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THE ARCHITECTURAL REVIEW VOLUME CXIV NUMBER 681 SEPTEMBER 1953 FIVE SHILLINGS

MARGINALIA

Euston Refurbished

The exhibition, *London on Wheels*, at Euston Station, was interesting not only for what was shown, a miniature history of public transport in models, engravings and pieces of period equipment, or for the manner in which it was shown, in excellent cases and screens designed by Robin Day and John Reid, but also for the place in which it was shown, the Shareholders' Meeting Room at the top of the grand staircase at the end of the Great Hall. This room, 1, is the work of

P. C. Hardwick and forms part of the extensions which were added to what his father had already built when the London and North Western Railway was established in 1847. It has been carefully and imaginatively restored by Christian Barman to Hardwick's original intentions as far as they can be recovered from his autograph specifications, and coloured prints of similar work by him at Paddington. The result is a magnificent monument to the heroic period of Victorian enterprise, and the great coved ceiling, 2, is

now one of the architectural sights of London. The same cannot be said of the Great Hall, through which one approaches the Shareholders' Room, which has been restored, not by Barman, but by the Architect's Department of the Midland Region, in a manner which is well calculated to reinforce the prejudice of many people against mixing

modern and period styles. The furniture used, 3, is both clumsy and out of character. Something more in sympathy with this monumental hall could surely have been achieved.

Historic Houses and Local Historians

There can be no doubt about the responsibility of central authorities in the preservation of historic houses, but this should not be taken to mean that the responsibility of local bodies is in any way less real. An editorial note in the tenth bulletin of the Standing Conference for Local History draws timely attention to these responsibilities and says that whatever the Government may do 'the challenge is no less to the intelligence and active sympathy of the local history group.' The editor then goes on to quote from a regional, not national, magazine (the *East Anglian*) an article by Lord Euston, who is deputy chairman of SPAB, in which he lists Beaupré Hall, Outwell, Cambs, as roofless and disintegrating, Gosfield Hall as in imminent danger of demolition, and Marks Hall, at Coggeshall, Essex, as having been demolished after being wrecked by local hooligans.

This last case makes local responsibility all the more clear, and the need for creating a propitious attitude towards any particular building is one that can only be answered by local sentiment and local knowledge. Very justly, the editorial observes that all the past cannot be preserved, but goes on to lament that there seems to be no agreement among the contemporary 'patron class' about what to keep and what to destroy. But this again is a matter for local societies, to some extent, for in very few places is there any clear idea what the neighbourhood affords in the way of buildings of merit. To wait for Professor Pevsner's *Buildings of England* to establish a canon for your particular locality may be to wait too long, and even that exhaustive survey can never be, as its author modestly admits, utterly complete. Local architecture surveys are absolutely essential, whether they are undertaken as a labour of love by an impassioned individual, or as the co-operative enterprise of a number of citizens grouped in a local society or Adult Education class. But until we know in detail what we have, we shall never know what we can afford to keep.

Architect in this Issue

Professor BASIL R. WARD, **architect of MRC Laboratory at Hammersmith** (pages 152 to 159), was born in Wellington, New Zealand, 1902. Was for three years articled to J. A. Louis Hay (Scots-German descent, great feeling for art nouveau, Frank Lloyd Wright, Sullivan). Then went to Wellington for one year after which he worked his way as a coaltrimmer to England to enter for the Rome Prize, wanting to see the architecture of the Mediterranean at first-hand; in fact won the Jarvis (1926) Prize. Next spent three years in Rangoon superintending everything from driving piles to making roads. Then went into partnership in London with Amyas Connell, who had just completed 'that modern house,' High and Over, Amersham. Worked on over half-a-dozen houses in reinforced concrete against strong opposition from local authorities 'injurious to amenities of the neighbourhood.' During the war was with Eric Bird and distinguished engineers at BRS under the late Sir Reginald Stradling and Professor J. F. Baker of University of Cambridge. Then seconded to naval intelligence (Lt.-Cmdr. RNVR). Has been professor at the RCA since 1946. Will shortly become Lethaby Professor lecturing on architecture and design. Partner in firm Ramsey, Murray & White.

Lives in an 1870 house at East Molesey with his wife, Beatrix, sister of his first partner, who is a tremendous cook. She once assisted at the *Cordon Bleu* School of Cookery.

Likes coarse fishing, pottering about on the river, making concrete paths (but not crazy paving), watching rugger, studying eighteenth and nineteenth century art and technical history.

CORRESPONDENCE

Bristol—Troyes—Gloucester

To the Editors,
THE ARCHITECTURAL REVIEW

SIRS,—Professor Pevsner's article on Bristol, Troyes and Gloucester, with its references to a 'Bristol Lodge' or 'Bristol School' of middle Gothic master masons, is an important corrective to an excessively 'London' orientation of our ideas on the authorship of our greater provincial churches. There can, I think, be little doubt that Bristol, set as it is in an area with ready access to good building stone (some of the best being at Dundry just outside the town), was the headquarters of a leading provincial group of designers and stoneworkers. It is clear enough that these men were responsible for such

major achievements as St Augustine's Abbey or St. Mary Redcliffe, possibly also for the refashioning at Ottery and Gloucester. But the actual city of Bristol also still contains one small piece of work pointing to the authorship of a designer who had a hand in the eastern limb of St Augustine's Abbey church (now the cathedral). The upper tracery design of alternate windows in this eastern limb so closely resembles that seen in a surviving building of the Dominican Friary that one is drawn to the conclusion that the local lodge provided the same window designer for both Abbey and Friary. The Dominican building, perhaps the friars' refectory and later the Cutlers' Hall, now forms the best mediæval relic surviving among the Quakers' buildings now known as Quakers Friars. It was the southern range of the Friary's great cloister, and its main structure, except insofar as it has been altered in modern times, was of the thirteenth century. The window here noticed as a parallel with the cathedral choir is a later insertion in the western wall.

Yours, etc.

Bristol. BRIAN LITTLE.

Road as Traffic Indicator

To the Editors,
THE ARCHITECTURAL REVIEW

SIRS,—This day, in the ARCHITECTURAL REVIEW Model Townscape, it was raining. A motorcyclist, hastening to stop for someone who would not use the pedestrian crossing to reach his Pedestrian Precinct, skidded on the slippery surface of a large area of white paint in the middle of the road, and knocked himself unconscious on a bollard.

An ambulance and a police car, rushing through a Domestic Precinct to the scene, were overturned by some raised pavement running across the road.

Police are still searching for a pavement artist, who, according to eye witnesses, was seen practising his neo-symbolism on what he termed 'The Blackboard of the Road.' They believe he may be able to help them in their enquiries.

It is learned, on good authority, that, in preparation for the anticipated traffic jams in the Townscape, many cars will soon be fitted with transparent floors to enable their drivers to read the road.

Yours, etc.,
JOHN GAINSBOROUGH.

Fletching, Sussex.

Space Heaters

To the Editors,
THE ARCHITECTURAL REVIEW

SIRS,—I have read with great interest the article in your May issue dealing with space heaters and am very tempted to amplify some of the points you make. My immediate purpose in writing is, however, to comment on the statements made on pages 312 and 315 with reference to the balanced flue type of heater.

Both statements imply that this type of heater has been recently developed and we feel that in the interests of historical accuracy it should be pointed out that this organization marketed a very successful Balanced Flue Radiator in 1928. The form of the Balanced Flue was patented under G.B. Patent No. 287,335 dated April 14, 1927. Other Balanced Flue appliances put on the market more recently incorporate variants of the principle covered by our 1927 patent and so far as technical performance is concerned do not represent a departure from what was previously known. There has, we feel, been a lack of appreciation in architectural circles of the merits of this type of heater.

Yours, etc.,
A. R. BENNETT.
Research Manager, Radiation Ltd.

Birmingham.

Pennsylvania Railroad Station

To the Editors,
THE ARCHITECTURAL REVIEW

SIRS,—The Pennsylvania Railroad Station building in Philadelphia was demolished last year. This building by Furness has been mentioned several times in the REVIEW during the last year and a half, but I believe the rear façades, of which I send two photographs, have been ignored. Their exposed steel frame containing brick panels, and the expansive double-hung sash are startlingly con-

temporary and similar (aside from the decorative rivets) to the post-war work of Mies van der Rohe. A similar vocabulary prevails in later factories of the Midwest. This helps demonstrate how Mies, in the system of details of his later American work,

has recognized and made articulate an existing tradition. It is significant, of course, that these Pennsylvania Station façades were at the rear of the office building, above the great shed and hardly visible; had Furness but faced them towards the street we could speak, perhaps, of a Philadelphia School to rival Chicago's.

Yours, etc.,

Michigan, USA. ROBERT VENTURI.

Preview: Concert Hall in Stockholm

To the Editors,
THE ARCHITECTURAL REVIEW

SIRS,—In your preview of Mr. Luning's concert hall for Stockholm I was surprised to find no mention made of the undoubted fact that its most striking feature, the 'doughnut' form of the auditorium, is in all probability not Mr. Luning's invention. Exactly the same form was developed by the Argentine architect Amancio Williams and published extensively in 1947 and 1948. Illustrations of Mr. Williams's design will, for instance, be found in *L'Homme et l'Architecture*, 1947, Nos 15 and 16, page 23, with appreciative text by Le Corbusier, and also in the *Journal* of the RIBA, December, 1948, page 73, with some notes by Mr. Clive Entwistle. I feel that this presumable origin of Mr. Luning's design ought to be placed on record.

Yours, etc.,

London. RAUL GONZALEZ-CAPDEVILA.

INTELLIGENCE

Encouraged by the speed with which the building of Chandigarh, the new capital city of East Punjab, is going forward, the Punjab government has decided to hold the October session of the State legislature there. The permanent assembly chamber, by Le Corbusier, will not be ready for two years, but the legislatures will meet temporarily in the college of engineering.

The RIBA offers for competition between boys and girls of public and secondary schools prizes worth £10 10s. for the encouragement of interest in architecture. Particulars may be obtained from the Secretary, RIBA, 66, Portland Place, W.1, who must receive all entries by October 2, 1953.

ACKNOWLEDGMENTS

COVER: Gordon Cullen. MARGINALIA: 1, 2, John Maltby; 3, British Railways; Prof. Ward, Sam Lambert, Arphot. FRONTISPIECE: D. Dewar Mills. GROUP PRACTICE, pp. 145-151: 1, Ezra Stoller; 4, Walter R. Fleischer, Harvard; 6, Unations; 7, Keystone. MRC LABORATORY, pp. 152-159: 1-5, 9-14, Galwey, Arphot; 6-8, MRC. HOWARD ROBERTSON, p. 160: Sims; p. 163, top to bottom, Newbery, Newbery, Joel, Sims, Dell & Wainwright; p. 164, 1936, Dell & Wainwright; 1952, Galwey, Arphot; 1953, Newbery; pp. 165-166, 1, 8, Newbery; 2, 5, 6, 10, 11, Dell & Wainwright; 3, Joel; 4, Millar & Harris; 7, P.P. Photographic Service; 13, Peter Ray; 14, Galwey, Arphot. MIDLAND EXPERIMENT, pp. 169-175: all drawings by Gordon Cullen; 1, 8, 9, 11, Gordon Cullen, Arphot; 2, Walter Scott; 3, D. Dewar Mills, Arphot; 4, 5, Friths & Co.; 6, I. de Wolfe, Arphot. PIMLICO, pp. 176-184: 1, 3-7, Peter Pitt; 2, Galwey, Arphot. CURRENT ARCHITECTURE, pp. 185-188: 1, Pantlin; 2, Edgar Hyman; 3, 4, Lewes; 5, 6, Newbery. STREET FURNITURE, pp. 191-192: 1, 2, 4, 6, 7, 8, 11, 12, John McCann, Sound Stills. FURNITURE, p. 192: Association of Graphic Arts. EXHIBITIONS, p. 194: 5, Wallace Heaton. DESIGN REVIEW, pp. 195-199: 1, Hugh White Studios; 2, R. Shankland; 5, 13, 41, L. Collier; 6, 20, Studio Briggs; 7, A. C. I. Ware; 9, Collier Holmes & Squires; 12, E. A. Tanner; 15, 16, 21, McLeish & Macaulay; 22, 27, J. Park; 24, Neil Nimmo; 25, Lincoln Studios; 28, Handler; 30, 37, S. Darby; 31, G.E.C.; 40, A. Handford. *Lighting*, pp. 203-204: S. W. Newbery. *Floors*, p. 204: George Miles.

THE ARCHITECTURAL REVIEW

Volume 114 Number 681 Sept 1953

This month's cover, with its Gordon Cullen drawings of a hypothetical Townscape disaster in Ludlow Market Place, could almost be left to speak for itself. However, threats of this kind are only one of the matters which concern Birmingham University's pioneering survey of West Midland Towns. The scope and intentions of the project as a whole are described in an introductory article by D. R. Dudley on p. 170, and the townscape study of Ludlow—the first time the new art has been recognised by an academic body—follows on pp. 171-175.

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THE ARCHITECTURAL REVIEW

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FIVE SHILLINGS

The MRC Laboratory building at Hammersmith Hospital, described on pages 153-159, is not yet built up to its full height, and in the sketch opposite Donald Dewar Mills has given his impression of the building's final appearance. His drawing shows the nine-storey form the building will ultimately assume—when the intentions of the architect, Prof. Basil Ward of Ramsey, Murray and White, will be made more clear.

Winston Weisman

GROUP PRACTICE

In June, 1930, R. H. Shreve, of the firm of Shreve, Lamb and Harmon, wrote an article for the *Architectural Forum* about the organization that had been formed to put up what was to become the tallest structure in the world—the Empire State Building. He began in picturesque fashion dwelling on the position of the architect in ages past. 'Once in those high and far off times,' he observed, 'when all women were beautiful and the brave deserved the fair, even the boldest knights hesitated to challenge the ukase of one who called himself an architect . . . Truly, the architect walked among the great . . . All wisdom was his. To the erectors and his menials, he said "Do thus and thus, and that quickly and without question." He exacted an unquestioning obedience, for he was the architect. . . .'

Shreve's purpose in drawing this picture was to use it as a foil against which to view the contemporary architect. For he went on to say that the world today knows little of this legendary hero. He pointed out that in our time the architect can no longer play the role of despot; but must step down from his imperious heights and become one of a team. What he was recording was the presence of a new architectural era distinguished by a changing concept of the architect's role, with consequent changes in his method of practice. He saw the modern architect as a 'co-ordinator of constructive forces' capable of guiding the varied talents of many persons so as to realize the large and complex projects which our civilization has called into being. Since 1930, the collaborative or group approach to architecture has developed much further, to a point where it has become relatively common practice in the commercial field and is being adopted as a good and desirable procedure even in the residential field where size and complexity

of operation do not make it necessary. The result has been to produce in many architects a new attitude to their art, and a new relation to their fellowman which deserves attention. It is the purpose of this article to examine some typical examples of group practice, especially in the United States of America, and to consider the effect of this manner of working on the art of architecture.

historical background

Historically, it seems clear that the impulse toward group practice stems from the industrial revolution. The introduction of new materials, devices and techniques and their use in large projects such as factories, office buildings and multi-unit apartment houses, demanded of the architect a specialized knowledge and experience of which no one man was capable. With the growth in size and complexity of commissions, the architect found he could no longer devote himself primarily to designing buildings, but had to spend more and more time with financial and legal matters. He became involved in contractual affairs, in loan negotiations, in real-estate problems. Large sums of money passed through his hands and to account for them he had to keep books. As projects multiplied, the architect found it increasingly difficult to supply the hundreds of detailed drawings needed by the construction crew. All this meant that he not only had to increase his staff to sizable proportions; but, more importantly, he had to learn how to weld them and those working to their instructions into a productive team.

We get some insight into the state of affairs at the beginning of this century from reading the periodical literature. Reginald Pelham Bolton, an engineer and head of the New York City Building Department, writing in *The Brickbuilder* (Vol. 13, pp. 213–220) decries the fact that so many so-called experts are not what they purport to be and actually have little or no real training. He tells the story of one of the foremost firms of architects in the United States 'who have in their employment and have put forward as their "consulting engineer," a worthy, and in his own line, deserving man, whom they took out of an engine room.'

Bolton also informs us that there was a sad lack of harmony among those engaged in most large jobs: 'It is the old difficulty of the specialist being unwilling to subordinate his work to the whole. The engineer thinks that no architect can do engineering, the electrician is quite confident that the architect knows nothing about electricity and as for the average steam engineer, we all know in what contempt he holds his architectural associates.' And then he notes that 'all these specialists quite fail to appreciate that a building is not merely an engineering achievement, nor a mechanical appliance, but that all the requirements in the largest modern structures in their aggregate are of relatively minor importance unless subordinated to the architecture which ought to give the building character.'

Nevertheless, about this time a start was being made in transforming the nineteenth century type of practice into the contemporary group type. In an office such as that of McKim, Mead and White the partners were still largely responsible for the designs turned out by the firm. White, as is well known, personally drew the details for many of the more important projects, and in the case of big commissions, he even went abroad to purchase furnishings. The client, in those days, still bought the reputation and services of a particular architect. He wanted Stamford White, Louis Sullivan or George Post. He was not interested in buying a group package. The stamp of the master had to be evident. Yet, at the same time, more and more work was being delegated to assistants. They did more designing and were more often than not solely in charge of the technical aspects of the job.

After 1930, as we have already seen, the transformation which this tendency foreshadowed was virtually complete and the theory of group practice in its full sense was widely accepted by most well-known firms. The effect on the architect was considerable. In the place of the individualist of a century before, who personally thought out the plan, executed the design and its details and supervised the construction, his modern counterpart was only one part of a complex mechanism. If he was head of a big commercial architectural firm, he met the client and other agents in the enterprise, and then passed down to his staff the general proposals agreed upon. He probably would hold conference with key members of his team—all of whom would be experts in some phase of commercial architecture—and tell them the kind of thing that was wanted. He might 'rough in' some possible solutions or make suggestions as to what the main direction should be. He would not work out the particulars. This would be handled by the main body of the group working under the guidance of the section leaders. They would attend the thousands of details that are involved in a big project. The design itself would probably be the co-operative effort of the senior designer and his juniors, engineering would be the responsibility of a second group, production would be controlled by a third and so on. Quite often, the team captain would only have a bird's-eye view of what was going on; while the architect working at the last table in the farthermost corner of the office, only a worm's-eye view.

the example of SOM

Perhaps the best place to see this sort of group practice in action today is in the firm of Skidmore, Owings and Merrill (or SOM as the company is often referred to). Here is contemporary collaborative enterprise in one of its most effective forms. Because

of the importance of this firm, it is worth considering in some detail to note how it functions and the kind of architecture it produces. The firm originated in Chicago in 1935 as a partnership between Louis Skidmore and Nathaniel Owings. The following year Skidmore started an office in New York. Three years later John Merrill joined the firm as a third partner. In 1945 four men who had been working in the New York office for some time were raised to the rank of partner. They are William S. Brown, Gordon Bunshaft, Robert W. Cutler and J. Walter Severinghaus. John L. King became a partner in 1947 and John B. Rogers the following year. Both men now work in the San Francisco branch. In 1951, William E. Hartmann was made a partner in Chicago.

One rank below this level is a group of seven Associate Partners who, like the others, share in varying degrees in the financial responsibilities and profits of the firm. They are followed by eleven Participating Associates beneath whom are the main body of the staff averaging about 400 in the past ten years but who now number about 1,000. Each member of the staff has an equal opportunity to climb the ladder to full partnership and the firm is always on the lookout for bright young men with fresh ideas.

Since its founding SOM has carried on analysis, planning and supervision of works costing altogether well over one billion dollars. The projects completed since that time include housing, airports, hospitals, laboratories, industrial plants, office buildings, hotels, apartments and even the planning of whole towns such as that at Oak Ridge, Tennessee. The firm does not undertake private residences.

In order to take care of the flood of commissions that keeps pouring into SOM, an elaborate but flexible and smooth-working organization has been devised. The three main offices are theoretically self-sufficient and relatively independent, each maintaining a full team of specialists. If required field offices can be set up at any point manned by a complete crew who are responsible to the office from which the commission emanated. Projects originating in one office may be reassigned to another, if it seems expedient; and one man or a group may be shifted from one branch to another either temporarily or indefinitely if the need arises.

The flexibility which characterizes the ensemble is also to be noted in the set-up for each office. The New York division, for example, is headed by five partners: Skidmore, Brown, Bunshaft, Cutler and Severinghaus. These are in charge of the largest and most important projects and may supervise several at a time. Occasionally, two may share direction for a project as was the case of Lever House, New York, where Brown and Bunshaft co-operated. Bunshaft is also partner in charge of design and in that capacity passes all plans coming out of the New York office.

Supervision of projects is also the main duty of the Associate Partners: David Hughes, Robert Wagner; while the Participating Associates (Ernest Durhan, Frederick C. Gans, Robert Posey, William W. Schwartz and Wayne Soverns) besides acting as project managers, supervise production, construction and structure. In his capacity as construction chief, Posey sees to it that all work by contractors is done not only to specifications but to the quality established by the design section of the project. His responsibility cuts across all jobs and in that sense he collaborates with all project managers as well as with Gordon Bunshaft.

Under these men is the rest of the staff, who function as project managers, project captains, research, planning and reports personnel, city planners, site planners, senior designers, junior designers, draftsmen, structural, mechanical, electrical and civil engineers, surveyors, specification writers, principal construction superintendents, construction superintendents, estimators, laboratory technicians, computers, accountants, secretaries and others. At the time of writing, the New York office alone is occupied with sixty-eight different projects, some of them involving a number of structures.

The question arises whether the complicated nature of such an architectural firm results in buildings lacking in distinction, as some persons believe it must. Nothing could be farther from the truth, to judge from the critical comment that this particular firm's work has evoked. In the latter part of 1950, the Museum of Modern Art in New York paid tribute to the high quality of SOM's work by getting together a special exhibit of its buildings. Lever House has gained recognition as a masterpiece of skyscraper design which the *Museum of Modern Art Bulletin* predicted will become 'a civic monument.' There can be little doubt that it is a significant piece of architecture. It is attractively designed in terms of balanced masses, spatial arrangements, material and

1

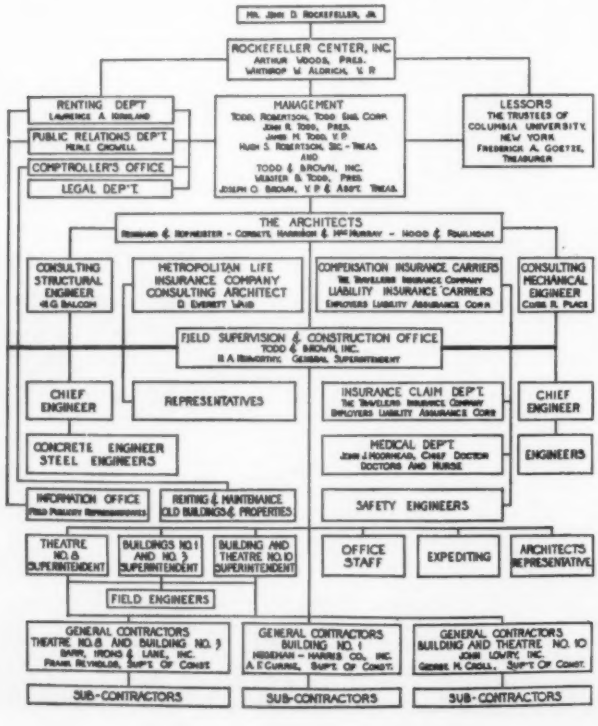
2

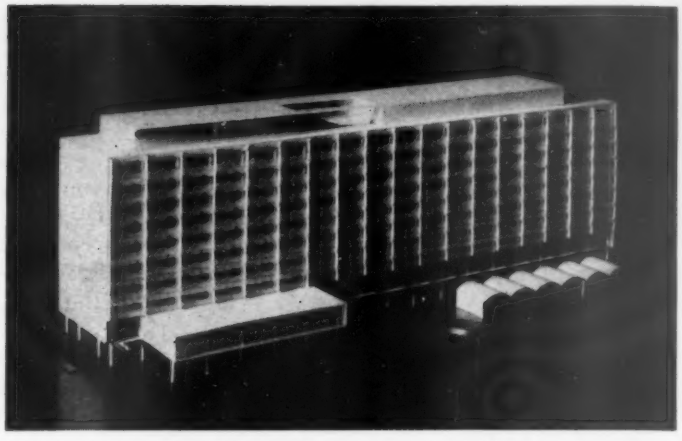
1, the most spectacular piece of architecture that has so far come out of the America-wide, multiple partnership of Skidmore, Owings and Merrill: Lever House, New York. 2, the Bellevue Medical Centre, New York, by the same group, now under construction on the East River, New York, between 30th and 34th Streets.

colour relationships. It functions efficiently and is an admirable example of enlightened site development from both the client and the city-planning point of view. It alone is sufficient to indicate that fine architecture can be produced collaboratively. Moreover, in the case of SOM, such a method of operation has resulted in a distinctive stylistic character. Taken as a whole, the buildings turned out in all three offices have a strong family resemblance. They are modern in idiom, leaning in the direction of Mies van der Rohe and Walter Gropius rather than Frank Lloyd Wright. The emphasis is upon engineering purity, severe geometric forms and the use of new materials, especially glass and steel. In the words of one of the partners: 'We strive for simple construction, logically expressed, which will serve not only the needs of the people who inhabit the building but the people who own it as well.' This attitude towards design seems to be held by all members of the firm to whom the writer has spoken, and it is this rather than the dominance of any one person which accounts for the cohesiveness of SOM designs. As the *Museum of Modern Art Bulletin* observed, the buildings being turned out by SOM bear their name like a trade mark or 'a brand name identifying the work which is persistently characterized by the idiom of the firm rather than that of any individual within the firm.'

larger projects

Thus far we have dealt with group practice within an architectural firm. Occasionally, in projects of great magnitude, it embraces more than one firm, not all of them architects, as was the case at Rockefeller Centre. The organization chart, below, indicates the place which the three architectural groups held in the set-up and their relation to other essential units. That the architects were not the principal participants in the enterprise is apparent. The nerve centre was the management, led by the engineering





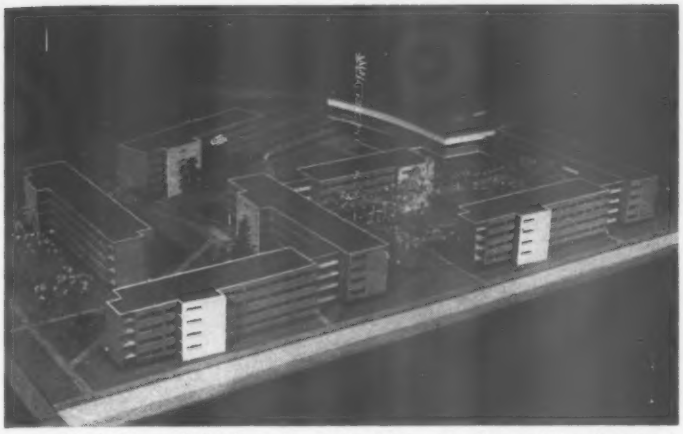
3, design for an office building in Washington, by the Architects' Collaborative.

firm of Todd, Robertson and Todd which co-ordinated the interests of the owners and lessors of the site, and the activities of the renting, legal, comptroller's and public relation departments, with those of the architects' section, and through them the entire network of cells which made up the overall organization. It is thus obvious that though the architects drew up the plans and must take responsibility for the final scheme, they are in the last analysis but one cell in a complicated organism. Their function was essentially a collaborative one.

What kind of architecture did this elaborate system produce? In the judgment of this writer, one of the most significant monuments in the entire history of commercial architecture. Rockefeller Centre represents one of the first departures from maximum space development, which led the way to Lever House. It demonstrated the advantages of large site planning, it played an important part in the development of the slab (paving the way for Lever House and the UN Secretariat), it introduced the vertical garden city idea of Le Corbusier into the commercial field, it proved again the value of sculpture and painting for business buildings and it made many other contributions. The fact that there are similar centres sprouting up in other parts of the globe today is proof enough of its importance and influence.

the architects' collaborative

The examples of group practice so far mentioned were motivated primarily by economic considerations. The architects adopted the methods of modern business and industry which years ago had turned away from individual to corporate enterprise; but there are other instances that spring from ideological sources as well, notably The Architects' Collaborative, of which Walter Gropius is the best-known member. TAC was founded in January, 1946, on a partnership basis and is composed presently of eight senior members, including Jean B. Fletcher, Norman C. Fletcher, Walter Gropius, John C. Harkness, Sarah Harkness, Robert McMillan, Louis McMillan and Benjamin Thompson. To TAC, human values come before business considerations. The financial set-up, for instance, was initially arranged according to individual needs. It was based on the size of the member's family. The drawing account of each



4, model of Harvard Graduate Centre by Walter Gropius and the Architects' Collaborative.

partner was equivalent to a certain basic sum equal for all partners, plus an increment awarded for each child. Now that the group has achieved financial success, this arrangement is no longer deemed necessary and has been discontinued. But one practice which is carried on is the interest of the firm in small residential commissions despite the fact that they are not as lucrative as the large commercial projects which are now being given the group in increasing numbers. The members of TAC feel strongly that human needs come before profits.

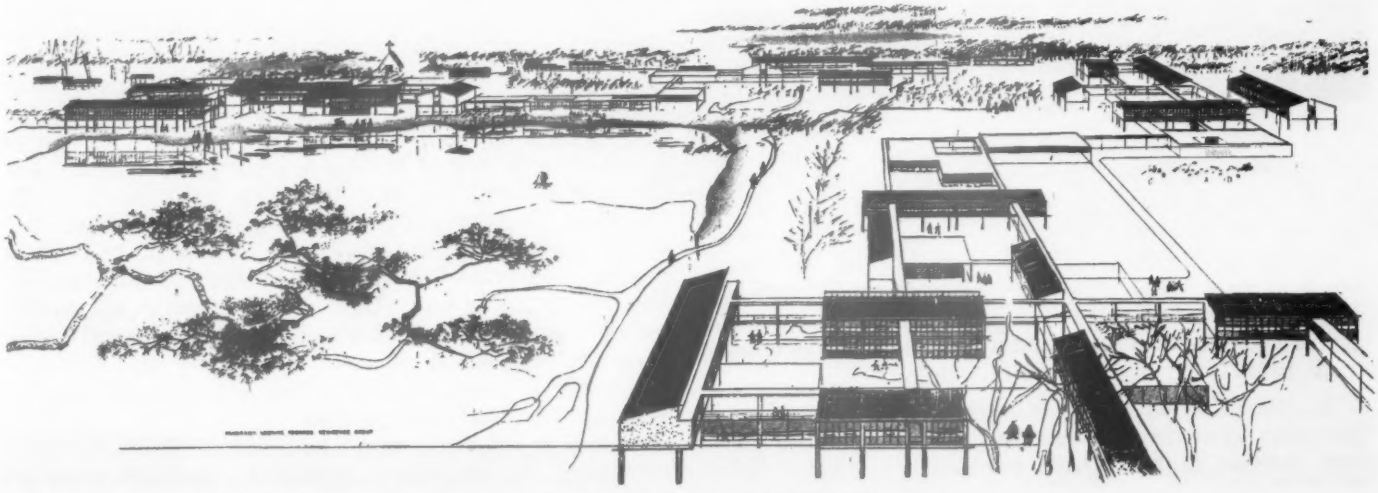
As an organization, TAC functions much as does SOM. There is one important difference, however. In the larger firm, the average architect, due to the high degree of specialization, tends to become but a cog in a great machine. Very few in the group ever get the opportunity to experience architecture as a creative and inspirational activity. TAC's smaller size makes it possible to keep the accent of what architecture means in a total sense by emphasizing the responsibility of each member to all aspects of his profession. In explanation Norman C. Fletcher says: 'The growth of this responsibility depends on the close association of the job captain selected for each commission with all phases of the work; that is, the design, the contract drawings, the supervision and in some cases the interior design as well. This means that the job captain who sees the early design ideas carried through, experiences their economic and practical implications, thus learning the meaning of architecture. We believe that this direct relationship between designing and building tends to develop "master builders" rather than cardboard artists confined to their draughting boards.'

As might be expected in an organization so formed and operated, its objectives go beyond the narrow professional confines of architecture into the realms of sociology and philosophy. In a statement prepared for this article, Walter Gropius writes: 'The whole post-war reconstruction problem, so vast and complex, hangs upon our ability to co-operate. The architect as co-ordinator by vocation should lead the way—first in his own office—to develop a new technique of collaboration in teams. The essence of such technique will be to emphasize individual freedom of initiative instead of authoritative direction by a boss. Synchronizing all individual effort by a continuous give and take of its members, a team can raise its integrated work to higher potentials than the sum of the work of just so many individuals.'

