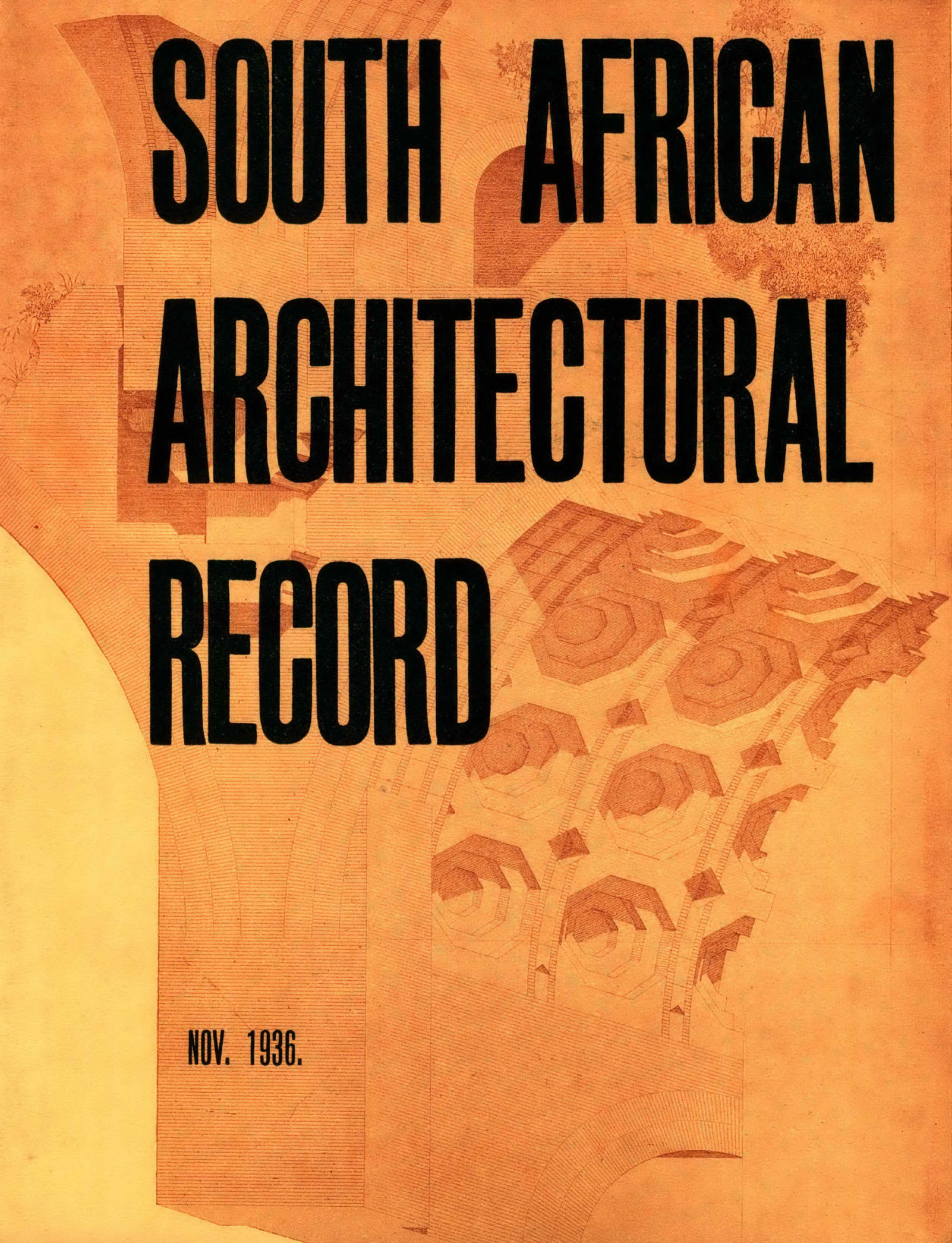
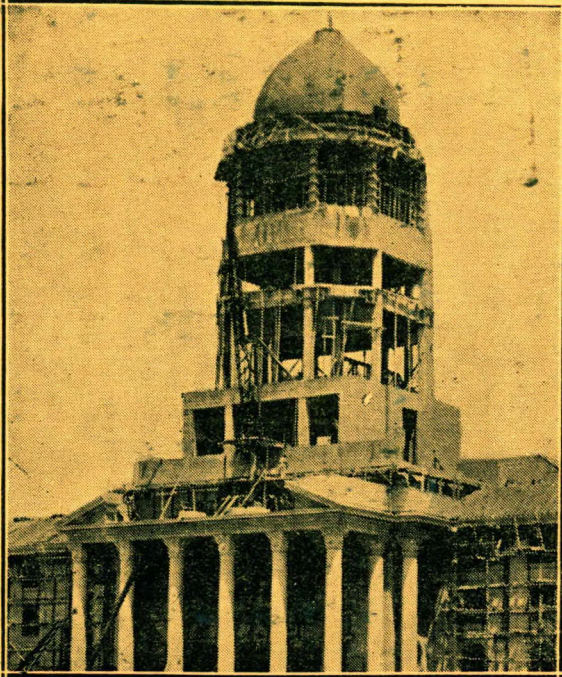


SOUTH AFRICAN ARCHITECTURAL RECORD

The background of the cover features a detailed, monochromatic architectural illustration in shades of orange and brown. It depicts a complex, stepped structure, possibly a terraced building or a large-scale urban plan, with numerous rectangular and hexagonal forms, creating a sense of depth and geometric complexity.

NOV. 1936.



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ARCHITECTURE AND THE NEW AESTHETIC

By NORMAN HANSON

The universal acceptance of a new order of things is an interesting and informative process. It should be generally realised that this is no conscious process, but more an acceptance by habit become instinct. The propagandists of political changes have developed in this modern world a system beyond belief, subtle but effectively insidious. At least in most cases well adapted to the particular people to whom it is addressed. It is a propaganda that has for its method a not always flattering view of humanity, nor does it rely on the better instincts. On the contrary, the fear and inertia reactions of man often form the basis of a coerced acquiescence.

Now in dealing with the place of aesthetics in contemporary life, the important factor of inertia must not be underestimated. Too often the strength of an emerging universal law is dissipated in an effort to convert those not susceptible to ideas but only to the accomplished physical fact. Nor, however, is this latter category to be ignored in the process of change, as it forms, in fact, the bulk of humanity. It is on the ultimate acceptance, whether by instinct or understanding, of this great majority that the practical value of all significant theorising should be judged.

It is manifest, moreover, that all effort directed towards a new aesthetic, whether it be in painting, sculpture or in architecture, should spring from the instinctive awareness of the contemporary in the artists concerned. The response to their research shall be found, first, in the youth of the artists' generation; next, in a deep-rooted absorption by the intellectuals, and, ultimately, by repeated demonstration in the general mass of people. It is this demonstration that forms an essential element in the work of all great artists. I do not believe that this work has ever been blind in the case of the great initiators. It is the deliberate and conscious working up a great and unanswerable case, demonstrated with a conviction and a certainty that sweeps aside all doubt and hesitation. It has invariably in its make-up a simplicity of logical construction, which, for the given conditions, is irrefutable.

