THE ARCHITECTURAL REVIEW VOLUME CXI NUMBER 666 JUNE 1952 FIVE SHILLINGS

A TALE OF 22 LIFTS

7 PASSENGER 15 SERVICE

Architects: Clyde Young & Bernard Engle, F/F.R.I.B.A., New Square, W.C.2

Contractors: R. Parr (Builders) Ltd., Finchley Road, N.W.3

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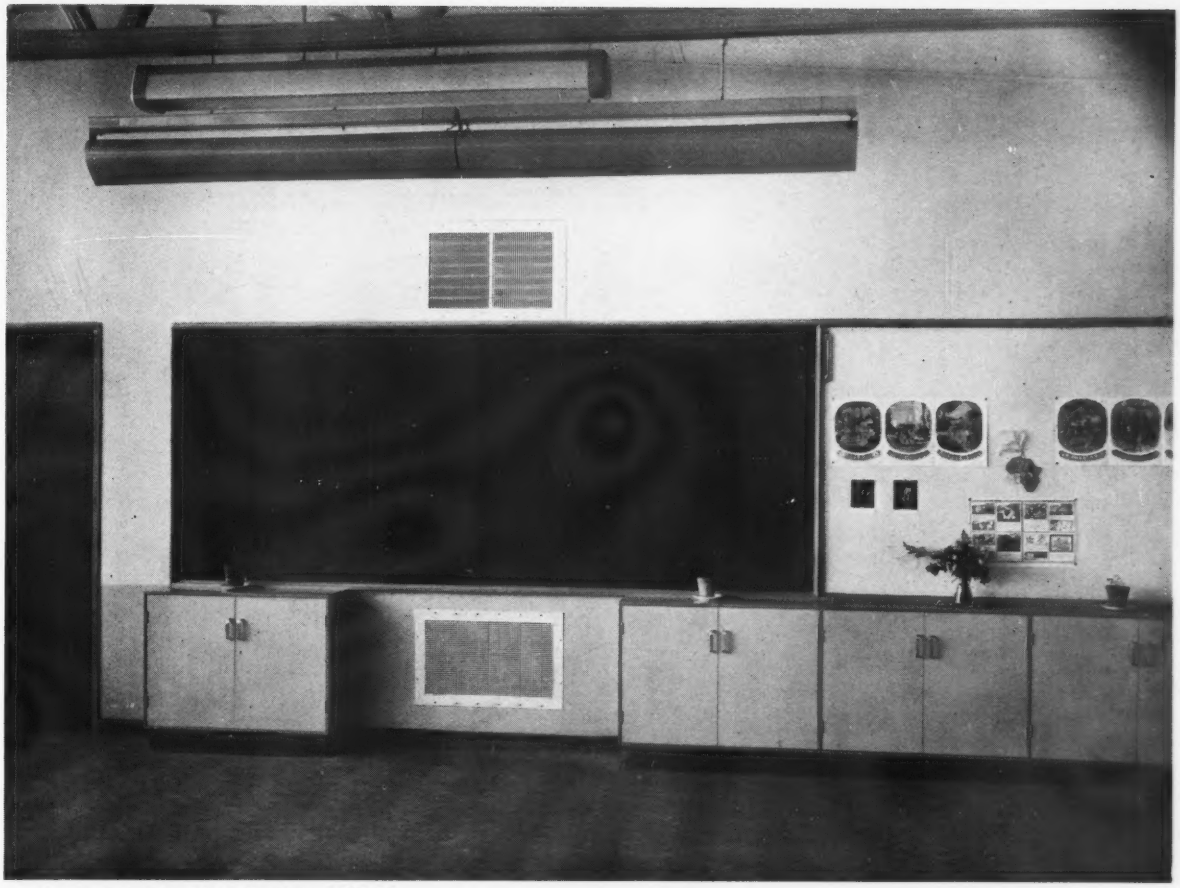

Architect: D. E. E. Gibson, M.A., A.R.I.B.A., A.M.T.P.I.

Among the more recent developments in school heating are the invisible embedded floor heating system and the warm air convection system employing "packaged" heating units as illustrated in this picture.

An interesting example of the former is the new installation at the Barclay School, Stevenage, where automatically controlled oil-fired boiler plant serves the requirements of an embedded floor heating system, the usual hot water supply requirements and some warm air inlet mechanical ventilation plant.

The warm air convection system, as shown in this picture of a typical classroom at the Sir Henry Parkes School, Coventry is particularly appropriate to school buildings which conform to a certain type of layout. The unit is factory made and consists of a heater battery circulating fan and casing. It is usually installed in a cupboard between the classroom and the corridor.

The units are thus conveniently placed for connections to the distributing mains which are frequently carried in corridor ducts or sub-ceilings and, as the picture illustrates, the only visible parts are the low level recirculating and high level inlet grilles.

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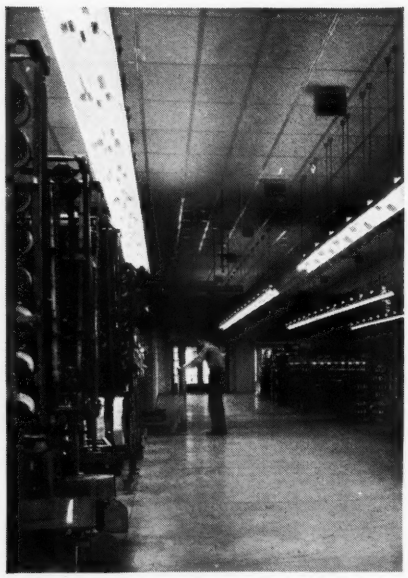

In the ring-doubler section of the Brocklehurst Yarns factory near Cardiff, the continuous rows of ATLAS FE/0081 lighting units are protected by the "Miracoat" finish against the moist atmosphere prevalent in Spinning Rooms.

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A multiple installation at the Banker's Clearing House, London. The unusual single-rod suspension fittings carry ATLAS FM/2080 fluorescent units. *Contractors: Messrs. Grierson, Ltd.*

(Upper Left)
The entrance lounge of the new Tavistock Hotel in London. The lighting fitting, one of three, is the ATLAS E49/5.
Contractors: Messrs. Thorne Howell Ltd.

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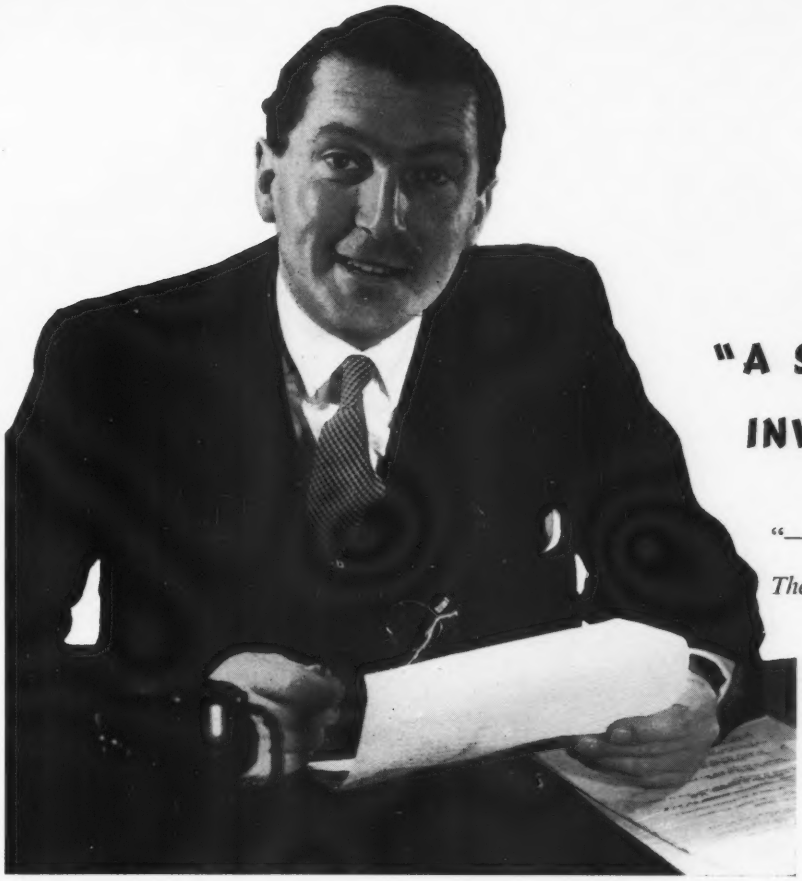

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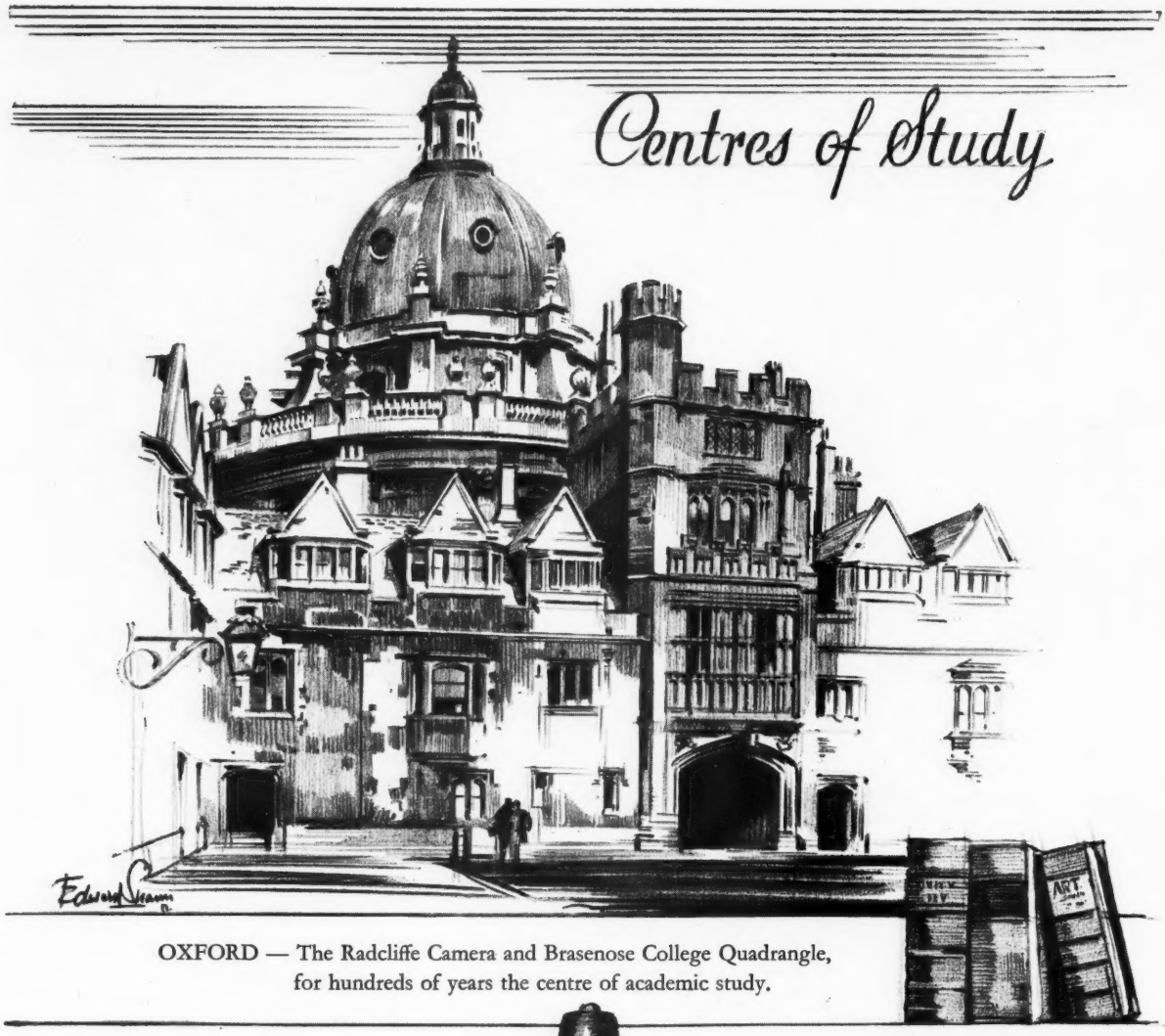
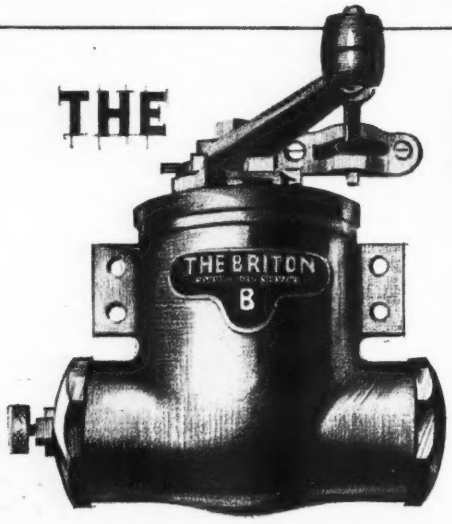


OXFORD — The Radcliffe Camera and Brasenose College Quadrangle, for hundreds of years the centre of academic study.



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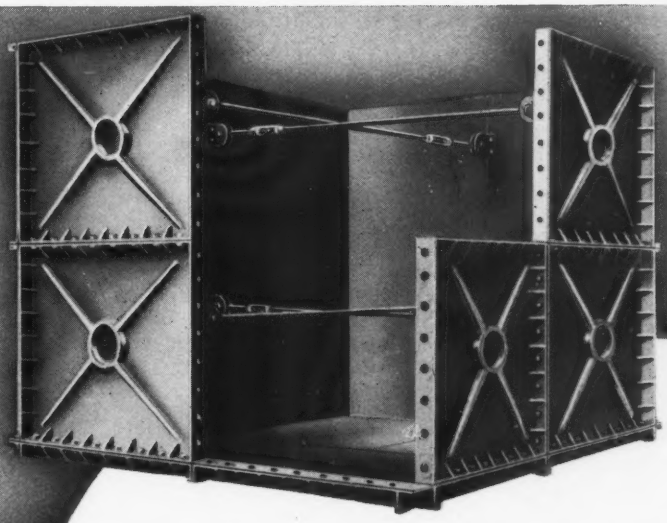

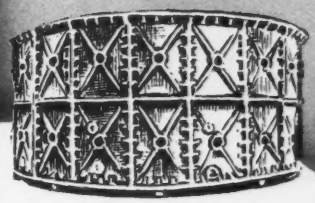

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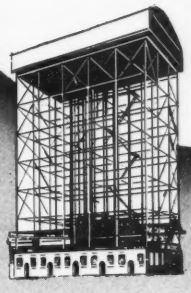

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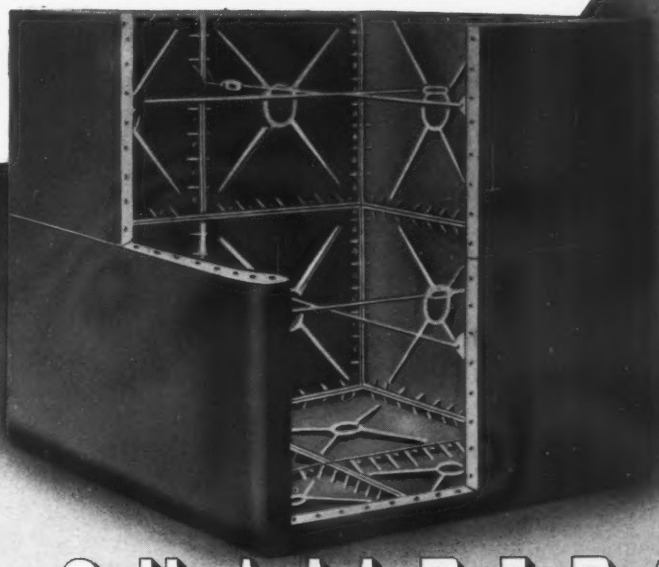

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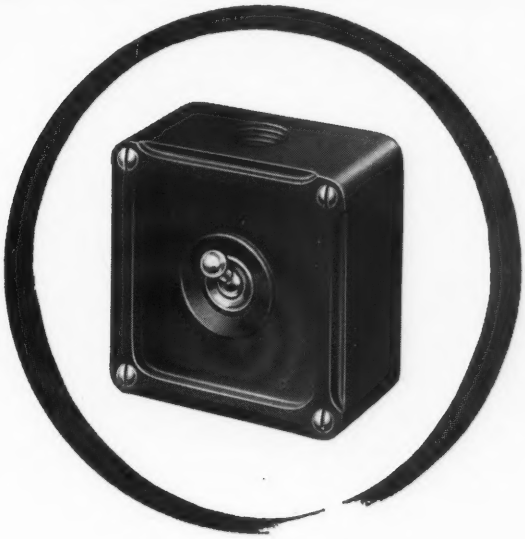

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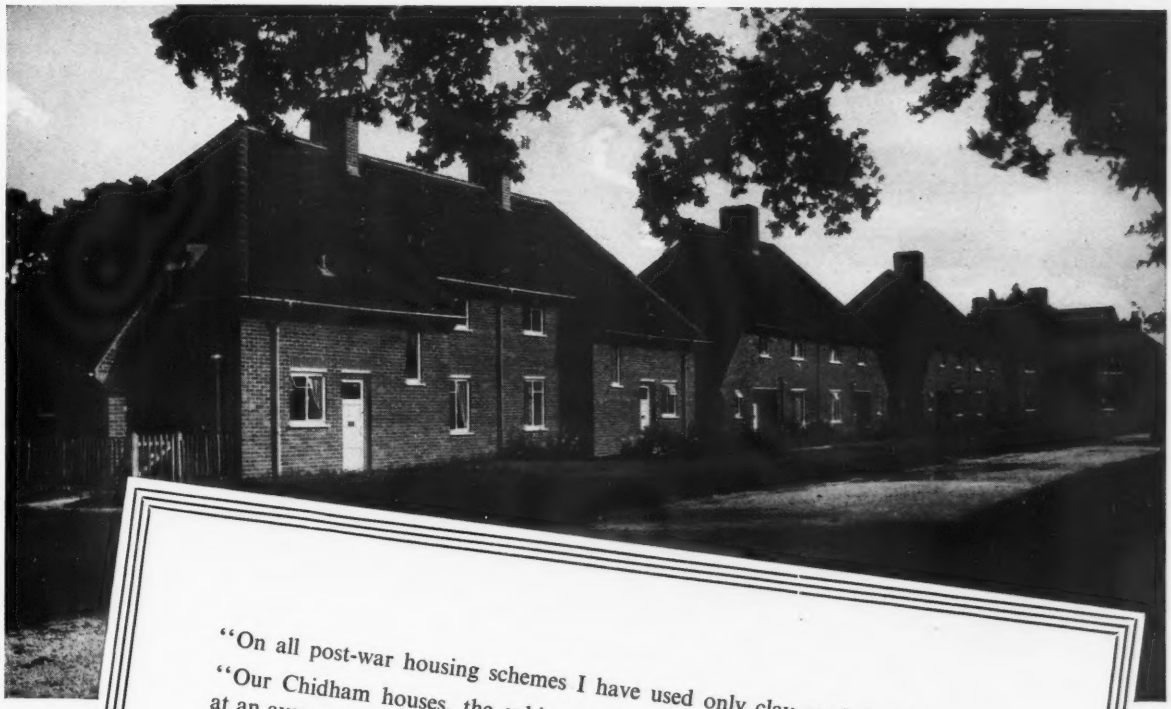

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Extract from a letter received from Mr. J. K. Lawson, F.R.I.C.S., A.M.I.S.E., Engineer and Surveyor, Rural District Council, Chichester.

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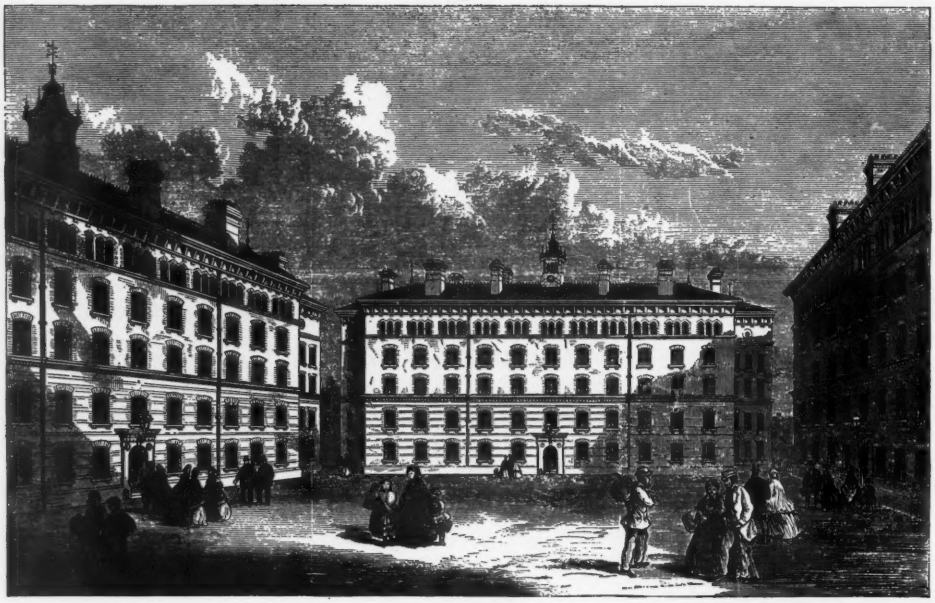

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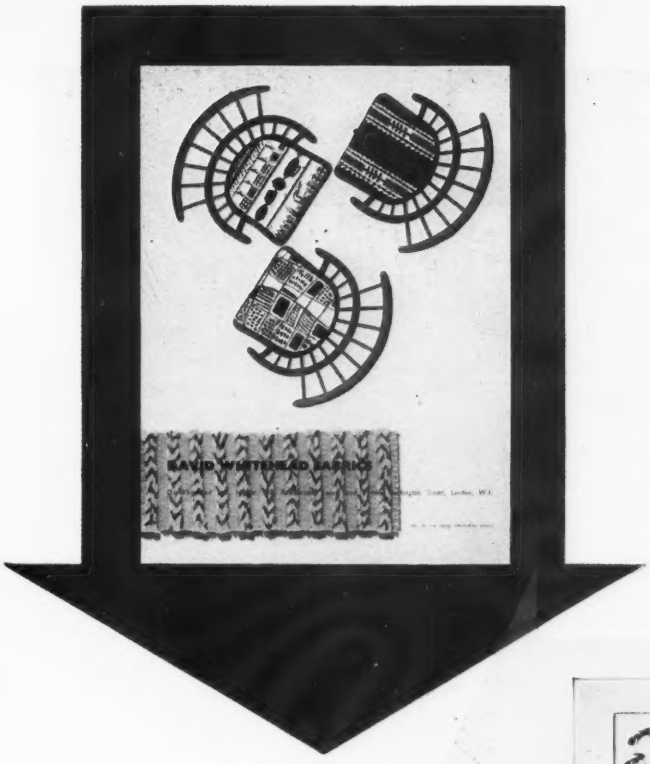

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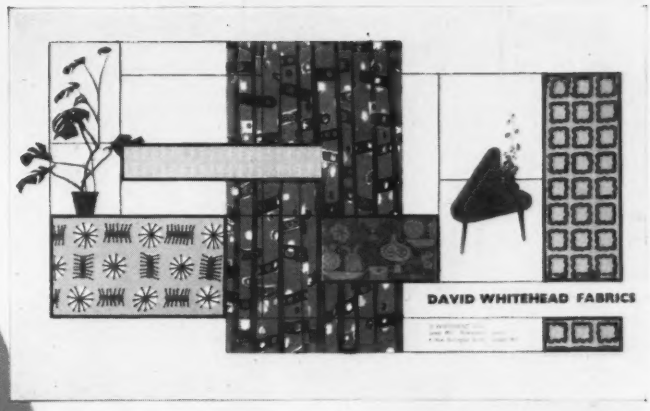

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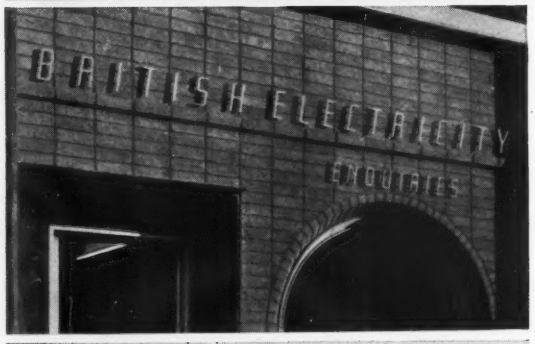

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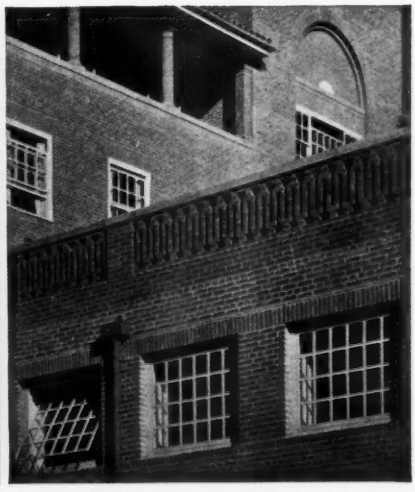

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Bar-Form Metal Partitions

Main illustration. Bar-Form Partitions, Northern Ireland Fever Hospital, Purdysburn, Nr. Belfast.
Architects: Young & MacKenzie, F.R.I.B.A.

Inset. Block of Offices, Liverpool.
Architects: Quiggin & Gee, F/F.R.I.B.A.

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The photograph shows a section of the roads recently completed by the Yiewsley and West Drayton U.D.C. on the Philpots Farm Housing Estate, West Drayton. The roads were constructed by *stabilising the naturally occurring brick earth and hoggin* to a depth of 6″ with 10% by weight of cement, employing the "mix-in-place" method. The soil-cement, surface dressed with tar and shingle, will carry all the builders' traffic. The method is both speedy and economical, 12,000 square yards having been completed in 15 working days at an approximate cost of 7/- per square yard. Kerbs and a 1″ gravel asphalt carpet will be added upon completion of the building operations. Observe the SISALKRAFT Prefabricated Curing Blankets used throughout for the curing and protection of these roads.

Photograph by kind permission of the Yiewsley and West Drayton U.D.C. (Engineer, Surveyor and Architect, W. T. Morgan, F.R.I.C.S., M.I.Mun.E., L.R.I.B.A.), Town Hall, West Drayton, Middlesex.

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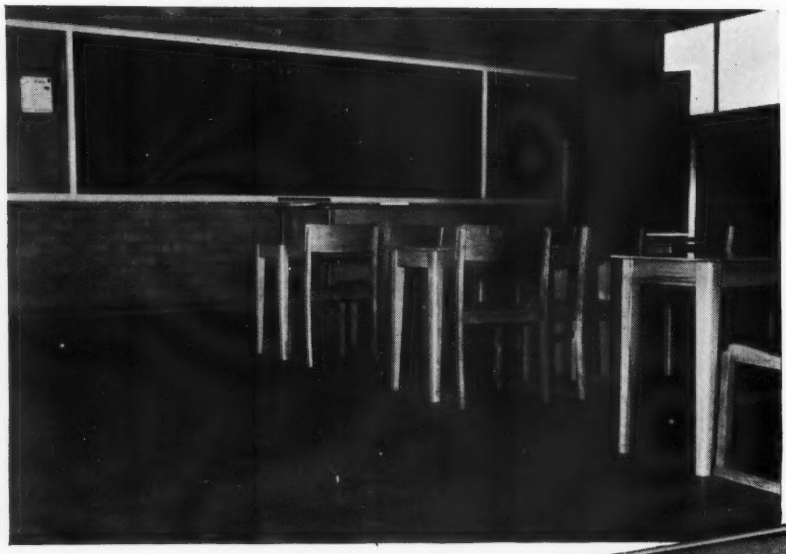
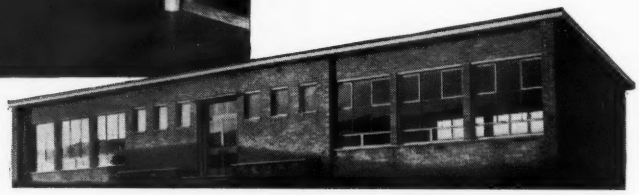


THE HENGIST SCHEME

for providing additional school accommodation in the West Riding has involved a rush building programme; all materials used had to be readily available. Accotile, specified by Mr. Hubert Bennett, F.R.I.B.A., West Riding County Architect, for flooring the sixty buildings in the scheme, was chosen primarily because it was readily available, and because for special reasons (see below) the cost of installation was remarkably low — but it has proved more successful than old-fashioned alternatives. Picture shows the Hengist annex at Mansel Crescent Infants' School, Parson's Cross, Sheffield.



VERSATILE NEW MATERIAL SOLVES FLOORING PROBLEM

One of the most urgent tasks confronting public authorities in the post-war years has been the provision of new school accommodation. In the West Riding of Yorkshire, population rise has so far outstripped the regular building programme that an emergency scheme has been put into operation for enlarging the present schools. Sixty annexes of standard design (see illustration) are being built in the grounds of existing schools, mostly comprising two classrooms, cloakroom and sanitary accommodation, in order to meet the emergency.

Owing to the urgency of the work, only readily available materials could be specified. At the same time, the budget would not permit luxuries.

Choosing a floor

One problem of great importance has been flooring. A floor had to be found that was at once durable, readily available, and not too expensive.

The material chosen by Mr. Hubert Bennett, F.R.I.B.A., the county architect, was "Accotile," the asphalt tile flooring made by the Armstrong Cork Company—firstly, because it is readily obtainable, and secondly, because Accotile, with its damp-resisting qualities, can be laid direct on to screeded concrete without the necessity of a damp-course—hence the installation is much lower in cost than for most floors.

Accotile provides the flooring for the classrooms and vestibules of every building in the Hengist Scheme.

Qualities of Accotile

Accotile is a composition of inert, asbestos fibres and ground rock fillers, fadeless mineral pigment and asphalt or resin-binders. It provides an extremely durable floor (floors laid in this country in 1938 and 1939 are still giving excellent service) that has a strong resistance to alkaline moisture. Accotile remains non-slip under all conditions, which makes it particularly suitable for schools and institutions.

There are almost unlimited possibilities of design for Accotile, and it can be laid to harmonize with existing decorations. Inconvenience is cut down to a minimum, since Accotile can be used as soon as it is laid.

Standard Accotile is cleaned by washing with water, and can be polished when desired. It is resistant to stains and dilute acids. Where conditions make it advisable, a special Grease Resisting Accotile is recommended.

Accotile is available in two sizes of tile (12″ x 12″ and 9″ x 9″); in two thicknesses ($\frac{1}{8}$″ x $\frac{3}{16}$″); and in 19 different colours. In addition, Accotile Coved Skirting, supplied in 36″ lengths, obviates the need for timber; and, as there are no corners for dust to collect in, it provides a hygienic, as well as decorative, finish to the room.

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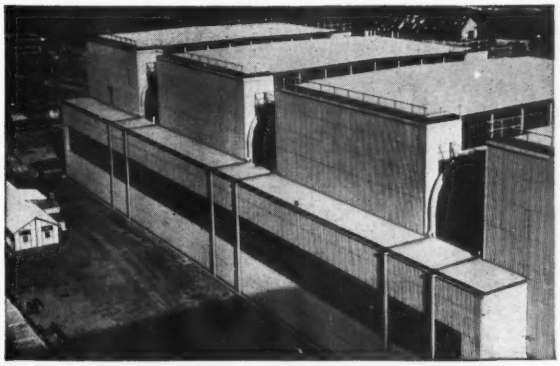

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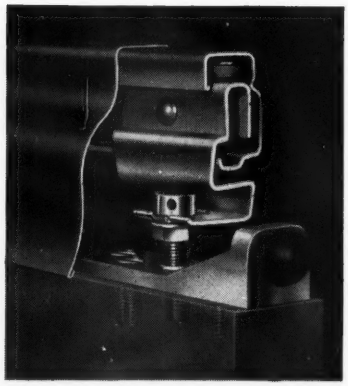

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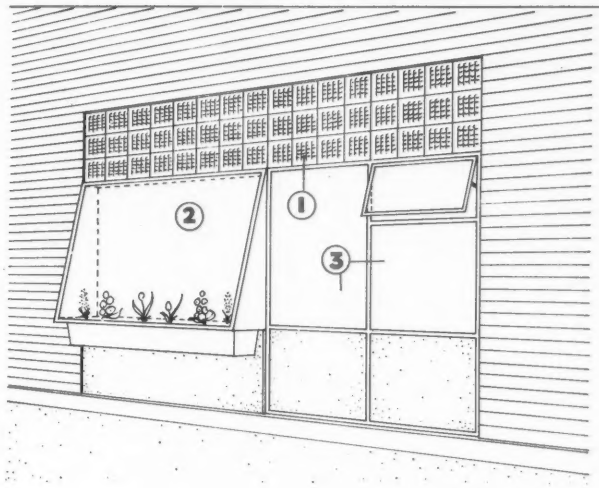

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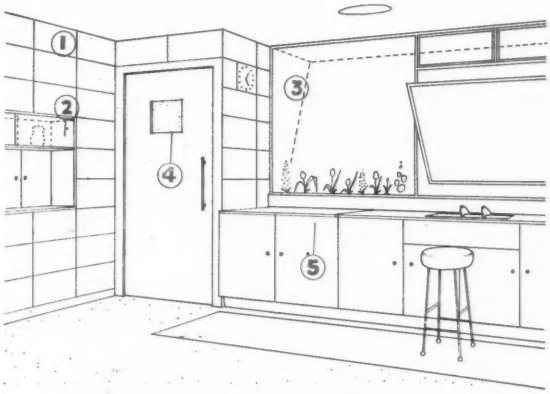

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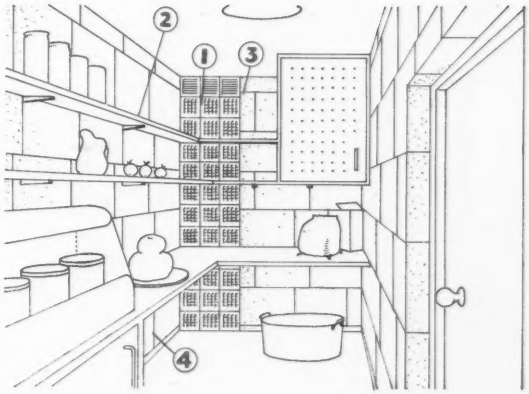

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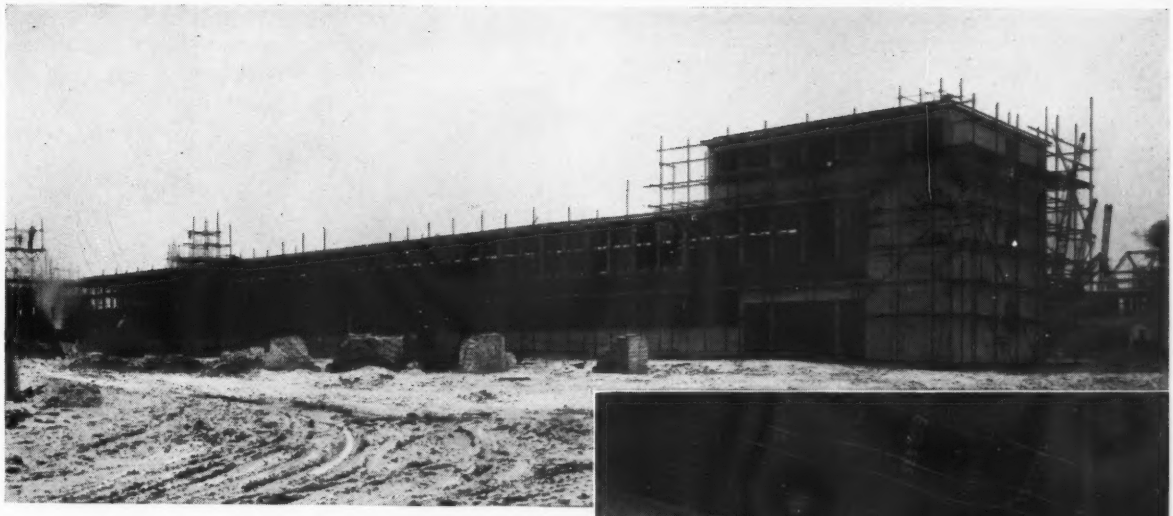

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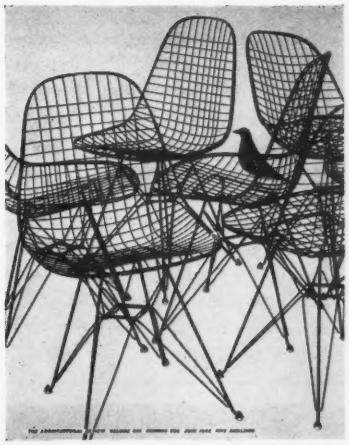

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The Authors *Richard Llewelyn Davies* Director and Architect for the Nuffield Investigation into the Functions and Design of Hospitals. Training: Cambridge Engineering degree 1933 and AA School. Private practice before the war in partnership with Peter Moro; later worked with Professor Holford on war-time factories, before joining the LMS railway as research and development architect, under Leslie Martin. Joined the Nuffield Investigation as architect in 1948, becoming director in 1950. Consultant architect to Hills (West Bromwich) 1948-49. *John Weeks*, born 1921. Education at Dulwich and AA School; Holloway Scholarship, 1941. After war service returned to AA for one year, then to LMS, working under Llewelyn Davies on unit construction for railway stations. For a year worked on preliminary studies for 3 feet 4 inches structural framework, also in collaboration with Llewelyn Davies, and joined the Nuffield Investigation into the Functions and Design of Hospitals, as Chief Assistant Architect, in 1950. *Kenneth G. Browne*, architect, born Exeter, Devon, 1917. Trained at Royal College of Art and AA School. Served in Royal Engineers during the war and spent 6 months as War Artist in North Africa. Returned to North Africa as member of 1949 Archæological Expedition to Leptis Magna and helped to reconstruct Triumphal Arch of Septimius Severus. Calculated altitude of doves as Chief Assistant Architect (Display) on 'The Lion and the Unicorn,' Festival of Britain, 1951. *Helen Rosenau*, born in Monte Carlo. Educated in Germany and France. Obtained PhD degree in Hamburg and in London. Held several fellowships, and at present is a lecturer in the History of Art Department of Manchester. Published work includes: *Der Kölner Dom*; *Design and Medieval Architecture*; *Woman in Art*; *The Painter J. L. David*; *A Short History of Jewish Art*. Is shortly to publish a book on Boullée.

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FIVE SHILLINGS

MANNERIST SPACE *often has a nightmarish quality. In painting, scenes are so crowded with figures in tortuous attitudes that one feels there is not enough air for them to breathe in, and rooms are kept low or narrow or they are encumbered by columns. Another way to achieve the sense of unreality which is so characteristic of Mannerism is to design excessively long and relatively low rooms. Here lies one of the æsthetic reasons of the universally favoured Long Galleries in France and England. In Italy this Mannerist conceit is seen to perfection in Vasari's courtyard of the Uffizi, left, with its distant loggia towards the river. But the most poignant example is a room which was never built, the catacombs of Alexandria in Tintoretto's Miracle of the Finding of the Body of St. Mark. Mr. Eric Newton in his recent book on Tintoretto denies emphatically that Tintoretto was a Mannerist. The essay on the following pages is an attempt at proving him to have been the greatest of the Late Mannerists. Another eminently Mannerist quality which comes out in the Miracle of St. Mark, below, is the deliberately confused telling of the story. The saint appears to call out to the men further back that they have found his body. A sick man is healed by the very miracle. A blind man sees again. A corpse lies on the ground ready to be substituted for the saint. And the donor kneels incongruously in the midst of this confusion. But all this is only apparently the content of the picture. Its real content is the suction into the giddily receding space of the wind tunnel and the far-away blazing light.*

Nikolaus Pevsner

TINTORETTO AND MANNERISM

'Tintoretto baffles the categorist. The High Renaissance in Italy was a perilous moment of perfection that could not be prolonged. Its later phases suffered from the symptoms of restlessness and ultimate decay that inevitably follow a moment of perfection; it could not develop, for perfection creates its own cul-de-sac. Until comparatively recently that period of restlessness had no name: it became necessary to invent the term "Mannerism" in order to fill the gap between the end of the High Renaissance and the recognizable emergence of Baroque art. It is a useful term, and Wölfflin, attempting to analyse the essential difference between High Renaissance and Baroque, might have focused his acute eye even more sharply on evidences of transition had it been available forty years ago.

'Nevertheless, it is a dangerous term. Art historians have not always resisted the temptation to apply the adjective "Mannerist" to any artist who fits conveniently into the uneasy period between the completion of Michelangelo's "Last Judgment" and the emergence of Rubens's mature style in painting or of Bernini's in sculpture. Tintoretto in particular has suffered by being thrust, rather recklessly, into the Mannerist category. What is more serious, art history has also suffered. When an artist of exceptional power and manifest genius is exhibited under a new generic label, his personal characteristics tend to be accepted as typical of the new genus. To call Tintoretto a Mannerist is to twist the meaning of the word so violently that it begins to require a new definition. The original concept, which so usefully fitted Vasari, Bronzino, Parmigiano, Pordenone and their like, will fit them no longer if Tintoretto is the arch-Mannerist.

'I am convinced that to think of Tintoretto as a Mannerist at all is both to misunderstand him and to deprive a useful term of much of its meaning. One purpose of this book is to rescue Tintoretto from the reckless categorist and to suggest that he, at least, managed to short-circuit straight from High Renaissance to Baroque: that he was unaffected—or only superficially affected—by that uneasy interlude through which lesser men found it necessary to pass: and that, as early as 1548, he was solving a set of problems that were not generally understood until the first decade of the seventeenth century.'

These paragraphs from the preface to Mr. Eric Newton's new book on Tintoretto[1] are a challenge, and a challenge which I hope it is not presumptuous to regard as extended quite particularly to myself. I consider it a privilege to take it up, as one Tintoretto enthusiast to another. I can, however, not claim to be what Mr. Newton would have to call the original sinner, but I find, in now looking back at the last thirty years, that I have indeed had a share in creating the misapplication of the term Mannerism of which Mr. Newton complains.

If I am not mistaken the history of the discovery of Mannerism as a positive style went like

[1] Longmans Green, 1952, 50s.

this: In 1919 Professor Weisbach could still write an article (*Zeitschrift für bildende Kunst, N.F.*, vol. 30) in which he treated as Mannerists exclusively those Tuscan followers of Michelangelo for whom the name was an established custom. In 1920 Dr. Hermann Voss brought out his standard work on the Florentine and Roman painters of the sixteenth century and called it *Die Malerei der Spätrenaissance in Rom und Florenz*. But in the same year 1920 Max Dvořák in Vienna gave his epoch-making lecture on *Greco and Mannerism* (October)[2] and in the winter 1920-21 his university course dealt with the art of Italy in the sixteenth century primarily in terms of Mannerism.[3] After that one of his pupils, Mrs. Fröhlich-Bume, could call her monograph on Parmigiano *Parmigianino and Mannerism* in 1921, and Julius von Schlosser, a man of as much vision as Dvořák and of greater caution, yet called a whole chapter of his classic volume on *Kunstliteratur* The Literature of Mannerism. That was in 1924.

