for a substantial rise in the productivity of labour, for a substantial reduction of production costs."

Another notable feature of the Second Five-Year Plan was its greater emphasis in improving the material and cultural welfare of the people. The fruits of the effort and sacrifices of the people during the first five years, the "regime of strict economy," were to be harvested by them during the second five years.

Whereas the sums allocated for capital development in industrial construction were doubled in comparison with the first five years, the sums allocated for housing, municipal services, cultural institutions, etc., were trebled.

To fulfil this plan, two things were necessary: a further transformation of technical skill so that team work and time schedules should become the rule, and the further consolidation of the building materials industry.

### Formation of Large-scale Building Organisations

Already large-scale building organisations had been developed in the form of building trusts operating in a connection with particular industries, or particular aspects of housing and municipal construction. In 1929 these building trusts, each specialising in particular types of construction, carried out work to the value of 550 million roubles. In 1932 work to the value of 7,000 million roubles was carried out by these large-scale building organisations. The proportion of constructional work carried out by *industrially organised* workers, as distinct from those still engaged in co-operatives of semi-peasant builders, rose from 20 per cent. to 70 per cent. The increase in mechanisation of building work in this period is shown by the value of construction machinery in use, which increased from 35 to 250 million roubles.

### Mechanisation and Pre-fabrication

The chief problem in mechanising building operations arises from the fact that the cycle of production is not repeated. In a factory the machine stays put and the product being manufactured moves along the conveyor belt. On the site the opposite is



the case : the building is fixed, and it is the means of production which have to move along to the various sections as required. Mechanisation of building work, therefore, has to take the form of introducing the maximum pre-fabrication of parts of the building, and the provision of mobile machinery, particularly for the most laborious processes like excavation and lifting.

The Second Five-Year Plan for the building industry set a firm course towards more intensive technical development, particularly in mechanisation and pre-fabrication. It aimed at increasing the productivity of labour by 75 per cent., while at the same time reducing building costs by 40 per cent. in the five-year period, 1933-1937.

New building materials were to be developed. Reinforced concrete construction was scheduled to rise from 14.9 per cent. to 18.8 per cent. of all construction. Local stone was to be brought into much greater use and a start made in the manufacture of standard reinforced concrete blocks for assembly on site. Structures using wood or a mixture of materials were to increase in quantity, but their proportion to total new construction was to be reduced to 5.5 per cent. Only 18.2 per cent. of all new construction during the Second Five-Year Plan for the *Soviet Union as a whole*, was to be of timber. In 1917 more than two-thirds of all buildings in Moscow were timber built!

Concise aims were set out for the mechanisation of operations. "The plan for the mechanisation of building operations contemplates the raising of the proportion of mechanised earth work to 75 per cent., of which by excavators—to 50 per cent.; hydro-mechanisation—to 20 per cent.; concrete mixing—to 95 per cent.; stone-crushing—to 90 per cent.; horizontal transport at construction sites—to 80 per cent.; stone quarrying by pneumatic hammers—to 90 per cent."

All this meant a great, but essential, revolution in building efficiency which could only be accomplished if planning, organisation and site-technique were mastered. Before tracing the history of the great struggle that this entailed, a brief indication of the simultaneous development of the building materials industry must be given.

#### Building Materials Industry Developed

The plan called for a more than two-fold increase in the total value of the annual output of building materials, from 711 million roubles in 1932 to 1,659 million roubles in 1937.

	1932	1937
Cement (tons) .. ..	3,489,000	7,500,000
Fire bricks (tons) ..	793,000	2,300,000
Duras bricks (tons) ..	178,000	800,000
Asbestos (tons) .. ..	59,000	200,000
Bricks (number) .. ..	4,736,000,000	8,000,000,000

A turn towards regionalisation was made in this as in other industries, new works being scheduled for Murmansk and the Far North Yakutsk Republic, as well as for Eastern Siberia, the Urals, Central and Eastern Asia, Kazakstan and Transcaucasia. Emphasis was also placed on the utilisation of local raw materials and on mechanising the production of such local building materials.

#### Old Traditions versus New Technique

In this stage, when the mastering of the new, advanced technique and its most rational application was becoming of decisive importance, considerable difficulties were experienced within the industry itself. The possibilities for rapid technical advance clashed with the old traditions and practices, in which many sections of the industry had become bogged. Many workers in the industry, from top to bottom, tended to cling to the old ways and customs rather than make the effort needed to master the new technique and get every ounce from it. The executives and technical personnel of many building organisations were concerned only with speed, losing sight of the importance of quality. The designs of some of the architects did not help matters.

Such an attitude, if persisted in, could have wrecked the entire plan, held back the development of the industry and the quality of construction for years. The leaders of the Soviet Government intervened in order to overcome this state of affairs.

#### Intervention of Government

The concern of the Soviet Government for the creation of better living conditions for the mass of the people was expressed in their insistence on a new approach in the design and construction of housing. Early in 1934, Molotov and the late Sergo Ordjonokidze, then Peoples' Commissar for Heavy Industry, made a thorough inspection of new housing in Moscow. Room heights and stairway widths, bathrooms and windows, were measured for them on the spot. They questioned residents about defects, and Molotov expressed his indignation when he found that certain architects had taken the liberty of designing rooms with eight or even twelve corners. As a result of very full examination of the whole problem, the Council of Peoples' Commissars published a decree in April, 1934, laying down improved standards for housing design and construction.

#### Conference on Building Problems

This, however, was soon followed by even more far-reaching measures. In December, 1935, the Central Committee of the Bolshevik Party convened a conference on problems of the building industry. This conference focussed attention on the



urgent need to bring about a thorough-going transition to a powerful building *industry*, overcoming the last vestiges of the primitive handicraft system and outlook. Leaders of the Soviet Government and the Bolshevik Party, heads of the biggest constructional jobs, famous engineers and specialists, and many of the best workers in the industry took part in the work of this five-day conference. The spirit in which they worked was well-expressed by one of the participants: "Basing ourselves on the successes achieved, we must now subject to rigorously exacting criticism those shortcomings of the construction and building materials industries which impede our progress, thus preventing us from keeping pace with the other branches of the national economy."

The main shortcomings were summarised as follows: high cost of construction; post-schedule fulfilment of construction plans, insufficient mechanisation of building operations; inadequate utilisation of available machinery. Examples were given to show that excavators were in many cases only being used to 20 or 30 per cent. of capacity. This lowered the productivity and increased building costs.

#### **How Shortcomings were Tackled**

The means of overcoming these shortcomings were summarised as being: proper organisation of building operations; extensive mechanisation of construction and more efficient utilisation of machinery; creation of permanent staffs of skilled building workers and improvement of their work on the basis of the widespread development of the Stakhanov movement. On this would depend the completion of jobs within scheduled time, improved quality of construction and reduction of cost.

The importance of mechanisation was strongly emphasised, on the grounds that, more than in any other industry, machinery can replace large numbers of workers in low-productive, physically strenuous labour. Soviet industry could produce the machinery needed in respect of both numbers and variety of types. The decisive factor was the organisation of mechanised work, to know how to handle machines.

All these decisions depended, in the last analysis, on the workers in the industry. The seasonal worker, adept in the use of the saw, axe and shovel, was no longer adequate. The industry was in a new stage, it required permanent staffs of highly qualified workers around whom the entire labour force would be organised.

To achieve this, three factors were essential. First, to provide them with better conditions of life and work, that is, with good houses, better cultural service, and to establish a system of wages that would stimulate the rise of labour productivity. Second, "an extensive work must be carried on to raise the

qualifications and technical knowledge of building workers." Third, a much larger body of highly-trained technicians must be created.