We have, therefore, the picture of the artist formulating by divine instinct, shall we say, a new system of aesthetic judgment and understanding. A system, moreover, which must automatically be absorbed into the public consciousness—become accepted, sociologically necessary and inevitable, almost a colossal platitude in its implications. This view has, I think, especial significance in the contemporary world. We have heard it maintained that the new architectural endeavour is dependent

Opposite. The Lion
Gateway Mycenae

upon individual and arbitrary patronage or upon occasional opportunities from official sources—a close parallel, in fact, to the renaissance system. Were external conditions in this world in any way analogous to those of the renaissance, this opinion might hold, but no similarity exists—rather a profound contrast. Architects, therefore, might well act on the quite opposite assumption—that their opportunity can come only from organised or collective sources, representing wide and fundamental interests. After all, architecture of the renaissance, for the most part, expressed clearly enough the limitations of a secular or an ecclesiastical patronage. Our problems are now both wider and more complex, have, indeed, a profound political significance. And it is on these complexities that a new aesthetic has been founded. Here, inevitably, material considerations form the initial structure. The widest mechanical resources are thrown open to the designer—an unprecedented field for structural research. It is not surprising, then, that there is a disposition on the part of hasty critics to state flatly that contemporary architecture is “ugly” in its starkness, in its lack of recognisable forms, round which sentiment has built so many associations. That sentiment is a false one—it has neither validity nor meaning. There is, I shall not deny, a certain inscrutability in the greatest modern conceptions, but this is a quality shared with all significant works of art. The basic forms are digested but slowly, yet the process is inevitable. The shaping of those forms is the function of the artist, and it is that shaping that initiates a new age. The necessity for breaking down the barriers of habit and inertia can be made manifest by the artist. Propaganda in his weapon—unceasing repetition of the simple, unanswerable and fundamental arguments which give reason and value to his work.

There are those, again, who will concede to contemporary work a degree of truth of expression—a certain crude statement of new materials, with their novel potentialities and their rather violent divergence from the traditional resources. That concession is tempered by a downright accusation of so-called “striving for effect,” or a “craving for the novel,” or merely “trying to be different”—the presumption being that a traditional “dressing” on what is really the very useful modern structure would achieve a happy compromise. Now, where the contemporary architectural vocabulary is vulgarised and degraded into a meaningless and meretricious conglomeration, this criticism would not only be valid, but possess even the merit of being an accurate analysis of a deplorable abuse. But where these phrases are applied to the work of the great architectural thinkers of the age, a complete lack of adjustment and understanding is exposed. This maladjustment is a highly dangerous and potent factor in the struggle for recognition by present-day artists, while their work, perhaps

because of its essential propagandist element, is doubly open to the invariably scurrilous or malicious attacks of the "level-headed practitioners" of architecture. But the methods of the latter are no more than obstructionist, and the inevitable appearance in their work of this or that superficial detail culled from the product of a greater mind is an amazing comment on the depth of their arguments. Yet it would be folly to ignore the widespread influence of this attitude—widespread because it does not penetrate beyond the superficialities while making to the uninitiated the easy appeal of the novel. Sincerity, however, is the distinguishing mark of creative research, and is accompanied, invariably, by a notable perseverance and tenacity of purpose. Consistent progress towards an objective, visible, perhaps, only to the artist, is evidence of a great formative process. The contemporary aesthetic has its mainspring in architecture, and a translation or interpretation of the basic formulæ in that art will elucidate the complexities of the painting, sculpture and music of this age.

The broad aims within his art of the present-day artist differs in no way from those of his predecessors. What has changed is the scope and direction of his work. Universal social significance is now lent to his efforts, and the application of his research penetrates into every sphere of life—economic, sociological, spiritual and physical alike—a background, in fact, to living. His influence is subtle but widespread, contested and retarded but, nevertheless, inevitably effective. It is not surprising that this great work is limited, in its initial stages, to the few. The fact is that the forces of the contemporary movement are to-day concentrated in one man. Others, perhaps, have pre-dated him in a realisation of the dawning new age, but the change itself has been given force and direction and universality by him alone. He has broadened the architectural scope from the particular to the general, has seized upon spasmodic and isolated research to build up not an architecture alone, but life itself. The aesthetic created by Le Corbusier—I refer to the great Swiss master—has found an extraordinary reaction in the younger generation. Experience in teaching has shown that where architectural training before led to an almost completely artificial absorption of a sadly misinterpreted past and a drearily monotonous present, now there is immediately discernable in the student a spontaneous and enthusiastic reaction to the contemporary aesthetic. It is more than that—it is a triumphant demonstration of the rightness inherent in the aims and conclusions of the new architecture. Le Corbusier, moreover, has related with magnificent vision the elements of his architectural research with the wider problem of the city. One cannot dissociate in his work, the isolated solution from the organic whole, and in this lies his supreme achievement. When

organised industry gives, as a right, to humanity the unlimited energies at its command, then we shall witness the vindication (if that is needed) of Le Corbusier's colossal research and experiment.

Here, then, we have, in the well-defined and comprehensive vocabulary of Le Corbusier's architecture, the very foundations of a new age in the history of art. For the first time an intelligible sequence is given to the seemingly divergent and contradictory movements in recent art development, and we may now sift the significant from the merely interesting or bizarre. Painting, sculpture, literature and music will surely achieve an equal consciousness of the underlying universality and comprehensiveness in the scope of contemporary architecture. The artists' task is, then, indicated and defined. Direction has been given, the objective clearly marked. An art thus conditioned and formalised should reach great emotional heights. The limitations set are less than those of preceding ages. Right selection, then, a disciplined restraint, and a constant contemporary awareness formulate an aesthetic credo, to which every great art endeavour must hold.



Vue d'un redent avec
l'autostrade surélevée
et un croisement.



Vue d'avion d'un secteur du quartier d'habitation de la "**VILLE RADIEUSE**," avec piscine, école, stade, auto-port, auto-route, parcs et plages de soleil.

The Model of La "Ville Radieuse" published by permission of M. Le Corbusier



Le 23 Sept., 1936.

C'est très touchant de parcourir vos cahiers "The South African Architectural Record." Tout d'abord parce qu'on s'émerveille de trouver quelque chose de si vif dans cette pointe lointaine d'Afrique, au delà des forêts équatoriales. Mais surtout parce qu'on y découvre tant de foi juvénile, de tendresse pour l'architecture et le désir fervent d'atteindre à une philosophie des choses.

Je suis heureux de trouver dans vos cahiers d'architecture des allusions directes à la peinture, à la statuaire. J'aime aussi vous sentir déférent à l'égard de l'oeuvre de Mies van der Rohe qui, dans l'ensemble des recherches présentes, accuse fortement son goût pour la beauté.