One year later Professor Walter Friedlaender[4] established the character of that key moment about 1520, when, in the hands of Pontormo, Rosso and some others, High Renaissance turned into Mannerism, into 'the anti-classical style' as he named it. But meanwhile at Leipzig Wilhelm Pinder had lectured on the Italian Cinquecento in 1922-23. He, not I think influenced by Dvořák, did this also in terms of Mannerism, as a style of a positive character, which is neither Renaissance nor Baroque.[5] This started me off, and in 1925 in the same volume as Professor Friedlaender I published a paper on Mannerism and Counter-reformation.[6] Shortly after that appeared the parts dealing with 1520-90 in my book on *Italian Painting from the end of the High Renaissance to the decline of the Rococo*.[7] This was the first treatment of Italian painting of the period published as Mannerism, and is still one of the most detailed treatments. Here there is a chapter on Tintoretto trying to show that he is the greatest figure of Late Mannerism in Italy, as Pontormo, Rosso and Parmigiano had been the greatest Early Mannerists. The differences between Early and Late Mannerism are not neglected, but the affinities are considered more important.

I share with Eric Newton his admiration for Tintoretto. I can appreciate much of what he says in his analyses of individual pictures. To follow him through the pages of his warmly and never conventionally written monograph is a pleasure. Yet to me, on the very strength of certain of his descriptions, Tintoretto remains the great Mannerist. The following illustrations and notes on them are meant to give my reasons. But I must already here try to sum up what qualities seem to me to constitute Mannerism.

Mannerism lacks faith in the human achievement and consequently in the human body. The Renaissance and the Baroque both believed in man. The Renaissance ideal was the balance of many accomplishments, the Baroque ideal, strength and conquest—hence Renaissance went with humanism, Baroque with absolutism, but also the establishment of experimental science, the invention of microscope and telescope. Mannerism is the parallel to the most severe phase of Counter-reformation and the equally rigid new Spanish court ceremonial, the one the spiritual, the other the worldly, expression of its spirit. Hence Mannerism makes bodies exceedingly long and distorts them in complicated illogical attitudes. Mannerism places the principal action somewhere out of the centre and in the distance. It crowds round the principal action many unnecessary and confusing assistant figures. Mannerism denies reality to architectural or landscape surroundings and makes them fantastic or mysterious. Magic takes the place of logic, the intricate conceit of the straightforward tale. The dangers of Mannerist art are artificiality on the one hand, disembodiment on the other. The world of Mannerism was an unhappy world. The unity of mediæval creed had departed, the unity of confidence in science not yet come. The sixteenth century was divided in itself, with doubts haunting those who thought clearly and felt deeply. The Renaissance was abandoned, because of a nausea of simplicity, beauty and optimism. The masters of the Baroque had to defeat the Mannerists for optimism to be restored, though of a new, expansive, and aggressive kind.

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[2] Published in *Kunstgeschichte als Geistesgeschichte*, Munich 1924.

[3] Published in *Geschichte der italienischen Kunst*. Munich 1927, vol. 2.

[4] *Repertorium für Kunstwissenschaft*, vol. 46, pp. 49 etc.

[5] His views were never published fully; but cf. *Das Problem der Generation*, Leipzig 1926, *Die deutsche Plastik etc.*, vol. 2, 1929, pp. 451 etc. and the most profound, because to a certain extent disillusioned treatment in the *Festschrift für Ludwig Klages*, 1937.

[6] *Repertorium für Kunstwissenschaft*, vol. 46, pp. 243 etc.

[7] 1926; it appeared in instalments and was completed together with my account of Italian Baroque painting and published as a book in 1928.

1, four Mannerists according to Mr. Newton

Vasari *PAUL III RECEIVING HOMAGE, ROME, CANCELLERIA*, 1546. *To Mr. Newton the term Mannerism fits Vasari, and so indeed it does. The composition is crowded with figures, many of them unnecessary to an understanding of the action, and many of them detracting attention from it. The eye has to wander tortuous paths to reach the Pope, placed perversely far back. Figures are long and have small heads; thin arms perform unaccountable undulating movements. The neck of the giraffe appearing as a baffling surprise in the background is one in the composition with these arms. The architectural setting is cramped and ill-visible. There is no space here, no logic, no ease.*

Bronzino *TIME AND TRUTH UNVEILING LUXURY, LONDON, NATIONAL GALLERY*, *c.* 1530-40. *Again an artist accepted by Mr. Newton as a Mannerist. Again a crowded composition, with no space, no reassuring setting. The contrast of cold colour and hard modelling with a voluptuous tangle of bodies is decidedly uncomfortable. Mannerism invented pornography—that is vicarious enjoyment of the body with a bad conscience. Bronzino's painting is a conceit in which jealousy, pleasure and deceit are indicated allegorically. Intellectual complication represented by visual complication.*

Pordenone *ADORATION OF THE MAGI, TREVISO CATHEDRAL*, 1520. *At first glance a more conventional composition and one more easily legible. But Venice already in the fifteenth century had kept away from the complexities of Tuscan construction (compare Bellini with Botticelli). However, in one way this is also a Mannerist picture—as Mr. Newton would agree. The huge King in the middle has the Virgin on the right, but on the left unnecessary, equally huge kneeling servant stretching his legs and buttocks towards us and reaching right out of the picture. Also the exaggeratedly wide mantles of Kings and Virgin bury the bodies and thus as effectively deprive them of any liberty of action as if they were forced into the tortuous patterns of lines of Bronzino and Vasari.*

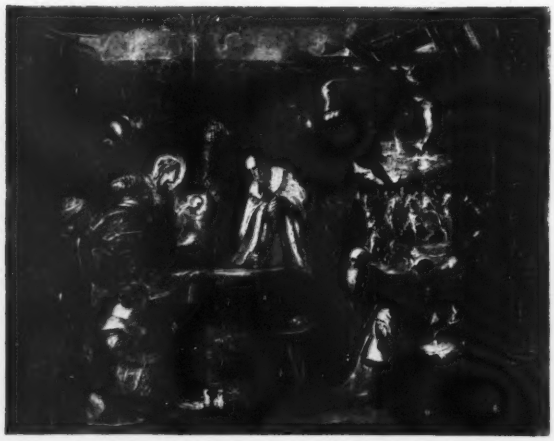
Parmigiano *VIRGIN AND SAINTS, DRESDEN*, *c.* 1540. *Devaluation of the human body is an essential quality of Mannerist art. It corresponds to that curtailment of liberties which was the Counter-reformation. The Renaissance is human even in its paintings of gods; Mannerism never can be human. Hence figures are bent into patterns or incarcerated into boulder-like garments. But the denial of human freedom can also be for the sake of higher freedom; it can be dictated by faith in a world of the spirit in which bodies have no value. Thus it is in this exceptional Parmigiano. Slim bodies of no material weight, the Virgin an apparition against a magic pale-yellow-pale-pink halo, the saints iridescently clothed.*

2, Tintoretto in comparison with these four

Tintoretto *CHRIST AT THE POOL OF BETHESDA, VENICE, S. ROCCO*, 1559. *Now compare this Tintoretto with the Vasari. What is the difference? A painter's not a draughtsman's treatment,* colore *not* disegno. *That, we shall find, is a universal Veneto-Tuscan contrast, as old at least as the time of Bellini. But the composition is as crowded, the principal figure is as ingeniously concealed to the first glance, the architecture is as illogical—far too low for such a hall of columns—the boundary between our world and the world of the picture is as daringly and as uncomfortably transgressed—see the legs and cloaks hanging over the front cornice and compare them with the staircase in Vasari's fresco leading out of the painted into the real room.*

Tintoretto *MERCURY AND THE THREE GRACES, VENICE, DOGE'S PALACE, ANTI-COLLEGIO*, 1578. *With Tintoretto's maturity his style grows subtler, and he moves away from the crudities of the colossal figures of Pordenone and some of his own early works. Yet essentially the four panels of the* Anti-Collegio *belong to Bronzino rather than to Titian or Rubens. Tintoretto does not 'short-circuit straight from High Renaissance to Baroque.' Note the long slender figures placed at such a strange angle that they neither sit nor stand—insecurity instead of the security of the Renaissance and Baroque. And Mercury is almost entirely hidden, where Titian and Rubens would have placed him somewhere right in the front. The draperies also are of immaterial fragility.*

Tintoretto *ASCENSION OF CHRIST, VENICE, SCUOLA DI S. ROCCO c.* 1579. *Mannerist in that Christ's feet are concealed and that the angels do not really physically carry, but the edges of their wings, thin as blades, act instead as if shooting Christ up by an explosion. Mannerist also in the scattering of the apostles; not a solid group as in Raphael or Titian or the Carracci, but one large and close to us in the foreground, and the others small and in groups in which individuality is denied them. The two in the distance are no more than ghosts. Tintoretto loved this dematerialization by the thinnest lines of light grey paint. Mr. Newton shows it side by side with a Henry Moore drawing. Would he deny that these Henry Moore figures also exist in a magic world utterly not our own?*



Tintoretto *ADORATION OF THE MAGI, VENICE, SCUOLA DI S. ROCCO, c.* 1585. *If one of the means of expression of the Baroque is to let figures merge into dark space, thereby conveying a feeling of how man's life is one with an infinity of space around—the infinite as a mathematical conception belongs to the seventeenth century—then Tintoretto in his last ten or twelve years turned indeed towards the Baroque. A Rembrandt etching such as the Presentation in the Temple of* 1654 *has, it is true, a mystery similar to that of this Tintoretto. Yet the proportions of Rembrandt's figures are always more real, the composition is more solid, the expressions are more human and more tender. Tintoretto even here has a magic world of no earthly reality, has 'repoussoir' figures in the foreground, pale ghosts in the background, and the principal figures half-way back.*

3, Barocci—another Late Mannerist

Barocci *MADONNA DEL ROSARIO, SENIGALLIA,* 1588-91. *Nor was Tintoretto the only painter of the late Cinquecento who interpreted Mannerism in terms of mysterious darkness. Bassano could be shown instead or Cerano and Morazzoni. I have rather chosen Frederigo Barocci of Urbino. He is as Mannerist as Tintoretto in his compositions, in the disembodiment of his figures and in their oddly unstable positions, even if he shows a sensuous abandon alien to Tintoretto (but familiar from Correggio and Parmigiano), and even if his atmosphere is one of floating vapours rather than of Tintoretto's deep velvety blacks and ghostly greys.*

Barocci *THE VIRGIN ON THE STEPS OF THE TEMPLE, ROME, S. MARIA IN VALLICELLA,* 1611. *Here even more clearly are the principles of Mannerist space expressed in terms of a Late Mannerist soft and fluid technique. The hard outlines of Early Mannerism have gone; so has the wildness of feature and limb. But once again the principal action can only be reached up a long path of vision. Figures of no or only secondary significance fill the sides, more than one can count, and stand or sit in improbable attitudes. And the largest figures frame a funnel-like channel up which the eye is conducted to the young girl humbling herself before the priest. The principle of the space funnel is of great importance to an understanding of Mannerism. Neither Renaissance nor Baroque know it.*

4, Tintoretto and Mannerist space

Tintoretto *THE VIRGIN ON THE STEPS OF THE TEMPLE, VENICE, S. MARIA DEL ORTO, c.* 1555. *This and the next four pictures serve to illustrate this principle of funnel-like space, a principle of special interest to us because of its application in architecture. With architecture I have dealt in* The Mint, *vol.* 1, 1946. *Here in an early work it appears in the placing of the Virgin far back and especially the chain of onlookers on the left, no real human beings at all. And are the standing figures further left caryatids or men? And why that obelisk so close to the Virgin, if not to confuse still more the animate with the inanimate form? The* sotto in su *finally also lifts the scene out of our everyday world.*

Tintoretto *THE MARRIAGE FEAST OF CANA, VENICE, S. MARIA DELLA SALUTE,* 1561. *Nowhere more than here does the perversity of Mannerist composition stand out. Christ is right at the far end of the long table, and the table is not centrally placed. Compare with this Leonardo's Last Supper or Rubens's at Milan, or Rembrandt's Christ at Emaus and you have the High Renaissance and the Baroque versions. They are all three centrally arranged and keep close to the foreground. Only Tintoretto has these attenuated figures of attendants to push back the action which matters, only Tintoretto those beams and strongly lit windows rushing into the distance. Mannerist space is a space to oppress not to feel comfortable in.*

Tintoretto *THE RESCUE OF THE BODY OF ST. MARK, VENICE, ACADEMY,* 1562-66. *For a retelling of the legend, Mr. Newton's book must be looked up. Tintoretto this time places the principal action in the foreground, but, to make up for that, violently out of the centre. And the centre is left entirely free of action. It is just the wind-tunnel sucking us in and along to the far-distant end of the* piazza. *To the left again, spectrally transparent beings, again so parallel in their movements that they lose all identity. How they rush out of the zone of this weird and frightening suction. The bleak clouds and lightning and the mysterious rays also deprive the miracle of any everyday reality.*

Tintoretto *LAST SUPPER, VENICE, S. GIORGIO MAGGIORE,* 1594. *This is amongst Tintoretto's last paintings and therefore in its universal floating darkness again foreshadowing the Baroque. But the eccentric composition, the place given to Christ, the large assistant figures on the right, the exaggerated proportions, the spatial suction, all that is now established as Mannerist. Nor is Mr. Newton blind to these qualities. Of Tintoretto's late* Paradise *he remarks on 'figures floating through supernatural ether,' on the 'vanishing of the normal world of perspective,' and on the 'lack of intelligible spatial connections.' That could not be formulated better—only it is all utterly un-Baroque, and much of it applies as much to the juggler Vasari as to the genius Tintoretto.*

5, the Baroque in contrast to Tintoretto

Caravaggio *THE CALLING OF ST. MATTHEW, ROME, S. LUIGI DEI FRANCESI, c.* 1598. *Finally here is the Baroque, as created by Caravaggio who was born in* 1573. *Also a dark scene, but the light instead of confounding clarifies with utmost vehemence. It does not dissolve form, it models it. There are no superfluous figures, each figure plays a sharply characterized part. The stage is narrow, the few stage properties are placed firmly on it. The Baroque, in whoever's hands, believes in the power of man. Even the miracle should be made miraculous by letting it take place in our world in the clothes of the day—*see *Bernini's St. Theresa.*

Guercino *THE RESURRECTION OF TABITHA, FLORENCE, PITTI GALLERY,* 1618. *But it is unfair to compare the most sculptural of Baroque painters with Tintoretto, a master of open and sketchy brushwork. So the last test shall be a High not an Early Baroque painter, that is one who also believed in dissolving lights against dark enveloping shadows and in an open even if much more succulent technique. But there the similarity to Tintoretto, the Mannerist, ends. The Baroque, to say it once more, believes in man. Figures are grand and powerful or ample and luxuriant, gestures have an obvious meaning. Gone are the disembodied bodies of Tintoretto and Greco and the elegantly distorted bodies of Parmigiano and Vasari, gone the age of St. Theresa and St. Ignatius—and of that Spanish fashion which strait-jacketed the human body.*

The day nursery at Garston was one of the first buildings to be designed by the Hertfordshire County Council architects on the 40 in. grid recently advocated by the Ministry of Education. Their earlier schools used an 8 ft. 3 in. grid. The implications of the change are among the questions discussed in the article beginning opposite. More pictures of the building appear on pages 383-384.

CRITICISM

Richard Llewelyn Davies
John R. Weeks

THE HERTFORDSHIRE ACHIEVEMENT

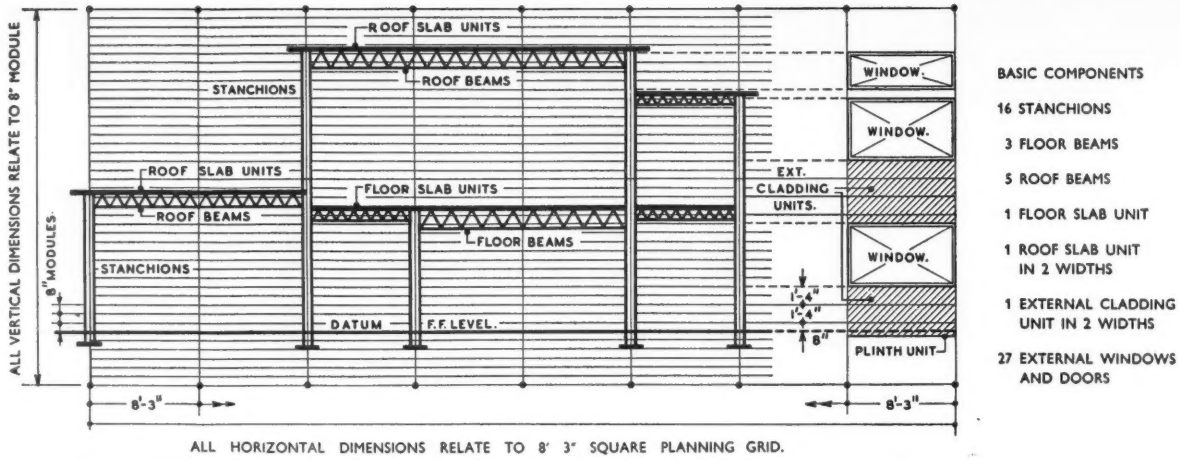
The new schools designed and built for the Hertfordshire County Council by the County Architect, C. H. Aslin, and his staff, have been written about and discussed from many angles: as the first major piece of prefabricated unit construction in this country, as a fresh approach to school planning, and as a way of building more schools in the given time. Less has been written of their importance as architecture, their very nature making it hard to offer any critical assessment before the completion of a fair number of schools. In them we can now see what sort of architecture does in fact result from that long-expected revolution, the impact of industrial production on building. This revolution is none the less important because it is taking place rather gradually, and not in the violent manner prophesied by the visionary architects of the twenties. In the following article the Hertfordshire achievement is related to the work of those pioneer architects of whose theoretical and experimental work it is the most dramatic realization yet to be seen in this country. Richard Llewelyn Davies was consultant architect to the engineering firm concerned in the development of the schools, and also designed a pioneer system of prefabricated building for the LMS Railway.

1. description

At the end of the war, in common with other educational authorities, the Hertfordshire County Council had to give serious thought to its programme of school building. In addition to the nation-wide increase in the birth-rate, with a consequent increase in the school population, Hertfordshire had to reckon with several new towns and large, new LCC housing estates. It was reckoned that about 50 new primary schools[1] had to be built within a period of seven years in order to take in the children as they reached school age. The County Architect foresaw that it would be impossible to build schools at the necessary rate, if reliance was placed alone on traditional methods of building. He and his colleagues therefore sought to transfer a substantial proportion of the schools to factory production. This was no easy task. There was at the time no ready designed system of prefabricated building suitable for the purpose, nor were there architects trained in the appropriate design methods. These difficulties were, however, overcome. An able and enthusiastic team of young architects was built up during 1945 and 1946. The technical development was done jointly by the architect's office and a selected firm of constructional engineers,[2] who were prepared to put a very considerable effort into design and experiment and eventually became the suppliers for framing, roofing, and exterior walls. Simultaneously with the development of the structure, new and appropriate methods of heating and lighting had to

[1] *Education*, 1951, April 27.

[2] Hills (West Bromwich) Ltd.



1, *the system of construction, based on a number of standard components, used for all the Hertfordshire schools.*

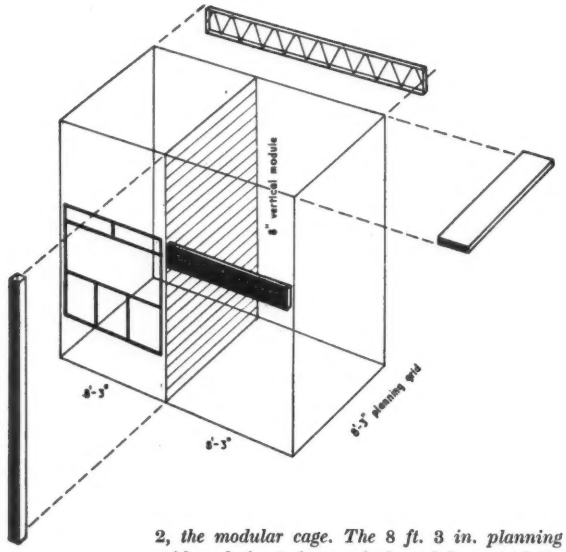
be designed and brought into production. In fact, the new system of building had to be developed as a whole.

The first complete school was put up at Cheshunt in 1946-47 and by the end of 1951 more than 40 schools had been completed. During the intervening years, various modifications and developments were made, but the main essentials of the system remained constant and, in some ways, the latest schools are closer to the original Cheshunt model than were some at the intermediate stages.

By almost any standard the building of these schools must be regarded as a very great achievement. The cost per place is similar to that of the best designed schools in traditional materials, the average time from start to completion is considerably less, and the use of prefabricated buildings has greatly increased the total number of schools built in the county since the war.

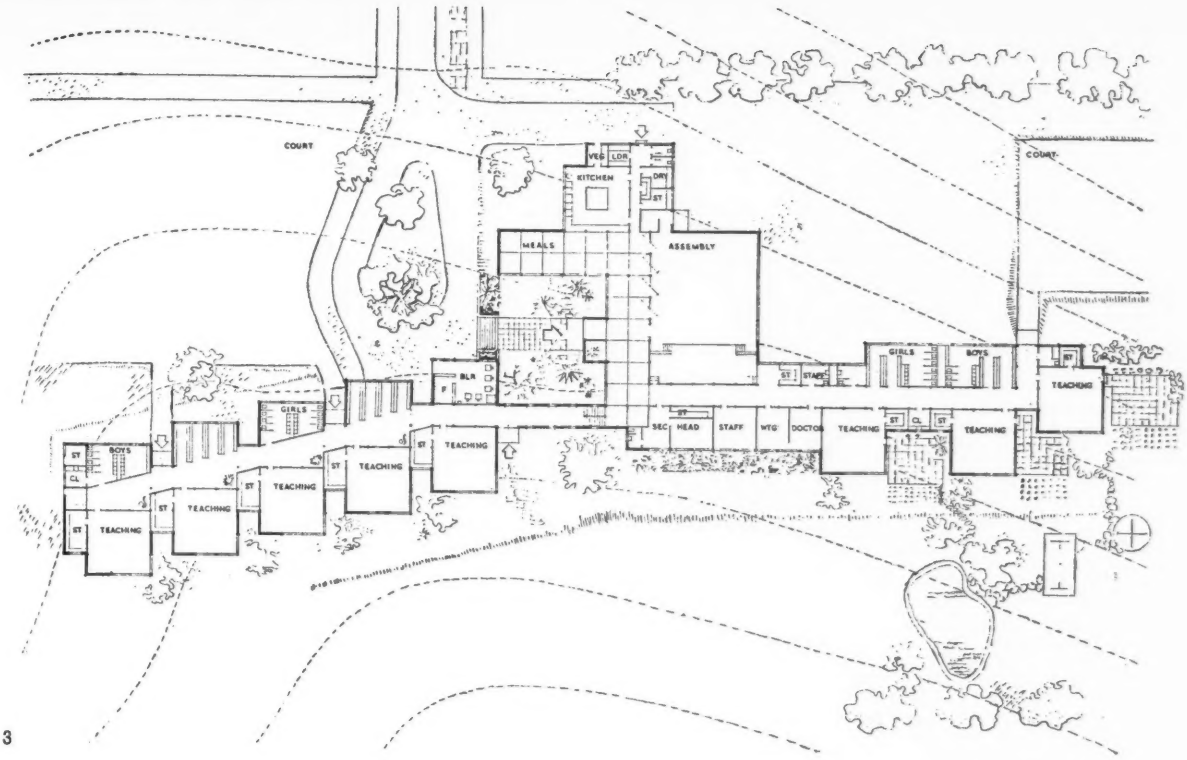
The details of the prefabricated system used have been described fully in several publications.[3] It is of very great interest as being the first completely modular system to go into production on a large scale in this country and, perhaps, in the world. Previously prefabrication had generally taken the form of a single building designed and manufactured as a whole, or of units designed to give buildings of fixed section but unlimited length. The essence of the Hertfordshire system was that it consisted of a set of standard and interchangeable parts which could be assembled in a great variety of ways. The prerequisite for the development of this kind of prefabrication is, of course, a modular dimension or grid. The dimension of 8 feet 3 inches had been recommended in the Wood Committee Report of 1944, and this was taken as the basis. While it proved economical so far as the structural elements were concerned, this dimension had serious limitations from the point of view of planning and design. The degree of flexibility of a modular system derives from the grid and, in the present case, external walls must be in multiples of 8 feet 3 inches—that is, no projection can be less than 8 feet 3 inches by 8 feet 3 inches on plan. It was insisted, however, that this basic limitation should be accompanied by complete freedom to form internal and external angles at any point on the grid, and to use any depth of building which is a multiple of 8 feet 3 inches.

[3] *Architects' Journal*, 1949, October 20; *RIBA Journal*, 1949, September.



2, *the modular cage. The* 8 *ft.* 3 *in. planning grid and the* 8 *in. vertical module control the dimensions of every constructional element.*

The bones of the structure are the beams and columns built up of light steel sections welded together, 1 and 2. Columns occur at 8-foot 3-inch centres in the external walls and at various positions internally to suit the spans which, however, are always multiples of 8 feet 3 inches. The columns are square in section, so that beams of modular length can be attached to them on all four faces. The beams, of open lattice design, vary in depth according to the span, and run either along or across the building as is most convenient or economical. The roofs, which are flat, consist of pre-cast concrete slabs spanning 8 feet 3 inches from beam to beam. Ceiling boards are fixed directly to the under surface of the slabs, leaving the lattice beams exposed. External walling is of reinforced concrete slabs run horizontally from column to column in the earliest and also in the latest schools. Vertical slabs were used for a limited number of schools about half-way through the programme, and this made necessary additional steel members running horizontally from column to column. Win-



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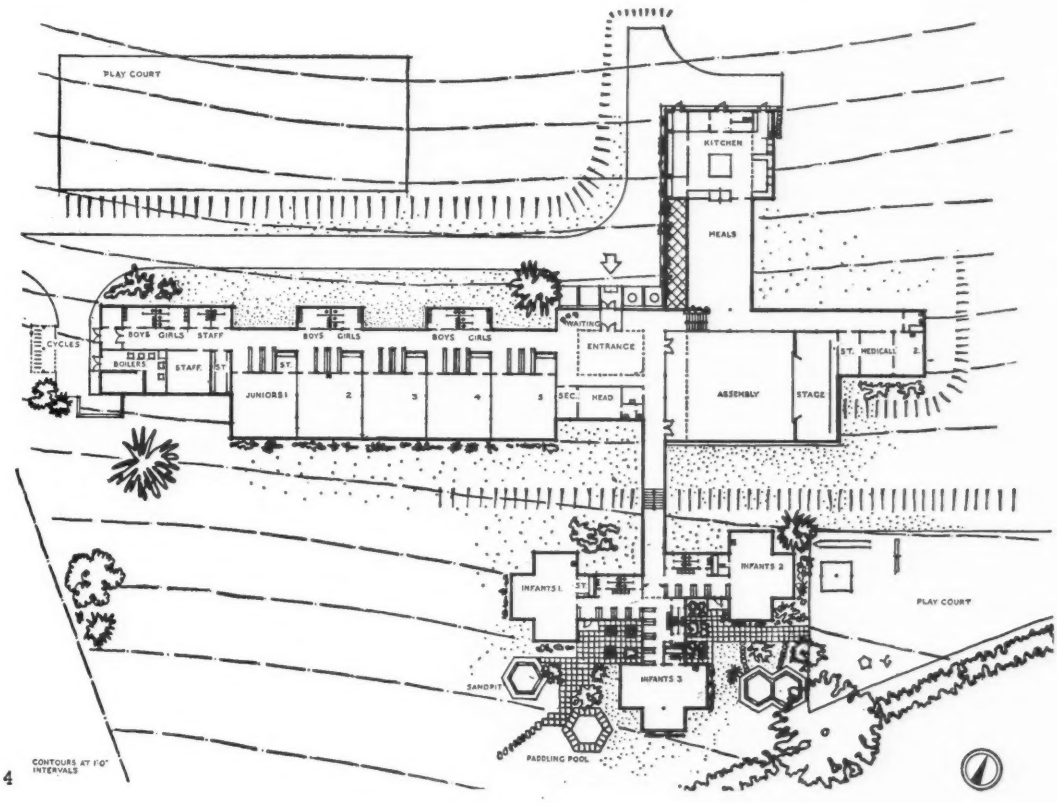

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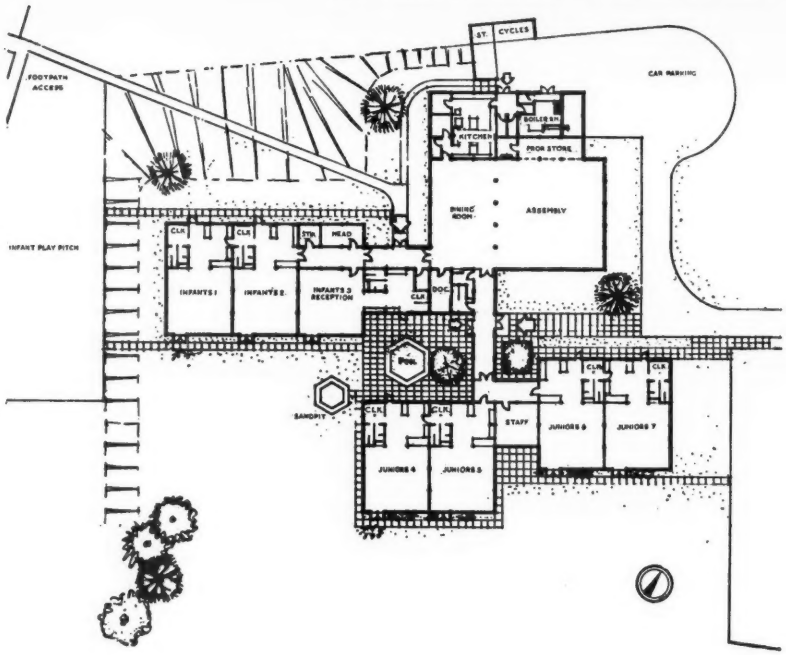
The three plans on this and the next page (scale $\frac{1}{64}$ in. to 1 ft.) illustrate some of the characteristics of the Hertfordshire school planning and the changes it has undergone. **3**, *Junior School at Letchworth*, 1947-8 (*one of the earliest*); **4**, *Junior School at Boreham Wood*, 1948. *In each of these the classroom takes the form either of a separate block or is one of a number of rooms forming a line. The cloakrooms are planned in bays off the access corridors.*

dows, internal glass screens, and internal doors were generally made up as complete components, occupying the whole panel between a pair of columns.

The principles on which the Hertfordshire schools are planned seem to have been established at the very beginning of the programme by the architects, working closely with the educational authorities. The plan for each school is considered as an individual solution for the given site, orientation, and local conditions, but certain principles have been unchanged since the inception of the programme. All the schools are as small as possible, in order to avoid the atmosphere of an institution and so that the whole school can be comprehensible to a small child. The child is the most



5, plan of Junior School at Oxhey, 1951, showing the shortening of the lines of communication as compared with the earlier schools.

important user of the buildings and his needs are therefore paramount: the entrance hall is used by the children as their main way into the school and each classroom is designed on a domestic scale, as a room which the children can regard and treat as their own. The cloakrooms are decentralized: in the earlier schools, 3 and 4, they were in bays off the access corridors and, in the latest, are incorporated in the classroom itself. Monumentality is avoided by splitting up the schools into a series of small blocks, linked by corridors, and in many of the infants' schools each classroom is a building by itself. The classrooms are often further broken into bays so that a room may have alcoves for small group activities in addition to a central space for larger groups, 4. The classrooms in the infants' and junior schools are becoming workshops, studios, and play-spaces, although they may be arranged for formal teaching when necessary. The entrance, assembly hall, and dining rooms are usually planned centrally, and are often divided from each other by glass screens and movable partitions so that physically and visually the spaces flow into each other, and can be used together for exhibitions, meetings or other crowded occasions.

As the programme progressed, the planning was modified partly as a result of an enquiry into the use of the first schools, and partly as economy measures became more stringent. It is no longer economically possible, for instance, to cover as much ground as in the first schools. Corridors have therefore been cut down, and the classrooms are planned so that children pass through the back of one to reach another, 5. It was found that although a stage, often elaborately equipped, was always provided, it was not enough used in many schools to warrant its expense. In the latest schools it has been omitted, its place being taken by a property store, which was what many of the stages had in fact become. It was also found that, although the movable screens in the central spaces were easy to operate, they were not often used, and so they too have been omitted in the later plans.

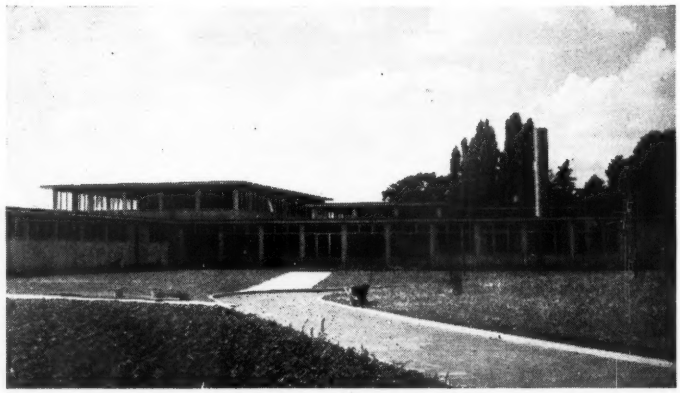
In general, the plans of all the schools are simple and apparently obvious, both in their relationship to the site contours and surroundings and in their internal spaces: they have an organic quality which is rare in contemporary planning.

2. criticism

The starting-point in this discussion is that the Hertfordshire schools are important as architecture. This is already widely accepted, and, indeed, no sensitive critic can fail to be deeply moved by these lovely buildings. As architecture, however, they show a quality very different from what we are used to, different even from what we are accustomed to regard as modern design. The object of the analysis which follows is to discover in what this special quality consists, and to relate it to the general body of modern architecture.

As a beginning it is useful to set down as clearly as possible the general impression that the schools give. It is surprisingly difficult to remember any individual school as a complete building. What remains in the mind is a general impression and individual snapshots, such as a series of passages, the angle of a classroom, an enclosed courtyard. These snapshots are not linked to any individual school, but build up a composite picture of all of them.

The first sight of one of the schools is sometimes disappointing—the buildings appearing at a distance rather confusing and muddled, 6. This contrasts with what is expected from a previous study of the plans,



6, Morgan's Road Junior School, Hertford, illustrating the absence of formality in the arrangement of blocks typical of many of the schools.

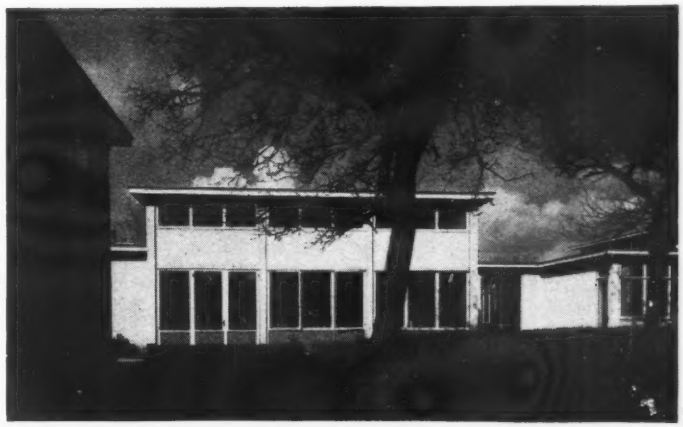
which nearly always show certain formal qualities, and, despite an irregular outline, give a feeling of deliberate architectural control. In fact, the first impression is one of several buildings irregularly put together, with a large number of different roof planes appearing one behind the other. The entrances, too, are often weak

and show an unresolved conflict between a resolution to avoid monumentality and the feeling that, somehow or other, the way in should be identified by architectural means—see, for example, the entrance to the St. Albans school, page 374 (2). Closer to, the buildings become progressively more delightful, as the eye is able to rest on small groups of individual parts rather than on the whole. The wide projecting eaves emphasize the individuality of each separate block most strongly, and from nearby the school dissolves into a number of separate, small buildings linked together. Sometimes each single classroom, as at St. Albans, 7, is isolated; sometimes, as at Hertford, 8, part of the classroom, projecting as a bay, appears almost to be a building on its own. The schools really come to life, however, as one walks round them. Then the isolated blocks which seem a little dull in themselves, and a jumble when all seen together, begin to show a logic in their placing with relation to each other. The irregularity and restlessness of a line of classrooms can then be related to the calm of the delightful courtyards, as at Pentley Park, 9, where, although one is still in the open air, the feeling is of being inside rather than outside the building.

Once actually through the entrance and inside the school, a profound impression must be felt by any sensitive observer—an impression very much more powerful if the school is visited when actually in use by the children. The impression is hard to describe in precise terms; it is not unlike the sensation of emerging after a night in a train into the sunshine and snow of the Alps; there is a feeling of tremendous exhilaration —a sensation created solely by space, light and colour. The architect, trying to analyse the impression he has received, feels baffled. Most of the normal elements of architecture are missing. There is no recognizable formal element whatever, proportions seem almost accidental, spaces and planes are divided in the most elementary manner. The basic wall and window panels, 8 feet 3 inches wide, are repeated everywhere, and every wall consists of several of these units put together. There is an utter and refreshing absence of conscious detailing. There are no materials except glass, steel and plaster. So much glass is used internally that the spaces become completely fluid and flow into one another, dissolving away the formal relationships drawn on the plan. Standing at any point one can often see through two or three different glazed walls and out into open country beyond, and simultaneously the reflection of spaces behind (see, for example, the interiors of the Pentley Park school on page 380). Such solid walls as there are are broken up into panels separated by pilasters, and the consequent disruption of the wall is emphasized even more by the decoration. The pilasters are invariably painted a different colour from the wall, and often each panel is painted to contrast strongly with its neighbours.

The fluidity of space and the disintegration of the wall are not balanced by any continuity in the plane of the ceiling. Flat ceilings, running continuously across a series of spaces, have been used by Neutra and other architects to restore the form dissolved away by breaking down the walls. Here there is no continuity, the ceilings, at several levels, with glittering clerestory windows between, hardly read as planes at all, being completely broken by the irregular arrangement of the openwork lattice beams, of various sizes and shapes, running some in one direction and some in another.[4] Even the fact that the whole building is planned rigidly on a grid has little unifying effect internally owing to the freedom to use a variety of spans. It is astonishing that, despite all this, the predominant quality has more calmness than chaos.

[4] An attempt to use mobile sculpture suspended from the ceiling had to be given up, as it went unnoticed amongst the play of structural forms.



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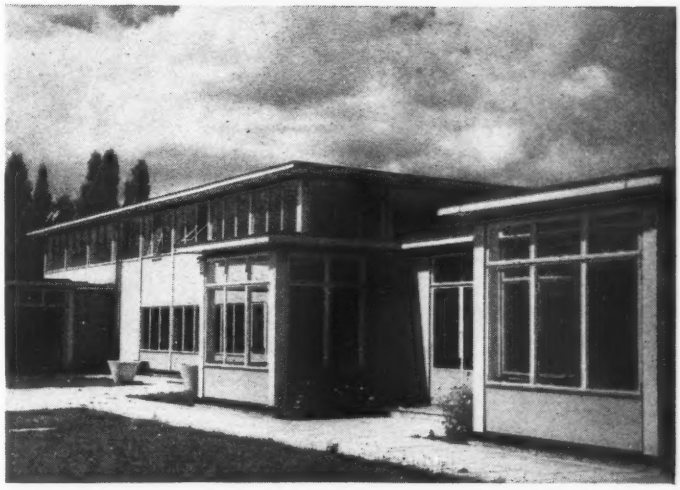

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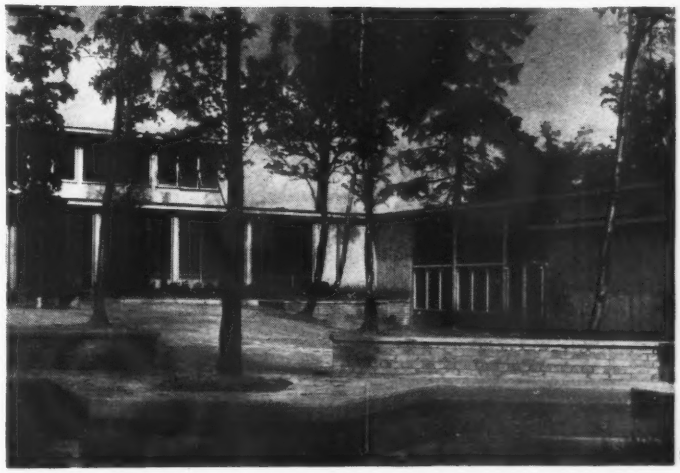

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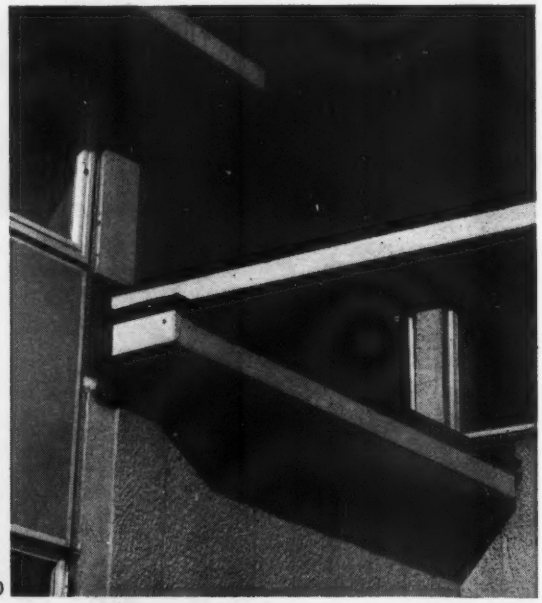
7, Aboyne Lodge Infants' School, St. Albans, in which single classrooms appear as isolated blocks. In others, like the Morgan's Road School, Hertford, 8, part of the classroom projects in the form of an independent bay. 9, Pentley Park School, Welwyn, showing the use of garden courtyards surrounded by classrooms. The St. Albans and Welwyn schools are fully illustrated on pages 373-380.

The question arises: how has such a fascinating and strange architecture come about? It is only part of the answer to say that it has arisen from the use of prefabricated units. The architecture may be the expression of prefabrication, but it has not been an automatic product, it is the outcome of long and patient effort by a group of architects determined to accept the fact of industrial production and to design honestly in it and for it.

It is significant that this approach entailed a close partnership between the architects and an industrial producer—a partnership which resulted in many of the architects working for long periods side by side with engineers and industrialists. This close contact between design and production had two important outcomes: on the one hand, it ensured that the structural system was developed to meet the real needs of school design; on the other, that the architects came to understand the problems of industrial production. This last point is of vital importance; indeed, in the eyes of Gropius the central problem facing architects to-day is just how to organize such experience and knowledge for the profession as a whole.[5]

Certain early decisions of great importance were taken by the Hertfordshire designers: in particular it is quite clear that, having determined on a system with a certain degree of flexibility, they chose to design rigidly within its limitations. Throughout the programme they have resisted any temptation to conceal the essentially additive nature of the elements with which they worked, and have sought to find a method of design in which these qualities were accepted and exploited.