Gropius's concluding sentence is a provocative and debatable one. As a point of view, it seems to stand at the opposite pole from that of Frank Lloyd Wright.* Whether group practice produces better architecture than any other system is beyond the scope of this article. What does concern us is whether the collaborative method can create first-rate buildings. Obviously, it can and does. The Harvard Graduate Centre for which Gropius was job captain has won the plaudits of many critics as well as the 1951 gold medal of the Architectural League of New York.

From this writer's point of view, one of the most successful designs TAC has executed, but unhappily never carried out because of the situation in China, was that done for Hua Tung Christian University. Norman Fletcher was job captain for this project and together with I. M. Pei, a former student of Gropius's and a graduate of Hua Tung, took the lead

*See 'Against the Steamroller,' A.R. May, 1953.



5, design, not yet executed, for Hua Tung Christian University, China, also by the Architects' Collaborative.

in working out a solution calling for six colleges spread over a 150-acre site on the former Hung Chia airfield west of Shanghai. The structures are loosely arranged in three residential areas grouped around a central pond with a fourth, academic, sector on the remaining side. There is no gridiron or superblock, only long buildings around courtyards oriented on a north-south axis and interlocking with covered open walks. The site plan is magnificently worked out in terms of shape and space relationships. A panoramic view recalls a construction in space more than it does architecture in the traditional sense. There is a lightness and airiness about the whole that has a Chinese flavour, and this is achieved without resorting to ancient materials or forms. What TAC has managed to do admirably is to plan a city-size space in sympathy with the landscape and the oriental way of life without sacrificing economy or function and using a modern architectural idiom.

experiments in England

In contrast to the rather impersonal quality which marks TAC designs is the more dramatic and subjective quality characteristic of the English collaborative group—Tecton. This organization was formed in 1932 by the Russian architect Berthold Lubetkin, who had until then been practising in Paris. The other members were six newly qualified architects, all from the Architectural Association School: Anthony Chitty, Lindsey Drake, Michael Dugdale, Valentine Harding, Godfrey Samuel and R. T. F. Skinner. They worked on a co-operative basis, sharing work and fees alike. When the first small jobs came, they were studied exhaustively, with each man eventually finding his special aptitude and devoting most of his time to it. As in the case of TAC, one member was assigned to a job and given responsibility for it; but open discussions were held on all projects. It seems all were agreed on one important point: that only an architecture which takes modern techniques seriously, which uses new tools with understanding and imagination, has any meaning.

Tecton won success early. In its second year it received world-wide acclaim for its highly original and daring design for the Penguin Pool at the London Zoo. Subsequent plans for other zoo houses at London and Dudley and for apartment blocks at Highgate proved that these men could brilliantly translate practical problems into expressive architectural forms by imaginatively exploiting new materials and techniques. Lubetkin's powerful personality and brilliance as a designer (he was much more mature than the other modern architects then practising in England) soon gave Tecton an outstanding position. Their combination of close social and technical analysis with remarkable æsthetic bravura made them a most powerful influence in the nineteen-thirties, especially among the younger generation. Though several of the partners soon broke away, the group continued active, under Lubetkin's leadership, until 1948.

Another English example of group practice, active in the years after the war but now, like Tecton, dissolved, was Arcon. It had three principal partners, Edric Neel, Raglan Squire and Rodney Thomas, and was notable for including engineers and quantity surveyors as well as architects among its members. It specialized in designing prefabricated buildings and components for industrial concerns, which process involved the architect members in close collaboration with their fellow-technicians, taking architecture a stage further on the road that Gropius had prophesied for it. Still another English group, formed in the Spring of 1939 and still flourishing, is the Architects' Co-operative Partnership, which has perhaps more in common with the American TAC. Despite the handicaps that confronted them on account of the economic depression, eleven young architects, also fresh from the AA school, contributed ten pounds apiece, took a primitive basement office and began building an organization which has made an important name for itself in the post-war era, and completed in 1952 a factory at Brynmawr, South Wales, that is one of the most interesting architecturally in Britain. Because of the scarcity of jobs, at first only a few partners worked full time. The others worked in the evenings. ACP now consists of seven partners working full time and a small group of assistants.

Originally the members were opposed to the use of assistants on ideological grounds. They felt that the sort of architecture they wanted to produce could not be delegated, even in part. The practice as they saw it then, of the boss architect who worked out the general scheme and the assistants who had to make it work, was anathema to the founding partners, and they frankly admitted that they had egalitarian ideas into whose framework it was difficult to fit the employee. With the pressure of work, however, it was realized that these ideals could not be maintained. So a limited number of assistants is employed today to work with a team of partners who are given responsibility for particular projects, usually four assistants to two partners. The two things ACP holds essential to a successful collaborative operation is a similarity in architectural outlook and architects who are 'more concerned with buildings than they are with self-expression.' These words are quoted from a statement sent the writer by Leo De Syllas, who along with C. K. Capon, P. L. Cocke, M. H. Cooke-Yarborough, A. W. Cox, J. M. Grice and M. A. R. Powers, make up the senior partners of ACP.

at the international level

Before concluding this survey of group practice, one other variation on the theme should be mentioned in passing; that is the type exemplified by the group responsible for the UN headquarters in New York City. There, ten of the foremost architects in the world acted as a Board of Design Consultants to work out the scheme for the site together with Wallace K. Harrison as Director of Planning. As is known, the group met early in 1947 and discussed 53 basic designs, a number with three or four variations. By May of the same year, the scheme which is appearing today was approved unanimously. Significantly, the presentation when it was made to the General Assembly for approval was the first unanimous one ever to be proffered to that body. After approval had been given, the group was disbanded and Harrison continued as executive architect. Another form of temporary group practice is now being experimented

6

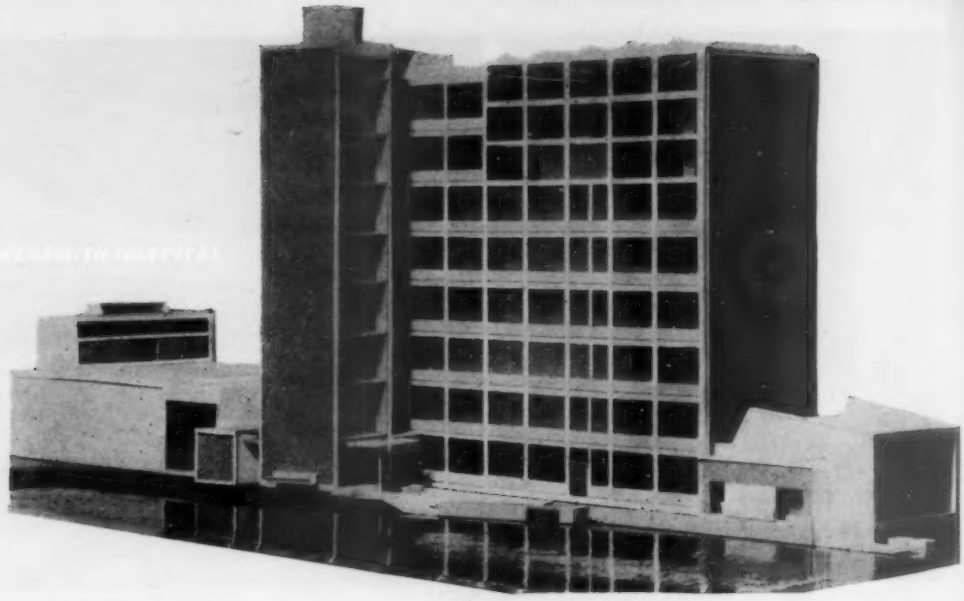
7

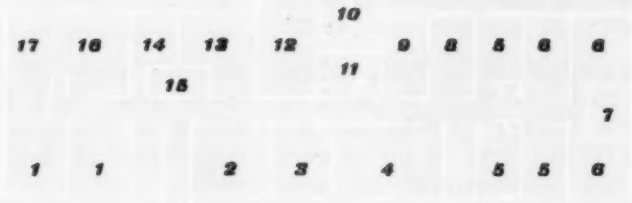
International collaboration among architects. 6, the UN Secretariat, New York, by a team of eleven architects co-ordinated by Wallace K. Harrison. 7, the latest design for the Unesco headquarters in Paris, by Breuer (American) and Zehrfuss (French), with Nervi (Italian) as engineer.

with for the UNESCO headquarters in Paris, where an international team of two architects, Bernard H. Zehrfuss (France), Marcel Breuer (USA) and an engineer Pier Luigi Nervi (Italy) was set up to work under the guidance of an international advisory panel, following the rejection by the same panel of a first designed commission from a French architect with an English and an American consultant. Prior to July 15, 1952, none of the team (Breuer–Zehrfuss –Nervi) had met. Yet in the next 62 days they completed negotiations with Unesco, set up an office staffed with draughtsmen from ten different countries and planned, designed and engineered three sizable buildings. In view of the brief time taken and the difficulties which one might normally expect when three men of different backgrounds work together for the first time, one might expect at best a competent job. But the Unesco team produced a design of quite unusual promise. Their secret seems to have been the complete harmony of thought that prevailed. There was no chairman. All worked as equals. Each respected the talents of the other attempting to channel his own abilities, so that each dovetailed with the resources of the other. Their first design was abandoned owing to disagreement about the site, but the same group, advised by the same international panel, have since designed the building illustrated for a new site.

If the UN and Unesco experiments do not strictly come within the category of regular group practice, they are relevant to it as exemplifying the trend away from individualism in architecture with which is associated a tendency to minimize the importance of 'self-expression' in the realization of a design, and to be guided more wholly by objective factors such as function, materials and techniques. In some types of group practice it may be thought that there is the danger of *over*-specialization, which would tend to rob the architect of the experience of architecture as a whole and inspirational act. In other kinds, however, individuality and the growth of the human being is emphasized. He is encouraged to grow and mature artistically through responsibility for projects over which he as job captain has theoretical control subject to the view of the rest of the group. In his capacity as one of the group he has further opportunity to express his personal opinions regarding the merits or faults of designs presented by his colleagues. He is both the creator and critic.

The main significance of group practice, however, is that it is a manifestation in architecture of a cultural characteristic. To Gropius it is something more. It is not just another way of producing buildings. It is a way of life, one that is capable of pointing to a solution of our world dilemma. As he observed recently at a symposium held at the American Academy of Arts and Science at Boston, '. . . the art of building is contingent upon the co-ordinated teamwork of a band of active collaborators whose co-operation symbolizes the co-operative organism we call society.'

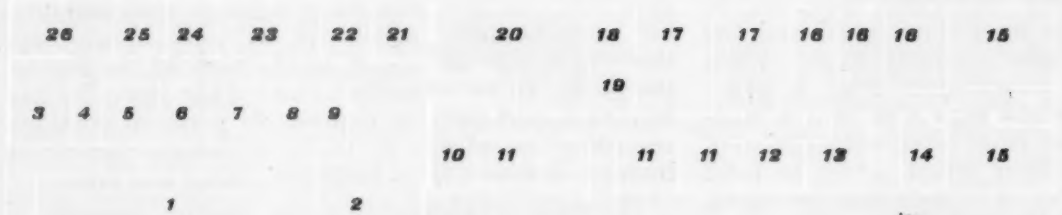




key

1, cytologist. 2, cytologist microscope office. 3, radio elements. 4, radio-ionization. 5, microscope offices. 6, histology laboratories. 7, histology dark room. 8, radio elements photographic laboratory. 9, X-ray microbeams. 10, tissue-culture rooms. 11, research dark room. 12, tissue-culture preparation room. 13, cytology laboratory. 14, technicians' workshop. 15, dark room. 16, radio elements counting laboratory. 17, radio elements laboratory and glass store.

second floor plan



key

1, cyclotron chamber. 2, assembly bay. 3, vent plant. 4, voltage regulator. 5, ion source. 6, oscillator. 7, VHT set. 8, battery room. 9, relay room. 10, clerical staff. 11, cyclotron offices. 12, biology office. 13, biology laboratory. 14, chemistry office. 15, chemistry laboratories. 16, biology laboratories. 17, cyclotron laboratories. 18, cyclotron. 19, copycat. 20, drawing office. 21, print room. 22, instrument store. 23, glass store. 24, apparatus store. 25, chemical store. 26, electrical store.

first floor plan

key

1, cyclotron chamber. 2, 190-ton sliding door. 3, assembly bay. 4, meter room. 5, BEA intake chamber. 6, heating chamber and pump room. 7, records. 8, medical officer. 9, measurement room. 10, planning. 11, physicist. 12, control room. 13, linear accelerator. 14, medical officer. 15, waiting room. 16, medical officer. 17, men's changing room. 18, examination room. 19, women's changing room. 20, workshop. 21, maintenance room. 22, clinical investigation. 23, isotope office. 24, isotope chemistry. 25, hot chemistry laboratory.

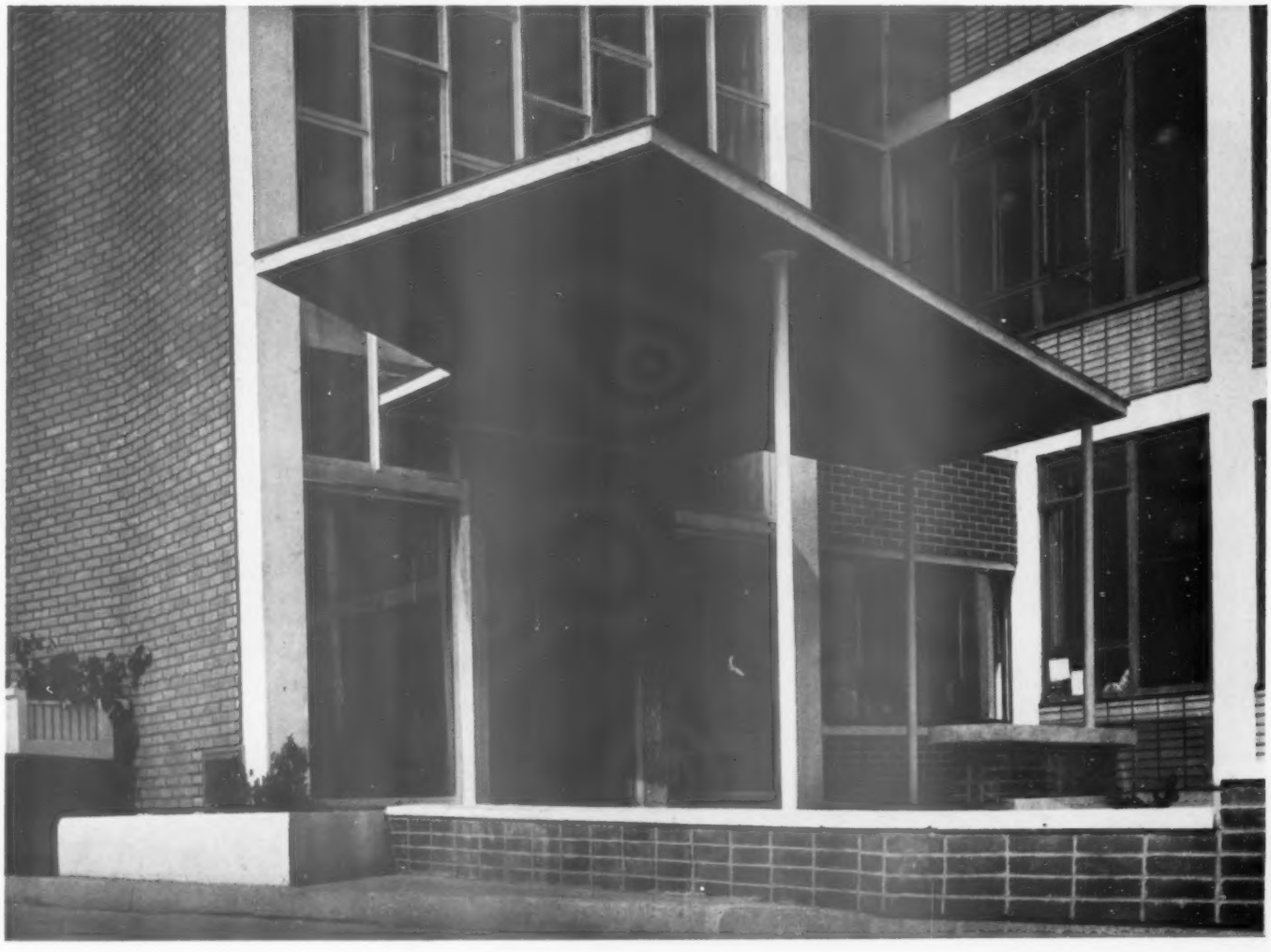
scale: 1/32 in. = 1 ft.

ground floor plan

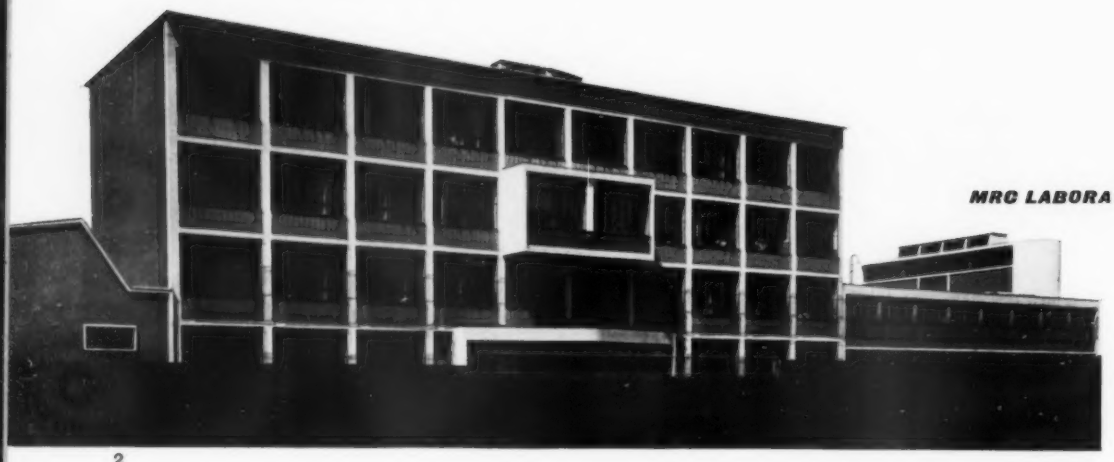
M R C LABORATORY AT HAMMERSMITH HOSPITAL

ARCHITECT: PROFESSOR BASIL WARD of Messrs. RAMSEY MURRAY & WHITE

1, main entrance to the laboratory.



The building houses high voltage particle accelerators for use in medical research and is the first of its kind. It was erected mainly for the Radiotherapeutic Research Unit of the Medical Research Council which occupies the end wings and three storeys of the central block. The two-storeyed wing to the north houses a 45 in. cyclotron and the single-storeyed wing to the south houses an 8 MeV linear accelerator. The fourth floor of the central block is occupied by a hospital research department. A further four storeys of the central block,



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2, east elevation of the laboratory showing on the left the linear accelerator suite and on the right the cyclotron suite screened by a single-storey wing of offices and laboratories. The central block is designed to be extended to eight storeys at a later date (see

MRC LABORATORY AT HAMMERSMITH HOSPITAL

frontispiece p. 144). 3, west elevation seen from the main entrance porch and 4, on the facing page, the same view from further back : the lower block on the right is the linear accelerator suite. Exposed concrete framing members are treated in light shades of concrete paint, aprons below windows are of honey-coloured brick.

yet to be built, will be occupied by the Postgraduate Medical School of London University.

The restricted site is bounded by scheduled open spaces, a main road and railway and Wormwood Scrubs prison. Very little ground could be afforded for the project and there was no choice of site. Further, it was considered necessary to place the cyclotron and linear accelerator at the opposite ends of the building for functional reasons.

It was a requirement that the wings housing the cyclotron and linear accelerator should be completed for occupation at the earliest possible date. Furthermore, finance of the construction had to be spread over a longer period of time than was necessary for com-

3

pletion of the building. Each wing was therefore designed as a self-contained unit to be linked up with the central block containing laboratories.

The cyclotron suite was planned to go above ground. Protection against radiation from such machines is sometimes obtained by placing them below ground but in this case it was found to be economical, having regard to the special requirements, to house them above but with heavy concrete walling and roofing and with screen walls and heavy doors. Control rooms were designed to allow machines to be operated from a remote position. It was also necessary to allow in the planning for the installation of individual cyclotron parts weighing up to 32 tons, and to have an assembly bay outside the cyclotron chamber, for the erection and maintenance of heavy and bulky apparatus used with the cyclotron. A large opening was, therefore, made across the end of the chamber giving on to the assembly bay which is fitted with cranes and is connected with the chamber by a rail track. In the cyclotron suite is a transformer station for the considerable electrical load, electrical plant rooms, cooling and ventilating rooms, workshops, and isotope research laboratories. Similar considerations affected the planning of the linear accelerator suite, although there was a special requirement involving the installation of a floor that would move up and down and this necessitated underground construction. As a great deal of accommodation had to be got into the central block, which contains laboratories, dark rooms, workshops, offices and accommodation for clinical work, the structure had to be simplified for reasons of economy and to reduce complications in runs of laboratory services. Therefore the main staircase and lifts were housed in a separate but connected tower. An additional factor affecting this decision was that the upper storeys to the central block, to be built in the future, would be for a different occupancy and a staircase in a separate tower would be better placed for common use. The general shape of the tower was largely dictated by the need to get daylight and air to rooms behind it.

The cyclotron and linear accelerator suites have reinforced concrete walls and roofs approximately six feet thick. In the case of both suites it was necessary to ensure that there should be no straight joints throughout the structure. Therefore, following each concrete lift, the top surface of the concrete was left with six inch corrugations in order that labyrinth joints would be formed on completion of the various layers of concrete. The central block is a reinforced-concrete frame with solid concrete slab floors. The main doorway to the cyclotron chamber is formed with an electrically operated 35 ton door consisting of a steel box filled with concrete, the aggregate of which is of steel punchings giving the concrete a weight of 365 lb. per cubic foot. This specially loaded concrete permitted a reduction of thickness of the door from six feet, which would have been required with ordinary concrete, to three feet. The door between the cyclotron chamber and the assembly bay is a 190 ton, electrically operated, horizontally moving door of reinforced concrete running in a pit bridged by a two-leaf drawbridge.

Normal services are run in ring mains under windows, each floor being served from vertical risers housed at each corner of the building. All pipes are accessible and may be teed off at any point on each floor. Special services, i.e., oxygen, high pressure gas and air, and pressure water, are run to selected rooms. Lighting is by means of high level spherical fittings with low level pendants for individual illumination on working benches. The lighting has been designed to provide 15 foot candles on the working plane. An alarm system has been installed for use during movement of radioactive materials, together with a fire alarm system integrated with the Hospital fire control system.

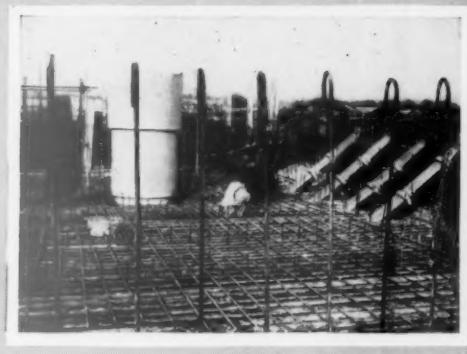
Special fume cupboards have been designed for handling radioactive materials, and a special drainage system has been provided for the disposal of radioactive effluent. Each section of fume cupboard will carry removable lead protection weighing from 4 cwt. to 2 tons, depending upon the degree of radioactivity of the materials to be handled. The special drainage system consists of waste stacks in chemical stoneware, encased in an outer polythene 'save' which would retain the effluent in the event of a fracture of the stoneware piping.

All exposed concrete work including the main frame to the central block is treated in light shades of concrete paint, or is specially rendered. The tones range from 'off white' to yellow gold. The facing bricks to the 11 in. cavity end walls on the north and south are dark

[Cont. on p. 158

6, air inlet ducts of the cyclotron chamber being manœuvred into position. Ducts are staggered for radiation protection.

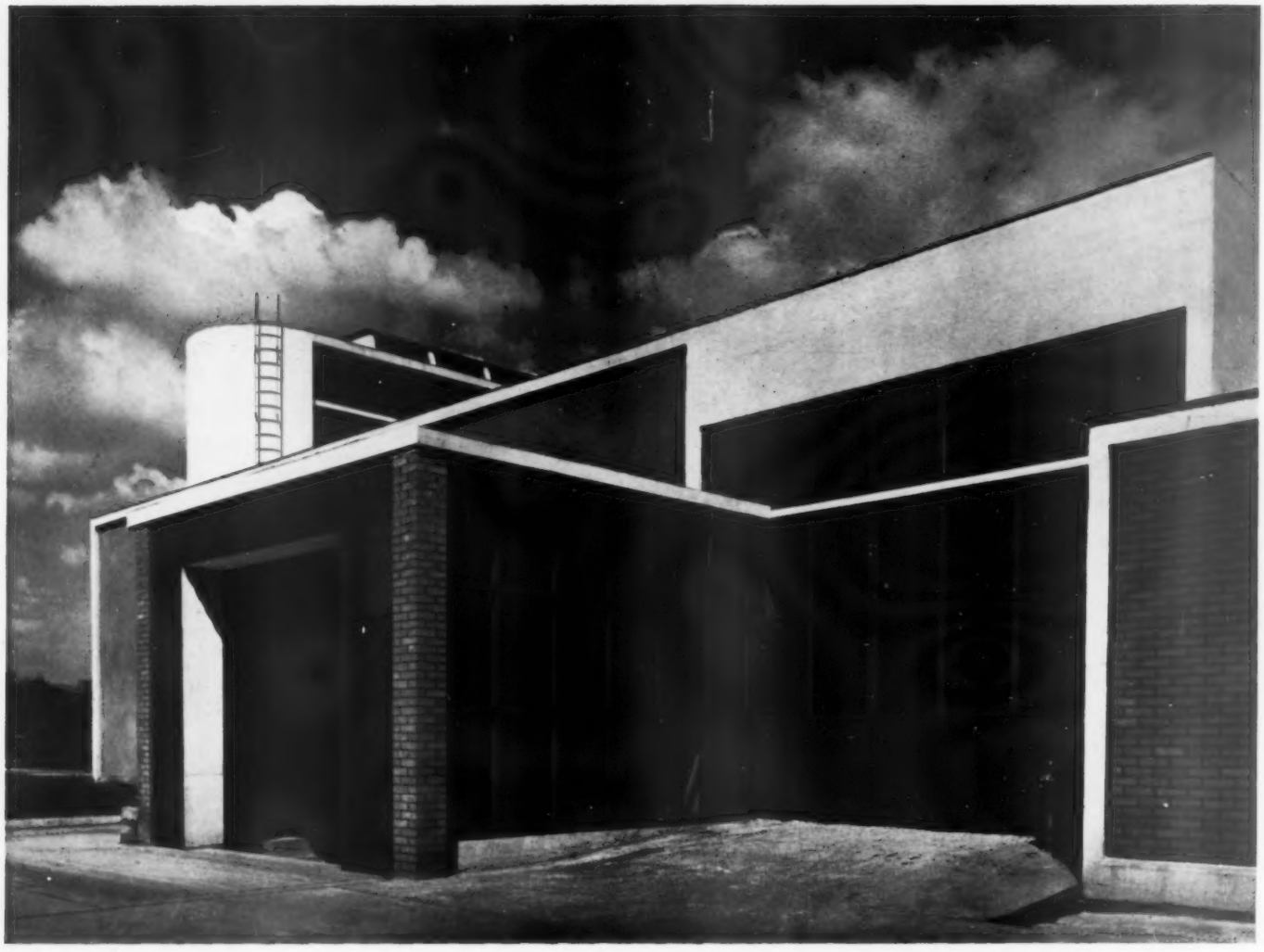
7, grooves formed in the walls of the cyclotron chamber to provide a key for radiation protection between each pour of concrete.



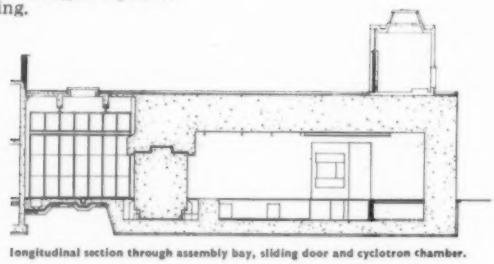
8, lower-reinforcement for the roof of the cyclotron chamber Stoneware pipes on the right will form cable ducts through wall and roof of the chamber. The shuttering in the centre to form an access hole above the magnet indicates the thickness of the roof concrete.

5, on the facing page, main laboratory block, looking north towards the staircase and lift tower. In the foreground is the entrance to the linear accelerator suite, 9, linear accelerator suite. Walls and roofs are of reinforced concrete 6 feet thick. Framing members to the external walls are finished off-white and the panels are yellow-gold rendering for the west, and dark grey 'rusticated' concrete blocks with recessed terracotta-coloured mortar for the south wall.

9



10, cyclotron suite looking north-east. A temporary housing for the 190-ton concrete sliding door projects from the west façade. Surrounds are finished off-white, the recessed panel is yellow-gold and the temporary entrance is faced with dark brown corrugated plastic sheeting.

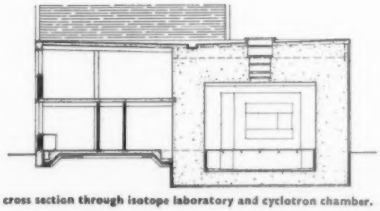


longitudinal section through assembly bay, sliding door and cyclotron chamber.

brown in colour, those to the brick aprons below all windows on the east and west walls are honey coloured. The pointing to the brown bricks is tinted to a shade darker than the bricks, the pointing to the light coloured bricks is in dark brown. The brick wall to the main staircase block has dark brown facings with pointing of darker tone. A pattern of ¼ in. diameter, white glazed, ceramic 'pencils' is placed in the mortar joints to project ½ in. These form a regular pattern throughout the whole surface of this wall. Metal window frames are finished blue and the main doorway has a concrete frame finished in blue coloured terrazzo and a polished grey marble architrave. The door is of armoured glass.

Internal partitions are mainly of brick, plastered and painted in primrose colour, with apron walls under windows in grey. Flooring is in grey 'marbled' lino, except in working areas in the cyclotron suite and workshops where floors are in grey granolithic. In isotope chemistry rooms linoleum has been laid loose on granolithic in order that it can be removed easily if it becomes contaminated. Doors throughout are flush with beech plywood faces, french polished to give a natural finish. Window and facia boards, behind which lie service runs, are in sycamore finished with a clear acid-proof cellulose. Laboratory bench tops are in oiled teak with under bench pedestals and cupboards generally in oak. The assistant in charge of the job was T. R. Hudson.

note The Ministry of Works and Ministry of Supply placed at the architect's disposal special scientific and technical information relating to this type of building and their help is gratefully acknowledged by the architect.



cross section through isotope laboratory and cyclotron chamber.

12

11

11, two of the special fume cupboards connected to the disposal system for radio-active effluent. Cupboards are finished internally and externally in stripping lacquer to a thickness of nine coats. 12, a typical laboratory interior. Walls are plastered and painted primrose, with apron walls under windows grey. Flooring is grey marbled lino. Bench tops are in oiled teak with under bench pedestals and cupboards generally in oak.

13

13, details of main staircase balustrade. The landings have blue-grey linoleum and stairs are of grey granolithic. The balustrading is of steel painted dull grey, the hand rail and joinery are polished iroko. 14, view from the fully glazed wall of the staircase and lift tower past the west elevation of the main laboratory block.

14

The difference in style which separates these two exhibition buildings by Howard Robertson—Paris 1925 below, Brussels 1935 above—is the exact measure of the revolution wrought by himself and his influence in that crucial decade when the Modern Movement was emerging in British Architecture—a process which is described by Reyner Banham in the article which begins on the facing page.