Je crois qu'on ne mesure pas encore assez que le monde entier est en totale refonte, fondamentalement—qu'une nouvelle civilisation est née, que rien du passé ne peut servir à l'exprimer, que tout doit être neuf, c'est-à-dire expressif d'un nouvel état de conscience. L'étude du passé peut être féconde, si l'on quitte les enseignements académiques, si l'on étend sa curiosité, à travers le temps et l'espace, à des civilisations triomphantes ou modestes qui ont purement exprimé la sensibilité humaine. L'architecture doit être arrachée à la "planche à dessin," elle doit siéger dans le cœur et dans la tête.

Dans le cœur, avant tout, preuve d'amour. Aimer ce qui est juste et ce qui est sensible, inventif, varié. La raison est un guide, rien de plus.

Comment enrichir ses puissances de création? Non pas en s'abonnant à des revues d'architecture, mais en partant en découvertes dans le domaine insondable des richesses de la nature. Là est vraiment la leçon d'architecture: la grâce d'abord! Oui, cette souplesse, cette exactitude, cette indiscutable réalité des combinaisons, des engendrement harmonieux, dont la nature offre le spectacle en chaque chose. Du dedans au dehors: la perfection sereine. Plantes, animaux, arbres, sites, mers, plaines ou montagnes. Même, la parfaite harmonie des catastrophes naturelles, des cataclysmes géologiques, etc. . . . Ouvrir les yeux! Sortir de l'étroitesse des débats professionnels. Se donner si passionnément à l'étude de la raison des choses que l'architecture s'en trouve devenir spontanément la conséquence.

Briser les "écoles" (l'école "Corbu" au même titre que l'école Vignole—je vous en supplie!). Pas de formules, pas de "trucs," pas de tours de mains. Nous sommes au début de la découverte architecturale des temps modernes. Que de toutes

parts surgissent des propositions fraîches. Dans cent ans, nous pourrions parler d'un "style." Il n'en faut pas aujourd'hui, mais seulement du style, c'est-à-dire de la tenue morale dans toute oeuvre créée, véritablement créée.

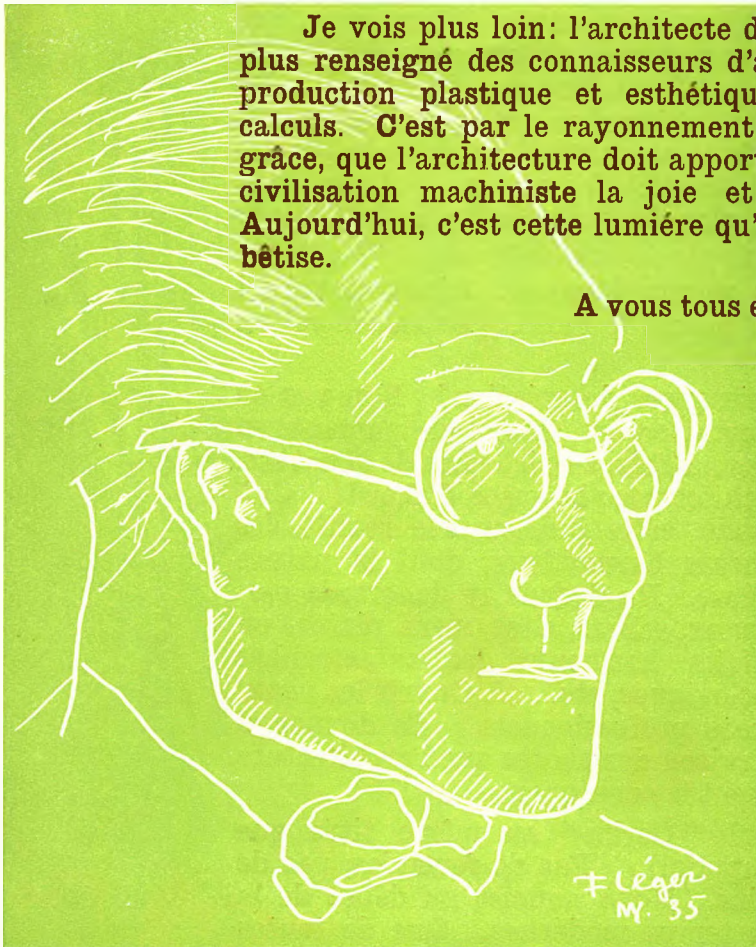
Je voudrais que les architectes—non pas seulement les étudiants—prennent leur crayon pour dessiner une plante, une feuille, exprimer l'esprit d'un arbre, l'harmonie d'un coquillage, la formation des nuages, le jeu si riche des vagues qui s'étalent sur le sable et montrer les expressions successives d'une force intérieure. Que la main (avec la tête derrière) se passionne à cette immense découverte.

Je voudrais que les architectes deviennent l'élite même de la société—les gens les plus riches spirituellement (et non les plus indigents, les plus plats, les plus étroits), qu'ils soient ouverts à toutes choses (et non pas fermés comme des épiciers dans leur spécialité). L'architecture, c'est une tournure d'esprit et non pas un métier.

Je vois plus loin: l'architecte devrait être le plus sensible, le plus renseigné des connaisseurs d'art. Il devrait juger de la production plastique et esthétique mieux encore que de ses calculs. C'est par le rayonnement spirituel, par le sourire et la grâce, que l'architecture doit apporter aux hommes de la nouvelle civilisation machiniste la joie et non pas une stricte utilité. Aujourd'hui, c'est cette lumière qu'il faut allumer. Et chasser la bêtise.

A vous tous en bonne fraternité,

LE CORBUSIER.



Le Corbusier by
Fernand Léger

my dear Mr. Corbusier,

September 23, 1936.

I was very touched to read through your copies of "The South African Architectural Record." In the first place because it is amazing to find something so alive in that far away spot in Africa, beyond the equatorial forests. But especially because there exists there youthful conviction, feeling for architecture and a great desire to attain to a philosophy in these things.

I am glad to find direct reference to painting and sculpture in your architectural journal. I also like your deep regard for the work of Mies van der Rohe, who in the body of present-day research shows clearly his feeling for the beautiful.

I believe that we do not yet realise sufficiently that the whole world is in a state of flux—that a new civilisation is in the making, that nothing of the past can express it, and that everything must be new, that is to say, expressive of a new state of awareness. The study of the past can be fruitful if academic dogma is rejected and if the imagination is extended through time and space to those dominant or modest civilisations which have expressed human sensibility at its purest. Architecture must be torn from the drawing board, it must emanate from the heart and from the head.

From the heart, above all, a proof of love. To love what is true, and what is sensitive, creative, varied. The intellect is a guide, nothing more.