With a modular system, design consists simply in the putting together of prefabricated units. The design of the unit itself is therefore critical. Unless the units are neutral, that is, totally divested of intrinsic formal interest, they will not be satisfactory when put together in varying numbers and unpredictable relationships. With a small unit, such as the brick, this is automatic, but the use of a grid dimension, and consequently a basic panel unit, as large as 8 feet 3 inches, has made it difficult to achieve this neutral character. One difficulty lies in the problem of division. Other designers who have attempted to solve these problems have generally succeeded best when using divisions into halves and quarters. By these means Mies van der Rohe, for instance, has been able to design units which create rhythms other than those given by the physical dimension of the unit. The 8 feet 3 inches dimension does not lend itself to division in half, the resulting size of 4 feet 1½ inches being too large to be suitable for doors or windows. There was, therefore, little alternative but to divide it into three and, with one or two exceptions, it has always been so divided. This has the effect of emphasizing the centre of each unit and tending to make each self-sufficient and cut off from its neighbours. To offset this, the designers have striven to make the division as simple and neutral as possible and have carefully avoided emphasis in detail. Despite this, there is undoubtedly a self-contained quality about the wall units, both internal and external, wherever the division into three is used, which greatly disrupts the overall pattern. Perhaps feeling this, the designers departed in one very significant respect from their general acceptance of the discipline of prefabrication. This exception is the projecting eaves. Technically, the provision of projecting eaves cuts right across the principles of modular design, creating almost insoluble problems at the inner angles, 10, and greatly increasing the number of units required to form a roof. It is the only instance in the programme of purely æsthetic considerations being allowed to override efficiency. The line of the projecting eaves is the only element tying together the groups of modular panels forming an elevation, and is the only line whose overall dimension is not a strict multiple of the grid. It is an attempt to force together several independent parts into a whole.



10

11

10, a detail of the return of low eaves against the classroom block at Aboyne Lodge, St. Albans, illustrating the difficulty of combining the modular design system with the provision of projecting eaves. 11, *school at Croxley Green, in which projecting eaves have been abandoned. This school is also fully illustrated on pages* 380-382.

[5] *The Listener*, 1951, August 23.

To accompany the article about the Hertfordshire schools and the architectural principles embodied in them, which begins on page 367, four of the most interesting of the schools have been chosen for detailed illustration and description herewith. They all exemplify the unit planning system which is the special characteristic of the series, the last of the four, Garston Day Nursery, being designed with the smaller 40 in. module recently introduced. All four are the work of the County Architect's Department. The members of the present Schools Group in the Department are listed on page 419.

FOUR SCHOOLS IN HERTFORDSHIRE

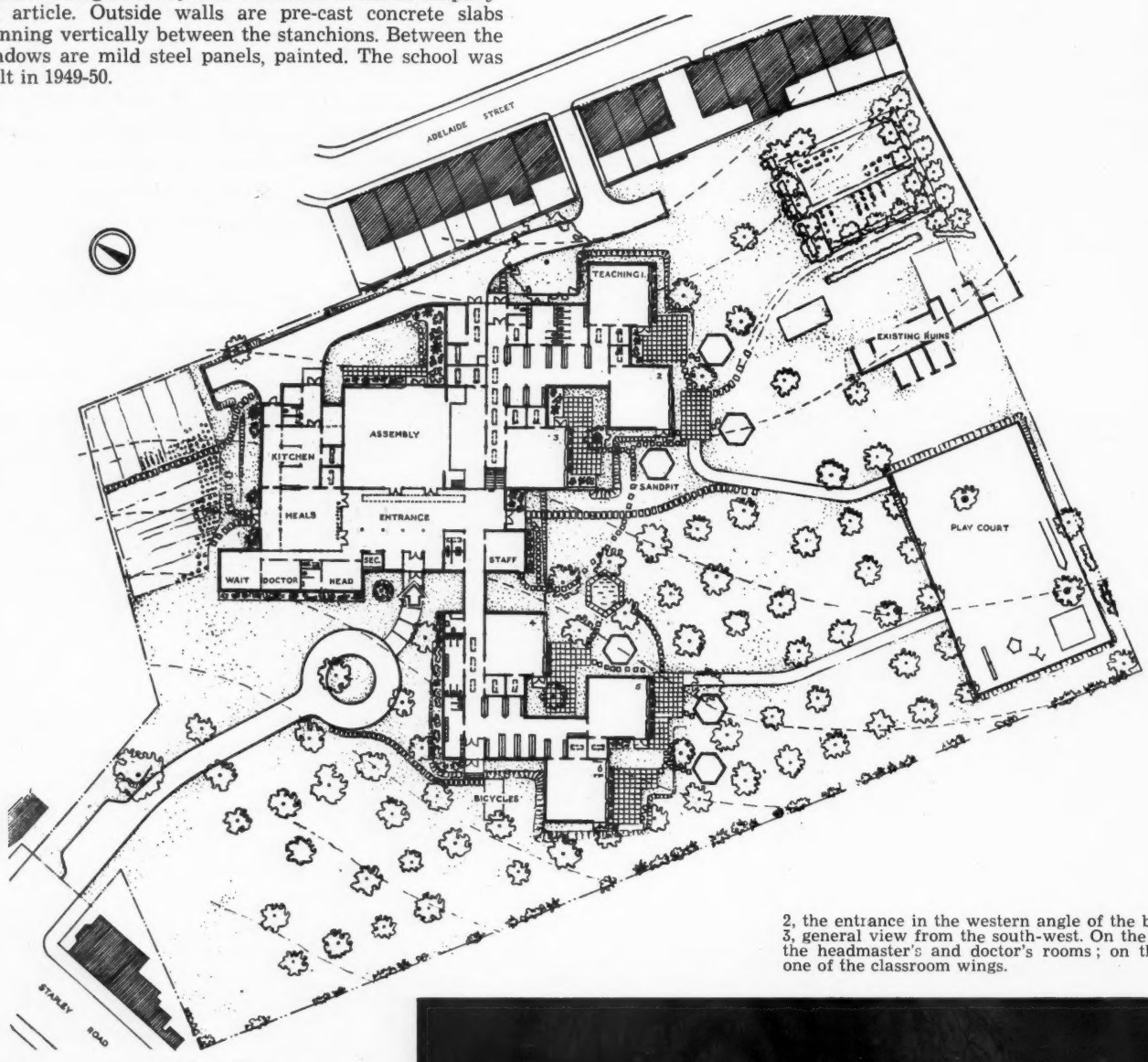
C. H. ASLIN: COUNTY ARCHITECT

1, from the south, showing three classrooms, each of which is designed as an independent pavilion.

1. Aboyne Lodge Infants' School, St. Albans

The site is a medieval orchard, which survives near the centre of the town. It has a gentle slope to the west. The school, for 240 children, has been placed on the site and various blocks planned so as to preserve the maximum number of trees. Each of the six classrooms has its own sheltered terrace with flower beds, screened from view by apple trees. Some old outhouses have been

adapted for use as play walls and for games of hide-and-seek. Classrooms are arranged so that several are reached from one corridor, which widens out to take in the cloakrooms. The structure is a light steel frame including exposed lattice beams, planned on an 8 ft. 3 in. grid according to the system described in the accompanying article. Outside walls are pre-cast concrete slabs spanning vertically between the stanchions. Between the windows are mild steel panels, painted. The school was built in 1949-50.

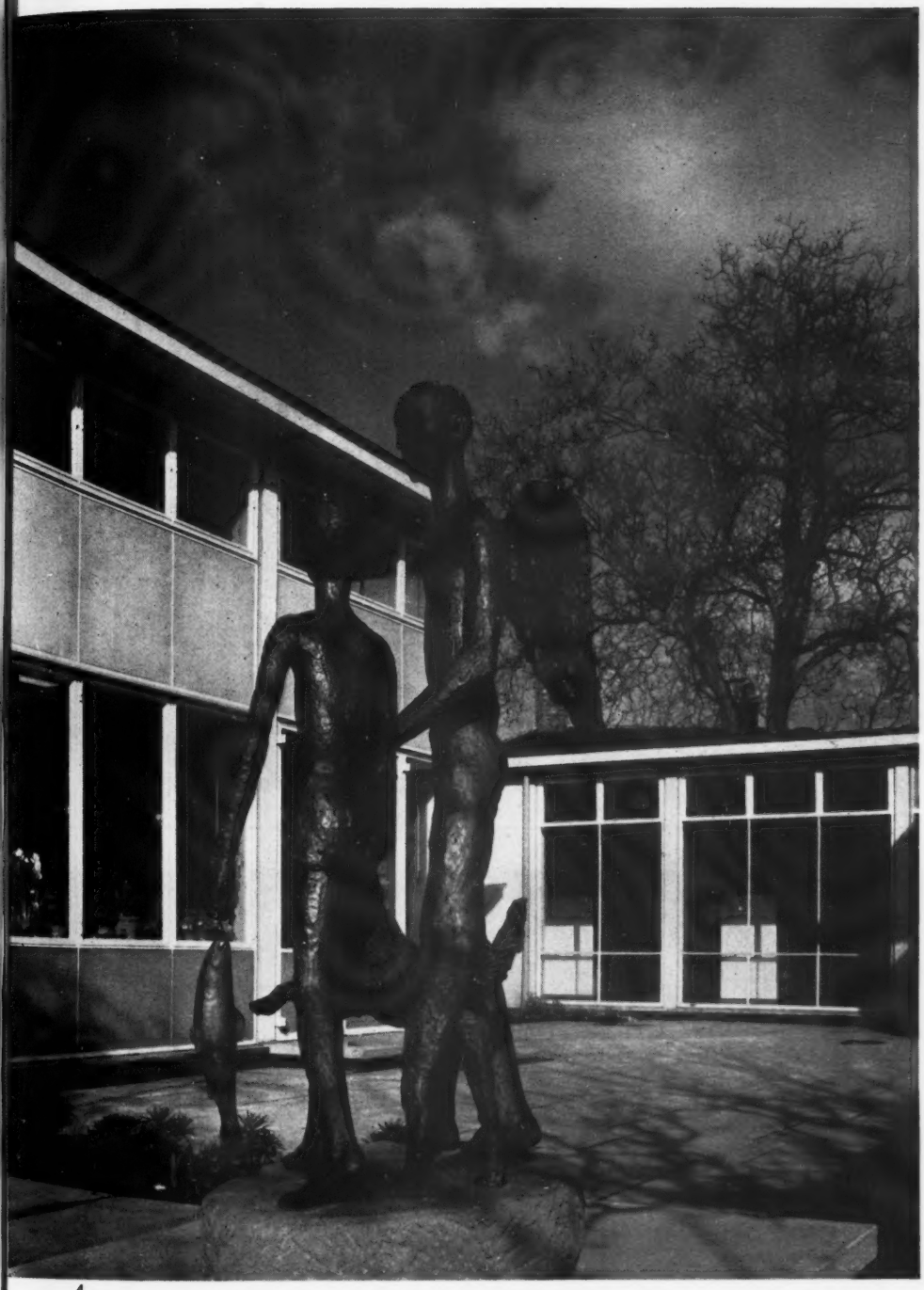


plan scale: 1/64 in. = 1 ft.

2, the entrance in the western angle of the building. 3, general view from the south-west. On the left are the headmaster's and doctor's rooms; on the right one of the classroom wings.

2

3



4

Aboyne Lodge Infants' School, St. Albans

4, one of the open-air terraces that occur outside each classroom. The sculptured figures of Tobias and the Angel are by Daphne Hardy-Henrion. 5, the entrance hall looking towards the garden on to which the class-rooms open. On the left is the glass screen separating entrance hall from assembly hall. 6, entrance hall looking outwards through glass-enclosed vestibule.

5

6

7

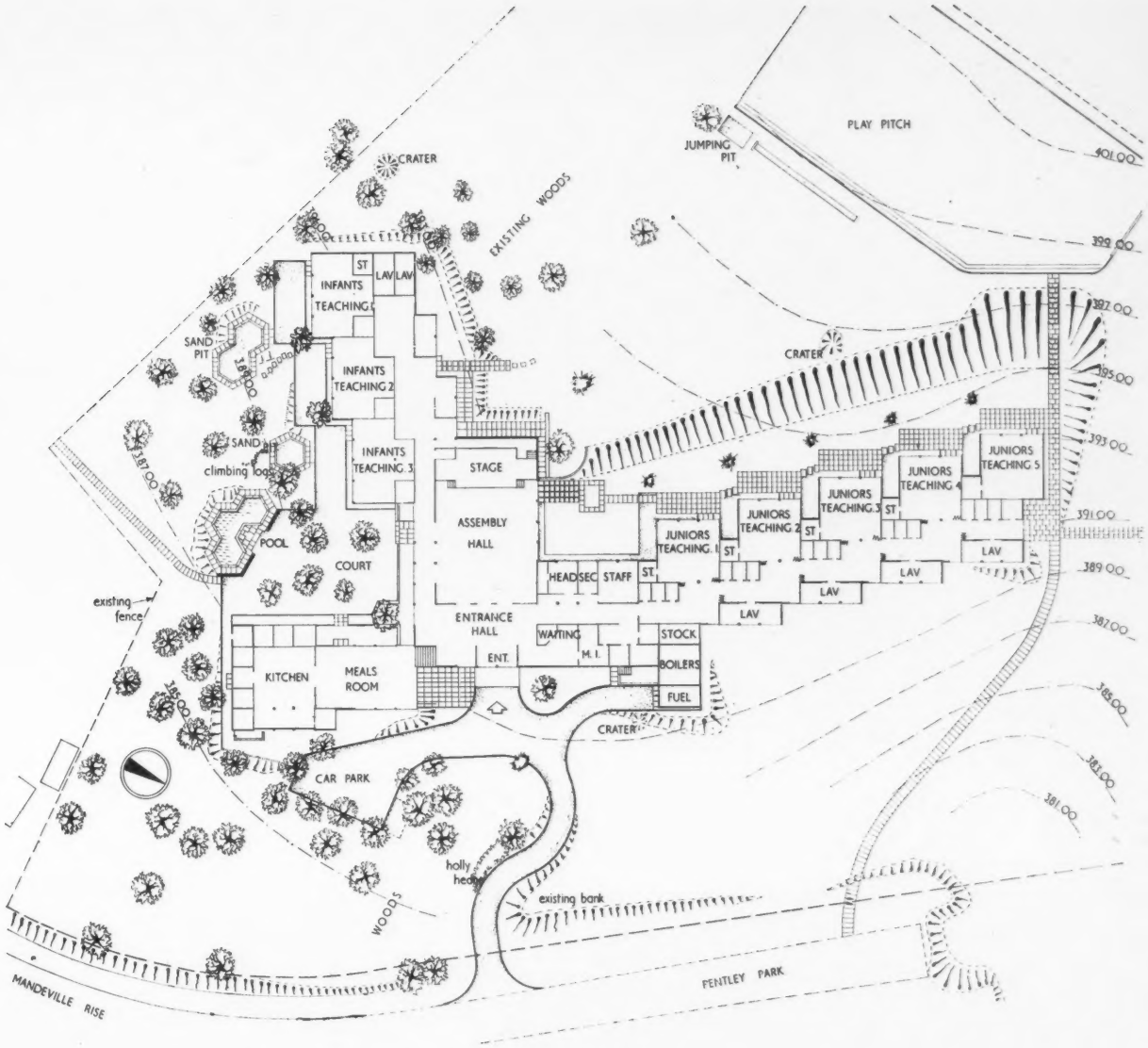
Aboyne Lodge Infants' School, St. Albans

7, interior of typical classroom, showing large windows on south wall and clerestory windows on adjoining wall.

2. Pentley Park Primary School, Welwyn Garden City

8

8, infants' classrooms looking on to a tree-planted courtyard. In the background on the right is the dining - room - kitchen wing. Above the roof of the classrooms can be seen the upper part of the assembly hall.



plan

scale: 1/64 in. = 1 ft.

The school, built 1948-50, accommodates 200 juniors and 120 infants. The site falls steeply to the north, and one-third of it consists of woods, mostly birch and hornbeam. The exact position of the building was determined by two large oaks and a fir tree which have been retained immediately alongside it. The school is planned along the contours, with kitchen, dining-room and boiler-house at a lower level. Infants' classrooms are in the woods, facing south-east, with play-areas among the trees. Junior classrooms face south-west.

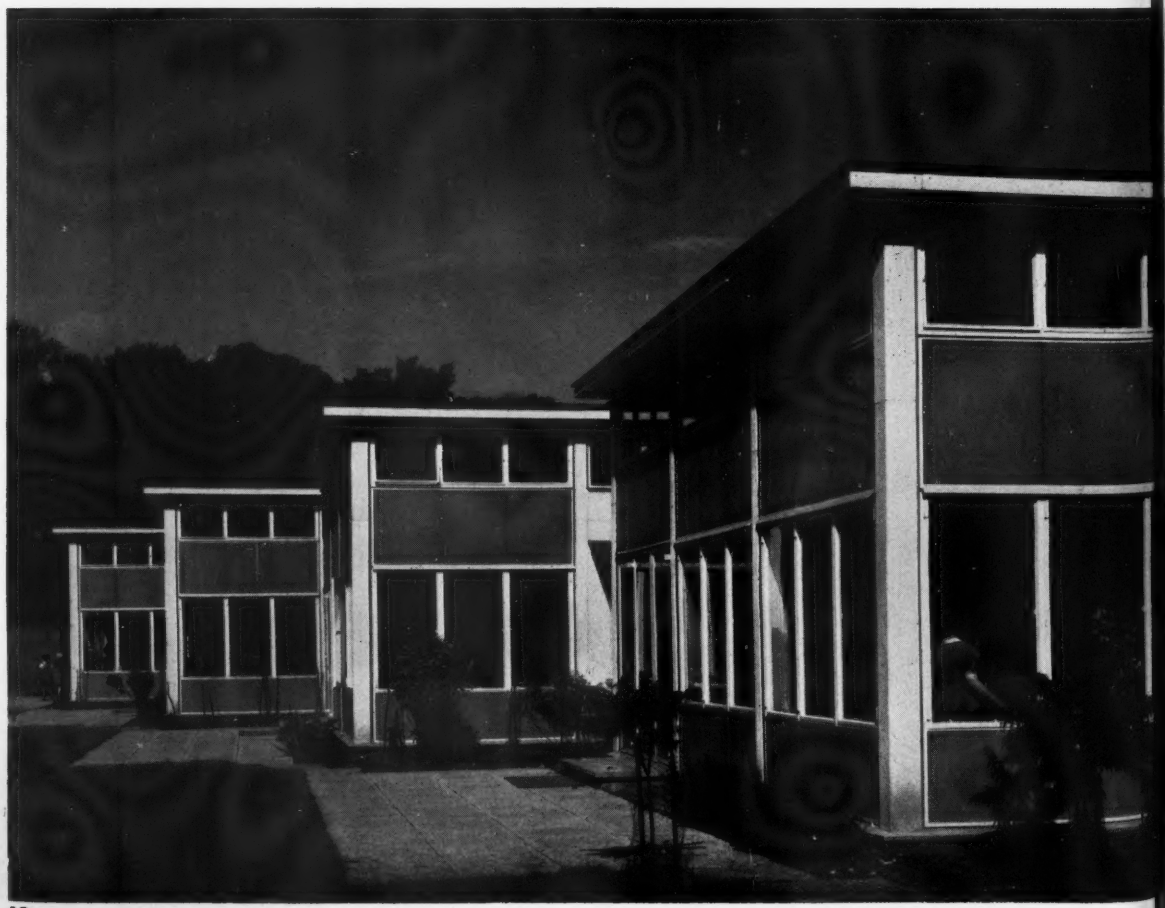
Junior classrooms are planned so that the corridors can be included in the teaching space, being separated from the classroom proper by folding partitions and equipped with sinks, work benches, etc., and linked

9

10

9. corner windows giving junior classrooms south-east as well as south - west outlook; looking across towards the stage end of the assembly hall. 10, looking south-east along the junior classroom wing showing the paved terrace in front of each classroom.

11



12

11, the play-courtyard enclosed by infants' and dining-room wings, with pool in the foreground. 12, junior classroom wing, looking in the reverse direction to 10, showing the planning of each classroom as a semi - independent block.

13

with it visually by painting with the same colours. Folding partitions also subdivide the corridor laterally. Junior classrooms are 12 ft. high with clerestory windows on three sides. Infant classrooms are 8 ft. high, with top light in the recessed back area.

Structure is the same light steel frame already described, with the pre-cast concrete wall-slabs arranged vertically. Classrooms have exposed wood-wool ceilings to reduce sound reverberation.

Pentley Park Primary School,

Welwyn Garden City

14

13, close-up of entrance hall end of assembly hall. The lower wing on the left contains the headmaster's and staff rooms. 14, interior of assembly hall, looking towards the stage. The hall has a wood floor.

15

16

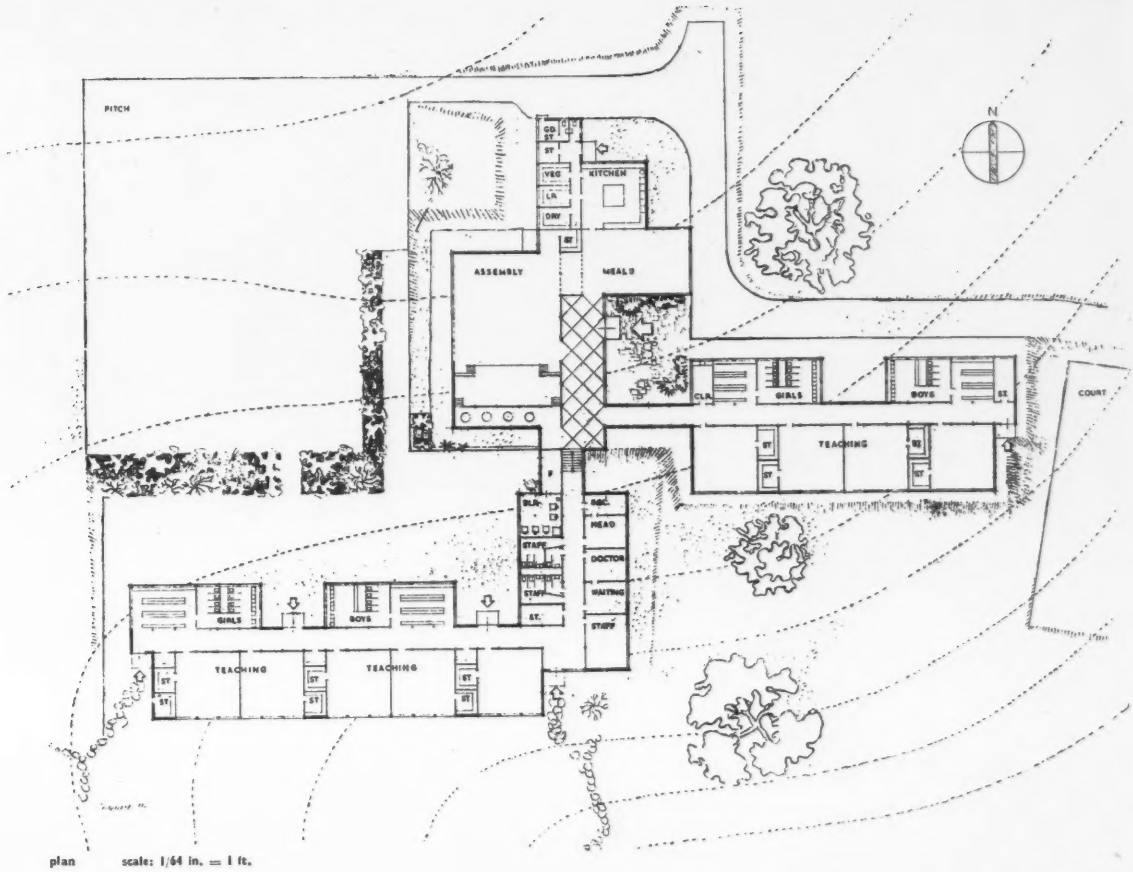
15, the dining-room, showing a mural painting by Pat Tew on the north wall and, on the left, the steps leading up to the entrance hall and the main school level. 16, close-up of the same stair showing view through glass screen into assembly hall.

Pentley Park Primary School,
Welwyn Garden City

3. Junior School at Croxley Green

17

17, from the east looking towards the main entrance. On the right is the dining-room.



plan scale: 1/64 in. = 1 ft.

The site is wooded parkland with a gentle fall to the south. Built in 1947-49, the school provides for 360 pupils and is planned to take advantage of the contours but to give only one internal change of level: between the larger block on the north, containing assembly hall, dining-room and classrooms, and the smaller wing to the south containing staff-rooms and the remaining classrooms. Outside the entrance hall, and alongside the dining-room, is a large paved terrace (17 and 19). By contrast with the St. Albans and Welwyn Garden City Schools, cloakrooms are planned as separate units across the classroom corridors. Structure is as previously described (light steel frame on 8 ft. 3 in. grid) with precast concrete wall-slabs arranged vertically, but the widely overhanging eaves employed earlier and later have been replaced by a narrow coping.

18

19

18, looking along the classroom façade of the main block; in the distance the administrative block with the chimney of the boiler room rising above it. 19, dining-room and paved terrace seen through the glass wall of the entrance hall.

20

Junior School at Croxley Green

21

22

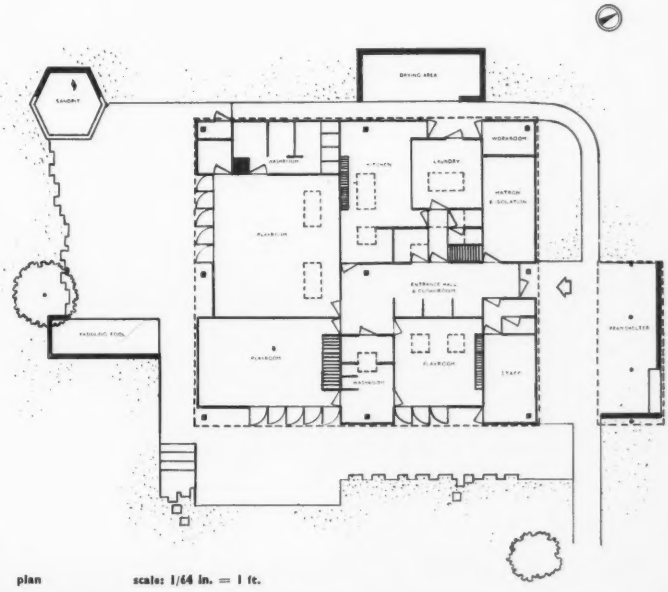
20, small hall with glazed door to garden at junction of administrative block with lower-level classroom wing. The mural painting is by students of the Bath Academy. 21, looking up the stairs which link the upper-level and the lower-level blocks. 22, typical classroom, showing clerestory lighting between adjoining classrooms.

4. Day Nursery at Garston

23

23, general view from south side showing paved terrace opening off playrooms. 24, south-east corner, showing exterior stanchion.

The site is a small area of waste land between a housing estate and a main-road traffic junction. The nursery, built 1951-52, accommodates 50 children. Two large and one small playroom open on to paved terraces, the larger of which is flanked by a sand-pit and paddling-pool. Kitchen, laundry and staff-rooms lie either side of a long entrance hall, which also serves as cloakroom.



plan scale: 1/64 in. = 1 ft.

The compact plan, reducing the extent of external walling, is made possible by the use of top-lighting (shown by dotted lines on the plan).

The structure is a light steel frame, but with stanchions independent of the walling system. The main and secondary beams are of the same depth in order to achieve a flush ceiling. This building is planned on a grid of only 3 ft. 4 ins., which is here introduced in place of the larger grid of 8 ft. 3 ins. used in the previous Hertfordshire schools. Wall panels (both external walls and internal screens) are of laminated plastic $1\frac{3}{4}$ in. thick. Externally and internally they are factory finished. Externally they are left their natural colour, a soft brown ; internally, white or some primary colour. The fascia is fluted asbestos, painted white.

24

25

25, looking along the terrace on the east side, showing the two glass-fronted playrooms separated by a washroom which has clerestory and top lighting. The playroom windows, made by a firm which produces bus windows, are in two counter-balanced leaves which slide up and down into double-glazed pockets, leaving a clear opening. 26 and 27, playroom interiors, looking towards the play terraces beyond the glass screen-walls. 28, looking from the entrance along the entrance hall and through a glass screen into the largest playroom beyond. Cloakroom space is on the left.

Day Nursery at Garston

26

27

28

It is doubtful whether it succeeds, but what it does do, of course, is to stress each individual block or projection as a separate entity, rather than as part of the whole school. The general effect by which each school seems to break up into a series of small buildings is very largely due to the eaves.

At an early stage of the programme, after the first few schools had been built, an attempt was made to solve the problem of unifying the discordant elements in a quite different manner. The school at Croxley Green, 11, is an example. It has no projecting eaves and the whole school is very much more integrated as a result. The panel is very much less accented, and, indeed, the 8 feet 3 inches rhythm almost disappears from some of the elevations. This was achieved by changing the concrete cladding from horizontal to vertical, thus enabling, for instance, an 8 feet 3 inches bay to be partly window and partly wall. It was thus possible to establish overall rhythms, other than the simple repetition of bays, and to introduce some of the elements of formal composition absent in the earlier schools. It is of interest also that in the schools of this period a window was used which had an asymmetrical division. When these windows were juxtaposed, 12, a wholly new rhythm was set up, over and above that of the grid. Mies van der Rohe, faced with a somewhat similar problem in the Alumni Memorial Hall at the Illinois Institute of Technology at Chicago, 13, uses a strongly marked sub-rhythm in addition to that given by the main structure. Each window is partially divided into four, but the pattern is arranged to overlap the structural grid, so that the window rhythm marches past, taking the structural rhythm in its stride.

The planning in the schools of this period also shows a somewhat greater formality. Classrooms are sometimes arranged in straight rows and the massing of the different parts of the building is more architectural. Unfortunately, this period in design coincided with a rather poor standard in finish. The wall slabs in particular are coarse in texture and disagreeable in colour and the superficial impression given by the schools is, therefore, not so attractive as that of the earlier and later examples. Perhaps partly because of this, an approach which showed considerable subtlety, and might have led to interesting developments, was not carried further.

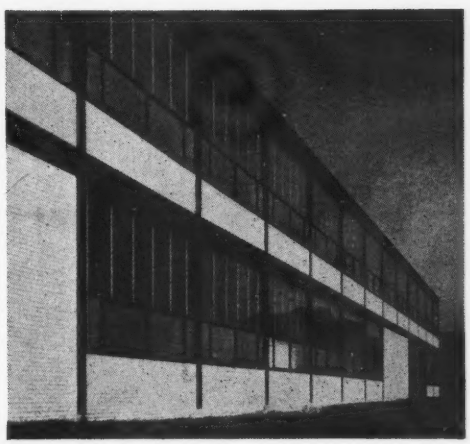
12, *Croxley Green Junior School, showing change of rhythm produced by juxtaposition of windows with an asymmetrical subdivision.*

Instead it was abandoned quite suddenly and the schools which follow returned to the projecting eaves and less formal architectural treatment, the schools at Hertford and St. Albans being good examples. Vertical cladding was retained for some time, but, in the very latest schools, it has been abandoned in favour of the original horizontal slabs. While these later schools show little new development in design, the quality of the detailing and finishes has been greatly improved and has achieved an impressive ease and fluency. There is a technological conciseness here which owes more to industry than to the craft tradition in building. This quality is especially marked in the interiors, and has an impersonal generality, in marked contrast to the studied and essentially individual solutions used so generally in modern architecture.

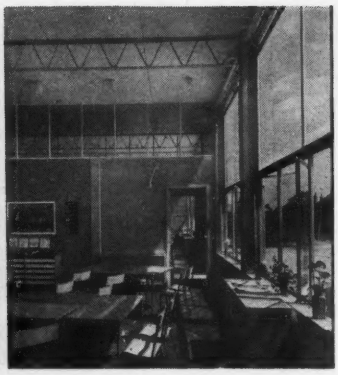
The interiors show something of the same conflict that appears in the exteriors. Their character derives from the acceptance of a uniform modular system, which has disallowed the formal relationships, proportions and textures used traditionally in architecture. Inside, as well as outside, the individual part, the rectangular panel 8 feet 3 inches long, perhaps obtrudes its personality too strongly—an emphasis that is accentuated by the pilasters, and often by the use of colour. Colour is always used in an architectural rather than in a decorative manner. Ceilings, floors and structure are treated as neutral, ceilings generally being white, structure always grey, and floors generally kept to mottled shades of brown and grey. In the assembly and circulation spaces a large proportion of the wall surfaces is painted in strong colours, but generally the choice and placing of colour is such as to separate and divide, rather than to unify. For instance, in Pentley Park school, 14, a series of walls appears one behind the other, and each is painted in a different colour. In the latest schools, classrooms have been accepted as enclosed spaces, and although different colours are sometimes used on different walls, they are usually in harmony rather than in contrast with one another.[6] This acceptance of the enclosed quality of the classroom is also shown by the omission in the latest schools of the high connecting windows from classroom to classroom, which were a common feature in earlier designs, 15.

In some schools decorative murals have been used

13, *the Alumni Memorial Hall at the Illinois Institute of Technology, Chicago, by Mies van der Rohe, showing relation of window subdivision to rhythm of main structural grid.*



[6] D. L. Medd, 'Colour in Schools,' ARCHITECTURAL REVIEW, 1949, September.



14, view through classroom wing at Pentley Park School, Welwyn. Cloakrooms are on the left. Corridor space can be used as an extension to the classroom by opening the light partitions. 15, *classroom at Hitchin. In later schools, classrooms are treated more as enclosed spaces.*

in the assembly and circulation spaces. Some of these are better than others. In particular, those in the Croxley Green junior school seem to show a real understanding on the part of the artist of the proper character for such painting in itself. The use of murals at all is, however, open to question. The mural inevitably focuses attention on the panel in which it is placed and sets up an axis. In traditional architecture the placing of murals has always been related to the formal composition of the building and it seems impossible to dissociate them from this. In these schools there is no formal composition; each wall panel is as important as any other and the whole character of the design depends on this being so, hence the picking out of one panel, by making it the site for a mural, at once raises questions of formal composition, questions whose solution cannot, and perhaps should not, be attempted in buildings of this kind. In some schools framed pictures have been hung here and there about the corridors and in classrooms. This form of display undoubtedly seems more in harmony with the casual quality of the architecture. It is probably significant that the most successful murals are found in the schools of the no-eaves period, where the architecture was more formal. That murals cannot easily be found a place in the later schools shows how complete has been the rejection of most of architectural design in the formal sense.

Is this rejection inevitable? It probably is, as is shown by several schools in Hertfordshire and elsewhere designed by architects who, although making use of prefabricated parts, did not accept the need to approach design from a different angle. In some the attempt is made to impose formal composition on buildings composed of standard units. This has resulted in devices such as closing a run of standard units by a solid wall in brick or stone. These attempts seem to show clearly the essential contradiction between the new method of building and traditional æsthetics.[7]

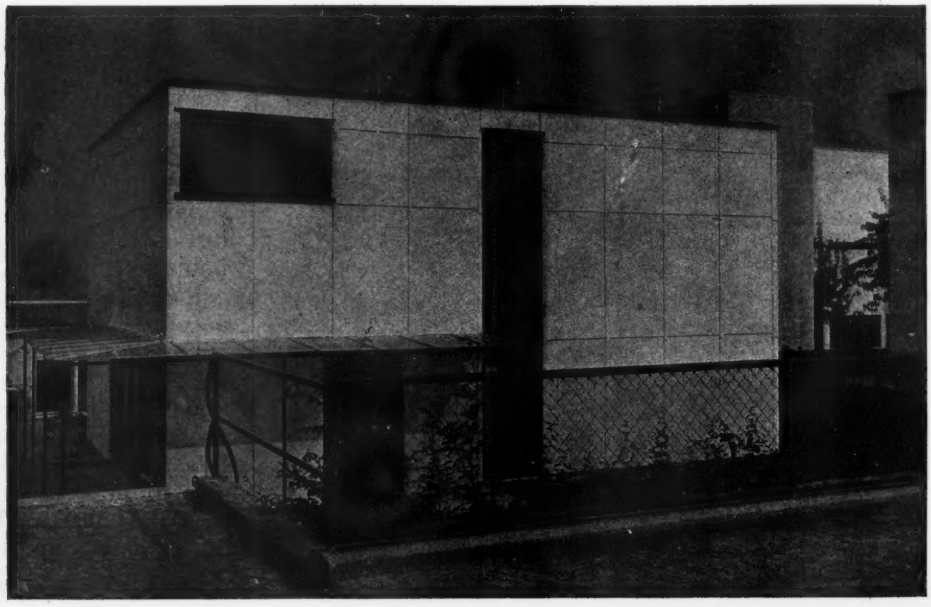
The main stream of architectural tradition, continuous since the Renaissance, does not provide an adequate framework for design in unit construction. Architects such as Le Corbusier and Asplund, whose ideal is the brilliant individual work, have remained in this stream. Although they make use of new materials and are influenced by modern sociology, their design is achieved by processes not essentially different from those which produced the Parthenon. The problems raised by the industrialization of building are not susceptible to solution by these processes. The theoretical groundwork for an appropriate æsthetic has, however, been in existence for some time, and derives, in its earliest form, from the writings of the *Stijl* group in Holland immediately after the first world war.

This group, which was formed round the painter and architect van Doesburg, sought an approach to æsthetics which would be appropriate to twentieth century conditions. At first, the discussion was centred on pure æsthetic theory, though Mondrian until his death emphasized the close relationship between his theory of painting and the physical problems of architecture.[8] At the Bauhaus, where van Doesburg went to teach in 1921, new design methods were first specifically applied to the problems of unit construction. Gropius himself was working on similar lines, though uninfluenced by the *Stijl* mannerisms, and in his house at the Stuttgart exhibition in 1927, 16, deliberately chose to design within the limitations of a unit construction, even though it had not then appeared as an industrial reality.

The key to his work, to that of many other architects

[7] R. Llewelyn Davies, 'Endless Architecture,' *Architectural Association Journal*, November, 1951.

[8] J. R. Weeks, 'Mondrian and Mies van der Rohe,' *Broadsheet* 1, Lund Humphries, June, 1951.

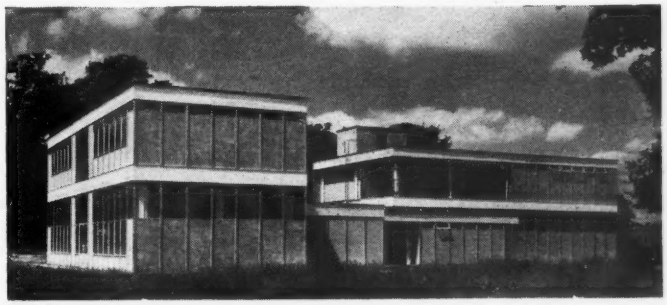


16, house by Walter Gropius at the 1927 Stuttgart Housing Exhibition, an early example of unit construction. It was entirely made of factory-produced components on a 1-metre module.

who passed through the Bauhaus, and, perhaps, most of all to that of Mies van der Rohe, its last director, lies in the very problems raised by the Hertfordshire schools. To solve these problems the traditional, formal vocabulary has been abandoned in favour of an architecture consisting solely of relationships between æsthetically neutral elements, and between the resulting volumes. Their design typically derives from the interplay of endless rhythms rather than from any formal or finite composition. It is striking that this early and largely theoretical work should have foreshadowed so exactly the achievements of the Hertfordshire architects, who set themselves to design honestly and cleanly within the limits of a prefabricated system unhampered by æsthetic prejudice.

The quality of the architecture achieved in the Hertfordshire schools has been limited mainly by the awkward dimension on which the structural system was based. The difficulties of dividing it have already been discussed and the large size of the unit undoubtedly leads to a certain restlessness and crudity in design.

The advantages of a better dimensional system are

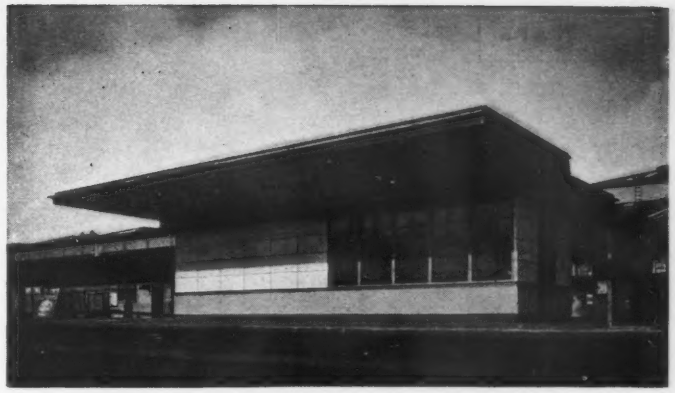


18, *Oxhey Clarendon Seconday School*, 1950. *This and the day nursery at Garston (see pages 383 and 384) are designed with the new 40 in. planning grid.*

apparent in the experimental school buildings by the same architects on the new 3 feet 4 inches grid. The use of a dimension of this order has been advocated for some time as the best basis for unit construction. It was chosen by Gropius, after lengthy study, for his 'General Panel' system in 1947, and was also the basis for the LMS Unit railway stations, 17, put up in 1946-48.[9] It was first recommended for schools in the report of the Ministry of Education's second Working Party in 1948.[10] The first school on the new grid, 18, was put up at Oxhey in 1950, followed by a day nursery at Garston. As a method of building the system is still under development, and many technical problems remain unsolved. As architecture, however, seen in contrast to that already discussed, these schools show how much depends on the actual dimension on which the constructional system is based. With the small module the basic unit becomes a single door, window or wall panel. The main supporting structure may be set at any multiple of 40 inches and, indeed, need not be uniform throughout one building. In this type of prefabrication some of the architectural problems eliminated by the large grid reappear. The school at Oxhey and the day nursery at Garston have elevations

[9] ARCHITECTURAL REVIEW, 'Unit-built Stations,' March, 1946.

[10] Report of Technical Working Party on School Construction, 1948, October.



17, *Queen's Park Station, one of the unit railway stations designed by the LMS architects and built in 1946-8. It was designed on a 40 in. grid.*

in which something like an overall composition has come back. Much greater freedom and correspondingly greater responsibility are returned to the designer who has to make conscious decisions, where with the larger module he would have had little choice.

The day nursery at Garston is a tiny building of the very greatest architectural interest. Walking about it, it is possible to see just what the design problems and possibilities of unit construction are. The small element is now automatically neutral and the possibilities of architecture arising from the assembly and relationship of these elements is enormously greater. The 8 feet 3 inches grid provided the designer with large, somewhat clumsy and centric elements, in the assembly of which there was little margin for design. When put together, their large size made them very difficult to combine, and the part, however neutral its design, was too large to be effectively absorbed in the whole. With the smaller module, a wall may be composed in a large number of ways. The ugly and grotesque is again possible, but so is a balance and harmony unobtainable before. A great deal of design has come back, but in a different form. Even with the smaller module the architecture must remain additive; the elements in the vocabulary are still neutral, industrially produced standard components which are not susceptible to traditional usage. But once again, rhythm and pattern may be subtle and complex. No longer need the rhythm be restricted to a single, steady pulse. The 40-inch units may be combined to give intricate counterpoint both horizontally and vertically.

The Hertfordshire architects have begun to explore the possibilities of this new architecture. The immediate tasks facing them and others working in the same field are two. First, to improve still further the design of the individual elements, and second, to develop greater power and understanding in the assembly of the units into an architectural whole. The essential tools of the classical designer, proportioning and finite composition, cannot be used; instead, balance and harmony must be sought in new ways, in the words of Mondrian . . . 'not from the particular character of the form, but from the dynamic rhythm of its inherent relationships, or from the mutual relations of forms.'[11]

[11] Piet Mondrian, 'Plastic Art and Pure Plastic Art,' Wittenborn, Schultz, Inc., New York; second edition 1947.

Kenneth Browne

ROUNDABOUTS

Side by side with the increase in motor traffic, the all-important relationship between floor surface and buildings in our towns has been disrupted to an ever-increasing degree by the pattern of the traffic stream. The visual homogeneity of the town as a unit has been sacrificed more and more to the needs of transport, and one of the chief offenders against the visual function of the floor as a connecting and unifying surface is the traffic roundabout or island.