#### **A Report on Progress**

In 1936, Mr. Barron, then President of the A.S.W., visited the Soviet Union. His fine report gives some insight into the effort made by the industry to put into practice the guidance given by the conference. Mr. Barron's description of the construction of the Stalin Auto Works gives a picture of the best organised type of job:

"On this job they were using the latest in mechanisation and labour-saving devices, such as conveyor belts taking the bricks to the scaffolding. Little wooden trays carrying about eight bricks were filled and placed on the conveyor by women, and taken off and put on the wall ready to the hand of the bricklayers, again by women. Mortar was conveyed through tubes by suction; concrete was dried and set by currents of electricity and, as it was laid, we found them using an electric vibrator, a long blade charged with current which was plunged into the mass of the concrete to aid the proper setting of the material. All the operations were carried on by brigades, or, as we would say, gangs, only the ganger is a brigadier. In this particular brigade, which was a Stakhanovite one, we found a girl of nineteen operating the vibrator and, at times, lending a hand with the shovel or anything else."

#### **Meaning of Stakhanovism**

The significance of the word "Stakhanovite," used by Mr. Barron in the above quotation, is now fairly widely known, though it has been the subject of much misrepresentation in the past.

Stakhanovism is the name of a movement started by a miner in the Donetz coalfield, Alexei Stakhanov. By studying the technique of his job and organising his work at the coal-face, Stakhanov was able to establish a world record for coal cut per shift, increasing the output to a figure which appeared astronomical. Fired by the example of this rank-and-file miner, thousands of workers, in all branches of industry, studied his methods and applied them to their own job.

#### **Stakhanovites of Building Industry**

Stakhanovite methods soon found a place in the building industry. Applied to brick-laying, this meant that one bricklayer, with a team of assistants, placed the bricks that were brought to him, on a mortar bed that was prepared for him. It was found that by such organisation one skilled Stakhanovite bricklayer could be responsible for the laying of 16,000 to 18,000



bricks a day. Where work was in sufficiently straight runs, or repetitive in design, the advantages of the system were enormous. One great advantage, in view of the scarcity of highly-skilled workers, was that skilled labour was used to the best advantage.

One of the great triumphs of the Second Five-Year Plan was the completion of the first section of the Moscow Underground Railway in 1935. The magnificent stations of this railway are a tribute to the high degree of skill reached by the most advanced of the building workers.

#### **"Blossomings of Architectural Thought"**

In a memorable speech made in connection with the completion of the first section of the Metro, L. M. Kaganovitch, the Peoples' Commissar who had led the work, said:

"It is not only a magnificent feat of engineering that the peasant and worker discerns. . . . They regard the Metro as a token of their strength and power. In the old days it was only the landlords and the rich who used marble. . . . From the moment socialists appeared, the bourgeoisie was able to frighten the petty-bourgeoisie and a section of the workers by telling them that socialism would be a barracks, that socialism wanted . . . to build barrack houses, to make life uniform and monotonous. . . . Comrades, we have built such a Metro that when one descends to a station one feels 'as though he is in a palace,' as the workers of Moscow put it. Ay, and even so, our Metro palaces are not of one uniform type. Every station has its own particular style. Where, Messieurs the bourgeoisie, are the barracks you talk about, where is the destruction of personality, the suppression of the creative spirit, the suppression of art? On the contrary, we see in the Metro a tremendous development of creative spirit, a blossoming of architectural thought. Every station is a palace, and every palace is designed in its own particular way. But every one of these palaces is illuminated by the same fire, the fire of advancing and triumphant socialism!"

Big jobs like the Metro, with their high quality of finish, became the best schools for craftsmen, schools which brought forward large numbers of highly-skilled building workers.

#### **Achievements summed up**

To what extent was the ambitious Second Five-Year Plan actually fulfilled, and how did the building industry fulfil its part of the plan?

Taking industry as a whole, the planned increase of 114 per cent. in output was reached in four years and three months. By the end of the full five years, industrial output showed an increase of 121 per cent. Not all branches of industry reached this standard; among those which lagged behind and failed to

fulfil their plan were the building and building materials industries.

Despite this, the builders had done a colossal job. For example, the value of newly constructed and reconstructed enterprises completed and put into operation during the Second Five-Year Plan was 160 per cent. greater than during the First Five-Year Plan. Some idea of the extent to which the efforts of the builders paved the way for the success of the two Five-Year Plans may be judged from the fact that by 1937 *more than 80 per cent. of the entire industrial output was turned out by new establishments built or entirely reconstructed during the years of the First and Second Five-Year Plans.*

Great as the development of the industry had been in these ten years, even greater demands were to be made on it in the Third Five-Year Plan.

## SECTION FIVE

### THIRD FIVE-YEAR PLAN

#### **Development of Express Building**

Something immensely more significant than the great advance of industry and agriculture and material standards of well-being had been achieved by the Second Five-Year Plan. The Soviet people had set themselves not only economic tasks, but also historic social aims. These, too, were fulfilled.

Reporting to the Eighteenth Congress of the C.P.S.U. in March, 1938, Molotov declared: "The *chief historical task* assigned by the Second Five-Year Plan has been accomplished: all exploiting classes have been completely abolished, and the causes giving rise to the exploitation of man by man and to the division of society into classes have been done away with as a result of the abolition of the private ownership of the means of production."

The adoption of the Third Five-Year Plan marked the entry of the Soviet Union into a new phase, explained by Molotov as being "the phase of completion of the building of class-less, socialist society and of gradual transition from socialism to communism."

#### **Industrial Construction Speeded-up**

When drafting the Third Five-Year Plan, the Soviet leaders had to take into account the growing menace of war. Energies and resources that would otherwise have been devoted to



increasing at a much more rapid rate the material well-being of the people had to be diverted to strengthening the defensive capacity of the U.S.S.R.

The volume of new capital construction in the five years, 1938-1942, was set at a figure considerably greater than in the whole of the previous ten years. This involved correspondingly greater tasks for the building industry. The builders were called on to complete, ready for operation, new and reconstructed industrial enterprises representing a greater productive capacity than that of the two previous Five-Year Plans taken together.

Reserve capacity was to be built up in the decisive branches of industry, and the policy of distributing productive capacity over a wide area was to be intensified. The correctness of these decisions has been fully justified by the war; the loss of great industrial areas such as the Donetz Basin has not destroyed the productive capacity of the U.S.S.R.

#### **Danger of Lag in Building**

The fact that during the previous five years the building industry had lagged behind constituted a weak point that endangered the fulfilment of the new Plan as a whole, bearing in mind that, as Molotov put it—"not hundreds, but thousands of large, small and medium-sized industrial establishments under a vast scheme of construction in all branches of industry will be put into operation throughout the country."

How, then, did the Soviet Government propose to overcome this lag in the building industry?

#### **Pre-fabrication and Mechanisation**

In the first place, it was necessary to speed-up the development of the building materials industry to avoid the danger of it becoming a serious bottle-neck. Already, in 1938, a new Peoples' Commissariat of the Building Materials Industry had been created, charged with increasing production, particularly of standard and pre-fabricated parts.

Production of cement was to be increased more than two-fold from 5,500 million tons in 1937 to 11,000 million tons in 1942. The use of local raw materials for building purposes was to be greatly extended, and the output of structural steel sections increased 161 per cent. over 1937, rising to 900,000 tons. Great emphasis was placed on increasing production of pre-fabricated units, high-grade cement, sanitary equipment, finishing and facing materials.

In order to hasten the mechanisation of constructional work, the engineering industry was instructed to give greater attention to increasing the production of building machinery and appliances, and as well as builders' tools. Special emphasis was laid

on increasing to the utmost the manufacture of excavators, suction dredgers and hydraulic apparatus.

#### **Express Methods of Building**

The urgency of the tasks before the building industry was emphasised by Molotov in his call for "energetically introducing *high-speed express methods* of building." In essence, this meant carrying forward to an even higher stage the technical level and equipment of the industry, applying the world's most up-to-date building technique on a really big scale.

Molotov explained that the application of express methods of building were "possible when proper use is made of mechanisation in the building industry, in accordance with a plan prepared in advance; when the technological process of construction is worked out to the last detail; when the required building materials, parts and pre-fabricated sections are prepared beforehand at the corresponding factories; when the work of the builders on the job is not organised any old way, but runs like clockwork. With express methods we shall accelerate and cheapen construction, while the workers, engineers and technical personnel will earn considerably more. Soon only such work will be considered real Bolshevik work on construction jobs."

