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Rubrik: Summary

2. Répartition irréprochable des différentes zones: trafic, parking, piétons, loisirs et centres d'achat.
3. Qualité des appartements.

Tels étaient les points primaires considérés par le jury. Une deuxième phase de critique comprenait les points suivants:

4. Coût de location, prix de vente et rentes.
5. Evaluation du prix du terrain.
6. Expérience et capacité des entrepreneurs.

Le but du concours était de racheter les terrains morcelés, de les reconcentrer sous les hospices de l'état et de parvenir ainsi à une urbanisation saine et logique, les différents lotissements urbanisés pouvant être par la suite revendus à des propriétaires privés. Les avantages d'un tel procédé sont évidents:

1. Amélioration du trafic au bénéfice du public entier.
2. Planification idéale des terrains.
3. Rentabilité supérieure pour les capitaux privés engagés.
4. Impôts supérieurs au bénéfice de la ville.

Les bases juridiques de ce procédé sont déterminées par la loi de construction des habitations des USA de l'an 1949. Au début, cette loi était prévue particulièrement pour les quartiers insalubres. La ville achète les «terrains insalubres» aux prix courants du marché, les urbanise, puis les revend. Le principe est simple, relativement peu coûteux et efficace.

La ville de San Francisco a étendu par la suite ce principe non pas seulement aux «slums» mais aussi à de nouveaux quartiers, donnant ainsi aux habitants de la grande ville la possibilité de trouver un appartement abordable. L'on a découvert aux USA que l'émigration des grandes villes n'était pas favorable pour le développement général de l'agglomération. La structure sociologique devait être maintenue d'une manière ou d'une autre, afin de sauvegarder les bases économiques de vie d'où la nécessité d'une politique de stabilisation. En règle générale, l'on peut dire que San Francisco a parfaitement réussi à résoudre un problème, qui, jusqu'à présent était considéré comme extrêmement ardu. Les projets publiés dans ce cahier démontrent la qualité de la méthode et l'on ne peut qu'espérer que cette «aventure urbaine» fera école à l'avenir. Les membres du jury étaient: Mario Ciampi, Louis Kahn, Morris Ketchum, L. Anderson, Henry Churchill et Minoru Yamasaki. Le projet Wurster est au premier rang, surtout grâce à la renommé écrasante de l'entrepreneur Perini; de plus, toutes les conditions du concours sont parfaitement remplies dans ce travail de haute qualité. Ajoutons que la création d'équipes de planning est nécessaire pour résoudre des problèmes de telle envergure.

Argenterie de création italienne

Ou: l'expériment devient principe
(pages 258—259)

Les créateurs d'argenterie américains Reed et Barton donnèrent l'ordre à Gio Ponti de choisir 10 architectes et dessinateurs italiens afin de les inviter à un concours d'argenterie (matériaux: métal ou bois). Cette maison américaine organisa ce concours avec la collaboration de créateurs italiens pour deux raisons principales:
D'une part, la dominance artistique italienne n'a jamais été aussi «vive» qu'à présent. D'autre part, les meilleurs «industrial designers» sont italiens, soit architectes de métier ou dessinateurs industriels spécialisés.

Il est un fait que nul part ailleurs nous trouvons autant d'architectes qui s'occupent de construction des bâtiments et de décoration intérieure parallèlement. Principalement dans le nord de l'Italie, qui est très vivant, grâce probablement à son industrie florissante. Nous pensons particulièrement à la région milanaise.

Cette activité particulière «décorative» possède le grand avantage d'être claire, ordonnée et pleine d'esprit. Le véritable bon goût est ici à l'ordre du jour. L'observateur étranger a encore certaines difficultés à poursuivres les expériences italiennes. L'esprit joueur des créateurs italiens n'est pas toujours pris au sérieux dès le début. Beaucoup de choses paraissent être des essais sans portée réelle, et pourtant bien loin du ridicule, les créateurs italiens atteignent une perfection absolument unique et, dirons-nous, pour ainsi dire intellectuelle. L'équilibre du rationnel et émotionnel est souvent atteint et procure ainsi une impression «fonctionnelle» presque sans égal.

Summary

Peter Carter

Mies van der Rohe*
(pages 229—245)

The Industrial Revolution completely changed the fabric of our civilization, but architecture in general remained comparatively unaffected by the new facts. Building continued to be cloaked in superficial and debased variants of past architectural epochs until a great concerted onslaught was made in the cause of a new architecture around the turn of the century. Up to this time the new epoch, as far as a true architectural commitment was concerned, could only be sensed in the ingenious constructions of engineers or the occasional accident, such as Paxton's Crystal Palace.

The sympathetic understanding of the present time towards the contributions made by the pioneers and founding fathers of this new architecture would seem to be principally due to our objective assessment of their work against a rapidly clarifying situation. It is on these terms that the contribution of Ludwig Mies van der Rohe, one of the founding fathers of the new architecture, will be examined on the occasion, this year, of his seventy-fifth birthday.

Viollet-le-duc, in his Discourses on Architecture, proposed that 'The more the artist reasons on his art, the more he tries to perfect the expression by which he would interpret his meaning; he is led to strengthen the original expression ... to render it clearer.' While the ultimate aim of architecture, as with all art, is an absolute value independent of the subjective and transitory, this stress on a rigorous objectivity suggests an attitude of which only great poets are capable. However, this is no paradox, since objectivity ultimately involves reality, and, for the poet, reality suffices. While the great architectural epochs of the past demonstrate this as fact, there is to-day no clearer example than in the work of Mies van der Rohe.

Throughout Mies van der Rohe's work there is a consistency of direction which, in the final analysis, points to the very kernel of his philosophy. The generating principle of this direction is threefold: firstly, that architecture is related to the epoch and at its highest level is an expression of the epoch's sustaining and driving forces; secondly, that architecture is a language having the discipline of a grammar; thirdly, that 'structure' is the inherent law of architecture, its grammar and its discipline. To these three aspects Mies brings the great personal characteristics of objective investigation and poetic interpretation.

Mies believes that one of the principal characteristics of our civilization (he does not use the word culture) is its striving for universality. The ramifications of science, technology, industrialization, economy, and their resulting social pattern are certainly indicative of this. These are the facts of our time; they may be guided but not changed, and if we are to have an architecture of value the given situation cannot be ignored. Our architecture must, therefore, find significance in the expression of our civilization's character if it is to be a true commitment of its ideals.

Whenever he is with students or young architects, Mies will invariably make a special point of encouraging questions of a general nature.

'Architectural development depends upon how seriously these questions are stated and how clearly they are answered. Therefore, we hope that these questions will probe deeper and deeper and will be directed more and more towards the essence of things. We must get at the kernel of the truth. Questions concerning the essence of things are the only significant questions. The answers a generation finds to these questions will be its contribution to architectural development.'

Before assessing the work of any architect, it is initially important to have considered the general question of the nature of architecture, for on these terms alone may evaluation of the individual be given meaning.

Firstly, we must agree with the premise that architecture was always an expression of the essential of an epoch. An expression of those ubiquitious facts which gave definition, direction, shape and character, and which distinguished one civilization or culture from another. The epochal span was limited only by the particular consistency of these binding and generating forces.

Certain immutable principles emerge from the building types of the past epochs which are equally of value in guiding architecture to-day. In all of the great architectural epochs we sense at once a special kind of order which, touching every part, illuminates each as necessary and inevitable. However, this is the order of a structural organism in the sense of Saint Augustine's definition: 'The disposition of equal and unequal things, attributing to each its place, rather than a mere constructional organization.'