Brought into being by the traffic river it is a No-Man's-Land, an island isolated from its surroundings, forbidden territory to the pedestrian.

Though the purpose of the roundabout is a purely functional one, namely to act as a traffic buoy and reduce the need for traffic lights and police supervision, the form it takes exceeds the requirements of function alone. Though a simple two-dimensional marking on the floor surface might satisfy the purpose, the buoy invariably takes the form of an island raised above the road surface by a kerb and generally bounded by a meaningless pavement.

Every town has its crop of islands which are for ever on the increase, for the craze for island-making is catching. The 'rule of thumb' mind tends to turn all space between traffic lanes into islands which, conceived in plan only on the drawing-board, on the ground have the effect of breaking the townscape into fragments.

At Hereford (illustrated opposite) we have a typical example of the kind of complete visual dislocation common in so many of our towns.

Though the roundabout is forbidden ground to the pedestrian it is visually important to him. That this has been realized in a woolly and confused fashion is borne out by the 'artistic' attempts made by Public Authorities to decorate the islands they have made.

There appears to be an inbred fear of making a clear statement and so the impact of functional inartistic things like buoy and traffic sign must be softened by something attractive such as a bed of tulips. The intention is to beautify, but in most cases the result is

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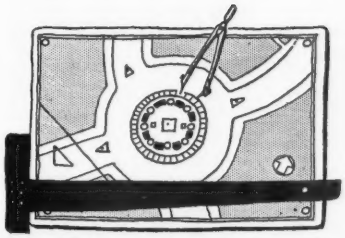
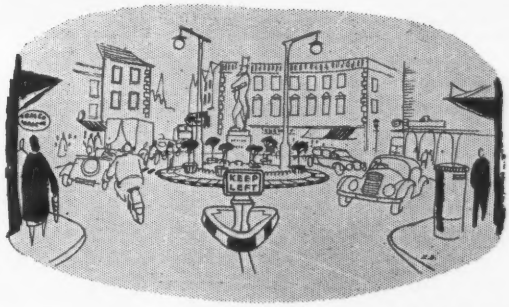


Rule of thumb: on the drawing-board this kind of solution is produced almost without thinking . . .



. . . but the result, more likely than not, is chaos in the only view that matters—the view from the ground.

Roundabout rash: complete visual dislocation of the street achieved by treating every available space as an island. An attempt to disguise with planting is futile and only adds to the confusion. The desolation of the scene is echoed by the despondent shape of the concrete light standard rearing up from its rose-bed. This is Hereford, but the same kind of thing is happening in nearly every town.

fragmentation; the clear statement of the relationship between floor and buildings is broken. While we doubt if half the islands created are really needed, for the purpose of this article we shall not question the merits of the roundabout system, but analyse them as they exist.

2

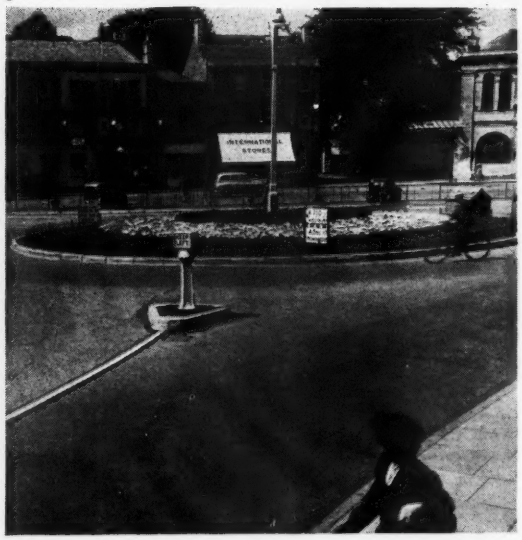
Tubbed and tinned. This small roundabout in Dorchester shows a half-hearted attempt to marry the functional with the rustic. Its triviality is emphasized by the solid planting in the background. The character is ambiguous: do the shrubs say to the pedestrian 'keep off' or 'come on'?

Rustic

Four examples of rustic treatment. 3, *the island within this Lambeth roundabout is softened by flowers in tubs and garden seats. At least an effort at informal planning, but incongruous in scale and makeshift in appearance.* 4, *floral display at Melksham. Functional signs mix oddly with massed small flowers appropriate to a cottage garden but not to a traffic buoy. The little tile-roofed shed behind the cyclist hardly succeeds, as was presumably intended, in linking the garden with its surroundings. What purpose is served by the low wire fence and the tight-rope rim of pavement?* 5, *this unneeded array of clutter is also at Melksham. The purpose could have been better answered by a white line or change in floor texture. The over-equipped island with its clumsy fence and rustic stone urns only detracts from the dignity of the buildings in the background.* 6, *roundabout at Bristol. Rusticity and rock-plants consort oddly with the modern traffic sign; again the functionless kerb and the inaccessible open space behind.*

3

4



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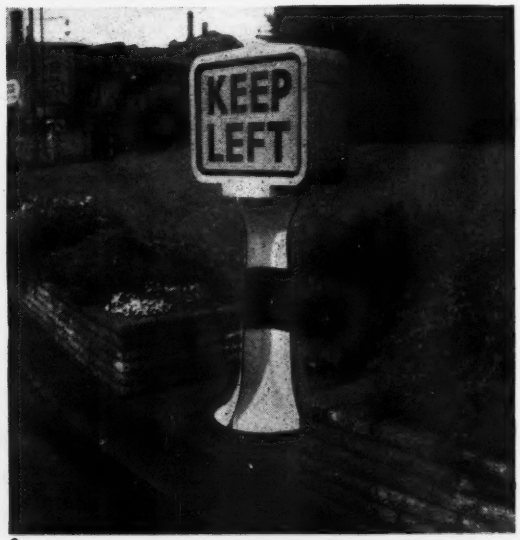
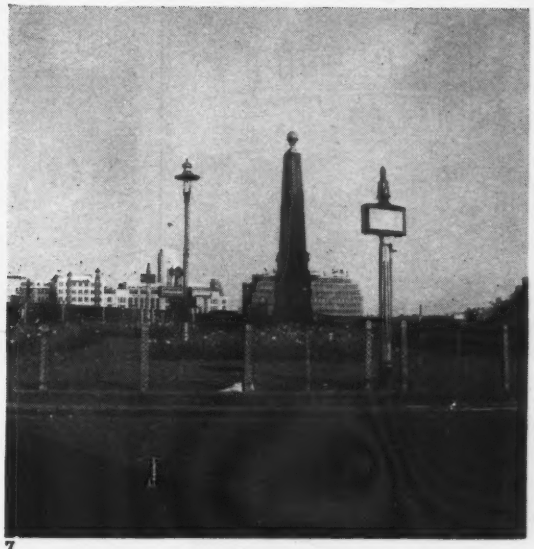


Wired

The use, or rather mis-use, of railings. 7, at the head of Lambeth Bridge. A good strong fence makes it clear that the garden is not for the public. 8, a fine tree and welcome shade at Monmouth, but don't come too close.



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8

Public Convenience

9, roundabout convenience in Shaftesbury Avenue, London; almost inaccessible, being ringed by traffic and (because of the traffic), racecourse fencing as well. The drawing shows what happens when a traffic island, as well as accommodating a public convenience, is made a dumping ground for signs and notices.

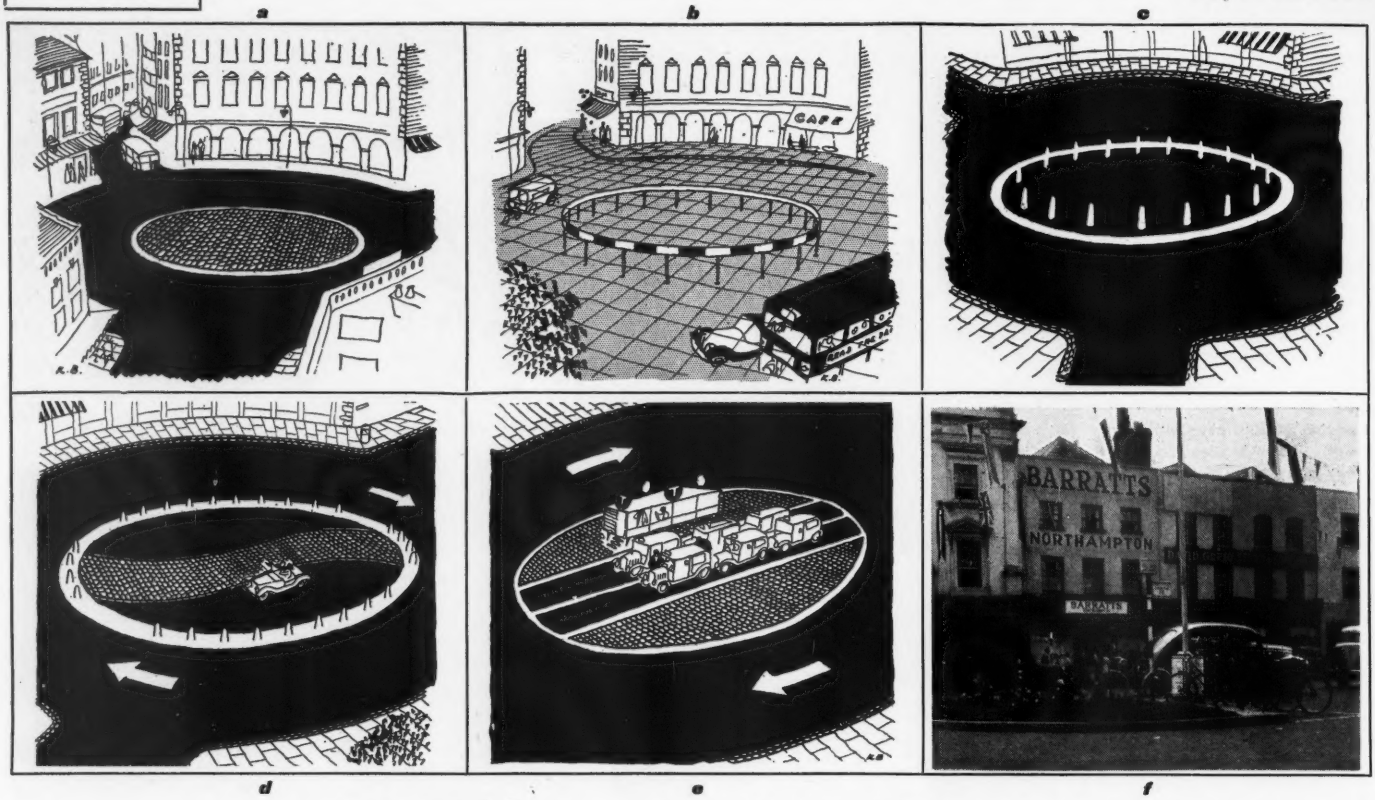
9

The majority of existing roundabouts can be conveniently classified as Rustic, Wired or Public Convenience.

The RUSTIC, or Olde Worlde style, is born of a desire to present something pleasing and decorative by camouflaging traffic control as nursery gardening. If the island is small it is decorated with geraniums and small bushes in tubs or a rockery, if it is large by ornamental flower beds. Apparently, the incongruity of functional signs and forget-me-nots is not appreciated nor the fact that flower beds and rockeries suggest a close inspection and leisurely contemplation inappropriate to a road junction. These rustic retreats rarely have any visual connection with their surroundings. Road signs and street furniture if well designed can enhance the townscape in their own right.

The WIRED is a development of the rustic. A garden island is created, presumably for the benefit of the public, and then fenced off as if to say 'Keep Out.'

The third category, that of PUBLIC CONVENIENCE, is the one case where, mistakenly, the roundabout becomes pedestrian territory. Ill-named on account of the inconvenience of access across traffic, it is generally the dumping ground of sand-bins and a multitude of signs conflicting in shape, lettering and instruction. Apart from interrupting the traffic and endangering the pedestrian, it does nothing to enhance the scene.



Possible treatments of the centre of the roundabout—see below. a, *two dimensions only; clearly visible and the cobbled centre deters trespassers.* b, *baffle board, permitting unity of floor surface.* c, *white circle with bollards.* d, *lay-by for cars, for the brief halt while you read your map and get your bearings, out of the traffic stream.* e, *taxi-rank; call is by telephone or by push-button on pavement; cabin on stilts allows continuity of floor surface.* f, *a positive idea put into practice at Hereford, though somewhat messily: the island as cycle-park.*

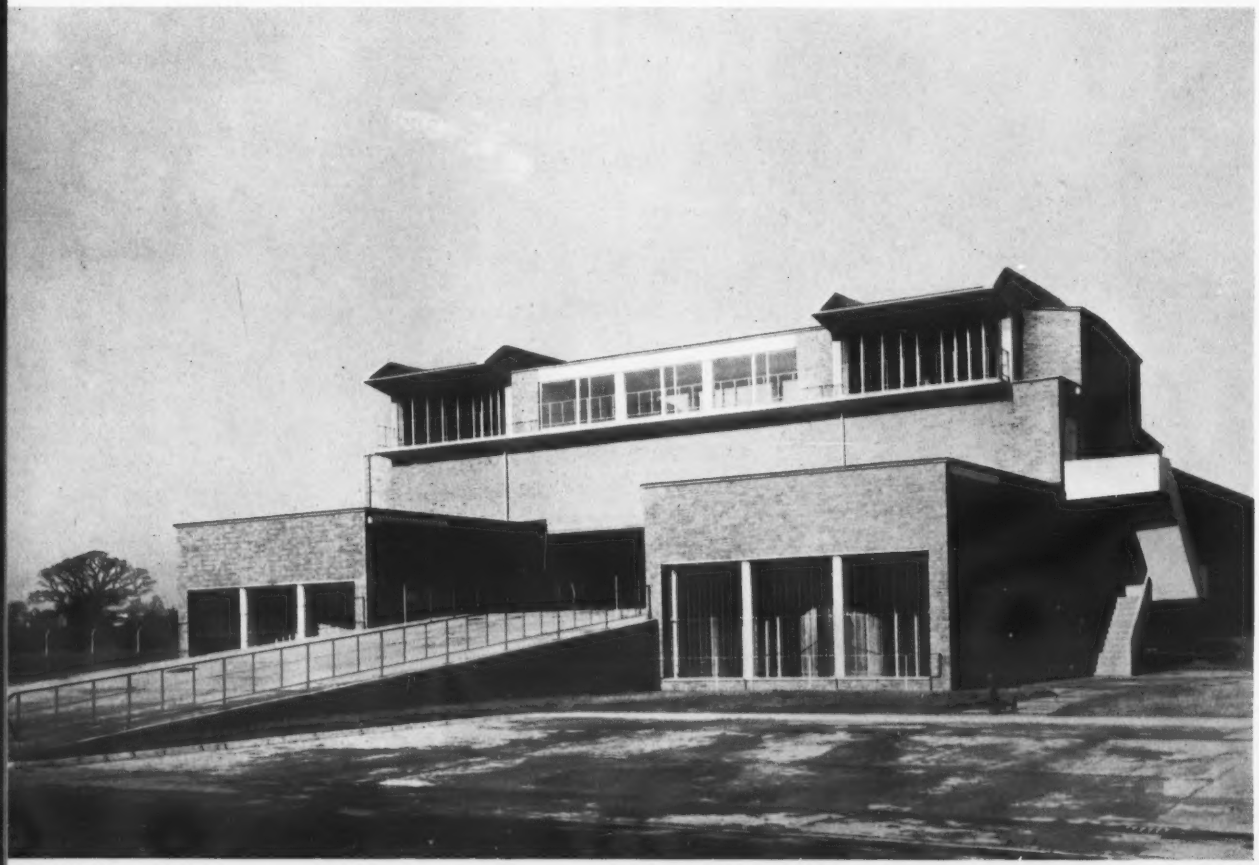
How can the roundabout be civilized as opposed to being merely decorated? These pages try to show. The great negative principle in towns is not to break up the floor surface. Why not indicate the traffic pattern in two dimensions by means of a white circle painted on the floor itself. This would be completely functional, clear as chalk on a blackboard and have the great advantage of not breaking the plane of the floor. In addition, it would be an easy matter to keep it smart and clear by repainting. The centre of the circle might be cobbled (as a deterrent to vehicles) without recourse to the kerb, and ringed by cat's-eyes for night driving. Alternatively, where traffic is heavy a light three-dimensional ring sign raised above the road level and allowing continuity of floor—the *baffle board*—has already been used and found successful.

The next thing to guard against is wasting the central space (the most valuable commodity in a town) in the sort of way it is wasted by the unusable rustic garden, nearly always in an effort to cover up the fact that the road engineer has no positive ideas about what use to make of it. As a matter of fact there is one useful purpose the central area might serve as an urban lay-by—not preferably for official parking, but for the odd couple of minutes when you need to get out the map or ask the way. The alternative is to keep on going round the roundabout until inspiration comes, which gives one an unpleasant sensation. Let us not, however, fall into the easy mistake of regarding all space between the traffic pattern as potential roundabout material. Safety first, yes, but not at the cost of disintegrating our towns.

10, *warning from Hereford: the midget island, or every space a roundabout. This is what happens when roundabout fever is carried to its ultimate conclusion.*

JET ENGINE TEST HOUSE NEAR BRISTOL

ARCHITECT: ERIC ROSS



1, from the south-east, showing high and low level air intakes either side of the access ramp at the 'cold' end of the building.

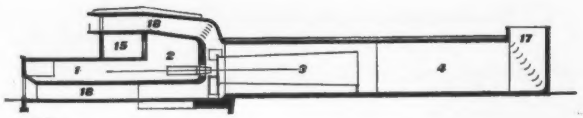
The turbine jet testing building for the Bristol Aeroplane Company at Gipsy Patch, on the outskirts of Bristol, may be conveniently considered in two parts: first the 'cold end' covering all the air intakes, the test chambers themselves and control rooms, and second the 'hot end' covering the exhaust tunnels containing the diffusers and exhaust silencing. For the cold end a quite normal form of heavy brick and reinforced concrete construction has been adopted, employing a local rustic brick and Cotswold greys for the various infilling panels.

The major structural problems lay in the hot end, for it is in the exhaust tunnels that the temperature of the exhaust gases begins to take effect and some degree of air pulsation and turbulence is experienced. To meet these conditions, each tunnel is formed as a concrete box with 12 in. thick monolithic reinforced concrete roof and walls adequately tied to the structural floor with a pin joint allowing for the differing expansions. Walls, floor and ceiling are all lined with thermal insulation. In addition to the cross-sectional expansion, movement takes place in the long axis of the tunnels and for this reason the tunnel structure is kept entirely independent of the cold end, an expansion joint being introduced at the junction. To ensure that the tunnel itself does not, when expanding, part company with the cold end structure, a large reinforced concrete toe

projects downwards into the subsoil, forming part of the actual tunnel. This toe is shown on the long section of the building, on the right.

Externally, the planning of the building has been given a full and frank expression. Air intakes and exhaust towers are shown as such and the upstood beams carrying the main roof reveal the structural form. As ancillaries to the main test beds come the fuel and water pump houses, together with lavatories and fuel and water storage installations. Colour has been extensively used on soffits and other surfaces. Internally the buildings are finished in pale grey gloss paint while a variety of colours are introduced in the control rooms.

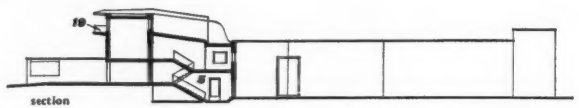
The job cost £110,000 and the first engine was tested only 8½ months after work on the site was commenced. To achieve this speed of construction many of the drawings were made while work on the building was already in progress.



section

key

1, engine air and splitters. 2, test chamber. 3, diffuser. 4, splitters. 5, lobby. 6, ramped approach road. 7, apron. 8, pumps. 9, male lavatory. 10, store. 11, water pumps. 12, water storage tank. 13, fuel storage installation. 14, scammel unloading area. 15, control room. 16, observation panels: 17, exhaust. 18, entrained air and splitters. 19, balcony. 20, emergency exit staircase.



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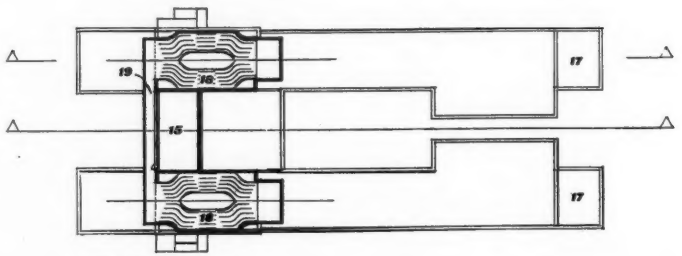
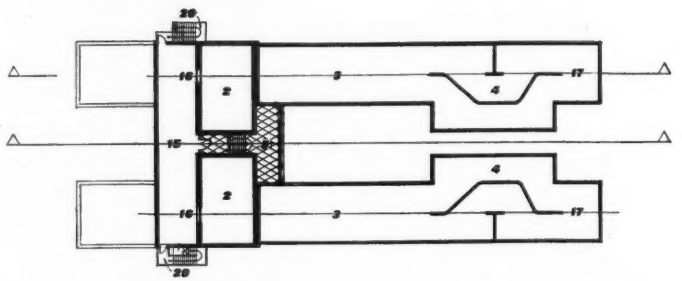


second floor plan



first floor plan scale: 1/64 in. = 1 ft.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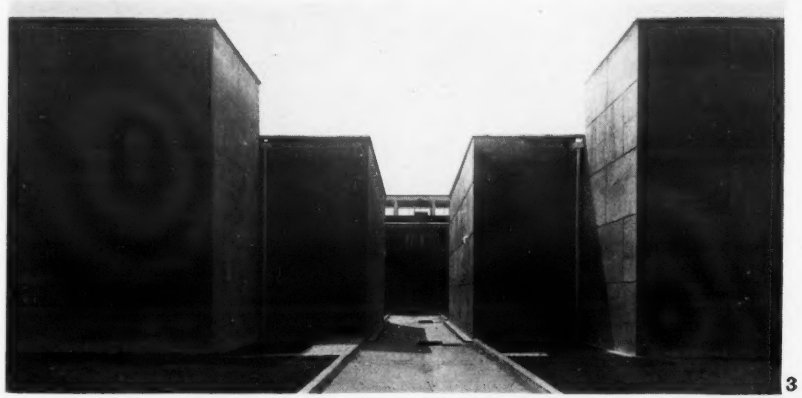
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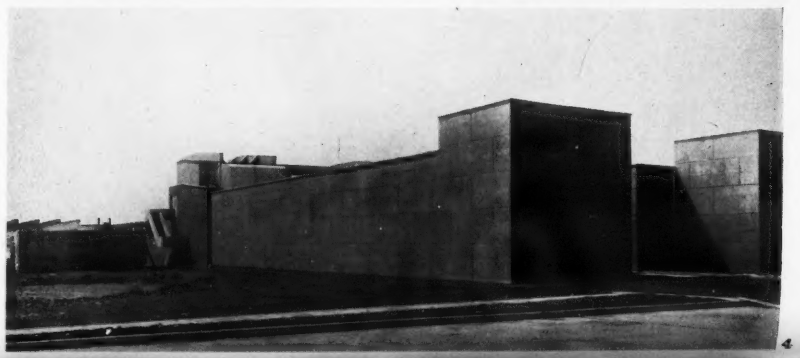
2, looking up the access ramp towards the south front of the building; the air intakes are on either side. 3, looking from the north into the lobby between the two exhaust ends at the 'hot' end of the building. 4, diffuser and exhaust end. 5, one of the diffusers which occupy the interior of the rectangular blocks shown in 4. 6, the splitters at the entrained air entry.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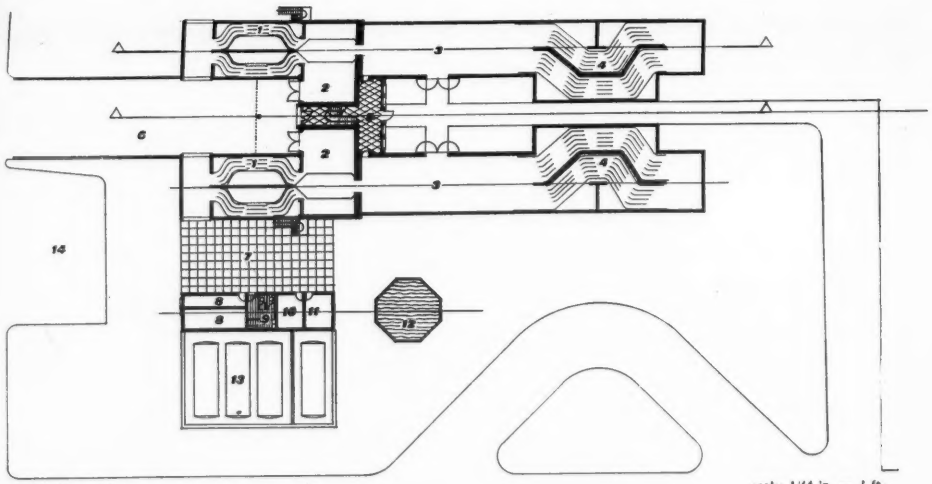
first floor plan scale: 1/64 in. = 1 ft.

blocks shown in 4. 6, the splitters at the entrained air entry.

4



ground floor plan scale: 1/64 in. = 1 ft.

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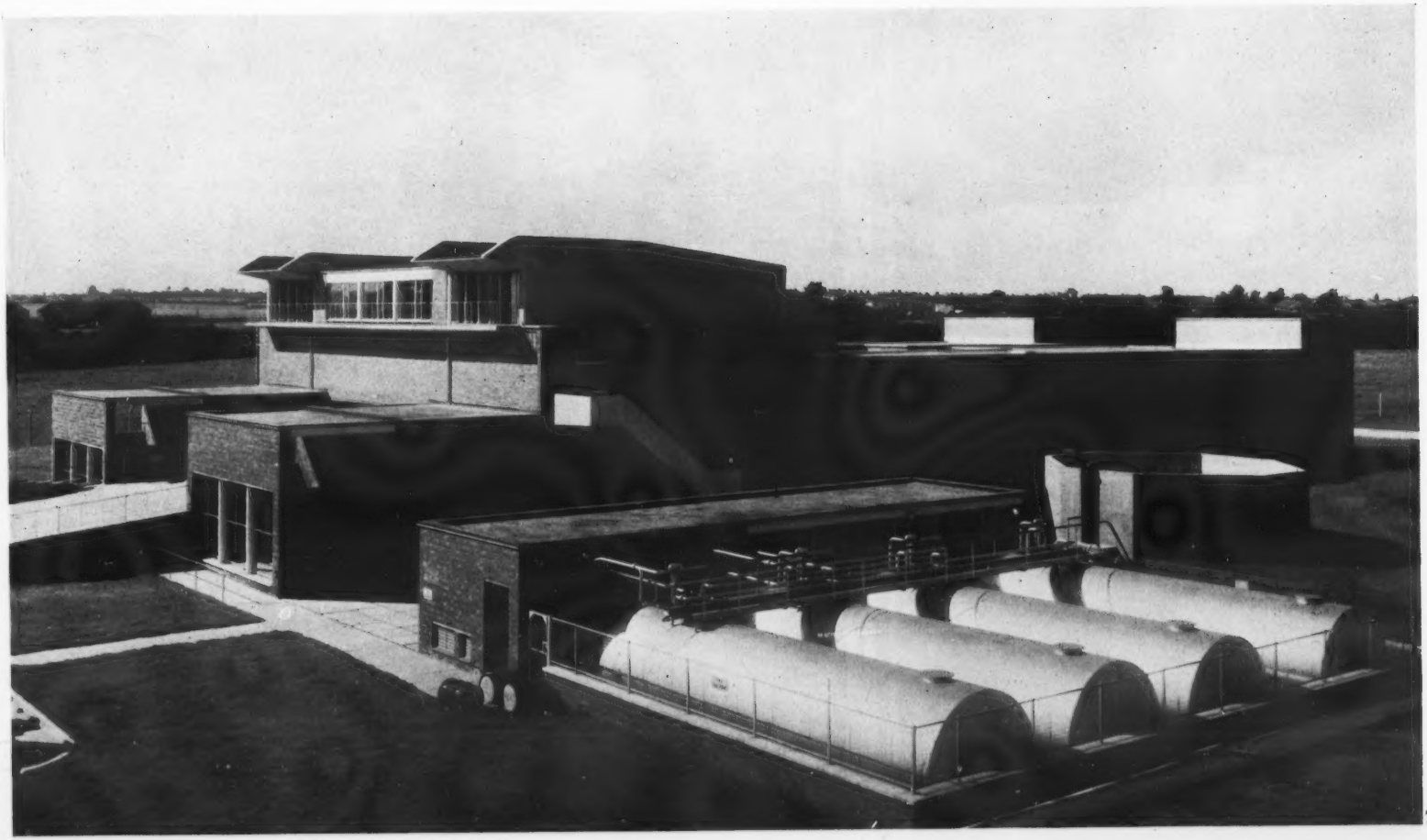

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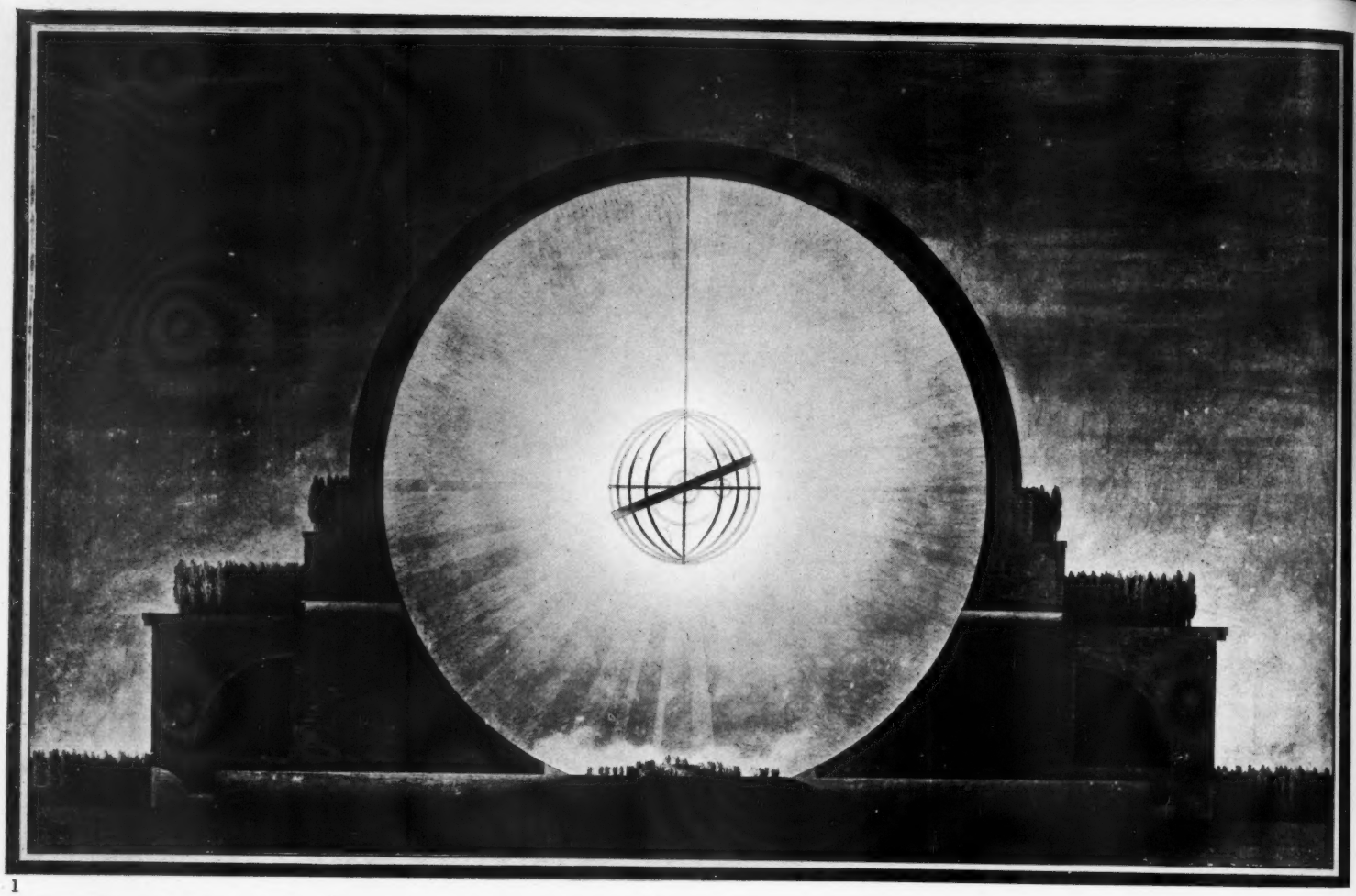
7, high-level view from the south-east, showing the main test houses and, in the foreground, petrol storage and water storage tanks.



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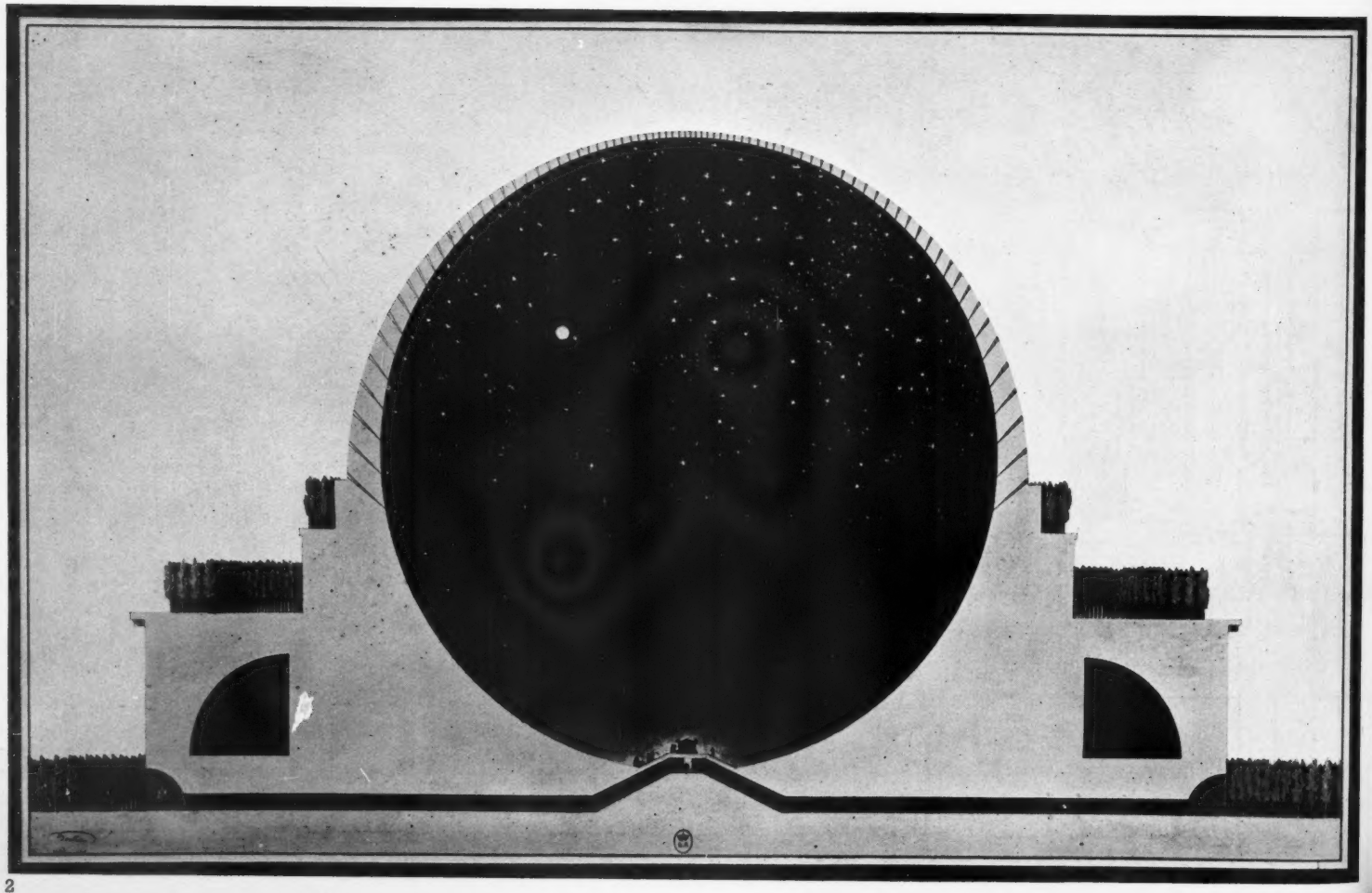

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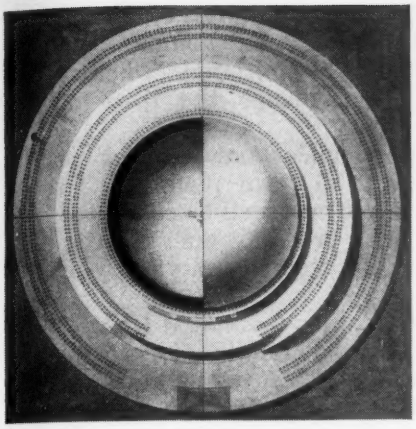


3

Among the highly original—and sometimes fantastic—projects designed by the eighteenth-century French architect Boullée, and illustrated in his great work, Essai sur l'Art, *is a monument to Sir Isaac Newton,* 1, 2 (*facing page*) *and* 3. *Of Newton, Boullée writes: 'Esprit sublime! Génie vaste et profond! Etre Divin, Newton! Daigne agréer l'homage de mes foibles talens! . . .' (p.* 126 *v.). 'O Newton! Si par l'étendue de tes lumières et la sublimité de ton Génie, tu as déterminé la figure de la terre, moi, j'ai conçu le projet de l'envelopper de ta découverte. C'est en quelque façon t'avoir enveloppé de toi même . . .' (p.* 127 *r.). 'C'étoit dans le séjour de l'immortalité, c'étoit dans le Ciel, que je voulois placer Newton' (p.* 127 *r.). Boullée experimented with these designs, of which numerous versions exist. Here he expressed his cosmic conceptions. In one it is night, but the cenotaph is illumined by a central light, symbolizing the sun, whilst an armillary sphere shows the ecliptic and the rotation of the earth and the moon. A contrasting scheme presents the world by night, whilst the outside of the building is set in daylight. The interior effects are due to slits in the dome, which allow rays to penetrate. The scale of the human figures makes clear the monumentality of Boullée's vision. 'En me servant, Newton, de ton divin système, pour former la lampe sepulcrale qui éclaire ta tombe, je me suis rendu, ce me semble, sublime. C'est la seule décoration dont j'ai crû devoir faire usage' (p.* 127 *r.). Vaudoyer's publication of drawings, many of them based on Boullée's, attest to their wide influence, an influence even found in Russia, as pointed out by Grabar in his* History of Russian Architecture. *To this type belong the* 'Temple décadaire' *by Durand and Thibaudet of* 1795, *the Cenotaph of Newton by Labadie of* 1800 (*second* 'Prix d'émulation') *and, more important, Gay's design of a sphere inserted in a pyramid. The interior treatment of this clearly represents a synthesis of Boullée's schemes based on the drawings deposited in the Bibliothèque Nationale.*

Helen Rosenau

BOULLÉE

ARCHITECT-PHILOSOPHER: 1728-1799

Etienne-Louis Boullée was born in 1728, eight years before Ledoux.[1] He died in 1799, five years before Ledoux published his *Architecture*. Amongst his pupils were Chalgrin of the Arc de Triomphe, Durand, whose *Cours* did more to popularize the French style of about 1800 than anything, and Brongniart, the architect of the new Bourse. Madame Brongniart said that Boullée was for architecture what David was for painting. She must have known; and so an attempt to present Boullée's work and ideas even in the most abridged form may be worth making.

The first thing to remember, in order to understand Boullée's style, is the fact that he wanted to be a painter but was induced by his father, who had a job in the Bâtiments du Roi, to become an architect. His inspiration seems indeed more easily roused by vistas of exteriors and interiors than by construction. He despised the technical aspect of building, and was keenly interested in poetry and philosophy, and he envied writers and painters because they were less dependent on patronage.

At the age of eighteen he was made Professor of Architecture at the Ecole Centrale and during his long life he held an authoritative position at the Académie d'Architecture, of which he became a member in 1762. He worked for a number of private patrons, and his official commissions included a new entrance for the old Bourse, and plans for a Royal Palace and for the rebuilding of the Bibliothèque Nationale.

Boullée's private life was uneventful. He died unmarried, but not a lonely man, since many of his pupils remained faithful to him in his old age.

Boullée expressed his views on architecture and the other arts, as well as the philosophy of his life, in an *Essai sur l'Art* deposited in the Bibliothèque Nationale, a work which was to be fully illustrated by drawings, kept now in the Cabinet des Estampes. (MS. Français 9153.) The sketch for the *Essai*, together with other documents connected with Boullée, is bound in the same volume, but bears a more explicit and informative title: *Considérations sur l'Importance et l'Utilité de l'Architecture suivies de Vues Tendantes aux progrès des Beaux Arts.*

Boullée's originality and the impact of his work, which was freely accessible at the Bibliothèque Nationale, is borne out, not only by his influence on his immediate pupils, but also on such architects as Gasse, Gay, Lequeu,[2] and others. In fact, the whole series of academic prize drawings published by A. L. T. Vaudoyer in 1806 pays tribute to Boullée's inspiration. This being so, the question arises as to how the evident similarity between the designs of Boullée and of Ledoux should be explained. They can hardly have been in sympathy with each other personally. No greater contrast could be imagined than that between the two men. Boullée was extremely modest. He wrote:

> 'Quel est l'auteur qui ne sent pas sa foiblesse? . . . tous les hommes qui ont de l'aptitude au travail sont tourmentés du sentiment de leur insuffisance.' (p. 87.v.)

Ledoux's discursive and thoughtful *L'Architecture considérée sous le rapport de l'art, des moeurs et de la*

[1] See *Criticism* by Peter Donner, AR, October 1941, pp. 124-126.

[2] See *Architecture and the French Revolution* by Helen Rosenau, AR, August 1949, pp. 111-116.

législation, published in Paris in 1804, on the other hand, abounds with self-praise and vilification of others.

> 'La description des besoins,' Ledoux writes, 'que l'on assemble à ce centre commun' (this is applicable to many of Ledoux's projects) . . . 'seroit peu important, mais occupé du bien publique qui est lié essentiellement aux vues qui ont dirigé cet ouvrage, on n'a pas cru devoir passer sous silence ce qui peut interesser la conservation de l'homme, ce qui est regardé comme le premier devoir de l'architecte.' (p. 209.) And in his Introduction addressed to the 'Comités auxquels on réfère pour toutes les constructions d'utilité publique':
>
> 'Ce nouveau tribunal n'a aucune idée de la sublimité de l'art.' (p. 22.)
>
> 'Contrarié toute ma vie, sous tous les rapports, je n'ai rien fait que j'eusse voulu faire.' (p. 33.)