Reyner Banham

Apart from a few giants like Le Corbusier and Frank Lloyd Wright who are written about constantly, there is an extraordinary absence of monographs in English on the major architectural figures of our time. To fill this gap the REVIEW *will publish from time to time biographies of living architects a knowledge of whose life and work has significance for students of architecture. The first, which appeared last month, was devoted to Auguste Perret and it is followed here by a biography of the reigning President of the Royal Institute of British Architects; the first occupant of that august position who has been in any active manner associated with the Modern Movement and for that reason a notable figure in the history of our time. The article examines the career of Howard Robertson in relation to the growth of that movement, and attempts to evaluate the special, and characteristic, contribution which he has made to the rise of a new architecture in England.*

HOWARD ROBERTSON

It is a rare honour among architects to be the first representative of a new and revolutionary movement to reach the official peak of the profession—such movements are not numerous, and not all are powerful enough to swing the mass of opinion into their favour and lift a man to the presidency of the RIBA. The arrival of Howard Robertson at this point of eminence is a tribute to the manner in which Modern Architecture has taken command in England. It is a tribute equally, of course, to his own professional and public talents but most conspicuously a tribute to his peculiar position in relation to the modern movement.

It must be faced that greatly though his published works and teaching contributed towards the introduction of Modern Architecture into the English scene, Robertson is no doctrinaire supporter of a particular style. His concept of modernity rests more in questions of structure and planning than the acceptance of an 'æsthetic' or the abolition of detailing, and if these firm bases in the practical are given, then the stylistic treatment is a matter of less concern to him provided it is homogeneous, in scale with the building, and not merely the unquestioning acceptance of formalæ acquired elsewhere. This eclectic approach has made him the despair of extremists of both wings, modern and reactionary, and the situation has been aggravated by his tendency to apply his talents where they are needed, and in the manner that is needful, rather than where and how the makers of public opinion see fit.

Thus it has been a characteristic of Robertson's career that he has frequently occupied himself with problems that others were only to discover at a later date—that

while others were in the throes of solving the æsthetic problems of the Modern Movement, and were decorating the slopes of Hampstead with unmaintainable white-rendered facades, he, who had seen the white-rendered facades which decorated the *Cité-Seurat* and the *Rue Mallet-Stevens* weathering untidily and unmaintainedly through the slump, was already occupying himself with the problem that still haunts the modern movement of devising the self-maintaining exterior. To do this he found it imperative to work with traditional materials and the classical repertoire of dripstone, sill and capping, and had therefore to endure the opprobrium of those for whom the traditional was wrong simply because it was traditional, no matter how functional it might be. But he has not had to live long to see the English weather make fools of some of his critics, or to see his own definition of 'functional,' which includes making buildings see after themselves, fully vindicated in a building such as the Royal Horticultural Hall, the work of his firm, which has stood up well to London's acid atmosphere and to periods of deplorable neglect.

Yet, while it remains as untrue to say that he was 'reactionary' in the 'thirties as it is to say that he has only now emerged as a considerable architect, it is abundantly true that in the 'twenties he made a unique contribution to the development of English architecture and, for better or worse, has given the modern movement in this country a bias which it has nowhere else—may, perhaps, be responsible for those indefinable qualities which make it unmistakably English. It is very easy to forget, nowadays, that the first generation of English Modernists grew to maturity under Robertson's direct or indirect influence, and in an atmosphere which was largely of his making. The peculiarities of that atmosphere are now difficult to re-create, but certain essential ingredients can be uncovered. One of these was undoubtedly his training, and most particularly the period from 1909 to 1912, which was spent in Paris at the *Ecole des Beaux Arts*. There he enjoyed a contact with an æsthetic tradition, uncontaminated by the picturesque, with which England had long lost touch, as Mr. Goodhart-Rendel has recently pointed out, and which formed in him a most un-English passion for the logic of plans, and a Gallic sensibility in decoration. With this unusual background he and his partner, Murray Easton, were able to contribute to the Paris *Exposition* of 1925 what may now appear a sensationally un-English pavilion, but which, in fact, lies well within the eclectic 'Playboy' style which his predecessor at the Architectural Association, Robert Atkinson, had already roughed out.

The Pavilion was a double structure, comprising a long enfilade of rooms in a narrow building fitted into a difficult site between two rows of trees parallel to the Seine, and on the other side of the road, actually standing on the *Quai*, an awninged tea-pavilion standing on the 'transeptual' axis of the main building. The overall composition may stand as typical of his attitude at this period, in its contrast of monumental *Beaux-Arts* planning and gay, eclectic and quite unmonumental detailing. Its festive and witty character, anticipating by 27 years the exhibition architecture of the Casson School, was greeted with enthusiasm by THE ARCHITECTURAL REVIEW, but was not well received by the profession at large in England. Its gaiety, unmonumentality and manifestly transient nature, particularly in the Tea-pavilion, were prophetic in a way that no other building in the exhibition was prophetic —*Le Pavillon de l'Esprit Nouveau* excepted.

Work like this contributed to his reputation among the Old Guard of architecture as 'the fella who is corrupting English architecture', but not as much as did his teaching at the Architectural Association, his organizing there of debates on schemes like Ernst May's Römerstadt Siedlung, and in particular the voyages of discovery undertaken by himself and F. R. Yerbury. These two, journeying around the world found architecture in a ferment of which England knew nothing, and they combated this ignorance in a famous series of weekly articles, spread over the late 'twenties and early 'thirties, in the *Architect and Building News*, with occasional deviations into THE ARCHITECTURAL REVIEW. They saw and reported the new buildings of America, Sweden, Finland, Denmark, Germany, Holland, Austria and France, introducing the English public for the first time to the great names of the Modern Movement—and to a large number of other designers besides. For they were cheerfully eclectic, and reported all that they saw, irrespective of style; they were prepared to share the enthusiasms of any enthusiast. It is remarkable how vivid, to this day, are Howard Robertson's memories of de Klerk in Amsterdam and of Mendelsohn in Berlin. Neither of these architects is of much account to pure functionalist æsthetes, and both have been pushed into the limbo of footnotes by the standard histories of the Modern Movement, but they were both sound constructors, able planners and

original, if eccentric, designers, and they will one day be recognized, as Howard Robertson insists, as among the most influential architects of this century. Their peculiar importance at the time that Robertson and Yerbury came upon them lay in their intermediate position between the old and the new. They bridged the gap from Dutch Art Nouveau, which has English affiliations, by way of de Klerk's eclecticism and Mendelsohn's de Klerk-influenced work of the early 'twenties, to the true 'hard' school of functionalism, whose impact was thus softened.

This may go some way to account for the rather diffuse and muddled way in which the Modern Movement got under way in England. The 'hard' functionalists were presented by Yerbury and Robertson well wrapped up in more eclectic and picturesque designers —the *Sacré Cœur* and Zehlendorf, Roux-Spitz and Asplund were reported in the same tone of voice and given the same importance—and this, coupled with the example of the Easton and Robertson buildings, loosened up ideas, but sent the younger generation dashing off madly in several different directions at once. The effect of this was to ventilate a stuffy atmosphere, to introduce students to new ideas and to increase their receptiveness, but also to delay and confuse the appearance of what we should now term Modern Architecture in this country, by creating an atmosphere more propitious to the fidgety overhangs, recessions and overlaps—'detailing,' in fact—of Tait's Silver End, than the broad and mechanical simplicity of Emberton's Royal Corinthian Yacht Club. Nevertheless, a stuffy atmosphere *was* ventilated and new ideas *were* introduced; Howard Robertson's part in bringing modern architecture to England cannot be ignored. A generation of architects passed through his hands at the AA between 1919 and 1935, and thousands of others have read his books, and the immediate effect of this is seen in the buildings of the later part of that Playboy period before the slump, where technical ingenuity is combined with sumptuous and eclectic detailing to produce a quasi-style whose chief monument, in the funerary as well as art-historical sense, is Grey Wornum's RIBA building, even if this is not a direct product of Robertsonian influence. But the long term influence of his teaching and writing is seen in the subsequent period, when the slump had intervened and the Playboy style was safely buried under the RIBA. The new prophets of sociology and function, the anti-stylists, had grown up in the Robertson atmosphere, were many of them his pupils, and owed to him their adaptability to the new and tougher conditions.

This same adaptability was demonstrated by the partnership as well—formed at the beginning of the Playboy period in 1919 it weathered the change in conditions with the confidence born of already having a foot in the other camp, as had been shown in the new hall for the Royal Horticultural Society, of 1927–28, the work on which the reputation of the office will always be based. At the time of its completion P. Morton Shand underlined its essential kinship to such constituent monuments of Functionalism as the Orly hangars by Freyssinet, Garnier's market hall at Lyons, and the now forgotten hall of the Gothenburg

Royal Horticultural Hall, London

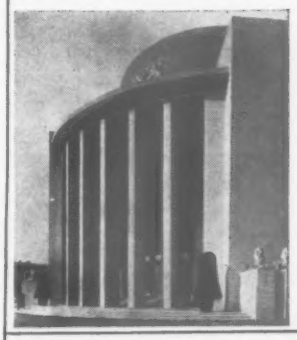
1928

Malvern College Addition, Worcester

1928

House at Esher, Surrey

1935



British Pavilion, International Exhibition, Brussels

1935

Showrooms for Holloway Bros., London

1936

Offices for 'The Practitioner,' London

1936

British Pavilion, World's Fair, New York

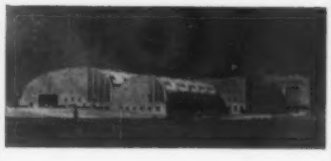
1939

Hatfield Technical College, Hertfordshire

1952

Watling House, London

1953/ site clearance in hand



Printing Works at Debden, Essex

1953/ under construction

Exhibition of 1923, but it is also a fascinating example of the partnership at work for if the hall proper was the work of Murray Easton, Gothenburg was one of the discoveries of the Yerbury-Robertson Scandinavian explorations and one may suspect that the rather French detailing in the entrance and office area has also a Robertsonian flavour. If that is to say that the design has any serious fault it is that the entrance block and the hall itself fail to combine into a convincing whole, even allowing for their different functions, as if one end of the job were Easton and the other were Robertson. But, whatever may be said against it, it remains, with Emberton's Yacht Club, the true foundation of Functionalism in England, and the essential starting point of the Easton and Robertson 'house style' of the 'thirties when the partnership was fully consummated.

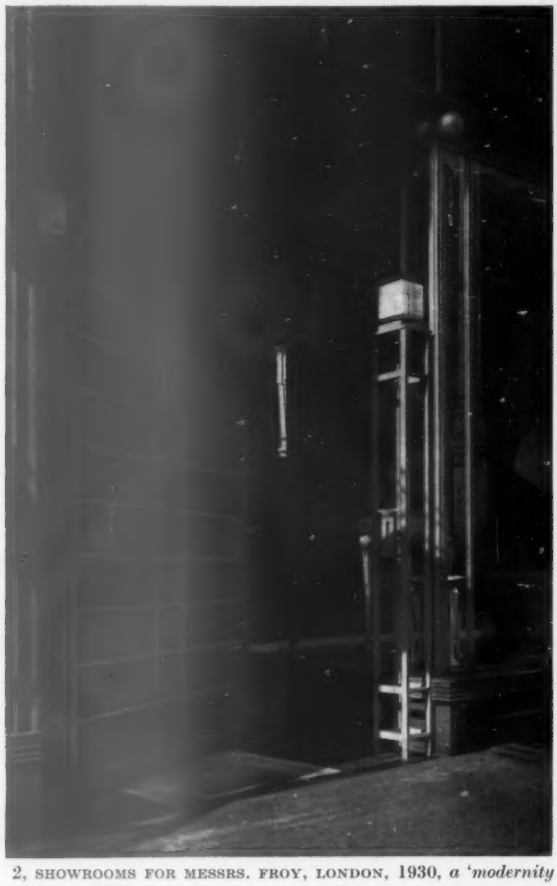
The true characteristics of this style did not fully appear until the 'thirties were well under way; the peculiar mental climate of the period shows them in a strange and unflattering light, and is responsible for the legend of the partnership's 'reactionary tendencies'. Conditions after the slump dealt a final blow to English intellectual insularity, and it looks in retrospect as if analytical psychology, parlour pinkness, free verse and functionalism arrived here more or less simultaneously. At all events Modern Architecture in England is closely involved with very definite social and moral attitudes which are now easier to sense in reading W. H. Auden's poem in praise of psycho-analysis, which ends by asking a rather abstract Deity to

> '. . . look shining at
> New styles of architecture, a change of heart.'

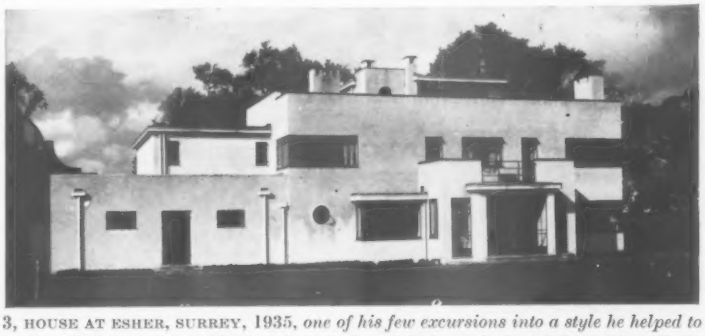
than it is by studying the buildings. A variety of events combined to displace Howard Robertson, albeit gradually, from his position of maker of opinion, and the leader of the young and adventurous, and to replace him by Chermayeff, Wells Coates, Maxwell Fry or collaboration with Tecton. Membership of MARS became an essential school of experience, and contact with such notable architectural refugees as Gropius served to strengthen the atmosphere of positiveness and aggressive certitude which was developing. Only one style of building was held to be morally permissible, only a restricted field of building types was sociologically desirable, he that was not for was automatically against and the eclectic manner and wide variety of clients of the partnership meant that they had to be lumped together with the reactionaries. From lagging behind, a small part of the profession was now, on a narrow stylistic front, running ahead. Yet Easton and Robertson could, whenever they wanted, run just as far ahead as anyone. The platform shelters at Loughton were well in advance of anything else done at the time in England, while the shop interiors they produced were as smart and up-to-date as anyone else's. Their crime lay in their adaptability, their willingness to design in a manner which suited the job, rather than in one idiom of allegedly absolute validity.

Where work was commissioned by a body like the LPTB which, under Frank Pick, was determined to

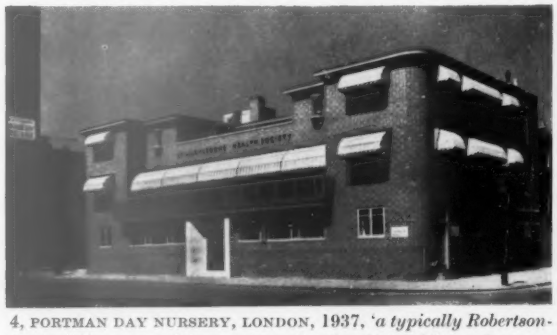
1, ROYAL HORTICULTURAL HALL, LONDON, 1928, *reveals an 'essential kinship to such constituent monuments of Functionalism as the Orly hangars by Freyssinet, and Garnier's market hall at Lyons.'*



2, SHOWROOMS FOR MESSRS. FROY, LONDON, 1930, *a 'modernity with roots that clearly lie in the smart Parisian* boutiques *which Howard Robertson had . . . reported in the late 'twenties.'*



3, HOUSE AT ESHER, SURREY, 1935, *one of his few excursions into a style he helped to create—midway between Tait's Silver End and Emberton's Royal Corinthian Yacht Club at Burnham-on-Crouch.*



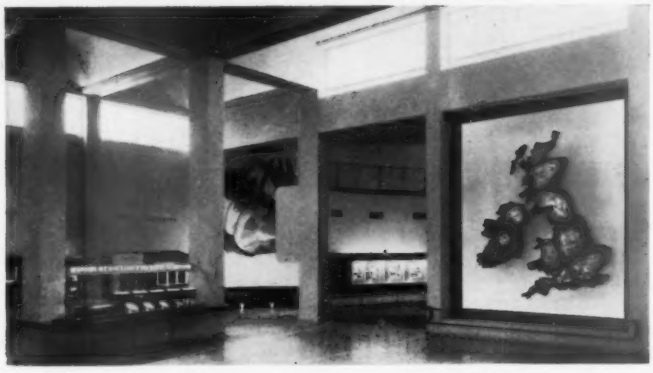
4, PORTMAN DAY NURSERY, LONDON, 1937, *'a typically Robertsonian building couched in a quiet and rather Dutch idiom whose unassertive air is perfectly adapted to its purpose.'*

5, OFFICES FOR THE PRACTITIONER, LONDON, 1936, *a reconstruction which strikes a tricky, but successful, balance between the urbane, the commercial, the reassuringly opulent and the properly (to a medical paper) antiseptic.'*

6, SHOWROOMS FOR HOLLOWAY BROS., LONDON, 1936, *a design incorporating some of the 'Parisian' elements of* 2, *in combination with the more restrained and English plainness of* 5, *summed up in a monumental composition.*

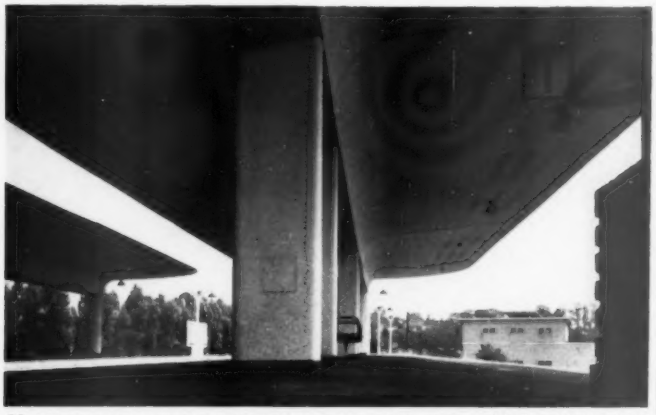
7, PRIVATE CINEMA FOR FOX FILMS, LONDON, 1937; *another interior in the Robertsonian manner of the late 'thirties—plain walls, careful attention to detail, restrained use of glitter, up-to-date furniture and fittings.*

8, AVENUE CLOSE FLATS, REGENTS PARK, LONDON, 1937, *a building which in common with the Portman Day Nursery, 4, shows the influence of Robertson's visits to Amsterdam.*



9, BRITISH PAVILION, WORLD'S FAIR, NEW YORK, 1939, *in an 'architectural idiom . . . appreciably less frivolous than that of Paris . . . because different aspects of Britain were on show.'*

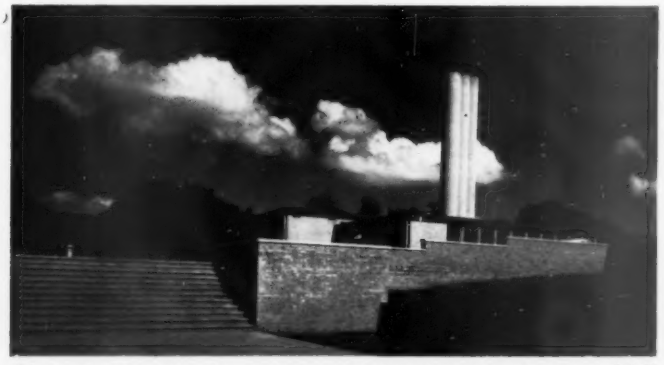
10, ST. EDMUND'S TERRACE FLATS, REGENTS PARK, LONDON, 1938, an *ingenious combination of one-and-a-half-storey studio-rooms with the more conventional single-storey flats.*



11, SUBURBAN RAILWAY STATION AT LOUGHTON, ESSEX, 1939, *with 'its bold sweeps of cantilever and refined detailing . . . [well] in accord with the peculiar functional tradition of [London Passenger Transport Board's] Central Line.'*

12, BAR AT THE BERKELEY HOTEL, LONDON, 1939, *'the design and decoration of interiors has been [Robertson's] constant study'—as this ingenious solution to a peculiarly modern problem shows.*

13, INDUSTRIAL HOSTEL, 1941-43, *'composed almost entirely of standard prefabricated huts and units, with a few purpose-built structures to house or emphasize communal activities.'*



14, BOILER HOUSE AT HATFIELD TECHNICAL COLLEGE, HERTFORDSHIRE, 1952, *an 'original and impressive treatment of the [building] and its chimneys as a monumental sculpture on a stepped podium.'*

advertise its leadership in a technocratic world, then Loughton was clearly the only wear, and its bold sweeps of cantilever and refined detailing were better in accord with the peculiar functional tradition of the Central Line than were some of the earlier stations, Hammersmith, for instance, along it. The handling of the contemporary idiom is as confident and competent as that of the most advanced practitioners in England, and if one compares it with another building which has been visibly influenced by the *Pavillon Suisse*, Wells Coates' Palace Gate flats, one can form some estimate of how far behind or in advance of the times the partners were. In the showrooms executed for various firms in the middle and late 'thirties, such as those for Messrs. Froy and for Holloway Bros., the aim to be smart and up to date in a fashionable sense leads to a different kind of modernity with roots that clearly lie in the smart Parisian *boutiques* which Howard Robertson had so industriously reported in the late 'twenties. Further deviations from the pure strain of Functionalism may be seen in the Portman Day Nursery, a typically Robertsonian building couched in a quiet and rather Dutch idiom whose unassertive air is perfectly adapted to its purpose. A more involved process of stylistic selection can be observed in the offices for *The Practitioner* which strikes a tricky, but successful, balance between the urbane, the commercial, the reassuringly opulent and the properly antiseptic, accurately reflecting the specialized atmosphere of a journal which has to sell itself to the medical profession with its traditional blend of social conservatism and technical adventurousness.

But whatever stylistic oscillations may be observed in this period, and however one seeks to justify them, the buildings remain notably well thought-out, well constructed, well armoured in their semi-traditional detailing against the English climate, ingenious in structure and plan—sometimes a little too ingenious, perhaps, as in St. Edmund's Terrace flats, near Regents Park, where the fine effect of the north-lit one-and-a-half storey studio-rooms has been bought at the expense of simplicity and grace in the rest of the plan, though at no loss to workability. While other and younger architects were putting up buildings which were more visually exciting, those erected by the partnership fully justified the general verdict that they were the 'best commercial office in the country'. Their position as designers, reinforced by Howard Robertson's books *The Principles of Architectural Composition* and *Modern Architectural Design*, was now a liaison between the extreme moderns and the established tradition—a position offering more kicks, from both sides, than ha'pence from any one, except the rulers of the country who, painfully adapting themselves to the attitudes proper to the governors of a developing welfare state, clearly found something sympathetic in the non-extremism of the partners. At any rate there is an attractive propriety that three more British Pavilions at international exhibitions were designed by Howard Robertson—those at Brussels, Johannesburg and New York. The architectural idiom was appreciably less frivolous than that of Paris in these later pavilions, as befitted the growing sense that the British were different people in a changing world, and it is highly significant that Brussels was the last British pavilion in which the older dispensation of letting space to commercial organizations prevailed, and New York the first where the practice of giving over the whole interior to a government-directed scheme can be seen in full operation, and also the first to provide a large public exercise for the talents of Misha Black, the characteristic figure of the new dispensation in government exhibitions. Though the idiom in which these pavilions were couched was much more monumental, more neo-Classical and in some ways less adventurous than that of Paris, it should be remembered that different aspects of Britain were on display, that the official attitude to such exhibitions was changing, and there was still a real challenge to the ingenuity of the architect—New York, for instance, had a bad subsoil and foundations were required to be piled as a general contribution to the stabilization of the terrain. At all events, there was nothing about any of these pavilions to disturb Howard Robertson's belief that exhibitions are an invaluable school of architectural experience.

It was thus, as an office curiously representative of the state of the nation that the partnership went into the limbo and enforced hibernation of the Second World War, to which Howard Robertson contributed little original work, except to grapple with a characteristically new problem, that of camps for industrial and agricultural workers, in a characteristically thorough way. Berkhamsted and Stansted, for instance, composed almost entirely of standard prefabricated huts and units, with a few purpose-built structures to house or emphasize communal activities, might be regarded as his small and only attempt at town-planning, or his first essay in collegiate accommodation—an experiment which was to bear fruit in his most important post-war work, Hatfield Technical College. It was, in any case, another example of his adaptability, which has given the partnership its unusual reputation of being excellent at most things while 'specialists' in none—it has never acquired a name as a designer of any one single class of buildings, but as an office which will make an intelligent approach to any problem which is offered it.

It may be this all-rounder quality which accounts for the inevitability with which Robertson emerged at the end of the war as the person most qualified to speak for the profession, the complete certainty with which the vacant role of Leader of the Profession opened before him. The State's recognition of his position was his appointment to the UNO and UNESCO headquarters committees, and one would like to think that his elder-statesmanship contributed something to the commendable speed with which the UNO committee got down to work and produced results, even if one would like to think he was in no way responsible for what has happened since. Subsequently the profession has endorsed this recognition with the Royal Gold Medal in 1949 and the presidency of the RIBA. Such recognitions have a habit of coming when the recipient is safely dead, mentally at least, but in Howard Robertson's case this is mercifully not so, and at present he is proving how young a Grand Old Man

may be. He continues forthright in æsthetic theory, as the complete overhaul and re-writing of *Modern Architectural Composition* has shown, and he continues an original designer, as Hatfield Technical College conspicuously shows. This large and complex group of buildings is in some ways as much out of line with received opinion as was the Paris Pavilion, yet it may stand as an epitome of his best qualities, raised to the pitch of what art-historians call a 'late style'—the kind of highly personal mode of expression which all truly original artists, of whatever calibre, develop as they pass into a kind of second maturity, instead of declining into senility. His intelligent and logical planning approach is still to be seen; something of the Beaux-Arts tradition, too, in the original and impressive treatment of the boiler-house and its chimneys as a monumental sculpture on a stepped podium; his love of dramatic lighting effects in the towering window of the upper entrance hall; his sharp appreciation of the collegiate tradition in the exterior relation of this window and its gable to surrounding structures, and in the courtyard-and-underpass planning of the layout as a whole; the love of structural ingenuity in the employment of Felix Samuely as consultant to produce one of the most original interpretations of concrete framing that has so far been devised—all these are highly characteristic of the man, as is the ability he shows throughout the building to conjure decorative effects from common-or-garden materials.

But this last attribute is one he does not particularly enjoy. It has been his lot to work throughout his career with fairly tight budgets and to restrain his *nostalgie du bronze*. The effects obtained at Hatfield are remarkable when one remembers that finances which might have been devoted to fine materials throughout the building were concentrated on the purchase of a few works of art. He has been little studied as an 'interiors man', probably because he is so well known for designing major building structures, and, in spite of what the Modern Movement may feel about designing buildings as complete wholes, exterior and interior have now become, to a disastrous extent, the affairs of two entirely independent bodies of specialists. But the design and decoration of interiors has been his constant study—the shops and bars of the 'thirties are as much proof of this as the interior of Hatfield—and he feels that it is a study which has been too much neglected by his contemporaries. 'There are no good architects,' he says, 'who are also good interior decorators—not even Corb.'

Le Corbusier is, of course, very much in his mind in 1953, but he has always been a contemporary of whom Howard Robertson is peculiarly aware. In the year of the publication of the English edition of *Towards a New Architecture*, he contributed an article to THE ARCHITECTURAL REVIEW* which is probably the first extended critical study of Le Corbusier's early houses in English, and certainly the first in any language from the point of view of a practical architect. His own struggles with the problem of creating striking effects from inexpensive materials have sharpened his sympathy for the French Master's attempts to do the same, and his admiration for the technical and mechanical solutions of the recent works is based, again, on a community of practical experience. There is a poetic and historical justice that it should have been his hands which presented the Royal Gold Medal to Le Corbusier, and it was a fitting climax to a career devoted to the advocacy of the new and the experimental.

If that advocacy has at times appeared devious, it is because guile, diplomacy and tact were the correct weapons—the citadel of Portland Place is not to be taken by storm. Now that the bronze doors are open to the moderns it is proper that the first of them to assume command should be one who holds the respect of the 'Practical Men' as well as the æsthetes—it is typically Robertsonian that one of the chief charges of his office should be to set in motion an enquiry into tendering and contracting practices. His accession to the highest power presages, one hopes, not only a new deal for architecture but also the necessary accompaniment of the change of heart. If this is to be, no-one is better equipped to perform this piece of surgery with the minimum of bloodshed, and so that the beneficial effects may be most immediately felt.

*January, 1927.

Midland Experiment

1 the proposal

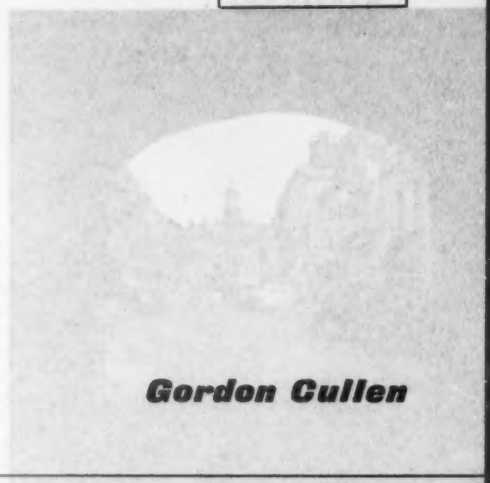
If townscape is still an unknown art even amongst most of those whose professional life brings them closest to it, imagine what its following is amongst the public—the people who live in towns, the people who vote and from whom spring the city fathers and administrators who really shape our towns. This is neither the time nor place to restate the case for townscape, but it is the time for the Editors to announce (with a good deal of pleasure) that the Extra-Mural Department of the University of Birmingham has invited the REVIEW *to collaborate in a public campaign to spread the townscape gospel throughout some of the Midland Towns that come under its—Birmingham University's—sphere of influence, the first example, as we believe, of an English University taking up town design as a public cause. This proposal by Birmingham University should make history; indeed it may well mark a first step towards the renaissance of the art of townscape. In the article that follows Mr. Dudley, Director of Birmingham University's Extra-Mural Department, explains the problems involved and the techniques proposed, and Gordon Cullen follows for the* REVIEW *with a feature on Ludlow, to be built up later into an exhibition which, together with lecture and discussions, will be put on by the University in Ludlow itself.*

2 the problem

D. R. Dudley
director of extra-mural studies: Birmingham University

The Extra-Mural work of a University cannot in the fine arts produce the creative worker and the professional. But it should help to shape an informed and critical public opinion as the background against which the work of the professional can be judged, and the heritage of the past understood and preserved. In town design, no such end is even remotely in sight, for it is at least one hundred years since an informed and critical public opinion on architecture was widespread in this country. The consequences are obvious and depressing, and may be seen in acute form in districts like the West Midlands, where a vast urban agglomeration, hideous with the mistakes of 150 years of industrialism, is set in a countryside rich in small towns whose urban landscape is always good and sometimes distinguished. Over the area as a whole, a kind of Gresham's Law is operating with alarming speed. By coach, car, train and bicycle the urban masses invade the countryside and its towns each week-end. They go to Ludlow, Bewdley and the rest as they would go to Blackpool if it were nearer. So far as a taste for townscape goes, it is to be feared they take nothing away. How should they? Nothing in their surroundings at home has ever suggested to them that architecture is one of the pleasures of civilized society. Behind them they leave their litter and their values, the latter no less unsightly and more permanent. Thus the people of the country towns, and their elected representatives, have come to accept urban values at a low level; the Tudor houses are pulled down for a car park, shacks and disused buses proliferate in the meadows by the river, fish and chip shops and amusement alleys turn the square of a country town into a feeble imitation of the promenade at Morecambe. A universal 'sub'-urbanism has invaded the 20th Century mind; can it be long before, on the physical side, it obliterates the distinction between town and country?

A delaying action, it is true, is being fought by preservation societies and other devoted bodies—would there were more of them! But they need outside assistance and more recruits before a determined counter-attack can be launched. Such an attack must begin with country towns, for here is something good which can be saved. And to be saved, it must be understood and valued by those who live in them; they must develop a feeling for townscape as sensitive and acute as that which so many people in this country have for landscape. As a pilot experiment, THE ARCHITECTURAL REVIEW and the Extra-Mural Department of the University of Birmingham have developed a project in adult education for which the potential students will be the whole population of four selected towns in the West Midlands—Ludlow, Bewdley, Evesham and Shrewsbury—or as many of them as can be reached. By means of articles, exhibitions, photographs, and public conferences we shall try to show them how to look at the town they live in, how to value what is good, and how to remedy what is bad or lacking. Only thus can a technique be evolved that provides for the visitor, without in the process destroying all those things he comes to seek. Visual amenity will be the major theme, and the educational aspect will be checked and evaluated as an experiment, from which it is hoped to develop methods which can be more widely applied. The endeavour will of course excite controversy—that is all to the good. If only its people would argue with as much passion and knowledge about architecture as about footbali the West Midlands would be a pleasanter place in which to live.