Molotov was able to report to the Congress that "on this score we already have very instructive examples, such as that of parallel operations on construction jobs, building processes and equipment assembly being performed simultaneously, with the workers following a precise time schedule which had been carefully drawn up beforehand." He also told the Congress that the Moscow Soviet had adopted a special plan of housing construction by express methods, over and above its regular plan, for the construction of twenty-three blocks of flats with a total of 1,610 apartments.

Before going on to deal with experiences gained in the operation of these bold directives, it is necessary to note some other considerations that were to be taken into account.

#### **Emphasis on Medium-sized Units**

There was firm insistence on the need to combat "gigantomania," the passion for building giant factories and works. Molotov called for a steady transition to medium and small industrial units, so as to speed-up the rate of construction, put new enterprises into production more rapidly, and to facilitate the distribution of production over a wide area.

#### **Organisational Problems**

In the public discussion of the draft plan prior to the Congress, and at the Congress itself, proposals were made for the establishment of a special new People's Commissariat of the Building



Industry. In his reply to the discussion, Molotov declared that the proposal deserved serious attention and that, after further examination, it might be accepted.

As a matter of fact, the organisation of the building industry had for some time been giving rise to considerable concern. The establishment of the People's Commissariat of Building Materials, already referred to, tackled the problem of *supplies*.

But on the *erection* side confusion was caused by the fact that most of the People's Commissariats had their own building departments, and their own system of building organisations, some specialising in particular types of construction, others operating in particular regions. In addition, the regional and city Soviets had their own works departments and housing organisations.

This multiplicity of organisation, in the absence of effective co-ordination and control, had become a source of weakness. In particular, it held up the development of standard basic designs, types and codes of practice such as are essential to the full application of pre-fabrication and mechanisation.

#### **Improved Regulation of Construction**

In February, 1938, the Council of Peoples' Commissars got to grips with this problem in a Decree dealing with architectural planning, costing and financial regulation of constructional work. This decree revealed the weakness in developing standard types of structures for particular purposes, and in the standardisation of elements of building work such as spacing of columns, size of doors and window-frames, types of sanitary fittings and ironmongery, etc. It strongly condemned the fact that many building parts which could be standardised and pre-fabricated were often still being made on the site. The decree demanded that in industrial centres a speedy transition to the practice of utilising standard pre-fabricated parts manufactured by factories specialising in their production should be made the rule. Up-to-date standard window-frames, both metal and timber, standard doors and joinery details, were required, and their design must be adapted for mass production. Standard codes of practice for water supply, drainage and ventilation were insisted on. The decree instructed the People's Commissariats for the Heavy, Machine Building, Food, Timber, Defence and Light Industries, and the People's Commissariats of Railways, Defence and Water Transport, to prepare within a stated time basic designs for buildings required in their own particular spheres, restricting the number of types of building and structural details.

#### **Advance of Mechanisation**

As already mentioned, the growth of the engineering industry made it possible for the Soviet Union to provide every type of machinery necessary for the building industry. The progress

made in this respect was illustrated by an article in a trade journal, "The Building Industry," in November, 1938. "Instead of the two or three types of mechanism which were at the disposal of Tsarist Russia—most of which, in any case, were imported from abroad—we have at the present time approximately 600 types of home-produced machines for constructional work. The creation of such a powerful stock of constructional machines enables us to mechanise the basic forms of building work on a large scale."

However, the multiplicity of types of machines itself led to difficulties. Designing and selection of types of machines was carried on by the many organisations, without leadership from a single centre, and without sufficient reference to actual experience on the job. Moreover, the manufacture of this machinery was spread over too many factories, with the result that the construction of machines of the same type was not uniform. Further, old types were still being produced. The supply of certain types of mechanism—light travelling cranes for the rationalisation of brick-laying, winches and other loading and unloading devices, etc.—was inadequate. At the same time there was inadequate utilisation of machinery, together with a lack of individual responsibility for the operation, care and maintenance of machinery and for regular periodical overhaul.

#### **Proposals of Workers and Technicians**

In April, 1938, a conference in Kharkov, organised jointly by the Ukrainian Institute of Building Science and the District Committee of the Builders' Union, thrashed out these problems of mechanisation. Five proposals were made:

*First*, research work on improvement of machinery to be concentrated in the Scientific Research Institute for Mechanisation of Building; the Institute to be provided with an experimental factory, laboratories and apparatus.

*Second*, all designing work on new types of machinery to be led by special organisations, with power to co-ordinate designs for particular types of machines.

*Third*, selection of types of machinery to be guided by the principle of raising the level of the entire process of construction, rather than the mechanisation of particular processes.

*Fourth*, particular factories in the machine-building industry to specialise over a long period in mass production of building machinery: these factories to be obliged to maintain the closest association with the research institute and large-scale jobs.

*Fifth*, the creation by building organisations of a permanent staff of mechanics for the maintenance and repair of machines, which should be "passportised" (*i.e.*, should carry with them records of their performances, particulars of repairs, state of machine at date of periodic overhaul, etc.).



### People's Commissariat of Building.

In June, 1939, the Third Session of the Supreme Soviet of the U.S.S.R. decided to create a People's Commissariat of Building. It was explained that the transition to industrial methods of building had been prepared by the work of the People's Commissariats of the various industries which, through their building departments, had independently organised the industrial construction necessary for the development of their own industries. The vast expansion of construction called for in the Third Five-Year Plan, however, made necessary a transition from the system of dispersing responsibility for leadership of building work between tens of People's Commissariats to a system of concentrating this responsibility in a single People's Commissariat.

The People's Commissariat of Building was given responsibility for industrial construction (factories and related housing and cultural buildings). It was to be a "general staff of industrial construction." To enable it to concentrate on this decisive sphere, responsibility for agricultural, railway, road, public works and housing construction was excluded from its sphere of operations, as was responsibility for minor building work on existing factories.

The establishment of this new Commissariat was an important new stage in the development of the industry, and particularly of "precision-express building." The basis of this method has been explained as a combination of:

Complex mechanisation; conveyor methods of work; standardisation of building types and design of details; factory production of details and structure; comprehensive time and progress schedules.

### Experience in Express Building

In 1939 the Moscow Soviet erected twenty-three blocks of flats by this method. Seventeen of these were brick structures, and seven of stone or concrete blocks.

The Leningrad Soviet in the same year erected two double-storey blocks of flats and five four-storey schools by precision-express methods in sixty-five days.

Of the twenty-three Moscow blocks, eleven were built on Bolshaya Kaluzhskaya Street, and the standardisation was modified to allow of interesting architectural treatment, by increasing the height of some blocks to ten storeys and incorporating set-backs. Each standard block was of ten sections, with ten flats in the five upper floors of each section, a three-room and a four-room flat on each floor, with kitchen, bathroom and toilet. Each flat was served with lifts.

Designs and working drawings for this scheme were completed on March 10th, 1939. Five months later six blocks of flats had

been completed, and all twenty-three were completed by the end of May, 1940.

### Science and Construction

The serious attention paid to the call of the Government for express building is also shown in the thematic plan of work of the Association of Building Engineers, Scientists and Technicians of the U.S.S.R. for the year 1940. This plan summed up the nature of the problems involved in express building and laid down six main lines of research by the Association.

1. *Systematic study of the practice of express building* in industrial, housing, public works, and hydro-electrical construction, with a view to general application of the experience that had been gained.
2. *Survey of mechanisation and machines* on big jobs, aiming at (a) elaborating rational methods of organising the use of the most complex machines and (b) standardising machinery and mechanised tools throughout the whole range of building work.
3. *Standardisation of buildings*; the requirements of different types of buildings to be analysed and met by a few selected standard designs, so as to make possible big economies.
4. *Study of waste in building*, and the working out of measures for elimination of waste, with the organisation of socialist competition in the struggle against waste.
5. *Building materials and pre-fabrication*, including (a) the working out of methods of factory manufacture of building materials and details, such as skirtings, door frames and windows; and (b) the study of local resources with a view to local production of building materials and their effective use.
6. *Improvement of scientific research*, particularly in (a) analysis and collation of experiences in Stakhanovite methods of work; (b) survey of the programmes of research institutes and laboratories, with a view to increasing their efficiency and relating their work more closely to the needs of the industry; (c) systematic study of inventions by building workers, with a view to rapidly bringing them into industrial use; (d) more extensive publication of technical information and results of research work, so as to assist technical schools and help workers to improve their technical knowledge.