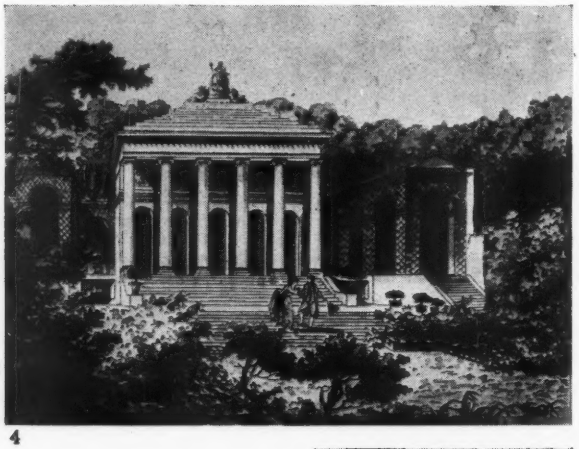
Ledoux, it is known, was not a friend of the Revolution. Boullée sympathized with it as long as it was reformist and in keeping with the ideas of Diderot, Rousseau and Condorcet. Indeed, the revolutionary ideals inspired some of his best work, although he failed to convince his contemporaries of his sincerity. Boullée, like Ledoux, devoted his leisure during the revolutionary period to writing a treatise on art and architecture, but he was unfortunate in not obtaining its publication. It is dedicated 'aux hommes qui cultivent les arts'; that is, the initiated, whereas Ledoux's intention was to challenge the taste of anybody.

The contrast between Boullée and Ledoux is equally striking with regard to town planning. To Ledoux we owe at Chaux what may well be called the first of the 'garden cities,' with broad avenues of trees, open to the countryside and dotted with a variety of private buildings.

Boullée, on the other hand, was fascinated by vast compact blocks, and preferred public to private buildings. 'Les sujets stériles sont ceux d'habitations' since they allow for little variety. (p. 110.v.) The 'enceinte,' the enclosure of buildings, is stressed, especially with regard to city walls: 'Ils n'ont pas joint, ce qui appartient à l'architecture civile . . . l'image de la force.' (p. 129.v.) 'Imperméabilité' and 'Variété' he demands from city architecture: 'L'entrée de Ville . . . présente des murs qui semblent indestructibles.' (p. 129.v.)

As to the respective chronologies of Boullée's and Ledoux's work external rather than internal evidence has to be relied upon. Although Ledoux states in the preface and the text of his *Architecture* that all his designs were conceived between 1769 and 1789, the works which can be attributed to him with certainty do not bear out these statements. Boullée's faith in elementary stereometric forms, the cube and the sphere, has been given theoretical substructure in the chapter of his treatise entitled 'De l'essence des corps. De leurs proprietés. De leur analogie avec notre organisation.' Ledoux used the same forms without such theoretical foundations. Similarly, Boullée's vision of the sphere is developed from the theme of the cenotaph. It expresses immensity, eternity and the infinite, whilst the spherical wood-cutter's house by Ledoux, with its internal opening, has no such specific relationship to subject matter. Boullée's approach throughout is that of a visionary, whilst Ledoux remains far more of a practical architect. In fact, as soon as Ledoux loses his practical background, for instance in his designs for the Cemetery of Chaux, he seems forced to take refuge in Boullée's conceptions. Boullée's National Palaces, the prototypes of community centres, also exhibit many ideas which Ledoux only needed to expand for his own more conventional style, as can be seen from his Oikema, or the house dedicated to the Virtue of Women.

Boullée's actual buildings, such as the Hôtel Brunoi of 1772, are less important than the designs he made, no doubt for use in his lectures and also as illustrations to his *Essai sur l'Art*. The essay consists



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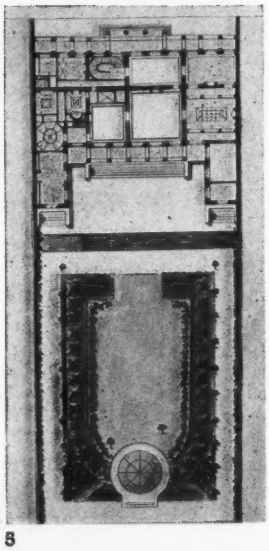

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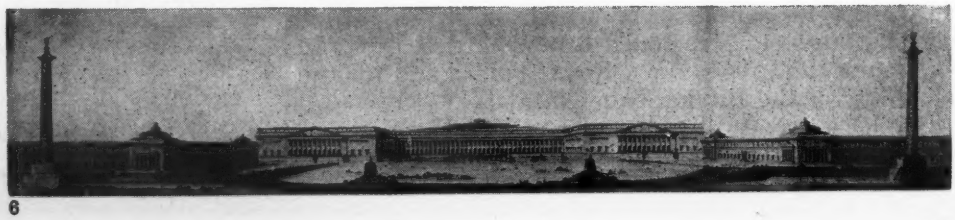
Boullée's executed work but poorly represents his architectural vision. He may be truly regarded as an inspirer and poet rather than a practising architect. In the Hôtel Brunoi of 1772, 4 and 5, typical of his executed buildings, the regular and enclosed garden layout and the cool classicism of the façade are quite conventional. The same can be said of his plans made for M. d'Angiviller for rebuilding the Palace of Versailles on its original foundations, 6. The date of the Versailles drawing is obviously not later than November 7, 1790, when Charles de Lameth accused d'Angiviller of reckless spending. Boullée, in his treatise, regarded the erection of dwelling-houses as a sterile task, and even his best known 'hotels,' although pleasing and well arranged, show no traces of poetic vision. The Hotel follows the traditional pattern with its garden and main axis emphasized by a pond. As to Versailles the important thing here is that not only are all architectural ornaments avoided, but the triumphal columns and the ziggurat-like towers are crowned by burning flames characteristic of Boullée's concern with emotionally moving symbols.



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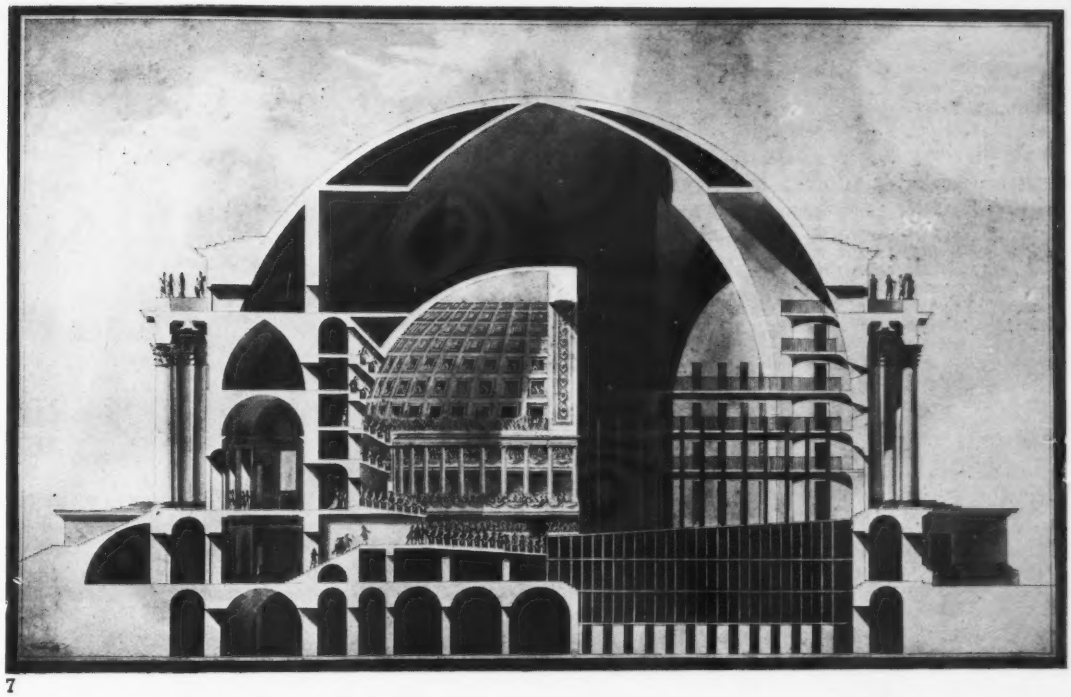

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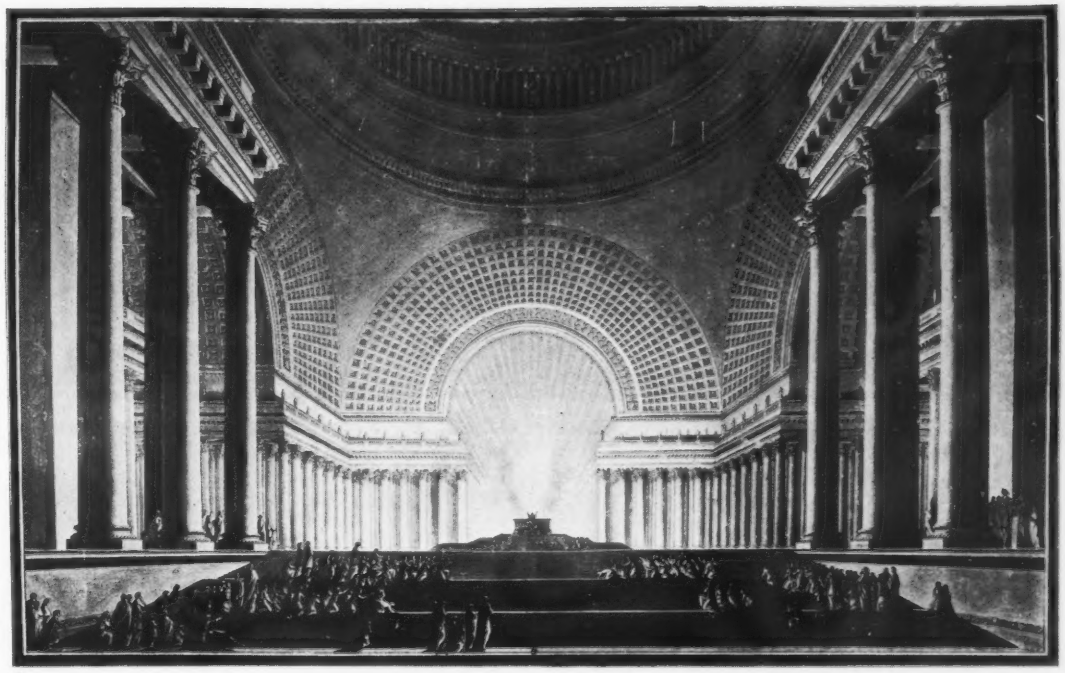
7, *Boullée's design for a theatre, reproduced, like the other projects illustrated on these pages, from the drawings made for his* Essai sur l'Art. *In this essay he writes:* '*J'eus lieu de croire que je pourrois l'éxécuter au centre du jardin de la révolution (ci-devant le Palais Royal). . . . On peut aisément se figurer l'effet d'ensemble, qui résulteroit d'une salle placée dans un jardin agréable, ayant pour enceinte un Palais et des bâtimens considérables*' (*p.* 98 *r.*). *This scheme goes back to* 1781-82 *according to documents in the Archives Nationales. As an alternative of after* 1789, *Boullée mentions an isolated theatre projected for the Place du Carrousel. The way in which the cupola is pierced by undecorated ogives foreshadows modern effects in reinforced concrete.*



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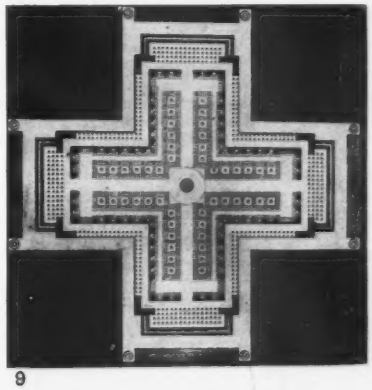

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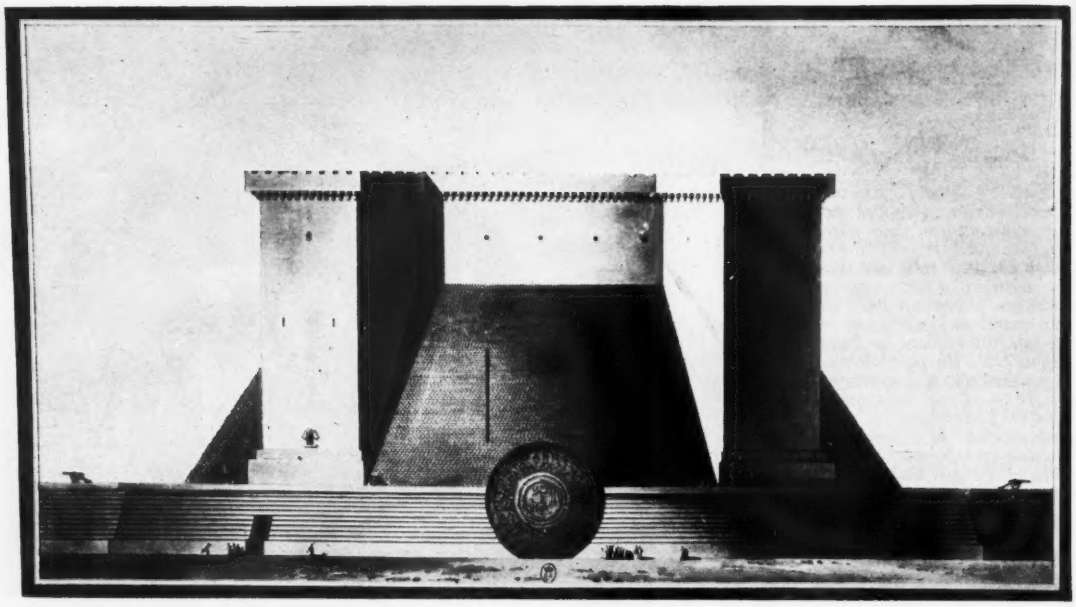
8 *and* 9, *his design for a great cathedral, which Boullée wished to erect on Mont Valérien, the site of the present Sacré Cœur in Paris. It was to be specially built to celebrate the Festival of Corpus Christi.* '*Dans le projet d'une Métropole, le Poême Epique de l'architecture, j'ai cherché à développer et à réunir tout ce qui appartient à la Poësie de cet art. Par des vues neuves et philosophiques, je suis parvenu à trouver l'art de mettre la nature en œuvre, en introduisant la lumière dans le Temple, de manière que pouvant la maîtriser elle devint susceptible d'effets éclatans, mystérieux, doux ou sombres: en un mot, propre à faire naître en nous des sentimens analogues à nos cérémonies religieuses et qu'exige le culte de l'Etre Suprême*' (*p.* 138 *r.*). *That the text was composed after* 1789 *is likely from the references to* '*L'Etre Suprême*' (*see also p.* 88 *ff.*). *Here, Boullée's views on Gothic art are interesting:* '*Depuis longtemps j'avais conçu le projet de réunir, aux beautés de l'architecture grecque, je ne dirai pas les beautés de l'architecture Gothique, mais des moyens d'arts connus et mis en œuvre par les seuls Goths*' (*p.* 94 *v.*). *Boullée's Church is designed as* '*un temple à jour comme un effet aerien*' (*p.* 91). *For such effects he admired Gothic buildings. Their mysterious indirect lighting gives* '*à leurs temples un grand caractère*' (*p.* 93). *Their buttressing system also impressed him and he took it over for his cathedral* (*p.* 95 *r.*), *but he objects that* '*les objets . . . soient . . . multiples à l'excès . . . dans nos églises Gothiques*' (*p.* 91 *r.*).

10, *Boullée's project for a fort: 'La porte qui lui sert de fermeture est annoncée par le bouclier d'Achille. C'est ainsi que par ces énormes amas de munitions de Guerre, j'ai cherché tout-a-la fois, et à caractériser ces monumens et à manifester l'art' (p. 130 r.). This drawing is another example to show how Boullée was in advance of his time. The rich display of shields in David's painting of the Sabine Women of* 1800, *for example, seems to reflect Boullée's inspiration, and the compactness of the Fort foreshadows the massive architecture of a later period.*



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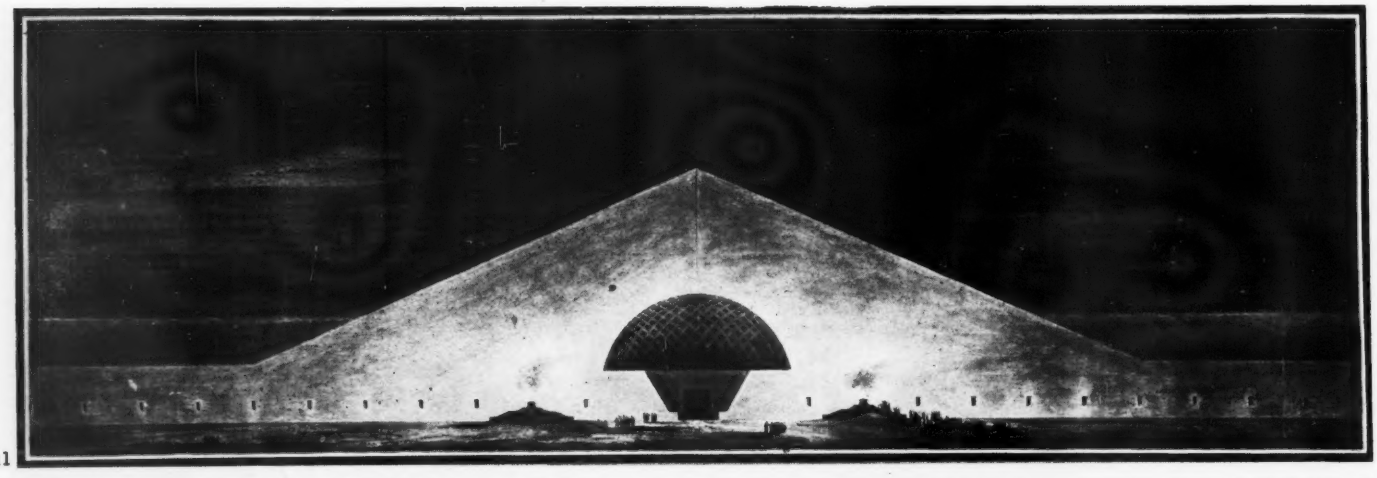

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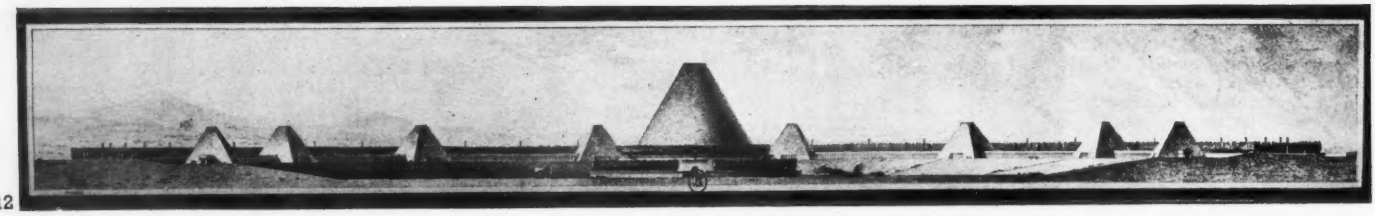

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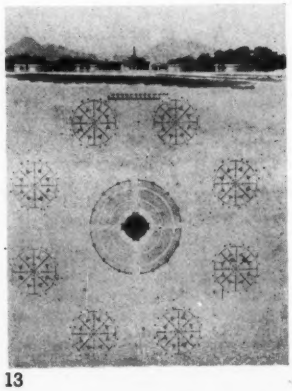
Boullée intended for his book Essai sur l'Art *a number of designs for cenotaphs, of which two are shown here,* 11 *and* 12*: 'Les Cenotaphes dont je veux parler ici, présentent dans leur ensemble général une enceinte au centre de laquelle s'élève le Monument Principal. L'enceinte est formée par des charniers' (p. 124 v.). He thinks of the general Turenne as a fit subject for such a scheme, and plans a pyramid as a central motif. Later the idea was adapted to the glorification of Newton (see pages* 396-397*). 'Si le lecteur veut bien considérer la difficulté de produire un ensemble qui, se trouvant enseveli en partie, satisfasse par la seule portion dérobée à la terre . . . enfin, s'il considère que cette production est sans example; il sentira . . . il n'a encore fait qu'un premier pas' (p. 124 r.). . . . 'J'ai entrepris dans les monumens funéraires d'inspirer l'horreur de la mort et de ramener par conséquent l'homme à des idées morales. Dans le Cénotaphe de Newton, j'ai cherché a réaliser la plus grande de toutes les images, celle de l'immensité: c'est par elle que notre esprit s'élève à la contemplation du Créateur et que nous éprouvons l'annonce des sensations célestes enfin, ce que je dénomme l'architecture des ombres, est une decouverte d'art qui m'appartiens et que j'offre à ceux qui me succédront dans la carrière des arts' (p. 138 r.). Boullée's posthumous influence was, no doubt, based on the drawings deposited by him in the Bibliothèque Nationale. His emphasis on the enclosed 'Cities of the Dead' has its parallel in his treatment of towns, with their rigid and clearly defined walls. (See* THE ARCHITECTURAL REVIEW, 1949, *p.* 111ff.) *Gandy's engraving of* 1805 *of a concentric arrangement of cottages round a church,* 13, *looks like an illustration of Boullée's suggestions on a smaller scale as related to village developments. It is certainly influenced by French architectural prototypes.*



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of three main parts: the first mainly explaining Boullée's philosophy, the second being the text to go with the drawings, and the last a résumé and notes. But the volume is interspersed with personal reflections on art, morals and nature. Nowhere does Boullée present his thesis in a systematic manner. The quotations from the *Essai sur l'Art* which follow are, therefore, meant as a résumé of his thought. The illustrations show Boullée's development from a conventional classicist manner to the astonishing originality of his late works, which, according to his text, appears to have been inspired by a visionary conception of the Universe.

Starting from this elevated plane of the sublime, he goes on to the 'poetry of art' and the functional individual character of buildings; he discusses the influence of Greek classicism on art, which he deprecates, whilst he admires the greatness of Roman architecture as well as the Gothic principles of lighting and structure. He shares with Condorcet the view of the perfectibility of man through education and believes in a planned rational environment. Symmetry he regards as one of the basic æsthetic factors, and he even introduces it in the odd presentation of the same building in a double aspect, for instance the Cathedral on Good Friday and Corpus Christi day, or the Newton Cenotaph by day and by night. Boullée admires the simplest stereometric forms and develops fully a painter's theory of the importance of light and shadow as a means of heightening architectural expression.

Some passages from the *Essai sur l'Art* illustrating Boullée's views:

nature 'A l'imitation de la nature, l'art de rendre les grandes images en architecture, consiste à disposer les corps qui forment l'ensemble général, de manière qu'ils ayent beaucoup de jeu, que leurs masses aient un mouvement noble, majestueux, et qu'elles soient susceptibles du plus grand développement. Dans l'ensemble, l'ordre des choses doit être combiné tellement que nous puissions d'un coup d'oeil, embrasser la multiplicité des objets qui le composent.' (p. 86.r.)

poetry 'J'ai fait un devoir aux Architectes, d'introduire la Poësie de l'architecture dans leur productions.' (p. 108.v.)

Boullée is doubtful of the value of technical advance and deplores that there is

'plus de progrès dans la partie de l'architecture relative aux Sciences, que dans celles qui, à proprement parler, constitue l'art.' (p. 129.r.)

character 'Le premier sentiment que nous éprouvons alors, vient évidemment de la manière dont l'objet nous affecte. Et j'appelle Caractère, l'effet qui résulte de cet objet, et cause, en nous une impression quelconque.' (p. 84.r.)

Boullée demands from the architect that he should give buildings 'le caractère qui leur est propre' (that is, that a building should express its function) (p. 142.r.). 'Vitruve . . . n'a connu que l'art mécanique de l'architecture' (p. 83.v.) whilst he ignored, in Boullée's opinion, the 'poetry of architecture.'

the classics 'On doit bien concevoir que la masse du Temple de Vénus ne peut pas convenir au Temple de Jupiter . . .' 'Cependant, il faut convenir qu'il ne semble pas que les Grecs se soient occupés d'imprimer à leurs ouvrages le caractère qui leur est propre.' (p. 142.r.)

'Quand l'interprète de Vitruve Perrault définit l'architecture, *l'art de bâtir*, il parle comme un ouvrier et non pas comme un Artiste.' (p. 83.v.)

Similar criticism he makes against Perrault, supporting Blondel in an argument in which the latter is praised for his Porte St. Denis. In keeping with his theory of 'Character,' Boullée prefers Roman to classical Greek architecture, because of its greater variety.

education 'Je crois fermement, moi, que, ne pas faire acquérir des connaissances de cet art (architecture) à des Citoyens qui peuvent parvenir à des places éminentes c'est un vice d'éducation.' (p. 133.r.)

He was interested in education, a follower of Montaigne's who wanted people taught at leisure and according to individual interests. (p. 106.v.) When describing his plan for a 'Palace of the Sovereign,' planned long before the Revolution, he wished all the

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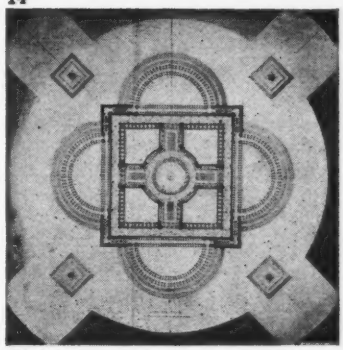

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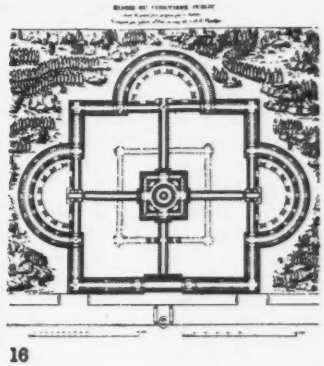

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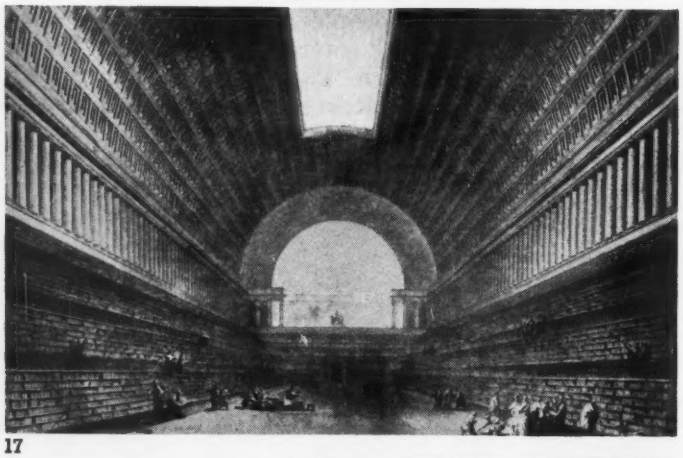
14 and 15, Boullée's 'Musaeum Gallicanum' projected under Louis XVI, a central structure to be erected to the glory of France, foreshadowing what Alexander Lenoir was to accomplish later in his 'Musée des Monuments Français.' The Swiss Guards, who were to defend the King so heroically during the Revolution, are seen as Museum keepers. The national emphasis in the inscriptions and the erection of marble statues of great Frenchmen show how democratic and popular forces begin to replace the ideal of Kingship. The ground plan of the Museum, 15, flanked diagonally by four isolated columns, an adaptation of Roman thermal plans to new requirements, places the building in vast gardens. Its influence is reflected in a Grand Prix of 1799 won by Gasse, representing an 'Elisée or Public Cemetery,' 16.

academies to be incorporated in the palace in order that the princes and the 'hommes éclairés' should be enabled to meet freely: 'L'académie . . . formeroit un plan de disposition pour Paris.' (p. 134.v.) It should be remembered in this connection that in 1788 Huvé's



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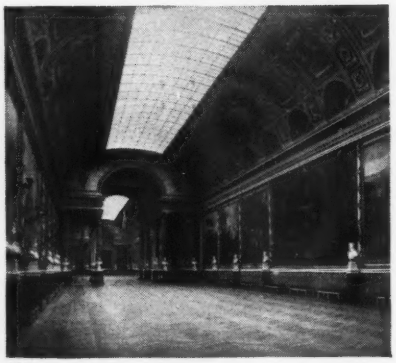

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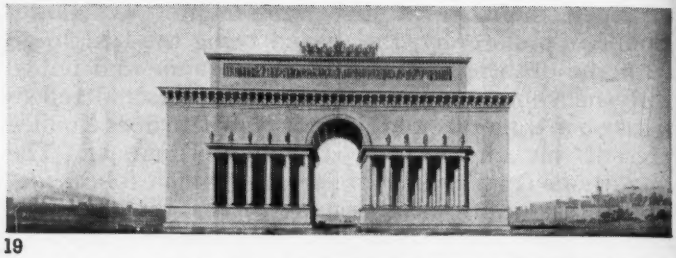
Boullée's only printed treatise is a Mémoire sur . . . la Bibliothèque du Roi. *This appeared in* 1785. *A model of the design shown in it was exhibited in* 1790. *It is from here that the conception of the* Palais National *developed. It became so large, however, that no hope of realization existed, and Boullée had to cut down his scheme. But he devoted a great deal of time and thought to it. It contains the Library proper as well as Archive and Committee Rooms. The site was connected with that of the present* Bibliothèque Nationale, *between the Rue Neuve des Petits Champs and the Rue des Capucines. The inner courtyard was to be transformed into an 'immense basilica.' The top lighting of the Library as projected by Boullée,* 17, *was copied in the Louvre and in the Galerie des Batailles in Versailles by Nepveu,* 18. *The plan for the completion of the 'Grande Galerie' of the Louvre, suggested by the painter Hubert Robert after* 1795, *also shows the same top lighting. Three versions of the text on the National Library exist, a first entry in* Essai sur l'Art, *the printed* Mémoire *of* 1785, *and a more detailed separate treatise, also in the Bibliothèque Nationale, from which the printed* Mémoire *is an abbreviation.*

plan for Paris was published, based on similar conceptions of regularity and order. Corresponding members of the academy were to be appointed in the provinces.

> 'L'académie d'architecture, à l'instar de celle de Peinture, exigeroit des personnes qu'elle jugeroit dignes de son association, une production, qui, . . . contribueroit à former les richesses de l'académie.' (p. 134.v.)

The whole community should take an interest in architecture. Boullée repeatedly expresses his pride in being an architect. Architecture he regards, like Ledoux, as the most significant of all professions. The greatest disaster for civilization, he thinks, is a lack of architects. The whole people, not the nobility only, should become patrons of building.

> ***town planning and siting*** 'Tous les ports, les canaux, et toutes les communications, seroient établis de la manière la plus favorable au commerce. Tout ce qui doit embrasser les besoins de l'humanité, et assurer le repos de L'Etat, par les moyens propres à la défense; et en dernière analyse, tout ce qui pourroit procurer les agrémens qui font la douceur de la vie, devroient découler de cette disposition. Je me figure ce plan ressemblant à l'arbre de la Science. D'un centre commun, partiroient toutes les ramifications bienfaisantes qui s'étendroient dans toutes les parties de l'Empire.' (p. 131.v.)



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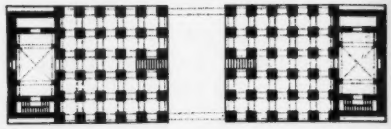

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19 and 20, a triumphal arch. Its martial character and classical style suggest that it may date from the revolutionary period. If its inspiration is the French wars of Liberation, it can be regarded as a prototype of Napoleon's executed Arc de Triomphe, which it surpasses in monumentality and scale. This scheme is not alluded to in the Essai, *but forms its fitting conclusion, in view of the functional character of the internal halls and the simple and monumental style of the façade.*

His approach to town planning is theoretical and unconnected with any specific site, not dissimilar to Le Corbusier's to-day:

> 'Je suppose une grande population qui va former son établissement dans un Pays quelconque.' (p. 131.r.)
>
> 'On passeroit ensuite à l'établissement des villes et on y feroit regner la salubrité par tous les moyens possibles.' (p. 131.v.)

Incidentally, this concern with hygiene, already stressed by Vitruvius and Alberti, is also found in Ledoux's later treatise on architecture. Boullée continues:

> 'La Ville Capitale, les villes de commerce et autres, soient assises dans les endroits favorables à leurs destinations, et leurs dispositions seroient telles qu'elles pussent par leur rapports réspectifs se servir et se secourir mutuellement.' (p. 131.v.)
>
> ***geometry*** 'J'entends par proportion d'un corps, un effet qui naît de la régularité, de la symétrie et de la variété. . . . Le corps sphérique, peut être regardé comme réunissant toutes les propriétés des corps. (p. 78.v.) . . . D'avoir la forme la plus simple: beauté qui provient de ce que sa surface est sans interruption aucune. (p. 79.r.) Le corps sphérique, sous tous les rapports, est l'image de la perfection. (p. 79.r.) J'ai donné à la Pyramide la proportion d'un triangle équilatéral, parceque la parfaite régularité constitue la belle forme.' (p. 125.r.)
>
> ***light and shadow*** 'L'imagination . . . C'est elle qui fait employer les formes pittoresques, de manière à les déguiser et à les singulariser. C'est elle qui fait contraster la lumière et les ombres. (p. 86.v.) J'aperçus alors tout ce qu'il y a de plus sombre dans la nature . . . La masse des objets se détachant en noir sur une lumière d'une paleur extrême. La nature sembloit s'offrir en deuil. . . . Je m'occupai dès ce moment, d'en faire une application particulière à l'architecture. J'essayai de trouver un ensemble composé par l'effet des ombres. . . . J'ai travaillé à créer ce nouveau genre d'architecture.' (p. 126.r.)

NOTES I wish to express to the Committee of the Central Research Fund of the University of London my gratitude for facilitating my work, and to M. Jean Valéry-Radot and his Staff my appreciation of their generous help in putting at my disposal documents relating to Boullée and his period. At the *Archives Nationales* in Paris M. G. Beaujouan kindly made accessible the relevant documents.

Of published material there are chiefly Dr. E. Kaufmann's article in the *Art Bulletin*, XXI, 1939, p. 213ff., and the same writer's review of M. Raval's and J.-Ch. Moreux's book on Ledoux in *Art Bulletin*, XXX, 1948, p. 288. In fact most of Dr. Kaufmann's work on Ledoux has relevance to Boullée, especially *Von Ledoux zu Le Corbusier* (Vienna and Leipzig, 1933). The thesis by M. Coulon of the *Ecole du Louvre* is unfortunately unpublished. Of older works F. Benoit: *L'art français sous la Révolution* (Paris, 1897) and J. Renouvier: *Histoire de l'art pendant la Révolution* (Paris, 1863) are still informative. Lemonnier in *L'Architecte*, V, 1910, p. 92ff., was the first in modern times to draw attention to Boullée's eminence as an architect. Cf. also Villar in *Mémoires de l'Institut*, Vol. III, An IX, p. 43ff. The background of Boullée's thought appears clearly in F. de la Fontainerie: *French Liberalism and Education in the Eighteenth Century* (New York and London, 1932). For Brongniart's relationship to Boullée, see L. de Launay: *Les Brongniart* (Paris, 1940), especially p. 18f.

A large housing scheme is now going forward in Holford Square, Finsbury. It is related in design to two previous schemes, also for Finsbury Borough Council and both by Tecton: one in Rosebery Avenue (illustrated in the REVIEW in March, 1951) and the other in Busaco Street (now on the point of completion and to be illustrated shortly). The Holford Square design was evolved as a result of study of the proper modern equivalent of the enclosed domestic square which it replaces, and subsequently underwent a number of changes determined chiefly by economic considerations. The first design was by Tecton and the final design by Skinner, Bailey and Lubetkin. The evolutionary process is described and illustrated on these pages, and the successive stages of the design shown, finishing with that now under construction.

FLATS IN HOLFORD SQUARE FINSBURY

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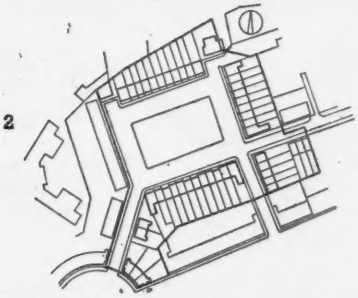


1, the old Holford Square after severe war damage. 2, plan of the old square as existing just before the war, with the west side demolished. 3, detail of the east side of the square, photographed by Country Life *before the bombing, showing its typical early nineteenth-century architectural character.*

Finsbury is rich in squares of the late Regency period, many of them very remarkable. In no case can the aristocratic tradition of the Place Vendôme or the Dresden Zwinger be read into them; they are essentially neo-classical. They are all characterized by a particularly happy relation of height to volume, and the unity of the ensemble is largely dependent upon the scale effects achieved by means of a simple richness of detail, by modulation of the elevations, fenestration, rhythmical skylines and a wealth of textures and 'small forms' (railings, lamp standards, steps, etc.). The most interesting examples are those sited on sloping ground, where the plan of the square is partly concealed from the pedestrian. Here, the skyline is strikingly exploited, as a reminder to re-establish the geometrical unity of the plan above eye-level. The parapets and gables of the level buildings, with their formal repose, are echoed in the nervous staccato of the descending rhythm on the sloping sides of the square. It is through the richness and interplay of the secondary rhythms and subdivisions that the unity of the ensemble is achieved, rather than through the bare eloquence of geometrical massing alone.

One such was Holford Square, before it was destroyed by bombs. Faced with the problem of redesigning it, it was natural for the architects to try to keep alive this remarkable local tradition, and to learn as much as possible from it. However, having for obvious reasons rejected any attempt at reconstructing the old square, they saw that the points of difference would far outnumber the similarities, and that the logic of the programme itself would make it impossible to borrow inspiration from the old square or its immediate surroundings in any but the most indirect way imaginable.

Modern land-values imposed a density which could not but destroy the intensity of the old square's spatial relations. High buildings bordering the open space would inevitably produce the very feeling of confinement which is so markedly absent from the old squares. And another contradiction was the north aspect of one side, which is no longer acceptable, apart from the fact that the west side had in any case to be left open owing to an already planned proposal to extend the adjoining school playground.

This removed the possibility of a complete geometrical enclosure, though to a certain extent the opening of a magnificent view over the London roof-tops to the west offered an abstract equivalent. The space being thereby widened out, drawing in the landscape, the square would assume almost the character of an amphitheatre. The confines of the formal enclosure once broken, the relation between the height of the surrounding buildings

3

and the open space acquired a new significance, and it became possible further to depart from the rectangular convention by designing the south side as a series of blocks at right angles to the square. This device, incidentally, also made it possible to provide well-orientated blocks on this side. The north side could preserve local tradition and present a cascading rhythm of descending blocks, underlined by a zig-zag plan.

Thus the static relations governing the composition of the old square were transformed into a new, dynamic interrelation between the bordering buildings, enlarging and differentiating the enclosed space; and the scheme for rebuilding shown on the next two pages was evolved by the successive stages illustrated. The danger of such a radical change of character was that the original point of departure, the tradition of the local squares, might be lost sight of. Here, the old device of bringing the skyline into play as a unifying factor was resorted to. The succession of gables on the south side of the square, with their repetitive rhythm, although destroying the physical enclosure, contributes visually to the definition of the space and to the preservation of the ensemble.

The importance of scale and detailing to the layout as a whole in the traditional old squares has already been referred to; here, where the formal geometrical enclosure has been dissolved into a more freely treated composition, this element had to assume an even greater importance as a unifying factor. In the elevations of all the blocks, the use of the common denominator of the projecting living-room and balcony, in various dynamic arrangements, creates a unifying visual pattern, while at the same time helping to reduce the scale of the whole to a more domestic level. This particular solution of the elevational problem represents one stage in an evolutionary process described in THE ARCHITECTURAL REVIEW in March, 1951, in relation to the same architects' flats in Rosebery Avenue, Finsbury. In the design for Holford Square, where the isolated blocks are rather short, and thus do not provide much opportunity for the rhythm to expand over a number of bays, a symmetrical treatment was adopted, combined with alternation of solids and voids on succeeding floors.

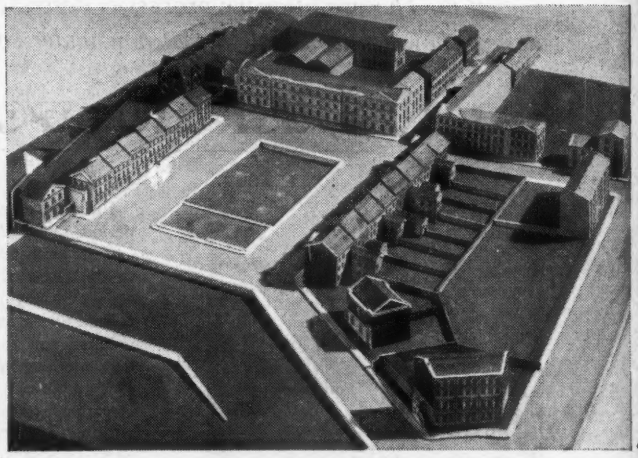
The project was conceived in the immediate post-war years, when housing standards were more or less fluid, and when it could still be expected, or hoped, that considerations of design and town-planning would be allowed to play a more important part in such schemes than in the past. This optimistic approach underlay the whole conception, and explains to some extent its scope. Both the Finsbury Borough Council and the LCC were anxious to redevelop this part of the Borough in harmony with the local pattern, preserving the enclosed layout of the square if possible, under the terms of the London Squares Preservation Act.

However, as the scheme developed, economic conditions worsened, and it became apparent that the atmosphere of crisis would radically influence, not only the detailed treatment and the technicalities of planning, but the whole conception of the ensemble. The design presupposed a certain visual richness, and relied on conjuring a sense of unity from the disciplined interrelation of diverse elements. This involved the use of a large number of isolated blocks, with their greater perimeter of outside walls, greater number of staircases and lifts, greater length of drainage and heating ducts (not to mention the fire-escape requirements, which have so grown since the war that they have now become a major planning consideration), all adding to the cost.

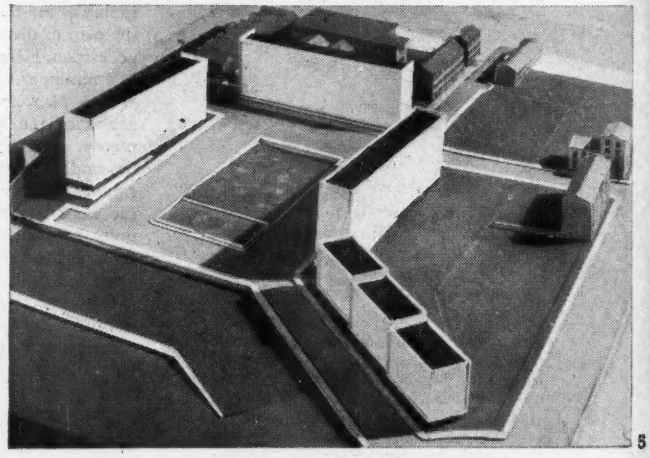
The free-standing blocks, departing from the 'best elevation and back elevation' system, undoubtedly increased the expense. Even the gables of the blocks, instead of being anonymous party limits, acquired in this design the significance of architectural motifs, marking out the composition, and as such had to be treated significantly. On the brink of the era of chespale fencing and overhead wiring, the reality of such an approach became increasingly doubtful. A differently conceived design was clearly needed, which the architects set about producing.

The lines along which they worked can best be explained by referring briefly to the historical evolution of the urban square. The Baroque squares, with their organic visual unity, each a world closed in upon itself, from which no constituent part can be omitted without destroying the knot, were exact material expressions of the philosophy and interests of the societies which gave birth to them. But with the rise of a middle class and the simultaneous emergence of the problems of the modern town, the art of the ensemble underwent a radical transformation. An independent, autonomous architectural volume became the basic unit of composition; the plain wall acquired meaning as an element of expression, and the repetitive rhythm of units replaced the old baroque knot. A more abstract treatment of the ensemble was substituted, and continuous peripheral development disappears, to give way to one emphasized by more or less independent significant points. Simultaneously the corridor-street became the basic town-planning element, with its repetitive unit rhythm soon being abandoned for the chaotic interplay of individually 'developed' sites.

