

Michael FOWLER

THE ARCHITECTURE
AND PLANNING
OF

MOSCOW



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Michael FOWLER

THE ARCHITECTURE
AND PLANNING
OF
MOSCOW

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I have great pleasure in introducing to readers this book by Michael Fowler, the Mayor of Wellington, the capital of New Zealand. Visiting Moscow in 1975 on the invitation of the Moscow City Soviet, Michael Fowler showed a deep interest in the history and development of Moscow town-planning. This book is the result of his study of the subject. He describes how Moscow has developed over many centuries, he writes about its architectural and cultural monuments and principles of planning, about the present state of the city and its future prospects. His assessment of our architectural and building practice is of great interest.

There are, of course, particular points which are open to controversy, but this fact does not lessen one's enjoyment of the book and the author's very human approach to Moscow.

The reader will see Moscow through the eyes of a friendly foreign visitor who was able to appreciate the great significance of the changes that have taken place in the capital during the years of Soviet government.



Vladimir PROMYSLOV

Chairman of the Executive Committee
of the Moscow City Soviet
of People's Deputies



Acknowledgements. My principal thanks are to Mayor Promyslov and members of the Moscow Soviet, whose guest I was in their city during all too short a period in the summer of 1975. During that time, Igor Levikov, the protocol officer of the Moscow Soviet, and Yury Reshetnikov assisted me and showed me the many buildings and sectors of Moscow of which I had read long before. Mikhail Posokhin, the chief architect of the City of Moscow, and B. Tkhor, the architect in charge of the central city area, were generous of their time, as indeed was Hugo Judd of the New Zealand Embassy in Moscow. It is to British Airways that I direct my thanks for making the long trip from New Zealand possible, and to my friend, Oleg Benjukh, who encouraged me to write this book. I thank him for his encouragement.

Michael FOWLER,
Mayor of

A handwritten signature in black ink that reads "Michael Fowler". The signature is written in a cursive style with a long horizontal line extending from the end.

Wellington, New Zealand

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A TRIP TO MOSCOW

Probably the first time I learned of Moscow was during the Second World War when, as a boy of ten, I watched my father move pins on a map of Europe to mark, each evening, the advances of the German fascist forces. As if it were yesterday, I can see him now listening to the radio news and shifting those pins eastward towards the Russian capital, to Leningrad, to Stalingrad, and yet they never pierced the map on our living room wall at those points. And as the subsequent years dragged past, those pins moved slowly, and then with gathering and exciting momentum, backwards to the west, and other pins marked the western European countries to note the invasion in 1944 of the other Allied forces from the United Kingdom and the United States—until my brother, a Spitfire fighter pilot with the R.A.F. was killed over Belgium, and then the map was taken away.

Of course we read of Russia, and therefore of Moscow, at school—of the gigantic social upheavals that swelled in 1905 and again in 1917 until it burst into a revolution, but to us Russia remained an enigma. The vastness of it, and even of its aspirations, was lessened by our own concerns.

After the war, the short-lived

euphoria of the Allied victory, of amazement at the heroism of Stalingrad's defence, of the victory of the Battle of Britain, the North African campaign, the siege of Leningrad, the crossing of the Rhine, the individual courage of the partisans, all this became blanketed by the growing confrontation of East and West.

Yet even during the years of confrontation we read Tolstoi, Dostoyevsky, Chekhov, Pushkin, just as the Russians read Dickens and Twain, Shelley and Whitman. It became obvious that if present ideologies differ, and that they sincerely do, there was a wealth of common ground and heritage which evidenced itself in writing, in music, and, of even greater interest to me, in architecture and building.

Where better to observe this than in Moscow itself. In 1974, the Mayor of Moscow, with a few of his staff, was a guest in my city of Wellington, the capital of New Zealand. At that time, I was a City Councillor and Chairman of the Works Committee but later in the year was elected Mayor, and in 1975 was invited by Promyslov, Chairman of the Executive Committee of the Moscow City Soviet of People's Deputies to visit Moscow. At the same time, British Airways offered to fly me

to the United Kingdom and back, and it was thus economically possible to accept the invitation of the Moscow Soviet.

I have been a practising architect for 25 years and during that period have had an abiding interest in urban planning. This most recent overseas trip therefore was of intense interest and

was spent principally with the Greater London Council, then with Mayor David Crombie in the City of Toronto, North America's fastest growing centre, and then directly to Moscow with Mayor Promyslov and his officers to whom I am very grateful for their hospitality, their concern and their knowledge.

A VIEW FROM MOSCOW'S T. V. TOWER

From the top of Moscow's television mast, some 400 metres above ground level, there are no hills in this city. The structure itself, of reinforced concrete, is significant indeed, and though it lies to the north of the central area, provides a map of unsurpassed clarity of this fabled and enigmatic centre—perhaps enigmatic only to us from the West, of which I am one, though really from the farthest south that the West goes, New Zealand.

Looking to the north-east, in fact almost in the middle foreground, there lies the Ostankino Palace, built by Count Sheremetiev in the late 18th century, (now the Museum of Serf Art), a splendid extravagant complex complete with formal gardens, lakes, vast wings spreading from the centre building—it were as if the serf architects, Miranov, Dikushin and Argunov, anticipated such a tower above their creation, for only from here, some 200 years later, can one see at a glance the striking contrast of their axial and formal concept with the informality and ruggedness of the great birch forests which encompass Ostankino.

Why do I choose to open this treatise with Ostankino Palace—perhaps it is because it is typical of

what was conceived, nurtured, created in an age long since gone, a formal, unreal world

*"Create he can
Forms more real than living man
Nurslings of immortality."
Shelley—"Prometheus Unbound"*

What else catches the eye to the north? Just forward of Ostankino, nestles the Trinity Church; perhaps it was part of that vast estate, and yet what a contrast in form, for it is complex, asymmetrical, tight, onion-domed in myriad shapes, introspective.

Just beyond, behind the forests of Ostankino, glisten the domes, fountains, statuary of the USSR Exhibition of Economic Achievements. I now know this great part well, and remain impressed beyond measure by its concept and content.

To the south lies Moscow: one can catch a glint of gold from the Kremlin domes, from the river, though haze of smoke is between us, and all between, either forests or apartments.

In the ensuing days, I explored this city of almost eight million people, of history, of challenge for the future, but always in my mind I came back to Ostankino.

The method of planning, indeed of building, used since 1917 in many ways repeats the architectural concepts of the late 18th century, in so far as there is an abundance of scale models, of enormous tracts of land laid out in regular and orderly housing estates, of great state buildings in orderly boulevards, of major classical piles at prominent points of the city, but, overall, there is a symmetrical radial pattern of major roads radiating from the Kremlin to the outskirts of the city of Moscow, as if this city were to be based on an almost Beaux-Arts disci-

pline notwithstanding the uniqueness of the old centre, of the meandering Moskva and Yauza rivers, let alone the topography denoted by those seven hills on which the city was built and of which I had read. But where were those hills? My town of Wellington has hills of 250 metres height, great powerful, almost savage hills rising from the harbour but, apart from the Lenin Hills upon which the Moscow University is sited, I never found the other six. Yet there are highs and lows other than geographical in Moscow, and really those are what I wanted to observe.

THE ORIGINS OF PLANNING

In the 12th century, Prince Yuri Dolgoruky fortified some timber buildings with a wooden palisade and towers, at the junction of the Moskva and Neglinka rivers.

Thus was Moscow first chronicled, and it grew from this humble beginning to the metropolis of today. Its strategic position at the confluence of water and land trade routes caused its expansion and, as it grew, so did the fortification walls which encompassed it. Wooden, then white stone, walls, towers, deep moats and earthen ramparts defended the city, and the present brick Kremlin walls and towers were erected by 1500.

One hundred years later, an outer ring fortification wall 5.6 miles long was constructed to enclose more area and this work, though long since disappeared, is marked by the Boulevard Ring.

Beyond that again, the city was girded by an earthen rampart, strong wooden walls and towers and a deep moat, which included area to the south of the Moskva River, and this contour is now marked by the Sadovoye Ring.

By 1750, a 25 mile long earthen rampart was erected by the State Revenue Department to serve as a customs boundary of the city.

Russian town-builders adhered to

this tendency in later years as well—in the second half of the 19th century a Circular Railroad was built around Moscow, which stood at the crossing of eleven railways. It connected all the railways leading to Moscow. Today it is called the Small Railway Ring, for 70 years later a new ring was built at a distance of 70-130 kilometres from Moscow, which relieved the city of all the transit transport. Up to the middle of this century the Small Railway Ring also served as the boundary of the city. In the 50s the Moscow Circular Highway was built at the distance of 15-20 kilometres from the city centre, which is now the official boundary of the capital.

Thus the expanding city was encompassed by concentric lines, firstly of walls, and later by roading patterns, and these circles were pierced by radiating streets centred on the original town, the Kremlin.

There is no city in the world, not even Paris or London, which developed its boundaries so concentrically up to the 18th and 19th centuries. The reasons for this are obvious, for through the centuries, even when Moscow was already one of the largest cities in Europe, it was the subject of attack from across the vast plains

which surround it. First the constant invasions by Tatars and Mongols in the 13th-14th centuries, then the threat of the attack from the West (in the early 17th century Moscow was besieged by the Polish troops and a few years before, by the peasant army of Ivan Bolotnikov) gave rise to the concentric fortifications of the city of Moscow, where an increasing number of people sought protection.

The occupations of people in the city are still evident in the names of streets in the city, such as Taganskaya (Ironmongers) Square, Ruzheiny (Armoury) Lane, and Bronnaya (Gunsmith) Street. Similarly, the names of the gate towers, long since disappeared, which stood at the fortified walls, are retained, such as Sretenskiye Gate, Nikitskiye Gate and Petrovskiy Gate.

Outside the Moscow walls lay the monastery fortresses which acted as defensive outposts. Some of them are well preserved, such as the Novodevichy nunnery, the Donskoi, and the Andronyevskiy and Krutitskiy. The former contains a magnificent medieval belfry. These structures, as those in the Kremlin itself, were used as watch-towers to give warning of attack.

In 1700, Peter I ordered that only masonry was to be used in the building of houses and that all new houses were to be ranged "along the line" (along the streets) and not erected in the yards. Yet in 1713, when the tsar moved his court to the new capital of St. Petersburg which he founded in 1703, he prohibited the building of new stone houses in Moscow (for stone was in great demand in the capital) and the city began to fall into decay. Thus by the middle of the 18th century most of the housing in the city was made up of small wooden houses.

In 1775, a reconstruction plan for the city of Moscow was drawn up, which included a water supply system and, though some outstanding structures were built, including the Sukharev and

Menshikov Towers, the Arsenal Building in the Kremlin, palaces and hospitals and the University, only slow progress was made.

The Napoleonic invasion and the great fire of 1812 provided further massive hindrance and, in 1818, a development plan was prepared for the rebuilding of the city by a special commission headed by Osip Bovet, a leading Russian architect who participated in the design of the Bolshoi Theatre. He was assisted by Dementi Gilardi who is well known for his reconstruction of Moscow University.

But there was not enough money and one can liken their disappointment at the lack of realisation of their planning proposals to that of Sir Christopher Wren whose replanning of the City of London after the great fire of 1666 foundered on the rocks of private property ownership requirements and the high cost of land acquisition for public services and amenities, such as roadway widening, parks and public buildings.

Thus, during the 19th century Moscow developed, in accord with most cities of the world during that period, in a haphazard fashion, with little space between buildings; the ostentatious mansions of the newly rich merchants flanking some priceless 18th century monument or a decrepit shack; the banks of the Moskva river became cluttered with hastily erected warehouses, and on the outskirts of the town barracks were slammed up for working people.

The exceptions to this uncontrolled and unplanned development in the cities of the world were exemplified by Washington (to the design of L'Enfant), Paris (as forcibly redeveloped by Baron Haussmann under Napoleon III), Edinburgh and Karlsruhe.