The principle of structural order is as basic and necessary to architecture as it is to a plant or other living thing. 'Structure' in this sense can, therefore, be said to be the nature of architecture. Structure is here a philosophical expression of the construction. As an example: a brick wall, the primal act of building, may exist at the lowest level as little more than an Eolithic construction, and at the highest level as a 'structure' expressing the idea of its 'construction.' Mies van der Rohe is reluctant to use the word 'architecture' because he feels it has become degraded by superficial application. He prefers the German word 'baukunst' with its clearer meaning: the 'bau' being the construction and the 'kunst' just a refinement of that and nothing more. The construction is not thrown away in order that a purely subjective architectural idea may be produced. 'Architecture begins when two bricks are put carefully together,' Mies has said, and like so many of his aphorisms this one is deceptively simple.

In architecture, therefore, 'structure' implies a complete morphological organism, and not merely the columns and girders. An organism of precise necessity, **the resulting form of which is a consequence of the structure and not the reason for the construction.**

The massive 12ft. diameter columns of the Hypostyle Hall at Karnac (16th-14th century B.C.) are spanned 70ft. above the floor by a single piece of stone which bridges 23ft. Unlimited slave labour and immense transportation facilities made such construction possible and on these terms this building was an eloquent statement of reasonability. It was, of course, much more than this, it was architecture of the epoch, the Egyptian epoch. Egyptian architecture was pregnant with suggestion of the after life—never to die. The predestined path of Egyptian man is delineated with purposeful clarity in the plan of the temple, where deviation was neither possible nor desired. In Egyptian architecture the solemnity of this idea is given physical expression and significance through clear structural principle.

The Greek ideal of perfection received its highest expression in Doric architecture. The plan of the Doric temple, the earthly residence of a pantheistic diety and a logical development from that of the house and later the Megaron of an earlier society, once established remained unchanged. The temple was a finite structure addressing itself outward and allowing only the highest officiators into the relatively unimportant interior. The conservative column and lintel construction did not, however, prevent the Greeks from achieving as absolute through a unity of highly idealized, clearly separated and consistent parts. The Temple of Poseidon at Paestum and the Parthenon in Athens, both mid-5th century B.C., are typical though extreme examples. Two buildings could not be more different in character or appearance, yet both speak the same language and express the same ideas, but at different levels.

The high culture of Greece existed without the backbone of a unified Greek civilization, indeed the very nature of this culture was possible only because of this situation. Antithetically, the ruthlessly organized civilization of the Romans lacked an indigenous cultural force and as a consequence the great Roman constructors were frequently unable to see in their engineering feats the rich basis of a Roman architecture. How could they otherwise have allowed the incrustation of their pantheons and colosseums with alien architectural form? Although we admire these buildings for their spatial qualities, the aqueducts and bridges possess a clearer and unfettered Roman expression.

The development of the Romanesque basilica church into the Gothic cathedral was as equally attributable to the fervent belief of the Gothic mind in logical order and reasonability, or 'the postulate of clarification for clarification's sake', as Panofsky puts it, as to the so-called transcendentalism of the Gothic idea. Since the builders of the 12th and 13th centuries lacked both the labour force and the transportation resources of the earlier times, their use of stone was conditioned by these limitations and as a result the optimum use to which comparatively small stone blocks were capable became the controlling factor of their architectural vocabulary.

In the domed Romanesque Church of St. Front at Perigueux (1120-50) the ratio of internal stone structure to volume of space enclosed is approximately 1:8. At Bourges Cathedral, built only just over half a century later, this ratio is 1:24. With the same amount of stone three times as much space is enclosed. This radical change in the use of stone was made possible by the new balanced structural skeleton. And once this system had been established it was subjected to constant clarification and development. The structural system set certain limitations and the possibilities existed only within these accepted facts. The course of this evolution is particularly well illustrated at the Saint Denis of Suger (1135-40) and Pierre de Montereau (1231).

Evolution and inter-relationship of structure and space in Gothic architecture may be clearly studied at Lâon, through Bourges, to Amiens. At Lâon (1180) the space is cellular and, therefore, still somewhat Romanesque in character. At Bourges (1192), with the elimination of the transept, a new space is evolving. At Amiens (1200-36) by the integration of the individual spaces and their interpenetration the new concept fully emerges.

These changes in the structure-space character are reflected in the treatment of the stone, being most noticeable on the pier shafts. The individual shafts as expressed are obviously incapable of carrying forces of such magnitude, their real function was the architectural one of clarifying the structural system through a graphical expression of the forces involved, and on these terms they are neither decoration nor ornament.

Throughout this evolution, structure and space were interdependent and together eventually brought forth the great monotheistic image of the cathedral, a unity of structure, space and spirit.

The ancient town of Aachen (Aix-la-Chapelle), where Ludwig Mies van der Rohe was born in 1886 and where he lived during his first nineteen years, is the oldest town on Germany's western border with the Netherlands. It was here that Charlemagne had established the first capital of the Holy Roman Empire and before its wartime devastation many buildings of the early Middle Ages attested to the town's previous eminence as the centre of western culture. The medieval atmosphere was ubiquitous and had a great impression on Mies as a boy. While a pupil of the Cathedral School founded by Charlemagne, he became deeply interested in Aachen's many ancient buildings. Each morning he was taken by his mother to the Chapel of Charlemagne. He was fascinated by the structure and the space. He recalls searching the walls and counting the stones and tracing the joints. Mies often helped his father, a master mason, in the family stone cutting shop and these first lessons in practical building which helped him to understand a material's possibilities and limitations were valuable foundations.

On leaving the Cathedral School, Mies spent two years at a trade school, while also working for a local builder. Later the suggestion of a friend who knew of his ability at freehand drawing led Mies to apply for a job with a firm of specialists in stucco decor. He started in the time-

honoured position of office boy, but when one day everybody in the firm moved up one place as a result of the chief designer being conscripted into the army, Mies found himself at fourteen years of age holding the status of a 'designer.' He was required to make full-size drawings for plaster ornament in all styles and periods. 'Louis XIV in the morning, Renaissance in the afternoon,' he recalls with a mixture of horror and amusement, and he soon developed a nonchalant ability for drawing elaborate cartouches while looking in the opposite direction!

However, the old buildings of Aachen continued to hold his real interest and Mies decided, after three years, that he had had enough of ornament to last a lifetime. He moved to the office of a local architect where, on his first day he remembers finding in the drawer of his drafting table a scientific paper dealing with aspects of the universe. This discovery initiated an interest in science, and particularly in astrophysics, which he still retains. Today, Mies' reading outside of philosophy is almost exclusively on these subjects. When Mies left Aachen shortly after his nineteenth birthday he took away with him a profound understanding for the qualities and meanings of old buildings. The depth of this reverence is apparent from the following recollection:

'I remember seeing many old buildings in my hometown when I was young. Few of them were important buildings. They were mostly very simple, but very clear. I was impressed by the strength of these buildings because they did not belong to any epoch. They had been there for over a thousand years and were still impressive, and nothing could change that. All the great styles passed, but they were still there. They didn't lose anything and they were still as good as on the day they were built. They were medieval buildings, not with any special character but they were really built.'

It was 1905 when Mies arrived in Berlin. He was at first employed by an architect specializing in wood buildings, but soon moved to the office of Bruno Paul, a man who really knew about wood, where he stayed for two years. That Mies was indebted to Paul for a thorough grounding in this material was evident when, in 1907, at twenty-one, he built his first house (see page 230—231).