How to increase these powers of creation? Not by subscribing to architectural reviews, but by setting forth to discover the rich and boundless realms of nature. There, indeed, is the lesson for architecture: grace first! Yes, that plasticity, that precision, that indisputable truth in relationships, that harmonious production which nature demonstrates everywhere. From within to without: calm perfection. Plants, animals, trees, sites, oceans, plains, mountains. The perfect fitness, indeed, of natural upheavals or geological cataclysms, etc. Use your eyes! Get away from the pettiness of professional wrangles. Devote yourselves so entirely to the study of the first causes that architecture becomes a spontaneous expression of them.

Stamp out the schools (the "Corbu" school just as much as the Vignola!). No formulæ, no stunts, no sleight of hand. We are at the threshold of the architectural discovery of modern times. On every side new ideas surge forward. In a hundred years we can speak of a "style." To-day we should not: but merely of style, that is to say the moral attitude towards all creative work, truly creative.

I should like architects—not only students—to take up their pencils and draw a plant, a leaf, to express the spirit of a tree, the harmony of a shell, the formation of clouds, the rich play of waves spreading over the sand, and to show the successive expressions of a latent force. Thus the hand guided by the intellect would respond passionately to this vast discovery.

I should like architects to become the inspiring factor in society—the richest people spiritually (and not the most poverty-stricken, the dullest, the narrowest) that they may be open to all ideas (and not shut in like grocers with their special lines). Architecture is a projection of the mind and not a trade.

I see further: the architect ought to be the most sensitive and the best informed of those concerned with art. He should be more competent in judging plastic and aesthetic productions than in making his own calculations. It is by radiance of the spirit, by smiling grace, that architecture must bring to the men of the new machine age joyousness and not strict utility. To-day it is the flame that must be kindled to drive out stupidity.

To you all in good fellowship.

LE CORBUSIER.

The extent to which construction has controlled architectural expression has not always been fully appreciated, and it is my intention to illustrate how architecture has been limited by the principles of construction available at particular periods.

Architecture has often been defined as construction with artistic motive—the placing of one stone upon another does not imply that a work of art results—but architectural expression can result from the placing of one stone upon another.

Architecture has long been considered to consist of a series of so-called styles—each civilisation having its own style—each style a watertight compartment with no interdependent relationship—these compartments providing a never ending source of inspiration to be dipped into at will with no real understanding—sometimes one is unlucky, but one is still within the walls of the majority. It is only unlucky for architecture and posterity.

“Design” must not be divorced from “construction.” Architecture is ever developing—not restricted within a limited compartment, but rather takes the form of an ever rising flight of steps in which the elementary principles of structure are just as necessary as the first steps of the flight.

Principles of structure must always control the form of architecture. By form is meant the arrangement of the individual components of the building to give the best results, both practically and aesthetically. Before architecture in its true shape can be enjoyed, these controlling forces must be understood.

A means of arranging various material components must be provided to give a satisfactory whole, and at the same time to produce sufficient stability in the completed structure. It is these material components and these principles of arrangement which have limited architecture and which I wish to analyse.

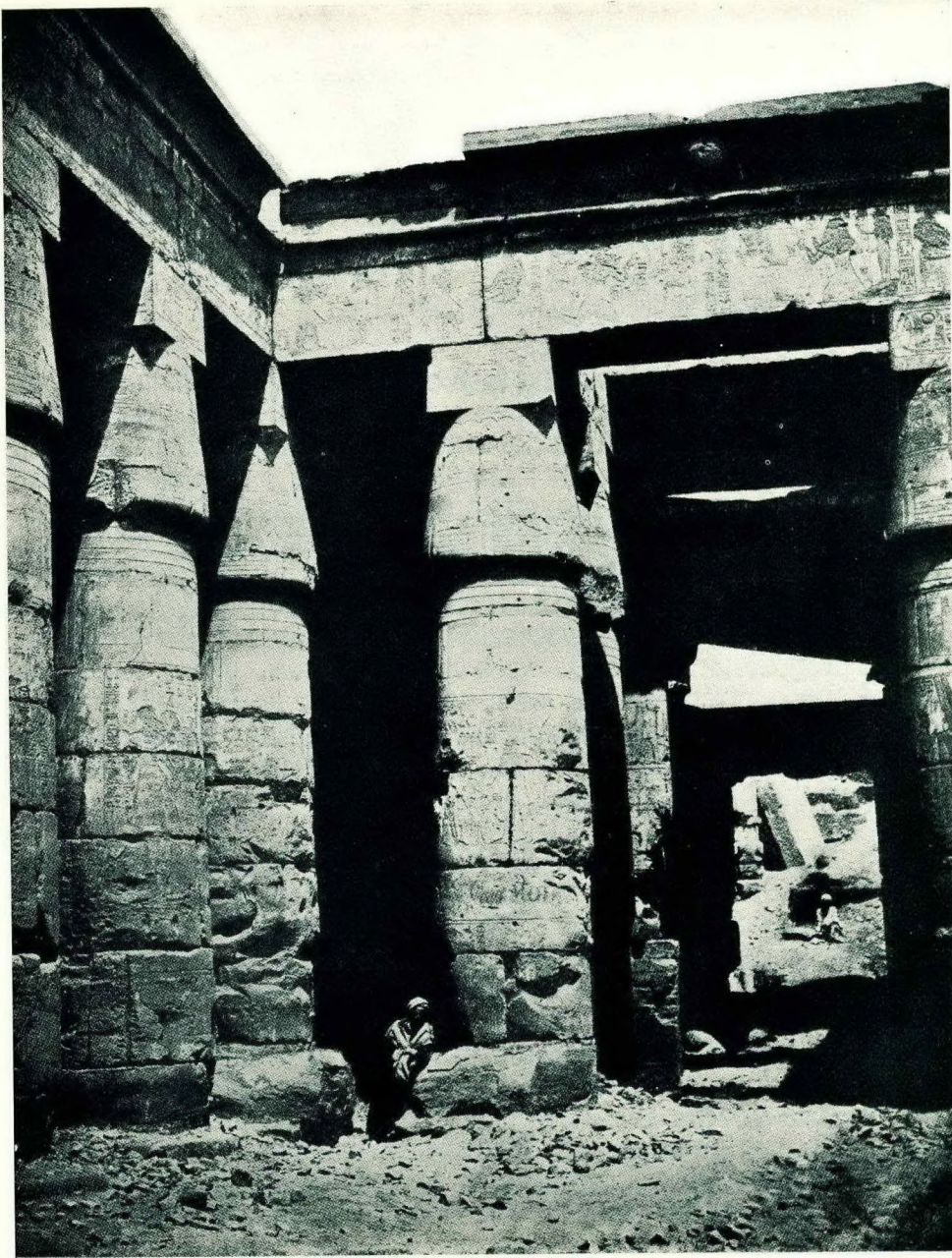
We must have materials with which to build—to arrange structurally.