3 a case study: LUDLOW

Gordon Cullen

This feature is concerned with but one aspect of Ludlow, the town centre. Although there are many others well worth considering, they are common to towns that will be dealt with later in this pilot study. However, Ludlow's centre (a development from the medieval market stalls which finally became permanent buildings) is the ideal example of a small town centre. It is also that part of Ludlow which stands in the greatest danger of the kind of development described by Mr. Dudley and which has affected so many towns of equal quality—the obliteration of the centre to provide space for charabancs, car parks and so on.

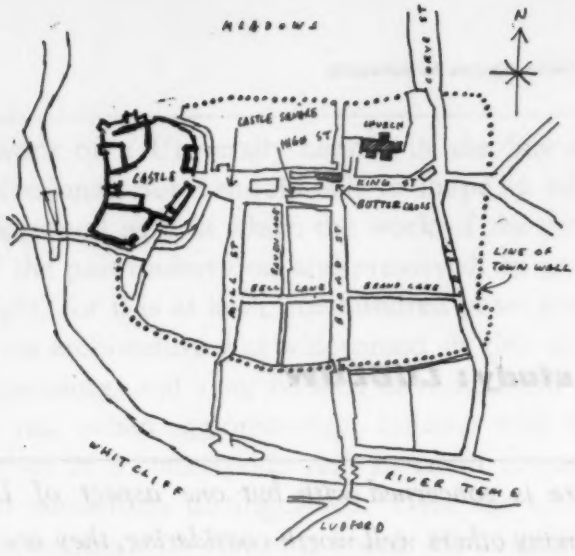
to the centre

1

2

Crossing the Ludford bridge the town starts with a bang, 1. *A recognisable piece of town, blocked off by the Gate, is presented and not a weary vista. Since many things in town design are fortuitous, no apologies need be made for showing how change of level in this part of the street suggests that the road is still entering, still headstrong to reach its goal.*

The gateway, 2, *should be retained at all costs—because it provides a visual bottleneck just where it's needed, and in spite of the fact that it's a physical bottleneck, for it should be quite easy to cut a relief exit off to the right. This gateway serves the essential purpose of making a real break between town and country, it is the punctuation mark in the sentence. Through the arch the Butter Cross closes the vista, and provides both starting post and landmark for a visual point-to-point round the town centre,* 3.



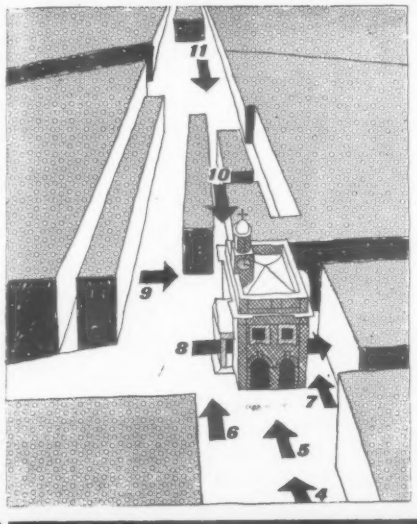
3

the centre reached *Sloping up from the river the streets rise to the crest of the ridge which is terminated at one end by the castle and by the church at the other. It is along this level line that the centre of interest is focused and particularly around the Butter Cross, which can be seen in the diagram-drawing below. The intention of the drawing is not to portray Ludlow—we have photographs—but to illustrate two points: first that Ludlow is a small town set in expansive, rolling country, and second that its centre is intricate.*

Point one. The advantage of living in a small town is having the countryside ever-present; suburbia (as in the New Towns) kills this advantage. You may not always want to see it, but you want to enjoy it as a recent memory or as a five-minute pleasure and you want to be able to get into it. Ludlow being elevated many of its streets disclose the distant view. To get the country near, the town centre has to be concentrated, to be definitely urban, crowded, jostling and intricate. The two are complementary, and one of the nicest combinations you can ask for. Which brings us to point two. The plan of the centre is of great simplicity, just a series of parallel streets and alleys running along the ridge. But as shown the building blocks have been staggered (unjustified to use a printer's term) so that successive layers of town are revealed. The streets that debouch have their own width, their own quality of light, their own character; and not only are they staggered but cross-access allows one to penetrate. This has the effect of unveiling the town. What one sees in elevation is what the planner realizes on plan, i.e., that this is a town, an area for living, walking about and standing about in, not a collection of separate streets. It is this intensity of urbanity which makes such a good foil to the wide landscape.*

* *Ludlow has been wise in securing much surrounding countryside as permanent open space.*

4



5

the centre explored *Approaching the town centre along King Street, the vista is blocked by the Butter Cross, a small building but one which dominates by reason of its successfully exaggerated scale and a habit it has, due to its situation, of cropping up with great pertinacity. The street itself is narrow and as seen in the picture,* 4, *appears to be a pedestrian way. It should be but isn't, and the traffic problem is intractable at this point. However, the pedestrian way is a goal to work for in future development. Approaching nearer to the Centre,* 5, *the complex begins to unfold, the arches of the Butter Cross reveal the shaded undercroft and on left and right of the building further progress and exploration are hinted at whilst all the time one is aware that the main façade of the building must close a broad vista.*

Emerging on the left, 6, *the façade now revealed, another further building faces the explorer. How valuable in creating enclosure and punctuation is the building that faces the general line of travel. And, as if echoing or continuing the space enclosed by the portico, the narrow alley disappears to its own mysterious destination. Branching to the right, however, the scene is quite different; dark and intimate, with a pub on the right, the path passes through an archway,* 7, *to a sunny distance. It is hard to realize that the two streets are but* 30 *feet apart, and it is partly this variety of character in so small an area which enhances the delightful air of intrigue.*

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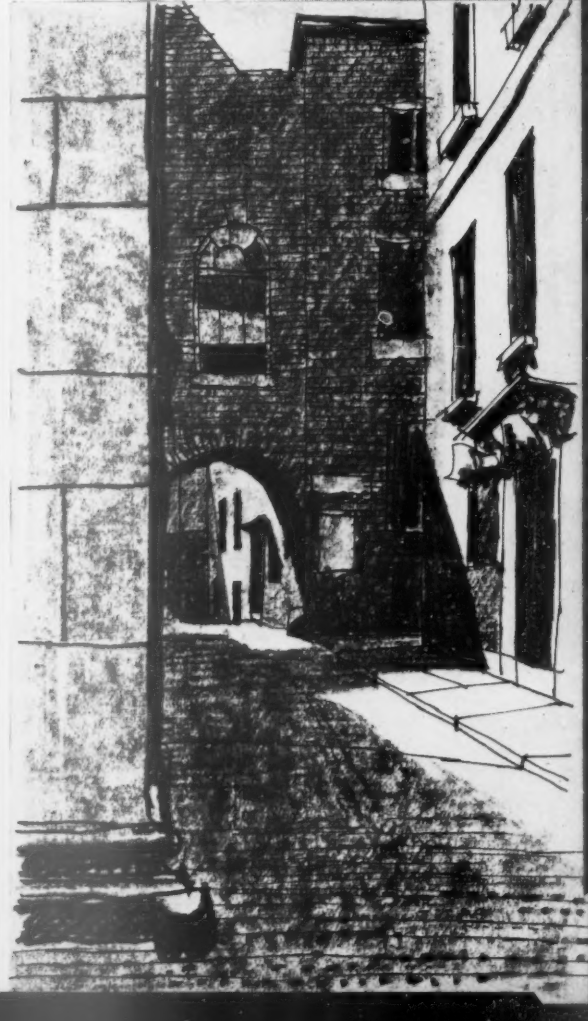

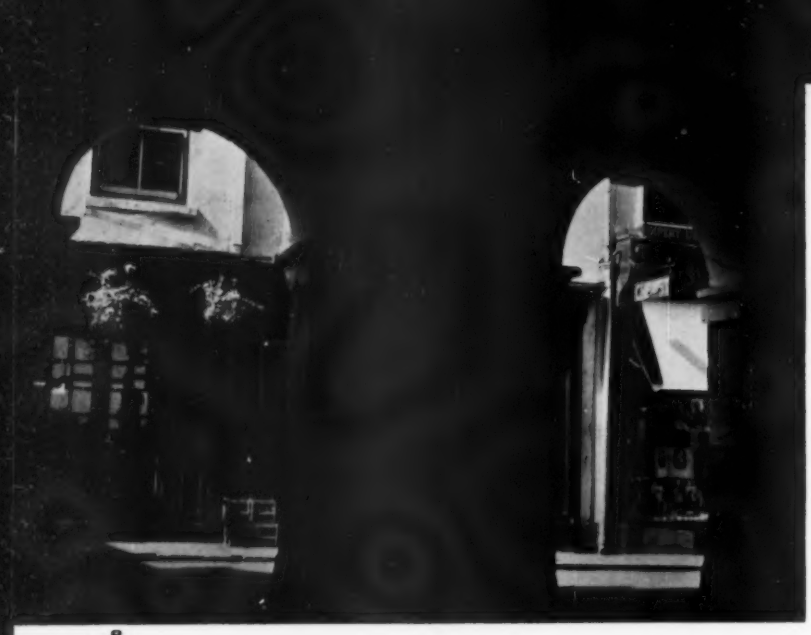

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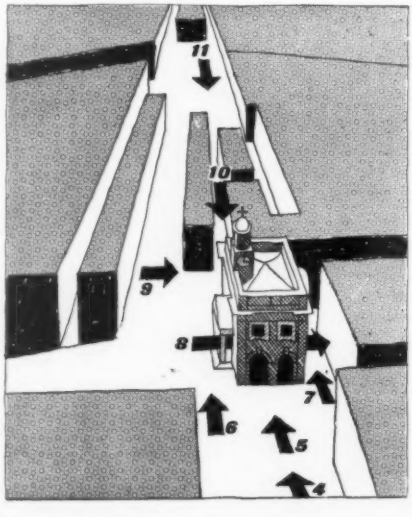
9

Turning to the cross view, the undercroft of the Butter Cross (open on three sides) reveals a significant view, 8, for directly behind the building is a pub called the Exchange Vaults. Being a public building the temptation would be to 'make the most of it' by placing it in full view. Yet here it is thrown away and hidden. But the conceit of using a whole building (the Cross) as a snob-screen paradoxically produces the best sited pub in the Midlands. It is a site remembered after others are forgotten, an intimate rendezvous standing right at the head of Broad Street. This is the sort of thing which makes a town live. Below, 9, is another cross view (in which sunlight does for the photo what stereoscopic vision does for the real thing), the microcosm of the town centre. In a single view are two roads, the foreground obvious, the background debouching mysteriously and arousing anticipation, creating drama out of the simplest material. Finally, 10, exploring from the west of the centre the slight set forward of the Cross ensures that the cupola will be seen.



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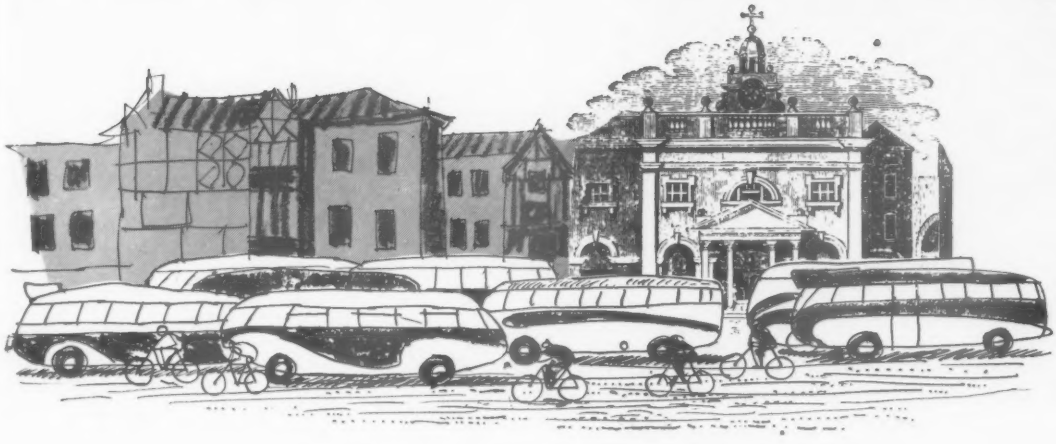
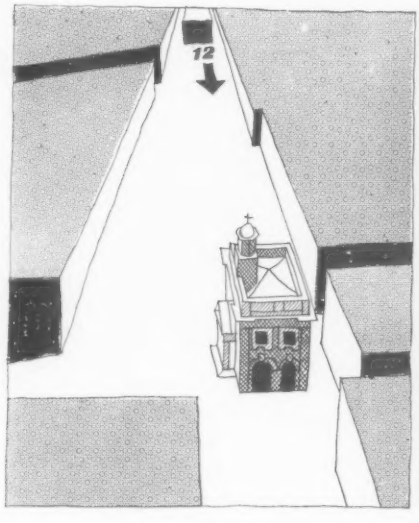




11

the threat *There are many dangers that threaten towns like Ludlow: crude lamp-posts, ill-designed fascia boards, bad lettering, misconceived 'beautification' and so on. But here the pressure of the town's popularity is the cause of its greatest danger. Why do people go to Ludlow? They go to see the Castle, to admire the Tudor houses and the quaintness of it all. They don't loiter in the centre, which fails on the count of conventional guide-book appeal—fails to evoke the sentimental exclamation, the steeped-in-history gaze. No, it is very matter of fact, it possesses no great building or even noteworthy architecture. But it does possess that one overriding quality without which no town can claim to be a town—the quality of urbanity, of 'get-together-ness.' Take it away and the place disintegrates. But the Centre is placed, as so many good things are, just where extra parking space for cars and coaches would be most convenient. Unless its true worth is recognized, the fate of Ludlow (see cover of this issue) may well be to wake one day and discover instead of a heart,* 11, *a car park,* 12.

12

1, on the facing page, a night view of the Lupus Street facade of De Quincey House, Pimlico. The stair towers punctuate the horizontal rhythm of the ranges of maisonettes without compromising the unity of the composition while the cantilevered beam of shallow arches subordinates the ground floor shops below to the block as a whole, and permits considerable diversity in the treatment of individual shop facades.

CRITICISM

Henry-Russell Hitchcock

Powell and Moya's Pimlico flats as they are now universally known, are the result of very special conditions operative in England just before and just after the war. These conditions, the ways they have affected this monumental housing scheme and the peculiar problems that face architects who must build public housing on a large scale in a given architectural setting are here discussed at the international level by Henry-Russell Hitchcock, Professor of Art at Smith College, Northampton, Mass., in this assessment of the Pimlico achievement.

PIMLICO

AN ASSESSMENT OF WESTMINSTER CITY COUNCIL'S CHURCHILL GARDENS

To-day, some eight years after the close of a second World War, it is exceedingly hard to put a finger on significant architectural developments that are specifically post-war. The revival of building activity, hampered by an administrative straitjacket in most European countries, has too often failed even to continue the standards of the 'thirties; while in America the picture of current production which the exhibition and the book 'Built in U.S.A.' revealed this winter was one of realization of ideals already familiar—most of them since the 'twenties—rather than of new beginnings. It is true that Wright in his laboratory tower built for the Johnson Wax Company in Racine, Wisconsin; Aalto in his Senior House for the Massachusetts Institute of Technology in Cambridge, Massachusetts; and above all, Le Corbusier in his Unité d'Habitation in Marseilles have revealed further potentialities of their well-known talents. But the fact that these men have always been among the principal innovators in twentieth century architecture and that, in their best work, they can come close to rivalling the great buildings of earlier periods is surely no news. Perhaps more characteristic of the work of the last eight years are the Graduate Center at Harvard University and the Lake Shore Drive Apartments in Chicago where Gropius and Mies, working respectively with their various associates, seem to have realized in the mid-century major projects they might well have designed a generation ago. Even that is too generous an assessment of the achievement of post-war architects in general. In Italy to-day no one seems able to reach the mid-'thirties standard of Terragni; in Holland an acute stylistic recession almost to the half-modern modes of 1910, initiated well before the War, combined with a tight economic situation and unusually great building needs, have drastically lowered the level of quality in current production.

There have been times in the last hundred years when it was a challenge and an excitement to come of age in the world of architecture. Undoubtedly this was true in the 1850's as also in the 1890's, the harvest of whose bright new talents has even yet not been entirely reaped. In the 1930's a whole generation sprang up to follow in the paths just opened by a

few international leaders and soon found themselves building bigger, if not better, than their masters. But the 1940's were certainly grim years to start out in architecture. War for seven years cut into the normal patterns of education and apprenticeship and, furthermore, stopped all possibility of early private practice. The post-war world has needed rebuilding on a tremendous scale; but its economic plight has forced a narrow canalization of building energies and also restricted various possibilities of technical advance that are clear to every thinking architect, yet still tantalizingly out of practical reach. Established standards of design have remained rather doctrinaire, moreover. In some countries, and notably in England, the realization of those standards in executed buildings before the War had been so limited that no considerable body of mellowed work was available either to form the taste of the young or to lead them to significant revolt.

But there have been compensations. Authorities have rarely been less hidebound; architects who had barely passed the stage of being juvenile rebels before the War were called to occupy in early middle age positions of great responsibility in the architectural bureaucracy. The gamble for younger architects has been a tremendous one. With practically no possibility of private building, with small construction of any sort reduced nearly to zero, architects no longer so very young by the time they were back from the War, but totally inexperienced in actual building, could begin practice only at the top, with large-scale public commissions. The characteristic pattern of the early years of practice had long been one of projecting vast public schemes on paper while making a slow start with the building of private houses; now only large public schemes were reaching the building stage at all. To jump from the remodelling of a few shops to administering the total building programme of a vast undeveloped colony has not been unknown for younger British architects in the last few years. But the greatest opportunities, perhaps, and certainly the greatest gamble, lay in entering the competitions for major public construction in Britain itself; with the probable politico-economic pattern of the next thirty years the winners could hope, by one fortunate stroke, to find themselves commissioned for the rest of their productive lives.

The Pimlico competition of 1946 is, of course, the particular case in point. But since the situation that first brought the architects Powell and Moya into Pimlico lies now well in the past the promise of Pimlico must be considered in quite other terms to-day. The Pimlico development, extending along the river between Grosvenor Road and Lyman Street from Dolphin Square, that gargantuan example of pre-war housing under private sponsorship, almost to Victoria Bridge, will upon its completion be one of the largest urban areas rebuilt according to the plans of a single firm of architects. It occupies, moreover, a site with intrinsic advantages and one which, without being very central, is none the less not inconspicuous. Not every foreign visitor entering London may notice the Pimlico blocks, but even with only about a third of the total site built up they are readily visible from trains approaching either Victoria or Waterloo. If one can hardly appreciate what they are nor certainly understand their virtues in a quick and distant view, they have the same notable advantage as such major contemporary buildings in America as Mies's Lake Shore Drive Apartments in Chicago or Skidmore, Owings and Merrill's Lever House in New York, the advantage of being buildings everyone sees. Already they provide a landmark vying with any the twentieth century has yet provided in London.

That the Pimlico housing blocks are necessarily a landmark poses one of the major problems the architects faced: Can low-cost public housing achieve, within a rigid frame of sociological purpose and economic stringency, the qualities of an architectural monument? Granting that much public housing dominates its neighbourhood by bulk alone, can it also (and without sacrifice of basic twentieth century ideals for architecture) dominate by qualities of design in the way the significant monuments of the past have done? If the Pimlico housing scheme is to raise its tall blocks above the unaccented plain of surrounding Victorian housetops will they deserve their prominence more than the undistinguished Gothic spires of Cundy's Victorian churches which were the only previous accents on the local skyline? That is, perhaps, too easy! In other developments in other areas, not alone in London but throughout the world, architects with similar problems will face stiffer competition from the immediate or the more remote past.

It is thus very relevant, as it would not necessarily be with all post-war housing, to discuss the Pimlico blocks in terms of monumentality. Although the twentieth century has been suspicious of the proposition and loth to explore its possibilities positively there can be monumentality in urbanism, in related groups of structures, as well as in single great buildings. Here in Pimlico the architects were necessarily concerned with the relation of the separate blocks to one another, the juxtaposition of blocks of different heights, the placing of the dominating accent provided by the accumulator tower of the heating plant, and the incorporation of existing structures of special function such as churches. The ultimate inclusion of community facilities of various sorts from schools to pubs, moreover, not to speak of the general handling of the total complex in relation to the modest Victorian terraces at its rear and the broad embankment and the river view along its front are of the essence of the architect's problem. Willy-nilly, they had to be planners before they were designers of individual structures; and since their plans will take years to execute, those plans have to be subject to many minor (and perhaps some major) changes without loss of their vital core of visual meaning. As with the new towns, it is too early to discuss the ultimate urbanistic result in terms of the small proportion of the total scheme thus far executed. But it is not irrelevant and, with all due modesty, may not be without some value even to the architects themselves as they continue with their great project to consider here what has been accomplished and what may be accomplished.

The early squares and terraces of seventeenth and eighteenth century England were properly considered as group monuments by contemporaries,

but the real achievement of Late Georgian and Early Victorian times was the realization of whole cities (or at least of very large tracts in cities) in a similar spirit—Bath, or the New Town in Edinburgh, Brighton, or Belgravia and this contiguous Pimlico itself as first built up about a century ago. As larger and larger areas of the traditional terrace-housing of London, from the two-storey cots of the East End to the stuccoed cliffs of Paddington and South Kensington, are replaced by new housing what is the urban texture of the twentieth century to be? The various permanent structures built in Lansbury in connection with the Festival of Britain were intended to provide some answer to this, or at least to offer a relevant experimental development at fairly large scale. They were to illustrate the bread-and-butter of later twentieth century British building as the exposition structures on the South Bank were to show British capacity for more intense æsthetic expression, both in the buildings themselves and in their complex relationship to one another.

Lansbury is there to stay, and it is not merely nostalgia—since enough of the previous character of the district remains intact for direct comparison—to say that whatever the improvement in physical amenities (and that improvement is very great) the urban texture of the Victorian and Edwardian East End was considerably superior to that achieved in the Lansbury replacement. The tiny terraces may have been grimy and almost gardenless but they were dignified not coy; the schools and churches may have been pretentious, but they did offer some valid contrast to the severity of the regular domestic streets; the shops and pubs fitted into their environment with the right degree of differentiation from their domestic neighbours and were regimented not by fiat but by custom.

Those who re-plan and rebuild cities are in many ways at the mercy of what can be salvaged on the site. Neither at Lansbury nor at Pimlico are there the extensive gardens and magnificent old trees which Lasdun and Drake's Paddington development inherits from an upper-class Victorian district. It will be some time at Pimlico before trees of a size large enough to hold their own in front of such tall blocks can be grown. Attractive as are the one or two already mature trees present in the executed portion of the Pimlico scheme, it may be that the development should continue to be primarily an organization of buildings unmasked and unsoftened by foliage. Italian squares require no greenery to be habitable despite the southern sun; and the squares of London undoubtedly lost much of their monumental character when the Victorians allowed them to grow up as jungles of trees and shrubs. Certainly where planting must start from scratch it should be planned with restraint and with architectonic discipline: not as an antidote to the rigidity of the buildings but as a complement and an enhancement to the geometrical organization of space which the blocks themselves provide.

The texture of the new towns, or at least of their diffuse residential areas, will clearly continue suburban, not urban, somewhat in the Howard tradition. The texture of London as rebuilt can afford to remain urban, except in outlying areas where lower densities than those planned for Pimlico can be economically justified. The project is not far enough along for us to see just how structures serving specialized functions, whether existing churches or new community facilities, will ultimately be incorporated in the scheme. But certainly the rather un-English placing of the row of shops in the ground storey of De Quincey House facing the Lupus Street thoroughfare is more intelligent and more agreeable than the self-consciously villagy shopping centre at Lansbury on the one hand, or the curious internal street of shops halfway up the height of the Unité at Marseilles on the other. Latin—in fact ancient Roman—in origin, this placing of the shops at Pimlico has something of the happy integration of the domestic and the commercial that exists in all old cities. That integration has too often been lost, out of some sort of snobbish queasiness, in domestic developments planned in modern times.

The bold projection of the concrete frame above the shops subordinates them to the design of the block as a whole and yet allows for variety in the handling of the separate shop-façades. That is not only a proper prerogative of the individual shopkeeper but most desirable visually as a contrast to the necessarily regimented expression of the maisonettes above.

At the other end of the tract which has now been built up the accumulator, with its glass shell revealing the metal structure within, provides an admirable major accent. In the present state of the project one may perhaps question the placing of this accent, but the siting will probably appear more logical and less accidental as the development is extended to the west. The little workshop at the base, if not quite a Miesian diamond, is yet the finest bit of American paste in Britain. Its carefully proportioned design and its industrial scale contrast effectively with the clifflike brick walls of the nearby housing blocks.

One of the special charms of Victorian Pimlico is the use of strong colours on the conventional Belgravian porches against the characteristic dark grey of the stuccoed walls. Already one can see that in the new urban texture that Powell and Moya are providing in Pimlico colour will be a similarly positive feature. Not only in the major contract between the buff brick walls of the tall blocks, broken by strong colour at the back of the recessed terraces, with the light rendering of the lower blocks and with the articulated and polychromed walls of De Quincey House closing the vista to the north, but more especially in the handling of colour on that last block itself Powell and Moya seem to have come closer to solving the problem of the proper use of colour in London than any other architects concerned with housing. They properly use both natural materials which will gradually tone and mellow and also materials which require—or at least may suitably carry—renewable coats of paint. No purists, they have not hesitated to paint the visible concrete frame of De Quincey House, thus domesticating or at least de-industrializing it.

Like Le Corbusier at Marseilles, they have kept strong colour off the outer surfaces. But their choice of colours is bold and masculine, related to the tradition of Ben Nicholson; the rich leaf green, the

cool, slightly dirty, yellow, and the dark madder red, combined with positive white and positive black, compose well within the tonal frame provided by the grey-painted structural skeleton. This is a pleasant change from the prissy—if ultimately early Corbusian—creams and blues and pinks popular in Britain in the 1930's and still used in much post-war housing work. The fact that Moya makes colour studies in oil, not in watercolour, and presents his exteriors in atmosphere-drenched perspective renderings may have something to do with the positive success of the paintwork at De Quincey House. As with all applied colour only time can tell how it will stand up, and repainting will probably lose the perfect adjustment of the original effect; yet the relation of the painted areas to the natural materials and the real vitality of the basic colour chords should survive even rather slipshod colour-matching.

Not all cities depend on colour in their architecture, and some might query its importance in London whose climate and atmosphere tend to reduce everything to the same dark greyish tone. But the characteristic urban texture of London does include painted colour and the measure of proper maintenance, physical as well as visual, has from the eighteenth century on been the frequent renewal of paintwork. Unpainted neutral brick, with painted trim of cement or wood, seems to have the best visual survival value; the various ventures of the last hundred years into more boldly coloured bricks or glazed terra-cotta do not inspire much confidence.

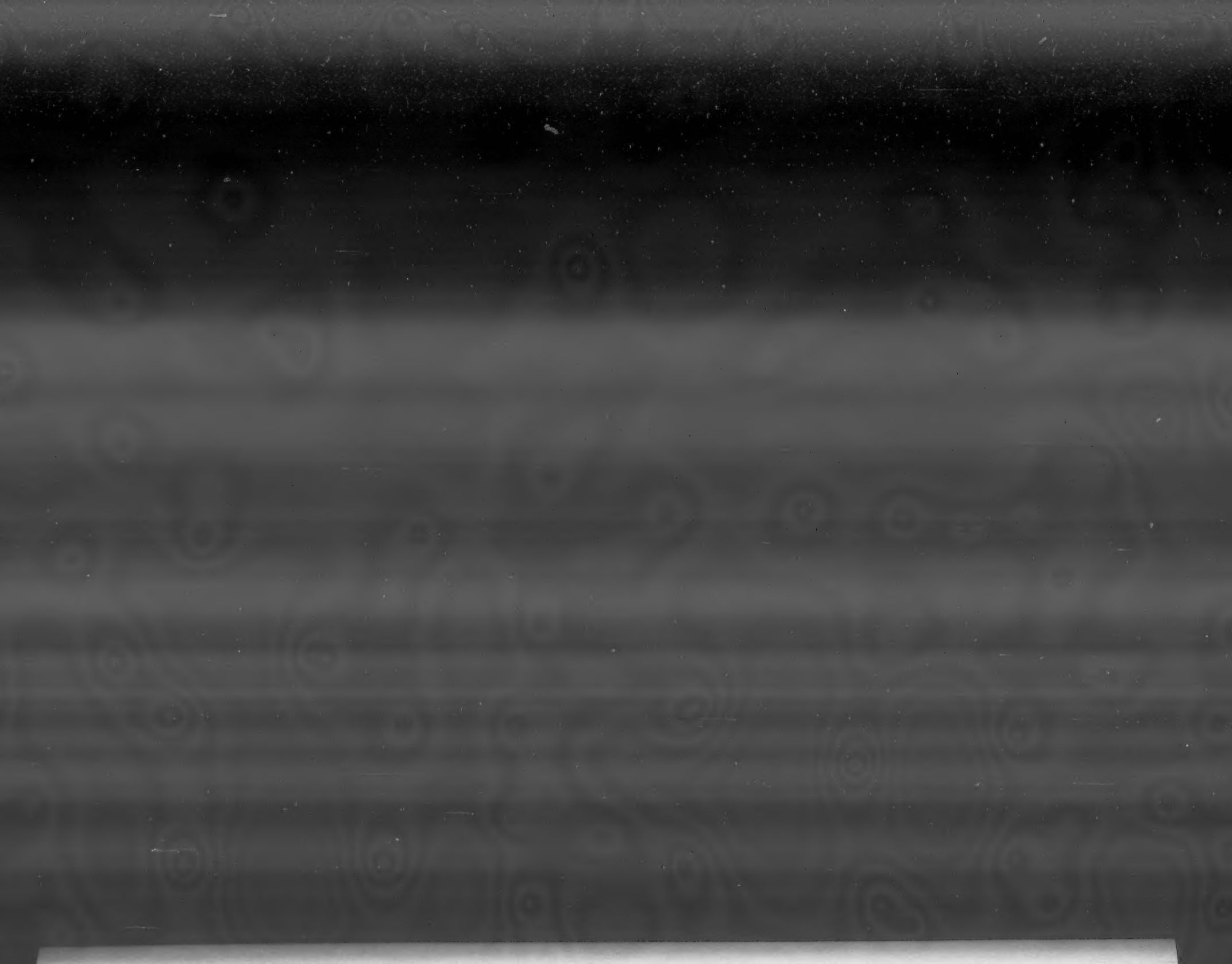
To come so early to colour in discussing the urban texture of the Pimlico scheme may seem to put finish ahead of larger-scale matters. But it is in the handling of colour, I believe, that the later Pimlico work best illustrates the architects' ability to grow up from being talented juniors working in an agreed vocabulary—the International Style, if one wants to call it so—to mature architects with their own quite personal command of design. The low blocks between the tall early ones to the south and De Quincey House to the north, even though the plan and section of the maisonettes of De Quincey House were first worked out in them, are notably less personal in character—they seem Corbusian and not very contemporary Corbusian at that. But they do have an important part to play in the total composition of those portions of the site that have so far been built up; if they do not play that part very brilliantly, still they offer an experiment in the relating of low blocks to tall ones which will probably produce distinguished results as later portions of the scheme are carried into execution.

The intended general layout of the whole site will doubtless be subject to some revisions. In any event it is difficult to tell how the various groupings will work out visually from a plan or even from a model. It is worth noting, however, that even the existing groups of blocks will probably 'read' rather differently when the contiguous areas to the east and west are built up. Not much extension to the east is possible because of the proximity of Dolphin Square; yet the erection of a third block at Claverton Street, parallel to the two first-built running back from the river, will presumably cancel the tendency to envision a non-existent axis running back between the present two tall blocks. To-day the central open space within the area so far built up seems much too directional north and south. But the continuation of De Quincey House westward, walling in more of the site on the north, and the development of a median east and west roadway extending all the way from Claverton Street to the further end of the area should shift the visual orientation 90 degrees. The three tall blocks toward the river will form a range related to the line of the river; the low blocks south of De Quincey House and its extension—the new ones being more broadly spaced than those already executed but equal in length—will allow a more formal and less arbitrarily broken view of the northern barrier which is so interestingly articulated by the window and balcony patterns of the tiered maisonettes. In the arrangement of the existing low blocks the cross block which is four units long (No. 14) appears rather petty and inconsequential; while the six-unit block north of this and at right angles to it (No. 9) blocks what might be expected to be an axial view of De Quincey House.