'The work is so faultless that no one would guess that it is the first independent work of a young architect' wrote a contemporary critic. The Riehl House was flavoured with the solid traditionalism of the vicinity. The form of the dormer window and the character of the roof came directly from local examples. It was, however, in the refinement of these elements together with the manner in which the house was placed on its steeply sloping site and in the whole interior treatment, including the furniture design, that the sure sense of quality was evident.

After two years of independence Mies apprenticed himself in 1909 to Peter Behrens and, while in Behrens' office, where also were at one time Le Corbusier and Walter Gropius, was put in charge of the construction of Behrens' German Embassy in St. Petersburg.

'Peter Behrens had a great sense of form. That was his main interest and that I certainly understood and learned from him.'

Behrens had been influenced by the work of Carl Friedrich Schinkel, the architect of a number of outstanding public buildings in Berlin built shortly after the Napoleonic wars. These neo-classic works were distinguished by careful proportioning and by the articulated separation of their various architectural elements. Peter Behrens passed on his enthusiasm for Schinkel's architecture to Mies. 'Schinkel's Das Alte Museum (1824-8) was a beautiful building. You could learn everything in architecture from it—and I tried to do that.' While still working for Behrens Mies built a house for Hugo Perls in which the spirit of Schinkelschuler was prominent, as it was also in the Kroller House and to a lesser extent in the competition scheme for the Bismarck Monument, both of the following year.

Mies has recently talked of his predicament at this time:

'In 1900 there were a group of very talented men in Europe who founded the Art Nouveau Movement. They tried to develop everything anew, houses new, dresses new, spoons new, life new, everything new. They thought, however, that it was a question of form. The whole movement didn't last much longer than a typical fashion and nothing came out of it. They were most talented people—there were no finer in the world, and they still could not do it.

'It then became clear to me that it was not the task of architecture to invent form. I tried to understand what that task was. I asked Peter Behrens, but he could not give me an answer. He did not ask that question. The others said, "What we build is architecture," but we weren't satisfied with this answer. Maybe they didn't understand the question. We tried to find out. We searched in the quarries of ancient and medieval philosophy. Since we knew that it was a question of the truth, we tried to find out what the truth really was. We were very delighted to find a definition of truth by St. Thomas Aquinas: "Adequatio intellectus et rei," or as a modern philosopher expresses it in the language of today: "Truth is the significance of fact." I never forgot this. It was very helpful, and has been a guiding light. To find out what architecture really is took me fifty years—half a century.'

While in Holland to design the Kroller House in 1912, Mies was impressed by the work of Hendrik Berlage.

'Berlage was a man of great seriousness who would not accept anything that was fake and it was he who had said that nothing should be built that is not clearly constructed. Berlage did exactly that. And he did it to such an extent that his famous building in Amsterdam, The Beurs, had a medieval character without being medieval. He used brick in the way the medieval people did. The idea of a clear construction came to me there, as one of the fundamentals we should accept. We can talk about that easily but to do it is not easy. It is very difficult to stick to this fundamental construction, and then to elevate it to a structure.'

1920—1927

From Berlage's work Mies began to understand the meaning and significance of structure. But in speaking of structure Mies adds the following caution:

'I must make it clear that in the English language you call everything structure. In Europe we don't. We call a shack a shack and not a structure. By structure we have a philosophical idea. The structure is the whole, from top to bottom, to the last detail—with the same ideas. That is what we call structure.'

There was little actual building in Germany immediately following the first World War. These quiet first years of the Weimar Republic were inducive to radical investigations of architecture's direction. It was the time of those great experimental projects which collectively formed the polemic of the modern canon. During these years Mies directed the architectural activities of the Novembergruppe and wrote for the magazine 'G' (Gestaltung) a series of articles of extraordinary insight and objectivity, and refreshingly free from the manifestonical journalese of the day.

These writings coincided with a series of projects made during the four-year period following 1920, the inherent ideas of which can in retrospect be seen as a platform for Mies' later work. Two of these projects, the Glass Skyscraper of 1920-1 and the Concrete Office Building of 1922, antithetically express the separation of structural and non-structural elements, the skin and bones idea (see page 232).

Investigation of the behaviour of glass surfaces when used as a non-load bearing peripheral enclosure was the raison d'etre of the glass skyscraper. The studies for this project were made by setting up narrow strips of glass in a plasticine base to form various contours. The structure was behind the glass, within the building.

In contrast, the Concrete Office Building emphatically proclaimed its structural guts with an eloquence few multi-storey buildings outside of the Chicago School had achieved. Here the structural system was dominant, it was the architecture, and to prevent confusion of this basic idea the glass window plane was pushed back into the building, away from the periphery. A reconciliation between these antithetical solutions was not reached until almost thirty years later when, by the use of the mullion, Mies is able to unify skin and structure with the solution of 860 Lake Shore Drive.

The Brick Country House of 1923, a third project made at this time, is interesting for its spatial implications. The walls were treated as clearly defined individual entities placed in a semi-overlapping manner such that any one area of the house was not rigidly enclosed but rather subtly defined from the others. This arrangement caused the space to flow as a continuum throughout the house, and since walls were often pulled out into the landscape an actual defining line between interior and exterior hardly existed. Interior and exterior became part of the same reality. This spatial concept was later expanded in the Barcelona Pavilion where the horizontal planes were brought more fully into the system.

In 1927 as first Vice-President of the Deutscher Werkbund, Mies directed the Weissenhofsiedlung Exhibition at Stuttgart. The purpose of this exhibition was to show the new ways of building houses and apartments. Although commissioned as sole architect for the complete project, Mies decided to invite the foremost European architects to participate. Gropius, Le Corbusier, Oud, Stam, Behrens, Hilberseimer, Poelzig, and the Tauts were among those represented at Stuttgart in 1927. The first project for Stuttgart was made in 1925 but was radically changed by the city's later decision to sell each house separately.

Mies' own contribution to the Weissenhofsiedlung was a four-storey apartment building built around a steel skeleton, a fact he made evident both internally and externally. Many different apartment plans were possible within the regular bays of the skeleton. Here is the germinal principle for all Mies' American apartment buildings.

After Stuttgart a period of exhibition and furniture design followed. The best known piece of furniture Mies made during these years was the tubular steel cantilever MR chair. Although both Stam and Breuer made chairs on the same cantilever principle at the same time, Mies' chair shows in its elegant design an understanding of the spring-quality of steel, and expresses this. Mies' exhibition designs were always relevant to their subject and were frequently made in collaboration with Lily Reich.

The Barcelona Pavilion (see page 233)

Almost a decade after the projects of the 'twenties Mies was commissioned to undertake the design of the German section in the 1929 International Exhibition at Barcelona. Each participating country was expected to include in its contribution a pavilion to represent it at the exhibition. Non-functional architecture is a considerable challenge, for when possibilities are unlimited responsibility is greatest. In the Barcelona Pavilion Mies brought together his ideas on structure and space into a kind of architectonic poem formulated from horizontal and vertical planes, opaque and transparent materials, and skeletal construction. It expressed an absolute in poetic expression for the right angle, and although its life was short, existing to-day only in a handful of photographs, the ideas it proposed are now very much a part of our architectural language.

Since the site had a considerable slope, a podium of attenuated rectangularity, with its major dimension concordant to the site's contours, provided a solution to this problem while also establishing isolation from the surroundings. An existing path, winding down the hill behind the pavilion, leads the visitor on to the rear of this podium. Although the small caretaker's apartment, located at the rear, remained somewhat similar in idea to the Brick Country House Project of 1923, the Pavilion itself developed and clarified the real architectural point of this idea.