### Increased Use of Express Building

An interesting indication of the rapid increase in the application of express building may be seen in the volume of work executed by express methods, which showed a more than five-fold increase in 1940 over 1939, from a value of 80 million



roubles in 1939 to 450 million roubles in 1940. It was to show a further increase of over 100 per cent. in 1941. Referring to this, an article in "The Building Industry" claimed that "Life has proved the complete realism of the directions given by Comrade Molotov. Day by day the number of important enterprises built by express methods is growing."

As we know, the Third Five-Year Plan was disrupted by the Nazi invasion of the Soviet Union. The latest comprehensive data on the progress of the Plan as a whole cover the period up to the end of 1940, the third year of the Plan.

### Three Years' Work

Within those three years the output of Soviet industry as a whole increased by 44 per cent., and in the decisive metal and engineering industries by 76 per cent.

In the same period 2,900 new State industrial enterprises were built and put into operation, as against 1,500 during the whole of the First Five-Year Plan. It is important to note that this figure relates only to State industrial enterprises, and does not include factories and other enterprises built on the initiative of district and local Soviets, or constructional work on railways and in agriculture. The scale on which such work proceeds may be judged from the fact that in eleven months of 1940 collective farms in the Soviet Union had built 2,262 water, wind and mechanical mills, reconstructed 4,813 such mills that had fallen into disuse, and repaired 21,222 old mills. On December 1st, 1940, a further 2,789 mills were in process of construction.

### Plans for the Fourth Year

The State plan for 1941 called for even more strenuous effort. Construction was to go forward on 2,955 enterprises. Of these, 2,213 were new jobs or jobs already under construction, plus expansion and reconstruction of 742 existing factories. No less than 1,576 were to be completed and put into operation, or part operation, before the end of the year. This figure represented more than half the total number of enterprises put into operation during the preceding three years.

Great as the achievements had been, the People's Commissariat of Building fell short of its planned construction by 20 per cent. The best results had been achieved by the sections responsible for constructional work for the electrical and steel industries; these had fulfilled their plan by 111.9 per cent. and 102.7 per cent. respectively.

### Achievements and Shortcomings

Mechanisation had made further progress in 1940. Over half (54 per cent.) of all excavation work for the People's Commissariat of Building was mechanised. Certain backward organ-

isations, which achieved only 27 per cent., prevented the achievement of the aim of increasing mechanised excavation work to 74 per cent. of the total. Paintwork had been mechanised to the extent of 30.4 per cent., as against the planned 55 per cent., and plastering to the extent of only 11.2 per cent., as against a planned 25 per cent.

The fabrication of timber building details (doors, window-frames, etc.) had been industrialised to the extent of 77.8 per cent. Several organisations had practically eliminated the preparation of joinery work on the site, one organisation using 98.4 per cent. of pre-fabricated joinery, another 91.8 per cent.

The position as regards cost of construction was regarded as unsatisfactory, estimated costs being exceeded by 2.5 to 3 per cent. The all-round reduction of building costs was still not being achieved. Average increase in output per worker was not increasing fast enough, nor keeping pace with the increase in earnings of building workers. Labour discipline in building was not so good as in other industries, and fluctuation of labour greater. For example, dismissals for absenteeism were rather more than 5 per cent., and fluctuation of labour 10 per cent. in some organisations. Both absenteeism and fluctuation of labour were greatest in those sections with the lowest degree of mechanisation, i.e., with the greatest percentage of unskilled labour not yet assimilated into the industry as permanent building workers.

### Further Speed-up of Construction

The danger of the U.S.S.R. being involved in war made it essential to speed-up construction and eliminate the weaknesses indicated above. In February, 1941, Voznesensky, the Chairman of the State Planning Commission, after detailing the tasks before the building industry, declared that: "Great possibilities for fulfilling the plan of capital construction are opened up by express methods of building." He went on to cite as an example a factory built for the armaments industry, with a floor space of 19,500 square metres and employing several thousand workers on each shift. The order for the building of the factory was given in December, 1940, and the job was to be completed by April 1st, 1941, within a little more than three months.

Plans were drawn up and approved within ten days and preparatory work completed in another ten days. Light standard parts were used to economise in materials, the steel structural parts being made on the site. The weight of materials used in the construction was reduced to one-fifth of the usual for such a building, no more metal being used than for ordinary reinforced concrete construction. As a result of standardisation and the elimination of laborious processes the number of workers was only one-third of what was usual on such jobs. By February the walls had been erected and construction parts were being



assembled. Completion of the job within the scheduled three months was guaranteed.

Voznesensky drew from this the conclusion that "all our medium-sized plants can be built and started within a year."

In general, it may be said that the experience gained in the three years of the Third Five-Year Plan, in express building and utilisation of local materials, prepared the industry for the magnificent work it has done under war-time conditions.

## SECTION SIX

### THE BUILDING WORKERS

So far, we have dealt with the transformation of the building industry. But this has been accompanied by the transformation of the material well-being of the building workers, of their social status, their standard of culture and technique. In short, the building workers themselves have become transformed.

This has been brought about largely by the efforts of the trade unions. As was pointed out by Luke Fawcett and C. H. Parmentier in their report of a visit to the U.S.S.R. in 1936. "The progress of the U.S.S.R. is largely due to the trade union movement in that vast territory. Russia well demonstrates to the trade unionists of the Western World that their movement is of supreme importance for the future and that, with the passing of capitalism trade unionism will reach a fruition hitherto undreamed of."

In considering the part played by the Soviet trade unions it is essential to remember that they operate in a country where "the passing of capitalism" has already taken place. For the first time since the rise of the working class, the trade unions of the workers function in a class-less socialist society.

#### Main Functions

In their famous work, *Soviet Communism*, Sydney and Beatrice Webb have explained that, whereas in other countries trade unions are "formed to fight the employers in each industry against any lowering of wage-rates," the Soviet trade unions are "not formed to fight anybody." This function of serving is an "organ of revolt against the autocracy of each capitalist employer . . . passed away with the capitalist employer himself." Their main function is "to share in the organisation of the industry in which they are engaged."

In the Soviet Union the interests of the workers and the State

are identical; the Soviet State is the instrument established by the workers and peasants to build a new socialist society. A second function of the trade unions, therefore, is to work for the "active participation of all its members in the administration of the State and in the public life of the Soviet Union." (Moskatov, Report to All-Union Central Council of Trade Unions, September, 1938.)

The trade unions of the Soviet Union are responsible for the administration of State social insurance for workers and for the entire work of factory inspection. Through this alone they involve scores of thousands of workers in voluntary work of State administration.

As in other countries, the Soviet trade unions have the function of improving the standard of wages and material well-being of the members by collective bargaining. But here, too, there is a fundamental difference. Whereas in other countries collective bargaining is, as the Webbs put it in *Soviet Communism*, a "series of tussles between 'labour' and 'capital' as to the shifting boundary between wages and profits," a "struggle between two hostile parties," it takes on an entirely different character in the Soviet Union. It is the "aggregate productivity" of industry and "not anybody's profits, on which the standard wage-rates . . . will directly depend." Hence, collective bargaining is "an objective examination of the statistical facts and the considerations of public policy, to which both parties agree to defer."