But the architects, even within the relatively small portion of the scheme so far completed, have clearly come to grips with the major problem of twentieth century group planning: how to be formally architectonic without falling back on the devices of axial symmetry and subordinate cross-axes that have generally been used in the past to organize any considerable number of large related structures. The ultimate success or failure of the Pimlico development as architectonic urbanism remains uncertain. But the architects are learning from what they have already executed and in the total scheme there should be considerable areas which work out better visually than that already covered.

The height of the low blocks of maisonettes—four storeys—seems right in relation to the early clifflike blocks; and the contrast of their light rendering with the more neutral and textural walls behind, broken by almost industrially designed stair towers, is effective and expressive. These same maisonette blocks, however, if considered as two maisonettes tall, seem too nearly identical in height with De Quincey House behind them which has but three tiers of maisonettes above the ground storey; and their surface treatment seems at once rather crude and rather papery compared to the complex and subtle articulation of surface that expresses the same plans and sections in that latest block.

The tall early blocks, organized in flats rather than in maisonettes, are a striking example of the unification of tall building design by minimizing the expression of the horizontal layers of the section and accenting the continuity of such features as stair and lift towers which rise the full height. This, in essence, is one of the established methods of skyscraper design and if the urban scene is to contain large edifices of ten or more storeys at all the resultant inhuman or superhuman scale is impossible to avoid. In such a treatment structure necessarily recedes behind a more or less continuous skin and windows remain holes-in-the-wall, however neatly they may be organized. Structural expression and visual drama, if present at



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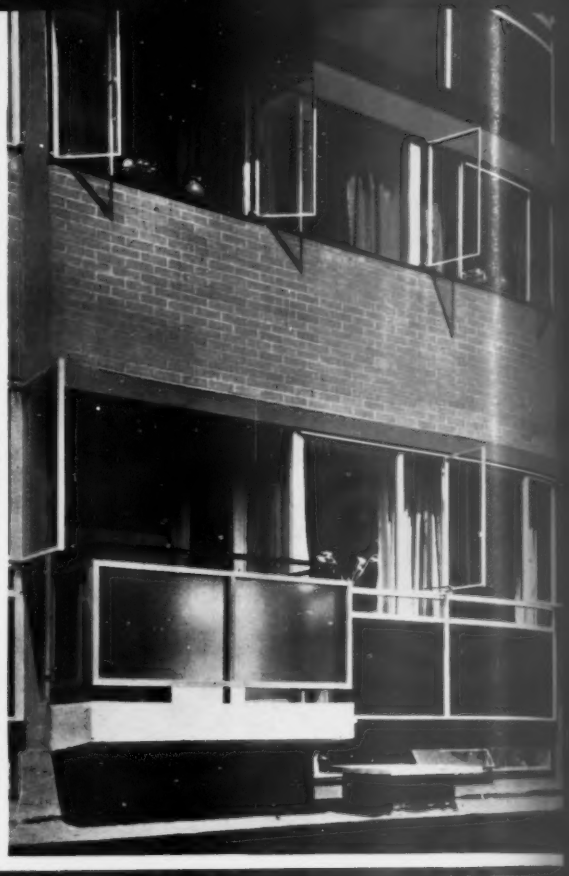
2, the Lupus Street facade of De Quincey House from the south-west and, 3 and 4, from north-east. Seen in the perspective of the street the scale of the new block is still related to the Victorian houses that flank and face it. Yet, because of the relatively great size of the block, its solid ends, and the unifying effect of the visible concrete skeleton there is a monumental quality of scale as well.



all, must be concentrated at top and bottom and in the vertical elements if those reach the surface of the building or project beyond it, as do the communication towers here.

One of the major problems of expression—in this case humane expression rather than monumental expression—of the modern period has been how to give to edifices which are not made up of identical rooms but of microcosmic dwellings, flats or maisonettes, within the macrocosmic block an organization of the façade which could be clearly 'read.' In England before the war, Tecton at High Point II, while retaining for the two end sections the curtain wall with windows cut into it of the earlier High Point I, experimented with a double-storey treatment articulated by a projecting concrete skeleton with the resultant panels partly filled by windows and partly by dark coloured brickwork. A public-building sort of monumentality, dramatized by the contrast between the smooth end-sections and the articulated middle third, made difficult the reading of even the central section of the front in terms of its tiers of dwellings.

In the housing blocks originally designed by Tecton just before the war, but modified after the war before execution in Finsbury and Pentonville, the attempt to give an articulated pattern to the walls of tall blocks of single-storey flats tended toward a rather arbitrary patterning of solids and voids of an order some have castigated as Mannerist. Against this direction of the previous decade Powell and Moya at first set their faces quite firmly, returning to a severe and clifflike expression for their earliest tall blocks at the expense of losing human scale and variety of surface interest. Later they shifted to tiered maisonettes, a type of residential unit which had hitherto been little used in low-cost public housing despite its presumptive appeal to those whose absolute ideal is probably a small house of their own standing on the ground. For a time the architects' expression grew rather papery, recalling Le Corbusier's executed and projected housing schemes of the 1920's. Whether or not the further shift to the articulated façades of De Quincey House owes anything to Le Corbusier I do not know. Certainly Powell and Moya know and admire his Unité d'Habitation, whose general character has been familiar for some five or six years now even though it has only just been finished. But the treatment they worked out for De Quincey House is certainly not imitative of the Marseilles block; if it calls to mind any non-English work and any older architect it would be Italy and Terragni.

On the low blocks the access galleries seem to cut the façades apart horizontally since there is no visible continuity in the structural elements, which disappear behind the rendered upper storeys of the maisonettes. On the Lupus Street façade of De Quincey House, however, the light concrete skeleton, so much more straightforward than Le Corbusier's, rises above the recessed shops all the way to the top of the block almost as if it were of metal. The upper storeys of the maisonettes, divided into equal bands of light brick and continuous windows, alternate with the recessed lower-storey façades. In the latter a variety of elements receive individual emphasis and yet are unified by being set at the rear of the galleries. Neutral tones on the frontal wall plane, strong colours and black and white in the shadow, balance one another within the identical panels of the visible concrete structure.

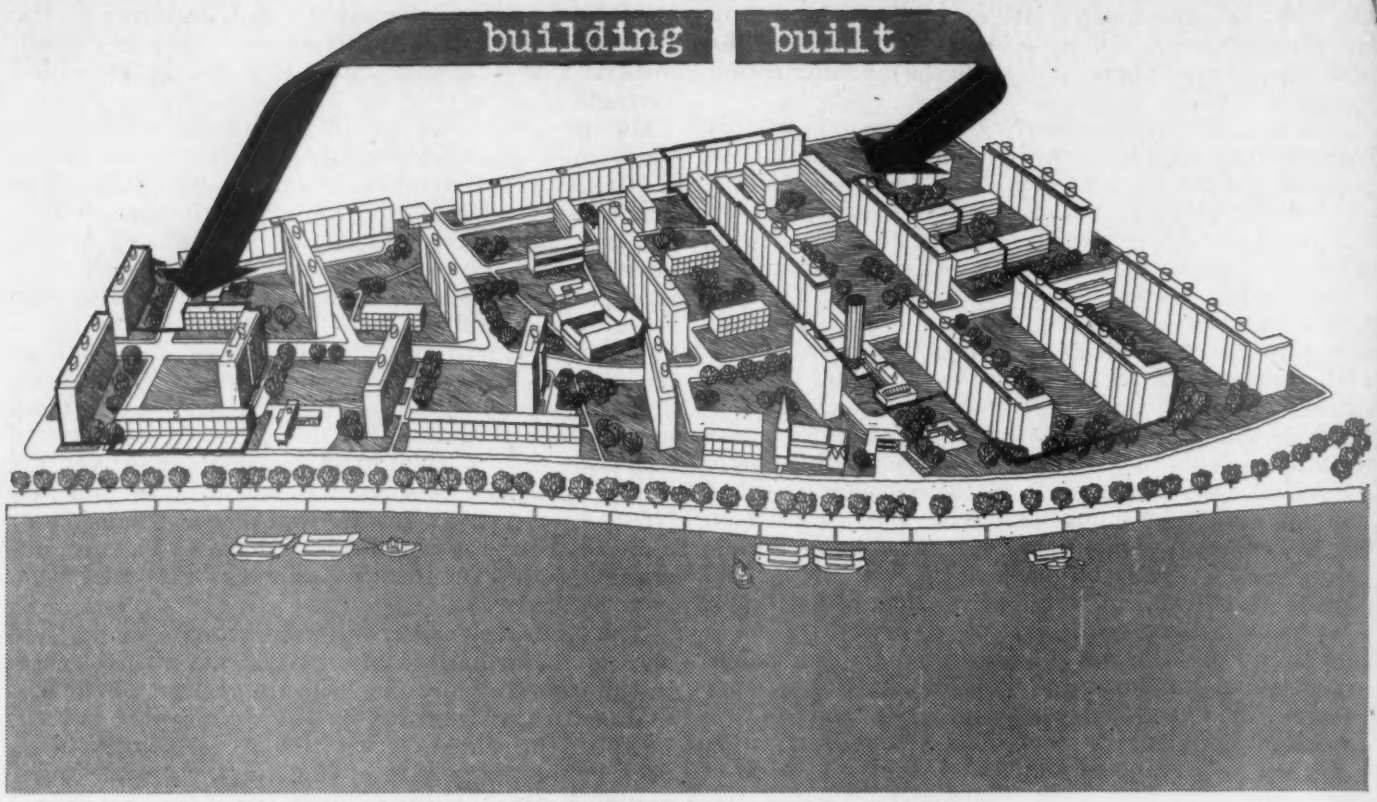
The vertical elements of the stair towers are recessed and the major horizontals of the structure cross them in the frontal plane. Thus the long ranges of thirteen maisonettes are phrased by the stair towers but the unity of the whole composition is not compromised. Seen in the perspective of the street, the scale is still related to the Victorian houses that flank and face it; yet because of the relatively great size of the block, its solid ends and the unifying effect of the visible concrete skeleton there is a monumental quality of scale as well. This is a proper expression of public authority as opposed to the private agencies that built up Victorian Pimlico. Even the inhabitants may feel that they are allowed, by the symbol of having an outside front door of their own and an interior stair, to inhabit the equivalent of an individual house and yet also to share in the larger entity of the block whose over-all scale is appropriate to them as a social group.

The shops have already been mentioned. Subsumed under the cantilevered beam whose shallow 'arches' define them as individual units, they can be allowed considerable diversity of character since the projecting structure above subordinates them visually to the block as a whole. With the shops, as with the Lupus Street façade in general, one can chiefly question whether the composition can be extended, with no other break than two more stair towers, through the length of sixteen more tiered maisonettes without losing scale and becoming factory-like. The critic must hesitate to make positive suggestions, but he would at least like to ask whether some deeper recession, some absolute break in the continuity of the outside skeleton, might not be desirable at the point where the next block will join on to De Quincey House on the west. The same problem will not arise on the south where the lower blocks at right angles will break the length of the longer block and where the omission of the frontal skeleton across the stair towers has already tended to divide the block into three sections.

In general the south façade is more subtle in its treatment than that towards Lupus Street. The drama of the shop fronts is lacking and the fences of the

5 | 6
7

5, in the distance, the rear elevation of De Quincey House. On the right is one of the blocks of 4-storey flats and on the left the staircases of one of the 9-storey blocks illustrated in the REVIEW (February 1951). 6, detail of the south façade of De Quincey House, and, 7, a courtyard garden between two blocks of 4-storey flats that are sited at right angles to De Quincey House. Colour has been used traditionally in Pimlico; for example, the painted Belgravian porches set against a muted backdrop of stucco and London stocks and here the architects have followed this lead. Recessed balcony walls are dark red and the lower panels of balcony doors bright yellow; aprons to windows beside balconies are rough cast glass in front of black painted masonry, the whole set in a framework of yellow brick with grey-painted skeleton. The 4-storey blocks in contrast are rendered grey-green with recessed balcony walls dark red.



Parts of the scheme already built or under construction are marked: the remainder is to be completed at a later date.

shop yards, although admirably detailed, confuse a little the relationship of the block to the ground. The concrete skeleton which organizes the pattern of the walls seems to get lost as it approaches the ground; it appears neither to pass behind the rear façades of the shops, as in fact it must do, nor yet to be echoed in the external treatment of the rear shop walls. Above this level, however, the wall pattern is really exemplary once one allows for the syncopation which seems to join each living floor not with its own bedroom floor but with the one below. This syncopation serves to unify the façade and reduce somewhat the emphasis on the individual maisonettes. The small projecting balconies, moreover, are much less drastically individual elements than the brightly painted front doors on the other side. The bolder balconies on the rear of the lower blocks of maisonettes are boxy and have a tenuously unreal look, enhancing the fragility of the whole expression. But the balconies on De Quincey House, partly projecting and partly sunk into the façade, are amazingly successful in giving spatial as well as structural articulation to what are otherwise quite flat walls; for the concrete skeleton is here differentiated from the infilling of pale brick or various sorts of glass, transparent, translucent and opaque, by no projection but merely by material and colour. Indeed, the colour effect on this side, more restrained than toward Lupus Street, is singularly happy, with the strongest note of yellow muted not only by recession but by being seen only through the glass parapet of the balconies.

The promise of Pimlico is a multiple one and in the nature of history it may well be that not all its aspects will be fully realized. Surest is the achievement by Powell and Moya of a scale and a plasticity of effect in De Quincey House which is at once humane and urban. Less sure is it that the promise implicit in the happy treatment of this medium-tall block of maisonettes can be extended to include other types of urban housing; less sure still that the bold attempt to achieve urbanistic order without recourse to traditional means, such as axial symmetry, will succeed. But what has already been accomplished is most encouraging, as is the evidence that the command by the architects of their problem has continually increased during the seven years they have been at work.

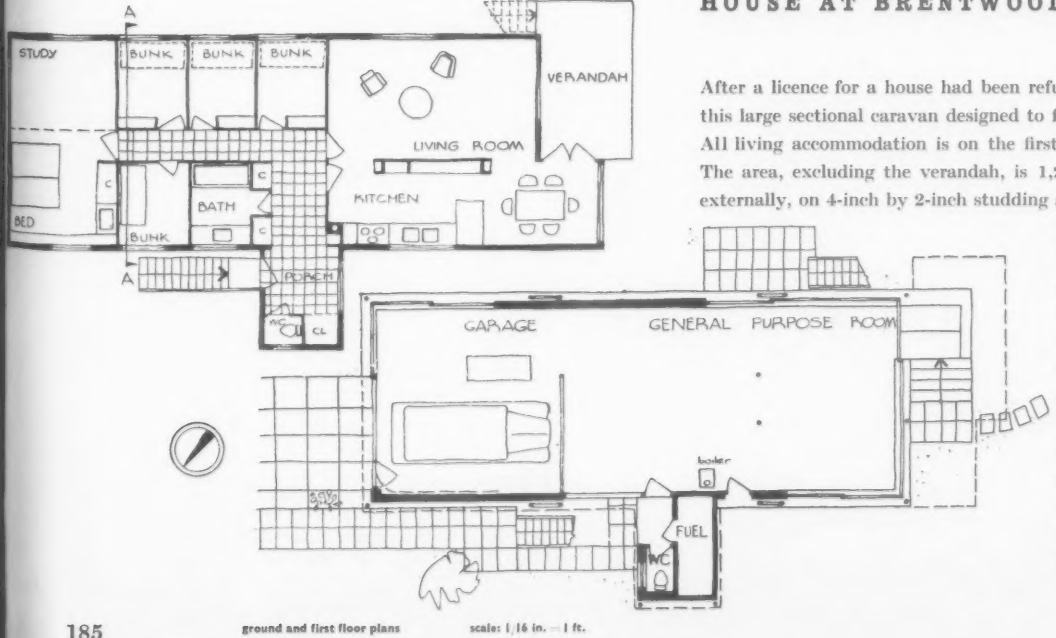
STUD

BED

current architecture

recent buildings of interest briefly illustrated.

1, *view from the west.*



ground and first floor plans scale: 1/16 in. = 1 ft.

HOUSE AT BRENTWOOD, ESSEX

ARCHITECT: DAVID JENKIN

After a licence for a house had been refused, the client received permission to erect this large sectional caravan designed to form, ultimately, the upper floor of a house. All living accommodation is on the first floor, approached by an outside staircase. The area, excluding the verandah, is 1,270 square feet. Walls are weatherboarded externally, on 4-inch by 2-inch studding at 16-inch centres, with an internal lining of ⅛-inch hardboard, internal partitions of hardboard on 2-inch studding, the whole carried on a steel frame. The roof is carried on 5-inch by 1½-inch joists at 16-inch centres. Weatherboarding is treated externally with boiled linseed oil and is backed by bituminous felt and 1-inch bitumen bonded glass wool between the studs. The floor is finished with ¾-inch thick wood composition nailed through a 1-inch glass wool blanket to 5-inch by 1½-inch joists. The ceiling is of ⅛-inch hardboard with 4 inches of glass wool between joists.

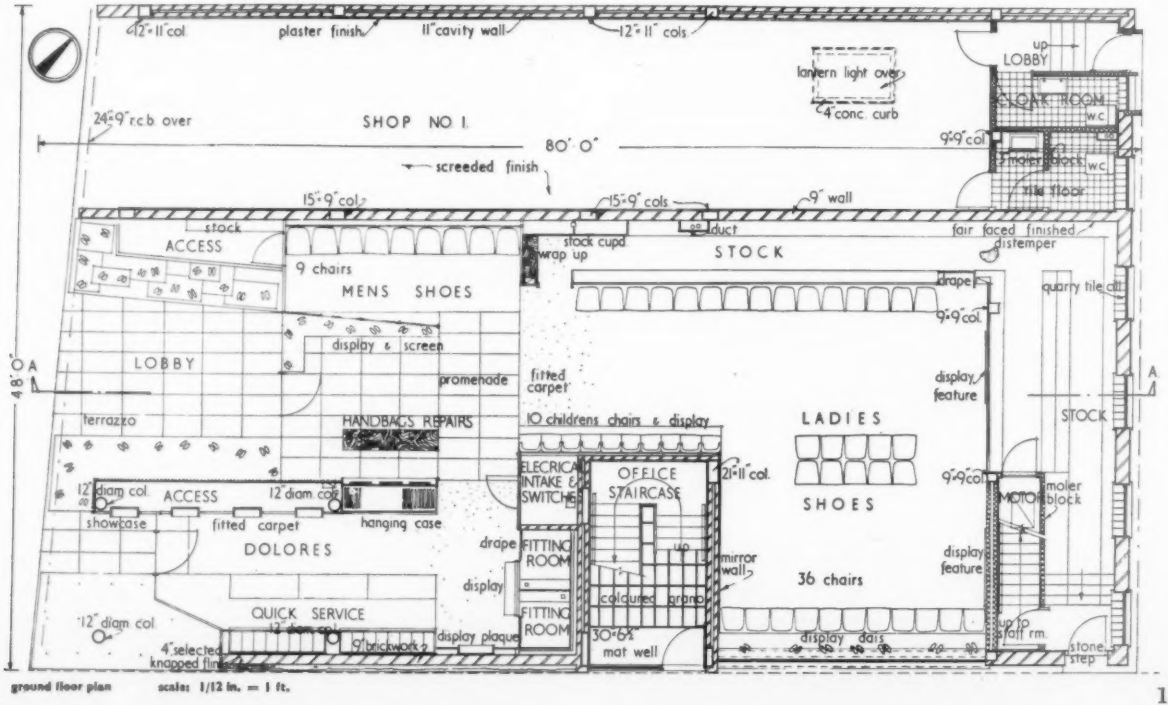
2, *view from the south across St. George's Street.*

SHOP AT CANTERBURY, KENT

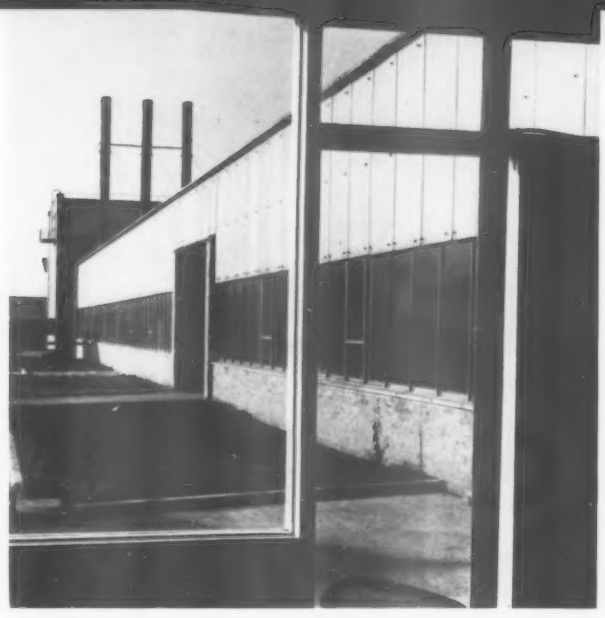
ARCHITECT: ELLIS SOMAKE

The store, which is 80 feet deep, is entered through a deep lobby from St. George's Street. The offices and staff accommodation on the upper floors are reached by a separate entrance, facing a side road.

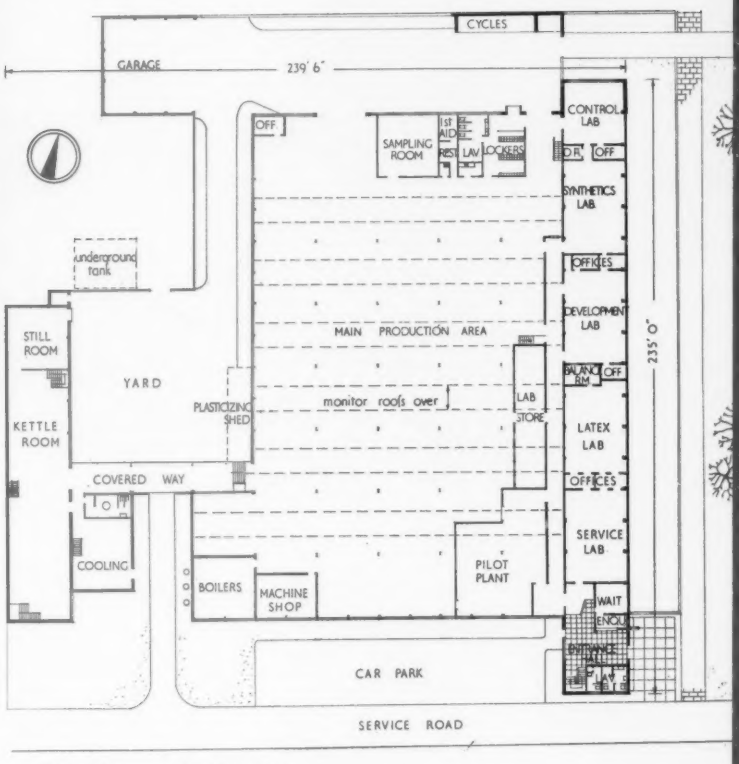
The frame is of reinforced concrete with 11-inch cavity panel walls. On the south-east elevation there is a screen wall of knapped flint at ground floor level, echoing the colour and texture of the tower of St. George's Church, 100 yards away. The south-west elevation is faced with 2¾-inch High Broom bricks, in keeping with brick elevations approved in the case of other buildings in the street. On the south-east elevation the main facing material is ribbed Mount Sorrel granite precast stone panels. The staff rooms at mezzanine level, to the rear of the building, are faced with panels of deep red tyrolean finish. The insignia of the company is incorporated as part of the design on the front and rear elevations in place of the more usual fascia panel. The shop front has show windows framed in light drawn bronze sections in contrast to the building mass above.



ground floor plan scale: 1/12 in. = 1 ft.



3, *the south wall of the main production area seen from the office block entrance hall.*



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

FACTORY AT HARLOW NEW TOWN

Frederick Gibberd: Architect Planner

Victor Hamnett: Executive Architect

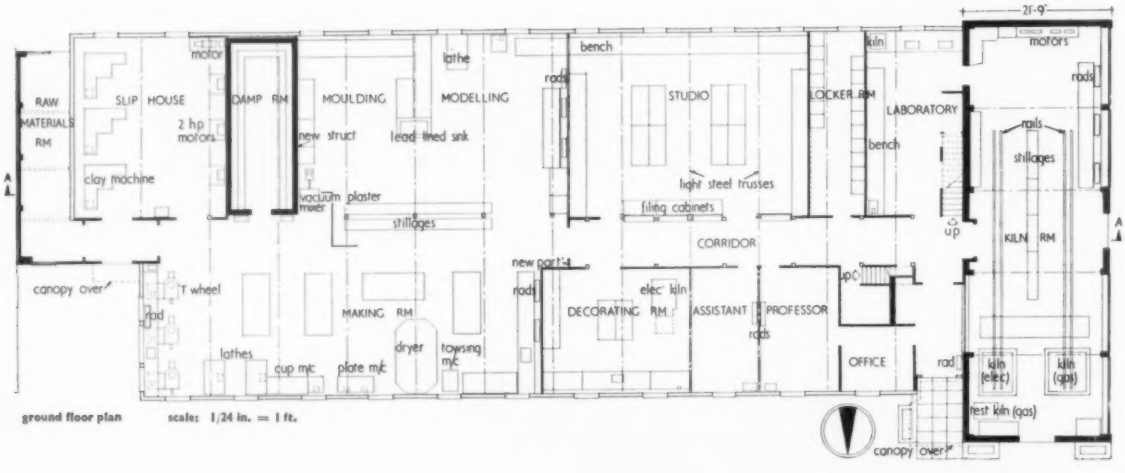
Two quite separate types of production had to be accommodated; the manufacture of synthetic resins and the compounding of rubber latex. The raw materials used in the former process are highly inflammable, and it was desirable that the 'kettles' in which this process is carried out should be in a separate building.

All three blocks are steel-framed; the two-storey block has brick panel walls and precast concrete floor and roof; the main factory building has cavity walls of brick and clay blocks to sill height, vertical patent glazing and above this asbestos cement sheeting; the 'kettle' room has north and south walls of brick and flanking walls of patent glazing and asbestos cement sheeting. All facing bricks are London stocks.

4, *the administrative block from the south-east.*

5

5, the new wing looking north-east. 6, below, an interior view showing the glazed wall to the first floor studio.



SCHOOL OF CERAMICS, ROYAL COLLEGE OF ART, LONDON

ARCHITECT: BASIL WARD OF RAMSEY, MURRAY AND WHITE

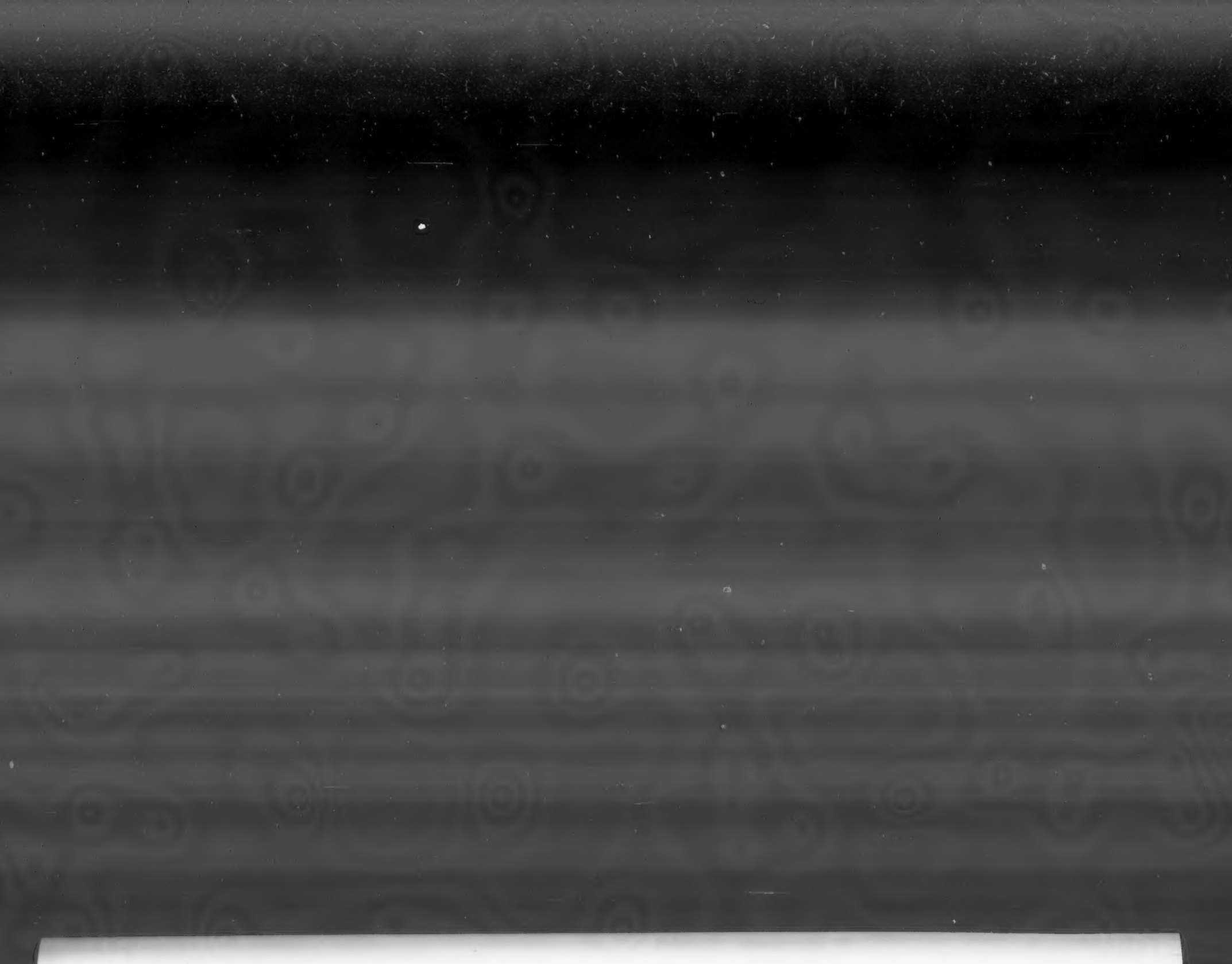
In the autumn of 1951, the post-war College reshuffle and expansion of accommodation reached a point where the old Students' Common Room in Queen's Gate was vacated and its facilities transferred to No. 21 Cromwell Road. The opportunity was taken of converting the old Common Room to meet the present needs of the recently established School of Ceramics, the old Ceramics building becoming an annexe to it.

Financial economy dictated the retention of the existing (1914-18) hut-type structure which is timber framed. This decision was made in spite of the subsidence of a proportion of the foundations which were on made-up ground. The new scheme involved underpinning of the major portion of one side of the hut, the jacking back of the old building to true levels and the addition at the Queen's Gate

6

end of a new Kiln Room in fire-resisting materials. At the same time a reinforced concrete frame was built down the centre of part of the building in order to strengthen the old structure.

The underpinning and jacking proved a fairly simple matter and car-jacks were used. The new Kiln Room fronting the main road has a reinforced concrete frame and roof with brick panel infilling.



BOOKS

BOWLAHOOLA

THE HISTORY OF BIRMINGHAM. *By Conrad Gill and Asa Briggs. Oxford University Press. 2 volumes.* 63*s.*

FIFTY YEARS ON—BIRMINGHAM IN 2002. *By Paul Cadbury. Bournville Village Trust.* 10*s.* 6*d.*

It is difficult to love Birmingham except out of ignorance. Among the great industrial cities it is perhaps the most unlovable. Yet to reject Birmingham and its problems as insoluble is to write off a major part of our inheritance. On this enormous manufacturing centre much of our past wealth has depended, and much of our future survival may yet depend. Built upon crude economic premises, it can still serve harsh economic needs. In Blake's prophetic geography, these centres with their barbarous-sounding names—Golgonooza, Bowlahoola, Allamanda—are necessary to the ultimate scheme of things. Necessary, but terrifying:

> In Bowlahoola Los's Anvils stand and his Furnaces rage;
> Thundering the Hammers beat and the Bellows blow loud,
> Living, self moving, mourning, lamenting and howling incessantly . . .
> Bowlahoola is the Stomach in every individual man.

If we cannot easily love Bowlahoola we can at least try to understand it, and here the historian can help by explaining its present form through its past inhabitants and institutions. Such an assessment of past and future is greatly helped by these two books.

History shows that Birmingham has been commercially minded for more than three hundred years and that its manufacturers have always depended on exports and quick returns. Æsthetics have been sacrificed, or ignored, in the active pursuit of business. The ancient Lords de Birmingham sold their feudal rights to finance a local market. By 1529 the moat of their Manor Place was 'sore over growen wt Wede and full of Mudde and other Robussh and the moste parte of the Manor Place fallen down,' while industry, especially tanning, had grown up all around. By the mid-eighteenth century, the Manor Place was actually a thread-mill, supplied with water power from the moat.