Russian architectural history is one of discontinuity resulting from political events and related to the arrival of foreign architects on Russian soil.

The early medieval church architecture derives from Byzantine culture brought to Kiev with Orthodox Christianity in the 10th century. Russia became completely isolated from Europe in the late 13th century when it was overrun by the Tartars. At that period the whole country was divided into small feudal estates. Architecture continued to develop only in northern and northwestern principalities, such as Vladimir, Suzdal, Tver, the city republics of Novgorod and Pskov, and Russian settlements along the Arctic coast (Pomorje). It was not till the rule of Ivan III (1462-1505) that the new Moscow emerged. He sent for Italian architects to reconstruct the Kremlin and their influence was widespread, for they re-established the long dormant techniques and craftsmanship.

In the 17th century Baroque influences from Poland and Lithuania found their way to Moscow via Kiev and this style which underwent significant changes in Russia, was applied as decoration to structures of genuinely Russian character.

But a complete break with traditional and popular Russian architecture took place with the building of St. Petersburg under Peter the Great in 1703, the most autocratic and absolute monarch in Europe, with the imposition of classical styles. These new styles were resented by many as un-Russian and western. Even as late as the 1860's, Fyodor M. Dostoyevsky could refer to St. Petersburg (Leningrad since 1924) as "the most abstract and artificial city in existence". Dostoyevsky could not and would never have referred to Moscow similarly.

A series of panoramic photographs of Moscow taken in 1867 show the dominance of the Kremlin still evident, the central city area a mass of two-, three- or four- floored buildings, but rising above all else, the steeples, domes and belfries and towers of the churches and monasteries. One such

view to the south-west shows the great belfry of the Novo-Devichy nunnery rising skywards against the horizon, with rural land and forests all about it.

The city then moved the poet, K. N. Batyushkov to say

*"in a word, here is a picture
worthy of the greatest capital in
the world built by the greatest
nation in the most pleasant spot."*

And again, the poet Lermontov

*"Moscow is not an ordinary large
city of which there are hundreds.
It is not a mute giant mass of cold
stones symmetrically arranged...
No! She has a soul of her own, a
life of her own..."*

"Beginning in the third quarter of the 19th century, the centre of gravity shifted from the producing towns to the capital cities; free competition, which was the dominant catchword of the early 19th century, if never universal practice, gave way to the effort to achieve practical monopoly or quasi monopoly... A coalition of land, industry, finance and officialdom was formed in almost every country in order to effect the maximum amount of pecuniary exploitation. The agents of power, the aristocracy, the political bureaucracy, and the army began to direct 'national interests' towards the service of the industrialist."

This quotation from *The Culture of Cities*, by Mumford, is as relevant to Moscow at that period as it was to every burgeoning metropolis throughout the world, for though the capital city remained St. Petersburg, Moscow became in essence, if not in fact, the trading, industrial and financial capital of Russia.

With this growth, industrial enterprises and railways were built without consideration of the existing city fabric. Contemporary newspapers describe Moscow as notorious for its lack of civic amenities and the poor living conditions of most of its inhabitants. It

became, as did so many cities at the beginning of the 20th century, a place of startling contrasts. Whereas Tverskaya and Kuznetsky Most Streets in the city centre were opulent, the Meshanskaya Street area to the north, which housed nearly 120,000 people, was appalling. The average width of Moscow's streets was only 35 feet, and apart from the central city squares lit by electricity, most streets were lit

only by ordinary kerosene and gas lamps.

The population by 1900 was over one million, the vast majority of whom were badly housed, overcrowded, wretched. All these conditions were a major reason for the December 1905 uprising centred in the Krasnaya Presnya district, and which led eventually and inevitably to the October revolution of 1917.

MOSCOW IN THE SOVIET PERIOD

In 1917, the population of Moscow was 1,854,000 and only 3 per cent of the working population lived within the circumference of the Sadovoye Ring which encircles the central part of the city. In the very first days following the Revolution, the Soviet Government, headed by V. I. Lenin, altered the whole basis upon which the capitalist economies of the world had hitherto existed, and indeed upon which base many continue to exist. The Soviet Government abolished the private ownership of property and nationalised means and instruments of production, including plants, factories, land, apartment buildings, etc.

In 1918, at the height of the Civil War and foreign military intervention, the Council of People's Commissars (as the Soviet government was called at the time), headed by Vladimir Lenin, adopted a decision to improve the living conditions of the working people.

In Moscow tens of thousands of workers' families were moved from squalid houses and barracks on the outskirts to flats and houses which formerly belonged to the bourgeoisie in the central districts of the city. Within one year, over half a million workers were rehoused within the Sadovoye Ring.

This housing redistribution campaign did not, indeed could not solve the housing shortage, but it illustrates dramatically the radical and far-reaching changes which swept the whole of Russia from 1917 on. It is against the effect of sixty years of socialism and particularly public ownership of land that one can assess the progress, growth and development of the city of Moscow against that of the major cities of the world.

During the first six years of the Soviet Republic, there existed both internal and external threats to its existence, firstly in the Civil War and latterly in the intervention by foreign forces. This had an adverse effect upon Moscow's population which suffered from an extended war economy, cold and hunger.

On February 26, 1918, Lenin proposed that Moscow be the new capital, and this became so. It was not only that the existing capital of Petrograd was menaced by the German advance, but Moscow had been regarded by the people of Russia as the traditional capital for countless generations and the country's economic life had always centred about it.

On March 12, 1918, Moscow indeed became once again the capital, and it was from here that the fight against the

counter-revolutionaries was directed. Yet even while the Soviet Government was fighting for its establishment, there is evidence of a contemporary concern for the replanning of Moscow. History records that Lenin himself, on March 13, 1918, toured the Kremlin and proposed the restoration of a number of its buildings and monuments, many of which had been neglected, some even since the time of Peter the Great. Thus was restoration work begun, even in 1918, upon the Vladimir (Saint Nicholas) Gate, the Patriarchs' Sacristy and Library, the Kremlin chimes which had been damaged during the Revolution shellfire, the Cathedral of the Assumption and even St. Basil's in Red Square.

It is much to the credit of the first Soviet Government that, at a time of cataclysmic formation, it had the good sense while initiating massive political change, directing armed forces across the whole of Russia, and attempting to organise systems of order into a chaotic situation of food distribution and lack of housing, to recognise the historical worth of preserving the best of the older and historic buildings which are the heritage of Russia.

In the early days, the enormity of the problems ahead was daunting in the cities and particularly Moscow. Lenin is said to have advised the city architects to take into account the layout of European capitals—the green area of Hyde Park in London, the Champs-Élysées in Paris and the Ring in Vienna, all cities he knew well and which had made an impression upon him.

In these first twelve years, it was not possible for Russia which was restoring its economy to start the development of the capital according to an overall plan. Rather, the immediate problems of housing had to be tackled, and the most necessary restoration and construction of some public buildings and factories was undertaken.

The earliest blocks of houses built in

the 1920's were four- and five-storeyed, simple in form though lacking in some amenities, yet in most cases orientated to obtain maximum sun, and a concerted effort was made to provide open space around them. In those early years, the Muscovites were even then conscious of the desirability of avoiding air pollution—the problem of which they were already very much aware. Thousands of open fire-places which provided warmth to houses and offices emitted vast quantities of smoke across the city. Again, the factories, warehouses, coal-burning power houses and even the barges and shipping which plied the Moskva river were intermixed and adjoined the existing housing and a pall of smoke often lay over the city.

Because of these matters, great attention was paid, even in the 1920's, to the planting of trees and shrubs in newly formed open spaces, and thus began the twofold campaign of eliminating air pollution through separation of factories from established residential areas, and the acquisition of large tracts of land for open space and planting within the city area.

In the latter half of the 1920's, there existed a prodigious fervour among the young architects in Moscow for designing the new buildings to symbolise the changed nature of the state, to epitomise the new social order. But in most cases, such designs reached no further than the drawing board.

The few that did are characterised by the Cultural Centre of the Likhachov Motor Car Works designed by the Vesnin brothers, Ilya Golosov's Zuyev Workers' Clubhouse, and the Rusakov Cultural Centre designed by Konstantin Melnikov. These buildings and the new *Izvestia* Publishing House, are all of reinforced concrete and glass, in what has become known as the international style.

But in those first years of the Soviet state, there was little technical experi-

ence in the use of reinforced concrete—up till that time, most structures in Moscow had been of load-bearing masonry or timber, and inevitably many of the young architects and builders entrusted with major commissions misunderstood the requirements of reinforced concrete construction in the continental climate of Moscow, where temperatures can drop to -40° in winter and rise to 35° in summer. Mistakes were made, some failures with the new materials occurred.

Perhaps the last and greatest such building of that period of fervour and innovation, was the Palace of Co-operatives, won in international competition by the grand master of the international style, the over-ingenious Le Corbusier, in 1928. Here in this project, the philosopher-architect of France found himself at last in harmony with the spirit of an emerging nation, and with the energy of the twenty-five year old state architects to whom were then entrusted the colossal tasks of building Moscow.

But the honeymoon was short-lived. A mistrust of the new materials was growing, in the main because of insufficient technical understanding, and this was coupled with a developing desire to magnify the achievements of the state in a form of public buildings which bore more resemblance to traditional buildings more easily understood by the people. For Le Corbusier, this culminated in his unsuccessful submission for a competition in 1932 for a great Palace of the Soviets in the heart of Moscow. The winning design, which perhaps fortunately was never built, was exhibited in model form at the U.S.S.R. pavilion in the 1937 Paris Exhibition, was a monstrous tiered quasi-renaissance structure rearing 480 metres high, faced with columns, pediments, friezes, and statuary and topped with a 60 metres high statue of Lenin. This unbuilt project had an archaic grandiosity more akin to the Russia of

Peter the Great than to Lenin's comradely republic of free workers.

Notwithstanding the simple modern form of Lenin's Tomb (the architect A. V. Shchusev, 1930), and the growing expertise in and construction of quite contemporary style apartment buildings and factories in Moscow up to 1932, the architecture of the new Russia from then on until the 1950-1955 returns to classicism.

This return was evidenced even in the construction of the most contemporary form of urban transport, with the commissioning of such architects as I. A. Fomin to design the concourses of the underground Metro system. Domed, with two- and three-arched floors, coffered ceilings, marble columns and walls, and statuary, created of these first stations images of the Roman Pantheon or the baths of Caracalla.

Even up to the 1960's while the governments of Europe, the Americas, Africa, Asia (excluding China) and the Antipodes were encouraging designers to exploit not only the materials of concrete, steel, aluminium and glass but also to relate the form of the buildings to the new societies—the Soviet government was erecting the first seven classicist piles, six of them almost equidistant from the central Kremlin.

Certainly these enhance the focal nature of the Kremlin and provide the culmination to vistas from central Moscow, but they remain today an enigma in both time and space to a foreign visitor to Moscow.

Two of these extraordinary edifices are administration complexes at Smolenskaya and Lermontov Squares, two are apartment buildings—at Vosstaniya Square (designed by M. V. Posokhin), and on the Kotelnicheskaya Embankment; two are hotels, the Ukraina and the Leningradskaya; the seventh, the grandest of

all, is that great pile on the Lenin Hills, the Moscow University.

The development of Moscow was firmly put in hand in 1931, when the Central Committee of the Communist Party, after thoroughly studying all the social, political and economic aspects, utterly rejected two proposals before it which were conceived in the preceding years.

Firstly, the concept of preserving Moscow as a Museum city, and erecting a new city beyond its boundaries.

Secondly, the dismantling of the existing city and building an entirely new city on the same site.

The Central Committee determined that the historical outlines of Moscow should be preserved, yet the streets and squares radically reformed and enlarged, by demolishing old houses having no historical value.

Further, the Committee decided to put in hand the construction of the Moscow Canal to create better traffic conditions on the Moskva river, to turn the capital into the "port of five seas", and to ensure better water supply of the population and industrial enterprises. The decision also envisaged the improvement of municipal transport by means of building an underground and expanding the network of tram, bus and trolley-bus lines.