#### Trade Union Structure

In view of the different conditions under which they operate and the different functions they perform it is not surprising that the structure of the Soviet trade unions is different from that of our own and other countries. For decades trade unionists of Britain and other lands have sought to re-model their movement from its original craft basis on to an industrial basis more closely corresponding to modern industrial conditions. Much progress has been made, but very much still remains to be done. The trade unionists of the U.S.S.R. are the first in the whole world to re-model the entire structure of the trade union movement on the lines of industrial unionism. ". . . it is the establishment as a whole, not any particular craft within it, and the whole of the establishments turning out the same kind of product, not any particular branch of the industry, that is made the unit of trade union structure." (S. and B. Webb, *Soviet Communism*.)

Everyone employed in a given enterprise, irrespective of profession, belongs to the same trade union. The only exceptions are those working in institutions which serve the workers, and not the industry—factory dispensaries or restaurants, for instance. Workers in a building department permanently



attached to a factory belong to the union covering the industry the factory itself serves, and not to a craft union or to a general union for building trade workers.

#### Number of Unions

The Soviet trade unions did not reach their present forms at one bound. They have undergone a considerable process of change and development, corresponding to the changes in the social and economic life of the country. One expression of this is seen in the fact that whereas there were only 47 industrial unions in 1931, this number was brought up to 154 in 1934, following a thorough reorganisation of the movement. Later changes brought this up to 168 in 1938.

#### The Building Unions

Prior to this re-organisation there were three unions catering for building workers: the Construction Workers' Union, the Railway and Road Construction Workers' Union and the Cement and Ceramic Workers' Union. In 1934 these were re-organised into ten unions. Some of these, such as the Housing and Communal Construction Workers' Union, covered the entire country. Others, such as the Union of Heavy Industry Construction Workers of the Centre and South, catered for a branch of the industry in a given region.

The purpose of such re-organisation, as explained by M. Schvernick, the Secretary of the All-Union Central Council of Trade Unions, was "to enable the trade union organisations to serve the workers and other employees better, and to strengthen the concrete guidance given to the factory committees."

The above particulars are for the year 1934. As the building industry entered into the period of its greatest expansion and technical development after that, from 1936 onwards, it is most likely that further re-organisation of the unions will have taken place. Unfortunately, up-to-date information is not available at the moment.\*

#### Wages

The general economic progress of the Soviet Union has been accomplished by a steady rise in the wages and standards of living of the people.

During the early period, when the country was engaged in the restoration of national economy after the civil war, the wages of building workers were at a low level. If considerations of social services are left out of account, real wages had fallen to 60 per cent. of the pre-war level at the end of 1922. By the

\* For more detailed information on Soviet trade unions, see "The Soviet Trade Unions—Fifty Questions," Lawrence and Wishart, Ltd., price 6d.

end of 1923, however, they had risen to 80 per cent. of pre-war level. By 1926 real wages were 110.5 per cent. of the pre-war standard. To this must be added food rations at special controlled prices, rent restricted to less than 10 per cent. of wages, free medical attention and other privileges which at that time represented a further addition of 35 per cent.

Since that time immense progress has been made in raising wages and improving the standard of living. During the First Five-Year Plan the average annual wages showed an increase of 67 per cent. During the Second Five-Year Plan real wages were doubled, the average increase being 101 per cent.

In 1936 Mr. Barron, of the A.S.W., found that the average monthly wage for bricklayers was 250 roubles per month. He also reports an example of a girl of nineteen, member of a Stakhanovite brigade, doing concrete work, earning 320 to 350 roubles per month.

It is sometimes mistakenly thought that there are no differences in wages between skilled and unskilled workers, or between the workers of one industry and another in the Soviet Union.

#### Wages as an Incentive

The basis of reward in socialism, the principle operated in the Soviet Union, is "from each according to his ability, to each according to quantity and quality of work performed." Differentiation of wages and earnings, giving higher payment to the most skilled, productive and conscientious workers, acts as an incentive to the more backward workers to rise to the level of the more advanced workers.

All workers in a given branch of industry are divided into categories, each category including workers of different trades but of approximately equal skill in their particular branch of work. The more complex, precise or responsible his work, the higher the category to which the worker belongs, and the higher will be his basic rate of wages. In the building trades there are six categories. The first category, representing the lowest degree of skill, is paid the lowest basic rate. For each rise in category there is an increase in the basic rate. It has to be remembered that workers are not tied to any one category; as a matter of fact, all workers are encouraged by the Government and the unions to improve their qualifications so that they may rise to a higher category, as this means that their labour is more productive.

#### The Piece-work System

The fundamental system of payment of wages is direct unlimited piece-work. Piece-work rates are determined on the basis of the worker's hourly rate and his fixed output quota or



time quota. For example, if the hourly rate is four roubles and the output quota four units per hour, the piece-rate will be one rouble.

Of recent years, progressive piece-work has largely superseded unlimited piece-work. Under the latter arrangement the piece-rate remains unaltered irrespective of output. Under the progressive piece-rate system the worker is paid a higher rate for all units he produces above the quota. In practice this means that a worker who turns out 10 per cent. more than his output quota is paid 20 per cent. more than his basic wage. If he turns out half as much again as his output quota he is paid *double wages*. This system acts as a genuine incentive to workers to increase the productivity of their labour.

#### How Wage Rates are Decided

Wage rates are determined by negotiations between the trade unions and the Central Boards which direct the affairs of the various industries. Each industry is assigned a wage fund by the Government in accordance with the number of workers and the importance of the industry. The negotiations with the Central Boards decide the general principles regarding wages and the allocation of wage-funds to the enterprises concerned in the industry. The practical details are decided in the form of collective agreements concluded annually in each enterprise between the management and the workers. The terms of the collective agreement are thoroughly discussed at meetings of the workers before final adoption.

#### Scope of Collective Agreements

These agreements cover not only wages, but also production, cultural services, labour protection and safety measures, housing, nurseries, playgrounds and camps for the children of the workers, and many other matters. The agreement sets out the production aimed at by the factory, the planned reduction of production costs, and the planned increase in labour productivity.

On its part, the administration undertakes to establish conditions that will enable the workers to fulfil production plans, while the workers pledge themselves to work for the fulfilment of the plan both in quantity and quality of production. A general check-up on fulfilment of the agreement is made quarterly.

One of the factors making for insecurity among workers—unemployment—has been abolished in the U.S.S.R. since the First Five-Year Plan got into its stride. Indeed, of recent years the problem facing the building industry has been to recruit, train and draw into the permanent personnel of the industry a sufficient number of workers to meet the needs of expansion and improved quality of construction.

#### "A Floating Mass of Labour"

In 1928 the labour force in the industry was approximately 600,000. As Mr. Fawcett of the A.U.B.T.W. and Mr. Barron of the A.S.W. both testify, it had swelled to 2,500,000 by 1936.

Even at that time it was remarked by both that only a relatively small proportion of these represented a permanent trained personnel. Mr. Barron noted that a large proportion of this number cannot be classed as normal building workers, but as a kind of "floating mass of labour."

In this connection a most interesting fact should be noted. Between 1928 and 1936 the number of workers in industry increased more than two-fold, from eleven million to twenty-five million. By the end of the Second Five-Year Plan, it had risen to twenty-seven million. It is a fact that a very large proportion of the new entrants to industry from the countryside entered industry via the building trades. Mr. Barron put the point neatly in his remark that a large proportion of the "floating mass of labour" in the industry "today may build a factory and tomorrow staff it."

This fact was noted by Joseph E. Davies, former American Ambassador to the U.S.S.R. In his book *Mission to Moscow*, Davies comments that in many plants the workers were "recruited about twenty-five per cent. from established industrial plants and the remaining seventy-five per cent. from the countryside, the latter having been employed to build the plants and then equipped through manual training at night to become the operators of the plant when completed."

#### Women Building Workers

Mr. Fawcett and Mr. Barron both noted that about twenty per cent. of the workers in the industry were women, Mr. Fawcett observing that they "displayed not only interest but enthusiasm for their respective jobs." This will sound less strange to the ear of British building workers now than it did in 1936. These women were at first mainly in the category of the "floating mass" of unskilled labour. Now, however, they form a considerable part of the permanent skilled personnel of the industry. As mechanisation and technical development proceeds, eliminating more and more of the laborious processes, the percentage of women workers permanently engaged in the industry increases and women are to be found working as brickies, plasterers, painters, etc., as well as in the newer skilled jobs connected with mechanisation.