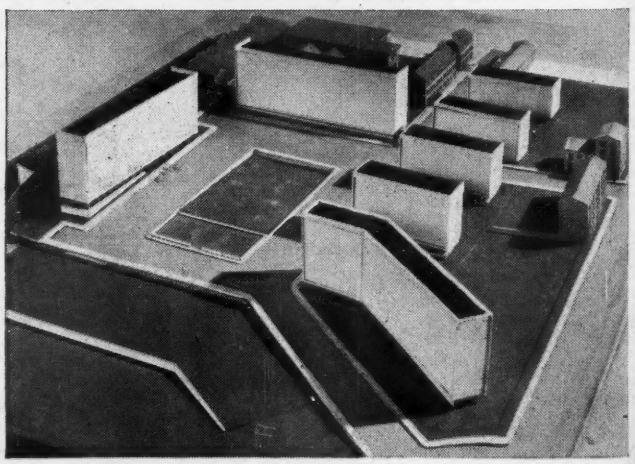
Contemporary architecture has inherited this background, which has generally precluded any contribution to the art of urban ensembles. Yet even in the present epoch, when society seems



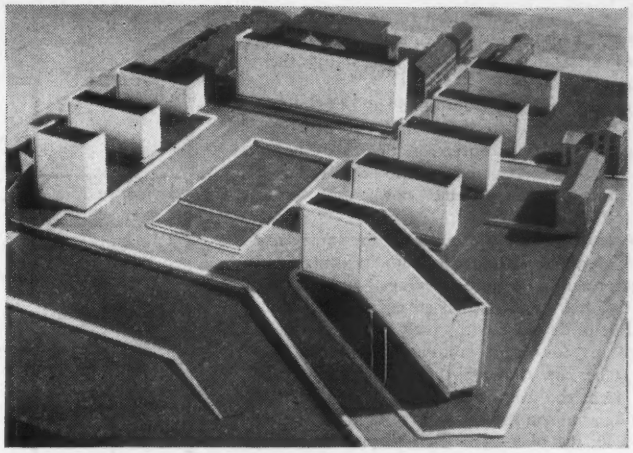
4, *an approximate reconstruction, in model form, of the three sides of the old Holford Square; the fourth side had to be left open in the new scheme for incorporation in a neighbouring school playground. The buildings, as seen from the garden in the centre, effectively hide the disorderly development behind them, which includes a small factory at the back of the east side.*



5, *first stage of the new design. Eight-storey blocks of flats replace the old three-storey houses, retaining the previous building-line. The three lower blocks in the foreground are stepped down to follow the slope of the street. An attempt is made to unify the whole design by maintaining a level skyline, the change of level in the square being taken up in the ground floor.*

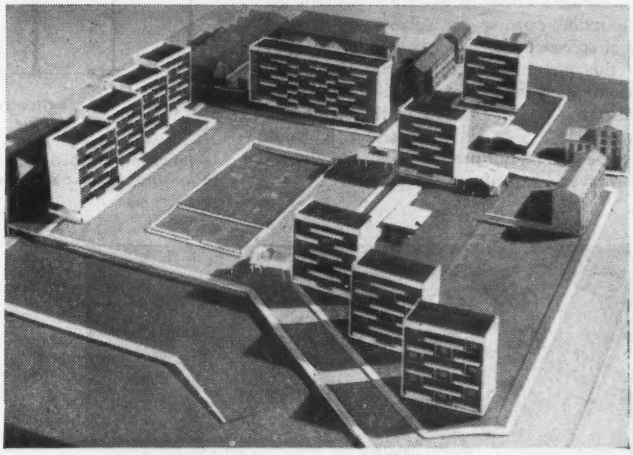


6, *second stage. In order to avoid a north aspect for the flats on one side, blocks are here placed at right-angles to the original building-line. The skyline remains level, the blocks decreasing in height up the hill. A defect is the insufficient distance between blocks.*



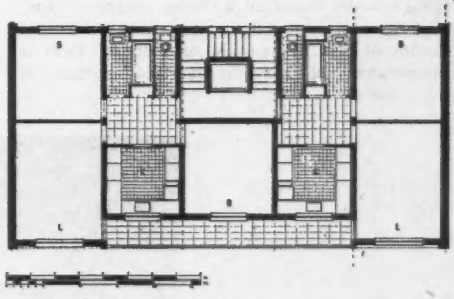
7

7, a further development from the preceding stage, with all blocks placed parallel to one another, achieving a more symmetrical effect but in other respects losing the character of a square. At this stage a nursery school was added to the requirements, giving an excuse for wider spacing of the blocks on the south side, with improved daylighting.

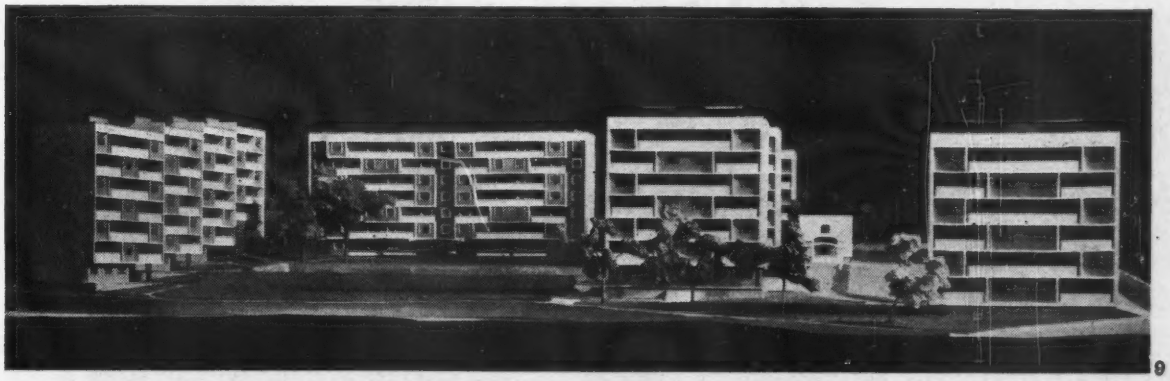


8

8, the final solution (first scheme), including the nursery school and incorporating further modifications in the disposition of blocks. They are treated as a series of receding planes, stepped to conform to the sloping site. The block in the foreground is broken up to be more in scale with the others. The block on the east side, situated at the highest point and facing the view, is dominant. This model shows also the proposed elevational treatment.

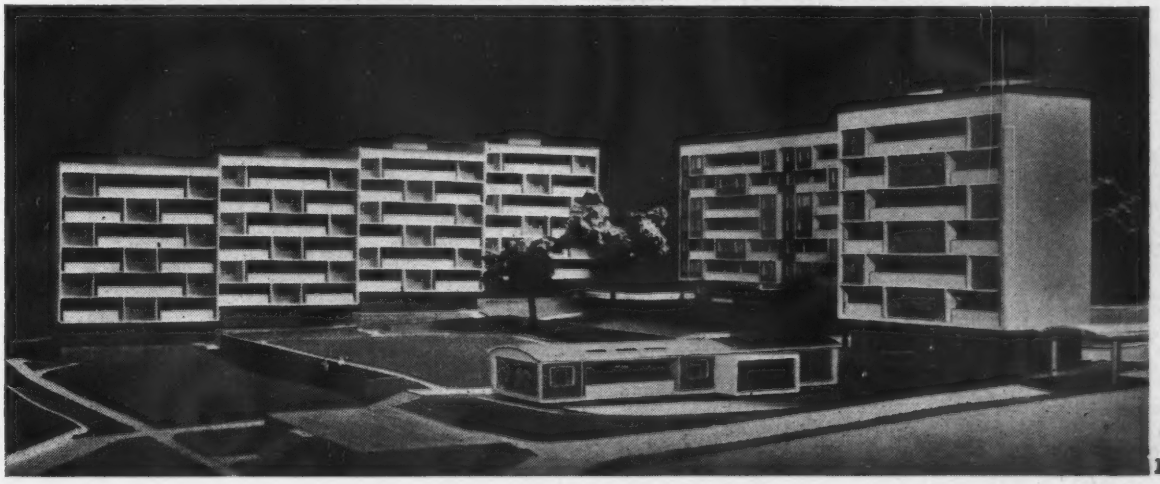


11, plan of typical flats in first scheme. A three-room and a two-room flat are shown. The former has an area of 834 square feet, and the latter of 676 square feet.



9

9, model of final version of first scheme, viewed from the west; that is, looking into the square from its open end. A 'forecourt' entrance to the blocks on the south side (see preceding illustration) marks the transition from the street pattern to that of the square itself.



10

10, the same model from the south-west, with nursery school in foreground. The scheme illustrated in these models had to be abandoned owing to changed economic conditions, and a completely new scheme (illustrated overleaf) was evolved, as described in the accompanying article.

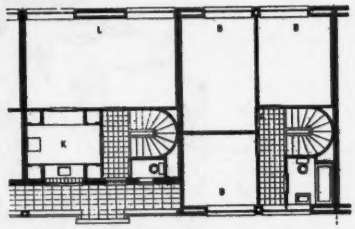
incapable of integrating man and his environment, there exists vitality enough not only to bear a promise for the future, but to give it positive expression. There are similarities with the last great period of progressive upsurge at the beginning of the nineteenth century. Then, in the period of great physico-mathematical developments, when the Aristotelian conception of space, as having a top and bottom, was swept away by the Newtonian vision, and descriptive geometry and the analysis of the infinitesimal was introduced, it was not surprising that architectural space treatment also underwent significant changes.

The new conception of the ensemble which then emerged treated space less as a concrete volume inscribed within the surrounding buildings, than as a system of air-reservoirs contained between points of emphasis, the co-ordinates being defined only by means of visual tension established between individual architectural features. There took place a shift of emphasis, a change from the enclosed to the open, from the concrete to the abstract, from the obvious to the subtle, from relief to counter-relief. But the interrelation between buildings and open space was still based on a strong discipline, sense of form, and civic valour and confidence in the destiny of man. This sense of unity of form is independent of any preconceived geometrical pattern or *a priori* conception of enclosed space. In short, it is not in formulas, but in the sense of form that vital social forces find their expression.

Once the peripheral solution of Holford Square, with its preconceived rectangular layout, had been rejected, it was this conception of space—not a square, but its abstract equivalent—that replaced it, resulting in the scheme now being built, illustrated on this page.

A single block placed centrally in the square has obvious economic advantages, with its centralized services, reduced ground coverage, and smaller number of stairs and lifts. Its strong massing made it possible to dispense with costly detail treatment as a means to obtain architectural unity. The design relies on drawing the surrounding open spaces into the composition by means of the extending arms, on the contrasts of light and shade ensured by the plan-form itself to provide relief, and on the visual tension between the building and the surrounding open space, to create the sense of balance of an ensemble.

How this ensemble is to fit into the overall town-planning pattern is of course a problem in itself, just as it was in the case of the eighteenth-century squares, but for the present it would appear to be beyond our present resources, physical administrative and spiritual.



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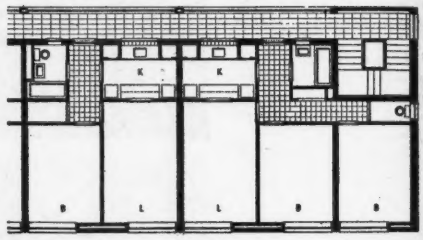
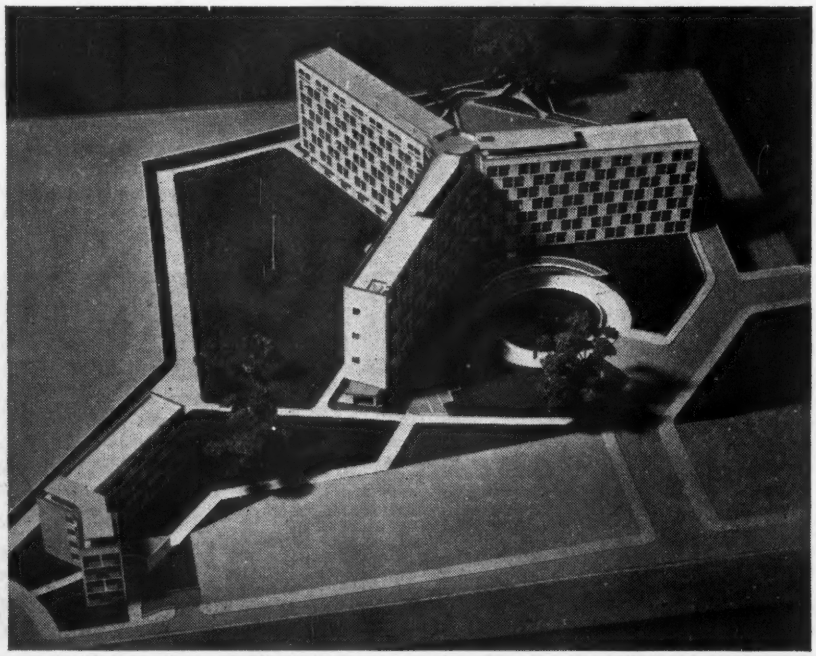


15

14, ***plan of maisonettes which have been introduced into the second scheme, illustrated on this page (left, lower floor; right, upper floor).*** **15,** ***plan of typical one- and two-bedroom flats in second scheme. Plans are to same scale as on preceding page.***

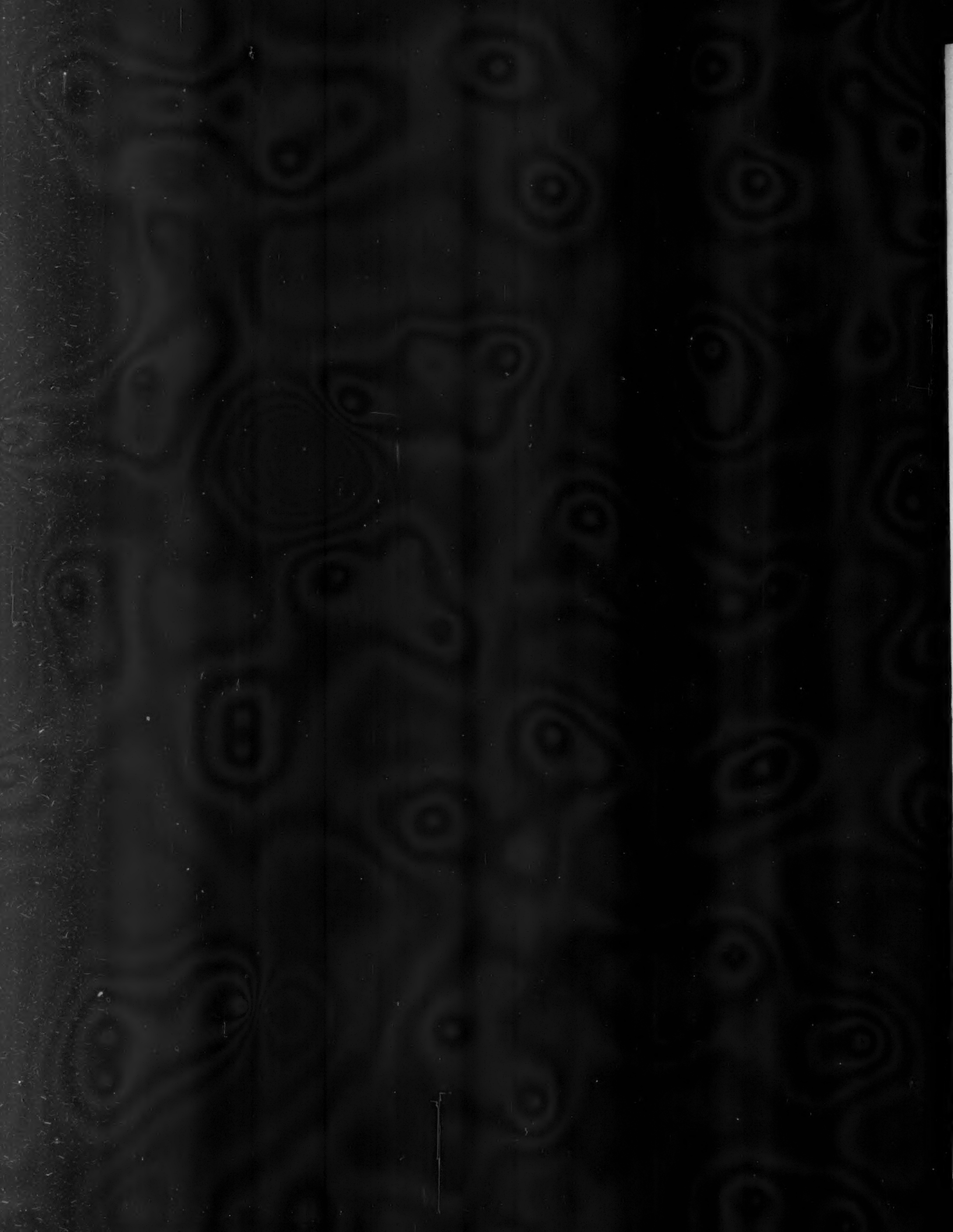


12

12, ***model of the second scheme, which is now under construction, consisting of a Y-shaped block occupying the centre of the old Holford Square, and one subsidiary block to the south-west.***

13, ***the site photographed in March, 1952, showing foundations for the main building.***

13



1

The large cyclotron building looking west.

RESEARCH LABORATORY FOR LIVERPOOL UNIVERSITY

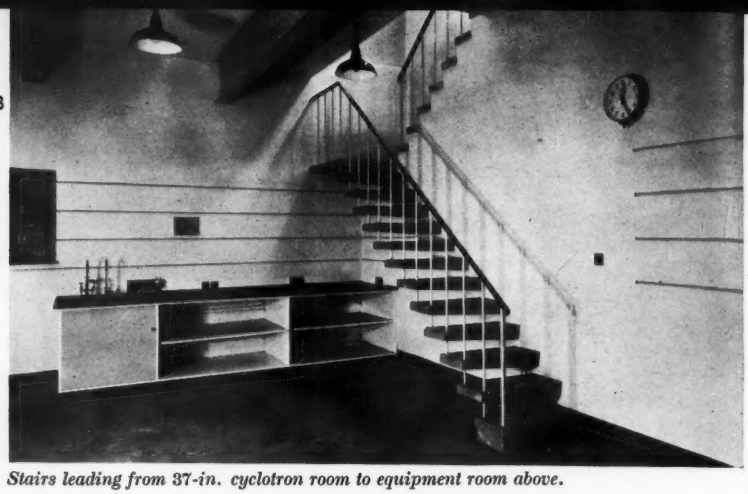
ARCHITECT: WILLIAM HOLFORD *SUPERVISING ARCHITECT: W. M. SHENNON*

To allow for nuclear research at very much higher energies a laboratory has been constructed for new equipment and research workers. As a large proportion of the 156-in. cyclotron room is below ground level, it was necessary to excavate to a maximum depth of 30 ft. into sandstone removing well over 10,000 tons of rock.

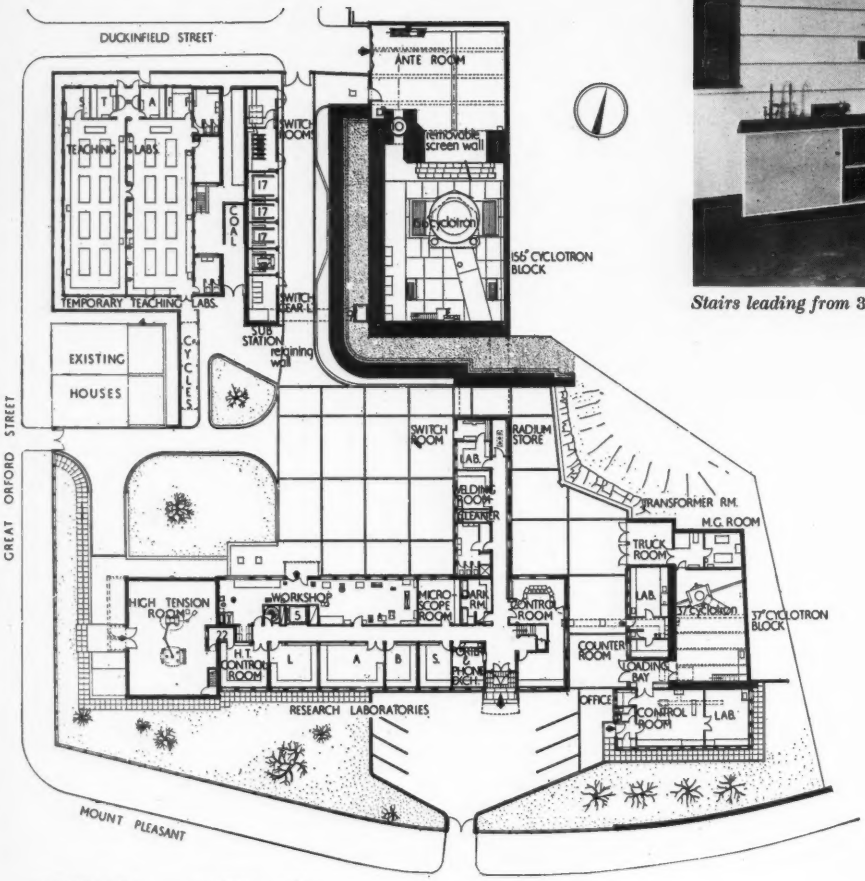
The 156-in. synchro-cyclotron provides a number of technical problems in construction and design and also the need for screening from the radiations produced by the beam of high energy particles. Thick concrete shielding is required to absorb these. Concrete must be homogeneous and apertures avoided, which has necessitated expansion joints in the 5½-ft. thick roof and 6-ft. walls. These walls have an

2

Main laboratory block with main entrance on the right.



Stairs leading from 37-in. cyclotron room to equipment room above.



ground floor plan scale: 1/64 in. = 1 ft.

Research Laboratory for Liverpool University

additional thickness of pulverized sandstone extending for 10 ft. on the outer face to a height of 21 ft. and retained in a 5-ft. thick brick wall. The laboratory has a steel frame, floors of precast concrete and walls of cavity brickwork. The wall dividing this block from the high tension room is 12-ft. concrete using barytes aggregate to provide great density.

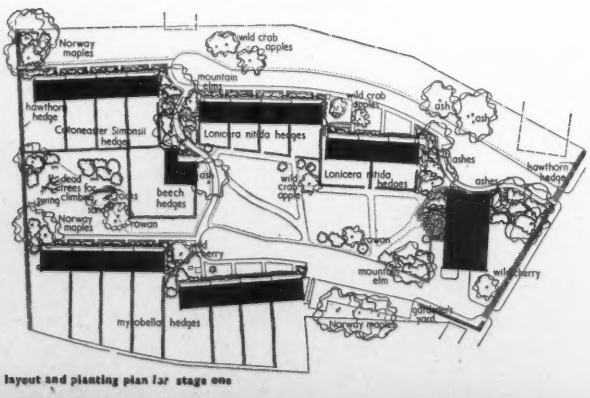
In the laboratory block, walls and ceilings are plastered with vermiculite plaster. Continuous metal channels in the walls at various heights support shelving, blackboards, or experimental equipment. Floors in the laboratories are composition blocks and in the cyclotron room, heather brown quarry tiles.

HOUSING AT BRYNMAWR, SOUTH WALES

ARCHITECTS: YORKE, ROSENBERG AND MARDALL

The first stage of the housing scheme at Brynmawr to be completed contains 20 houses and 15 flats and a small community centre on the ground floor of the block of flats. The Brynmawr and District Housing Society was formed for the housing of key workers employed by the Brynmawr Rubber Company at their new factory,* and the society manages the housing and a communal garden for four houses which do not have an individual plot. The ground slopes steeply to the south and the terrace houses are laid out to follow the contours with the blocks of flats at right angles on an east-west axis. The simplest possible plan form has been adopted and repeated

* See AR, March 1952.

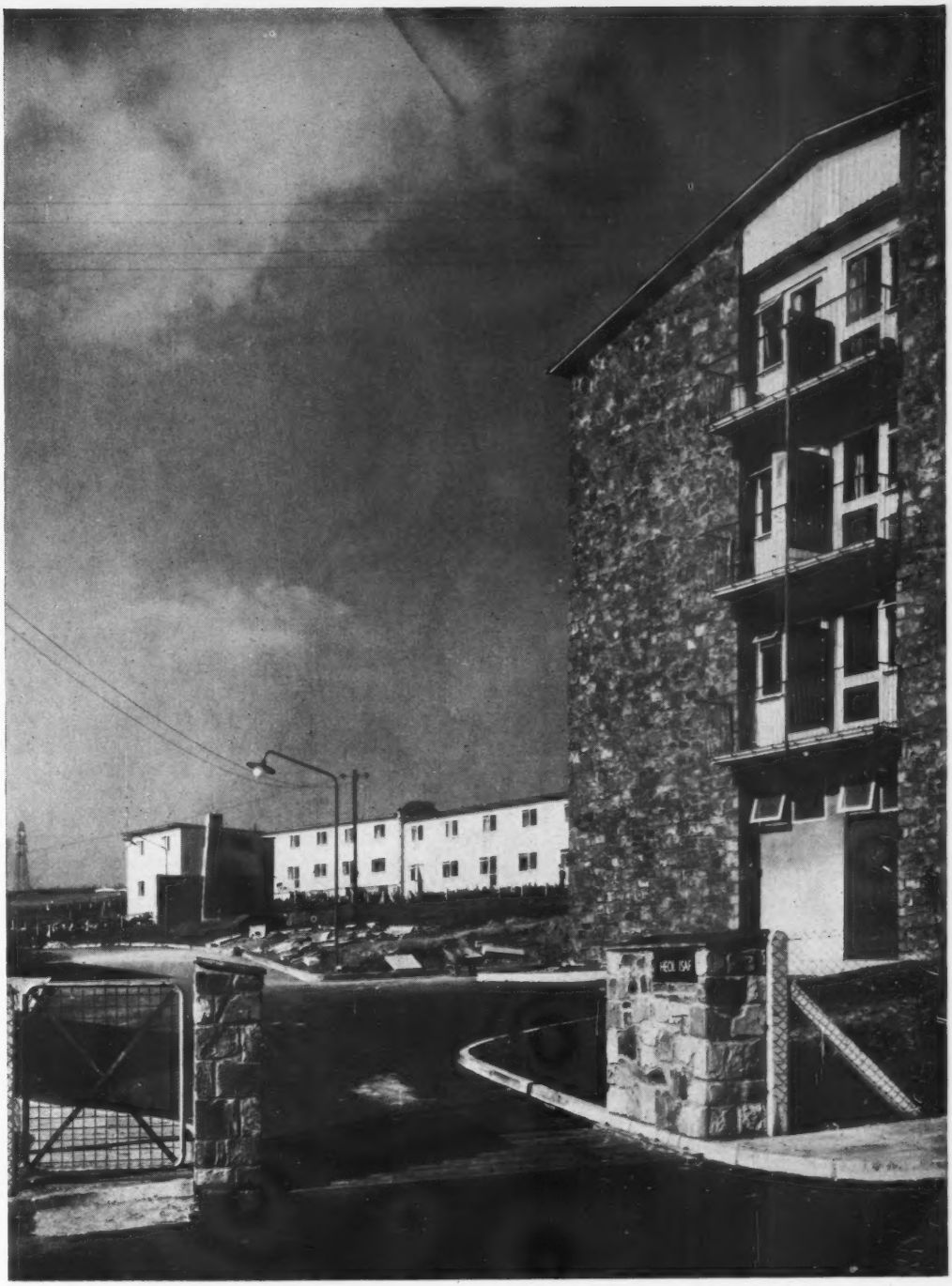


layout and planting plan for stage one

4, south and west facades of terrace house block.

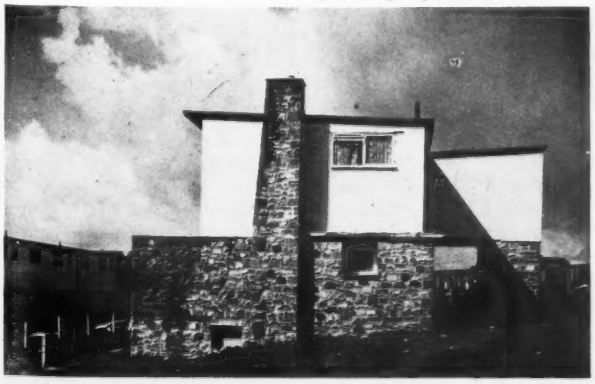
for the sake of economy. A glass-roofed yard to each house provides storage for dustbins, bicycles, etc., and for clothes drying. The boiler house for the entire scheme is situated on the lower ground floor of the block of flats.

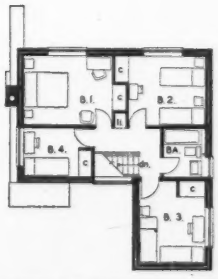
The houses have external cavity walls of 4½-in. common bricks with an inner skin of 4-in. breeze. The party walls have two 4-in. skins of breeze and the partitions are either 4½-in. brickwork, brick-on-edge or 3-in. breeze. The ground floor is concrete with the raised portion of precast concrete slabs serving as a heating duct. End walls to terraces and flats and walls below ground floor slab level are built in secondhand local stone. The block of flats has load-bearing brick external walls with reinforced concrete floor slabs. External walls of terraces are rendered in alternating colours of grey, white or pink and a facing brick is used for side walls of the flats. Internally, walls are finished with oil-bound distemper in standard colours and one wall to each room in the flats is papered. Rubber floor tiles are laid in ground floor rooms and in the flats, except in utility rooms, where quarry tiles are used.



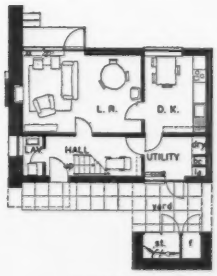
Looking north-west with the south facade of a three-storey block on the right.

5, the east facade of a four-bedroom house.





first floor plan of four-bedroom house



ground floor plan
scale: 1/24 in. = 1ft.

7

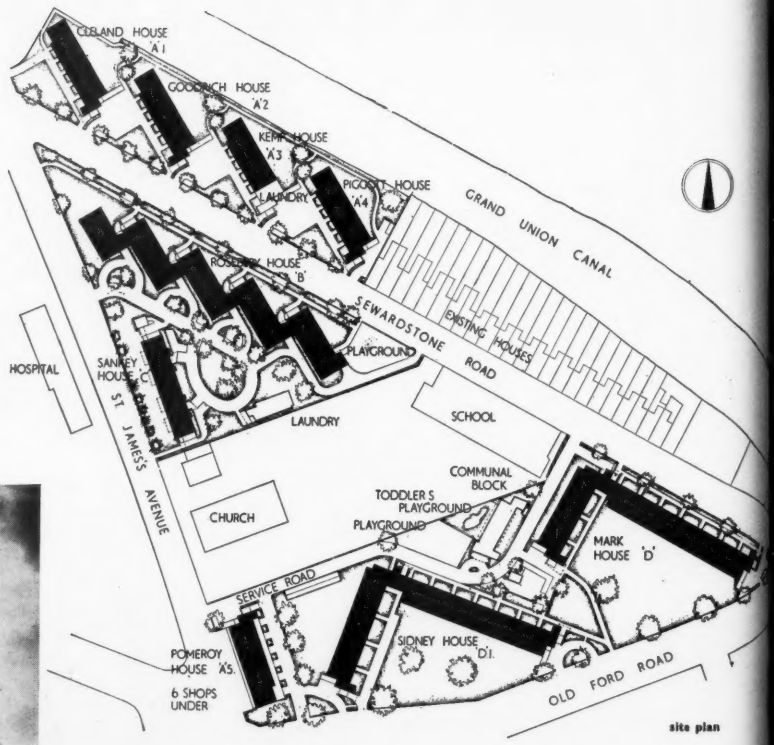
Looking north at the staggered three-storey block.

FLATS IN BETHNAL GREEN, LONDON

ARCHITECTS: DE METZ AND BERKS

The Park View Estate in Bethnal Green for the LCC is now partly completed and will provide a total of 267 flats. Pram sheds, playgrounds, laundries, shops and a communal centre sufficient for the needs of the whole scheme are also being built.

For ease of planning and repetition of spans and units it was found convenient to group each type of flat plan into one wing with perhaps a variation at the end to form a stop or a junction with another wing. The various types of plans therefore give, whether used singly (A blocks) or joined together, the desirable changes of height and shape required for building on a site of this size. Construction is generally of load-bearing brickwork, with reinforced concrete and hollow tile floors and roofs, and a central spine of r.c. stanchions and beams.



site plan

8

Entrance canopy of typical five-storey block.

BOOKS

MICROPOLITAN VIEW

THE GOTHIC WORLD. *By John Harvey. Batsford.* 30*s.*

This new volume by Mr. John Harvey ranks among the best he has published so far and constitutes a most welcome addition to the literature of medieval architecture. There was no work of this kind in the English language and those who could not read German were left without a suitable guide in this large and complicated subject. This gap has now been filled in an adequate manner. Mr. Harvey's book concentrates within its 160 pages an amazing wealth of information and the 255 photographs which illustrate his text will undoubtedly prove a revelation to a great many readers. Some of the maps, including those on the end papers, are very suggestive and show the importance of a geographical transcription of historical facts, but in some cases a greater variety of symbols might have given a better idea of the stylistic groups and movements. The bibliographical notes are, on the whole, extremely good, although one is surprised that there is no mention of L. Schürenberg's classic volume, *Die Kirchliche Baukunst in Frankreich zwischen* 1270 *und* 1380, Berlin, 1934; on the same period the recent book by W. Gross, *Die abendländische Architektur um* 1300, Stuttgart, 1948, might also have been added.

Mr. Harvey's text is in two parts, linked together by the maps on the end papers. The first 52 pages are devoted to a description of the conditions in which the works were produced. Medieval ideas on art, technical devices, organization of the workshops and of the building industry as a whole, methods and social status of the Gothic architects are some of the main items treated in these first chapters and the author, who is a recognized authority in these delicate matters, gives us the masterly picture we could expect of him. This alone would be enough to recommend the volume to all interested in the Middle Ages. In the next 80 pages Mr. Harvery covers the wide field of expansion of Gothic architecture, from Finland and Palestine in the extreme north-east and south-east to Peru and Mexico in the distant west.

One might undoubtedly disagree with Mr. Harvey on a number of points. The titles of some of his chapters could be questioned: the terms *Spatial Gothic* and *National Gothic* might give the wrong impression that there were no national forms of Gothic in the thirteenth century and no spatial speculations in what he calls *Cathedral Gothic*. Certain people will also find it difficult to follow Mr. Harvey in some of his identifications. I cannot believe, for instance, that there were not two different Masters Alexander working in England in the 1220's and that the choir of Worcester and the nave of Lincoln are to be attributed to the same architect. The principles followed in these two works are so entirely different in almost every respect that they point to very different personalities. It is similarly impossible to accept the suggestion of a 'Gothicus I' (p. 59) who would be responsible for St. Martin-des-Champs in Paris, the narthex and choir of St. Denis, Sens Cathedral, St. Maclou at Pontoise, the west front of Chartres and a few other things. A composite figure of that kind could be achieved only if we tried to assemble under one name all the works produced between 1920 and 1930 by, say, Perret, Gropius, Mallet-Stevens and Le Corbusier. I do not see how the six works mentioned above could have been made by less than three architects.

There are some other excessive simplifications. It is easy to contrast the Northern and the Mediterranean minds or round and rectangular layouts. These massive antitheses are in the nature of semi-mystical beliefs and may appeal to the imagination; but they do not fit in with history. It has been shown that the rectangular box-church spread from Mesopotamia to Dalmatia, then to Switzerland, North-Western Germany and the Baltic; the other ascertained source of the rectangular church being Celtic rather than Germanic. The central plan, on the other hand, was more common in England than in France in the thirteenth and fourteenth centuries and it was then hardly more frequent in Italy. The classical influence, particularly in the conception of space, was also far stronger in German Gothic than in the Gothic of Northern France. All these facts contradict easy racial simplifications.

But the point on which one is bound to be really critical is the first half of Chapter V on *Cathedral Gothic:* pages 59 to 63 are not up to the standards of the rest of the volume. The author here seems to suffer from a lack of up-to-date information: he reproduces Dehio's faulty plans of Sens and Notre Dame de Paris and a no less faulty section of Bourges; the dating of St. Germer and of Notre-Dame-en-Vaux at Chalons would have to be considerably altered; even the map on page 60 is rather disappointing and the fact that more details can be found on page 108 does not explain why Laon, Noyon, Soissons, Senlis, not to add Arras and Evreux, have simply been left out.

An even more serious objection concerns the significance of the Early Gothic buildings. The author has rightly dismissed in the first page of his introduction the materialistic interpretation of Gothic given by Viollet-le-Duc and his followers; but he has failed to put anything in its place, with the result that this essential period of French architecture appears empty. Having no adequate standards to judge by, Mr. Harvey does not think very highly of the works of the first Gothic masters: all they could achieve remained in his opinion 'unsatisfactory as a mongrel must be' (p. 62) and it is not surprising that he 'finds fault with the details piecemeal.' Even Chartres has grave 'defects' which—we are glad to hear—'pass unnoticed' owing to the beautiful stained-glass windows. Not a word is said about the new spatial conceptions of Early Gothic architecture and one comes to wonder how so many people, in the twelfth and thirteenth centuries as well as in the nineteenth and twentieth, have been led to find any interest in these awkward structures.

A point on which Mr. Harvey concentrates much of his attention is the form of the piers; but, here again, the Gothic masters failed to conform to his definitions. Far from being a new Gothic idea, the compound pier has to be considered in the early stages of the new architecture as a survival of the Romanesque tradition. Mantes in this respect does not anticipate later solutions, but rather repeats a form already used not only at Sens and Senlis but also at Bury (Oise), La Villetertre or Chars; and the choir of St. Etienne at Caen is certainly no less archaic. The revival of the Corinthian column, which began at St. Denis in 1140, is far more typical of the new trend of thought; it conforms at the same time to the purely Gothic idea of an expanding and liberated inner space, and to that new taste for plasticity which was not restricted to sculpture alone, but became an essential characteristic of Gothic architecture for nearly a century, until it was superseded by the sharp dryness of the Rayonnant style. Equally important is that principle of thinness which the Ile-de-France masters had received from the Romanesque period and which enabled them to develop an entirely new style out of the Anglo-Norman anticipations. This early cycle of Gothic speculations could have been briefly indicated.

When Pierre de Montreuil appears, Mr. Harvey becomes reconciled with French Gothic and the rest of Chapter V is again reliable and accurate. But the fact that the author is not quite familiar with the Early Gothic developments can be felt in some other places: thus when he refers to 'the linked triforium and clerestorey' (p. 78), he forgets that this feature was common in Champagne long before the nave of Christchurch, Dublin. St. Remi at Reims, c. 1170, Notre-Dame-en-Vaux at Chalons, c. 1190, Orbais, c. 1200, and even in the British Isles the naves of St. David's, c. 1180-90, and Llanthony, c. 1220, are among the earliest examples of this new type of bay-design.

It is certainly unfair to lay the stress so heavily on some six pages of Mr. Harvey's text and the reader of this review must not come under the impression that they mar the whole book. In fact, they rather reinforce the general thesis of the volume and increase its unity of purpose; and in saying this I am not trying to be ironical. In all wide surveys of this kind a definite standpoint has to be adopted, if only for the sake of clarity, and Mr. John Harvey has deliberately chosen to give us what we could, after Sir Kenneth Clark, call a *micropolitan* view of the Gothic world. This was actually what we needed most and what makes the value of this book. His Gothic is not seen from the centre but from the outside, from the periphery, through the eyes of all the peoples of Christendom except the Ile-de-France French; and these

many nations of Europe judged the French *metropolitan* style of Gothic as Mr. Harvey judges it to-day. They did not understand it properly and did not specially want to understand it; but through it and through the revelation of its novelty they became conscious of what they themselves wanted, they discovered all sorts of new answers to the Gothic impulse and a whole world of new and unexpected richness came to light. This is precisely what Mr. Harvey shows us in great detail and with the most extensive information. From this standpoint the early French forms of Gothic became of almost secondary importance: they had only to be mentioned at the start, as indeed Mr. Harvey has done, but they were not the central part of his subject.

We can thus easily forgive a somewhat superficial treatment of the early history of Gothic; we can let pass some mythical exaggerations such as the Norman myth on page 53, the myth of 'Gothicus I' or the more common myth of the Northern man. Like all myths they incorporate many elements of truth and it was not easy to discuss more fully in such a short text the fundamental issues of artistic creativeness. What counts after all in this volume is the vastness of the landscape it covers, the wide range of its information, the vision it conjures up of an intense and protean activity, and the opportunity it affords of embracing as at a glance a prodigious number of interrelated art milieux. Mr. Harvey's book cannot fail to arouse our curiosity: it reminds us of the many problems we too often choose to ignore under the cover of a growing specialization. Works of this nature are, perhaps, more useful and stimulating than perfectly balanced syntheses from which the zest of controversy would be absent.

Jean Bony

PLANNERS' COMPENDIUM

TOWN AND COUNTRY PLANNING TEXTBOOK. *Edited by The Association for Planning and Regional Reconstruction. Architectural Press, London.* 1950. 42*s.*

With recent developments in Town and Country Planning education, the need for textbooks becomes more and more apparent, but up to the present the student has had to rely largely on books written for purposes other than planning or upon articles appearing in various periodicals. Planning, as understood today, is so comprehensive that the student who is not able to follow a full University course will have very great difficulty in finding time to consult the very wide range of books required by the Town Planning Institute's new syllabus. The Association for Planning and Regional Reconstruction has, therefore, done great pioneering work by providing within one volume a background of information covering most of the field of physical planning. The book now under review is an enlargement of the earlier course provided by APRR to meet the needs of service candidates. Since that course was first formulated, however, there have been very considerable developments in Town and Country Planning theories and techniques, apart from the major events of the 1947 Town and Country Act and the spate of other Acts including the New Towns Act, the National Parks and Access to the Countryside Act, and the Agriculture Act. All these have called for a revision of the original book.

The new edition has a felicitous introduction by W. G. Holford, Professor of Town Planning at London University, which will prove of very great help to the intending student. With the sound common sense which underlies everything that Professor Holford writes about planning, he explains that even those concerned with the special application of planning to town and country 'cannot all be neatly labelled as members of an entirely distinct profession. There are many using no other art nor science than common sense who play a leading part in urban and rural affairs, and who contribute as much as any specialist to the improvement of life in town and country.' Nevertheless, he shows that there is a range of studies which is gradually being defined by practice and experience as the special field of those who interpret what we may call the 'Planning Acts.' This book is primarily for those intending to practise this new co-ordinating activity. Within some 600 odd pages the APRR has included the wisdom and the fruits of experience of a large number of well-known thinkers and practitioners in this field of study. Most of the names are familiar to those who are concerned with teaching and include Professor Taylor, who deals with the Delimitation of Regions, and Regional Boundaries of England and Wales, Jacqueline Tyrwhitt, who writes on Historical Development and Survey, Arthur Smailes, whose contribution includes Population Grouping and Community Services, William Ogden, Lord Forrester (now Earl Verulam) and Sir George Pepler.

One can congratulate the editors on the very clear plan of the book which puts right things in their right places and also on the simple way in which often obscure things have been explained to the student without over generalization or inaccuracy. It is inevitable, of course, in a book of this nature that many of the illustrations must appear somewhat hackneyed to the practising planner, but it must be remembered that they are likely to be entirely new to the student and their impact upon him is important.

Like most books of its type which attempt to include in a comparatively small space an enormous amount of information, there are occasional evidences of lack of balance, but to correct this apparent unevenness the student is referred to a most comprehensive bibliography set out under the APRR classification system.