The basic concept provided for an expansion of the roading and underground rail system, in the form of radial spokes, centred on the Kremlin. Insofar as this concept was both geometric and traditional, when one looks back over nearly 50 years to that period, it was also predictable. The decision then made, and confirmed in 1935 by the Central Committee found its reflection in the first General Plan of Moscow development and was in harmony with the growing rigidity of design parameters within which the public buildings could be constructed.

However, the decision paralleled similar planning concepts being

evolved in London by Sir Patrick Abercrombie, in Paris, the Americas and the Antipodes. In this last named case, Canberra, designed by Burnie-Griffin, typified the radial concept, albeit within a curvilinear concept.

My concern for the continuation of the mid-1935 Moscow development decision is this.

The process of increased urbanisation is inevitable. Already there exist valiant attempts to limit the size and the population of that great city. It may be possible, though doubtful, that the Soviet Government, unlike any other government in the world, can control growth.

The problem has been recognised by planners such as Doxiadis, Tange, and in the British and American schools. The "new town" concept in the north and south-east of the United Kingdom offers an alternative solution, and the planned clustering of vast urban communities as on the American eastern seaboard, known as the ecumenopolis theory of Doxiadis, another, and Tange's linear cities yet another. These are theoretical alternatives to the enlarging concentric city.

In the European, American and Antipodes' experience, the circular radial city has or is failing on two counts. One, the concentration of access towards the centre, and the inevitable inadequacy of cross links, causes an increasing demand for building space at that centre with the corollary that land values escalate beyond control. Inevitably, therefore, buildings get higher and more crowded in an attempt to relate improvements to property value. Two, the means of access to the magnetic central area become further and further congested.

Now these two factors may not eventuate in the politically different situation which obtains in Moscow.

Control of growth and population may be possible by means of reducing population migration. But projected

world population growth would indicate that without the most stringent controls the population of Moscow, with or without satellite towns, would at least double in 35 years.

Again, although the excellent outer circular road is constructed and defines the boundary of Moscow, the proposed two inner circular roads which will provide cross linkages to the spokes between the Sadovoye Ring and the

Circular Highway, and as such are essential, will become increasingly difficult and enormously expensive to construct as the city develops.

Finally, as the Soviet society becomes more consumer orientated and Soviet people, including Moscow inhabitants, begin to own cars in large numbers, the concentric roading pattern, vast though the present road widths appear, will become congested.

THE KREMLIN

It is right to devote a chapter to the Kremlin, for not only does it embody the past history and aspirations of all the Russians in the heart of Moscow, but it symbolises, even at this time, the strength and centralism of the Soviet State. Within these strange and awesome walls is encapsulated the thousand-year history of Russia.

I can think of no major city in the world where one can observe such a concentration of history and power within a single area. London is loose-knit by comparison, spreading from the City of Westminster. Tokyo is utter confusion, the beautiful palace and gardens overshadowed by gigantic new buildings. New York's Manhattan is awesome in scale but without focus, and Washington remains a series of foci, unrelated. Brazilia now, and Canberra in fifty years may offer a like symbolism, but without the powerful attraction of the countless centuries of establishment.

Every visitor to Moscow seeks an early view of the Kremlin, be he from Vladivostok, Tashkent, Lusaka, London or Wellington, as in my case, and since all major roads in Moscow centre on the Kremlin, it is an easy task.

And I doubt if any visitor will forget that first view. Mine was late in the

evening on my way from the airport.

I walked out into Red Square. A cool, quiet night, and those great dark castellated walls and towers encircling the myriad domes, a light wind moving the fir trees, the massive illuminated red stars atop the tallest towers, here at the heart of Russia—it was awesome, it was unreal, it was magic, it was Moscow.

In 1913, the Belgian poet, Emile Verhaeren, wrote of Moscow: "The whole city seems like a huge open-air museum to me, and the most perfect, the most unique and the most attractive sight is the Kremlin. Walled in by a huge crenelated parapet, the Kremlin, with its hundreds of protruding cupolas looking for all the world like the golden bills of birds stretching their long necks up towards the light, remains in my mind's eye the most beautiful of all the fairy-land scenes on Earth."

The Russian poet Lermontov—"What can compare with the Kremlin which, surrounded by indented walls and adorned with the golden domes of its cathedrals, reposes on a high hill like a crown over the brow of a mighty prince? ... No, neither the Kremlin, nor its indented walls, nor its dark passageways, nor its resplendent

palaces can be described in words. One must see them ... one must feel all that they have to say to the heart and the imagination ..."

The great brick walls and towers which now encircle the Kremlin were built in ten years (1485-1495) under the direction of Ivan III, and replaced previous white stone walls on the same line. Thus heightened and strengthened, the walls have existed for nearly 500 years, with but retiling to the towers and waterproofing to the wall masonry being undertaken in 1945, after the Second World War, at the same time as restoration was put in hand for dilapidated sections of the towers and walls.

Most visitors enter the Kremlin through the Trinity (Troitskiye) Gate, with its Trinity Tower, the highest of all the Kremlin towers at 264 feet. One approaches this via the Kutafia Tower which at one time was surrounded by a moat, and served as a bridgehead watchtower, and was linked by the crenated parapeted stone bridge to the Kremlin across the Neglinka River. This river was diverted into an underground aqueduct in 1821 and its original bed transformed into a landscaped garden. The grave of the Unknown Soldier is placed at the north end of the transformed area.

However, on our first visit within the Kremlin, we were driven through the Borovitskiye Gate which was built in 1490, somewhat lower than the Trinity Gate. This gateway is smaller, and it is extraordinary to drive through this guarded area, deep in shadow, and then up a steep incline to the sun-filled courtyard fronting the Great Kremlin Palace. From this area, one can see out across the wall the Moskva River and the vast city to the south.

There is a sense of security within the Kremlin, probably enhanced by the height of the general ground level about the surrounding city and, of course, by the walls themselves, but

along with this there is now pervading a sense of the secular, notwithstanding the mysticism of the churches. All is orderly, the stone paving spreads smoothly through the courtyards, the orderly groups of tourists obediently follow the numerous guides, others walk by themselves or in pairs. Indeed, whereas the tourists appear colourful in their dresses and suits, often open neck shirts, perhaps what one imagines nevertheless are the opulent uniforms of Tsarist bodyguards, or the rich vestments of the patriarch and his priests against the stonework walls of the buildings.

The great building first observable through the Borovitskiye Gate is the Great Kremlin Palace, built in 1838-1849 to the design of the architect Konstantin Thon. A truly Victorian concept, this apparent 3-storied structure, 412 feet long, is really but two floors, the ground floor to the left of the main entry being the emperor's private apartments, and the upper floor being vast spacious halls, including the Hall of St. George and St. Andrew Hall. These halls, with their two tiers of windows, are still used for state receptions, and the sessions of the U.S.S.R. Supreme Soviet are held here.

The Great Kremlin Palace forms a courtyard to the north with the Terems Palace which was a much earlier building erected in 1635-1636 under the direction of Bazhen Ogurtsov, Antip Konstantinov, Trefil Sharutin and Lariion Ushakov. This is a remarkable example of 17th century Russian architecture. The terems are low vaulted rooms, richly painted, the windows of stained glass, and there are tiled stoves in the corners, and they evoke a strong sense of the past and the occupants.

The façades of the Terems Palace are brightly coloured red plaster or yellow plaster with white stone window surrounds and portals, and the cornices of each storey and the parapets of the

terraces are richly decorated.

The traditional coloured or painted plaster of the 17th and 18th century Russian architecture is very evident in the Kremlin. The bright warm red of the upper Terems Palace, the yellow of the Great Palace, the Armoury, the former Arsenal, the Senate, all these wall panels outlined by the white pilasters are reminiscent of the Italian architecture of the Renaissance, particularly of Tuscany, from where came many architects at the request of Ivan III, and the warm colours brighten the often cold aspect of Moscow. I believe a greater use of such colours would much enhance many of the numerous new building projects in the city of Moscow.

The architect, Konstantin Thon, also built the Armoury across a western courtyard from the Great Kremlin Palace, and within this building is the most extraordinary museum displaying examples of royal regalia, gifts of ambassadors to the tsars, 13th-18th century arms, royal coaches, metalwork, jewellery, in fact an unbelievable galaxy of treasure. The Armoury collection rivals in its impact the Crown Jewels in the Tower of London, and far exceeds in its variety and scope the fabulous collection of Royal Iranian treasure to be seen in Teheran. The collection of 16th and 17th century English silverware must surely be the envy of the London silver vaults; and an evocative display is that of a magnificent and vast collection of gold Sevres china presented by Napoleon to Alexander I at Tilsit in 1810—one wonders how it was removed from the Kremlin in 1812 for safe keeping when the donor became such an unwelcome and destructive occupant.

Above the main marble staircase in the Armoury hang large oil paintings of the Kremlin dating back to the time when it was encircled with walls of white stone, a strong contrast to the brick walls and towers which have

girded and protected it for nearly 500 years.

To the west of the Great Kremlin Palace is the oldest square in Moscow, and of course its most historic—Cathedral Square. It originated in the 14th century, and it is here that the tsars were invested, Emperors crowned and the ceremonial processions of the state were held.

The oldest of these magnificent cathedrals surrounding the square is the five-domed Cathedral of the Assumption built in 1475-1479 under the direction of Aristotle Fioravanti. A native of Bologna, Fioravanti was invited to Russia by Ivan the Third, and he made a detailed study of the finest examples of Russian church architecture at Vladimir, Pskov and Novgorod. Indeed, he modelled the Cathedral after the Cathedral of the Assumption in Vladimir.

The interior is spacious and well-lit, quite unlike many of the Russian churches which preceded and followed this building, for while the Italians and other European architects were designing church buildings of ever loftier Gothic spaces and then the even more spacious Renaissance structures, the architecture of Russian churches remained introspective, mystique, peculiarly original in form and intimate in scale, basically static in innovation, and relying on a medieval concept of structure and lighting.

Beside the Cathedral of the Assumption is the single-domed graceful Church of the Deposition of the Virgin's Dress, built by craftsmen from Pskov in 1484-1486, and this delightful building was the private chapel of the Patriarchs. Immediately to the south is the Faceted Palace, one of the oldest secular structures in Moscow, built in 1487-1491 under the guidance of the Italian architects, Marco Ruffo and Pietro Antonio Solario. The name quite obviously refers to the faceted patterning of the façade, resembling some

palaces in northern Italy. The windows, now straight headed, were once arched, and light the single vaulted chamber with its one central pillar. This beautifully painted space was once the throne room, and even today is used for state receptions, and is now the assembly room of the Council of Elders of the Supreme Soviet of the U.S.S.R.

Somewhat further to the south stands yet another remarkable building, the Cathedral of the Annunciation. Again, this was constructed under the rule of Ivan III during a time of the establishment of the Russian State, and its nine gilded domes rise above an original church dating back to 1397, which was rebuilt by Pskov craftsmen in 1484-1489, and became the private chapel of the princes and the Tsars. Ivan the Terrible again restored this cathedral during his reign, after a destructive fire, and the porch on the south-east side is named for him.

As in nearly all Russian Orthodox churches, just as in Byzantine and Greek Orthodox churches, the sanctuary is separated from the nave by an iconostas. The iconostas in the Cathedral of the Annunciation is of exceptional historic value, for it was originally in the first cathedral on the site, and some of the icons were painted in 1405 by Theophanus the Greek, Andrei Rublyov and Prokhor s Gorodtsa.

Alevisio Novy designed the Cathedral of the Archangel Michael, built in 1505-1509; this was the last of the three main Kremlin Cathedrals, and is a traditional five-domed church, though the Italian influence is more pronounced with the two-storey façades, the Renaissance pilasters and decorative shells in niches. Here in this great building were buried the Moscow princes and Tsars, including Ivan the Terrible (it remained the custom until Peter the Great moved the capital to St. Petersburg).