According to the census of 1926, only nine hundred women were engaged in the building industry. By 1929 this had risen to 64,000, equal to seven per cent. of the total number of workers in the building industry at that time. In industry as a whole women



at that time formed 27.2 per cent of the number of workers. In 1935 the number of women builders had risen to 460,000, equivalent to 19.7 per cent., roughly one in five of all workers in the industry being women. In industry as a whole the ratio of women to men was one in three.

### Growth of Technical Education

In the reports of their visits, both Mr. Fawcett and Mr. Barron note, from different angles, that great attention was being paid to improving the quality of work. Mr. Fawcett remarked that "all kinds of inducements were offered to create greater efficiency," while Mr. Barron observed that the authorities "now proposed to give their attention to the technical education of the building industry." He also noted that the Stakhanovite movement had "led to increased individual initiative in the work, and led men to exercise their brain instead of merely their brawn."

One of the best training grounds for building is the site itself. The Soviet authorities utilised every great enterprise, such as the construction of the Dnieper Dam, the Moscow Metro, or the Palace of Soviets, as a school in which to advance the skill of qualified craftsmen and train big new forces of skilled operatives. On sites such as these the cream of the skilled craftsmen were gathered together on work that would call for the exertion of all their skill and creative capacity, each passing on his skill to tens of younger operatives. The engineers and technicians engaged on these sites acted as lecturers, consultants and leaders of technical circles for the workers. In such ways as these the most important constructional sites became technical schools, training many thousands of skilled operatives for the industry.

A popular and very effective measure was the introduction of recognised standards of technical knowledge and operative skill. In this connection the trade unions carried on consistent work aimed at helping workers to reach these standards. They organised lectures and study circles, published manuals and articles, etc. In the first nine months of 1936, for example, 61,500 members of building unions passed examinations in the "technical minimum" tests, as they were called.

### Technical Colleges and Institutes

The Soviet Government has made extensive provision of technical colleges and institutes for the preparation of technicians, engineers and architects for the building industry.

Enrolment in these schools is open to people of both sexes between the ages of 17 and 35. Pupils of secondary schools who have completed their studies with *excellence* marks on basic subjects and not less than *good* on secondary subjects are enrolled

without the formality of an entrance examination. Other applicants from secondary schools are required to pass an entrance examination.

In order that workers from the industry itself may attend these schools, provision is also made for enrolment of students who have completed secondary education as "external" students. The interesting feature of this is that on all important building sites the trade unions organise classes (supplementary to the ordinary evening classes) designed to provide education of secondary school standard for workers who entered the industry from elementary schools.

The provision of adequate maintenance allowances and hostel accommodation, including accommodation for those who are married, makes it possible for any worker who possesses the necessary ability to go through the full course at technical colleges or institutes.

### Full-time Vocational Training

In October, 1940, the Soviet government launched an ambitious new scheme of vocational training covering approximately one million youngsters per year. This scheme provides for various types of schools, including trade and railway schools with two-year courses, and Industrial training schools with six-months' courses. The building trades are catered for by the Industrial Training Schools, which provide full-time residential courses for boys of 16 and 17 years of age. This education is free of charge to the boys or their parents, the boys being fully maintained by the state during their period of study.

An eight-hour "working day" for the boys is divided into five hours' productive training and three hours' general education. Each Industrial Training School is connected with an important construction site, the management and trade unions seeing to it that the training of the boys on the site is conducted by the best of the skilled workers and technicians, who are specially selected for this honourable responsibility. Two of these building schools in Moscow, for example, were connected with the Palace of Soviets and the All-Union Agricultural Exhibition construction sites.

All city Soviets and collective farms were obliged by the state to mobilise a certain percentage of youths for the three categories of schools. In fact, the popularity of the schools was so great that the number of applicants greatly exceeded the number of places available. Boys who go through these schools do so on the understanding that they are mobilised for work on important state enterprises for a period of four years after completing their training.



### Production Conferences

How do the Soviet workers in general, and building workers in particular, participate in the management of production?

The first thing to note is that all workers are drawn into participation in the management of industry through regular *production conferences* in every enterprise, and in every department, shop or brigade within each enterprise. This is not a new feature arising from the pressure of war-time problems; production conferences have been a feature of Soviet life for twenty years.

At these conferences reports are submitted, sometimes by a representative of the management, at other times by workers deputed for the purpose, on the plan of the enterprise or department, or on some particular problem. Through these conferences the workers are enabled to exchange experiences, express opinions on the way work is proceeding, criticise shortcomings and mismanagement, bring forward proposals for improvement. As a result of the discussions, decisions will be taken and a time-limit fixed for decisions to be put into practice. When the time-limit expires a production conference is called to hear a report on how the proposals were carried out.

### Moscow Builders Write

Some idea of the new socialist attitude to labour that has developed among Soviet workers is conveyed in a letter written on 25th September, 1931, at a meeting of representatives of seventy *shock brigades*, involving 2,000 workers, engaged in the construction of the Stalin Auto Plan in Moscow.

"Each of us workers is acquainted with the construction plan. At our conferences on production we systematically work out all details of the plan and its fulfilment. Each worker may bring in his proposals with regard to rationalisation and to the overcoming of whatever shortcomings hinder our work. The decisions of the conference are binding on all involved. We have made some fifteen hundred proposals which have enabled the management to economise scores of thousands of roubles in the construction.

"All the workers are divided into brigades, each brigade having from twenty to fifty members. . . . Before starting on a job we get a quota, which points out concretely the amount of work to be done, payment and terms of execution. We discuss this in our brigades and in the majority of cases discover that this task can be fulfilled in a shorter term. And so we set forth our counter-terms for the fulfilment of the task. . . . We are paid per piece according to the progressive bonus system. . . ."

It will be seen from this that long before the Stakhanovite movement had started a considerable development of democratic initiative had taken place. The "shock-brigade" and socialist

emulation became a widespread feature of Soviet industry from the commencement of the First Five-Year Plan. The most advanced and enterprising workers would arrange for their brigade to "beat the plan" by cutting down the time set for their job, and challenge other brigades to do the same.

### Composite Brigades

With the introduction of express building, with its requirement of a higher degree of organisation of constructional work, the Stakhanovite workers have initiated a new movement. Hitherto the brigades of building workers had been composed of men of the same craft, say, bricklayers and their labourers. As is well known, many processes in building work carried out by different craftsmen are very closely connected with each other. The new form of organisation initiated by the Stakhanovite workers was the "composite brigade." This brought together different grades of workers into a single team working as a unit on different, but inter-connected, processes. For example, for one class of work a brigade might be formed composed of so many bricklayers and their helpers, so many carpenters and their mates, plus men operating mortar mixers, operating conveyor belts to convey the bricks, or engaged in other auxiliary work essential to the main work, which in this case would be bricklaying.

The measurement of work for a composite brigade may be either a unit of quantity, such as a thousand bricks, a number of cubic metres of cement or concrete, a number of tons of metal construction, or it may be measured in terms of all work involved (e.g., roofing or shoring in metres super; roads or tunnels in metres run).

Payment is by results, the output of the brigade as a whole being determined by the work of the key group of workers. In bricklaying, for example, output is reckoned on the work of the bricklayers; in excavation work by the pace of the excavator.

### Results of Composite Brigades

Composite brigades developed most widely in the constructional work carried on for the heavy industries and armaments. About ten per cent. of all workers involved in this type of construction were organised into composite brigades. Practice soon proved that the work of these brigades improved organisation of work on the site and considerably increased productivity of labour. For example, a composite brigade in Sverdlovsk completed a bricklaying job for which twenty-six days were allocated on the basis of standard work, in eighteen days, with a less number of workers; instead of 1,361 man-days, the brigade finished the job in 723 man-days, the productivity of labour increasing by 83 per cent.