The Pavilion, which was asymmetrically located on the podium, consisted of a flat roof plate supported above the terrace by eight steel columns formed into three regular rectangular bays from which the roof cantilevered. The rectangular partitioning elements were individually identifiable and were carefully placed to form an asymmetry of monumental serenity. They extended from floor to ceiling; some projected out from the roof plate to enclose or articulate exterior spaces and ultimately to unify the whole. Two reflecting pools were cut into the base and on the long axis U-shaped walls terminated and visually held the whole complex firmly in position. Within the Pavilion itself was a single piece of sculpture and Mies' monumental furniture designs, still unsurpassed for their expression and eloquence.

'When I had the idea for this building it was deep in winter, and you cannot move marble in from the quarry in winter because it is still wet inside and would easily freeze to pieces. So we had to find dry material. I looked around in huge marble depots, and in one I found an onyx block. This block had a certain size and, since I had only the possibility of taking this block, I made the Pavilion twice that height.'

There are three specific qualities which distinguished the Barcelona Pavilion. A clear separation of structural and non-structural elements, a free plan, a completely new kind of space. In the project for a Brick Country House Mies had introduced the idea of free-standing walls, although in this work they still fulfilled a structural function. The walls of the Barcelona building, however, were set free of structural obligation. They were solely space articulators within a skeletal structure and to emphasize this separation of function Mies often placed the walls only a few inches away from the structural columns, thereby giving the optimum of meaning to both elements.

Spatially, no section of the plan was closed but became a natural part of adjacent areas. The character of this space possessed a fluid contiguity where, unlike the compartmentalized plan, a greater whole might be sensed at any one moment although not actually seen. The Barcelona Pavilion demonstrates a remarkable synthesis of plan, structure, space. The building has been critically acclaimed as a work to be favourably compared to any building of the great architectural epochs of the past, and with it Mies was established as an architect of importance.

The Tugendhat House and court houses (see page 234)

Mies' second most well known European building is the Tugendhat House, built in Brno, Czechoslovakia in 1930. The ideas of the Barcelona Pavilion were now developed within the functional limitations of a house, but unlike the Barcelona Pavilion or the Brick Country House, there was little attempt to break the building's volume, or to integrate the house spaces with the landscape. The extensive glass walls of the living room did, however, allow for a maximum visual contact with the exterior while still retaining a discrete spatial separation. This has much in common with the Farnsworth House of seventeen years later, while on the entrance floor the arrangement of the three rectangular enclosures suggests the spatial quality later to be seen in the I.I.T. campus master plan. In a series of studies for court houses, made between 1931 and 1938, the spatial concept of the Barcelona Pavilion can again be seen, but now occurring within a peripheral enclosure.

Following Walter Gropius' resignation as director of the Bauhaus in 1930, the school's very existence became imperiled by internal political anarchy. Hannes Meyer, who succeeded Gropius, was unable to cope with the prevailing situation and it was, therefore, in an attempt to prevent the disintegration of the school altogether that Gropius and the Mayor of Dessau asked Mies to take over. Two years later the State of Dessau became Nazi and the new situation soon forced Mies to move the school to Berlin, where in 1933, because of similar outside political pressures, he decided to close the school altogether.

The curriculum

Four years after he had closed the Bauhaus, Mies was appointed Director of the Illinois Institute of Technology School of Architecture in Chicago, a position he retained for twenty years, while at the same time designing the Institute's extensive campus. The curriculum for his school embodies a philosophy of architecture and architectural education which is not widely known or understood, and, since it is a very important aspect of Mies' work, it will be discussed in detail.

Mies described his curriculum as designed not only to equip the student with the knowledge and ability required for professional practice but also to give those fundamentals of cultural education which will enable him to make the right use of this knowledge and ability. For 'education,' Mies says, 'must lead us from irresponsible opinion to truly responsible judgment.'

'Architecture in its simplest forms is concerned primarily with the useful. But it extends from the almost purely practical, until in its highest forms it attains its fullest significance as pure art. This relationship leads to a curriculum which makes clear, step by step, what is possible in construction, what is necessary for use, and what is significant as art.

'This is accomplished in the curriculum by so interrelating the different fields of instruction that the student is always conscious of, and is always working in the whole sphere of architecture in its fullest sense of designing a structure for a purpose, ordering it so that it attains sig-

nificance and working out the conception so that it may be realized in the executed building. The curriculum leads, therefore, from the study of the means with which one builds and the analysis of the purposes for which one builds into the sphere of architecture as an art.

'With these ideas in mind let me briefly describe the curriculum. The student studies the materials and construction of simple wood, stone, and brick buildings and then the structural possibilities of steel and concrete. This work is studied in such a way that the significant relationship between the materials, the construction, and the architectural expression is made apparent.

'The knowledge of materials and construction leads to a study of function. The function of the principal kinds of buildings are studied on the basis of an exact analysis. This analysis establishes wherein each architectural problem is distinguished from every other; wherein the real essence of each problem lies. After the essentials of each problem have been clearly established, buildings are designed whose conception and expression are based on these essentials. The study of function is carried beyond individual buildings and then into communities in the field of city planning in order to demonstrate the interdependence of all building in relation to the city as an organic whole.

'Throughout the curriculum the student is given training to develop sensitivity for the relationship between form, proportion, structure, and materials.

'In conjunction with the curriculum there is a clarification of the cultural situation to-day so that the student may learn to recognize the sustaining and compelling forces of his times, and to comprehend the intellectual and spiritual environment in which he lives. The material, intellectual and cultural aspects of our era are explored to see wherein they are similar to those of former epochs and wherein they differ from them. The buildings of the past are studied so that the student will acquire from their significance and greatness a sense for genuine architectural values, and because their dependence upon a specific historical situation must awaken in him an understanding for the necessity of his own architectural achievement.'

In Mies' school the student undergoes a course of study in which each exercise forms a natural part of a consistent evolution. As the student is not called upon to discard or refute anything he has learned in previous years, he soon becomes cognizant with the continuity and the logical progression of his studies.

Throughout the first year the student is preoccupied entirely with the tools and techniques of drawing. He learns the discipline of drawing well, with clarity and precision. These exercises are intended to give visual instruction in addition to displaying drafting dexterity.

The second year student learns basic construction in brick, wood, and stone. He learns to understand their intrinsic properties and he uses this knowledge to make simple buildings. The construction exercises are complimented with courses in visual training comprising the study of form, proportion and rhythm, texture and colour, mass and space. The visual training aspect of the curriculum was initiated by the late Professor Walter Peterhans.

In his third year the student extends his knowledge of construction to concrete and steel, while continuing with more advanced visual training problems. In addition, he now begins to study simple functions such as those of a bedroom, a bathroom, and a kitchen, and relate these to houses of different sizes and types, later applying the same method of analysis to more complex buildings. He develops an ability to analyse a programme on a functional basis.

During the first three years of his studies the student has learned to draw well, knows basic construction, has studied proportion and space relations and begins to understand the function and planning of simple buildings. In the fourth year he brings this knowledge and experience together for the first time in more complex problems. The fourth year student is, also, introduced to the basic elements of town planning with theoretical studies based on densities, land use and zoning and leading to an application of the principles discovered in a project for the replanning of an existing town. This aspect of the curriculum is under the direction of Professor Ludwig Hilberseimer.