Uniting and dominating this most famous grouping of buildings surrounding Cathedral Square, stands the mighty Belfry of Ivan the Great, the beautifully proportioned tower rising some 267 feet above the ground. This is a three-tiered structure of octagonal sections, reducing in diameter, containing 21 bells each of which is a classic example of the art of the Russian foundries. The whole structure is capped with a gilt dome built during 1600 under Tsar Boris Godunov, but work originally began in 1505 under the direction of an Italian architect, Bon Friazin, and continued in 1532-1543 under the architect Petrock Maly. For many years this tower was the tallest in Moscow and provided the main watch-tower of the Kremlin, giving a wide view of the city's environs for nearly 20 miles around.

The form of the Belfry of Ivan the Great served as a model for many pillar-like churches built throughout Russia.

To the east of the belfry stands the Tsar Bell, the world's largest bell, which has never rung because of the 11.5 ton fragment which split from the 200 ton main casting as the result of a disastrous fire two years after the bell was cast by Ivan and Mikhail Motorin. This bell, like the Tsar Cannon some 50 metres to the north, cast in 1586 by Andrei Chokhov, is a renowned example of foundry skill.

The Tainitsky Garden is formed by the eastern and southern walls of the Kremlin, and contains the highest point of the Kremlin Hill, now marked by a monumental statue of Lenin by V. Pinchuk and S. Speransky. The ground falls away steeply down an embankment to the walls, and it was here that Lenin often relaxed in the evenings during the years he spent in the Kremlin.

Almost at the geographical centre of the Kremlin is the small Cathedral of the Twelve Apostles, and the Patriarchs

Palace, built in 1635-1656 by Russian architects, Antip Konstantinov and David Okhlebinin.

To the north of this building is the Senate building, since 1918 the seat of the Soviet Government. The three-storey building, with its pilastered upper floors, was designed by the Russian architect Matvei Kazakov, and was built in 1776-1788. From Red Square one can see the large U.S.S.R. red flag fluttering above the green cupola of the Senate building, and it was within this building that Lenin lived and worked for 1918-1923.

In the northern apex of the Kremlin, is the former Arsenal building. This is a great example of early 18th century architecture, with its deep revealed sparse windows, and was designed for Peter I by the architects, Dimitry Ivanov, Christopher Konrad and Mikhail Choglokov, and built in 1701-1736.

The other major building within the Kremlin and close by the Trinity Tower is the Palace of Congresses.

I have met Mikhail Posokhin, the architect who led the design team for this great project. He is the chief architect of Moscow.

The design team was presented with a brief to have a major assembly hall to seat 6,000 persons for congresses of the Soviet Union Communist Party, for national festivals, for theatre, opera, ballet recitals and cinema. Further, the building was to contain a banquet hall of 2,500 places and, of course, to include lobbies, foyers, communication and translation facilities, and to be interconnected with existing assembly spaces within the Kremlin.

The authors of the Palace, had a formidable task to design such a vast complex within the Kremlin walls and adjoining some of Russia's most historic and ancient buildings. The care with which this was undertaken is illustrated by the many preliminary drawings showing the existing buildings, and the imposition thereon of the proposed

Palace. These drawings make an interesting comparison with those produced by architect Ukhtomsky (1719-1774) in his preparatory drawings for the placing of the bell tower in the Kremlin and indicate the equal concern, two hundred years later, to enhance, the existing architectural heritage.

The height of the Palace was deliberately restricted by excavating deep into the ground and thus the Palace is no higher than the nearby Arsenal building. Again the Palace was sited a certain distance back from the Kremlin wall, to reduce its impact from without.

The architects have deliberately created a neutral façade to offer no diminution to the unique character of the historic buildings adjoining. To the extent that the regular pattern of the columns produces an easy rhythm, and the deep set glass reflects the forms of the buildings around, it is successful. Equally successful are the views out from the multi-level internal foyers and galleries to the Kremlin courtyards and buildings. One cannot help but feel that the restraints self-imposed upon the designers in the face of the historic nature of the site and the existing buildings were such as to hold their talents too much in check. Whereas the self-consciously cantilevered entrance canopy is quite out of character with the powerful verticality about it, the sheer verve of placing the enormous banquet hall across the 160' span of the auditorium is genius itself, for the views across the Kremlin and Moscow by day and night from that space are superlative.

Because the Kremlin has survived the containment of the Palace of Congresses, it is a shared victory for itself and the Palace architects. I know of no architect who would not rest happy with the commendation that his work had enlarged the architectural worth of this concentration of history and building, the Moscow Kremlin.

PUBLIC BUILDINGS

Outside the Kremlin, the most revered building in the whole of Russia would be Lenin's Mausoleum.

Indeed, it is immediately outside the eastern wall of the Kremlin, facing into Red Square, and even now, it exemplifies the trauma and immediacy which convulsed the new Soviet state when its first leader died after six years of directing, on the 21st of January, 1924.

Immediately after Lenin's death, a timber mausoleum was designed, in one night, and built in 2½ days, just to the east of the Senate Tower at the Kremlin wall. A modest structure indeed, which was replaced the same year by a more elegant and larger timber building of pyramidal form. I have sketches of the competition entries submitted in 1925 for the permanent mausoleum, and can but agree with the assessors in their conclusion. Some of the submissions outshone Hadrian's Tomb; one in fact topped the structure with an onion dome and backed it with a 20-metre statue of Lenin, but that of A. V. Shchusev is there today, broad, significant, penetrable, in organic harmony with the mighty Kremlin behind.

Faced with red granite, the strong stepped pyramidal form glows against the softer brick of the Kremlin walls,

and the dark spruce pines in martial ranks behind. A visitor of whatever background is immeasurably affected by the symbolism of the building, and the reverence with which the unending stream of citizens treat it and the embalmed body of Lenin with genuine worship.

I could not but help compare this mausoleum with that of Kemal Ataturk (1880-1938) at Ankara in Turkey, which was probably conceived some 15 years later, but yet attempts to make a similar architectural statement. This latter complex is sited atop an acropolis-like hill, and creates before the tomb an enormous colonnaded atrium, vast, sunlit, empty, evocative, so unlike the multi-used Red Square from which the relatively humble form of Lenin's Mausoleum opens.

To the south of Lenin's Mausoleum, in Red Square, stands that most remarkable of the unique Moscow buildings, the Cathedral of the Intercession of the Virgin or St. Basil's Cathedral. To celebrate the Russian victories over the Khanates of Kazan and Astrakhan, Ivan the Terrible had the extraordinary building erected in the six years 1555-1561. Recent research suggests that it was designed by Posnik and Barma, and ancient legend further suggests

that the craftsmen were blinded on the orders of Ivan so they would never be able to duplicate or excel their masterpiece.

It was constructed of stone, a joyous festive complex of nine shaft-like chapels united by a single concept yet each totally different. A small tenth chapel was built in 1588 next to the Cathedral over the grave of a much loved simple Christian named Vassily, well known in Moscow at the time, and since then the Cathedral of the Intercession of the Virgin has been called the Cathedral of Vassily the Blessed, or St. Basil's.

Restoration work upon the interior is still under way, bringing to light ancient Russian paintings and frescoes, each peculiar to the particular chapel, reflecting the delight evoked by one of the victories of Russia; the multi-coloured cupolas of St. Basil's are now isolated on a grassed podium from the stone flags of Red Square sloping away to the south on either side of it, with the mighty Kremlin wall to the west, and to the east rises the eleven-floored Rossiya Hotel.

In the south-west of the city, not far from the Luzhniki Sports Complex, the centre for the 1980 Olympic Games, stands the Novodevichy convent. Surrounded by high fortified red brick walls, one can see a unique remnant of the 16th century, beyond the rail causeway from the viewing platform of the Moscow University on the Lenin Hills, but the tall belfry can be seen from many distant parts of the city. It was founded in the first quarter of the 16th century after the Moscow Grand Duke Vassily III had restored Smolensk to Russia, and restoration work in recent times has disclosed great frescoes symbolising the unification of Russian territories.

It was in this convent that Ivan the Terrible incarcerated his wives and later Peter the Great, his sister to avoid continued rivalry for the Tsarist

throne, and it was from the mighty belfry which acted as a watchtower that warning was given to Moscow of approaching attack.

This convent, like others in this great city, is an anachronism, and provides a great contrast in scale and form and colour in the fabric of the city. Yet they are wonderful, introverted, quiet places, places of reposefulness where one is almost overawed by the past.

Here at the Novodevichy cemetery are the graves of many outstanding people, such as the writers Nikolai Gogol, Anton Chekhov, the Tretyakov brothers, Pavel and Sergei, who founded the picture gallery in Moscow, and the architects Ivan Zholtovsky and Alexei Shchusev.

The Petrovsky Castle (1775-1778) was erected to the design of Matvei Kazakov, and is in one of the most interesting parts of north-west Moscow, on Leningrad Prospekt. Not far from the Sovetskaya Hotel where I stayed, it is close beside the Dynamo Stadium and the Dynamo Metro Station, and opposite the Central Air Terminal.

The Petrovsky Castle is built of red brick with white stone decorative elements, and the whole palace and front yard is surrounded with a turreted wall, and as such is reminiscent of a Russian fortress, though it was actually built more as a retreat than a stronghold. The Tsar and his family used to stay here when travelling between Moscow and St. Petersburg, and when Napoleon fled the Kremlin because of the raging Moscow fire, he spent several days here in 1812.

These three examples of early architecture, St. Basil's, the Novodevichy convent, and the Petrovsky Castle illustrate the unique style of Russian architecture in Moscow during the 15th to 18th centuries.

A building which illustrates the changing nature of Moscow is one which was again designed by the