The transformation was symbolically apt. The workhouse, the prison and the two market crosses were at this period 'the whole array of public buildings in the town' and its public services were 'very ill performed' in relation to the needs of a population of twenty to thirty thousand. A hundred years later, in 1850, Birmingham Councillors still believed 'that the removal of refuse in a town of over 200,000 inhabitants ought to be left to voluntary effort.'

To understand Birmingham in all its hideousness and inconvenience (producing, one would imagine, more wealth per head of its million inhabitants than any other city in Britain), one must remember firstly the rapidity of its growth and secondly its curiously alternating civic enterprise and inertia. One might say that in its boom periods Birmingham never quite made good the damage of the past and that attempts to improve the place have been swallowed up by the chaotic forces of its economic history. Pigott Smith, for example, Surveyor to the Street Commissioners who preceded the Town Council, seems to have been a far sighted and intelligent man whose plans for preserving or improving urban amenities were generally turned down—for instance when he proposed to lay out a part of the town in squares, with gardens, like those in Bloomsbury. Yet in 1857 he was dismissed by the Council for his excess of zeal, his assistant being appointed to succeed him at a salary of £300 a year. (They had been paying Pigott Smith £600.)

But the very next decade, seen in historical perspective, proves to have been 'a watershed, dividing the era of *laissez-faire* from the age of collective action for social welfare.'

It was the Chamberlain era and in it 'Religion provided the inspiration, and business sense the practical driving force, of the civic transformation.' To us now it seems that the social insight behind this transformation was never deep enough, and that æsthetic judgment was almost wholly lacking. Technical achievements like the bringing of Birmingham's water supply from the Elan Valley in North Wales, 73 miles away, are its best monuments. Less impressive now seems the building of Corporation Street 'as broad as a Parisian boulevard' or of the University Clock Tower, known as 'Old Joe' and based on the tower of the town hall at Siena. The truth is that there was something about Siena and Paris which Chamberlain and the nonconformist reformers could never understand and which they were wrong to emulate.

As the Chamberlain impetus died away, the most significant new ideas were those of George Cadbury and J. S. Nettlefold in the field of housing and town planning. In the vision of these pioneers the spaces between the factories would be filled, in the words of W. H. Bidlake (writing in 1911) 'with garden villages and garden suburbs, where each house, quiet and homely in appearance, and standing in its own garden land, is grouped around the common green or borders the turf-edged and tree-planted road, the poor in association with the well-to-do, the employer and the worker, all inspired with a common aim, and that aim the maintenance of the beauty of their suburb.'

Edgbaston, leafy suburb of the well-to-do, Bournville, industrial garden village, and Sir Raymond Unwin's Weoley Castle municipal estate are each in their own way notable, though open to social and architectural criticism. But they are favourable examples of a type of residential development which has continued to swallow up land right up to the present time. Within five years it is expected that all land available for building in Birmingham will have been fully utilized. Yet the population will, on present trends, continue to grow, and the inner areas of the city, dating from the mid-nineteenth century, are in an advanced stage of obsolescence. Apart from relief that may come from projects to move some of Birmingham's industry, and the people employed in it, to neighbouring towns, there is only one solution possible. The inner areas themselves must be cleared and redeveloped.

As early as 1937, an area of 267 acres in Duddeston and Nechells was declared to be a redevelopment area and it was hoped to make a start there by 1940. The war prevented this, but in 1946 the Council made a Compulsory Purchase Order affecting a total of 1,888 acres, including Duddeston, and containing nearly thirty thousand dwellings, and great numbers of factories (mainly small ones), shops and other buildings. Most of this property is now vested in the Corporation which is therefore a slum landlord on a vast scale. Virtually every roof was leaking and water supply and sanitation were inadequate in quite half of the houses which the City took over. Though a number of them have now been reconditioned, those which have not fall down in every gale and squads of builders are standing by, day and night, for such emergencies.

In the Development Plan, it is envisaged that by 1971 the programme of redevelopment will have been completed. Instead of the thirty thousand obsolete dwellings, there will be some fifteen thousand new ones. As a fair proportion of these will be flats, including tall blocks, there will be considerably less congestion on the ground and a great alteration in the sky-line. Already one of the twelve-storey towers in Duddeston is nearly complete.

It should be remembered that this is not a blitzed area and that the drive for redevelopment began before the war. It would seem that in this respect Birmingham is well ahead, but what a long way there is still to go! Many of the City's problems can barely be touched in the twenty-year period of the Development Plan. The Centre may well become even more congested and inconvenient before it will be possible to start improving it. Eventually it is planned to drive tunnels through the hill on which the City Centre stands, and perhaps to build a new shopping complex above the site of New Street Station. These are heroic measures and they are not likely to be taken in the predictable future. Yet it is impossible to describe in moderate language the discomfort and humiliation of the existing centre, its one-way convolutions and its squalid approaches!

On its credit side, Birmingham has produced guild-free commerce, nests of nonconformity, the Lunar Society (though a Birmingham mob burnt down Joseph Priestley's house), Boulton and Watt's Soho, Baskerville, Bournville and the West Midland Group. After a period of radical liberalism, which for a time allied

itself with chartism, and later transmuted itself into Chamberlain's imperialism, the political future of the city seems to be set along the path of social reformism.

I like to think that gradually this enormous æsthetic desert will be irrigated by reviving cultural life. The Development Plan, and the projects for redevelopment, owe much to the labours of Herbert Manzoni, the City Surveyor. Within the last year, there has also been appointed, for the first time, a City Architect, R. Shephard Fidler. Their task is unenviable but they may, I believe, be helped in time by the good work of the City's School of Architecture in training architects to be scientists, artists and humanists. Perhaps the building of the Duddeston tower was, after all, the signal for another turning point in the redemption of Bowlahoola. **Charles Madge**

Shorter Notices

STRUCTURE IN BUILDING. *By W. Fisher Cassie and J. H. Napper. Architectural Press. 30s. net.*

If there were a Decathlon of knowledge surely it should logically be dominated by architects? This awesome feeling is the result of dipping into a book 'Structure in Building,' which describes itself, modestly, as an introduction to the study of structural design. Indeed, so it is, an introduction to subjects with the fundamentals of which an architect should be acquainted, but which were undreamt of in the profession twenty years ago. One of the best chapters is devoted to the behaviour of soils under load, discussed in terms of bulb pressures and the like, a subject that only came within my ken a few years back. We can now have no excuse for having failed to observe the presence of a thin bed of soft clay a hundred feet, or thereabouts, beneath our foundations, if cracks should appear. It is all very terrifying and stimulating.

The authors certainly have the rare ability to outline their subject in the clearest of language, and I should hasten to state that they cover all the common ground as well as the newer developments resulting from research at DSIR. I found that reading the chapters on concrete and aluminium was as the clearing of a mist from much knowledge that had been previously held obscurely and, though the book may be aimed principally at students, it must be approached in a spirit of humility by older hands.

The teaching of fundamentals rather than details is altogether admirable for the intelligent mind, and is calculated to produce architects better able to administer the team of experts they gather round them in their work, but to the less able intelligence such teaching will be a waste of time and even be of more harm than good. I would like to put in a plea for the retention of the older textbooks, which taught detail, for those who will never be called to the higher functions.

In the same spirit I am not too happy about the last chapter, on the choice of structure. Here the authors forsake the setting down of fundamentals in an attempt to codify types of structure with types of building, in an altogether inadequate space, and lead themselves into the very dogmatisms which their earlier chapters were teaching us to avoid.

This book is a very worthy member of a trilogy of textbooks issued at the instance of the Text and Reference Books Committee of the RIBA.

Dex Harrison

HISTORY

A NEW DESIGN BY CHAMBERS

Enville (Staffordshire) is a name known to all students of the eighteenth-century landscape garden. Recent research among the papers at Enville Hall has produced some information of considerable interest about the house itself.[1] For instance, plans dated 1773 by John Hope (presumably of Liverpool) reveal that he was responsible for certain features in a Gothic taste; much of Hope's work—the present rear elevation bears most resemblance to his designs—was destroyed or badly damaged by fire in 1905. The most important find, however, was a distinguished set of drawings which is neither signed nor dated but was clearly intended for a new house at Enville for the fifth Earl of Stamford. These drawings, of which two are reproduced here, have been identified by Mr. Howard Colvin, through comparison with authenticated examples at Sir John Soane's Museum, as the work of Sir William Chambers. Mr. Colvin has also kindly supplied a transcript of a letter from Chambers to the Earl of Stamford[2] which affords convincing evidence that Chambers did in fact submit designs, which regrettably were never executed; it runs as follows:

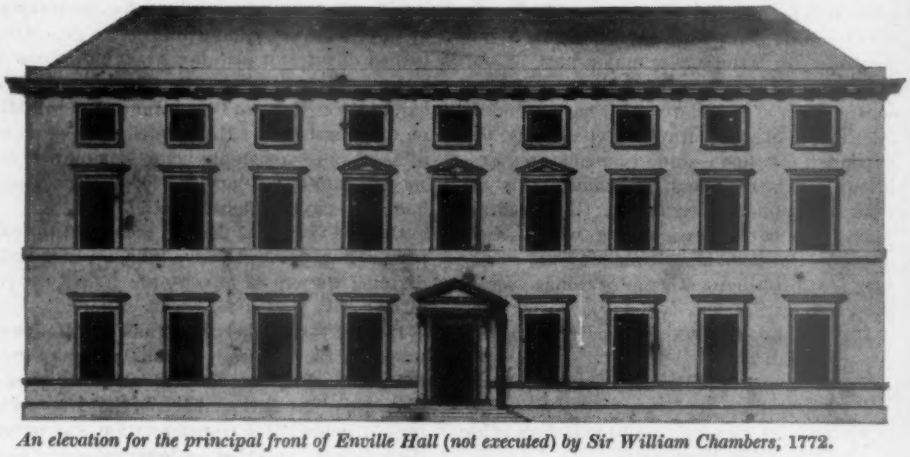
To the Rt. Hon^ble. the Earl of Stamford.
My Lord,

If it be not inconvenient to your Lordship I should esteem it a very particular favor at this time if you would order the Payment of my Bill sent in some time ago amounting to £80 12s. I am involved in so many building schemes that I am always in want of Money and more so now than ever for Guineas are now grown as scarce as Othos. I humbly beg pardon for the Liberty I have taken and am most respectfully My Lord.

July 28, 1772.

In their sober Palladianism Chambers' elevations provide an interesting contrast with the more movemented fronts with which Robert Adam had so recently been supplying his country houses.

Geoffrey W. Beard

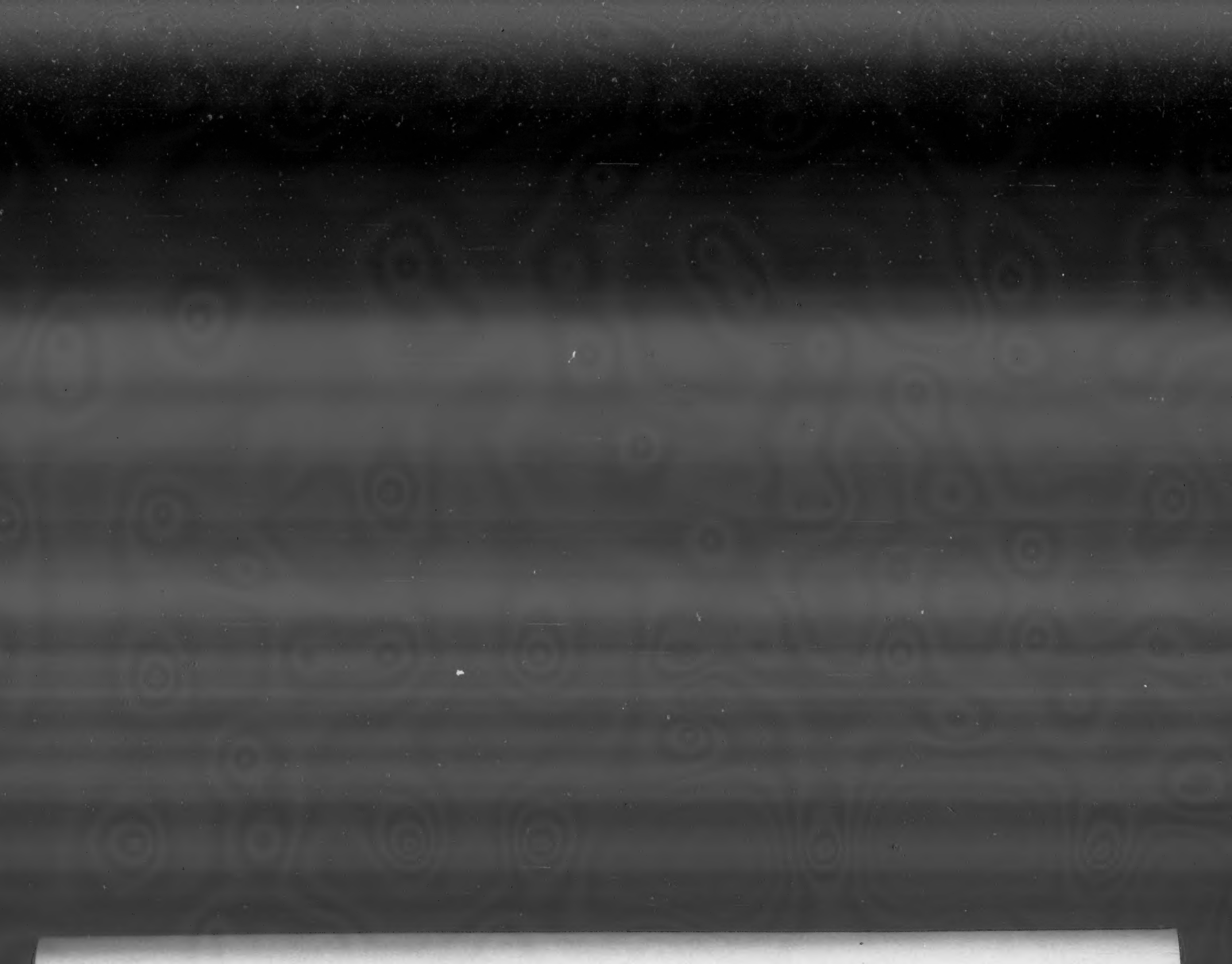


An elevation for the principal front of Enville Hall (not executed) by Sir William Chambers, 1772.

An elevation of the rear of Enville Hall, Staffordshire (not executed) by Sir William Chambers, 1772.

[1] I am most grateful to Mrs. E. Bissill for permission to make several searches among the Enville papers; I also have to thank the Earl of Stamford for information.

[2] British Museum, Add. MS. 41, 133, f. 78v.



STREET FURNITURE

HISTORY OF THE BOLLARD

That the bollard has become the sign manual of the conscious townscapist, and has appeared with such frequency in the pages of THE ARCHITECTURAL REVIEW, *is due primarily to its unique usefulness as a psychological warning, an inanimate sentinel of the pedestrian's rights, and also to the fact that its right deployment and use is an acid test of good town design. But it is manifestly not as recent an invention as the art of Townscape, and has already a respectably long history behind it.* Popular tradition, and a traditional shape, have given the bollard an ancestry in the cannon, yet few true cannon-bollards survive. The up-ended Napoleonic veteran on Bankside, 1, is a rare example of this curious functional conversion. The pseudo-cannonical, such as the bollards shown in 2, is much more common and, since one of these is dated 1812, may even ante-date the true cannon.

1

Historically the bollard goes back long before either of these examples. In its nautical sense it is as old as sail; and in its land-going form it is probably as old as the revival of wheeled transport in towns. It is an essential part of the English repertoire of traffic-directing hazards, the pedestrian's bulwark against the vehicle, and appears in the early engravings of Inigo Jones's Covent Garden, 3, simple cylindrical sentinels preserving the central area against the encroachment of carriages. Similar bollards, of uncertain age, still exist in Covent Garden, 4, but the material, granite, suggests a nineteenth-century origin. Its simple monolithic form may seem overmassive, but the bollard must be a true hazard, not a token one, and the price of over-refinement is shown in 5, where a too slender example has been cracked off while resisting wheeled invasion.

2

3

4

5

Contemporary with the romantic cannon-bollard is the obelisk, a development of Regency Neo-Classical æsthetics and the Crown contractors for cast-iron work, 6. A classic in street-furniture design, it persisted through the reign of George IV, 7, into the reign of William IV, 8. Its form is well adapted to the material of which it is made and to the casting process by which it is manufactured. Also it is visually and physically strong, and although properly unassertive, it has sufficient character to bear being looked at when it is noticed. The flattish decorative ribbing reinforces its sense of scale without killing the essential form, while it also serves the important visual purpose of absorbing

6

7

8

surface-irregularities, blow-holes and other casting faults.

A classic of the Functional Tradition, it is one of the finest products of that alliance of Neo-Classicism and serial production which nearly made the Industrial Revolution visually sufferable—nearly but not quite. The new men of industrial democracy lacked the gentlemanly training of the previous generation and the broad plastic effects of the Regency were submerged by Victorian disorder. Neo-Gothic *jeux-d'esprit*, such as 9, where the discipline of Regency may still be seen, merely led to the clumsiness and weakly fulsome decoration of 10.

But the obelisk remained as an inspiration. It was versatile—it could shoulder the weight, visual and physical, of a lamp-standard with confidence, 11, and given a chance might have formed the basis for a whole family of related units of street furniture. The chance was never given, but

9

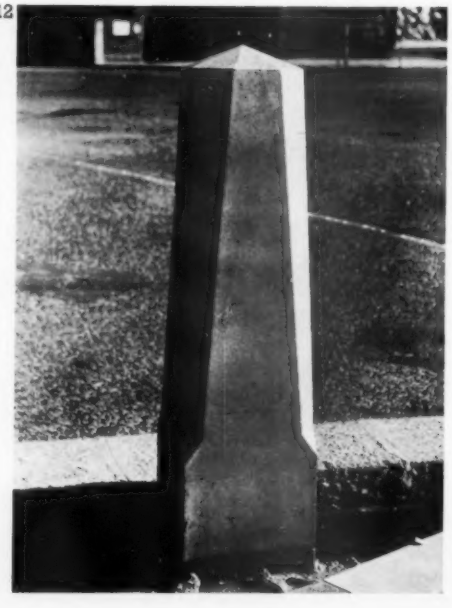
10

11

the lesson of the obelisk-bollard stood about in Nash-planned London waiting for some townscapist with opened eyes to learn it. It has the power of a true classic to assert its presence at times of crisis in the development of design; like the oar, the axe and the spanner it demonstrates the permanent validity of the functional tradition and has reappeared, suitably modified for execution in stone, 12, in Grey Wornum's re-designed Parliament Square, though one may suspect that its suavity of form has seduced the designer into employing it in a situation where it is easier to justify on decorative than on functional grounds.

C. Forehoe

12



FURNITURE

OFFICE FURNITURE

The only office furniture selected by COID for exhibition at the Rhodes Centenary celebrations at Bulawayo this year is this suite of pieces by George Hammer and Company. It

1

consists of an executive desk and chair and a series of storage and filing units which can stand independently or grouped, as in 1, together with a typist's chair, store-unit and desk, 2, which may be compared with the desk from the same firm which was illustrated in Design Review in December 1952. The desk tops in grey Vynhide, the

2

mahogany finish with birds-eye maple trim and the generally straightforward lines enable these units to strike that note of sumptuousness without sacrifice of functional suitability which is rarely attained in contemporary office furniture.

T.T.

TOWNSCAPE

NEIGHBOURHOOD UNIT

The urban qualities of any complex of buildings do not arise from accident and time alone, nor from high density and the accumulation of picturesque street furniture—a fundamental plan must underlie the disposition of the parts, though this plan need not have existed ab initio but may be the result of generations

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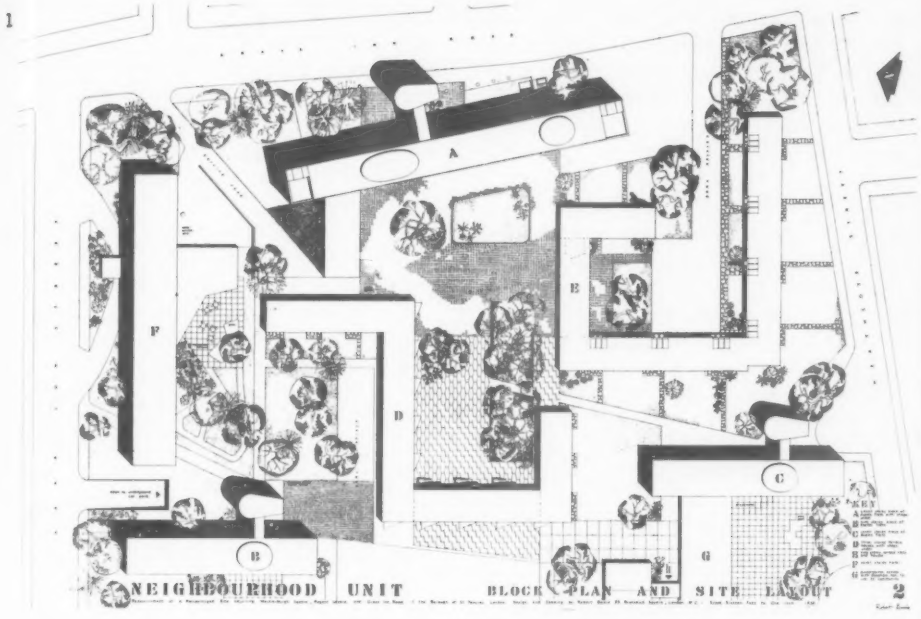

NEIGHBOURHOOD UNIT BLOCK PLAN AND SITE LAYOUT 2

of urbane and sensitive additions. The importance of the right plan is brought out by this thesis scheme by Robert Bailie, for a neighbourhood in St Pancras—a scheme which also brings out the relative (but only relative) unimportance of high density in the creation of urban quality. This development is at 160 persons to the acre, which is not at all high by metropolitan standards, and since all the buildings are relatively tall they do not occupy a great proportion of the ground, as the plan, 1, shows.

But the plan also shows that it is not mere quantity of open space that destroys urbanity, but where it is, and how one sees it. Particularly praiseworthy in this scheme is the judicious mixing together of the built and unbuilt, and, the consequence of this—the absence of any bleak and uncontrolled vistas yawning away into the distance. As the perspective, 2, looking across the central

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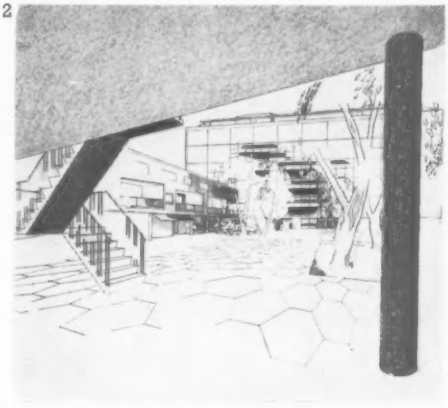

piazza from the underpass beneath the raised terrace, makes clear, given this correct basic planning procedure the result would never produce the windswept agoraphobia of the New Towns, even if densities and building lines were lower. **C. Forehoe**

EXHIBITIONS

PAINTINGS

The artists selected for the mixed exhibitions of 19th and 20th century painting at the dealers' galleries resemble the membership of old and exclusive clubs. New painters are admitted from time to time but their introduction is usually so nicely timed that the prevailing atmosphere of solemn well-being is rarely endangered. Writhing Soutines and furious Rouaults seem to have been holding quiet and reasonable conversations with the Renoirs and Pissarros for as long as one can remember; the early cubists could give lessons in sobriety to the very oldest members, and if they stiffen perceptibly, as the novelists say, when certain *fauves* appear it is not surprising, for it has to be admitted that some fauvist Derains and Vlamincks remain just a tiny bit raw.

In the Lefevre Gallery's July show, a fauvist Derain, 1, introduced this rawness into a selection which was otherwise notably refined. The picture is one of his famous Pool of London series, painted in 1907, and, although the brushwork has great vitality, the picture plane is disrupted by a naive use of linear perspective and by colour which is in parts atmospheric, in imitation of the spectacle before the eye, and in other parts inventive, disregarding both tonality and local colour in favour of the juxtaposing of primaries to create a colour vibration not related to the scene. This is a mild barbarism which time is not likely to mitigate.

A cubist collage by Juan Gris, 2, in the same exhibition associated amiably enough with a febrile Soutine and a highly

1

romantic painting of distraught prisoners by Géricault, but appeared to have assumed the onerous task of being everything that the Derain was not. It is a fine and mysterious work which achieves with heterogeneous materials some of the gravity of the analytical cubist pictures painted three or four years earlier by Braque and Picasso. It eliminates stylization, and strives for anonymity in a way which unequivocally proclaims its authorship. All the forms emerge on to the picture plane, and one's first reading of it provides a lively non-figurative surface of graining, marbling and shading, with interchange-

2

able transparencies and opacities. The ghost of a bottle warns one of the presence of objects: a square table emerges which is possibly oval, an aerial view of a coffee mill is suddenly in relief, another view of the same object peeps out impossibly from the narrow interval between duplications of the table's surface. Gris made his 'flat coloured architecture' out of the most commonplace illusionism, and there is a

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continual interplay not only between the flat, tawny-coloured all-overness and the coming out of the objects, but between these more or less measurable comings and goings *and what lies beneath*, for the picture gathers its momentousness and its mingled air of obscurity and revelation from seeming to have risen into view out of an unlimited darkness.

A fauvist Derain of barges on the Thames, shown at Roland Browse and Delbanco's gallery, contains a more homogeneous distribution of coloured objects than the example at Lefevre's. The primary colours call and answer across the canvas instead of being confined to one corner, so that the picture plane remains pretty well intact. And when all is said and done, Derain's views of the Thames, like those of Canaletto, are bound to have a special place in our affections. We are not rich in such tributes, and I think we may take it as a tribute that in the one case the Thames becomes a tributary of the Seine and in the other an unfamiliar stretch of the Grand Canal.

The Thames picture seen at RB and D was in a show devoted to three French painters—Derain, Vlaminck and the little known Souverbie. Vlaminck was his usual coarse and zestful self, but Derain came out magnificently well in a variety of phases, and his late, slick landscapes are not likely to outweigh the evidence of his mastery. The picture of two sisters, with its light, cold tonality and harsh drawing, dated 1912, is as austere as any cubist picture, and, whilst having something in common with Picasso's paintings of the so-called 'negro' period, has much to say about human character. It should interest all those artists who are turning awkwardly and uncertainly towards realism. A later work, painted in the 'thirties, is finer still. It depicts the back view of a girl's head, and an uncanny sense of actuality is created by thoroughly painterly means. The sense of the girl's nearness, caused by the abrupt cutting off of the figure and the total emergence of head and shoulders on to the picture plane, ought to incite curiosity, but one is in fact completely satisfied by what is given. The uncanny effect does not induce fruitless speculation because it is clearly not inspired by an idea, but is the incalculable result of a superb bit of painting from the model. Francis Bacon's quietest images have the same kind of magic, inextricably involved in the quality of the painting.

Souverbie's pictures, painted for the most part in the 'twenties, deserve their belated showing in London. They are distinctly school of Braque, and such works as 'The Grape Harvest', 3, which are built up with a rich warm impasto, make desirable decorative panels. But Souverbie had to stay so close to precedent that his attempts to do the same semi-draped Junos in flat, light colours are undistinguished.

At a loan exhibition of pictures belonging to friends of the Ben Uri Gallery, I was shading my eyes with a hand to see what was behind the glass on one of the pictures, and was a little put out to find that it depicted a girl shading her eyes with a hand. It was not a very good picture, and quite a number of the others were not very good, but there were enough fine pictures to make an excellent Bond Street show, with just the right balance between the nineteenth and twentieth centuries. On the one hand, a Monet, a Manet, an early Van Gogh, Boudin and Jongkind, of course, some exceptional Pissarros; on the other, Rouault, Soutine, Modigliani, Utrillo, of course, and several Chagalls, including an early watercolour, 4, painted in Russia, which sets the stage for the famous Vitebsk fantasias.

The ICA has been showing recent works by eleven British painters—a kind of miniature 'Artists of Fame and Promise'—in which the outstanding pieces were a large seated figure by Martin Froy and a portrait of a very young guardsman by John Craxton. The latter is an unexpected essay in popular realism which looks like a leg-pull, but is full of the pathos of adolescence. The little face is half vicious, half angelic, and the wispy figure proudly wilts under the weight and grandeur of a uniform half a size too big.

At the same time, the ICA was showing Chirico's 'Melancholia,' 5; as the 'picture of the month.' It is one of the greatest works of his 'metaphysical' period, painted in 1912, and although it is famous in reproduction it has rarely been exhibited, and may never be seen here again because it is now on its way to America. There was a time when devotees of the early paintings of Chirico, a little worried about their lasting qualities, argued that they led a life beyond the laws of painting. I was one of them, and was so immersed in their

4

imagery that I half expected to be able to climb over the frame of 'Melancholia' one day and discover who was standing behind the foreground column. I am now entirely satisfied by what I can see. It is more lucid than the Gris collage, more actual than Derain's back view of a woman, and its shadows come to rest in the heart. I wish it a safe crossing. **Robert Melville**

5

In the past the REVIEW *distinguished between the art and the technique of building by calling one Design, the other Craftsmanship, giving the latter, in token of its immense significance at that time, a special department of the paper. Our portfolio of craftsmanship lapsed during the war and hasn't been—can't be—revived under the same title because the word 'craftsmanship' has become hopelessly dated. Why? From its association with handicrafts? From its unsuitability as a definition of precision building and manufacture? Possibly. And yet the craft of building in the wider sense remains vital to any decent architecture and was never in greater need of encouragement by word and deed. It is futile to deplore the machine age and precision production even though it may be believed, and not without considerable justification, that design standards have in many industries declined sadly in the past 25 years. The editors feel the time has come to discuss the issues involved with a good deal of frankness if only to award all possible publicity to those who are keeping the flag of quality flying. They believe that the architect, and the manufacturer, will welcome a new, a bolder and a more critical approach to the whole subject. Hence this new monthly feature, SKILL, whose purpose is to do just that—assess design and workmanship in a much more positive way than has been attempted before. Until further notice this section of the paper will be given up to that purpose, combining with a number of new features those existing ones, like* DESIGN REVIEW, *which have had the same target in the past.*

skill

a monthly review of building techniques and industrial design

DESIGN REVIEW

Mary Ward

Kitchen Thermics

The functions of the kitchen equipment illustrated here have remained unchanged for many years. They are concerned with cooking, refrigeration and water heating. The quest for the most efficient means to this end, in this as in other fields, results in revolutionary changes from time to time but in the last seven or eight years, with the possible exception of the deep freeze, there has been no fundamental advance. However, there has been steady improvement in design and an all round increase of efficiency and fuel economy.

In the solid fuel field it is good to see some manufacturers producing appliances that compare well in matters of cleanliness, finish, appearance and ease of operation with those of the gas and electrical industry. In advising his client as to which water heating system to adopt the architect should be very much concerned with running costs, and though it is extremely difficult to find comparative figures for solid fuel, gas and electricity (partly because solid fuel appliances almost invariably do two or more

jobs), it is generally accepted that solid fuel is cheapest. The improvement shown in these appliances should now lift them out of the 'Cinderella' class which they have for some time been in and make them fully acceptable as furniture in the modern kitchen.

In selecting solid fuel appliances the Gas Council Handbook *Coke Burning Appliances* is a useful guide and lists the numerous relevant British Standards.

solid fuel

water heaters The minimum specified fuel capacity for small domestic hot water boilers was raised from .49 cubic feet to .6 cubic feet in 1945. This, together with the prescribed air and flue control, ensures a minimum banking period of ten hours. These boilers are of two types: the open fire type with a horseshoe boiler surrounding three sides of the fire and front firebars covered by a door, and the closed type with boiler all round the fire.

Tayco boilers, made by Robert Taylor and Company (Ironfounders), are of the first type, **1**, and range from 30,000 BThU/hr. to 41,000 rating for hot water only. They can also be used for small space heating radiator installations from 13,200 to 18,500 BThU. Finishes: grey or green mottle and black vitreous enamel or cream and black extra. Price: from £29 0s. 0d. and from £33 12s. 0d.