A further obvious limitation of a book of this nature is that of the teaching of design. This is a subject which can only be studied in the studio and in the field and by direct contact with the teacher. The student should be warned that in spite of the excellent chapter on design and planning contributed by Cecil Stewart and Brenda Colvin, there is much more in the subject than can be included in a book. Indeed, it is the application of such knowledge as is contained in this book which must form the most vital training of the planner of today and tomorrow, a point which has been missed or understated by many of the advocates of certain forms of town planning education and by the Schuster Committee itself. Whilst, as Professor Holford says, 'the essential town planner is . . . one who knows how to make a case,' no matter how important the administration side of his work may become, the planner must first go through the process of acquiring a developed sense of design.

The *Town and Country Planning Textbook* at 42s. gives marvellous value for money and will have served a great purpose if, by setting forth the many technical aspects of planning, it brings about a realization that planning itself is greater than any one of its constituent parts. May one hope also that the publication of this book will stimulate writers to produce textbooks dealing more comprehensively with these subjects than is possible in one volume, for this is very necessary, having in mind the new TPI syllabus.

J. S. Allen

Shorter Notices

WHITEHALL THROUGH THE CENTURIES. *By G. S. Dugdale. Phoenix House Ltd.* 18*s.*

The statement on the jacket that this is 'the first considerable book' on Whitehall for nearly fifty years may surprise those who know the three authoritative volumes on Whitehall produced by the London Survey Committee in 1930, 1931 and 1935: the more so since the author acknowledges in the text his debt to them as the source of much of his material. This, however, is not to say that Mr. Dugdale's study of the evolution of Whitehall will be any the less welcome, and since it is doubtful whether even a small proportion of Londoners could be said to be familiar with the earlier vicissitudes of this celebrated thoroughfare, there is much to be said for a readable and informative book which will lie a good deal lighter on the lap than those invaluable but weighty tomes. In particular, it clarifies that shadowy period between the acquisition by Henry VIII of Wolsey's residence, and the building of the Banqueting House, after which Whitehall gradually began to take on its present character as the precinct of governmental administration. It is regrettable that the reproduction of the illustrations does not come up to the standard of the text, and that in several cases the plates do scant justice to the interesting originals on which the author has been able to draw from the Lister Collection at the Treasury.

Dorothy Stroud

Books Received

DRAWINGS OF OXFORD. By J. C. Buckler. Bodleian Library. OLD WARWICK. By Philip B. Chatwin. Compton-Dando. 3s. 6d.

THE AGE OF WREN. By Ralph Dutton. Batsford. 42s.

SOUTHILL: A REGENCY HOUSE. Faber and Faber. 25s.

ENGLISH MEDIEVAL SCULPTURE. By Arthur Gardner. Cambridge University Press. 55s.

TYPOGRAPHICA 4. Edited by Herbert Spencer. Lund Humphries. 5s.

THE FRESCO CYCLE OF S. MARIA DI CASTELSEPRIO. By Kurt Weitzmann. Princeton University Press (Geoffrey Cumberlege). 63s.

PRINTER'S PROGRESS 1851-1951. By Charles Rosner. Sylvan Press. 42s.

TRAVEL

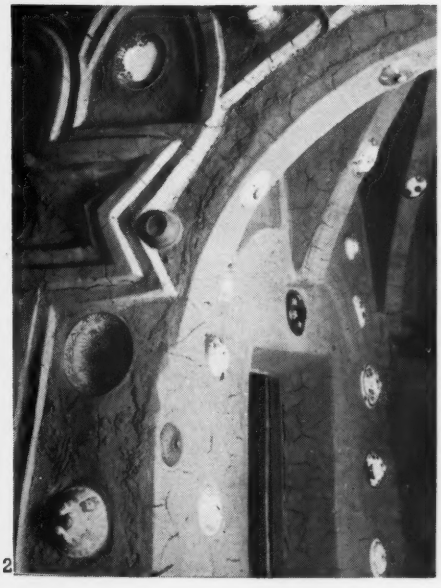
THE WARNING PLATE

In the northern Moslem regions of Nigeria the plate has acquired a structural purpose in building, being often used as a form of keystone to a series of mud arches. At the first sign of failure of the roof through cracking, the plate falls to the ground and so gives the alarm for a general evacuation before the whole building collapses. In recent years the use of plates has spread to the south, where the structural has been supplanted by the purely decorative quality, that of bright spots of colour silhouetted against the dark surface of the mudwork.

The mud arches in a house at Zaria, 1, meet at ceiling level in a brightly coloured mud plaque, in the centre of which is embedded a single plate.

In the ceiling at Bida, 2, not only plates but bowls and their lids are studded over the ceiling and walls and add a general richness to the raised mudwork panels.

1



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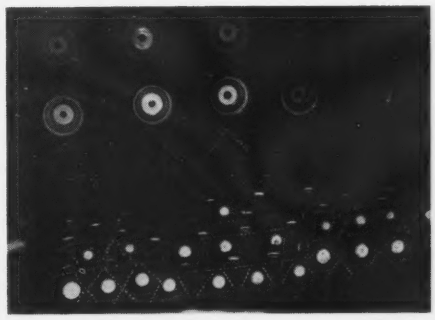
Above is a compound near Port Harcourt. Small plates are set in a regular pattern in the wattle and daub and knit together with an indented pattern.



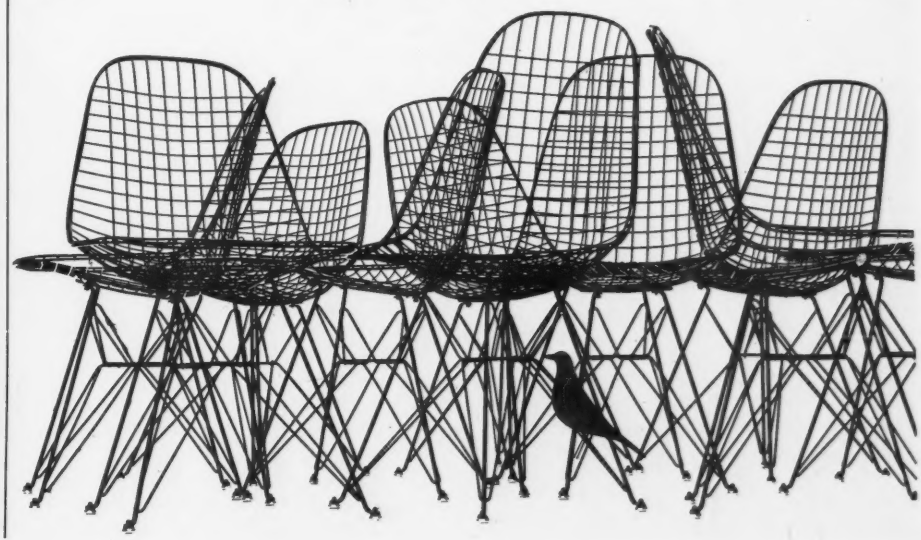
These are the steps to a couch. In the more wealthy households the built-in furniture is similarly ornamented with plates and a diaper pattern of cowrie shells.

Arthur M. Foyle

FURNITURE

REMOVABLE UPHOLSTERY

Cleaning the fabric when it has become dirty is one of the problems with the light frame chair covered with fabric, which has lately been much in vogue in America and elsewhere. Charles Eames has been one of the pioneer designers of this type of chair and has recently produced, for the Herman Miller Collection, a new range of wire chairs of which the fabric cover is removable. The frame of this chair is the basis of this month's cover. Below are chairs covered



with the two types of fabric (or leather) upholstery. The first shows the same chair as on the cover, with upholstery removable in one piece. The second is the rocker version, with a particularly ingenious design of upholstery in two pieces. After unfastening at the point where back and seat join, each piece can be easily slipped off.

MATERIALS

THE CLAIMS OF BAMBOO

Foremost among the qualities of bamboo as a building material is what might be called its permanent impermanence. Perhaps for this reason it is one of the traditional materials that are rapidly becoming part of modern architecture's stock-in-trade. Few offer greater possibilities. Perhaps bamboo is most valuable when the architect (as often happens) wishes to emphasize the contrast between those features which are structural and those whose whole purpose is the control of light and space. Secondly, the surface of a bamboo screen has both richness and enough regularity of general effect to recommend it where rusticity would be out of place; yet that regularity is not the mechanical regularity of many ridged or corrugated materials, but contains inequalities enough to make it pulsate with life. Thirdly, used as a filter for sunlight the bamboo screen has the faculty of transferring its own richness of pattern to other surfaces. Fourthly—and this is a quality which modern architecture should be well able to exploit—the bamboo screen

1

can mask an object or view and at the same time allow it to be seen, offering the eye (as a glazed window does not) the choice of resting inside the space it helps to define or of voyaging forth into the unknown—an unknown whose attraction

2

is increased by the veil of mystery which it draws across it. The visual hazard in short.

All these qualities of bamboo are exemplified in the accompanying photographs. The first three are from the South of France (1, Draguignan; 2 and 3, St. Tropez); note how in 3 the shadow pattern cast on the floor by the bamboo awning is positively three-dimensional. 4 is included to point a contrast; here not bamboo but a kind of wattle hurdling, lacking in the important quality of regularity possessed by bamboo, forms the walls of this

3

4

5

6

painter's* studio in Haiti. 5 and 6 show one of the rare instances of the use of bamboo in contemporary architecture, and a brilliant one—the bamboo wall of Leonard Manasseh's '51 Bar at the 1951 South Bank exhibition. Here Manasseh availed himself to the utmost of the bamboo screen's ability to conceal and reveal at once, producing one of the most successful and subtle effects of architecture-cum-townscape on the whole South Bank.

* H. Hyppolite, ICA Exhibition, March 1951.

TOWNSCAPE

SNAKING

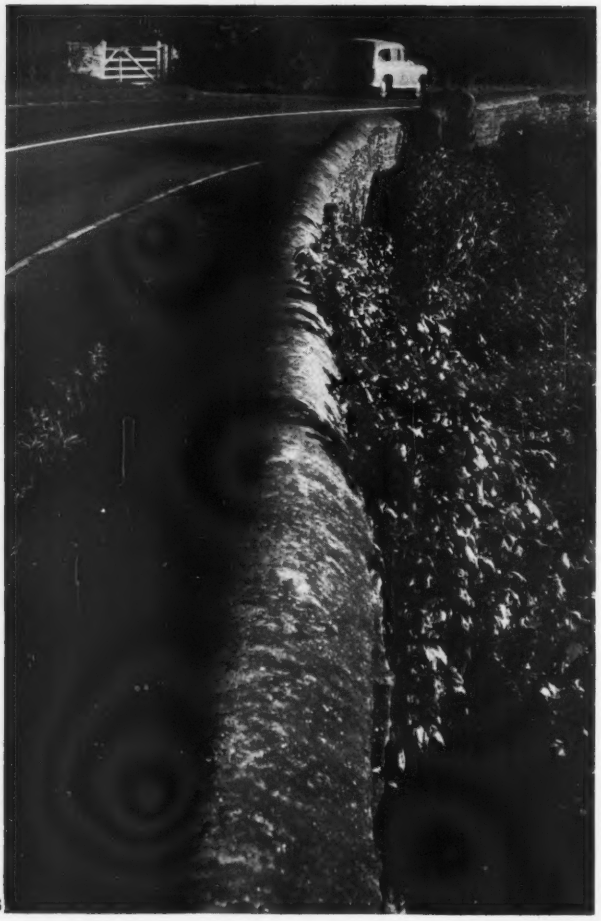
*The straight line, being the smallest distance between two points, naturally commends itself to designers who still believe that only the minimal is moral.** Others have advanced beyond that position to one in which they accept the simple curve. But the snaking line—for our century the adjective suggests the misdemeanours of a trailer caravan as much as the progress of a reptile—is still neglected.

Here are four examples of the snaking line as an element in landscape. 1, near Devizes, and 2, Start Point lighthouse, Devon, are the traditional serpentine of the rococo, Hogarth's 'line of beauty,' such as was employed in so many eighteenth-century layouts. Essentially it is calligraphic, the flourish of the writing master, and therefore only for use where and when the leisure for flourishes exists. 3, Melksham, and 4, Minehead, represent an altogether more modern version of the snaking line—more modern in that, although it must always have been around, it takes the vision of our own day, sharpened on kinds of art far removed from the rococo, to appreciate its character. It bears no resemblance to the product of

* See 'Giantism,' AR, Feb. 1952, p. 127.

1

2



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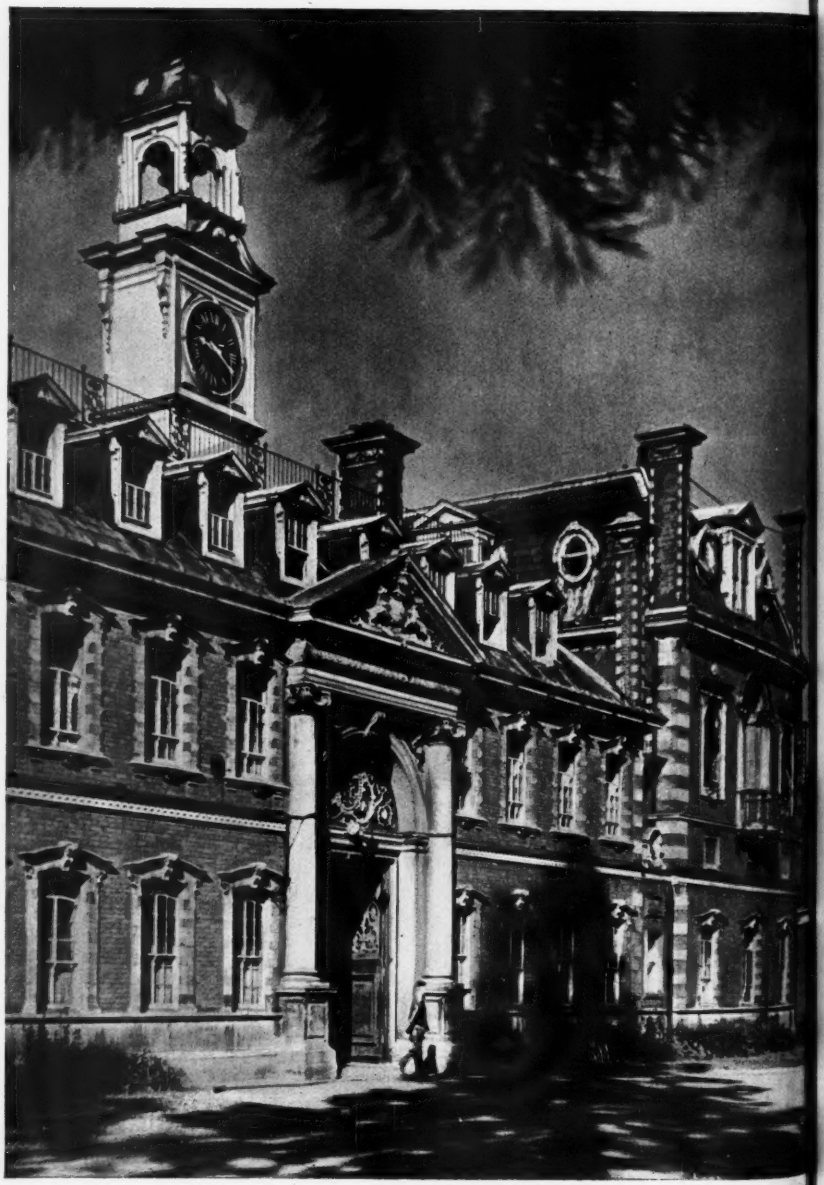
4

the well-trained pen of the writing master, but has, rather, the swiftness and vibrancy of the line in a drawing by Picasso. Perhaps in contradistinction to the 'line of beauty' one might call it the 'line of expression.' In any case there is plenty of room for both kinds of snaking in the architect's and the designer's *repertoire*.

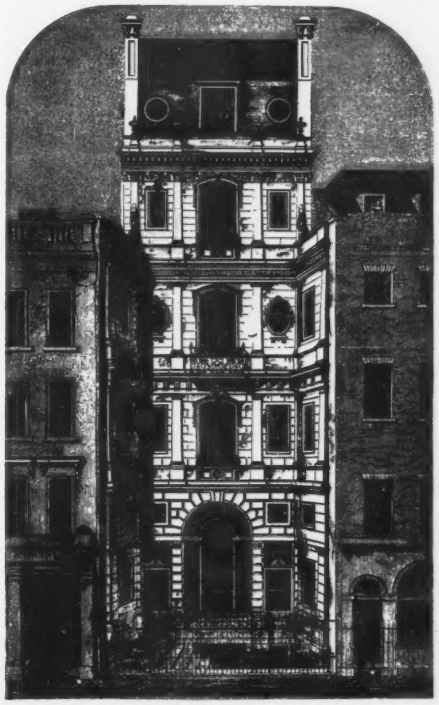


HISTORY

SHAW OF WELLINGTON

Wellington College is celebrating this year the centenary of the death of the old Duke, in whose memory it was founded. The interest of the school to readers of THE ARCHITECTURAL REVIEW is the architect of its buildings. It seems at first surprising that, when building began in 1856, the Governors of the College did not go to one of the Gothicists, to Carpenter who had started on Lancing in 1848 or Scott whose Harrow Chapel had gone up between 1854 and 1856. But it must not be forgotten that most of the big ponderous public school work in the Gothic style belongs only to the sixties and seventies. (Malvern 1862, Charterhouse 1869, etc.*) So in the mid-fifties the monastic-looking school was not yet an established type, and an architect such as John Shaw whom the Prince Consort chose had a chance to work in quite a different style.

John Shaw was born in 1803, the son of another John Shaw who had been architect to Christ's Hospital. The son had designed the Royal Naval School at New Cross, near London, now the Goldsmiths' College. This was illustrated in *The Builder* in 1843 (above). It is of so chaste an Italian style that it looks as if it might be of 1910. There is no immediate parallel to it at its time, anywhere, not even in Barry. Two years before, Shaw's Christ Church, Watney Street, in the East End, now only a shell, had been Norman, with a two-tower front, also an unusual composition. Shaw's London and Provincial Life Association in Fleet Street, illustrated in *The Builder* in 1855, is in a flimsy Baroque (below). It contains little that could prepare one for the buildings of Wellington College (left and facing page). Nor are they a continuation of the style of Goldsmiths' College.



The buildings at Wellington are rich, not restrained, and of a style developed from two sources equally improbable in the 1850's, Wren's Hampton Court and the French *Dix-huitième*. The buildings are of red brick with generous stone dressings. They form a block closed on all sides, with two towers in the centres of the east and west ranges, the lower Dining Hall (now Old Hall) in the south and the main entrance in the north. Over the entrance is a turret with a clock, over the hall a less tall lantern. Windows are segment-headed, roofs of the hipped and mansard varieties. It is only such details as the tops of the towers and the balcony on the south front with its arched recess that betray the High Victorian date of the architecture. *The Times* in 1859, when the buildings were opened, described them as 'in the decorated Italian manner or mixed style' (quoted from R. St. C. Talboys: *A Victorian School*, Blackwell, 1943), and matters might perhaps have been left at that. N. Pevsner

* The universities also came on only then: Aberystwyth 1864 by Seddon, Glasgow 1866 by Scott; then at Oxford, Meadow Buildings Christ Church 1867 by Deane, Balliol 1867 by Waterhouse, Keble College 1868 by Butterfield.

PORTRAIT OF THE PANTHEON

Numerous prints and drawings of the Oxford Street Pantheon exist but none conveys so complete an impression of the central hall as the picture which now hangs above the north-west staircase at Temple Newsam House, to which it was given by Lord Halifax in 1948. The identity of the building was forgotten and it was Mr. John Summerson who re-established it six or seven years ago when he visited the house. The Pantheon in Oxford Street, James Wyatt's first important commission, was opened to the public as 'a place of evening entertainment for the Nobility and Gentry' in January, 1772. It was gutted by fire in 1792 and, though refitted as a theatre and later used as a picture gallery and bazaar, it never regained its magnificence. Walpole considered it the most beautiful edifice in England; other visitors such as Fanny Burney and Mrs. Powys were more critical comparing it unfavourably with the Rotunda in Ranelagh Gardens. Doubtless the neo-classical style of Wyatt's building seemed thin and frigid to eyes that had become accustomed to William Jones's baroque interior of 1741. Though Mr. Summerson established the subject matter of the painting reproduced overleaf, the name of the artist still remained a matter of controversy. Latterly it has been thought that it might be the work of James Wyatt himself who is known to have studied in Venice under Visentini, the architect, painter and engraver. None of Wyatt's architectural paintings is known to me but he is said to have been compared by contemporary admirers to Pannini.

The probability is, however, that this painting is identical with the one recorded in Henry Angelo's memoirs: 'Fortunately the resemblance of the interior of this magnificent building is perpetuated in a very large picture painted by the late William Hodges, RA, in which is shown the spacious saloon with company promenading in the costume of the time, about the year 1770. The figures were painted by Zoffany.' Edward Edwards in his *Anecdotes of Painting* (1808) also refers to this painting. The last reference to it I have seen occurs in an article on the Pantheon in THE ARCHITECTURAL REVIEW, Volume 40, 1916. A. T. Bolton, the author of this article, derived his information from the passage in Henry Angelo's memoirs I have quoted and he adds 'I believe this painting no longer exists.'

By what route it came into Lord Halifax's possession is a matter of speculation. It may have been seen by Angelo displayed in the Pantheon itself where his father had frequently acted as master of ceremonies.

Like Walpole in 1769, the ladies and gentlemen painted by Zoffany have come to inspect the new wonder. 'Imagine Baalbec in all its glory' Walpole had written to Lady Ossory after his visit. If it was painted in 1770, as Angelo records, the picture must represent the interior very soon after its completion.

William Hodges is an artist little known today but recently he has become the focus of some interest partly through the publication of Thomas Jones's memoirs in the last volume of the Walpole Society which throws such interesting light on Wilson's studio where Hodges and Johnson Carr worked as apprentices.

In 1772 he was appointed official draughtsman to Captain Cook's second expedition to the South Seas and some of the oil paintings which he carried out for the Admiralty from sketches made on this expedition are exhibited in the current winter exhibition at Burlington House. The watercolour sketches preserved in the Australian Museum, Sydney, are especially interesting for they reveal Hodges as an 'impressionist' painter who, as Bernard Smith in a recent article remarks, anticipated in his treatment of air, light and water, the developments made by Constable and Turner. Later he spent several years in India.

In 1791, a year before its destruction, Hodges was made scene painter to the Pantheon which was now leased by Mr. O'Reilly and known as the King's Theatre. He also worked for Boydell's 'Shakespeare Gallery' and one of the pictures he did in this connection, *Portia's Garden*, probably gives a good idea of the sort of scenery he did for the Pantheon.

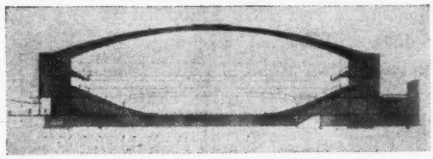
After the failure of an exhibition of his pictures in Bond Street he abandoned painting and opened a bank at Dartmouth but soon became involved in financial difficulties and appears to have ended his life by taking an overdose of laudanum in 1797. **William Wells**

WORLD

STEEL ECONOMY AT DORTMUND

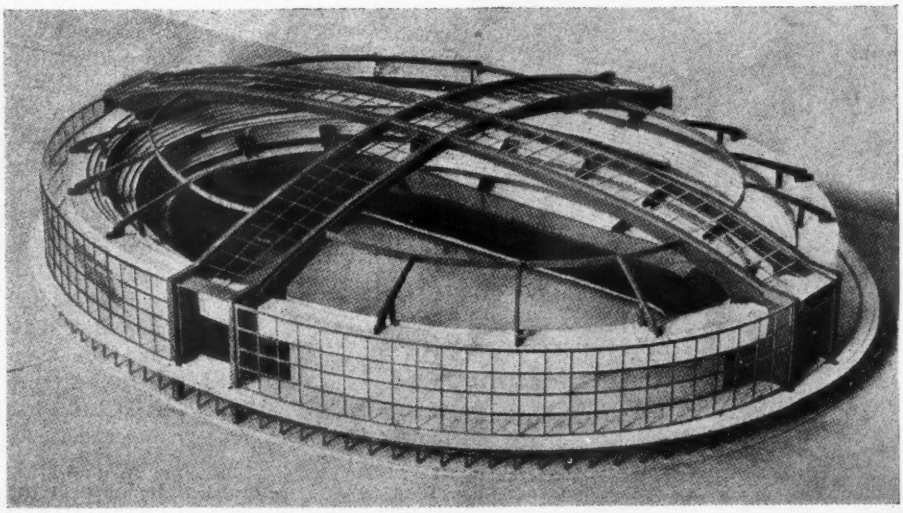
This oval stadium is roofed by two pairs of intersecting steel box girders with glass panels set in the whole of their length, designed to attain the greatest possible economy of steel.

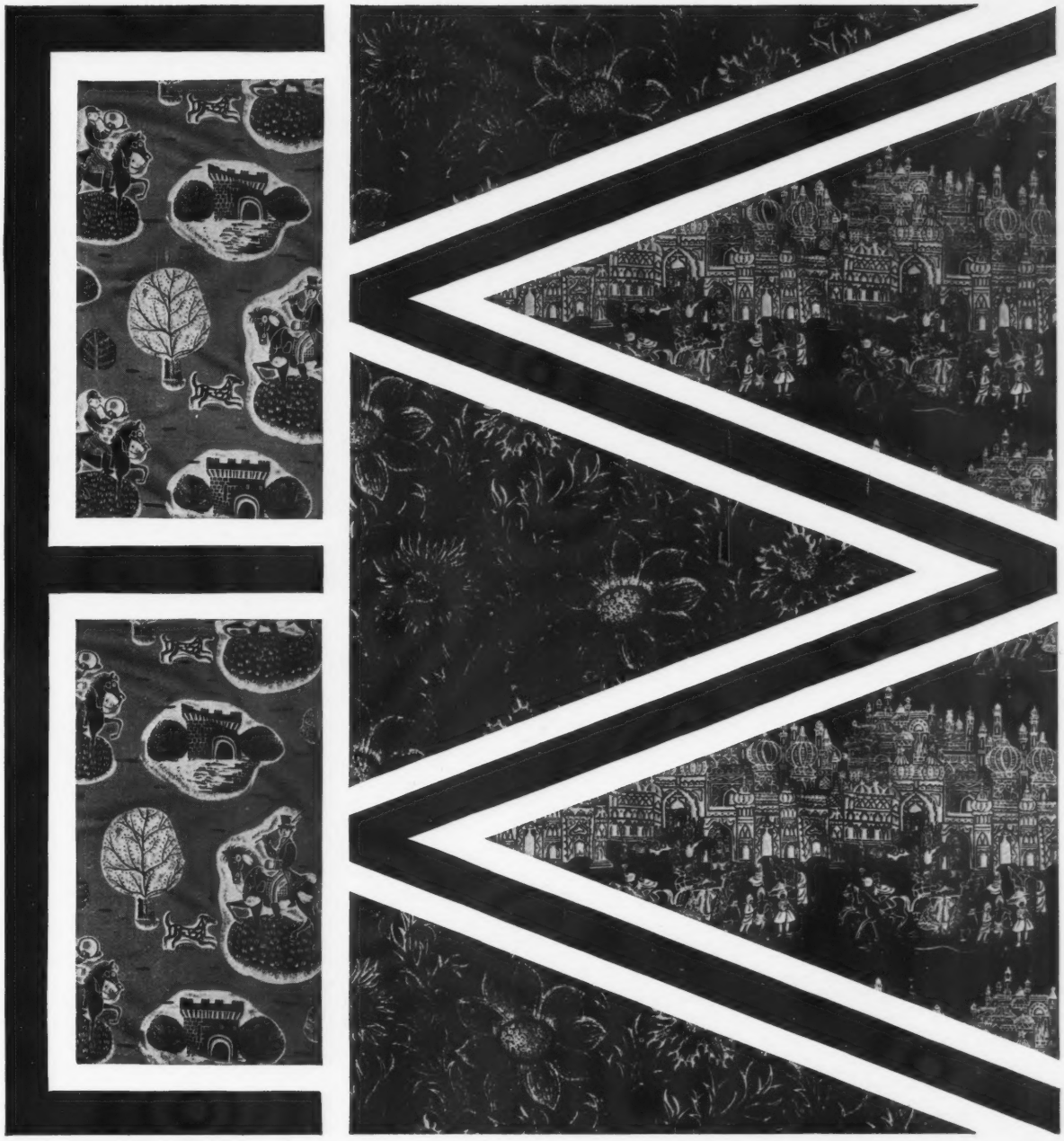
The system was worked out in collaboration with local steel constructors, and it won a competition in which concrete firms also took part. The outer wall of the stadium consists of steel framed square



section

glass panels, and as the model below shows, the pairs of roof girders support a ring girder and members projecting from the periphery, which in turn carry the purlins. The stadium is roofed with interlocking pumice concrete slabs. Tiers and platforms are supported on steel frames, the projecting beams of the tiers being light welded plate girders. Solid floors provide lateral stability for each storey. The designer was Dr. Peter Grund. **Neue Bauwelt, October 1950**





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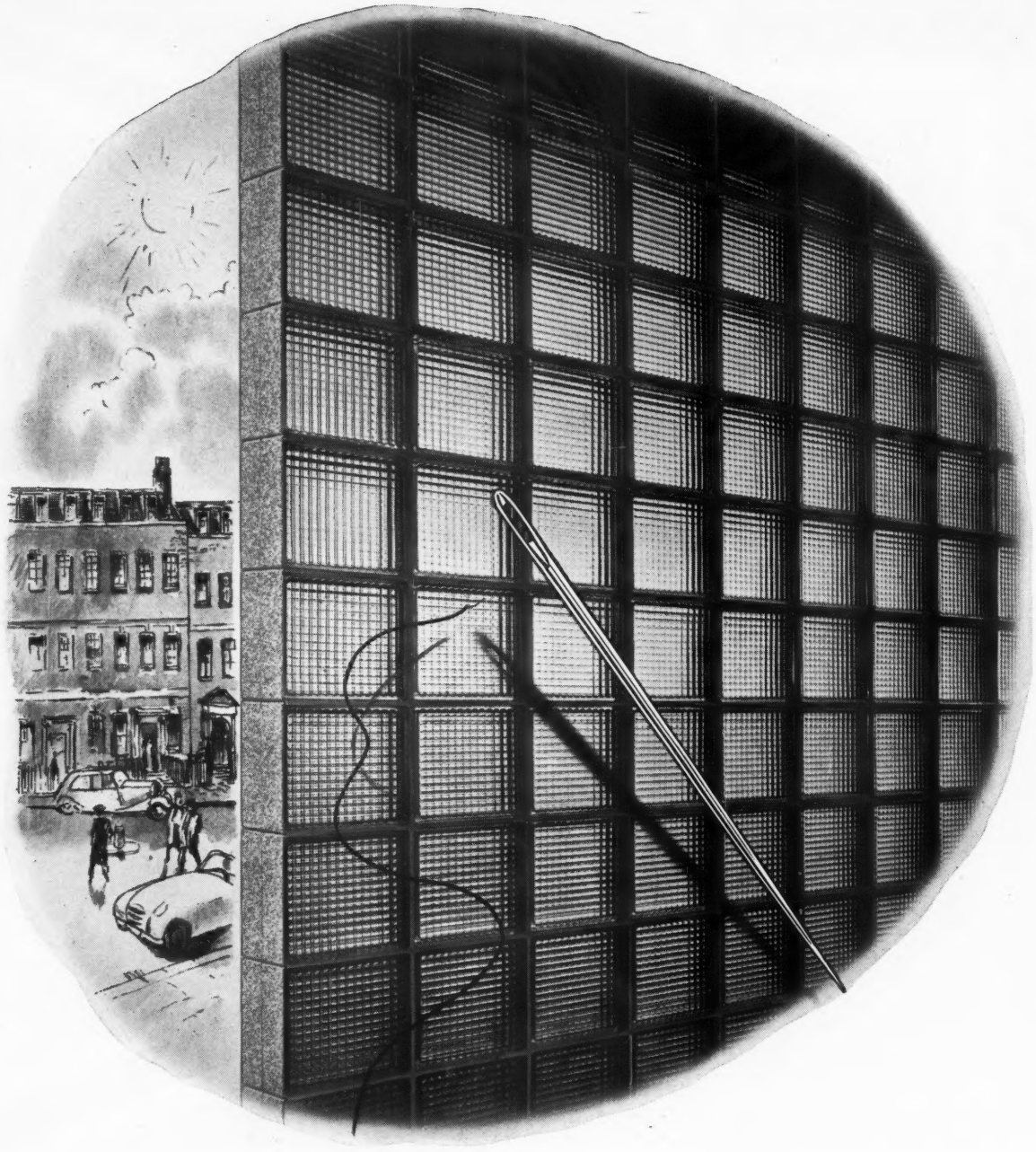

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ANTHOLOGY

THOUGHTS FOR THE STRONG

Why should we architects live in such perpetual rebellion with the present?

We talk about picking up the thread of architectural tradition where it was broken. Is it not really an excuse to go back a couple of hundred years or so, that we may get away from the needs and conditions and stern realities of modern life?

We cannot so quietly leave out centuries of history, nor is the thread of national tradition so easily broke; history will see to that.

The scientists have been truer to their generation.

The impressive dignity, the beauty, the perfect fitness, and the style of a modern express locomotive is incomparably finer than the best work of the best architect of to-day.

If we could only build with the same fitness, the same science, the same *unchallenged acceptance of modern material and modern conditions*, and the same sincerity; if we could only think of our building as an entirely modern problem without precedent (and it is an entirely modern problem without precedent) just as the railway engine is; then without a doubt, the same beauty, the same serene dignity would inevitably accompany our efforts, and the ruins of the past might crumble to dust, but the architectural tradition would remain with us still.

We must begin at the foundation and not at the cornice. We must put aboriginal constructive force into our work, and leave it to speak for itself; no mere ingenuity will suffice; tricky combinations of style and smart inventions are fool's play.

In the skeleton of the Tower Bridge we have a structure rational, scientific, acceptable in design and modern to the core, the modernity of which the architect has spent so much energy in obliterating by covering the real piers with a thin skin of Engineers' Gothic.

It makes little difference whether the style be Engineers' Gothic, or Institute Classic, or something perhaps more spirited or vigorous than either of these; the truth remains that applied 'Architecture' is unapplied architecture!

The same argument applies to our modern buildings, and all such work as may be called 'Architects' Architecture.' The grave yawns for 'Architects' Architecture.' The same problem has to be solved, and is solved in a measure, in our mills, our warehouses, our back elevations (they are not so godless as we thought them). The demands of our tasteless clients for plate-glass fronts and the like are rational enough: but we, schooled from our apprenticeship in traditions and unreality, rebel against any problem which cannot be solved by traditional methods.

We are ashamed of our nakedness—and yet it is in the frank confession of our nakedness that our regeneration lies.

In conclusion, let it be said that only the aboriginal force in any building can be called architecture, and to introduce any form that is not contemporary is to hinder progress and the true expression of the modern in architecture.

The Architectural Review, July, 1905.

MARGINALIA

This Month's Anthology

The extract printed above appeared in THE ARCHITECTURAL REVIEW forty-seven years ago, and was merely ascribed to an unnamed correspondent. It will be agreed that the sentiments expressed in it were a long way in advance of their time, and very different from the usual architectural thought of 1905, which is less surprising now that it can be revealed that the anonymous author was Charles Holden, whose great contribution to sane ideas about architecture in England, especially in his work for Frank Pick and London Transport, is universally acknowledged. When he wrote the above passage Dr. Holden was a rising young architect of thirty.

1

Architect of Four Schools in Hertfordshire (see pages 379-384). CHARLES HERBERT ASLIN, articled to private architect in Sheffield and part-time attendance Department of Architecture at Sheffield University. Architect for County Borough of Rotherham, 1922-26; Deputy County Architect, Hampshire, 1926-29; Borough Architect, Derby, 1929-45. Since 1945 County Architect, Hertfordshire. Buildings include Rotherham municipal offices, educational buildings in Hampshire and educational buildings, housing, public baths, central improvement scheme including river bridge and public gardens, police courts and offices, municipal offices, open market and bus station in Derbyshire. Vice-President RIBA 1948–50.

The members of the present Schools Group in the Architect's Department of the Hertfordshire County Council working under the County Architect are: *Deputy County Architects:* W. E. Tatton Brown, G. C. Fardell; *Secondary Schools:* D. J. Burnett, L. J. Clarke, A. D. H. Embling, K. C. Evans, R. S. Eve, D. A. Forder, M. Gerlach, B. Martin, R. Radford, J. T. Redpath, J. B. Singer, Pat Townsend, Eunice Twist, K. C. Twist, D. White, A. T. Williams, S. V. Wyatt, R. de Yarburgh Bateson; *Primary Schools:* R. L. Brewerton, C. M. Cuthill, A. H. Donnan, R. I. E. Haynes, V. H. Lee, Margaret Mason, H. T. Swain, A. P. Tait, M. Wolicki, D. Lacey.

2

Architect of Jet Engine Test House near Bristol (see pages 393-395). ERIC ROSS, born 1908 at Portland, Dorset. Architectural train-

ing: Department of Building, Southampton University; Department of Architecture, Southampton School of Art, and as an articled pupil. Son of a builder from whose offices he obtained for two years practical site and administrative experience. Private practice in Southampton until 1939 (cinemas, housing estates, sports buildings, hotels and general commercial works). At the outbreak of war was engaged as architect for new aero engine factory at Accrington for the Bristol Aeroplane Co., and was appointed Chief Architect to that Company in 1941, since when his works have included an underground factory at Corsham, drawing office building and the huge aircraft assembly hall and its ancillary buildings at Filton, numerous test houses, laboratories, offices, canteens and flight buildings. Prepared schemes for a West of England airport, a Bristol helicopter station and similar projects. Particularly interested, of course, in industrial architecture and landscaping not only as a means of providing the best working environment but also as an æsthetic responsibility of industry towards the general public. His pet aversion is the industrial 'temporary building' of which he avows 'there is no such thing' and the erection of which can only result in industrial slums. Uses 'applied colour' to exteriors only when unavoidable, as he feels these areas tend to become neglected which leads to unsightly buildings, however good the job may be as a whole.

For Bill and Betty

The Whitechapel Art Gallery is putting on from June 5 till July 24 this year an exhibition called 'For Bill and Betty, or Setting Up Home,' the purpose of which is to show newly married couples (especially East-Enders) how to make the most of their first homes. The exhibits will include everything from fabrics to frying pans, nothing being exhibited that is not available in the shops, and sections will be devoted to showing the ways of getting varied effects without spending a lot of money (by the use of colour, for example) and the possibilities of home carpentry in adapting old furniture to new purposes.

So far so good, but what follows is even better. For with the object of making the influence of the exhibition as wide and as permanent as possible the organizers have conceived the excellent scheme of giving retailers trading in or near the East End a week's preview of the exhibition and including the names of any who will stock any object in it in a list which will be available to the public. 'This arrangement,' they write, 'should satisfy everyone and will, we think, convert what would otherwise be just a good exhibition into a major event in East End life.' They certainly deserve to prove correct in their forecast.

DIGEST

Trends in Research on Gothic Architecture

Early this year (January 4) the *Times Literary Supplement* published a somewhat dispassionate review of Professor Sedlmayr's *Entstehung der Kathedrale* (Evolution of the Cathedral). To Sedlmayr's German colleagues it may well have seemed easy for an English critic to take a detached view and write with equanimity a reasoned review of a highly controversial book, interpreting churches as images of the Heavenly Jerusalem (the look of the building changing with the changing conceptions of the city) assuming the Gothic style as deriving from and appertaining to the Celtic race. It appears, in fact, that the detachment or otherwise of the reviewer depended on his geographical distance from Munich.

Professor Gall, nearest in place, is obviously enraged—as is also Dr. Überwasser of Basle—by points of language, particularly by the loose application of terms and meaningless metaphors. Gall's principal objection, however, is directed against Sedlmayr's conception of the Gothic nave as a series, or as Sedlmayr says an 'avenue of canopies' (Baldachine) deposited, as it were, from above and signifying Heaven or an image of the Heavenly Jerusalem. Gall denies outright that any building could be an image of something, or could represent and reproduce anything at all; in fact, his is a strictly formalistic point of view.

Dr. Überwasser, too, objects to the 'canopies,' the German term Baldachin meaning originally flat pieces of cloth on poles to be carried in procession; he also objects to the idea that Gothic vaults can be called suspended in mid-air; to Überwasser—and this is a most important contribution to the problem of the Gothic style—the groundplan, the 'Grund' or 'Grundtlein' of the medieval mason, form the keynote of a Gothic cathedral; in his opinion a Gothic church can only be understood from the plan. The beholder must enter Gothic space and must feel surrounded by the principal directions of the plan; it is utterly wrong to interpret the space of a Gothic cathedral as 'impressionistic' or 'illusionistic'; the Gothic cathedral rests on the inner truth of the construction which—to say it again—is built up from the plan not hung down from the heavens.

Von Simson (in Chicago) dealing with the central thesis of Sedlmayr's book only, the question whether the cathedral can be considered as an image, agrees that it can be so explained; indeed, that this is the only true interpretation of the phenomenon. But his is a different explanation (an explanation incidentally which von Simson seems to have developed more fully in 'the Birth of Gothic,' *Measure* I, 1950, which unfortunately is not accessible in London). According to von Simson the real sources one has to go to are the theologians and not the poets. Suger's book *De Consecratione* describes the vision according to which Saint-Denis was to be built, his later *De Rebus administrandis* the description of the finished church. Von Simson goes on to say: the æsthetic expressed in the School of Chartres, based on arithmetical and musical speculation, determined medieval architecture. According to the teachings of Chartres—put very roughly—the universe is founded on the laws of arithmetics, and the ensuing harmony is thought of as unhearable music; all visual beauty (sinnliche Schönheit) is following this music. In fact, Suger's descriptions hold good for music rather than for architecture. De Bruyn's sentence 'L'église idéale ne doit-elle pas être construite suivant la loi même de l'univers?' expresses best, in von Simson's view, what the Gothic cathedral is an image of. Metaphysical and mathematical speculation lead from the religious vision to architectural representation, not the 'Boldness of Imagination.' Nor can a literal interpretation of passages of the Holy Writ be permitted. Like Überwasser, von Simson takes exception to an interpretation of Gothic space as 'picturesque' or 'pictorial.'

It was the belief of the Platonists of the twelfth century that in the simple relationship of musical harmony lay not only the laws of visual beauty but that they were also the laws which ordered the physical cosmos. It is there that one should look for a true interpretation of the Gothic cathedral.

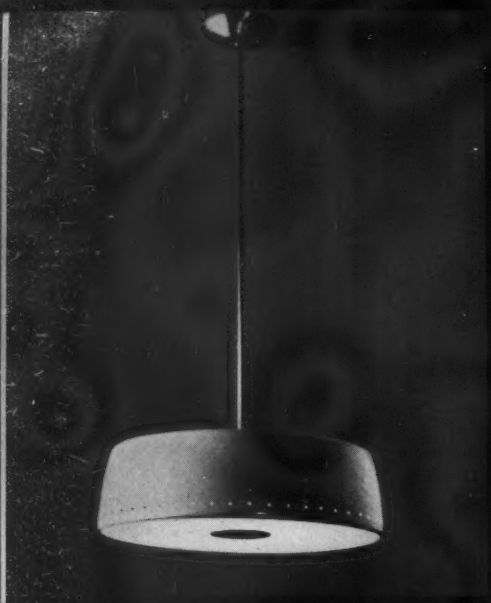
Dr. Überwasser's suggestion of the significance of the plan in Gothic architecture, also mentioned in another paper which we shall discuss later on, is fully borne out by an article of great importance by Professor Paul Frankl in the *Art Bulletin* of 1945; indeed, it is hardly an exaggeration to say that 'The Secret of the Medieval Mason' has put on an entirely new footing the problem it is dealing with. We now know that this famous Secret was the teaching and knowledge of how to draw the elevation of any given part of a Gothic church from its plan without the use of a foot rule which did not then exist. In Frankl's own words 'The secret the mason had to learn was the key figure which the architect had used'; the height and scale of, say, a pinnacle was—in fact had to be—commensurable to the measurements of, and their relationship in, the plan; the primary task of the mason was to be able to work from a small sketch; thus proportion for the medieval mason and architect was a practical device not an æsthetic proposition.