Building materials at our disposal fall under two main heads:—

1. Those of natural character such as wood, stone, etc.
2. Those of artificial character obtained from natural raw materials—iron, steel, brick, concrete, etc.

In these simple materials we find our primary limiting factors—firstly, their quality and strength; secondly, their available sizes; thirdly, their resistance to the natural breaking-down forces of nature.

In what way do these characteristics limit our structure?

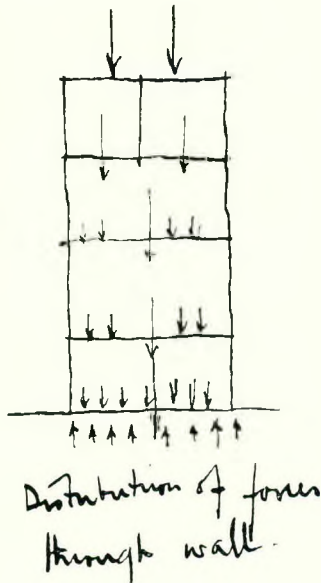


Temple at Karnak

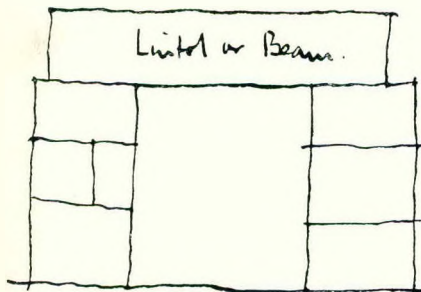
• Egypt

Note.—This is the first of a series of three articles in which Mr. McIntosh discusses the basic principles of structure. In the second paper he will deal with the development of reinforced concrete, and finally with the advanced employment of steel and concrete in essential problems of to-day.

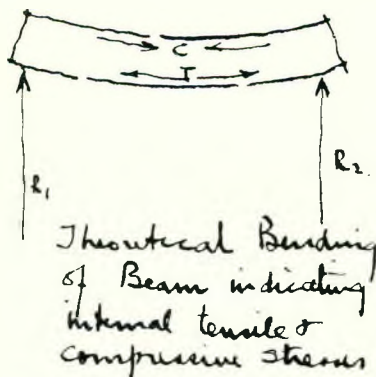
The most elementary process of building is the placing of one member upon another, i.e., placing one stone upon another. For this to be effective the group must be stable. It must be in equilibrium. The structure must resist displacement of any of its parts. In this process the weight of one stone is transmitted to the stone immediately below it, and so throughout the structure. Thus the lowest member supports all those above it. The height to which this elementary process can be continued is dependent directly on the quality and strength of the material—the size of the material is not here effective.



The next step in building is the placing of one member upon two upright members to form an opening. This process involves structural principles which are more complex. In the first step of building the material was subjected merely to a simple load which was transmitted from one member to the next, this increasing load tending to compress the material, thus setting up simple internal resisting stresses within the material. In the second step there is a tendency for the member to bend, and this tendency is increased not only by any additional loading it has to carry, but in proportion to the distance it has to span. Here, then, the size of the opening which can be spanned is limited by the capacity of the material to resist this bending as well as the size of the material obtainable—for in this process the spanning member must be in one piece.



To what degree can a material resist bending? Let us analyse briefly the forces which are set up within a member subjected to bending. The effect of a load upon a member (or beam) spanning an opening is to cause it to deflect or sag. This deflecting causes the upper fibres to shorten or compress and the lower fibres to stretch. So long as the resistance of the fibres to shortening or compression and to stretching or tension is greater than the tendency of the load to disrupt them, the beam will support the load. Without going further into the theory of bending, it can be seen that the upper fibres will be subject to compression and the lower fibres to tension. These internal forces of tension and compression form a couple which resist the bending of the beam, and the moment of this couple is known as the moment of resistance of the beam.



A member (or beam) spanning an opening tends to bend—this bending causes internal tensile and compressive forces—therefore the strength of the beam is dependent on its capacity to resist bending, and this capacity to resist bending is dependent on its resistance to the simple forces of tension and compression. Here, therefore, our building is dependent on the strength of the material used.

The following schedule illustrates the varying capacities of materials to resist these forces:—

Material	W	T	C	T/C
Granite	170	150	1,200	.125
Limestone	160	125	800	.16
Sandstone	150	75	700	.11
Brick in lime	115	20	100	.2
Brick in cement	125	30	150	.2
Concrete 1:2:4	150	60	600	.1
Cast iron	449	3,000	16,000	.18
Steel	489	16,000	16,000	1.0
Douglas fir	32	800	1,200	.67
Oak	48	1,200	1,400	.86

W=Weight in lbs. per cubic foot.

T=Tensile strength in lbs. per square inch.

C=Compressive strength in lbs. per square inch.

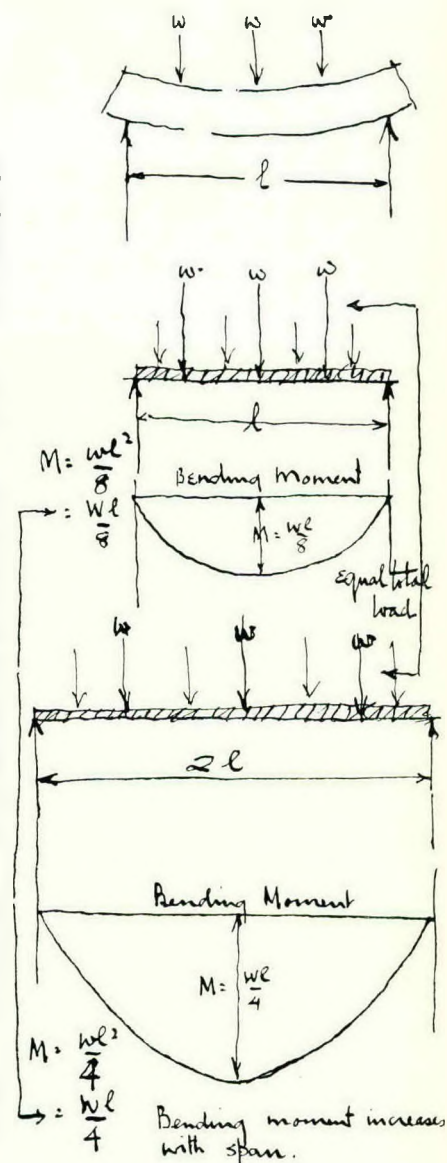
In comparing the values in the schedule it will be seen that in the case of stone the tensile strength is between one-eighth and one-tenth the compressive strength; in the case of concrete and brickwork from one-fifth to one-tenth; in woods from two-thirds to seven-eighths, and in the case of cast iron one-fifth, whereas in steel the values are equal.