In his fifth year the student is offered an option in either architecture or town planning. This is a free choice and constitutes not only a final year of undergraduate studies but virtually an introduction to graduate work. Fifth-year architecture deals with advanced problems involving the expression of structure and materials, groups of buildings and their interrelationship and project studies. Fifth-year planning students undertake regional studies, the methods of survey and research and projects for the replanning of a region.

Courses in mathematics, basic mechanical and structural engineering and other technical as well as the usual liberal arts studies are, also, taught during the undergraduate years. However, one of the most unusual and important aspects of Mies' curriculum is its unique teaching of the history of architecture. History is taught not only in the formal courses on this subject but there is, also, continual reference to historical examples in most of the other courses. The student studies history to understand the principles involved in the different building types of the past and in the architectural expression of past cultures. He is helped to understand the history of architecture, not to imitate it, for if he understands the cultural situations of the past he is better fitted to interpret the present.

The graduate programme in architecture or city planning covers two years and, since the students have varied backgrounds coming from different areas in the United States, as well as from abroad, the first year of their work is devoted to basic problems of an advanced nature so as to bring them to a common understanding for the second year's thesis project.

Self-expression in the normal sense is not at a premium at I.I.T. Mies' curriculum naturally leads to a study of principles and, therefore, universal rather than special solutions, but, of course, the grasp of such universals places the student in a much stronger position to deal with special cases than if he were to approach all problems from the particular.

Mies is frequently asked by architectural educators to tabulate those decisions which he considers are important for the direction of a school of architecture. Firstly, he believes it is of great importance to know what kind of school is wanted:

'This decision in itself will determine the quality of the school. The faculty should be as good as possible to maintain this direction, but even the finest group of talented men pushing in the wrong direction or in different directions means not only nothing, but, also, chaos. Architectural schools to-day are suffering from this lack of direction—not from a lack of enthusiasm, nor from the lack of talent. If we could only show the schools and faculties that individuality is inevitable and that it, too, has its natural place. To try to express individuality in architecture is a complete misunderstanding of the problem, and to-day most of our schools either intentionally or unintentionally let their students leave with the idea that to do a good building means a different building; and they are not different—they are just bad.

'I believe that in architecture you must deal with construction directly, you must, therefore, understand construction. When the structure is refined and when it becomes an expression of the essence of our time, it will then and only then become architecture. Every building has its position in a strata—every building is not a cathedral. These are facts which should be understood and taught. It takes discipline to restrain oneself. I have many times thought this or that would be a wonderful idea, only to overrule this impulse by a method of working and thinking. If our schools could get to the root of the problem and develop within the student a clear method of working, we would have then given him a worthwhile five years. But five years is a very short time when you remember that in most cases these are the most formative years to the architect. At least two things should have been accomplished: mastery of the tools of his profession, and the development of a clear direction. Now it is quite impossible to accomplish the latter when the school itself is not clear.'

Illinois Institute of Technology

The campus of Illinois Institute of Technology covers a rectangular area equal to eight Chicago blocks (110 acres) and the initial programme called for all the buildings to be completed within a period of ten years. Mies' first concern was with the building type most suited to this programme. He felt this decision important since it would establish a character for the campus which would last over the prolonged construction period (see page 239).

Efficiency was the guiding factor in forming this decision and since efficiency in this case depended to a considerable degree on flexibility it was clear that a skeletal type of construction would be the most suited to the programme. The superiority of skeleton construction in terms of flexibility and economy was generally accepted but a clear expression of the skeleton had been rare.

'Only a clear expression of the structure could give us an architectural solution which would last.'

After ten years of construction (due to the intermittent nature of private donations) it became obvious that the campus would take at least another ten years to complete. Mies was not, however, afraid that the concept of the earlier buildings would become outmoded.

'I was not afraid of that. The concept would not become outmoded for two reasons. It is radical and conservative at once. It is radical in accepting the scientific and technological driving and sustaining forces of our time. It has a scientific and technological driving and sustaining forces of our time. It has a scientific character, but it is not science. It uses technological means but it is not technology. It is conservative as it is not only concerned with a purpose but also with a meaning, as it is not only concerned with a function but also with an expression. It is conservative as it is based on the eternal laws of architecture: Order, Space, Proportion.'

Mies planned the campus on a three dimensional grid of 24ft. square, 12ft. high increments. However,

'The Library and Administration Building and the Student Union confronted us with different problems. I wanted these two buildings in the centre of the campus to have a more monumental character, an expression of the dignity of a great institution. Could that be done with the same means? That was the real question.' For these two buildings the grid was modified by lengthening one side of the 24ft. square bay to 64ft. and increasing the height to 30ft. Mies was to leave the grid again for the Architecture Building. The principal buildings are grouped symmetrically around a central axis running across the short dimension of the site but their individual arrangement is asymmetrical. The manner in which the buildings partially overlap each other recalls the treatment of the walls in the Barcelona Pavilion and the Brick Country House, and results in a similar spatial effect. The exterior spaces of the campus are articulated but never closed. They always flow into adjacents, and, while by this concept of placing local intimacy is achieved, the larger whole remains sensed. Mies' plan is remarkable for this integration of the separate and individually identifiable spaces into a total unity. There is a sense of freedom for the human in his plan, the buildings never oppress or impinge, although distances between are not always great. This spatial quality is complimented by the clear expression of a generously proportioned skeletal structure. There is a kind of restful elation experienced while among these buildings, a rare experience to-day.

Of the individual campus buildings one of the most interesting is the unbuilt Library and Administration Building of 1944. This building is important because in it we see the point at which Mies' architecture reaches a full structural clarity, a quality he attributes in this case to the influence of Berlage. The building is, also, interesting for it is the first in which Mies introduces an active vertical element into his space. If this building should ever be built, it would, undoubtedly, display one of the great spaces of architecture, and one of the clearest structures.

Towers and clear span projects

Two basic building types have consistently held Mies' interest: the multistorey skeletal structure and the single story clear span. The 860 Lake Shore Drive Apartments and Crown Hall (I.I.T. architecture building) are respective examples of these types (see page 240).

The studies for 860 Lake Shore Drive were made between 1948 and 1951. The building was constructed in 1951. A steel skeleton is the theme of this building and this is clearly expressed as an inviolable fact: 21ft., 21ft., 10ft., 26 storeys.

A clear expression of the structural skeleton establishes the initial scale breakdown from the building's total volume and, since this is clearly readable both inside and out, it fixes both a point of reference and a common denominator. A further scale breakdown is made on the apartment floors by the subdivision of each structural bay into four parts. The structural bay is openly proclaimed at the building's base where the columns stand free of enclosing elements. The height of this open ground floor is 17ft. and, architecturally, it is the point of transition between the exterior whole and the interior.

The planning of the apartment floors is similar in principle, although different in application to the Weissenhofsiedlung Apartments. At '860' the kitchens, bathrooms, elevators, firestairs and ducts form a compact service ring around a central access hall. The peripheral areas of each floor are reserved exclusively for living spaces, divisions being made as particular requirements dictate. This plan, since it fixes only essentials, allows for great flexibility and freedom in its use.

On the apartment floors the glass skin is set between the columns and spandrels, its surface contiguous with the exterior face of the structure, Mies' introduction of projecting steel mullions at the quarter-points of each bay and on the column surfaces engenders a new and unexpected quality from the separate identities of the elements involved. The structural frame and its glass infill become architecturally fused, each losing a part of its particular identity in establishing the new architectural reality. The mullion has acted as a kind of catalyst for this change.