Another similar boiler is the Torwood No. 2, made by Jones Campbell, **2**. Rating for hot water supply only 25,000 BThU/hr., for heating only 11,000. Finish: cream or grey and white vitreous enamel. Price: from £16 0s. 8d. The full width ash spill tray is an improvement on that shown with the Tayco, but the fire door handle is primitive and uncomfortable. The use of a drop handle is surely a mistake on any appliance where either handle or hand in gripping the handle is likely to come into contact with a hot surface.

The Ideal XLB, made by Ideal Boilers and Radiators, **3**, has a similar type of handle though slightly more comfortable. Rating for hot water supply only: 11,250 BThU/hr. or 40,000; for heating only, 11,250 or 18,000. Finish: cream or grey mottle vitreous enamel with black top. Price from £17 1s. 6d. or from £30 12s. 3d.

Crane No. 25, made by Crane, **4**, is rated at 25,000 for hot water only and 11,000 for heating only. Standard finish: grey mottle vitreous enamel with black top. Cream vitreous enamel can be supplied. Price: from £18 0s. 0d.

The Agamatic 25/40, made by Aga Heat, is a small closed boiler with thermostatically controlled water temperature, **5**. The manufacturers do not publish ratings for any of their boilers but suggest a 25 to 40 gallon hot storage tank as suitable for this model and give the output as two baths per hour. It is not designed for any central heating. It has a very low idling consumption of fuel and a long banking period. Finish: cream enamel. Price: £29 0s. 0d.

The Nautilus WF2, made by Radiation, is a bigger job of the closed type, **6**, having a BThU/hr. rating of 40,000 for all hot water or 20,800 for all heating. Finish: black and white or black and cream vitreous enamel. Price: £35 0s. 0d.

The Hurseal Hazel, made by Hurseal, **7**, has a BThU/hr. rating of 45,000 for all water heating or 18,500 for all space heating. There is a stainless steel simmering plate and a space for casserole cooking. Finish: cream hard baked enamel (other colours available). The case dimensions are such that the boiler can be set neatly into a bank of standard floor cupboards. The contents are not as neat as the case implies in that the control connections seem primitive by comparison. Price: £49 10s. 0d.

The Automatic Hydresse is another and bigger thermostatically controlled boiler, **8**, made by Smith and Wellstood, who do not publish rating figures but, as some indication of output, give 4½ baths per hour. Finish: cream and black. Price: £60 0s. 0d.

The Agamatic, **9**, the biggest of the Aga Heat boilers, is made in two models, the first a luxury job with hinged lid and thermostat and 'styled' case and the second, Agamatic model C, **10**, without those items. No BThU/hr. rating is given by the makers but a hot storage tank of between 40 and 100 gallons is suggested. For heating a figure of 200 sq. ft. of radiating surface is given. Finish: cream vitreous enamel. Price: £55 0s. 0d. and Model C £45 0s. 0d.

In choosing solid fuel appliances it is always advisable to consult with the manufacturers' representative in the relevant locality so that local water and site conditions may be given full consideration.

cookers come in two types, heat storage or insulated, the latter with or without openable fire. The Aga and the Esse 'Fairy Heat' and 'Premier' are the only heat storage models now on the market. The Agas range from the two oven two plate model C, **11**, at £90 0s. 0d. to a four oven three plate model at £122 0s. 0d. The CB model combines the functions of cooking and water heating but is not designed for any central heating. If a very heavy output of hot water is required and is beyond that provided by the cooker, the Agamatic model C boiler is designed so that it may be fitted alongside the cookers to form one unit. Standard finish: cream and black vitreous enamel. These cookers have established an excellent reputation, and reach a high standard of design. Primary air is thermostatically controlled. The Yorkvale No. 1, made by Radiation, **12**, is of the insulated group. Finish: cream mottle and black vitreous enamel. Price: £33 17s. 3d. The chamfering of the door thickness

1 2 3 4 5 6 7 8

9 10 11 12 13 14 15 16

is visually disturbing and implies an uneven distribution of insulation in the doors for no apparent reason.

The Rayburn No. 3, made by the Allied Ironfounders, **13**, is their latest insulated model and incorporates an improved method of oven heating which 'ensures a steady even heat throughout the oven.' Finish: cream and black mottle vitreous enamel. Price £52 10s. 0d.

The Doric, made by Smith and Wellstood, **14**, is a smaller insulated cooker. Finish: ivory or grey and white mottle porcelain enamel with black top. Suitable for all types of fuel. Price: £33 0s. 0d. In this case it is difficult to understand the reason for the distinction between the design of the oven door handle and that of the other two door handles since their functions are exactly similar and there seems to be no visual gain from the difference.

The Yorkseal, by Radiation, **15**, is a good example of the openable fire type. It is wider than the Yorkvale but the oven accommodation is about the same and the total hotplate surface when the fire is closed up is slightly larger. Finish: cream and light brown speckled vitreous enamel with black top. Price: £49 10s. 0d. plus £1 18s. 6d. extra for cover to hotplate.

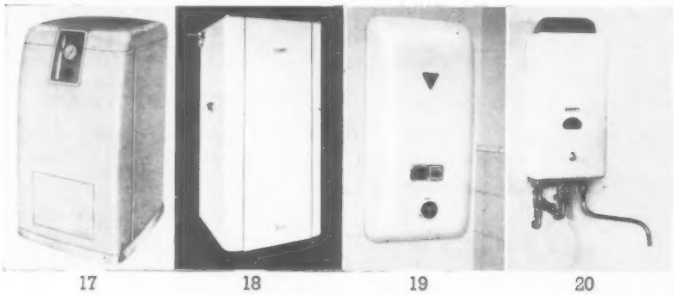
The same manufacturers make a 'back-to-back' model, the Yorkdale, **16**. Finish: stone and black vitreous enamel on the oven side, all stone on the fire side. The open fire is a continuous burner, 10 hours. Price: from £50 10s. 0d.

gas

water heaters The gas appliances selected for illustration of water heaters are representative of the main types, that is boilers for both hot water supply and limited central heating, multipoint storage water heaters, multipoint non-storage heaters and single point non-storage heaters.

The Kayenco Superb, **17**, falls into the first category. It is made by Frederick Kaye (Engineering) and is the gas-fired equivalent of the Agamatic. There are seven models with ratings from 30,000 to 300,000 BThU/hr. Standard finish is cream vitreous enamel but there are other colours available. All controls are accessible from the front so that it may be installed in a recess. Price: £57 0s. 0d.

The Lynmere multipoint storage heater No. 4406, made by Radiation, **18**, is for hot water supply only. It incorporates a feed cistern with ball valve and has hot water storage capacity of 16 gallons. It has a recovery rate of 6¾ gallons through 80 degrees F. per hour. Finish: white synthetic enamel. Price: £27 15s. 0d. approx.



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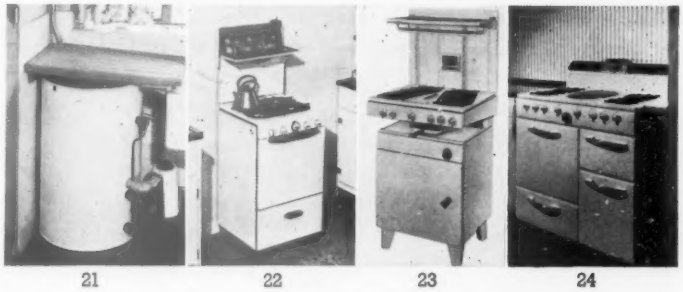
The Ascot balanced flue Multipoint water heater, non-storage, has the new sealed air circuit incorporating air inlet and flue eliminating vertical flue outlet, **19**. Output stretches from 3 gallons per minute through 40 degrees F. to 1.25 gallons per minute through 100 degrees F. Finish: white or cream enamel. Price: £39 11s. 8d. This appliance is a tremendous improvement from a company with an already high reputation for gas water heaters.

The Ewart M.75 sink water heater, made by Ewart and Sons, **20**, is typical of the single point non-storage heater. Output, 1.25 gallons per minute raised 40 degrees F. to .83 raised through 60 degrees F. Finish: cream or white porcelain enamel. Price: £14 11s. 11d.

The Circulyn circulator No. C 125, made by Radiation, **21**, is an appliance which will heat and circulate water into a storage cylinder of up to 30 gallons. It is one of a series with various performances. This model has an output of approximately 5½ gallons per hour through 80 degrees F. The illustration shows the circulator installed alongside the cylinder under a draining board but it can be at a distance removed. The model shown is fitted with a special flue cap considered adequate for well ventilated positions though the fitting instructions state that a flue to the open air is desirable in domestic installations. An economy valve allows a choice of 4 gallons supply for the sink at any time and a 20 gallons supply for the bath as required, water temperature controlled automatically by Regulo. Finish: white vitreous enamel. Price: £11 4s. 0d. as shown.

ovens Undoubtedly the biggest and best innovation in the design of cookers appears in the Cannon A 125 made by Cannon Holdings, **22**. This has a folding eye-level grill and griddle plate and to compensate for the lost plate warming rack, a warming drawer. This seems in every way an admirable change in



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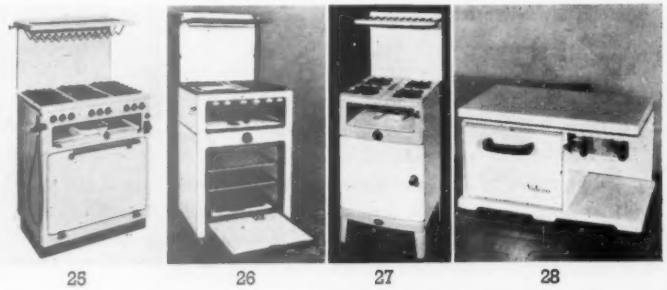
the conventional layout, providing the best view of food grilling which requires constant attention and the elimination of the risk of food on the boiling rings spilling down into food under the conventional type of grill. It is good to note that some care has been devoted to the design of the grill tin handle in its new position and consequent change of grip. The oven has a drop door. This has obvious advantages for the easy inspection of oven dishes, but should be viewed with reserve if the cooker is to be used in a confined space. Finish: white vitreous enamel. Price: 50 to 55 gns.

The New World 84 by Radiation, **23**, has two new features, a cantilevered boiling plate and a forward venting flue so that the cooker may be set flush against the wall. It is hoped that this type of flue eliminates the greasy fluff which covers the wall behind the usual type of cooker. It may be, however, that this possibility is offset by a hot blast of air thrown in the direction of the cook's face. The boiling plate projects beyond the oven on three sides. The manufacturers claim that this allows the ideal dimension for both oven and hotplate. It seems contradictory that some of the extra space on the hotplate which might have been useful as a pull-off space for pans is interrupted by a raised rectangle. The reason for this is obscure unless it is to add rigidity to the cover. Finish: two-tone cream or cream and green enamel. Price: £38 10s. 0d. approx.

Another and larger forward venting flue model, including a griddle plate, and showing signs of borax* in its design is the New World 3518, **24**. Finish: white or cream vitreous enamel. Price: £74 approx.

De La Rue make a good conventional large cooker, **25**. Finish: green and



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cream or grey and white vitreous enamel. Price with low splash plate, £58, with high splash plate and plate rack, £61.

Renown Mark 1V is a smaller cooker with simmer burner and drop down top with hinged plate rack attached, made by Parkinson Stove Company, **26**. Finish white or honey vitreous enamel. Price: £33 approx.

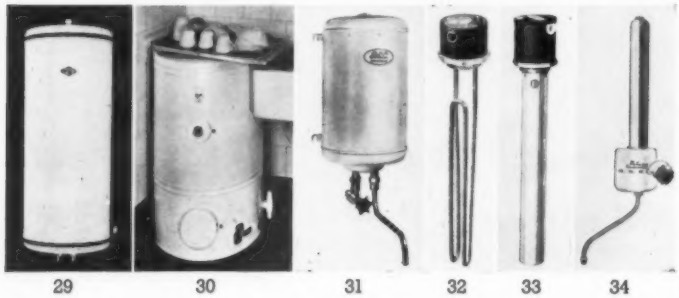
* See ARCHITECTURAL REVIEW vol. 104, 1948, pp. 88-93.

Flavel 68, made by Flavel of Leamington, **27**, is a simple conventional cooker with a bowed front. Levelling screws are incorporated in the legs. Finish: grey and white, all white or all fawn vitreous enamel. Price: £25 0s. 0d.

The Vulcan 10b griller by the Vulcan Stove Company, **28**, is an example of a small table model which gives limited accommodation for all the processes. Finish: cream vitreous enamel. Price: £9 approx. Since it is likely that this type has a wide use in bedsitting rooms it seems thoughtless to brand the griller quite so prominently and badly.

electricity

water heaters Of the electric appliances, water heaters are classified as non-pressure, pressure or cistern. The first are single point heaters which may, with the agreement of the local authority, be supplied direct from the cold water main. The pressure type is a multipoint heater fed from a ball valve storage tank and provided with an open vent pipe. The cistern type is a multipoint heater fed, by permission from the main, or from a ball valve tank and no vent pipe is required. This type is very appropriate for new installation at a level above the storage tank in an existing building. In addition there are immersers and circulators for installation in ordinary hot water cylinders.



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The Sadia type C is of the cistern type, made by Aidas Electric Company Limited, **29**. Storage capacities from 5 to 15 gallons with a loading of 500 to 1,500 watts. Finish: white stove enamel. Price: from £22 4s. 10d. to £36 16s. 9d.

Creda 'Dulec' by Simplex Electric Company, **30**, is the pressure type. It has two separate banks of heating elements, thermostatically controlled, the upper providing 6 gallons of water at any time. Assisted by the lower bank the unit can provide 18.7 gallons for peak periods. Loading of top unit 500 w., lower unit 2,500 w. Finish: mottle grey enamel. Price: £54 approx.

G.E.C. model No. HO 821 is the point heater type suitable for isolated positions, **31**, with a capacity of 1½ gallons per minute and loading of 750 w. Finish: white enamel. Price: £18 7s. 0d.

The Santon 'Otter' is an example of the immerser type, **32**. It is available at three temperature settings with thermostat in various lengths. Loading: 2½ to 3 kw. Price from £6 5s. 0d. plus £3 8s. 7d. p.t.

The circulator as opposed to a simple immerser, directs the warming water up a tube enclosing the heating element quickly to the top of the cylinder and allows early withdrawal of small quantities of hot water. It can only be mounted vertically. The Creda circulator illustrated is a removable element. It is unsuitable for hard water, **33**. Loading: 2 to 3 kw. lengths various. Prices: from £6 5s. 0d. plus £3 8s. 7d. p.t.

The Hotway rapid water heater by the Campbell Engineering Co., **34**, will supply 7 to 8 pints of boiling water per minute. It has a very high loading of 3 to 5 kw. and is suitable only for surgeries or small canteen kitchens. Finish: cream or red. Price: from £21 8s. 2d. to £25 11s. 0d.

cookers The Belling electric cooker shows a parallel interest to the gas model of Cannon Holdings in the concern for better vision. This Belling 47AB, **35**, has an inner glass door to the oven. Finish: white or cream vitreous enamel. Price: £34 12s. 6d. The G.E.C. model DC752 and 753 are the same cooker with and without plinth, **36**. Finish: mottle grey or cream and green, or ivory in the plinth model only, porcelain enamel. Price: £28 and £29.

The Creda EV DH2 compared with the rest of the range illustrated, **37**, has suffered a serious decline in the design of the handles. The same section is used for drop doors, side hung doors and drawer and on the doors are placed asymmetrically. Finish: cream, or white extra, acid resisting vitreous enamel. Prices: of D.H. 2 £69 10s. 0d.

The Jackson 290 is a new design by the Jackson Electric Stove Co., **38**. This cooker has been broken down into sub-assemblies which are clothed in sheet steel, thus eliminating cast iron to reduce costs. The legs provide several fixings to the oven and the underside of the top units and give the necessary rigidity to the whole assembly. This is clearly a cooker which can be used only in a free-standing position. Finish: cream and green, all cream or blue and white enamel. Price: £22 17s. 6d. plus 9s. 6d. for splashback.

The Jackson Giant by the same maker is a table model, **39**, incorporating a vertical plate warming compartment with grill, oven and boiling plate. Finish: cream and black vitreous enamel. Price: £14 15s. 0d. as shown.

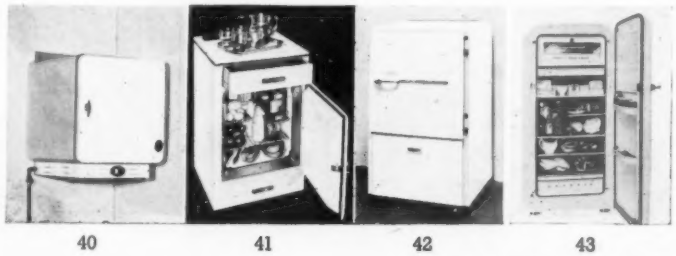
refrigerators: electricity and gas The Astral refrigerator by Astral Equipment Co., **40**, is a gas model of 1½ cubic feet capacity and is silent in operation. Though designed to be wall mounted if required, its use in this way must be to some extent limited by its weight and projection of 21 inches. Finish: white stove enamel. Price: £39 18s. 0d.

Electrolux make two models LH 150, **41**, and L 150, **42**, both of which have a cubic capacity of 1½ feet. The first will fit into a bank of standard floor units and has a drawer at the top. The other is mounted higher at the expense of the top drawer. The rounding of the angles of the top of this model has dangers when used as a worktop. Finish: white enamel outside, white porcelain enamel inside. Prices: £57 17s. 4d. and £54 18s. 10d.

35 36 37 38 39

The Kelvinator model NHC 7E is an electric refrigerator, **43**, one of two by this company recently introduced to the home market, showing signs of its American parentage. It has a cubic capacity of 6.92 feet. Finish: white stove enamel. Price: £145 19s. 0d.

The C.S.A. electric Dual freeze, by C.S.A. Industries, is perhaps a portent



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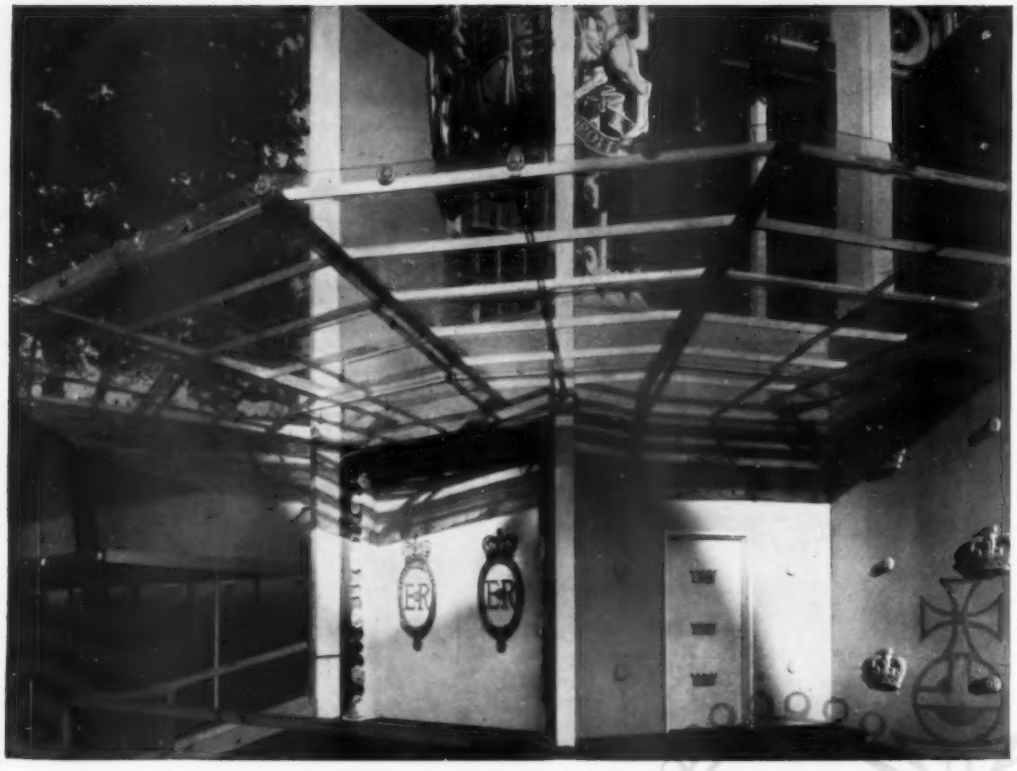


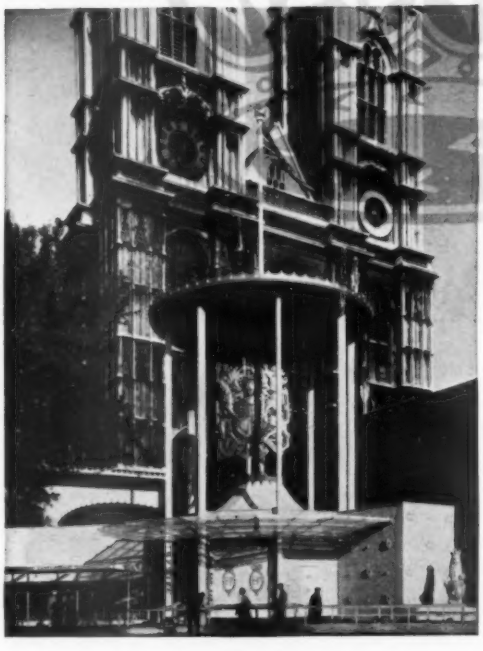
'PERSPEX' for a Royal Occasion

The canopy over the entrance of the Coronation Annexe to Westminster Abbey was made of tough, light, transparent 'Perspex' acrylic sheet. 'Perspex' contributed much to the lightness and delicacy of Mr. Eric Bedford's design, which was carried out for the Ministry of Works by Starkie Gardner Ltd.

• • • • • • • • • • • • • • • • • • • •

'Perspex' sheet—flat and corrugated—is found wherever a lasting, quickly-fitted, and efficient daylighting installation is required.

'Perspex' is the registered trade mark for the acrylic sheet manufactured by I.C.I.



IMPERIAL CHEMICAL INDUSTRIES LIMITED, LONDON, S.W.1

ICI

F.P.20

of what may prove to be a culinary revolution. It incorporates a separate compartment for frozen foods. Deep freeze already well established commercially may well replace other domestic methods of food preservation such as bottling and so refrigerators may grow larger and larger and the larder shrink to something even smaller than now; indeed might disappear altogether. The capacity of this model is 4 cubic feet plus 1½ cubic feet at zero. Dimensions conform to standard kitchen units. Finish: stainless steel worktop, cabinet cream enamel. Price: £176 18s. 1d.

CONCRETE

Reyner Banham

Simplified Vaulting Practices

Post-and-lintel construction in concrete has become nearly as much a matter of course as the proposition that the mathematics of thin concrete shells are necessarily complex. It is therefore refreshing that the brilliant Mexican architect/engineer, Felix Candela, proposes that both ideas should be treated with equal contempt. The rectangular framed structure he dismisses as an unnatural and wasteful imposition on reinforced concrete, which does not work as efficiently in flat slabs as it does in vaults and arches—an æsthetic imposition deriving from the Modern Movement's origins in nineteenth century iron construction, in Auguste Perret's classicist convictions (see *The Doctrine of Auguste Perret*, A.R. August 1953) and in the rectilinear abstract art of the post-Cubist period. But this imposition has gained strength from the difficulty and expense of the calculations required if the architect is to do anything different with the material, and while Candela admits the complication of thin shell mathematics, he holds that the precise solutions which they offer are of limited use in a material like concrete where secondary factors—inequalities of performance, shrinkage, curing and settlement—are so numerous that the validity of close calculation is severely compromised. 'It is better,' he says, 'to use simpler procedures which, in most cases, are sufficient when the designer is a constructor.'

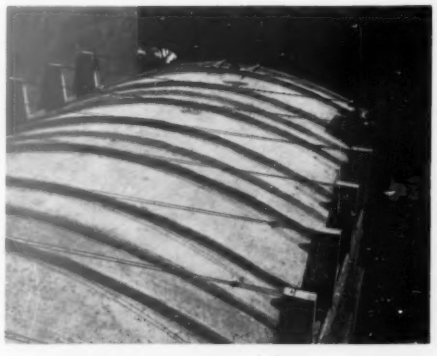
If this last point be granted, then the objection (probably more valid in North America than elsewhere) that only the compensatory saving of the repetitious use of shuttering on long vaults can offset the high initial cost of calculation, becomes negligible and the way is opened for the employment of thin vaults to solve quite small shelter problems. Much of Candela's work is of modest, even domestic, dimensions, to be erected with simple formwork, by semi-skilled labour, and often offers a clear advantage in cost over comparable steel-framed structures.

His reference to a 'designer who is also a constructor' should be borne in mind, as should the fact that the craft of erecting light vaults in brick is still practised in his native Spain, where he was trained and acquired his almost intuitive knowledge of vaulting procedures. Such vaults are erected on a travelling centering between two parallel dead-walls, calculations are quite rough and approximate (as is the performance of the material) and much depends on the skill with which the basic vault-form is selected, and the manual dexterity of the bricklayers. This tradition forms the background to Candela's more-or-less rule of thumb practice in concrete, even where the vault forms are of types not practicable in brick.

1

cylindrical vaults

Typical of the 'Candela approach' to a simple roofing problem which might have been solved by a traditional brick structure is the Bowling Alley designed by J. D. Samperio. This simple cylindrical vault, **1**, is supported on columns of double-tapered section, with their maximum thickness at the springing of the vault, the short tapered portion above this level serving as a post for the attachment of the tie-rods. These rods are carried above the vault in order to leave the interior unobstructed, which not only improves the appearance of the structure, but also facilitates the use of a travelling formwork, mounted on wheels and positioned by four two-ton jacks. Turnbuckles for the



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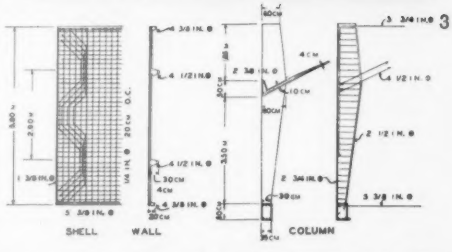

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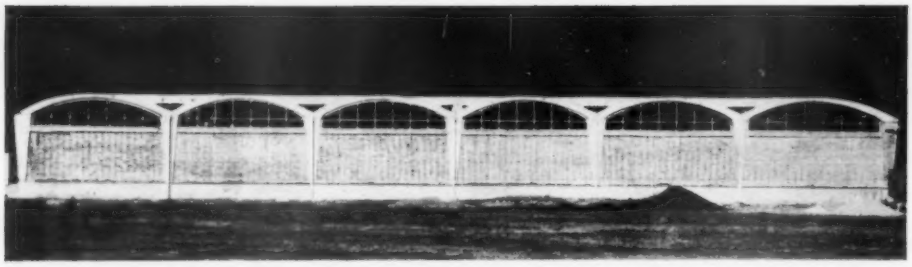
tightening of the tie-rods are seen in **2**, and the reinforcing diagrams in **3**. The vital statistics of this vault are: span, 50 feet with a rise of 6 feet, supports at

4



10 feet centres with the vault poured in lengths of 20 feet so that joins occur at the centre of alternate bays. Normal thickness of shell 1½ inches (average working load: 92 lbs./sq. in.) increasing to 4 inches at the springing. There are stiffening ribs between each pair of columns, and at the ends of each section next the join.

A similar vault, with roof lights, has been built for part of a bicycle factory at S. Bartolo Naucalpan, while another part of the same factory employs runs of cylindrical vaults, span 60 feet, in which cumulative lateral thrust is taken up by a continuous tie-beam connecting the ends of the shells, **4**, but Candela's more usual way of mopping up such end-loads is by means of a compression strut between the last shell and the ground. This device is used in the machine shop at S. Bartolo, **5**, and also in a factory at Tlalpan, designed

5

in collaboration with Raul Fernandez, in which a central slice of the run of vaults is stilted up to form a clerestorey, **6**. It will

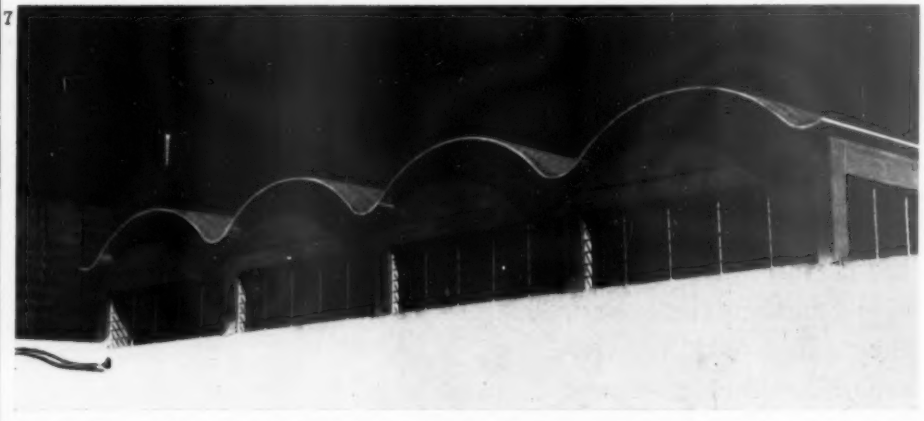
6

be noted that, in all these examples of runs of vaults, support and buttressing is applied at the open ends of the shells at the point where one vault joins the next. This line of junction is treated as a beam of L section and its absence at the end of the run of vaults is compensated by a thickening which forms a simple end-beam, as in **5**.

corrugated slabs

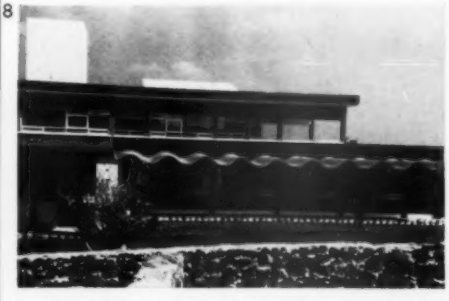
If for this L-section junction beam a small trough be substituted, so that the open ends describe a wave of cycloidal form, the result is an intermediate stage between a run of vaults and a corrugated slab. The roof of a bottling plant at Tlalnepantla (architect-in-charge, Carlos Recamier), **7**, is of this form, and its

7



vaults are 48 feet long and 14 feet from crest to crest, with a rise of 3 feet and a thickness of 2 inches. A relatively thick slab—3 inches—of true corrugated form is used to carry a distributed super-

8



imposed load as the structure of an intermediate floor in a private house designed by Candela and Fernandez. It spans a width of 20 feet between walls and is then produced beyond the wall to form the canopy with 10 feet overhang which may be seen in **8**. Another true corrugated slab, but of 'prismatic' form, **9**, is used to shelter the display area of a motor service station in Mexico City. The thickness is

9

only 1¼ inches, the corrugations are 20 inches deep and are supported by a square beam of the same depth between columns 32 feet apart.

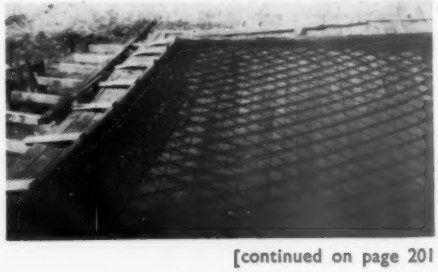
umbrella slabs

Much of Candela's work has been devoted to the development of simple rectangular umbrella slabs with slightly skewed under-surfaces. The traditional test-demonstration of such a structure may be seen in **10**, which also shows the slight skewing or warping of the underside,

10

which is composed, properly speaking, of four tympana of hyperbolic paraboloid form. The reinforcing pattern of this slab is shown in **11**, and it will be seen that

11



[continued on page 201

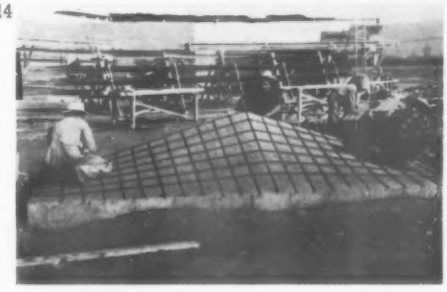
12

maximum tensional loading occurs at the centre of each straight side. The concreting of a similar slab is seen in **12**, its

13

use in inverted form for foundations in **13**, while **14** is a mould for making up rein-

14

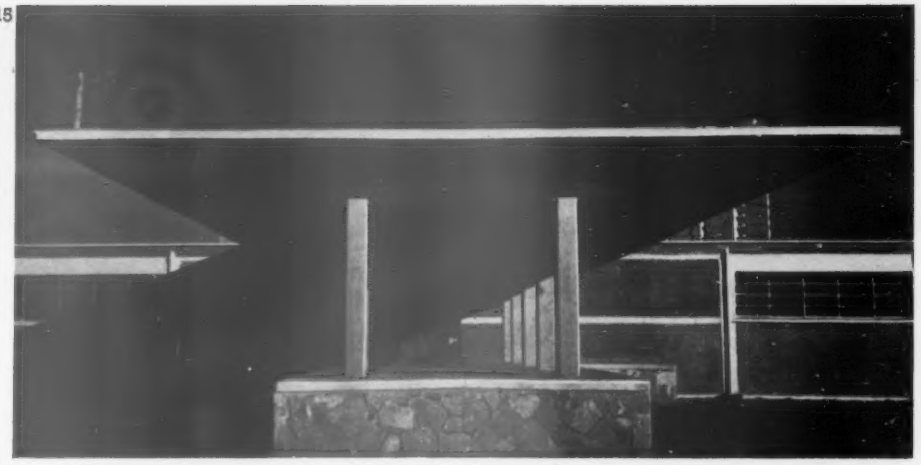


forcement for these foundation slabs. A more complicated form of umbrella slab, carried on pairs of supporting columns, has been used for the canopy, **15**, over the loading bay of the bottling plant at Tlalnepantla, mentioned above.