Frankl argued his case from Matthäus Roriczer's booklet '*Dz puchln d fialn gerechtikeit*,' Ratisbon 1486 and from the measurements of the cathedral of Milan, but obviously the principle involved now makes possible a clearer understanding of Villard de Honnecourt too. Dr. Überwasser in a talk given to a conference of German art historians, of which a synopsis was published in *Kunstchronik* II, 10, 1949, stressed particularly the great importance of Villard's testimony in relation to the building history of Rheims.

The whole of this building history, the history of what is in many ways one of the most important buildings of the Middle Ages, has recently been retold by Monsieur H. Deneux in two papers in the *Bulletin Monumental*, Vol. 106, 1948, 'Des Modifications Apportées a la Cathedrale de Rheims au cours de sa construction du XIIIème au XVème siècle,' and in Vol. 107, 1949, on modifications and alterations during restorations to the present day.

In a short article on 'Masterbuilders and Building-yards' in *Liturgical Arts* (August 1951), Marcel Aubert attempts to give a general picture of the actual proceedings on the site, when a cathedral was built.

Another valuable contribution to Gothic architecture has come from Mr. L. Grodecki, who, following up his paper in the *Journal of the Warburg and Courtauld Institutes*, 1948, on a stained glass workshop of the thirteenth cen-



F.830 PENDANT. Finishes : metal sides and ceiling plate, off-white; remainder, satin brass. Glass: white flashed opal. Lamps : 3 x 40 watts.

F.859 CEILING. Finishes : off-white with glass ring, gilt anodised aluminium. Bowl : peach or white Perspex. Dish: obscured rimpled glass. Lamp: 150/150 watts.

F.630B PENDANT. Dimensions: 1′ 6½″ diameter x 2′ 6″ overall. Finish: chromium. Shades: ivory or peach plastic. Lamps: up to 3 x 60 watts.

The Mondolite range of electric lighting fittings includes several that have proved so successful in the past, together with many new designs of particular merit which we have recently added. Wherever possible component parts have been made interchangeable giving great flexibility in design and purpose. This has been made possible by large scale production to precise manufacturing standards. Illustrated here are some examples of the Mondolite range. The complete range can be seen at the Lighting Centre in Knightsbridge, where you can also see our other ranges, Tubalux (fluorescent), Ultralux, and Versalite.

TROUGHTON & YOUNG (LIGHTING) LIMITED

The Lighting Centre

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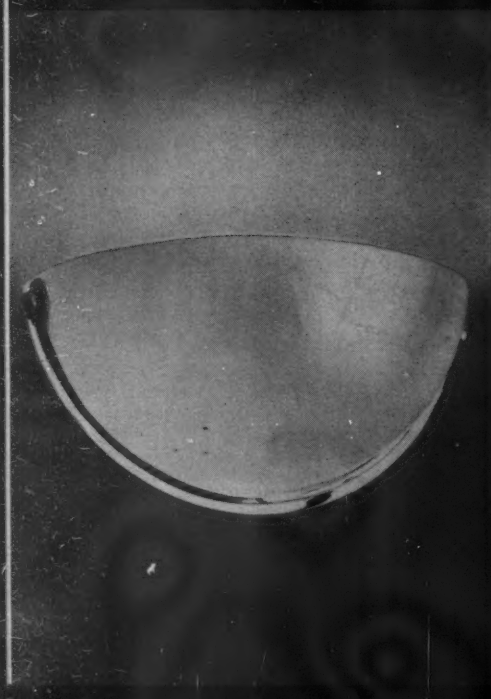
F.673 WALL BRACKET. Dimensions : 10½″ x 5″ x 5″ projection. Finish : chromium. Glass : white flashed opal. Lamp : 60 watts.



F.911 RECESSED CEILING. Finishes : reflector, anodised aluminium ; glass support, off-white. Glass : obscured rimpled. Lamp : 200 watts.

F.595S WALL BRACKET. Dimensions : 9¾″ diameter x 10″ projection. Finish : brushed copper. Lamp 100 watts.

tury which was responsible for windows in the cathedrals of Bourges, Chartres and Poitiers, has now published a study (*Gazette de Beaux Arts*, 1949) dealing exhaustively with the relationship of stained glass to the architecture to which it belongs. Besides being a condensed survey of many aspects of the development of stained glass from Romanesque times to the end of 'Classic' Gothic, he comes to the most interesting conclusion that the window 'far from being passively submitted to architectural necessities, as a "minor" art obeying a despotic "technical" primacy, on the contrary, exerts its influence upon these very necessities and even creates new ones.'

Two more articles which have come out recently also deserve notice: Lisa Schürenberg 'Mittelalterlicher Kirchenbau als Ausdruck geistiger Strömungen,' in *Wiener Jahbuch für Kunstgeschichte* XIV (XVIII) 1950, and Georg Weise 'Stilphasen der architektonischen Entwicklung im Bereich der deutschen Sondergotik' *Zeitschrift für Kunstgeschichte* XIII 1950. The second of these is an attempt to differentiate between *Spätgotik* and *Sondergotik*, the one attempting to revive early medieval trends is anti-Renaissance, whereas the other is equivalent in the north to tendencies appearing in the Italian Renaissance.

These notes on recent research in Gothic can find no more fitting conclusion than with a mention of E. S. De Beer's paper in the *Journal of the Warburg and Courtauld Institutes*, 1948. 'Gothic: origin and diffusion of the term'; which as the sub-title says deals with 'the idea of Style in Architecture.' The article describes the change of emphasis and meaning of Gothic from a derogatory name derived from a barbaric people to a term defining one particular style as the 'ordre gothique,' a transformation which took place as early as the seventeenth century.

S. Lang

EXHIBITIONS

Sculpture and Painting

Contemporary English sculptors, determined at all costs not to be sweet, too often end up by being solemn. Of course solemnity is all very right and proper when making an important pronouncement in any language, including that of sculptural form; but to say everything with equal solemnity is to be a bore. Is it that English sculptors are unaware of the relative importance of their pronouncements? I do not think that it is so much that as that the language of sculptural form does not come easily to them; and everyone knows how portentous the most trivial of his remarks sounds when made in a language of which his command is incomplete. To the Italians, on the other hand, the language of sculptural form is second nature; not having

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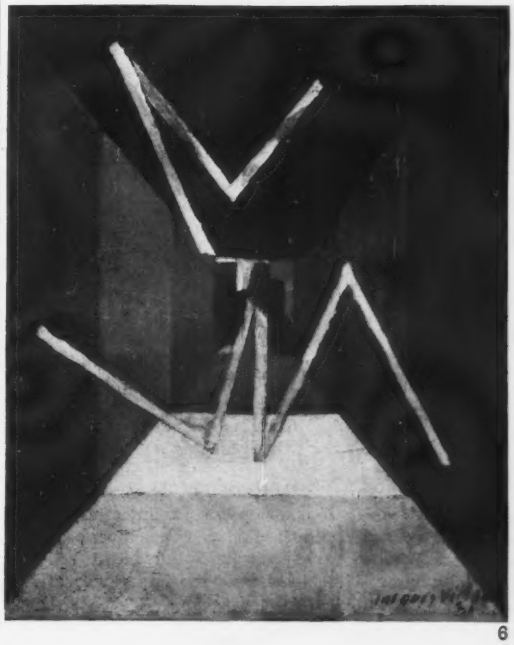

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3, Testa d'Uomo *and* 4, Figura Seduta *by Emilio Greco*, 7, Self-Portrait with Palette *by Guido Pajetta* (*Roland, Browse and Delbanco*); 5, La Grande Montaigne de la Paille *and* 6, L'Architecture *by Jacques Villon* (*Lefevre*).

to think all the time of the grammar they can afford to be humorous in it, and even be serious without being solemn. These thoughts are prompted by the recent exhibition of the work of Emilio Greco at Roland, Browse and Delbanco—the first of this artist in England. How pleasant, and how unusual, to find oneself smiling in the presence of works of sculpture! For that was one's first reaction. And then one discovered that the distortions and the Fuseli hair styles which give Greco's figures an element of caricature are also means of giving them unity and coherence; he is in fact a sculptor through and through. And that prompts another general reflection. If sculpture is to become again a popular art—by which I here mean an art appreciated by people and with a place in their lives—there must be some link between it and the man in the street. May not that link be humour? An Emilio Greco in a public place would be worth many Barbara Hepworths from this point of view—to say which is not, of course, to make any comparison of absolute artistic quality.

With Greco, Roland, Browse and Delbanco showed another Italian newcomer to this country, Guido Pajetta. Chagall is the name which immediately comes to mind when one first sees Pajetta's paintings, but there is little of Chagall's gay irresponsibility about them; in mood they are closer to Rouault.

The Lefevre Gallery has been bright with the paintings of Jacques Villon, now 77 but still young in spirit. Villon's work can most easily, and not too inaccurately, be described as a synthesis of impressionist colour and cubist form. The colour in his latest works—most of those in the exhibition dated from between 1942 and 1951—is pitched in so high a key as positively to outshine the broad gilt frames which he favours. (The latter are in their very different way as much a part of the pictures they contain as are the painted frames of Seurat.) The German occupation in 1940, by sending Villon off to the Tarn, proved for him a cloud with a silver lining, for it was there that he discovered the country subjects which provide the starting point for some of the best of his recent paintings. I reproduce one of several threshing scenes.

A mention of two shows at Gimpel Fils must complete this month's review. A. Mintchine was born at Kiev in 1898 and died in Provence in 1931; he was a friend and admirer of Soutine, to whose work his, though by no means merely derivative, bears some resemblance. Brenda Chamberlain is a young artist who, in the opinion of the present writer, still shows more talent than certainty of aim; but it is a ponderable talent.

Andrew Hammer

CORRESPONDENCE

COID

The Editors,
THE ARCHITECTURAL REVIEW

DEAR SIRS,—Mr. Gordon Russell, in his reply to your progress report on the C O I D (AR, February, 1952) writes that 'the National Brassfoundry Association complains that selection (i.e. for Design Review) was far too drastic.' This statement scarcely goes to the root of the matter. What the Association actually pointed out—in a Memorandum to the BOT—was that in one class of article over 50 per cent. of the exhibits were from one firm and suggested that (*a*) it is desirable, at all costs, to avoid even the appearance of cliqueishness, (*b*) the taste of the selectors appeared to be somewhat immature, in that these people were without the experience of market requirements without which it is impossible to make useful judgments on industrial design at all, and (*c*) there had been a confusion of standards—'South-Bank-Design' with 'Industrial Design.'

The Memorandum also suggests that in questions of taste it is essential that there should be plenty of opportunity for discussion and disagreement. It is extremely unlikely that there are no important groups disagreeing with the Council on many matters. We believe that such groups exist but that they are unorganized and inarticulate through (*a*) being spread out over the country, (*b*) lack of secretarial help, etc., and (*c*) lack of cash. An artistic group centred on London backed by public funds and a propaganda magazine is in too strong a position and may very readily become exclusive. Past experience seems to show that the best work is produced when there is plenty of articulate opposition.

Although the NBA appreciates the sincerity and enthusiasm of the members and officers of the Council, it has been compelled to ventilate the matter in this way because, only too often, these issues are covered up and never appear on the agendas of important Design Conferences.

Yours, etc.,
R. D. BEST,
Past President of the National Brassfoundry Association.

Slab Building

The Editors,
THE ARCHITECTURAL REVIEW

DEAR SIRS,—Professor W. Weisman's interesting essay on Slab Buildings, published in your February issue, contains a discussion about the introduction of the term 'slab structure.' It is stated that the term was first coined in the 1930's to describe the RCA Building at the Rockefeller Center. Is that truly so? In any case I cannot agree that the word 'slab' is used only to describe a specific type of skyscraper.

It may be that I am myself partly responsible for introducing the word (the English coining was done with the help of Eugen Jolas and Morton Shand in the early 30's) as being a constituent of the structures of Robert Maillart (bridges as well as mushroom ceilings). I drew its attention to its inner relationship with the appearance of abstract planes in contemporary painting and architecture. The last chapter of my *Space, Time and Architecture*, dealing with the Rockefeller Center, extends the word to denote this specific type of skyscraper.

For me, the exciting feature of the slab is just that it reveals an unconscious parallelism which appeared in painting, architecture and construction nearly simultaneously and for very different reasons. But all slabs and planes are elements of the space-conception inherent in our period.

The buildings of the Chicago School (including Sullivan's Fraternity Temple project) belong to a different conception of space, just as do the triangle-tip development (Pittsburgh) with its cruciform shape and the Swedish 'tower houses.' The significance of the tower type is fundamentally different from that of the slab. It may well soon disappear from contemporary architecture.

As far as I know the first slab skyscraper proposal was due to the genius of Frank Lloyd Wright. Professor Weisman stresses the importance of his San Francisco Press Building, 1912. Its façade is nearest to Sullivan's Guarantee Building in St. Louis, 1894-95, which Wright regards as Sullivan's best work, and which provides also the basic elements for the fronts of the Rockefeller Center. One of the earliest, and perhaps *the* earliest, executed slab skyscraper is the upper part of the Lincoln Building near Central Station, New York.

Yours, etc.,
S. GIEDION.

TRADE & INDUSTRY

Glass-Resin Plastics Convention

It is the habit of technical revolutions to creep up on us unawares while our day-to-day attention is focused on our petty personal affairs or distracted by financial and political panics. By the time the revolution is a *fait accompli*, we are so inured to its effects or even oblivious of them, if they are concealed by a vast industrial process, that we accept the change as a matter of course.

Undoubtedly the impact of synthetic resins on our present-day production processes and consequently on their end-products is tantamount to a technical revolution. The very fact that some forms of plastics can and do replace steel and aluminium in their respective spheres indicates their threat to the existing industrial order.

One of the most interesting developments in recent years has been the introduction of an old-established material in a new guise—that of glass-reinforced plastics. An entirely different product with a completely different set of characteristics has thus been evolved.

Normal moulded plastics have many valuable characteristics, some are resistant to moisture, others to fire, some indeed withstand high temperatures. On the whole, however, they tend to lack strength and elasticity. Combine them with some kind of fibrous reinforcement and the result is remarkable. Glass fibres are particularly successful for this purpose, owing to their great strength, chemical inertness and resistance to moisture. In fact, when reinforced with glass, plastics have higher strength to weight ratios than steel. At present, woven glass fabrics are generally used for this purpose but recently cheaper non-woven mats have been used, made up either of uni-directional continuous filaments or of chopped strands laid on in random directions.

Normal moulding techniques are used according to the type of product required. The type of synthetic resin employed is also dependent on the end-product.

Development of the material was vastly accelerated by wartime needs, particularly in the aircraft industry, where lightness with strength favoured its use for such parts as wing-tips and auxiliary fuel tanks. Since then developments in the USA have ranged from fishing-rods to 36-footer boats.

The progress of this new material has thus been so rapid and extensive that Fibreglass Limited, the largest British manufacturers of the product, were able to organize a convention last month so that other manufacturers, synthetic resin manufacturers and representatives of industrial research departments and of the Services could meet with them and with interested friends from America to discuss the achievements and future scope of this new industry. The chair was taken by Sir Hugh Chance of Chance Brothers.

100 Contemporary Wallpapers

There can exist few better indications of down-to-earth popular taste than that one time chamber of

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horrors the wallpaper pattern book. Inexpensive wallpapers from three shillings a piece or so are printed from engraved rollers, and these rollers are expensive to make. Any wallpaper printed in this way must have a large sale in order to make it pay. The alternative process of hand-printing results in a wallpaper that costs from sixteen shillings a piece upwards for a 12-yard piece.

It is therefore gratifying to run through the book of a Hundred Contemporary Wallpapers recently produced by the Wall Paper Manufacturers Association and to observe the change that has taken place in a matter of twenty years. This may not be the book for the Exhibition Designer, but if suburban Mrs. Smith in Wandsworth and the boarding-house landlady at Littlehampton take their pick from it—and these are the people who make mass-production a paying concern—then it is a job well done.

An Electric Shower Cabinet

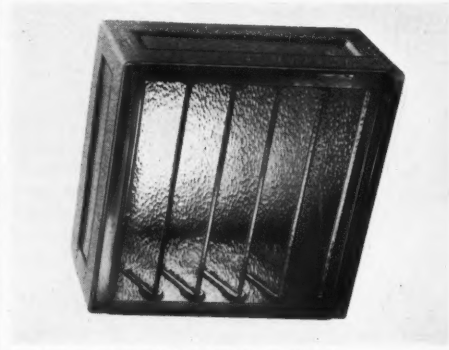
For some strange reason, it may be that our weather is not hot enough or sticky enough for any length of time, the Englishman seems to take very slowly to the idea of shower-baths in his home. He accepts them at school, in his golf or squash club-house and these days, of course, in his pithead bath-house, but there he seems to draw a mental line.

Messrs. Santon of Newport, Mon., who produce shower-baths for factory and sports club use, are tackling this problem with their new Hotsprings shower cabinet. This is a completely self-contained unit built of sheet aluminium, finished a cream colour with a translucent plastic curtain. The nozzle, which is located at one side in preference to an overhead position, so that one need not wet one's hair, provides a fine penetrating spray, and is fitted with an efficient mixing valve which gives an even control of the water temperature.

Water, consumption of which is half a gallon per minute, is heated by a fully insulated electric storage unit equipped with thermostatic control. This unit supplies sufficient hot water for three or four consecutive showers with the standard loading of 1 kW, providing a five-minute shower for half a unit of electricity. The storage unit will heat up from cold to 150°F. in about 40 minutes. The shower cabinet, which is 32 inches wide and 27 inches deep, is supplied complete and ready for connection to electricity supply, cold water supply and waste pipe, and costs £70 14s. 5d. including purchase tax.

'Insulight' Ventilator Block

Pilkington Brothers, manufacturers of 'Insulight' Hollow Glass Blocks, have recently added an all-glass louvre ventilator block to their range matching



8, *the new Insulight Ventilator Block.*

the existing PB3 and PB32 types. It measures $7\frac{3}{4}$ inches by $7\frac{3}{4}$ inches by $3\frac{1}{8}$ inches. A second size to match the PB2 type will be available soon.

Ventilation and Air Conditioning

The industrial applications of air conditioning are steadily increasing in importance in a wide range of manufacturing processes. The Visco Engineering Company of Croydon, Surrey, already well known as manufacturers of air filters, water coolers and dust collecting plant, have for some time past been developing a special department which deals exclusively with ventilation and air conditioning installations. Their new pamphlet No. 523 illustrates a number of installations which they have completed recently for such firms as General Electric, Glaxo Laboratories, May and Baker, among others.

9, *the roof of Canterbury Chapter House, with concealed lighting by Drake & Gorham—see* Booklets Received, *page* 426.

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Frodingham Steel Sheet Piling

The United Steel Companies of Sheffield have recently announced the addition, by their Appleby-Frodingham branch, of the No. 4 profile to their range of Steel Sheet Piling sections. This new section has a minimum section of .45 inches, with a lock centre of 15¾ inches, is 10¾ inches deep with a weight of 40.98 lb. per square foot of piling wall and a modulus of 43.75 inches³ per foot of wall. The Company or their area representatives will be glad to supply any further particulars.

Booklets Received

Lighting in Canterbury Cathedral. As a record of their work in lighting the interior of Canterbury Cathedral, Drake and Gorham of 36, Grosvenor Gardens, SW1, the electrical contractors for this very important task, have produced a booklet of actual photographs which illustrate some of the remarkable results achieved. They will be glad to forward a copy to any architect who is generally interested in this work.

Specification for Aluminium and Aluminium Alloy Products. This is the fifth edition of the Northern Aluminium Company's Specifications booklet summarizing the British specifications for these products. Many changes have taken place since the fourth edition, a noteworthy instance being the BS Specification for General Engineering Purposes, which replaces the former General Purposes category.

H. McG. Dunnett

New Address

M. & B. Plastics Ltd. announce that their address is now 45-47, Wigmore Street, London, W1. Telephone Welbeck 0425.

Obituary

The news of the death on April 14 last, after a prolonged illness, of Wallace B. Phillips, Chairman and Managing Director of the Pyrene Company since its founding in this country in 1913 and recently appointed President of the Pyrene Manufacturing Company of America, which reached us too late for inclusion in last month's issue, will greatly be regretted by his many friends in this country.

CONTRACTORS etc

Four Schools in Hertfordshire. School at Aboyne Lodge, St. Albans. *General contractors:* Y. J. Lovell & Son. *Sub-contractors: Frame—steel and windows:* Hills (West Bromwich) Ltd. *Wall blocks:* Orlit Ltd. *Roof blocks:* Dow-Mac (Products) Ltd. *Roofing:* William Briggs & Sons. *Electrical installation:* Giffens Ltd. *Heating:* Weatherfoil Heating Systems Ltd. *Sanitary equipment:* Adamsez Ltd. *Floors:* R. W. Brooke & Co. *Doors:* Jayanbee Joinery Ltd. *Paint:* Docker Brothers. *Fibrous plaster:* Claridges (Putney) Ltd. *Insulation:* Thermacoust Ltd. *Tiles:* J. C. Edwards (Ruabon) Ltd. *Blinds:* J. Avery & Co. *Textiles:* Gerald Holtom. *Furniture:* Educational Supply Association; Kingfisher Ltd.; Geo. M. Hammer & Co.; Harris Lebus Ltd.

Pentley Park School, Welwyn Garden City. *General contractors:* C. Miskin & Sons. *Sub-contractors: Frame—steel and windows:* Hills (West Bromwich) Ltd. *Wall blocks:* Orlit Ltd. *Roof blocks:* Dow-Mac (Products) Ltd. *Roofing:* The Ruberoid Co. *Electrical Installation:* Hartley Electromotives Ltd. *Heating:* Weatherfoil Heating Systems Ltd. *Sanitary equipment:* Adamsez Ltd. *Floors:* R. W. Brooke & Co.; Masters & Andren Ltd. *Doors:* George M. Hammer & Co. *Floor tiles:* J. C. Edwards (Ruabon) Ltd. *Partitions:* Broad-Acheson Ltd. *Glass and glazed tiles:* Pilkington Brothers Ltd. *Patent flooring:* Hollis Brothers Ltd. *Plumbing:* Econa Modern Products Ltd. *Fibrous plaster:* H. H. Martyn & Co. *Textiles:* Gerald Holtom. *Wallpapers:* Arthur Sanderson & Sons. *Floor tiles:* Armstrong Cork Co. *Insulation:* Thermacoust Ltd.

Junior School at Croxley Green. *General contractors:* C. Miskin & Sons. *Sub-contractors: Frame—steel and windows:* Hills (West Bromwich) Ltd. *Wall blocks:* Uniment Ltd. *Roof blocks:* Millbank Floors Ltd. *Roofing:* The Ruberoid Co. *Electrical installation:* Hartley Electromotives Ltd. *Heating:* Weatherfoil Heating Systems Ltd. *Internal walls and fibrous plaster:* Dejong. *Sanitary equipment:* Adamsez Ltd. *Floors:* Semtex Ltd.; Carter & Co. *Doors:* Geo. M. Hammer & Co. *Ironmongery:* N. F. Ramsay & Co. *Paint:* Mander Brothers Ltd. *Blinds:* J. Avery & Co. *Textiles:* Gerald Holtom. *Furniture:* Educational Supply Association; Geo. M. Hammer & Co.; Kingfisher Ltd.; Harris Lebus Ltd.

Nursery School at Garston. *General contractors:* Globe Contractors Ltd. *Sub-contractors: Frame—steel:* Scaffolding (Great Britain) Ltd. *Wall blocks (panels):* Holoplast Ltd. *Roofing:* The Ruberoid Co. *Windows:* Quicktho (1928) Ltd. *Electrical installation:* Leonard J. Ive Ltd. *Heating:* Weatherfoil Heating Systems Ltd. *Sanitary equipment:* W. N. Froy & Sons. *Doors (glazed):* Williams & Williams Ltd. *Fixings:* Rawlplug Co. *Ceiling panels:* Soundproof Construction. *Gas and cold water installation:* J. H. Shouksmith & Sons. *Blinds:* J. Avery & Co. *Linoleum:* Anthony Stewart & Co. *Cloakroom fittings:* Watford Timber Co. *Textiles:* Gerald Holtom. *Furniture:* Educational Supply Association; Geo. M. Hammer & Co.; Ercol; Paul & Marjorie Abbott; Happytime Products.

Jet Engine Test House near Bristol. *General contractors:* Sir Alfred McAlpine & Son. *Sub-contractors: Asphalte works:* Highways Construction Ltd. *'Morliss' fencing to fuel installation:* Bayliss, Jones & Bayliss Ltd. *Steel framework for 2 w.c. partitions:*

[continued on page 428

continued from page 426]

Frederick Braby & Co. *B.R.C. reinforcements:* The British Reinforced Concrete Engineering Co. *Silencing splitters, thermal insulation of diffuser and exhaust sections, Elascor cork mats and black cork:* Cementation (Muffelite) Ltd. *Sound resisting doors:* The Chatwood Safe & Eng. Co. *Elkington Gatic covers and frames:* The Dover Engineering Works Ltd. *Roof coverings:* Evode Ltd. *Lightning conductors:* W. J. Furse & Co. *Sanitary fittings, steel windows, door furniture, steelwork and walkways, air cascades and deflectors, chequer plates and covers, grilles:* Gardiner, Sons & Co. *Roller shutters:* Haskins Ltd. *Metal handrails and staircases:* Metal Agencies Co. *Floor insulation against heat:* Meta Mica Ltd. *Duct-proof floor finishes:* Quickset Water Sealers Ltd. *Heating installation:* Arthur Scull & Son. *Electrical installation:* The Bristol Aeroplane Co. *Painting and decorating:* W. J. Naylor & Co. (P.C.).

Flats in Holford Square, Finsbury. *General contractors:* Tersons Ltd. *Sub-contractors: Electrical:* Thorpe & Thorpe Ltd. *Gas water heaters:* Ascot Gas Water Heaters Ltd. *Glaziers:* Aygee Ltd. *Heating:* G. N. Haden & Sons. *Lifts:* Bennie Lifts Ltd. *Metal door frames:* Joseph Sankey & Sons. *Painting:* The Decorative Painting Contractors Ltd. *Piling:* The Franki Compressed Pile Co. *Plastering:* Pool's Granolithic & Plastering Co. *Plumbing:* Ellis (Kensington) Ltd. *Precast cladding:* Bradford & Co. *Sanitary fittings:* General Light Castings Ltd. *Structural engineers:* J. H. Coombs & Partners. *Quantity surveyors:* Veale & Sanders.

Research Laboratory for Liverpool University. *General contractors:* Bovis Ltd. *Sub-contractors: Structural steelwork:* Redpath Brown & Co. *Electric lift:* Wm. Wadsworth & Sons. *Compressed air, ventilation, heating, hot water, vacuum, cold water, gas:* G. N. Haden & Sons. *Asphalte floors:* Durable Asphalte Co. *Asphalte roofing and tanking:* Penmaenmawr and Trinidad Lake Asphalte Co. *Spiral staircase:* H. & C. Davis. *Chain link fencing:* Durafencing Ltd. *Blinds:* J. Avery. *False ceilings:* Beaumonts Ltd. *Electric light and power:* Troughton & Young Ltd. *'Marquetone' flooring:* Mears Bros. *Floor tiling:* John Stubbs. *Composition flooring:* Granwood Flooring Co. *Granolithic flooring:* Houghton & Jones. *Glazing:* Williams & Williams. *Hollow glass blocks:* James Clark & Eaton Ltd. *Plastering to 37-in. building:* Pollock Bros. *Rubber flooring:* Ioco Ltd. *Switchboard cabling:* Communication Systems Ltd. *Steel flooring in cyclotron room:* Steelways Ltd. *Steel office furniture:* Rubery Owen Ltd. *Shutter gates:* Bolton Gate Co. *'Accotile' flooring:* R. W. Brooke & Co. *Sprayed 'Pyroc':* Decorators Ltd. *Sprayed asbestos:* Newalls Insulation Co. *Acoustic ceiling:* Gyproc Products Ltd. *Felt roofing to 37-in. building and roof of 156-in.:* William Briggs Ltd. *Plastering to laboratory block:* Meta-Mica Ltd. *Tanking to 37-in. building:* Faldo Asphalte Ltd.

Housing at Brynmawr, South Wales. *General contractors:* W. & A. Davies Ltd. *Sub-contractors: Roads and sewers:* Davies, Middleton & Davies. *Asphalte:* Neuchatel Asphalte Co. *Bricks:* Coleford Brick & Tile Co. *Damp courses and roofing felt:* Ruberoid Co. *Patent glazing to kitchen yards and steel door frames:* Williams & Williams Ltd. *Wood-block flooring:* Campbell Marson. *Rubber flooring:* Brynmawr Rubber Co. *Central heating:* G. N. Haden & Sons. *Electric wiring, fixtures and bells:* Troughton & Young Ltd. *Ventilation:* Vent-Axia Ltd. *Plumbing:* Beavan & Sons. *Sanitary fittings:* Stitsons (Sanitary) Fittings Ltd. *Door and window furniture:* Rennis Ltd. *Casements:* E. W. King & Son. *Balcony railings:* Hill & Smith Ltd. *Joinery:* Built-In Fixtures Ltd. *Wallpapers:* Arthur Sanderson & Sons. *Signs:* Dryad Metalworks Ltd.

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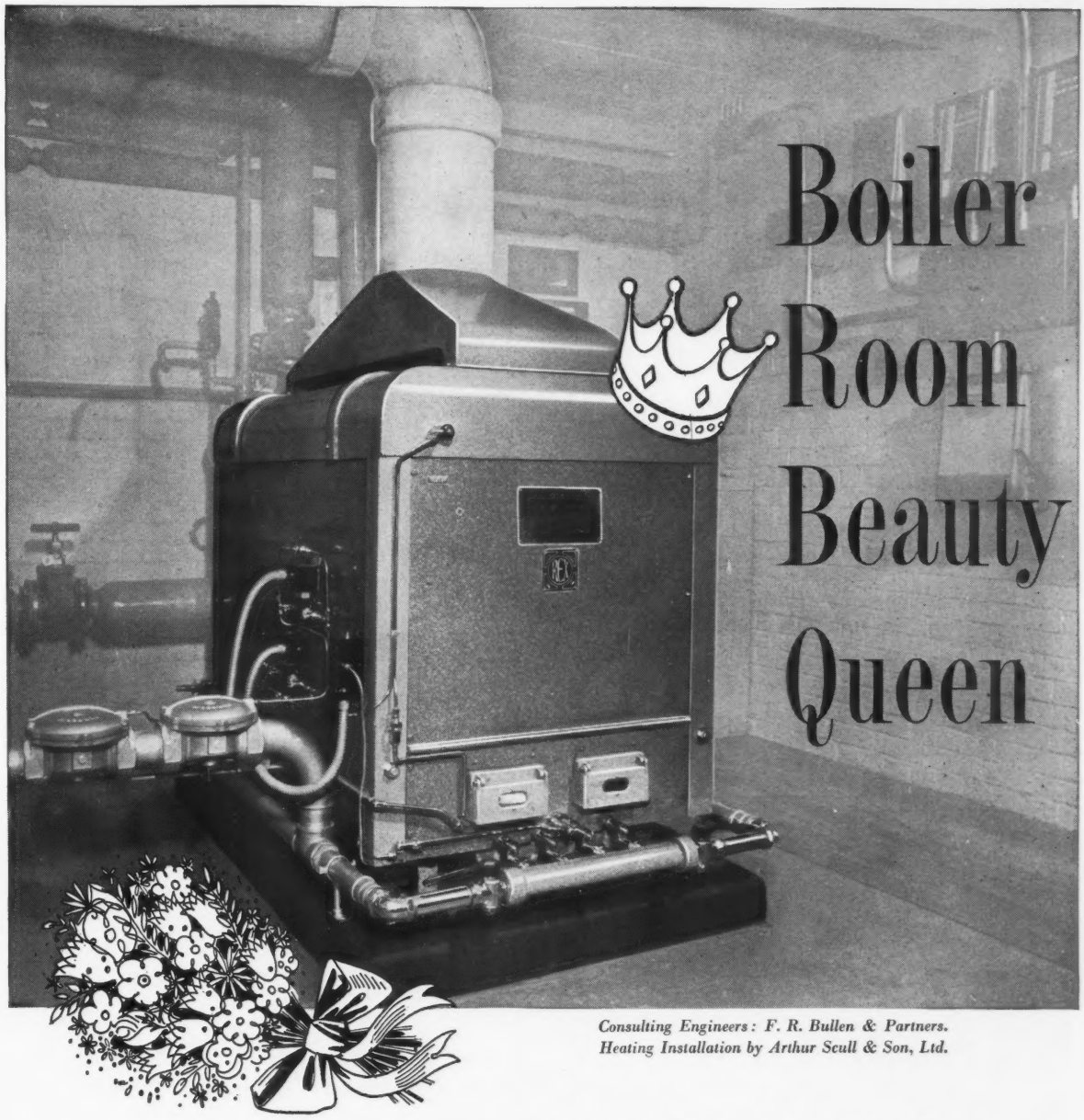
ACKNOWLEDGMENTS

Cover, Charles Eames. Frontispiece, both Alinari. TINTORETTO AND MANNERISM, pages 361–365; page 363 left, top, Anderson, centre, National Gallery, bottom, Alinari; right, top, Schroll, centre, Anderson, bottom, Alinari; page 364 left, both Anderson, right, Alinari; page 365 left, top, Anderson, bottom, O. Böhm, right, top, Anderson, centre and bottom, Alinari. THE HERTFORDSHIRE ACHIEVEMENT, pages 360–387; page 366 all Galwey, Arphot, except 6, 7, Sam Lambert; 13, Museum of Modern Art; 15, John Maltby; 18, Peter Pitt. FLATS IN HOLFORD SQUARE, FINSBURY, pages 403–406; 1, 13, John Maltby; 3, *Country Life;* 9, 10, 12, Wainwright. ROUNDABOUTS, pages 388–392; 1, 10, 11, McCallum, Arphot; 2, 4, 5, de Wolfe, Arphot; 3, 8, 9, Peter Dodds; 6, Cullen, Arphot; 7, Eric de Maré; all drawings by the author. CURRENT ARCHITECTURE, pages 407–410; 1, 2, 3, Elsom, Mann and Cooper; 4, 5, 6, Peter Pitt; 7, 8, John Pantlin. MISCELLANY, pages 411–418; TRAVEL, Arthur Foyle; FURNITURE, Charles Eames; MATERIALS, 1, 2, 4, de Wolfe, Arphot; 3, Paul Popper; 5, Galwey, Arphot; TOWNSCAPE, 1, 3, 4, de Wolfe, Arphot; 2, de Maré. MARGINALIA, pages 419–428, 1, Sam Lambert; 5, 6, Louis Carré.

Appointments



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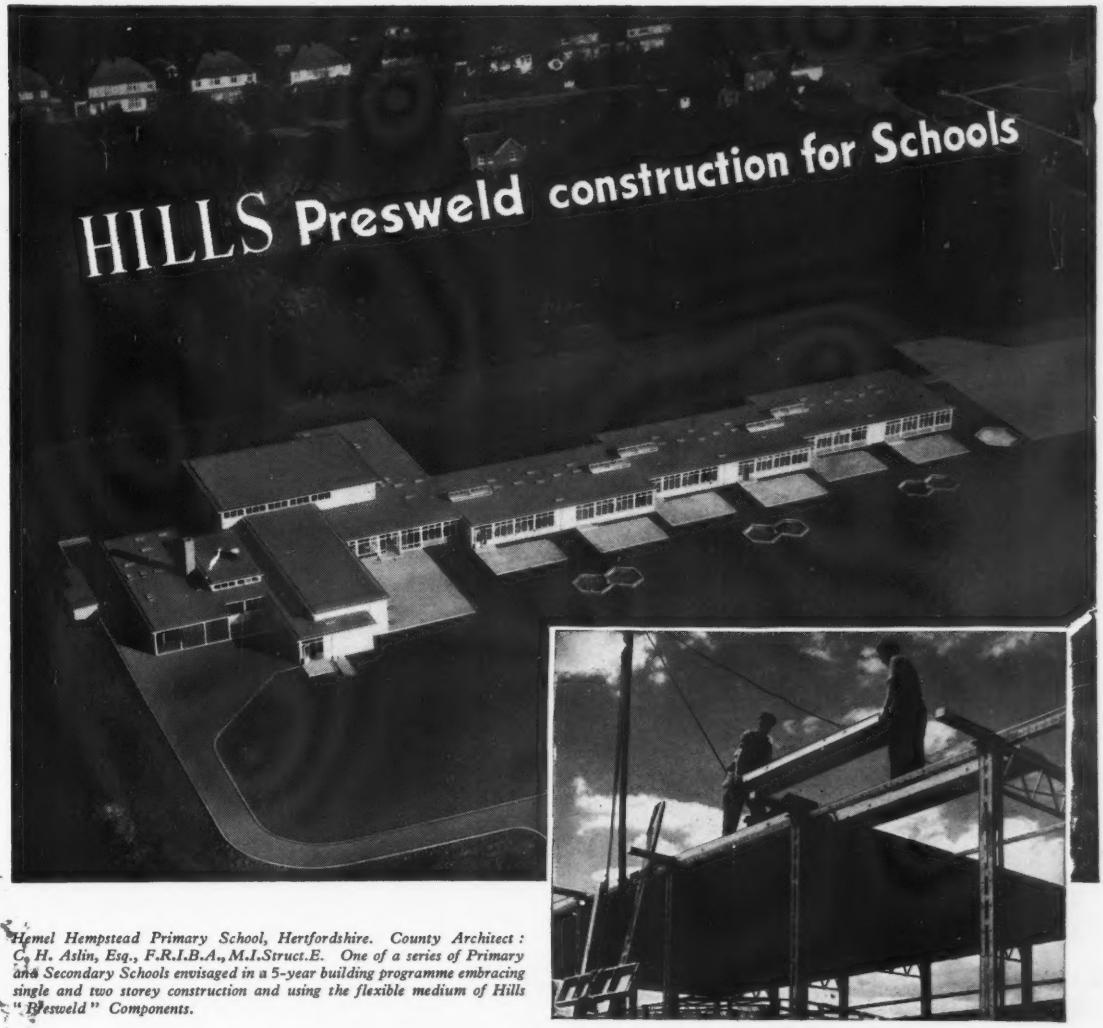

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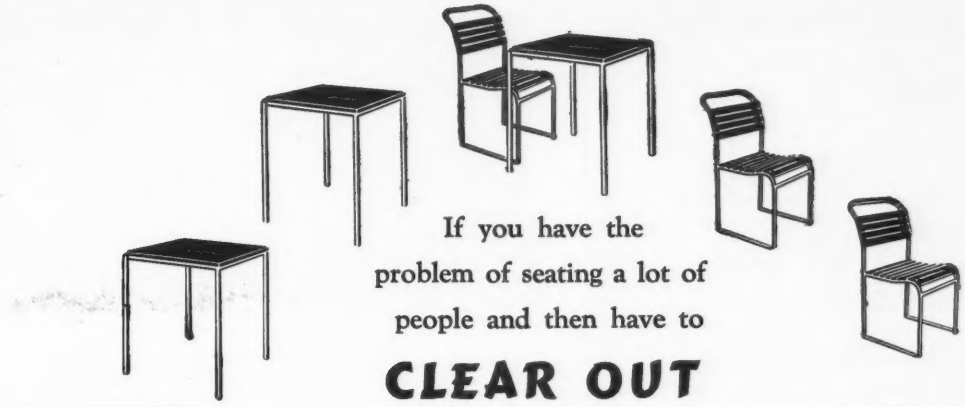

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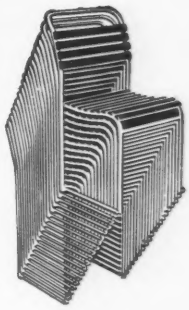

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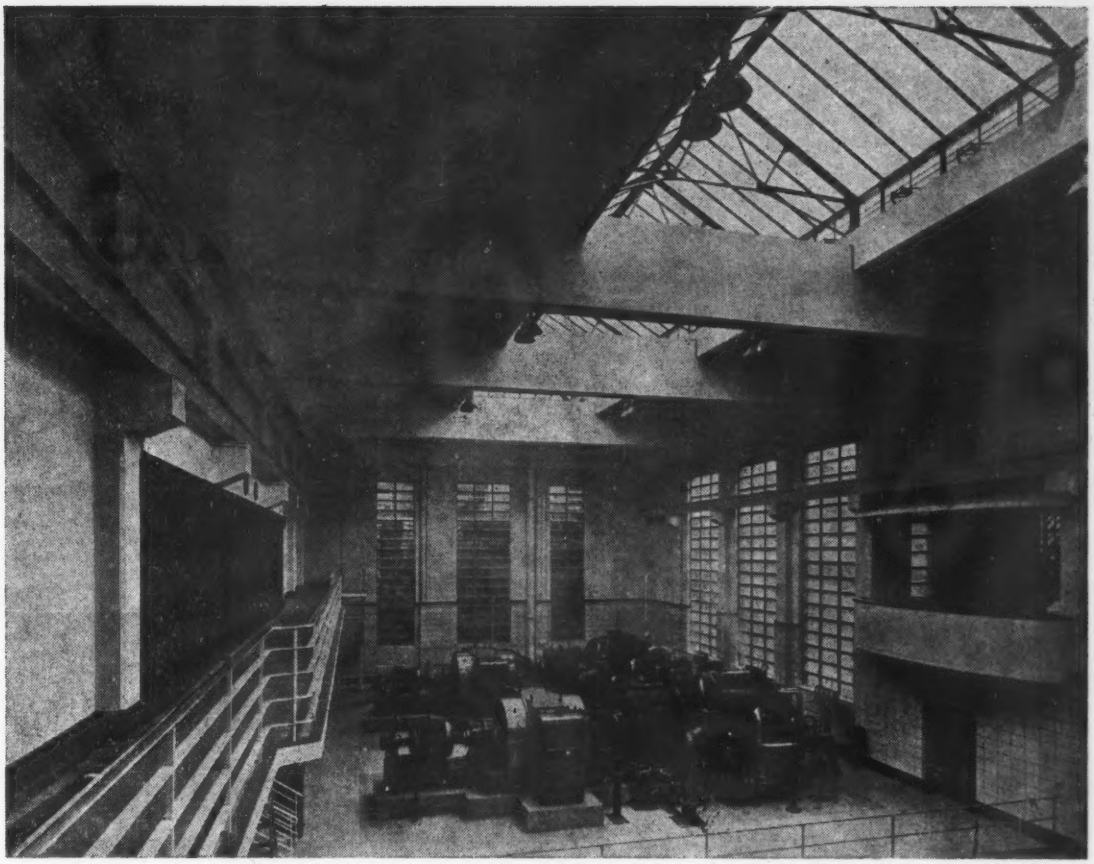

The photograph shows a barrel vault roof recently erected over a Turbo-Alternator House at East Greenwich for the South-Eastern Gas Board. It illustrates the excellent natural lighting obtained by the use of this type of roof with lantern light glazing. Design and reinforcement were by

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