The columns and mullion dimensions determine window widths. The two central windows are, therefore, wider than those adjacent to the column. These variants produce visual cadences of expanding and contracting intervals: column-narrow window-wide window, then reversing—wide window, narrow window-column, and so on, of an extraordinary subtle richness. And to this is added the alternating opacity of the steel and reflectivity of the glass caused by the blinker quality of the mullions en masse. The mullions also express graphically the forces and verticality of the structure.

Before Mies' "860" solution, there were two clear basic possibilities for the enclosure of skeleton frame buildings. Either the skin acted as an infill between the structure or it hung in front of it (Mies had used both solutions in the 1920s). While acceptable on their own pragmatic terms, these solutions have, with the exception of the Seagram Building, rarely been touched by the magic of great architecture. At "860" the solution has come directly out of the problem of finding a single architectural expression which would embrace both skin and structure. At "860" the structure and skin retain much of their individual identities but the application of the mullion has caused a philosophical transformation from a pluralistic to a monotheistic character.

The first of Mies' clear span projects appeared in 1942. It was presented as a montage in which a number of acoustical screens were freely placed and hung within a single column free space under a roof structure of immense steel trusses which received their support only at the periphery. The project was made for a concert hall, but implicit in this proposal was the possibility of accommodating almost any function relative to the magnitude of the structure. It provided a single space, free of interior supports, where optimum flexibility in the placing of functional elements was possible: universal enclosure.

This project was followed by a number of buildings based on this theme but of gradated magnitudes dependent on the particular function they were initially to hold. Sullivan believed that "form follows function." Mies believes that function changes but form cannot. In the clear span buildings, Mies makes a structure for any function relative to its magnitude. The Concert Hall Project was followed in 1947 by the Farnsworth House (77ft. 3in.× 28ft. 8in.) and the Drive-in Restaurant (150ft.× 105ft.); the Fifty-Fifty House (50ft.× 50ft.) in 1951; the Mannheim Theatre (266ft.× 533ft.) in 1953; the Chicago Convention Hall (720ft.× 720ft.) in 1954; Crown Hall, the Illinois Institute of Technology architecture building (120ft.× 220ft.) in 1955; the Houston Museum (82ft.× 100ft.) in 1956; the Bacardi Office Building, Cuba (177ft.× 177ft.) in 1958.

Crown Hall

The Farnsworth House was the first of these buildings to be constructed and while its rational and aesthetic content may be in part appreciated from photographs and drawings, it must be experienced to be really understood. It remains Mies' purest statement. The second of the free span universal structures to be built was Crown Hall of Illinois Institute of Technology (see page 240). This building appears to have been considered on a higher hierarchical level than the more typical campus buildings which house less elevated subjects.

While a single large room for three hundred students was in theory the physical expression of both the contiguity and the anti-ivory tower aspects of the curriculum, in practice this concept has worked particularly well since the student, unisolated from years above or below, clearly sees his position at a particular time as a point within a consistent progress.

At that moment in the construction of a skeletal building when the frame is complete but lacks the incrustations and invariably the negations of the "architecture" no one can remain unmoved by the purity of the factual statement or the possibilities which could develop directly from it. Perhaps the best way we can begin to understand Mies' architectural idea is to look at Crown Hall in this light, for this structure is unquestionably the epitome of clarity. Even Mies has admitted this when he said at its completion: "I think this is the clearest structure we have done and the best to express our philosophy."

The roof of Crown Hall is 120ft. in width by 220ft. in length. It is carried by four exterior steel portal frames (all connections welded) placed at 60ft. intervals, the roof cantilevering 20ft. beyond the extreme portals. Since the building qualified under the Chicago Building Code as a single-storey structure, the steel did not have to be fireproofed and could remain clearly exposed. The main hall, which is 18ft. high, is raised 6ft. above ground level in order to provide the basement workshops with natural air and light. The peripheral subdivisions of 10ft. are further subdivided and filled with translucent glass in the basement areas and in the main hall up to 8ft. from the floor level. The central entrance bays and the areas above the translucent panels are filled with clear glass. The main hall is subdivided by three groups of 6ft. high freestanding walls into two general student work areas separated by a large central exhibition lounge and an administrative area.

Two duct stacks carry services from a mechanical room in the basement to a low central penthouse and to distribution points above the suspended acoustical ceiling. The building is heated by radiant panels and hot air. It is mechanically ventilated and provision has been made for a future cooling plant. Floors are typically terrazzo, free-standing walls in the main hall are of oak. The steel is painted with black graphite paint (the building will be repainted every ten years). At the dedication of Crown Hall on April 30th, 1956, Mies said:

"Let this building be the home of ideas and adventures. Real ideas, ideas based on reason, ideas about facts. Then the building will be of great service to our students and in the end a real contribution to our civilization. We know that will not be easy, noble things are never easy. Experience teaches us that they are as difficult as they are rare."

Convention hall

Due to the immense size of the country, annual gatherings and conventions of diversified organizations and groups are a necessity in the United States. There are 22,000 such conventions held each year and over 1,000 of these are held in Chicago, a city whose geographic location makes it ideal for such events. The Convention Hall Project (see page 242) was sponsored by Chicago's South Side Planning Board and is possibly the most remarkable of Mies' clear span buildings. It is impressive not only because of its size but also because of the manner by which its magnitude is visually established and made determinable directly through the structural expression. It could have made an impressive addition to Chicago's already great architectural heritage.

A dome type of structure was considered unsuitable for a building of this type because its ever changing contour would preclude the easy subdivision of the interior for the variety of activities which would take place when the whole building was not in use for large gatherings or exhibitions. Mies' Convention Hall is 720ft. square. Its module is a 30ft. cube. The roof structure is two-directional and is composed of welded, intersecting steel trusses 30ft. deep, spaced on 30ft. centres. Where the roof trusses intersect, vertical members are common to each truss. The entire structure, which is made up of 14in. wide flange sections, would weigh approximately 30 lb. per square foot, and is supported by 24 columns spaced 120ft. apart around the periphery.

The hall provides 500,000sq. ft. of clear space and there are no columns to obstruct the view of an assembly of 50,000 people (there are 17,000 permanent seats arranged on 18 tiers around the four sides of the hall). A 30ft. wide circulation foyer runs completely around the hall behind this permanent seating area (in this space an additional 3,000 seats can be placed when necessary). The main floor of the hall is depressed and an unobstructed view of the whole interior is therefore possible entering from the street level.

Toilet facilities, lounges, and storage space for chairs, tables, etc., and mechanical equipment rooms are planned at this main floor level under the ground floor entrance lobbies and the permanent seating area. The hall is ideally located for rail and road connections and access is provided directly onto the main floor level for trucks, cars, and railroad trains to facilitate the installation of exhibits (railroad tracks are recessed 4ft. so that the car platform is flush with the floor).

The Seagram Building

Although there were many new buildings in New York owing in varying degrees of allegiance to his ideas, Mies himself had not worked on Manhattan before he received the commission to design the Seagram Building (The building was designed in association with Philip Johnson). The 38-storey building was completed in 1958 and it is unquestionably the most monumentally impressive of all Mies' multi-storey buildings (see pages 242—244).

"My concept and approach on the Seagram Building was no different from any other building that I might build. My idea, or better 'direction', in which I go is toward a clear structure and construction—this applies not to any one problem but to all architectural problems which I approach. I am, in fact, completely opposed to the idea that a specific building should have an individual character—rather, a universal character which has been determined by the total problem which architecture must strive to solve."