The Kremlin Palace of Congresses



The Bolshoi Theatre



*The Moscow City Soviet
building*

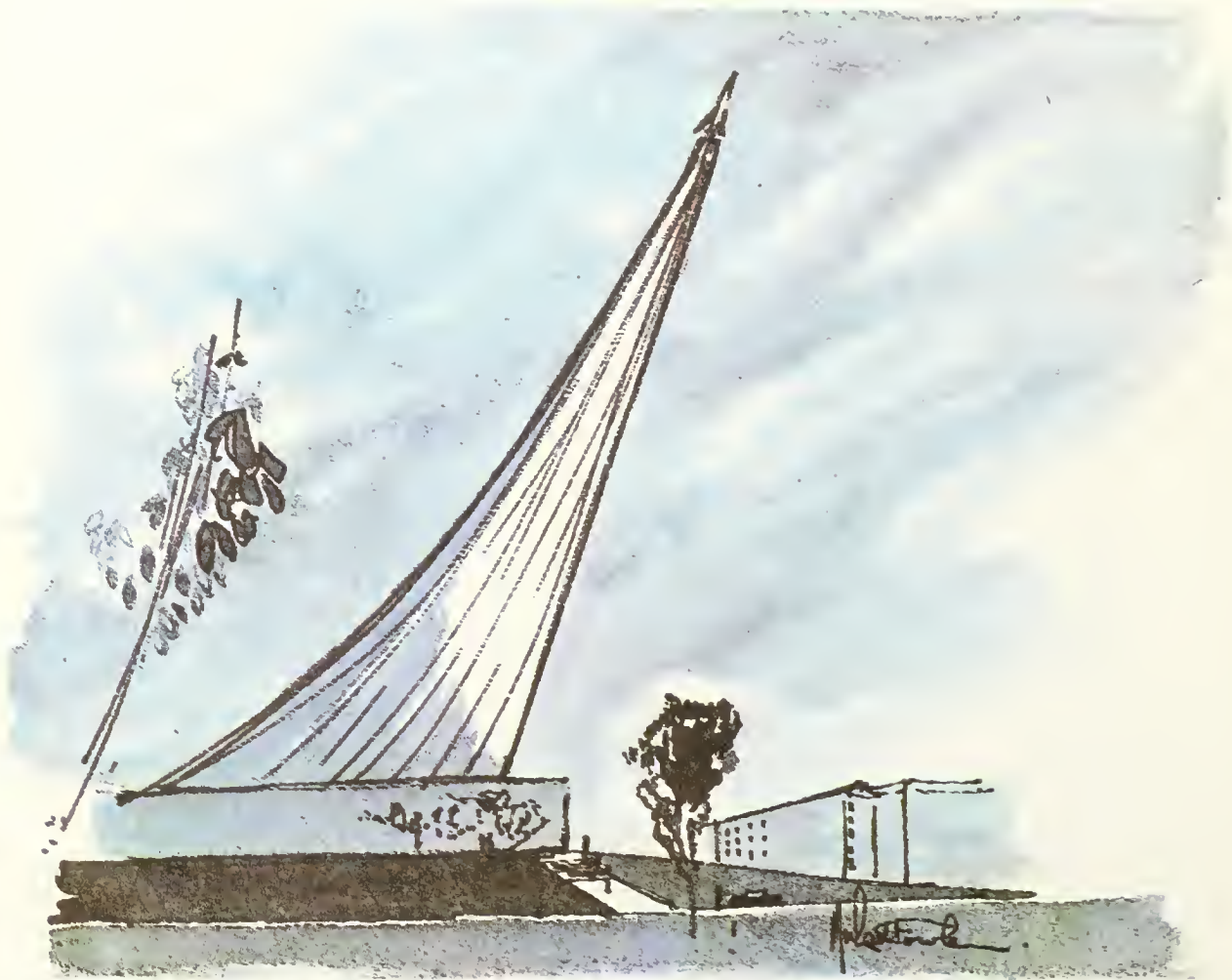


St. Basil's Cathedral



W. S. 1975.

*The Kremlin Cathedral
of the Annunciation*



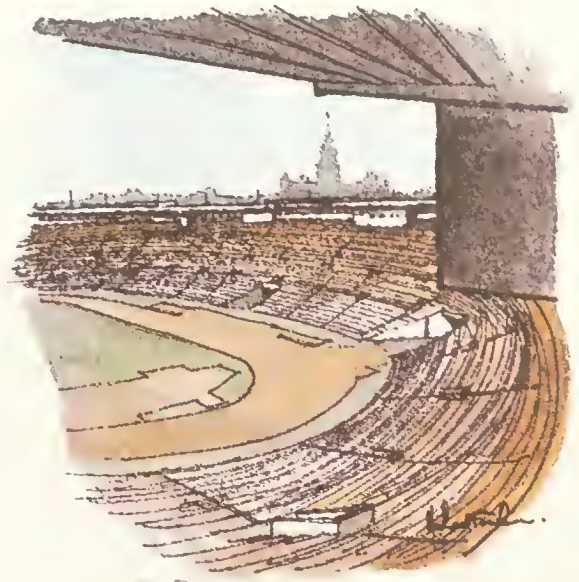
The Space Exploration Monument at the entrance to the U.S.S.R. Exhibition of Economic Achievements

The apartment building, Vosstaniya Square. Architects: M. V. Posokhin and A. A. Mndoyants

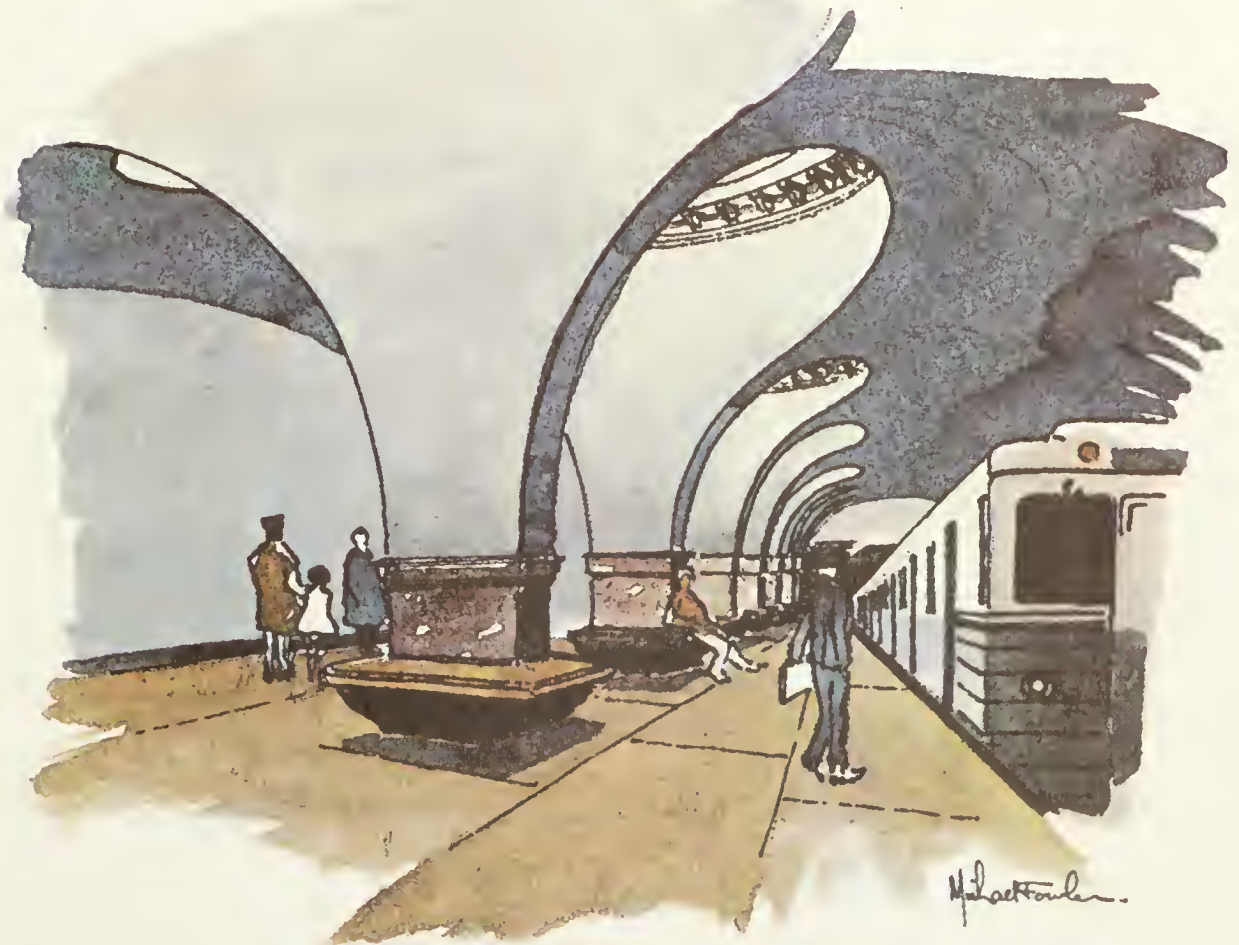
The Sokol Metro Station



The Donskoi Monastery



The Luzhniki Sports Stadium





Milastorka.

Kalinin Prospekt



*The Kremlin.
The Great Kremlin Palace and
the Water Tower*

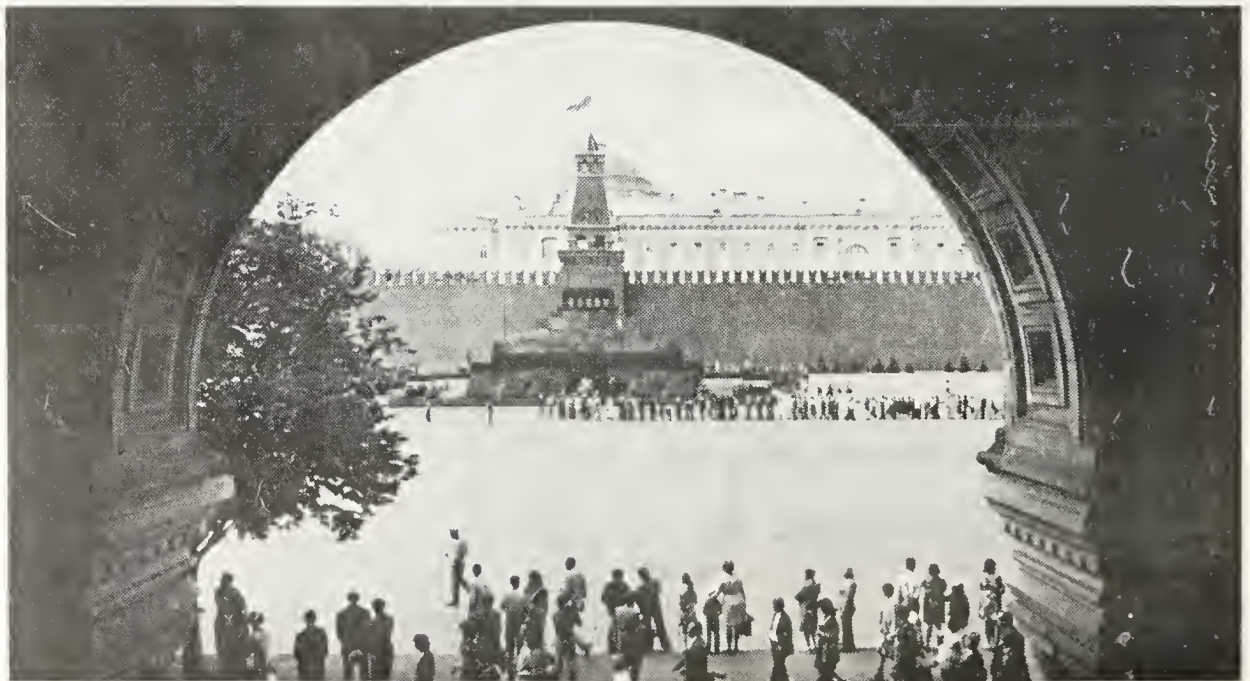


Inside the Terems Palace (1635-36)



The Kremlin Palace of Congresses

Red Square and the Lenin Mausoleum





The Kremlin. Cathedral Square

Ivan the Great Belfry

View of St. Basil's Cathedral from the Saviour's (Spassky) Tower of the Kremlin







Panoramic view of Moscow. In the centre—the offices of the Council for Mutual Economic Assistance (CMEA)

Gorki Street



The central fountains at the U.S.S.R. Exhibition of Economic Achievements

*Near the Ostankino
Television Tower*



*Novodevichy Monas-
tery*





The State Academic Bolshoi Theatre of the U.S.S.R.



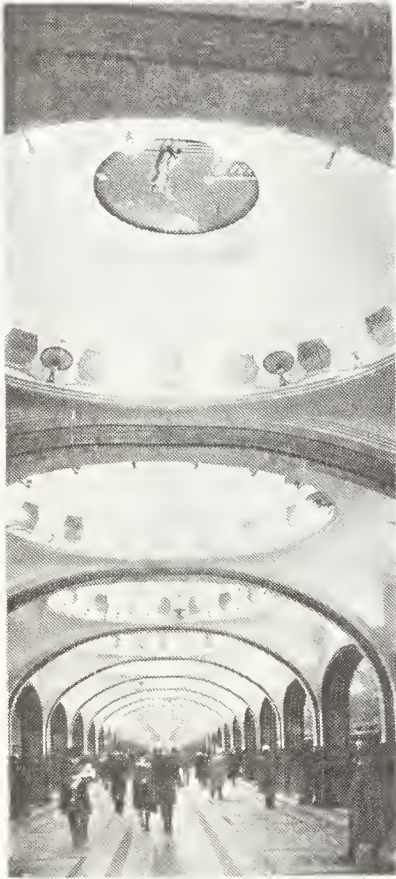
Maya Plisetskaya in the "Isadora" solo-ballet

Monument to Pushkin, the great Russian poet



The State Tretyakov Picture Gallery





Moscow State University

The Mayakovsky Metro Station

Severnoye Chertanovo, a new residential district in Moscow



great 18th century architect Matvei Kazakov, this time for the Governor-General of Moscow in 1782.