### Worker-Inventors

In the summer of 1940 the journal *Moscow Construction* declared that the work of composite brigades had given rise to a great development of initiative among the workers and technicians of the Moscow Housing Construction Trust, expressed in the stream of rationalisation proposals and inventions. In 1939 alone more than eight hundred rationalisation proposals had been submitted, many of which had found a permanent place in the building practice of this Trust, and many on a much wider scale.

As an example of the way in which Stakhanovite building workers are encouraged, and the benefit of their experiences passed on to other workers, we quote two announcements of new publications taken from many of their kind in the Soviet journal *The Building Industry*. One announcement reads: "*Stakhanovite carpenters and parquet workers tell about their work*. This publication deals with new methods of general organisation of carpentry work on building jobs and with the use of electrical tools by carpenters in parquet work. Contributions by seven workers." The second announcement reads: "*Stakhanovite mechanics on their experiences*. Articles by six Stakhanovites, fitters and mechanics, who have introduced a number of improvements and adaptations in the work of transporters, hoists, excavators and mixing aggregates."

The advance of socialism in the Soviet Union has not only resulted in a great advance in the scale of construction, it has raised the level of general and technical knowledge of the mass of building workers, giving them a higher status and a new dignity. It has brought not only a great improvement in the material well-being of the building workers, but also a place of great honour in this Soviet society in which all honest labour is regarded as a matter of honour for every able-bodied citizen.

## SECTION SEVEN

### WAR-TIME BUILDING IN THE SOVIET UNION

The Nazi invasion of the U.S.S.R. in the summer of 1941 confronted the Soviet building industry, already fully stretched, with gigantic new tasks. The defence of the U.S.S.R. not only demanded increased production of armaments and essential war materials from factories already in operation, but also the extension of industry.

The building workers were called upon to speed-up the completion of factories under construction, to greatly extend

existing factories, and to build many hundreds of new enterprises. In addition, the re-erection on new sites far in the rear of factories evacuated from the danger zones also fell mainly on the shoulders of the builders.

Working under conditions of great difficulty, the Soviet building workers have done an inspiring job.

In a report from Novosibirsk, *Izvestia* (October 1st, 1941) tells of a factory which commenced to turn out products for the front "only fourteen days after the last trainload of equipment" from the place of evacuation. "In various parts of the town the building of new houses goes on and entire new housing schemes are being laid out. The extension of the water supply and sewage system became a matter of urgency, trenching and the laying of water and drainage pipes proceeded at an accelerated pace. The citizens of Novosibirsk are playing an active part in this urgent work, large numbers organising themselves into brigades which devote their free time to helping the job forward."

### High Awards for Building Workers

In November, 1941, medals were awarded by the Soviet Government to 339 men and women engaged in the building industry for "exemplary fulfilment of work connected with the construction of objects of national defence."

*Izvestia* (29.11.41) devotes the whole of one page to a full list of those who had been decorated. An article in the same issue explains that all concerned were involved in this type of work for the first time. The work was carried on under conditions of extreme difficulty. In a number of cases, particularly in the North, the builders had to clear forests, drain swamps and to level hilly terrain. "All these jobs in different corners of our immense territory, were completed in record time. Under peacetime conditions, one such job would require three years. Under war-time conditions which dictated the need to give everything to strengthen the defensive capacity of our country, they were completed in five months."

In many cases the work was carried on in conditions of heavy and systematic attack by enemy aircraft. *Izvestia* comments that "among the many thousands of builders it is difficult to single out particular individuals" among these "Soviet patriots who displayed such magnificent qualities, sparing neither strength nor life."

### Boldest Calculations Beaten

The Soviet press has reported many other great feats performed by the building industry. On May 28th, 1942, an editorial in *Pravda* reported that "the best of our building organisations have given many striking examples of high speed construction. In one factory a department covering an area of 14,352 square



yards was built in 35 days. Another department covering an area of 16,750 square yards was built in 27 days . . . not long ago we reported the assembling of an aircraft factory in 35 days. This enterprise had no production programme for May. The boldest calculations showed that it could only start producing in June. But our building workers, engineers and technicians worked day and night, sacrificing their rest, giving up their sleep, sparing no efforts. They assembled the factory ahead of schedule. A few days ago it started production."

On March 24th, 1942, *Izvestia* praised the builders of certain tank factories who, "overcoming tremendous difficulties . . . succeeded in building in record time factories of exceptional importance . . . showing an example of self-sacrificing labour, immense initiative and high qualities of organisation."

#### **Construction of Fortified Zones**

The building workers form the skilled core around which thousands upon thousands of workers of key strategic cities and areas have constructed vast fortified zones against the invading barbarians. On March 5th, 1942, *Izvestia* published the names of 252 men and women of the heroic city of Moscow who had been decorated by the Government for exemplary work in constructing the defensive zone which baffled all attacks of the Nazi hordes and enabled the Red Army to hold Moscow and, in December, 1941, to pass over to the offensive which pushed back the Hitlerites. Nearly twenty-five per cent.—61 in all—of those so honoured were building workers. Of these, eleven were women builders.

Alongside the names of these builders, and in a previous list of 926 workers decorated for similar work at other places, there appear the names of housewives and school teachers, librarians and students, professors and weavers, women from collective farms and men from offices, men and women from all walks of life. The whole people defended their own—their own great country, its heritage, its achievements, its future—against barbarism!

#### **Women Builders Honoured**

In every list the names of women stand out prominently. No less than 124 of the 252 citizens of Moscow decorated for their part in constructing its defensive system were women. Among 153 workers of Trust No. 2 of the People's Commissariat awarded honours for their exemplary work were 14 women, among them concrete workers, a bricklayer, two leaders of brigades, a forewoman, and a mechanic. "Housewife, working as navy," "collective farm worker, working as labourer." Such descriptions follow the names of many of those awarded honours, testifying to the way the women of the U.S.S.R. have come forward in their country's hour of trial. Alongside them will

be found the names of women described as "superintendent of building site," "foreman," "leader of labourers' brigade," testifying to the fact that already before the war, women had found a permanent place in the Soviet building industry, and so were better able to serve their country in the stress of war.

#### **Guidance from Government and Press**

The Soviet Government and press not only give due prominence and praise for every example of heroism and outstanding achievement on the construction front. They also bring out into the open the problems of war-time construction and give the industry as a whole guidance in the solution of these problems.

*Izvestia* (March 24th, 1942), the organ of the Supreme Soviet of the U.S.S.R., summed up what was required to fulfil war-time construction as follows: "Precision in designing, rapid solution of problems that arise, maximum co-ordination of all sides of the work, speedy overcoming of obstacles met with in the course of operations, ability to make the most effective use of every worker from technician to labourer, making big demands on all—this is what must be set as the standard for every job and demanded from every leader."

*Pravda* (May 28th, 1942), the organ of the Bolshevik Party, gave even more detailed guidance. Here are some of the main points:

1. "Machinery should be used to the fullest extent so that each job can be done by the fewest possible workers.
2. "Building workers must organise their working day so that every moment is used for productive labour, so that there are no stoppages, slackness or defects.
3. "Large numbers of new men and women workers have come to the building sites, they must be taught their trades at top speed.
4. "The initiative of skilled workers who are mastering kindred trades is to be supported by every means.
5. "Workers in industries producing building materials must co-operate fully . . . not the slightest delay on a job because of non-delivery of materials.
6. "The construction manager must keep his eyes open for local materials. If you are a good building manager, then display your initiative, find local materials, open quarries, organise local transport, don't invent objections and don't hide behind the cloak of war-time difficulties.
7. "Extensive political work must be conducted on building jobs, educating the new building workers in the proletarian, Bolshevik spirit, explaining to them the great part they have to play in the war."