"On the Seagram Building, since it was to be built in New York, and, since it was the first major office building which I was to build, I asked for two types of advice for the development of the plans. One, the best real estate advice as to the types of desirable rentable space and, two, professional advice regarding the New York City Building Code. With my direction established and, with these advisers, it was then only a matter of hard work."

Before summing up, two aspects of Mies van der Rohe's architectural practice should be mentioned. Firstly, regarding building costs; secondly, office organization.

It is not generally appreciated that Mies' buildings are kept within normal budgets and in many cases have been built at well below those of comparable buildings; 860 Lake Shore Drive, for example, cost in 1951 $10.38 per square foot. This was 5 to 10 per cent. below most conventional apartment house costs in Chicago at this time and it included both the excessive costs for difficult foundation work and the cost of providing curtains for every apartment. Crown Hall at I.I.T. (1955) cost $13.71 per square foot, or 78 cents per cubic foot, a total of $746,850, and it should be noted that the Seagram Building was less expensive per square foot than other more recent New York office buildings. Mies' most recently completed apartments in Newark, New Jersey, have proved that it is possible to-day to achieve a high level of design without increasing costs over those of conventional speculative builders' projects.

Mies has always preferred to have as much freedom and flexibility as possible in the organization of his office in order that he may exercise a free choice of commissions on the basis of their individual significance as building types. To this end he has built an office organization which can expand or contract without losing its effectiveness in performance, immaterial of whether commissions involve large groups of buildings or small individual buildings. He has achieved this flexibility and, therefore, also this freedom in choice, by maintaining a relatively small staff. His total staff consists of twenty architectural assistants and two administrative assistants. When the work load is light, the office carries through all aspects of a job; when the work load is heavy, the office will either expand to meet the current situation, or will act as a control unit to an associated firm. Mies has found this method of organization an exceptionally efficient tool in the conducting of his practice.

Since Mies' office is not segregated by a separation of work activities vis design/production, so typical in architectural practice to-day, each member of his staff becomes involved with all stages of a project. Mies considers threedimensional study extremely important in order that every detail may be fully worked out before it gets onto working drawings. A considerable proportion of the work is, therefore, carried out in study and presentation model form at all scales from block to full size. A study model not only allows for a better judgment of a solution, but it can also reduce the problems arising during the construction of a building.

The most important contribution Mies van der Rohe has made is unquestionably his continual restatement of the principle of "structural" clarity as the fundamental of architecture. It is, of course, understood that structural clarity alone is not synonymous with architecture, but without this basic attitude no amount of sculptural plasticity, subjective fantasy, spatial or organizational ingenuity will result in architecture. The sooner this is understood, the sooner our building activity will make sense again. This acknowledgment would not, as many think, destroy the individual freedom of the architect. We have only to look to the epochs of the past to realize this.

Complimentary to his emphasis of structural integrity Mies stresses the importance of economy. However, in this context the term needs considerable clarification if his meaning is to be understood, for Mies does not imply by it the economics of a purely monetary connotation. While pure construction is based on minimums, the aim of architectural solutions is the elevation of such minimums. While architecture must not be insensible to the basic economy of means, it is with optimums and not minimums with which it is concerned. Considered on these terms economy implies a balance and order of clarity and harmony within the totality of interdependent elements.

Mies' personal inventions, the free-standing wall, the mullion, the universal space, are correlative to his main belief in: structure, clarity, reason. These are all ideas of a general nature, not special solutions.

With regard to function, Mies' buildings allow an optimum of freedom for their users. An office can be divided and arranged in the most efficient way. A house or apartment becomes a free space where the owner lives on his own terms rather than within the pre-dictated pattern of someone's sociological programme. Future owners have the same freedom. Consequently, a formal expression of each individual office or apartment is alien and quite unnecessary to the theme of such buildings. Mies' buildings express this freedom.

With regard to the expression of function or purpose, Mies stresses the importance of a hierarchy of value:

"A thing may have a practical value, an economical value or a spiritual value. The value of a thing is in its use. A walking stick, a practical thing, should not be compared with the Parthenon—this has a spiritual value. Accordingly, a powerhouse is not a cathedral, and if a transgression is attempted the result would not be architecture. While both are based on the same natural principles, we ask of a rose only that it be a rose; we ask of a potato only that it be a potato. Philosophically speaking, only then do they exist. In architecture there are, also, roses and potatoes, but there are bad potatoes as well as good potatoes, and poor roses as well as fine roses."

As a means of further clarification Mies uses the analogy of language. In a living language it is important to establish a grammar, which in this sense is the discipline:

"Language can be used for normal day to day purposes as prose. And if you are very good at that you may speak a wonderful prose. And if you are really good you can be a poet. But it is the same language and its characteristic is that it has all these possibilities.

"The physicist Schroedinger said of general principles, 'The creative vigour of a general principle depends precisely on its generality', and that is exactly what I mean when I talk about structure in architecture. It is not a special solution. It is a general idea. And, although each building is a single solution, it is not motivated as such."

Mies believes that a development in architecture is not a thing accomplished in one man's lifetime, it is something going on and on through many lifetimes, until finally it exhausts itself:

"The work of Sullivan and Wright is very interesting and very important. I do not deny this ... yet we, for instance, would not do what Sullivan did. We see things with different eyes, because it is a different time. Sullivan still believed in the façade. It was still the old architecture. He did not consider that just the structure could be enough. Now we would go on for our own time—and we would make architecture with the structure only. Likewise with Wright. He was different from Sullivan, and we for equal reasons are different from Wright. The day will come when others, who have something important to give, will do what we would not do. Architecture must develop out of the epoch, this was how the old architecture developed, each epoch did the most that it dared. Thus the Gothic developed out of the Romanesque. Certainly the Gothic must have seemed strange at first, but it came out of the Romanesque. Architecture is a historical process. It belongs to the epoch, and not even to the time, as they say, to a real epoch. Since I understand that, I would not be for fashion in architecture; all individualism is a left-over from the time of Luther when he said, 'Here I stand.' I would look for more profound principles. And since I know that we are under the influence of science and technology, I would ask myself, what result comes from this fact. Can we change it, or can we not change it? And the answer to this question gave me the direction which I followed. I find that I often throw things out that I like very much. They are dear to my heart. But when I have a stronger conviction, a clearer idea, I follow the clearer idea. And after a while, you know, I find the Washington Bridge most beautiful, the best building in New York. And maybe at the beginning I wouldn't, you know. That grew. At first I had to conquer it as an idea—and later I appreciated it as a true and clear statement of our time."

"As I see it, there are two general tendencies to-day. One has a structural basis, and you may call it the more objective. The other has a plastic basis, which you could say is emotional. You cannot mix them. Architecture is not a Martini. You have to be careful if you build a structure and you have to be very careful what you put into that structure. It is like a chess game—there are certain rules. The great historical epochs restricted themselves to very clear principles, yet they were certainly able to do anything, and that is the only way you can make important architecture. I think that is the basis for it. Architecture depends on an epoch, it is not a fashion, nor is it something for eternity, it is a part of an epoch. To understand an epoch means to understand its essence and not everything that you see. But what is important in an epoch is very difficult to find out because there is a very slow unfolding of the great form. That great form cannot be invented by you or me but we are working on it without knowing it. And when this great form is fully understood, then the epoch is over—then there is something new. That is how I see it."

To-day, it is becoming fashionable to react against reason. The principles which guided the architecture of the great epochs and which set the new architecture in motion are thrown overboard in favour of this or that private fancy. While this bewildering phantasy and caprice continues to be awarded ex cathedra status, the serious practice of architecture is brought down to the level of the trivialities of personal vanity. This degeneration into an arid subjectivism is already resulting in a dime store decadence and the propagation of a new kind of deceptive paradise. In this whirlpool of fetish paranoia Mies stands almost alone as a rock of reasonability.