After the 1917 February Revolution when tsarist rule was overthrown and a bourgeois republic formed, the new city authorities took over this building, namely, the Moscow City Soviet of Workers' and Soldiers' Deputies. On October 25, 1917, when the October Revolution began, the Moscow Soviet formed the Central Military Revolutionary Committee—indeed, the building was the headquarters of the armed uprising in Moscow. In the immediate following years, Lenin addressed large gatherings in the street from the balcony, and I stood there myself with Mayor Promyslov recalling the drama of those days, and looking down onto the now much widened Gorky Street and Soviet Square opposite, in which there stands the equestrian monument to Yury Dolgoruky, the founder of Moscow, sculptured by Sergei Orlov.

When the street was widened in accordance with the plan of the reconstruction of Moscow, the whole building was moved back some 14 metres, an engineering feat of great magnitude, and subsequently two additional floors were added. The building is now a handsome neo-classical five-floored hollow square, the wall surfaces painted a tuscan red, which emphasises the white stonework of the window surrounds and columns, the bas-reliefs which enrich the main entrance and the large gilt State Emblem in the high pediment.

In this building is headquartered the Moscow Soviet which directs the enterprises, architectural studios, building trusts, boards and commissions, which in turn administer the services, amenities and development of Moscow.

I met Mayor Promyslov and many of his officers here, and they outlined the forward planning of the city on wall

maps and models, and were extremely helpful in explaining the structure of the Moscow Soviet. The interior of the building, in so far as the main reception rooms are concerned, is well proportioned and finished, my only concern being the great array of splendid gifts in glass cases around the main foyer walls, gifts from visiting dignitaries from distant Russia and overseas, any one of which made my Wellington gift book look somewhat less than grand.

What I would choose to also call an example of the interim architectural period, is the Moscow University. This gigantic pile sits atop the Lenin Hills to the south of the city, and was built in 1949-1953 to the design of Lev Rudnev, Sergei Chernyshev and a team of architects. Indeed, seven such vast ziggurat piles were erected in the decade 1950-1960, and Mikhail Posokhin, Chief Architect of Moscow, in his book "Cities to Live In", states modestly: "Seven multi-storeyed buildings of unusual design were erected. Following their construction, new architectural ensembles were planned for the city centre. The architectural silhouettes of Moscow became more distinct."

Perhaps Mikhail Posokhin, the architect of the Palace of Congresses, the Council for Mutual Economic Assistance, and many other great buildings of 20th century Moscow, along with being the principal author of the New General Development Plan for Moscow is hesitatingly modest concerning these seven structures, for he was the author of one of them, that gigantic apartment pile in Vosstaniya Square.

The Moscow University, named also after one of Russia's greatest scholars, Mikhail Lomonosov, is perhaps the grandest of all of these seven somewhat self-conscious and studied silhouettes.

The symmetrical complex spreads

from a central 1,000 feet tall tower, the top 200 feet of which is a gigantic spire crowned with a vast illuminated star. Framed in steel, the Beaux-Arts concept contains 45,000 rooms, has 15 faculties, a total enrolment of over 30,000 students, 2,500 of whom are from foreign countries. The symbolism of the state and the value which it ascribes to higher learning is ever present, with the visual forcefulness of the scale of the complex, and the granite and marble busts of distinguished scholars and scientists (including Ivan Pavlov) erected throughout the building and the surrounding gardens.

A far more relevant and satisfactory architectural concept undertaken in the 1960s is the newly built part of Kalinin Prospekt, popularly known as New Arbat. This results from a town planning decision to form an improved link from the centre of Moscow to the western district, and here Mikhail Posokhin and his team created a boulevard which would be the envy of Baron Haussman. And yet the difference is this. The good Baron would certainly have paid scant regard to the 17th century church of Simeon Stolpnik right at the northern end of the new boulevard, but the architectural team not only preserved it but also restored it during reconstruction work in that area.

The new thoroughfare is 264 feet wide, with an 80 feet roadway, and broad planting areas and paving on each side. On the western side, are 5 towers each containing 280 apartments, on the eastern side 4 vast angled towers containing ministries, and a two-floored podium links each group. Within these podiums are shops, cinemas and restaurants, and this sophisticated centre of Moscow is popular with Muscovites and visitors both day and night.

Let me complete this all too brief assessment of public buildings with

two hotels. Firstly, the largest hotel in Europe, the Rossiya, designed by the architect Chechulin. He has committed himself well, in so far as a building of this gargantuan size, accommodating 6,000 guests, does not overpower the nearby Kremlin, nor even St. Basil's, for the restrained, almost bland façades of this vast quadrangular building provide a neutral background to the precious monuments of Russian architecture, including several small churches, amongst them the Church of St. Anne, situated between the Moskva River and the hotel.

Lucky is the guest with a room to the south overlooking the Moskva River, or luckier still with an aspect to the west over St. Basil's, Red Square and the Kremlin, yet some visitors have expressed themselves overawed by the scale of the Rossiya and the consequent impersonal quality of the experience.

Perhaps this is an abiding impression that a visitor retains of Moscow. All the recent architectural works are of a vast scale, in many cases beyond human individual comprehension. Not only the Rossiya Hotel, but the Kremlin Palace of Congresses, the New Arbat, the USSR Exhibition of Economic Achievements, the T.V. Tower at Ostankino, the vast housing areas, all of these are of a scale which humbles the individual. This is not to deny the excellence or relevance of all of these great works. Strangely enough, I noted the same overscale in the sculptural works within the city. Even the revered statue of the beloved Pushkin unveiled in 1880 (one of the speakers at that historic ceremony was Fyodor Dostoyevsky) is three times life size, and that is nothing compared with some of the statuary commemorating Marx, Engels, and Lenin, or some of the banners or posters exhorting the citizenry to an awareness of the past or the future.

Sometimes the observer longs for a

building or a garden, a statue or a notice with which he can relate in scale.

I found this at the hotel where I stayed, the Sovetskaya, facing Begovaya Alley, off Leningrad Prospekt. Built in 1950, to the design of N. Loveiko, the concert hall stands on the site of the Yar, the famous pre-revolutionary restaurant. The main

curved stairway walls off the foyer are faced with artificial marble, a skill not practised these times in the Antipodes, and the bedrooms were large, elegant and comfortable. We dined on a mezzanine overlooking the hotel restaurant, a large mirrored hall that was obviously popular with many Muscovites.

EXHIBITIONS AND THEATRES

This indeed is a general title, but in no other city in the world have I noted so many permanent exhibitions set up for the information, instruction and delight of the visitor.

My own particular interests being those of architecture, I early visited the two architectural exhibitions in Moscow.

The first major architectural exhibition is at 5 Kalinin Prospekt, much closer to the centre of the city, nearby the Lenin Library. This is known as the Shchusev State Architectural Research Museum and is housed in a large building designed by the architect Matvei Kazakov and built in the 1780's. Here are housed the works of all the great Russian architects, much of whose work was collected by Alexei Shchusev, a renowned architect in his own right, and amongst many of his works the best known would be the Lenin Mausoleum. Here are some of the original drawings and models of D. V. Ukhtomski, the famed 18th century architect, of Moisei Ghinzburg, the constructivist, of Le Corbusier, Alexei Shchusev, Fomin, Rudnev, Posokhin, a fascinating collection of the works of those great architects who have and are shaping the form and character of Moscow.

Alexei Shchusev (1873-1949) spans the great period of Russian history, and a study of his scholarship and draftsmanship illustrates his ability over those 75 years. His early administrative and apartment buildings at the turn of the century are vital and original, as are his later transport terminals and theatres. The development of his concept for Lenin's Mausoleum through his drawings makes fascinating study, and his grasp of the functional clean designs of the late 1920's illustrates an originality seldom surpassed. Not the least of his gifts was the ability to sketch, and several of his sketches of figures, buildings visited in distant countries and proposals for the replanning of Moscow are exhibited at this Museum.

The second exposition is at the Donskoi Monastery, another evocative complex of unique former ecclesiastic buildings enclosed within a fortified wall, to the south of the city below the Lenin Hills. Here the branch of the Shchusev State Architectural Research Museum is situated. We visited the superb site in spring, and the birch trees within the walls were just in leaf, and against the deep red and pure white of the Russian Churches, the views were quite beautiful. Founded in

the 14th century, the Donskoi Monastery is one of the oldest in Moscow, and it is strange to note some of the graves at its cemetery sheltered by arched or domed cast iron roof structures supported on light metal columns. The graves of relatives of Count Leo Tolstoi are here.

The grounds of the monastery are becoming a repository for much of the architectural ornament of Moscow, arising from the demolition of buildings of merit, and in some cases such pediments, window surrounds and statuary are now mounted against the inner panels of the fortified outer walls with great effect. In the vaulted crypt of one large church is now housed the exhibition of Russian architecture from primitive times up to 1917, and there are excellent models of early villages, churches, and drawings and models of many of the 15th to 19th century buildings created in Moscow and St. Petersburg.

For the students of Lenin, his life and works, there is a plethora of exhibitions. Apart altogether from the museum now created in the Senate Building (designed by Matvei Kazakov) within the Kremlin (Lenin's Study) in the rooms where Lenin lived and worked during the tumultuous 5 years of 1918-1923, there is the vast Central Lenin Museum just to the north of the Kremlin in Revolution Square. This museum is housed in a high-Victorian-Gothic brick building which was formerly the seat of the City Duma (Council). The 30 halls contain memorabilia, photographs, political leaflets and writings of Lenin, and is a Mecca for the millions of Russians and many foreigners who visit Moscow.

The two principal art galleries are the Tretyakov Gallery and the Pushkin Museum of Fine Arts. The former is presently housed in a low red and white brick building, glass roofed, in Lavrushinsky Lane, to the south side of the Moskva River below the Krem-

lin. The original collection was built up by Pavel Tretyakov and his brother Sergei, starting in 1856, and in the early 1870's, they built a special gallery to house the collection. Some twenty years later, they donated it to Moscow, and in the early part of this century the building was refaced giving it the appearance of a Russian Terem, with a coloured tiled gabled roof. The designs of the Russian painter Victor Vasnetsov were followed in the remodelling, and no doubt these proposals gave rise to the two-dimensional romantic façade treatment which exists today.

In 1927-1935, an annexe was added to the original building to the design of Alexei Shchusev which doubled the size of the original building. Among the 5,000 canvasses, the most revered by the one and one quarter million visitors who pass through the gallery annually are predictably those of the 19th century painters such as Vassily Perov, Ilya Repin and Vassily Surikov who each, with brilliant technique, portrayed politically and socially poignant scenes.

The Pushkin Museum of Fine Arts is second only to one of the world's greatest art galleries, the Hermitage in Leningrad. Housed in a classical façaded building designed by Roman Klein in 1889-1912, and located in Volkhonka Street, near the giant "Moscow" swimming pool, the collection includes a fabulous collection of foreign artists—Italian Renaissance paintings, Rembrandts, Cezannes, Picassos, to name but some of the masters exhibited.

Of the theatres we visited in Moscow, not surprisingly the one that created the most vivid impression was the Bolshoi. To the north of the Kremlin, the classic building faces into Sverdlov Square, its well known colonnaded portico topped with the famous quadriga of Apollo.

The present building was erected in 1824 to the design of Osip Bovet and

Andrei Mikhailov, but was destroyed by fire except the outer walls and portico, and restored in 1856 by the architect Albert Kavos. Various restorations and improvements have been carried out since. The building is halloved by Muscovites as much for its history as for the outstanding artistic performances held therein, for Party Congresses were first held here, and in this building Lenin gave his last public address on November 20th, 1922.