### Public Criticism of Short-comings

Together with praise and guidance where it is merited goes public criticism and exposure where that has been deserved. *Izvestia*, for example, criticised "slackness in the tempo of operations, frequently excused by talk about lack of materials or late delivery, plus frequent chopping and changing of architectural designs" on the part of certain leaders. It declared that "having started on a job, finish it quickly—such is the fundamental law for our builders." It named the chief of one job who held up construction while waiting for bricks instead of using big supplies of slag that were at hand for manufacture of blocks. *Pravda* condemned the practice of certain local authorities who tried to hang on to skilled building workers whose services were urgently required by the State in other areas.

The greatest possible encouragement is given to the development of initiative and inventiveness among the workers. Reference has already been made to the approval by *Pravda* to the idea of skilled building workers mastering kindred trades. The initiative in this came from a mason employed by the Trust specialising in constructional work for heavy industry. In the course of four years this worker, V. F. Shalaev, had mastered three trades, doing plastering and roofing as well as masonry.

### Examples of Initiative by Workers

In a public appeal to all building workers, Shalaev called on them to master more than one job. "These are busy times for the building industry. If the job is not ready for roofing, painting can be done; if there is not work at hand for the carpenter, it may be that electro-welding can be done." Commenting on this appeal, *Izvestia* states that it met with a warm response; "everywhere, on all well-organised building jobs on which mechanism is correctly utilised and on which everyone from director to labourer is clear about the organisation of the job, the Shalaev method is bringing enormous results."

Similarly, *Pravda* welcomed the initiative of the workers of the Southern Heavy Industry Building Trust, who issued a public appeal suggesting the organisation of an All-Union Socialist Emulation movement of building workers to speed the construction of new war factories. To initiate the movement these workers pledged themselves to complete two months ahead of schedule two open hearth furnaces for a tank factory, and to beat the schedule on two electric smelters for a metal factory.

In view of the need for an all-out effort, the Soviet Government published a decree on February 14th, 1942, on "Mobilisation for the duration of War of able-bodied residents of cities

for work in production and on construction." Men between the ages of 16 to 55, and women between 16 to 45, with exemption for certain categories, were mobilised for work in the city where they resided. Explaining the reason for that measure, *Izvestia* wrote: "We are not only increasing the scale of operation, but also building new enterprises. The gigantic scale of this construction which is absolutely essential for strengthening our military power and for the defeat of Hitlerite Germany, calls for the enrolment of enormous numbers of new workers."

### Construction in Remote Areas

Spurred on by war-time needs, constructional work is developing all over the vast territory of the U.S.S.R., as every region, even the most remote, makes its contribution to the peoples' war of liberation. Away in the Far North, beyond the Arctic Circle, the new town of Igarka has become the centre for new industries in a region where, up to a few years ago, there had been no permanent habitation. Since the war over a hundred new populated points have sprung up, centres of fishing and hunting and other pursuits. Igarka itself is producing on a mass scale standard pre-fabricated timber buildings for these new centres. *Izvestia* (March 27th, 1942) reports "that Stakhanovite workers have given many valuable rationalisation proposals enabling their factory to produce all details completely ready for erection."

Another report in *Izvestia* (April 19th, 1942), this time from Chita, in Siberia, describes the great constructional work undertaken by collective farms out of their own resources. Sixty collective farms in this area were opening up small brickworks, and twenty going in for the production of lime. In general, nearly all collective farms in the region were developing auxiliary enterprises which would not only relieve them of the need for making calls on industry, but would enable them to help local industries. Small factories for milk products, workshops for the manufacture and repair of carts and sledges, flour mills—these are but a few of the enterprises being built and put into operation by collective farms.

### Attention to Housing Needs

In all this fever of war-time production and construction, the welfare of the people in respect of housing is not overlooked.

During April, 1942, *Izvestia* published a special article examining how local Soviets were looking after the welfare of their citizens in this respect. Praise was given to the little town of Bogorod, which had set up a special commission of doctors, teachers and housewives to survey residential buildings and put



in hand repairs found to be necessary. The commission personally surveyed 1,224 apartments and houses. Repairs, done with local materials, were arranged for over 200 houses.

On the other hand, the article makes a sharp criticism of the Gorki Soviet (Gorki, formerly Nizhni-Novgorod, is now a great centre of the automobile industry). This Soviet had been assigned five million roubles by the state for repair and renovation of residential buildings. It had supplies of timber, nails, glass and paint.. But because they had no supplies of bricks, repairs were held up, the local Soviet waiting for supplies from outside instead of developing local resources for manufacture of bricks and other building materials.

#### **Reconstruction in Liberated Areas**

One finds little discussion of post-war reconstruction in the press of the Soviet Union.

An article in *Izvestia* (December, 1941) notes that "when peaceful creative work will be opened up again for the peoples of our Soviet Union . . . the most urgent task of Soviet architects will be to assist the inhabitants and local Soviets in those places which have suffered destruction during the war." This reconstruction will be carried through "on our Socialist principles, avoiding any repetition in town construction of the historical discrepancy between the centre and the suburbs." This article also notes that the demand for housing construction in both town and village after the war will be on such a scale as to demand the closest study and mastery of the best achievements of other countries, particularly of the U.S.A., in standardisation, prefabrication and industrial construction of housing.

"Post-war reconstruction," in one sense, is not a matter for the future in the Soviet Union. Already many areas have been reconquered from the Nazis by the Red Army. The reconstruction of these areas does not wait till after the war; it is put in hand right away, on the very day of their liberation.

On January 30th, 1942, the Moscow Regional Soviet met to consider the measures necessary for reconstruction of the areas freed from the Nazis. Reports submitted showed that hundreds of hamlets and villages had been razed to the ground, whole towns and workers' settlements had been destroyed, more than 40,000 houses burned down, 760 schools, 160 hospitals, over 800 libraries and clubs, had been destroyed by the Nazis. Measures were adopted for the speediest restoration of communications, bridges, roads, etc., and of enterprises which could be quickly turned on to work for the front. Six million roubles credit were voted for rehabilitation of collective farms, apart from credits for re-housing of the collective farmers.

On February 7th, 1941, the Moscow City Soviet instructed building organisations to organise on a big scale the construction

of cheap standard houses and mobile baths for the immediate relief of areas liberated from the Nazis.

#### **The Story of Klin**

One of the most moving stories of the great Soviet people concerns the re-habilitation of the city of Klin, from which the Hitlerites were expelled towards the end of December, 1941. The story is taken from the diary of the President of the local Soviet, published in *Izvestia* on January 27th.

An entry on January 4th notes that of the 48 schools in the city, 11 had been completely destroyed, seven partially destroyed, while 22 needed major repairs. It adds, "repairs commence tomorrow." The entry on January 9th describes that date as a red-letter day for the children, as the first five elementary schools had been reopened. The diary remarked on January 14th that the allocation of timber supplied by the Government to collective farmers whose homes had been burned down had commenced. It remarks that "the interest among the collective farmers is enormous. They are planning their villages anew, not in the former dispersed fashion, but in a much more orderly lay-out."

The importance attached by the people to vocational training is reflected in an entry for January 20th recording that permission had been received from the Government to open an Industrial Training School to provide a six months' full-time course for 250 youths of 16 and 17 years of age in the building crafts, plastering, bricklaying, masonry, painting and plumbing. Over 1,000 applications were anticipated for the 250 places!

The diary notes that more schools were opened on January 22nd and that by February 1st a total of forty would be functioning.

This remarkable human document gives us an insight into the invincible spirit that animates the Soviet people, a spirit that is the outcome of the past twenty-five years of ceaseless effort by a free Socialist people to create a new, Soviet civilisation.

#### **Comrades in a Common Cause**

We may well be proud to work and fight shoulder to shoulder with the Soviet people for the victory of our common cause.

In particular, the building workers of Britain can be proud to stand together with the building workers of the Soviet Union.

The part they have played, both in peace and war, is an inspiration, something that strengthens the self-confidence of our own building workers that they, too, through their unions and solidarity on the job, can take the lead in pressing for the fullest mobilisation of their industry for the war effort. Already the British building workers have done many magnificent jobs in war-time construction. Knowledge of the achievements of their Soviet colleagues will fire them with the will to do even better.