Since the given facts of our epoch cannot be changed or refuted, they have to be accepted and used. Accordingly, a

positive and constructive attitude, as opposed to a mere negative submission to these facts, is the prerequisite for true understanding of our time. Architecture cannot, therefore, change the essence of an epoch; it can only guide and express it. But at this moment in our civilization we lack that generating feature of the great epochs which Dr. Lancelot Law Whyte defined as: "An unquestionable conviction, a source from which we can always draw strength, a spring of confidence." Mies van der Rohe has gone further than any other architect of our time in attempting to discover this generating force and to give it an architectural expression. By the time we move into the 21st century we will know more fully the value of his contribution.

Adress at the Blackstone Hotel, April 17, 1950 on the occasion of the celebration of the addition of the Institute of Design to Illinois Institute of Technology:

"Technology is rooted in the past.
It dominates the present and tends into the future.
It is a real historical movement—
one of the great movements which shape and
represent their epoch.
It can be compared only with the Classic
discovery of man as a person,
the Roman will to power,
and the religious movement of the Middle Ages.
Technology is far more than a method,
it is a world in itself.
As a method it is superior in almost every respect.
But only where it is left to itself as in
the construction of machinery, or as in the gigantic structures of engineering, there technology reveals its true nature.
There it is evident that it is not only a useful means,
that it is something, something in itself,
something that has a meaning and a powerful form—
so powerful in fact, that it is not easy to name it.
Is that still technology or is it architecture?
And that may be the reason why some people
are convinced that architecture will be outmoded
and replaced by technology.
Such a conviction is not based on clear thinking.
The opposite happens.
Wherever technology reaches its real fulfillment,
it transcends into architecture.
It is true that architecture depends on facts,
but its real field of activity is in the realm of the significance.
I hope you will understand that architecture has nothing to do with the inventions of forms.
It is not a playground for children, young or old.
Architecture is the real battleground of the spirit.
Architecture wrote the history of the epochs
and gave them their names.
Architecture depends on its time.
It is the crystallization of its inner structure, the slow unfolding of its form.
That is the reason why technology and architecture
are so closely related.
Our real hope is that they grow together, that some day the one be the expression of the other.
Only then will we have an architecture worthy
of its name:
Architecture as a true symbol of our time."

Ludwig Mies van der Rohe

Ludwig Mies van der Rohe

Colonnade Park Apartments in Newark

(pages 246—248)

Newark is one of the residential places preferred by the office workers of Manhattan. This is where immense housing projects are planned. The public authorities have invited a certain number of general contractors to study the town-planning problems involving the entire region. With a view to stepping up investments in these projects, the authorities are guaranteeing certain percentages with the proviso, to be sure, that the contractors meet the general town-planning conditions set by the state. What is involved here is above all a question of risks, and this is the reason why the contractors concerned are seeking out low-price architects. At times the contractors themselves are also architects. As we all know, the results are not always very happy, either in Europe or in the USA. Fortunately there are exceptions, e.g., the Herbert Greenwald Building Co., which has been working for a long time with Mies van der Rohe. It is at this point that we touch the special theme "Mies and economic building!" The example reproduced in this issue may strike the observer as "inhuman". But is this really the case? It is undeniable that the dimensions and the general concentration of such housing colonies are gigantic, but the solution of this problem is not in the first instance architectural in essence. It is the pattern of living that has been created in the great urban centers that is forcing us to plan such projects. From the point of view of architecture properly speaking, the proportions and the disposition of these buildings convey an impression of calm and of intellectual boldness.

Reorganization of a District of San Francisco. "Golden Gateway" Competition

(pages 249—257)

The municipal authorities have organized in San Francisco an architectural competition with a view to "renovating" the Golden Gateway district. Several architects and general contracting companies were invited to submit plans, estimates and any other material concerning the general reorganization of the district. This competition in September 1959 placed 18 hectares at the disposal of the contestants. Only 6.5 hectares could be built over. 2,200 dwellings were to be provided, as well as 1300 parking places and 116,000 sq. m. of office space. The jury had to take into consideration the following most important points:

1. Quality of the architecture itself, its adaptation to the surroundings, with regard to landscape, traffic, etc.
2. Effective disposition of the different zones: traffic, parking, pedestrians, recreation facilities and shopping centers.
3. Quality of the individual dwellings.

These were the main factors considered by the jury. A second phase of critical study comprised the following aspects:

4. Rentals, selling prices and ground rents.
5. Estimates of real estate prices.
6. Experience and qualifications of the contractors.

The aim of the competition was to buy up fragmented sites, to reconcentrate them under state auspices and to proceed in this way to a healthy and logical reorganization plan, the various lots in the overall plan subsequently being resold at will to private owners. The advantages of such a procedure are obvious.

1. Improvement of the traffic situation for the benefit of the entire public.
2. Ideal planning of sites.
3. Higher returns on private capital invested.
4. Higher taxes to the benefit of the city.

The legal basis for this procedure is laid down in the housing act of 1949. At the outset this law was envisaged to apply especially to slum districts. The city buys "slums" at the going market prices, renovates them and then resells them. The principle is simple, relatively cheap and effective.

The city of San Francisco then went on to extend this principle not only to "slums" but also to new districts, thus giving city dwellers the chance to find a really livable apartment or house. It has been discovered in the USA that the exodus from the large cities has been bad for the general development of the entire urban area. The sociological structure had to be maintained in one way or another in order to safeguard the economic bases of the life of the city, hence the necessity of a stabilization policy. As a general rule, it could be said that San Francisco has succeeded perfectly in resolving a problem which had up to now been regarded as an extremely arduous one.

The projects published in this issue demonstrate the quality and the method, and it is only to be hoped that this "urban adventure" will have its imitators elsewhere. The members of the jury were: Mario Ciampi, Louis Kahn, Morris Ketchum, L. Anderson, Henry Churchill and Minoru Yamasaki. The Wurster plan is in the lead mainly owing to the overwhelming fame of the contractor Perini; moreover, all the conditions of the competition are more than met in this high quality project. It should be pointed out that the creation of planning teams is necessary to resolve problems on such a vast scale.

Italian Silver

Or: Experiment as Principle

(pages 258—259)

The American silversmiths Reed and Barton commissioned Gio Ponti to select 10 Italian architects and designers to participate in a silver competition (i. e., table service of metal or wood). This American firm organized this competition with the collaboration of Italian creators for two principal reasons:

On the one hand, Italian artistic predominance has never been so "alive" as at the present time. On the other hand, the best industrial designers are Italians, whether professional architects or specialized industrial designers.

It is a fact that nowhere else do we find as many architects who concern themselves with the erection of buildings and with interior decoration concurrently. This is especially true in booming Northern Italy, and is due probably to its industrial prosperity. We are thinking in particular of the Milan area.

This special "decorative" activity possesses the great advantage of being clear, rational and spirited. Genuine good taste is here the order of the day. The foreign observer still has a certain difficulty trying to keep up with Italian experiments. The playful spirit of Italian creators is not always taken seriously from the start. Many things appear to be trial projects with no real application, and yet for all that not at all ridiculous. Italian creators are attaining a level of perfection that is absolutely unique and, as it were, intellectual. A balance between the rational and the emotional is often achieved producing a "functional" impression which is almost unparalleled.