There is never a vacant seat in this red and gold five-tiered auditorium which holds 1,600 people. The orchestra floor is level, and elegant timber-armed chairs are set out in orderly rows, and four tiers of boxes encircle in horseshoe shape above them. The night we attended, Maya Plisetskaya, People's Artiste of the USSR, danced the ballet *Anna Karenina*, and it was superb. Though the theatre was full to overflowing when we arrived, there were hundreds of Muscovites waiting patiently outside on the chance that some members of the audience might have to leave early. Indeed I noted towards the end of the ballet, several people quietly and politely entered our box and stood against the rear wall avidly watching the prima ballerina. At the end, I have never seen such acclaim. The people in the stalls, and many from outside the building who had waited in the cool evening in Sverdlov Square moved forward to the stage and showered it with flowers and cheers. There were hundreds of persons, including myself, unashamedly crying with the beauty and artistry of the performance and the environment.

Out to the north of central Moscow, close by the Ostankino Palace, and the T.V. Tower, is Moscow's most unique exhibition, the USSR Exhibition of Economic Achievements. Set in some 600 acres of parkland, this permanent display could be likened to those occasional international fairs mounted every decade or so, in Paris, London, Brussels or Tokyo, yet it contains greater substance.

Originally in the 1930's, the exhibition was conceived to illustrate the achievements and characteristics of the various Soviet Republics and different regions of the country, and to a degree this is still apparent, but inevitably the major pavilions now house exhibits of national achievement, such as space exploration and research, metallurgy, agriculture, health, education, atomic energy, industry and so on.

The somewhat quaint castellated palace-like form of the original pavilions, the loudspeaker music, the internal bus system conjure up an image of those soporific Disneylands, but the content and objectives of this vast exhibition are entirely different.

One cannot but be impressed within the main pavilion with the displayed quantified objectives of housing units, power stations, agricultural and industrial production projected in the present, tenth, five-year program, and the adjacent graphed record of progress as at the current date. Not all the targets were being achieved, though many were excelled, and it seemed to us to be a graphic way of involving persons in the objectives of their country.

HOUSING

There are three reasons why the study of housing in the U.S.S.R. should be interesting to any observer.

Firstly, prior to the revolution, in housing and amenities Russia held the last place in Europe. In 1912, whereas there were 270 people to every 100 housing units in Paris, 400 in Berlin, 800 in St. Petersburg, there were 900 persons to every 100 housing units in Moscow.

Secondly, the move towards urbanisation had already begun in that period, with scores of thousands of rural families moving into the large urban concentrations, with a consequent acceleration of the problem. This switch of population from the rural to the urban areas has continued apace, ever since, with the growth of industrialisation, till at this date 60% of the nation's people are now urban. (This compares with 90% in Canada for example, a percentage which Russia, it seems, anticipates meeting in 2070. My own observations would lead me to believe that all the planning and control of the state will not be able to retard this percentage of urbanisation beyond 2020.)

And thirdly, as far back as 1919, Lenin and the Communist Party identified the housing of the nation in

sound and sanitary habitations as a first priority.

What makes the study doubly interesting, is that it can be assessed against the complete abolition of the private ownership of land, a situation which did not obtain in any other urbanised country in the world for at least another 30 years, and then only in a few of the eastern European countries, China and Cuba.

Thus there has existed a completely different social and economic base for 60 years upon which the state has set about the solving of the housing problem, as compared with the solutions available to and exploited by the western nations.

Initially of course, in the 1920's in Moscow over one half a million people who lived in squalid conditions on the city's outskirts were able to be moved in to the large houses within the city centre previously owned by merchants and the wealthy, so that whereas 3 per cent of the workers in 1917 lived within the Sadovoye Ring, in 1925 45% did so.

By the mid 1920s, the young Soviet Republic had begun its construction of new housing, with the first planned residential districts for workers being built in the major cities. These build-

ings can be seen today, in Moscow, 4- to 6-floored blocks of apartments, solid, in some cases balconied, usually conceived in slightly classical form with a basement plinth, a major feature being made of the main entranceway and capped with a cornice.

The Soviets pride themselves on national planning and large scale comprehensive research; at the national level therefore, the resources of productivity and manpower in the housing sector can be allocated to those areas within the Soviet Union where accelerated growth is anticipated in industrial output.

Development plans are prepared for all the territories within the Soviet Union, with cognisance taken of productive potential, the building of new communities, and a balanced population and economy throughout the nation. Such proposals are considered and usually adopted by the CPSU Congresses, and indeed the 24th and 25th Congresses' (1971 and 1976) decisions have led to priority development being allocated to the eastern regions and Siberia, the stimulation of development of small and medium-sized towns, the merging of rural communities, and the control of population growth in the major cities.

For consideration of planning at the national level, the U.S.S.R. is divided into 26 regions, and the government agency in charge of the design and building work in the country is the State Building Committee. Town planning, housing and civil construction work is under the direct guidance of the State Committee in Civil Engineering and Architecture which is controlled by the State Building Committee, which co-ordinates its work with that of the corresponding agencies in the constituent republics, and directs and co-ordinates the work of all design and research organisations in the country, concerned with town planning, housing and civil construction.

The leading institutes in the whole system of design and research organisations in the U.S.S.R. are concerned with research and design in the field of standardisation of housing and civil construction, and these central institutes are located in Moscow.

The regional sectors therefore work under the guidance of the national planning organisations within the parameters and up to the targets set by these organisations.

The master plan of a city, defining the main directions of its development, is worked out by the central designing institutes. No doubt in the case of Moscow there is a great deal of direct co-operation and involvement with the local designing organisations, and then the draft master plan is widely discussed in public organisations, the Union of Architects and in the press, and is finally submitted to government agencies for approval.

The master plan of a city deals with all the components: industrial and residential districts, the main transport arteries and streets, the network of cultural, service and medical establishments, and public and administrative buildings of citywide importance. It is also concerned with public utilities, water supply, sewage, power and heat supply, and gas mains as well as traffic schemes.

Such master plans are drawn up for a period of 20 to 30 years, depending on the size of the town, and presumably are reviewed in the 5-year period which mirrors the state planning review period.

The regional town planners then prepare plans for the fulfilment of the master plan guidelines. In relation to housing, the system adopted is the building of whole residential districts, and neighbourhoods, or microdistricts.

A microdistrict is an integral part of a larger residential district, and is a whole social unit comprising living quarters and cultural and service estab-

ishments, and is designed to meet the everyday requirements of the residents.

The provision of cultural and service establishments is staged, in that the first and closest are kindergartens and schools, retail stores for food and goods and articles for everyday use, and these are located 400-500 metres from any apartment house.

The second stage consists of buildings such as cinemas, clubs, libraries, restaurants, sport facilities, clinics, and hospitals, and are located not more than 1.5 kilometres from apartment houses.

The third stage is the provision of administrative organisations, theatres, museums, exhibitions and hotels, scientific and sports centres, and large specialised hospitals. Such amenities are usually sited in the established city centre, and this is certainly the situation in Moscow.

The fourth and final stage consists of the building of rest and recreation centres for the city residents and these are found in the suburbs, and include guest houses, facilities for water sports and camping sites, forest parks, and memorial parks.

The number of residents of a microdistrict varies from 6-12 thousand, and that of residential districts from 25-50 to 50-80 thousand.

In essence then, this is the system which applies universally throughout Russia, but special consideration has been given to Moscow where a new general development plan was evolved in 1961-1968, which led to the incorporation of a number of neighbouring towns within the city of Moscow, such as Kuntsevo, Tushino, Babushkin, Perovo and Lyublino, which increased the city's territory to 87,500 hectares. In this case, the Moscow Architectural and Planning Board directed the development plan.

From my observations and reading, there would appear to be four types of

house or apartment occupancy.

Firstly, government-built flats, which are run by the local Soviets of People's Deputies, and are provided to people completely free of charge, for use in perpetuity, and this would be the great majority of units in Moscow. Throughout Russia the overall proportion of such housing is still a little bit over 35 per cent. In the allocation of these units, it is suggested that broad public participation helps to prevent abuse of power or misjudgement and ensures objectivity in determining the order of priority, and that any one who wishes to see the waiting list may do so.

The tenants of a house or block elect a committee which works with the Housing Maintenance Office of the District Soviet of People's Deputies, and also helps to look after the maintenance of the house, to provide sports grounds and children's playgrounds, to plant trees and shrubs.

Rents in these apartments are low and stable, and I was informed that it has not changed since 1928. Rents are differentiated and are fixed and do not exceed 4-5 per cent of the income of the highest earning member; sums received as rent cover only approximately one-third of the expenditure on upkeep and maintenance of apartment houses. Still the state considers the maintaining of a low rent to be an important social task and the consequent state subsidising of rents exceeds 2 billion roubles annually.

Secondly, flats built by enterprises and organisations with their own means according to their plans of social development. The flats are given to workers of these enterprises and organisations completely free. If the worker who received a flat changes his place of work, the flat remains in his possession. The rent is the same as in the houses built at the expense of the Soviets.

Thirdly, co-operative housing is organised in towns and rural communities

for persons who decide to build flats with their own funds, and as the standard of living within the U.S.S.R. increases, more and more of these co-operative apartments are being built. Before a construction begins, each co-operative member pays 40 per cent of the cost of the flat he is to receive, the balance being raised by way of loan from the state, at 0.5% interest, and repayable over a 10 to 15 year period. The number of persons in a co-operative varies depending upon the number of flats in the house, and each member is entitled to a flat not exceeding 60 square metres, excluding the kitchen, bathroom and circulation space. Once a co-operative is formed and evidences its finance and intent, the local authority is required to allocate the necessary land free of charge within one month of receiving the request, preferably as close as possible to the place of work of the co-operative members.

Co-operative apartment houses are built by the state contracting organisations at prices and within the time limits established for state-financed housing construction. After paying the cost of the apartment the members only pay for central heating, water and other facilities just as do state tenants, and the apartments can be sold by the owner or turned over completely or in part to any organisations or individuals. To this extent, they offer a degree of permanence, investment and security which is evidently increasingly popular, in that by 1973 there were 16,000 co-operatives providing homes for 1.2 million families, and this number has rapidly advanced since then.

Finally, the fourth category of house occupancy is that of the individually owned home. Every citizen can build a one- or two- storeyed house of his own, with a limit of number of rooms to five. He can receive state credits for this purpose, and a plot of land from

the local Soviet of People's Deputies, free of charge for use in perpetuity. However in the major cities, particularly Moscow, the land within the city boundaries is required for multi-storeyed buildings, and the demand for private housing is therefore only met to a degree through co-operative schemes. Nevertheless, Muscovites can have summer cottages built outside the city.

How then is the massive housing programme being realised in this decade? One is constantly aware while in Moscow of the effort being made, where approximately 120,000 apartments are constructed annually.

The emphasis throughout is on pre-cast concrete building components, the minimising of on-site labour and the parallel increase of factory input, which apart from lessening labour content, is more than validated because of the severe winter conditions obtaining for much of the year. Up to the mid-1960s, apartment blocks were generally 9-12 floors high, but now in the new housing areas, 16-25 floor apartment blocks are increasingly in evidence.

The apartments are planned and allocated on the basis of 10 square metres per person, such area related to the living and sleeping areas. Thus a family of 4 would have a living and sleeping area totalling 40 square metres not counting the kitchen, bathroom, toilet room, balcony, entrance hall and built-in closets.

Even with the state building 1.5 million flats annually, the demand is not met, though the prodigious effort to do so is apparent. This vast programme of housing construction is a vivid illustration of the realization of the constitutional right of every Soviet citizen to housing.

But it is also apparent that the proposed amenities in the new residential areas fall far behind the planning schedules.

In many of the new suburban areas I visited, roads were yet to be sealed,

pathways formed, and a general air of incompleteness pervaded. Even Mikhail Posokhin writes in "Cities to Live In," page 114, that "In new residential districts, the buildings for cultural and service centres are constructed after the scheduled period or not at all. The planting of trees and shrubs near the residential blocks and the provision of public amenities fall way behind schedule. This means that the newly-built communities are deprived of comfort, a beautiful surrounding and a cosy atmosphere."