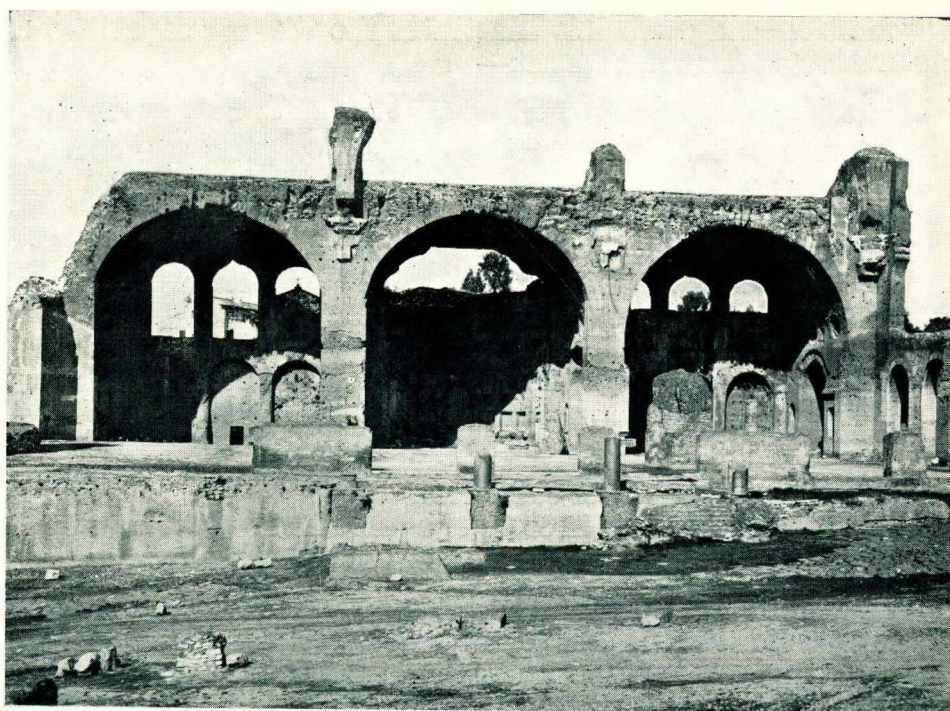
The natural materials effectively resist compression, but few are capable of resisting tension to any great degree, and are therefore unsuitable for use where bending occurs.

Where stone is used as a building material the structure is heavy (the material itself is heavy)—the walls will be comparatively thick—the height is limited by the compressive strength of the stone. This is great; therefore the height can be great if so desired. The width of an opening is limited by the size of stone available to span the opening and also by its resistance to tensile forces due to bending: both these factors are limited, but the height is not, whence openings tend to become comparatively narrow and high. This same theory applies to the spacing of columns supporting beams or roofs. These limiting factors are clearly illustrated in Egyptian and Greek architecture—both architectures in stone.

Where wood is used, a light flexible structure is obtained with minimum wall thickness and comparatively large spans—i.e., large unencumbered rooms, large window or door areas if need be, as illustrated in the architecture of Japan. Here the principles of frame-construction have been applied.

Brick can only be used for walls—where an opening is required, stone or wood is necessary in the form of a lintel to span the opening.





Basilica of Constantine

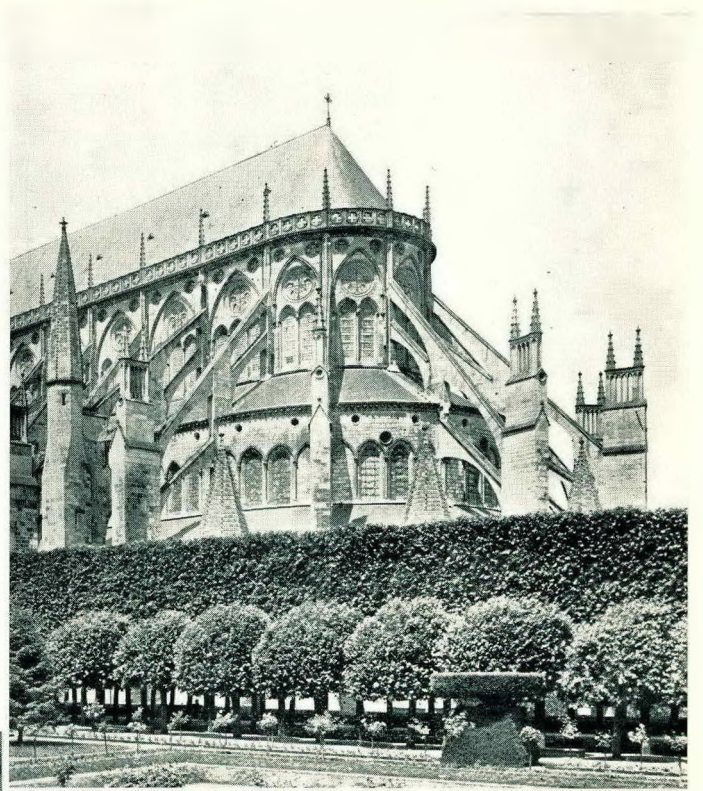
• Rome

The principle of spanning openings by means of an arch was developed by the Romans to its limits. An arch is an arrangement of wedge-shaped blocks of stone or other material, generally along a curved line, placed in such a way that they resist the load by a balancing of thrusts and counter-thrusts.