The design of existing apartment blocks is fairly mundane. No doubt the exploitation of repetitive precast elements has to date limited variety of pattern of solid and void and tends to produce monotony. This may well change with the advance of box-unit factory-built housing which can be fixed on solid load-bearing shafts or other supporting structures at any height, allowing the architect greater scope for expression and differentiation.

Certainly, models of housing layouts in the new district of Northern Tcher-tanovo, by Posokhin, Dyubek and Shapiro, and of the new residential district of Otradnoye by architects Loveiko, Krivonosov and Gaft indicate a much greater variety of plan and form in housing blocks than is apparent now.

The size and scale of the large apartments I saw was pretty deadening. The invariable sky line was of T.V. masts, small enclosed tank rooms and lift machinery houses above a low flat roof parapet, whether the building was 6 or 25 floors high. Little attempt was made to organise these elements,

and most such buildings would be greatly improved with an over-roof structure to enclose them and cap the building. Again, the monotony of form is further enlarged by the standard colour of the buildings, usually a light cream, occasionally a buff, and I cannot but compare the air of neutrality with the magnificent deep creams and Tuscan reds so freely used in Russia up to this century.

Most of these apartment blocks sit directly on the formed ground, and the ground floor units are identical with the 11 or 15 or 24 floors above, and therefore produce a somewhat arbitrary character in that no separate building appears to relate to its immediate surrounds in any different way to all the others. By this I mean one is not aware that provision is made at ground level for refuse collection, for mail boxes, foyers, telephones, shops, creches, pram parks, let alone future car parking.

Close to, one is very conscious of the joints between the precast panels, the liberal use of mastics, and the difficulty of handling large units during erection for edges are bruised and in many cases damaged. The internal finish in the few cases I saw would be wholly unacceptable in my country. Internal stairs were exposed painted concrete, as were most corridor walls, lifts were slow and poorly finished, and public corridor and foyer floor surfaces roughly trowelled at junctions with walls.

In saying this however, the overriding impression I gained was the urgency and purposefulness with which the Soviets are tackling the housing challenge.

TRANSPORT

The inter-relationship which exists between land use and transport is nowhere more apparent than in Moscow. The city itself is of course a confluence of rail, road, river and air transport systems for the whole of Russia, and in microcosm, the centre of the city, the Kremlin, is by the very nature of the circular-radial form of Moscow, the hub of the city's transport system.

The conscious development of Moscow will heighten the star-shaped layout, for already many of the radial or spokelike roads originating from the centre have been widened, and all of them will be, such as Dimitrov Street—Lenin Avenue, Kalinin Avenue—Kutuzov Avenue, Gorki Street—Leningrad Avenue, Novokirovsky Avenue—Komsomolskaya Square, to which high priorities are given. These are the city's main arteries, and run from the centre to the Moscow circular highway. In addition, a system of highways is planned to be built in the city, which will be laid on a rectangular plan and which will carry the main traffic streams. This proposed system will consist principally of four expressways laid chordwise and traversing the city in the middle zone, bypassing the city centre, and they will mostly run paral-

lel with existing rail lines and high voltage transmission lines, passing through industrial zones where heavy freight traffic originates.

It is planned that these expressways will in parts be underground, and emerging beyond the Moscow circular highway, with which they will be connected by interchanges, they will continue as inter-city highways. It is assumed that these expressways will provide essentially new solutions to problems of urban traffic. Experience in many comparable cities however, would lead many people to anticipate that new major trunk roads through an existing city fabric create more problems than they solve. To the extent that they might lessen the centripetal effect of the radial-circular Moscow roading pattern, they could succeed, but my observation would lead me to favour the inter-city expressways terminating at the Moscow circular highway, and the introduction of two circular roads between the Sadovoye Ring and that outer circular highway to provide chord links between the spokes.

Before examining the transport modes, it is worthwhile noting two important land-use determinants quite clearly spelt out in the general development plan of Moscow. Firstly, it has

been decided that in the field of industry, Moscow should specialise in precision engineering, electronics and other highly skilled engineering, including the production of high-quality consumer goods. Parallel with this, will be the discouragement of industries which consume large volumes of water, fuel and electric power, and of industries which induce difficult effluent or whose operation involves costly transportation of raw materials and finished goods.

Thus there will be an increase in the number of persons involved in highly specialised light industry, and an inevitable increase in those scientific and research institutes and design bureaus relevant to such industries, and a decrease in heavy industrial potential and research in Moscow. The city has long been the centre of science and technology, and this will obviously continue, and there will also be an increase in the number of persons employed in the service field.

Secondly, under the general development plan of Moscow, the city's 87,500 hectares is divided into eight planning zones. The central planning zone comprises the historical part of Moscow, and includes the city centre, within the Sadovoye Ring, with its historical and architectural monuments, government offices, theatres, museums and exhibition halls.

The remaining seven planning zones which are grouped around the centre zone will have large community centres of their own, a population of approximately one million, and eventually a balanced distribution of employment, recreational, service and cultural facilities. Therefore residents of each zone will be able, if they wish, to work at enterprises and organisations situated within their zone, and thus the interzone transport requirements can be lessened.

The modes of public transport in

Moscow are obvious to the observer, for there is fortunately a dearth of private cars. I say fortunately for it is clear to many of us in the western world that our cities have been or are in the process of being ruined by the insatiable demands of space made by the private car commuter. In fact if there is one major concern I entertain for the future of Moscow it is the inability of that city, because of its form and plan, to handle the same problem.

By far the most spectacular form of public transport in Moscow is the Metro. The first line of the Moscow Metro was opened in May 1935, and contained 13 stations on an 11-kilometer length of track. Today there are 7 lines, covering a total of 165 kilometers, and eventually this will double.

Again, the Metro pattern is radial from the city centre, with one circular route linking the radii at about half their length.

Nearly all the 103 stations are served by escalators, and the difference between the station designs and those in western Europe and the United States is extraordinary. Principally it is because of the unique design whereby each station differs from the others, though all exploit the use of marble, stone, statuary and great colonnaded concourses designed by the most eminent architects. Further, the complete lack of advertising is a welcome relief to dulled western eyes. The Metro opens at 6 a.m., closes at 1 a.m., the trains average a speed of 40.7 km/h, and the maximum interval between trains in the rush hour is 80 seconds. All stations are equipped with automatic barrier check points, at which one inserts a 5-kopeck coin, the barrier opens, and you are away—for as far and as long as you wish, making as many changes as you like. I found this system excellent, and the stations and trains were kept immaculate, and carry 5,000,000 passengers a day.

There are 4 types of surface public transport: 2,500 trolley buses, 1,500 trams, 6,000 diesel buses, and 20,000 taxis. The oldest among these is the tram, which up till the 1950's reigned in the city's central streets and squares carrying the majority of passengers. Today, tramlines pass in by-streets and alleys, having ceded the main thoroughfares to trolley buses and buses, yet the tram fleet is being renewed, and at least half the fleet is now made up of well-designed, comfortable and quiet carriages.

The bus services, like the Metro, carry 5 million passengers a day, over a total route distance of 1,000 kilometers, servicing those newly-built residential areas yet to be reached by the Metro, and programmed to inter-relate with the Metro. Within the central city, it seemed that trolley buses were almost exclusively used, and this could bear out the often expressed awareness of the dangers of air pollution which I heard in Moscow.

The taxis seem legend in number, and indeed total over 20,000. As with the other modes of transport, they are state-owned, and form an integral part of the transport system. Without a relatively significant number of private cars, this is inevitable, and the taxis seemed to be well used, and carry 600,000 persons daily, at a fare of 20 kopecks per kilometer.

The fare structures on public transport systems are such that again there is considerable subsidising by the state. Fares on the Metro and a bus are 5 kopecks, on a trolley bus 4 kopecks, and on a tram 3 kopecks, regardless of the distance covered, and thus a Muscovite's transport expenses are most certainly not a significant part of his budget. Moreover, one can buy a single ticket for a whole month which enables its owner to use any kind of urban transport, except taxis, and this concession, costing 6 roubles (\$8 at the official exchange rate) is exploited widely.

THE FUTURE

Into the General Development Plan for Moscow, is now injected a further impetus, namely the 1980 Olympic Games. Now this provides not only a desirable leaven to a well-constructed forward plan, but also the opportunity for thousands of persons from other parts of the world to experience the delight, the wonder and the hospitality which gave me the opportunity to write these pages.

I would have believed even in 1975 that Moscow could have staged the 1976 Olympic Games, let alone those in 1980, for I saw the Luzhniki Stadium, immediately below the Lenin Hills, which seats 103,000 people, and it is here that the opening and closing ceremonies will be held, where the Olympic flame will burn, and where the main track-and-field events will be staged. It is planned to upgrade this magnificent stadium, to intensify lighting for the benefit of colour T.V., and to renew the running tracks.

The two adjacent buildings within the Luzhniki Sports Complex, the Small Sports Arena which seats 16,000, and the Swimming Pool which seats 12,000 will both be upgraded and roofed, and the former will see the volleyball tournament, and the latter will be the venue for waterpolo, while

the enclosed Sports Palace will play host to gymnasts and judoists.

The Luzhniki Sports Complex is on built-up level ground, virtually circumscribed to the south by a semi-circular arc of the Moskva River, and overlooked from high ground to the south of the river by the Lenin Hills. From the Moscow University viewing platform, some 70 metres above the complex, one can see the whole panorama of Moscow, with the sports centre immediately and dramatically forming the foreground across the river.

Near the hotel Sovetskaya where I stayed, is the Dynamo Stadium on Leningrad Avenue, and the Army Sports Palace, and in the former, the soccer will be held, and in the latter the women's basketball tournament. The rowing will be held in Moscow at the Krylatskoye canal, and a new all-weather 45,000-seat stadium is being constructed in the area of Mir Prospekt for soccer, boxing, ice hockey, athletics, basketball and swimming, and a further all-weather track for cycle racing is already under construction near the rowing canal.

To supplement the hotel accommodation of Moscow, Mayor Promyslov told us of 13 new buildings to be

constructed, mainly in the forested area around the city, and in the southwest of the city, the Olympic Village will be built at Nikolskoye in the form of eighteen 16-storeyed buildings to house the 12,000 athletes from 120 countries, which will eventually become a housing estate with 14,000 inhabitants.

So much for the immediate future but what of the longer period?

Within the planning period of 25 years, will it be possible to limit the population of the vast city to 7.5 to 8 million? If it is not, I see far less hope for other western cities; yet I have developed a depth of understanding of the worth of the planning expertise which has formulated the General Plan for Moscow. Where there exists no private ownership of land, the ability of the state planning authority to more expeditiously obtain its objective in terms of land use, be it preservation of historic buildings, reservations, the better relationship of housing and work place and the creation and location of services and amenities, must exceed that of alternate systems. This in itself provides a challenge to the Moscow planners and indeed the Moscow Soviet, for they have an advantage over the western nations which should not be overlooked, and which will be

critically examined by observers from other nations.

Persons from distant countries, as was I, are only too ready to note the evident scale of improvement from the urban situation which obtained prior to 1917, and yet we are not unaware of major urban revivals and answers provided in areas outside Russia.

Not one of us, however, wishes Moscow other than well.

To me, it will remain the most fascinating city, steeped in history, presently finding itself, revealing its fabric through the retention of its background and the seeking of its future.

And to quote one other great author, Walt Whitman, "A great city is that which has the greatest men and women." Now these writings of mine are consciously not of a political nature, and I therefore refrain from commenting on the political persons who have created Moscow. Suffice it to say that a city which can give the world a Pushkin, a Tolstoi, an Alexei Shchusev, a Mikhail Posokhin, must qualify for one of the greatest.

It was spring when I visited Moscow. The coldness had gone out of the ground and a growing warmth and strength and light filled the air. May it always be so.

Майкл Фаулер

МОСКВА: АРХИТЕКТУРА И ПЛАНИРОВКА ГОРОДА
на английском языке
Цена 40 коп.