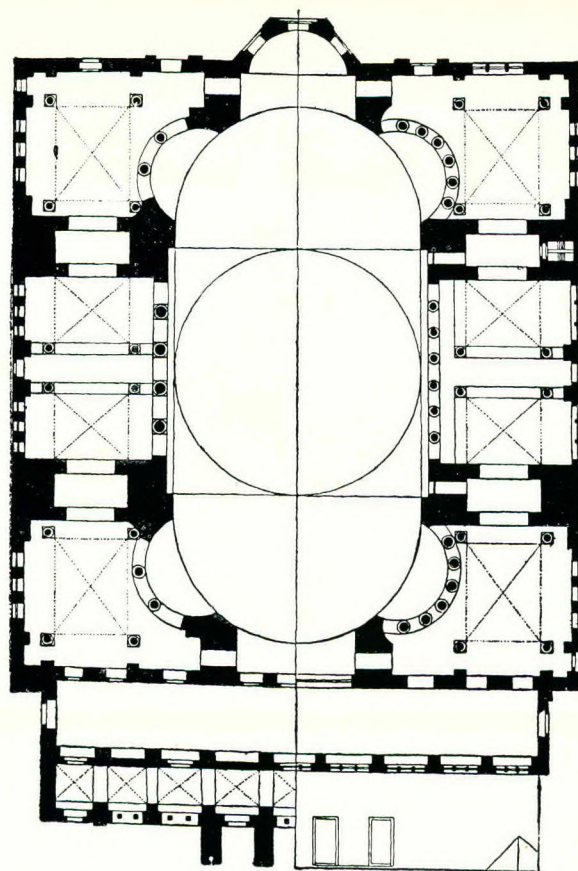
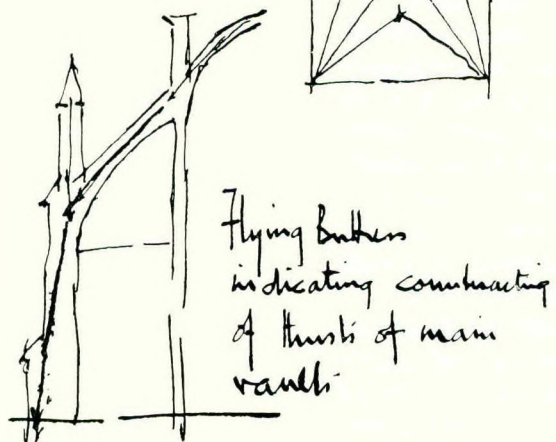
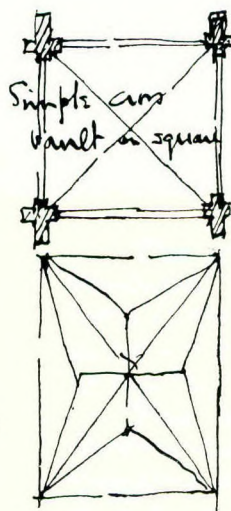
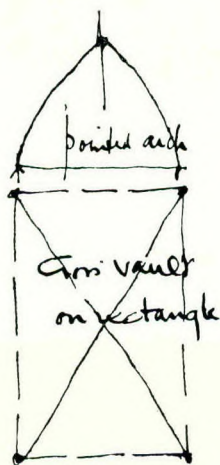
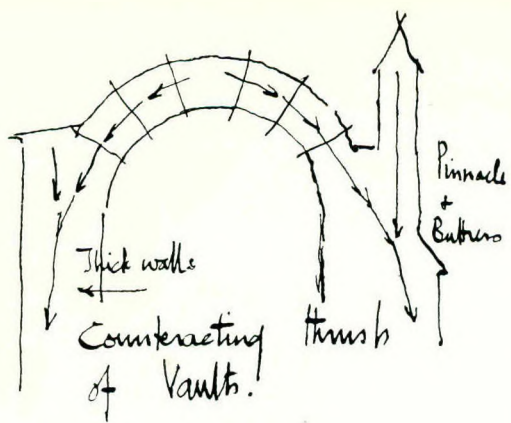
This arch system was the third basic development in construction. The mechanical principles involved in the spanning of an opening by an arch are very much more complex than those of the lintel. The chief advantages of this system are, firstly, that the arch could be built up with a series of comparatively small blocks; secondly, that the resulting forces transmitted to these blocks are all of a simple nature—compression; tensile forces are eliminated, and therefore the natural strength of the material used to its full advantage.

The full significance of this system of construction was soon realised by the Romans. It was a system in which an opening could be increased to any desired width or height, the only limiting factor being the strength of the material used in compression. This arch system, applied as a series of abutting arches face to face, naturally developed into the barrel vaulted system suitable for covering compartments, and further, by intersecting these vaults, bays were formed in series, longitudinally and laterally, and where used in series the loads supported

Bourges Cathedral



Abbaye - Aux - Dames • Caen



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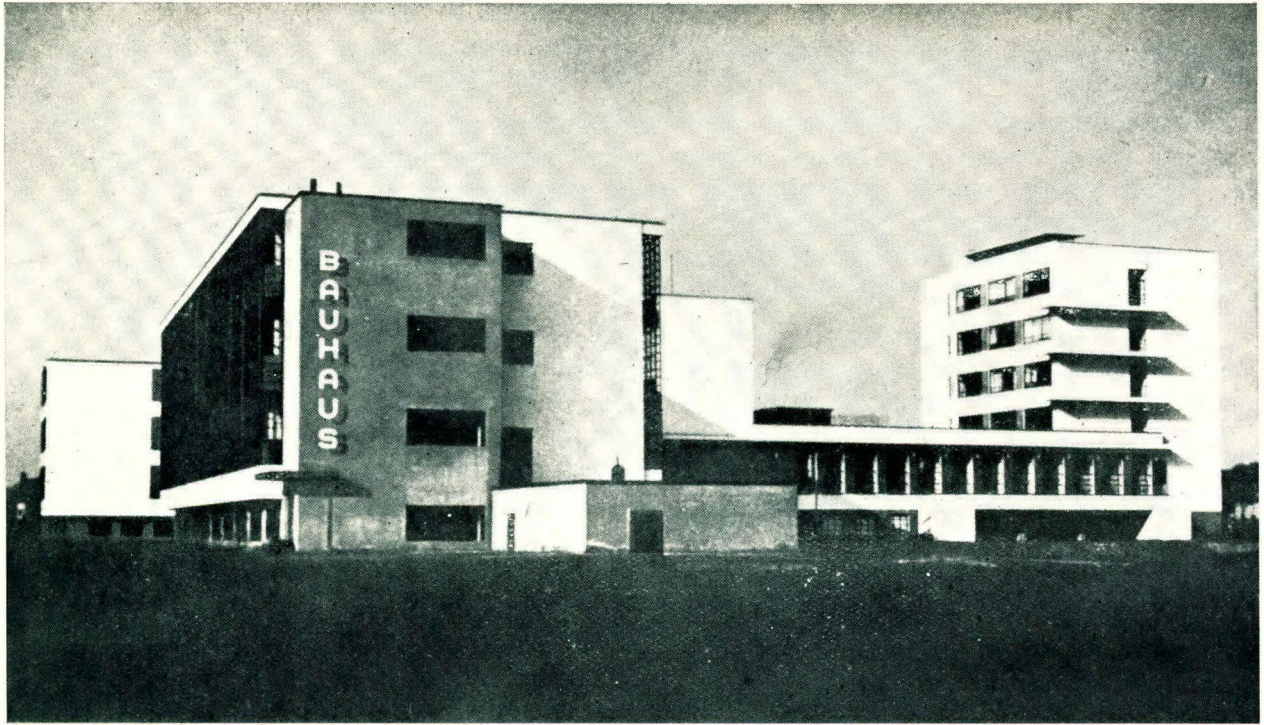
are concentrated at single points. The thrusts excited by these vaults counterbalanced one another except at the end spans, where buttresses were necessary to counteract these forces.

It was now possible to build up a structural system of arches and vaults which would give large uninterrupted and unencumbered areas, easily roofed in, with all loads concentrated at definite but distant points, a framework of piers and vaults, the exterior arches being filled in with comparatively thin walls, pierced with openings for ventilation and light.

The simplicity and dignity of such a system is illustrated in its basic form in the Roman aqueduct and in its more complex forms in the Baths of Caracalla and the Basilica of Constantine. This system was further developed in the form of domes over circular compartments. In the Eastern Empire, by the introduction of the pendentive, the dome could be applied to a square compartment. In the accompanying illustration of Santa Sophia, note the simple arrangement of points of support, arches to carry the dome, buttresses to counteract the thrust, a complex system mechanically, but at the same time simple and effective structurally.

From the tenth century onwards the arch was further developed by the building up of a light balanced framework of small members. The structural system became lighter, more efficient, the use of materials extended to their fullest capacity. The simple quadripartite vault developed naturally into the sex-partite and lierne vault, resulting in an arrangement of ribs and light infilling. Flying buttresses counteracted the oblique thrusts of the groups of vaulting ribs. Note here again the great height in comparison with the short spans of the vaults. The earlier difficulties of vaulting a rectangular compartment were overcome by the introduction of the pointed arch which eliminated the stilted and domical types of vault. The arrangement of the vaulting ribs was further extended, but the structural forms were lost and the fine arch rib became a means of providing freak structures as illustrated in stellar and fan vaulting of the Tudor period.

True structure now became divorced from architecture and artificial arrangements of structure were adopted—structure became a skeleton upon which to hang so-called architecture. Revivals of earlier periods grew up during the sixteenth and seventeenth centuries, but no new structural principles were developed until the nineteenth century, when, with the development of the use of iron and steel, a new era in building commenced in which these materials were employed to form a basis for architectural treatment. With these new materials there developed new and complex structural principles in which our present systems of steel and reinforced concrete originated.



The Bauhaus

Dessau

On the following pages we reprint, by special permission of Professor Walter Gropius, excerpts from his recently published book *The New Architecture and the Bauhaus* (Faber & Faber, London.)

THE NEW ARCHITECTURE AND THE BAUHAUS

By WALTER GROPIUS

Can the real nature and significance of the New Architecture be conveyed in words? If I am to attempt to answer this question it must needs be in the form of an analysis of my own work, my own thoughts and discoveries. I hope, therefore, that a short account of my personal evolution as an architect will enable the reader to discern its basic characteristics for himself.

A breach has been made with the past, which allows us to envisage a new aspect of architecture corresponding to the technical civilisation of the age we live in; the morphology of dead styles has been destroyed; and we are returning to honesty of thought and feeling. The general public, formerly profoundly indifferent to everything to do with building, has been shaken out of its torpor; personal interest in architecture as something that concerns every one of us in our daily lives has been very widely aroused; and the broad lines of its future development are already clearly discernible. It is now becoming widely recognised that although the outward forms of the New Architecture differ fundamentally in an organic sense from those of the old, they are not the personal whims of a handful of architects avid for innovation at all cost, but simply the inevitable logical product of the intellectual, social and technical conditions of our age. A quarter of a century's earnest and pregnant struggle preceded their eventual emergence.

But the development of the New Architecture encountered serious obstacles at a very early stage of its development. Conflicting theories and the dogmas enunciated in architects' personal manifestos all helped to confuse the main issue. Technical difficulties were accentuated by the general economic decline that followed the war. Worst of all, "modern" architecture became fashionable in several countries, with the result that formalistic imitation and snobbery distorted the fundamental truth and simplicity on which this renaissance was based.

That is why the movement must be purged from within if its original aims are to be saved from the strait-jacket of materialism and false slogans inspired by plagiarism or misconception. Catch phrases like "functionalism" (*die neue Sachlichkeit*) and "fitness for purpose beauty" have had the effect of deflecting appreciation of the New Architecture into external channels or making it purely one-sided. This is reflected in a very general ignorance of the true motives of its founders: an ignorance that impels superficial minds, who do not perceive that the New Architecture is a bridge uniting opposite poles of thought, to relegate it to a single circumscribed province of design.

For instance rationalisation, which many people imagine to be its cardinal principle, is really only its purifying agency. The liberation of architecture from a welter of ornament, the emphasis on its structural functions, and the concentration on concise and economical solutions, represent the purely material side of that formalising process on which the practical value of the New Architecture depends. The other, the aesthetic satisfaction of the human soul, is just as important as the material. Both find their counterpart in that unity which is life itself. What is far more important than this structural economy and its functional emphasis is the intellectual achievement which has made possible a new spatial vision. For whereas building is merely a matter of methods and materials, architecture implies the mastery of space.

For the last century the transition from manual to machine production has so preoccupied humanity that, instead of pressing forward to tackle the new problems of design postulated by this unprecedented transformation, we have remained content to borrow our styles from antiquity and perpetuate historical prototypes in decoration.

That state of affairs is over at last. A new conception of building, based on realities, has emerged; and with it has come a new conception of space. These changes, and the superior technical resources we can now command as a direct result of them, are embodied in the very different appearance of the already numerous examples of the **New Architecture**.

Just think of all that modern technique has contributed to this decisive phase in the renaissance of architecture, and the rapidity of its development!

Our fresh technical resources have furthered the disintegration of solid masses of masonry into slender piers, with consequent far-reaching economies in bulk, space, weight and haulage. New synthetic substances—steel, concrete, glass—are actively superseding the traditional raw materials of construction. Their rigidity and molecular density have made it possible to erect wide-spanned and all but transparent structures, for which the skill of previous ages was manifestly inadequate. This enormous saving in structural volume was an architectural revolution in itself.

One of the outstanding achievements of the new constructional technique has been the abolition of the separating function of the wall. Instead of making the walls the element of support, as in a brick-built house, our new space-saving construction transfers the whole load of the structure to a steel or concrete framework. Thus the role of the walls becomes restricted to that of mere screens stretched between the upright columns of this framework to keep out rain, cold and noise. In order to save weight and bulk still further, these non-supporting and now merely partitioning walls are made of light-weight pumice-concrete, breeze, or other reliable synthetic materials, in the form of hollow blocks or thin slabs. Systematic technical improvement in steel and concrete, and nicer and nicer calculation of their tensile and compressive strengths, are steadily reducing the area occupied by supporting members. This, in turn, naturally leads to a progressively bolder (i.e., wider) opening up of the wall surfaces, which allows rooms to be much better lit. It is, therefore, only logical that the old type of window—a hole that had to be hollowed out of the full thickness of a supporting wall—should be giving place more and more to the continuous horizontal casement, sub-divided by thin steel mullions, characteristic of the **New Architecture**. And as a direct result of the growing preponderance of voids over solids, glass is assuming an ever greater structural importance. Its sparkling insubstantiality, and the way it seems to float between wall and wall imponderably as the air, adds a note of gaiety to our modern homes.

STANDARDISATION.

The elementary impulse of all national economy proceeds from the desire to meet the needs of the community at less cost and effort by the improvement of its productive organisations. This has led progressively to mechanisation, specialised division of labour, and rationalisation: seemingly irrevocable steps in industrial evolution which have the same implications for building as for every other branch of organised production. Were mechanisation an end in itself it would be an unmitigated calamity, robbing life of half its fulness and variety by stunting men and women into sub-human, robot-like automatons. (Here we touch the deeper causality of the dogged resistance of the old civilisation of handicrafts to the new world-order of the machine.) But in the last resort mechanisation can have only one object: to abolish the

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