Novedades housing development

Many of Candela's characteristic vault forms may be seen in the Novedades Houses designed by himself and Raul Fernandez, where they are put to highly dramatic and picturesque uses. House

15



No. 4 has an umbrella vault on a central column, **16**, and House No. 1 is roofed by an asymmetrical vault of inverted catenary

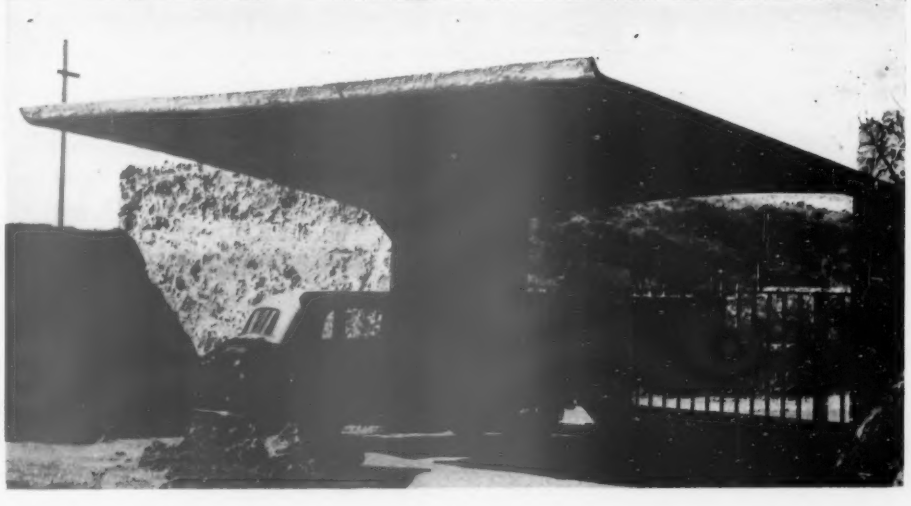
16

section, and has its carport roofed by a corrugated slab, **17**. The most striking structural exploits of the Novedades development, however, are the carports of Nos. 2 and 3. The former is a plain cylindrical vault of 2 inches thickness, carried at four points only, **18**, while the latter is a double-conoidal, cylindrical at the centre between the supports, and flattening toward the ends. This remarkable shell, **19**, has a span of nearly 20 feet and a length of just on 40 feet, and in

17

18

19



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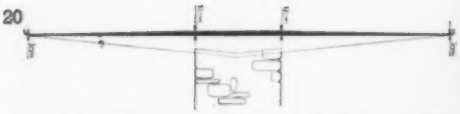
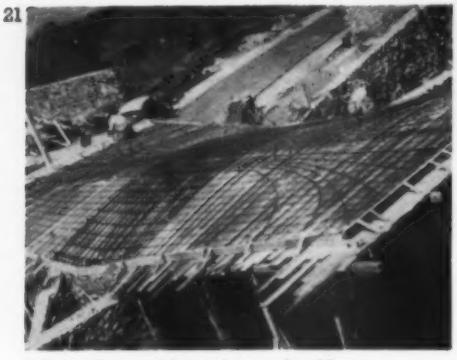


section, **20**, tapers from 5 inches at the supports to 1¼ inches at the ends, which are turned up for added stiffening—the

21



reinforcing grid is shown in **21**.

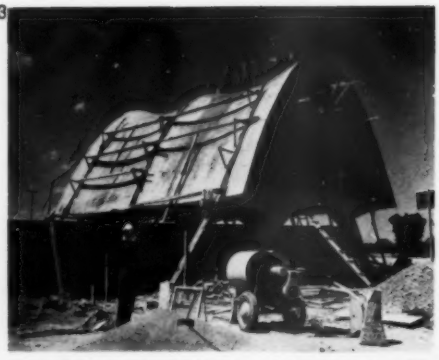
corrugated vaults

Beside the corrugated slab, forms approximating to a corrugated *vault* are also employed by Candela—the simple type made by laying concrete over a hessian formwork which sags between the main arches is well known outside Mexico, and

22

the school at Ciudad Victoria, **22**, is more noteworthy as an aesthetic employment of a structure than as its invention. The Cosmic Ray Pavilion of the new University City at Pedregal, however, is a highly original structure on all counts, and a

23



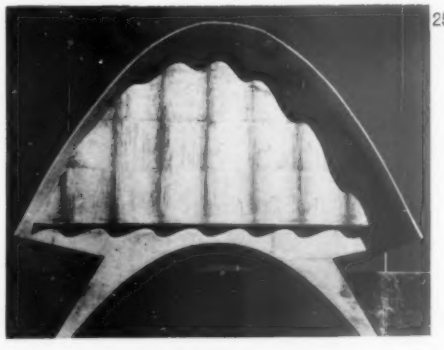
remarkable technical achievement, **23**. The functional requirements were precise, but of an unusual kind, since the use to which the building is put imposes a limiting mass of under 8 lbs./sq. ft. for the covering element—a problem which has been solved in similar buildings in other countries by using aluminium roofs. The use of concrete was made possible by a vault, devised in collaboration with Jorge Gonzalez Reyna, the architect in charge, which could safely be reduced to a thickness of ⅝ inches at the crown.

Such a very thin section could only be employed if great resistance to buckling could be built into the structure, and this has been achieved by the use of a pair of coupled hyperbolic paraboloids. This form of vault has the advantage that it can be generated by a series of parallel straight lines joining each pair of adjacent arches at any angle other than 90°. In practice this means that the formwork consists of 2 by 4 inches joists laid at 60° one way between the arches, and 4 inch T. & G. boarding laid at 60° the other way on top, **24**. The resulting form has the maximum 'sag' at the crown where the curvature is greatest, and is nearly flat at the springing where the curvature is least, and where it rests on a pair of fairly massive edge-beams which increase the resistance to buck'ling—the factor of safety against buckling, according to Lundgren's formula, is 9 : 1. The span of the vault is 33 feet and the stiffening arches are 16 feet apart, with 3 feet of vault projecting at either end, these projecting parts being uniformly 1½ inches thick, while the main vault thickens out from the ⅝ inch

24

minimum at the crown to 2 inches at the springing. The open ends of the structure are closed by corrugated concrete screen walls, **25**.

25



note.—All these structures were erected by Cubiertas Ala S.A. of Mexico City, to whom Felix Candela is designer, and further technical information and a discussion of the mathematical principles of some of them may be found in booklets Nos. 48-22 and 49-45 of the American Concrete Institute.

HOUSING

MORE OF THE CROYDON EXPERIMENT

The experiment in reclaiming sub-standard houses carried out by Federated Foundries Ltd., in Croydon, and mentioned in the June issue of the REVIEW, has now been completed. Six small two-storey low-rental houses, built in 1880, and devoid of any hot water system, were bought for £142 each. The architects estimated the cost of installing a hot water system, a bath, hand-basin, airing cupboard and W.C. and the tenants were asked whether they would like the improvements to be carried out—they were given a choice of systems—at a rent increase not exceeding 7s. per week and not less than 3s. Four tenants jumped at the proposal and one declined, while the sixth case fell in a different category, since the upper floor was a flat and the ground floor a builder's store and this became technically a 'conversion' rather than an 'improvement.'

The report on the financial side is too involved to be quoted here, covering, as it does, the cost of improvements and of some repairs, calculations of increased rateable values, comparative rentals before improvement, rentals required after improvement to meet the capital cost, the probable rental if the owners purchased the houses from the local authority under the Small Dwellings Acquisition Act, or through a Building Society, and estimates of the present values of the properties. However, the rent increases which would be charged under the present tenant-landlord arrange-

[continued on page 203

The design of foundations for heavy machinery requires specialist knowledge and the assurance of great experience.
These are the foundations for the billet mill at John Lysaght's Scunthorpe Works Ltd., which is now in operation and rolling up to 500,000 tons of steel a year.

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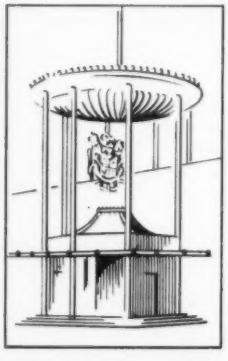
Craftsmanship in Fibrous Plaster

CORONATION DETAIL

Photograph on left shows the Royal Arms, fifteen feet in height, as it appeared in the course of modelling by Dejongs' Craftsmen before being cast in fibrous plaster and erected beneath the canopy at the Royal Entrance to Westminster Abbey Annexe for the Coronation of H.M. The Queen. The refinement of colour to this Arms was strictly consistent with the dignity of the subject, and in every detail befitting to the great Royal Occasion for which Dejongs were honoured to execute it to the design of James Woodford, Esq., R.A., under the direction of Eric Bedford, Esq., A.R.I.B.A., Chief Architect, M.O.W.



A small pen sketch of the canopy under which the Royal Arms is appropriately positioned

Another instance of the high skill and versatility of Dejongs' Craftsmen is this two-thirds size model in fibrous plaster of the Coronation Coach, which was specially constructed for the "Daily Mail" Ideal Home Exhibition, under the direction of James Gardner, Esq., O.B.E., R.D.I. The interest shown in this model as a traditional subject and as a fine example of British Craftsmanship has been widespread. It is now being exhibited in America.

ments are sufficiently striking. For the four houses 'improved' these would go up by 5s. 9d. to 21s. 11d., 5s. 6d. to 17s. 9d., 3s. 8d. to 15s. 11d., and 9s. to 21s. 2d. per week.

No local authority, planning authority or ratepayer for that matter, can afford to ignore the results of this Croydon experiment. Full information and figures are available in three booklets from the Federated Foundries Ltd.

A similar experiment has also been carried out by Allied Ironfounders Ltd., at Stockton, the results of which were filmed and televised last July, though figures which would enable comparison with the Croydon experiment have not been supplied.

H. McG. Dunnett

RESTORATION

VERSAILLES

The first problem in the maintenance and restoration of ancient buildings is to raise the money for it. That is difficult enough. Even when the money is provided, the difficulties of finding enough skilled workers to perform the delicate and intricate work of restoration raise problems of the first magnitude.

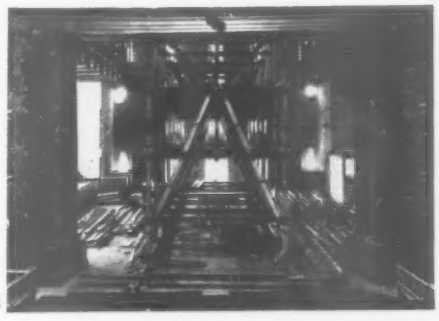
Eighteen months ago the authorities discovered that the Palace of Versailles was in danger of falling into ruin unless restoration work was started immediately. £5 million was the estimate for carrying

1

out essential repairs, mainly to the roofs, ceilings and floors, a huge sum despite the enormous size of the building—the roof area is more than 25 acres. The following typical instances of the damage discovered illustrate the problems which face the restorers.

Above the north wing, all the roofing is being removed so that rotten timbers and many hundred damaged tiles and faulty sections of lead can be replaced. To protect the interior of the building while work is in progress a timber 'umbrella' more than 100 feet long and 15 feet high has been erected over part of the roof, **1**.

In the Gallery of Mirrors, which is 250 feet long and 30 feet wide, the wooden lathes above the vaulted plaster ceiling had become rotten; what was left of them had to be shaved off the plaster, and replaced by an adhesive substance to hold the ceiling together. The fact that the plaster itself was beginning to crumble added considerably to the difficulty of this work.



2

Inside the gallery the deterioration of the plaster had almost ruined the magnificent paintings on the ceiling. A trace had to be made of the paintings, which cover the whole length of the ceiling, and an exact note made of every shade of colour, so that nothing would be permanently lost if part of the ceiling collapsed while the work was going on. In fact, only a few small sections gave way, and repairs to the plaster and paintings are almost complete.

In the rooms above the Queen's Apartments, removal of part of the parquet floor showed that the great beams, more than a foot thick, had rotted away to a powdery dust at the ends. They should have rested on 18 inches of stonework, but some of them were hanging on by no more than two or three inches. To overcome this, a steel framework is being set into the walls immediately above the beams. A new floor is being laid on top of the steel girders from which, in turn, the old timbers will be suspended.

Although a late addition to Versailles and unused for the last 100 years, the Louis XV Opera House was one of the parts in most serious danger. The horse-shoe-shaped auditorium is surrounded by wooden galleries and pillars. It was noticed that some of the pillars were beginning to lean over. Closer examination showed that the main roof timbers were coming adrift from the walls, and the weight of the roof was gradually being transferred to the light woodwork of the interior decor. The same thing was happening at the other end of the roof, over the stage, except that the weight there was coming on to the more substantial stone pillars in the wings. Now, the whole roof is being supported by a massive wooden scaffolding, **2**, built up from the auditorium floor and from the stage. This will be kept in place until the roof timbers have been repaired or renewed, and are once again resting on the walls.

In addition to the buildings, the lawns, hedges, walks, lakes and fountains are included in the present programme of restoration. The beds of several lakes are being completely relaid, and many of the lead statues of the fountains are being repaired. The iron frames inside the lead have rusted away, so the outer lead of the statues is being cut open in order that the iron 'skeleton' can be renewed.

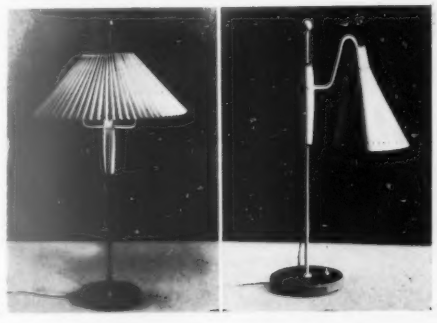
In spite of the difficulties, not least of which is the problem of finding enough highly skilled craftsmen, the task is being tackled with imagination and initiative, and if present progress is maintained, all the essential restoration work should be complete by the end of 1956.

Don and Sheila Burland

LIGHTING

NEW RANGE OF LIGHTING FITTINGS

There have been quite a few new lighting fitting designs marketed since the war, but with two or three outstanding exceptions, more effort seems to have been expended on appearance than on opera-



1 2

tion. Here is a new range, however, which pays attention to both, but particularly to the latter. It is produced by Allom Brothers Ltd., Lombard Road, S.W.19, and was designed by Peter Bell, MSIA, to allow for a wide variety of fittings to be assembled from a minimum number of parts. The range includes

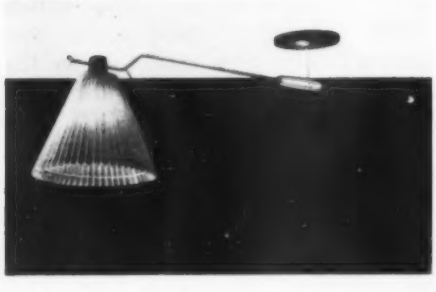
pendant fittings, wall fittings, a standard lamp, table lamps, **1**, **2**, a wall standard and a floor to ceiling standard, and a number of highly ingenious ideas have gone into them.

One device common to most of them is a plastic handgrip which allows the lamp on all standards and table models to be adjusted with one movement. In the ceiling fittings this acts as a fixed casing for the flex and lamp arm. The floor to

3

4

ceiling standard, **4**, is a steel bow which can be sprung into the angles of a standard wall height; the adjustable wall standard is attached to the wall and can either be pushed right back against it or pulled out on an axis at skirting level, **3**. The multi-lamp standard can be adjusted up or down on a central column which runs through the



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centre of the shade; the horizontal ceiling pendant, **5**, swivels through 359° on a 4-foot long horizontal support which can also slide backwards and forwards to alter the distance of the lamp from the central fixing. The other pendant and the wall fittings, **6**, are more conventional—in the modern convention—but illustrate the very wide range that is possible with a choice of (*a*) four standard shades, (*b*) three different lamp arms, and (*c*) alternative colourings of metalwork and shades. These, for example, are available in buckram, metal, metal and buckram and metal and 'perspex,' but the shades for the standards are, of course, larger and proportioned for their special purpose.

6

Some of these fittings should blow a new wind through the lighting industry, which has been content far too long with the idea that adjustability is only a matter of more flex.

HEATING

THE 'HURDAPTA' OPEN FIRE

Ever since the threat and actuality of fuel shortages was really appreciated, the finger of criticism has, quite rightly, been pointed at the domestic open fire. There is now a wide range of specially designed open grates and 'openable' stoves available which operate on a higher thermal efficiency, but the recently introduced 'Hurdapta' open fire, produced by Hurseal Ltd., 229, Regent Street, W.1, is probably the most unorthodox of all. It is designed to combine the heating economy standards of a closed stove with the flaming coal cheerfulness and direct radiation of the open type by making full use of the convection principle.

The fire is freestanding, it can be taken from room to room or taken with the furniture if one moves house. It, of course, requires a flue, but the whole of the chimney is sealed off except for a narrow

flue-pipe opening, without the need for any reconstruction of the fireplace. The fire stands in the hearth and heat radiated from the back is convected. During the night the fire is completely closed up. It burns all the normal fuels at the rate, it is claimed, of ½ lb. to ¾ lb. per hour in a normal sized room, and 4 lb. overnight.

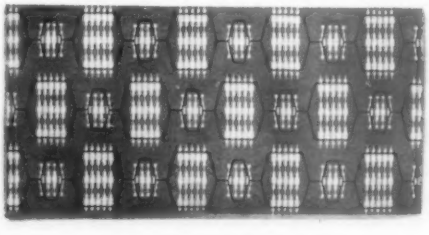
Dimensions are 21 inches high, 19 inches wide at front, 13¾ inches deep with a projection on the hearth of 6¾ inches. It is available in a stove enamelled finish in marble, copper lustre, cream or black and is supplied complete for a handyman to fit for £9 19s. 6d. A wire guard can be supplied to fit over the opening.

FLOORS

CONTEMPORARY CARPETS

There are few products which have lagged so far behind the impact of contemporary advances in furnishing as carpets, and any firm which enters the neglected field with stimulating ideas is especially to be encouraged.

Hitherto specializing in plain carpeting, S. J. Stockwell & Co. (Carpets) Ltd., 16, Grafton Street, W.1, recently commissioned John Grierson to design for them —and his first design 'Links' is now available exclusively through the member



retailers of the Good Furnishing Group. The design has been carried out in their Royalist deep pile Wilton grades—I for heavy duty and II for general use—in a selection of colourings for quantities of 25 lineal yards or more and 27 inches wide, but 36-inch, 45-inch and 54-inch widths are also available to order. The Royalist grade is permanently proofed with Mitin against moths and all other wool dieting insects and the proofing is unaffected by washing or dry cleaning.

In addition to the design illustrated, four more are in production and it is intended to extend the range gradually. These designs are not tied to certain stockists.

The plain carpets manufactured by Stockwell's were fully described in the Architects' Journal Information Sheet on October 30, 1952. They are marketed under the trade names of 'Consulate,' a broadloom, smooth pile carpet, 'Crusader,' a

[continued on page 206

ARCHITECT: E. BERRY WEBBER, F.R.I.B.A.

OFFICERS CLUB PORTSMOUTH

METAL WINDOWS & DOORS

by

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LUXFER LIMITED

WAXLOW ROAD HARLESDEN LONDON N.W.10

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continued from page 204]

plain body carpet with a smooth pile, 'Curlsax,' a rough-textured carpet with a crush-resisting pile in either broadloom or plain body types, and 'Vitasax,' a body carpet with a rough-textured, curly pile. Each type is made in a variety of qualities, choice depending on the amount of wear expected, and in a range of colours. All types carry the seal of guarantee of the Good Housekeeping Institute.

H. McG. Dunnett

THE BUILDING INDUSTRY

COKE APPLIANCE HANDBOOK

One of the most niggly and exasperating of jobs is to maintain a record of all the appliances and materials which may come in handy some day and be able to find details of them when you want them. How much happier existence becomes when an industry wraps it all up in one book and manages to keep it up to date.

The Gas Council has now re-issued the 'Coke Burning Appliances Handbook,' a publication started before the war and nationalization and now appearing in a fourth edition of 250 pages. Its publication now implements the recommendation of last year's Ridley Report and of the Simon Report, 1946, for more detailed and up-to-date information on efficient domestic solid-fuel appliances, together with performance figures and costs. The selection of appliances follows the practice, adopted before the war, and since emphasized in these two reports, of basing this on performance. It also goes more fully into the details of the various types of appliance and gives advice on methods of selection and installation. It is fully illustrated with photographs and diagrams, and divided into sections on Open Fires, Heating Stoves, Small Domestic Boilers, Large Domestic and Small Central Heating Boilers and Free Standing Stoves, with introductory technical notes for each. A list of BS Specifications and Codes of Practice is also given. The handbook is available to architects, builders and all others interested in the selection of coke-burning appliances and can be obtained from The Gas Council, 1 Grosvenor Place, S.W.1, or through the Area Boards, price 12s. 6d.

BOOKLETS RECEIVED

Polyester Handbook issued by Scott, Bader & Co., Ltd., 109 Kingsway, W.C.2, is an account of the characteristics and application of unsaturated polyester synthetic resins which are the basis of the reinforced glass fibre plastics which are playing an increasingly important part in large-sized plastic moulding.

Carter Hand-printed Tiles, issued by Carter & Co., Ltd., Poole, Dorset, illustrates their current range of designs in colour and underlines the growing importance of decorative tiles in building. One recent application, where the design was taken direct from the front cover of this leaflet, was in the UK Pavilion at the Rhodes Centenary Exhibition at Bulawayo, designed by Misha Black.

Asbestolux describes the specifications, qualities, applications and methods of working the insulation board marketed under that name by the Cape Asbestos Co., Ltd., 114-116 Park Street, W.1.

Lighting the Way is a short account of the Benjamin Electric Co., Ltd., Brantwood Road, Tottenham, N.17, with particular reference to the new Scientific

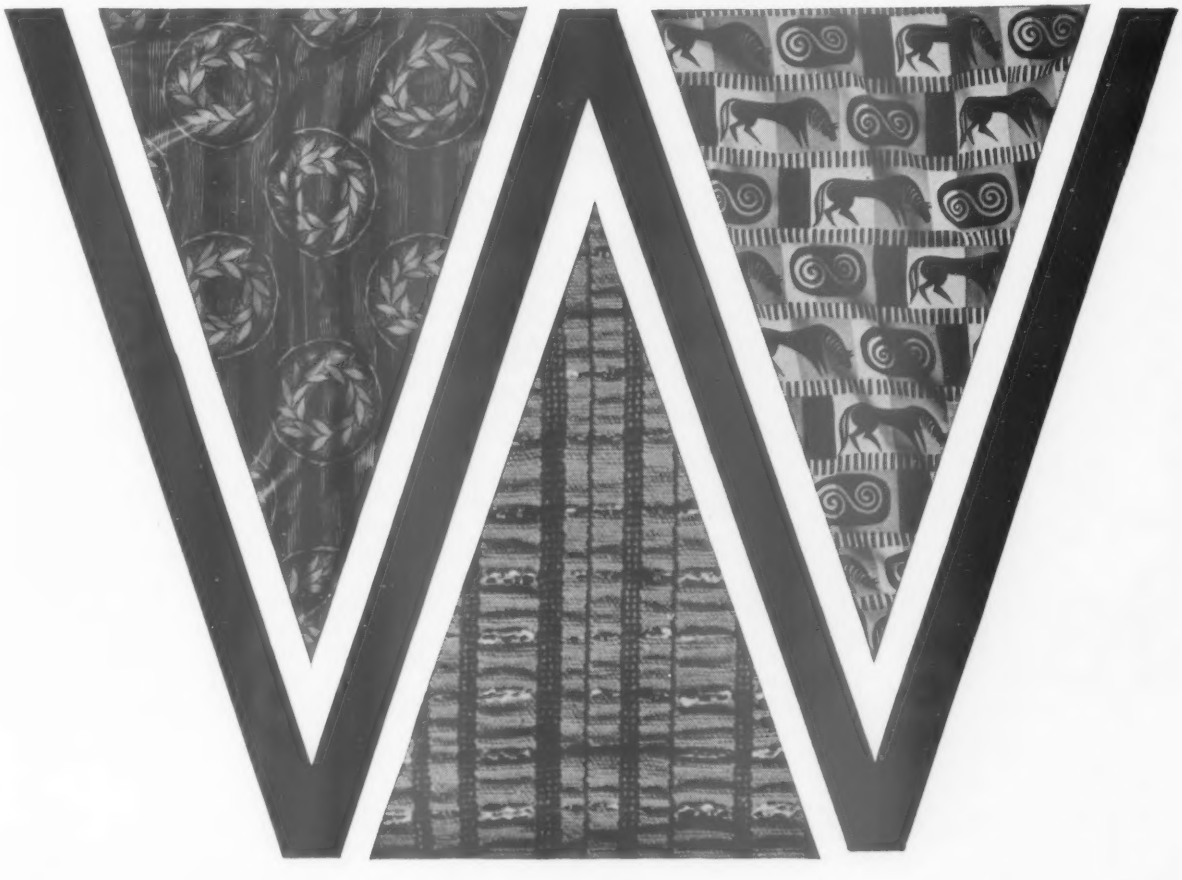
[continued on page 208

EDINBURGH WEAVERS

Edinburgh Weavers make unusual modern fabrics of particular interest to interior decorators. These are to be seen in ships and hotels, airlines and exhibitions, houses and public buildings, at home and abroad.

There is a wide range and many are woven in specially-commissioned designs.
Please write to 15-19 Cavendish Place, London, W.1, or Dentonhill Works, Carlisle.

ONE OF THE SPECIALIST BRANCHES OF MORTON SUNDOUR FABRICS LTD.



continued from page 206]

Research Establishment completed recently and elaborately equipped to undertake the development of lighting fittings and lighting technique.

New Defences Against Corrosive Attack is issued by the Dunlop Rubber Co., Ltd., St. James's House, St. James's Street, S.W.1, and outlines the part that the chemically-resistant cements, produced by their subsidiary company Semtex Ltd., can play in lessening the cost of chemical corrosive action in industrial processes.

Metwul, published by John Yuille (Metal Works) Ltd., Scottish Industrial Estate, Hillingdon, Glasgow, S.W.2, goes in considerable detail into the hazards in industry of dust and gives details of the air cleaning, filtering and dust extraction equipment which they manufacture.

Audix is a descriptive list of the sound broadcast equipment designed and produced for installation in schools, hospitals and industrial establishments by Audix B.B. Ltd., Hockerill Works, Bishops Stortford, Herts.

CHANGE OF NAME

Structural & Mechanical Development Engineers Ltd., 2 Buckingham Avenue, Slough, Bucks, announce that the name of the company has been changed to 'S.M.D. Engineers Ltd.' Their address remains the same, but the telegraphic address becomes 'Alframe, Slough.'

S.M.D. Engineers is the construction company of the Almin Group, of which Almin Ltd., Farnham Royal, Bucks, is the parent company, specializing in aluminium construction and prefabrication and the marketing of 'Alframe' bungalows, classrooms, hangars and industrial buildings.

APPOINTMENTS

Metropolitan-Vickers Electrical Co., Ltd., announce the appointment of Dr. Willis Jackson to be Director of Research and Education as from July 1 last, and to a seat on the Board. This will enable Dr. Dannatt to be released so that he can extend his duties as Assistant Managing Director. Dr. Willis Jackson is a member of the Scientific Advisory Council of the Ministry of Supply, of the Scientific Grants Committee and Radio Research Board of the DSIR, and of the Technology Committee of the University Grants Committee.

J. Gliksten & Co., Ltd., announce that Charles Hard has been appointed branch manager of the new Hull office of Merediths Ltd., importers of softwoods, at Ocean Chambers, 54 Lowgate, Hull, telephone Central 15097.

Indestructible Paint Co., Ltd., announce that Donald Macphail is now Sales Director. He has been the company manager of the Scotland and Northern Ireland area from 1948 until 1952 and subsequently was Deputy Sales Director.

CONTRACTORS

Linear Accelerator and Cyclotron Building, Hammersmith Hospital, for the Medical Research Council. *Architects:* Ramsey, Murray & White. *General contractors:* Sir Robert McAlpine & Sons. *Sub-contractors and suppliers: Tanking:* Val de Travers Asphalte Paving Co. *Gas services: mains:* North Thames Gas Board; *building:* G. N. Haden & Sons. *Special services, plumbing, hot water, heating, ventilation:* G. N. Haden & Sons. *Electrical services: main:* London Electricity Board; *building (excluding linear accelerator and cyclotron supplies):* Electrical Installations Ltd. *Large sliding door mechanisms:* F. Piper & Sons. *Steel box forming radiation room door:* G. A. Harvey & Co. *Roller steel shutters:* Haskins Rolling Shutters. *Concrete roof lights:* J. A. King & Co. *Haulage rings (cyclotron chamber):* Turton Ltd. *Bricks:* Uxbridge Flint Brick Co. *Steel windows:* W. James & Co. *Steel staircase (assembly bay):* G. A. Harvey & Co. *Metal partitions (plant rooms):* Decorative Iron Work Co. *Special lighting units, cyclotron control room:* Holophane Ltd. *External concrete*

[continued on page 210

continued from page 208]

block and paving: Waderete Ltd. *Aluminium door:* Williams & Williams. *Special lantern light linear accelerator suite:* Paragon Glazing Co. *Bituminous felt roofing:* Permanite Ltd. *Sanitary fittings, swivel fume cupboard taps:* B. Finch & Co. *Laboratory fitments, special apparatus cupboards, fume cupboards, target fume cupboard extracts:* A. Gallenkamp & Co. *Door furniture:* Lockerbie & Wilkinson. *Target ducts cyclotron chamber, radio-active materials safe:* W. & E. Moore. *Door kicking plates:* Merchant Trading Co.; Wainwright & Waring. *Cupboards generally:* Ram & Austin. *Special loaded concrete (Radiation room door):* Colcrete Ltd. *Flooring (Vynil tiles, linoleum):* Semtex Ltd. *Walls and floor tilings:* Carter & Co. *Aluminium trimming to drips, etc.:* Fredk. Braby & Co. *Concrete paint:* Stic B Paint Sales. *Paints and distempers generally:* Hadfields (Merton) Ltd. *Waterproofing paint and materials:* R.I.W. Protective Products Co. *Collapsible ladders:* Loft Ladders. *Polythne wastes, etc.:* Prodorite Ltd. *Balcony, railings, balustrading, handrails:* Hurst Franklin & Co.; George Wright (London). *Terrazzo and marble work:* Art Pavements and Decorations. *Cubicle curtain tracks:* Hunter & Hyland. *Black-out blinds:* J. Avery & Co. *Venetian and sun blinds:* J. Avery & Co. *Sliding door gear (laboratories):* E. Hill Aldam & Co. *Acoustic tiles (cyclotron control room):* Burgess Products. *Cat ladders:* Clark Hunt & Co. *Armour plate doors:* James Clark & Eaton. *Lift bridge (assembly bay):* F. Piper & Sons. *Fire appliances:* Fire Armour; Foamite Ltd. *Sliding entry door to assembly bay:* John Booth & Sons.

Housing at Churchill Gardens, Pimlico. *Architects:* Powell & Moya. *General contractor:* Rowley Bros. *Sub-contractors: Reinforced concrete work:* The Helical Bar & Engineering Co. *Heating and hot water:* G. N. Haden & Sons. *Electrical services:* Troughton & Young. *Wood windows:* Boulton & Paul. *Kitchen fittings:* Kandya. *Metal windows and private balcony fronts:* Williams & Williams. *Access balconies:* H. & C. Davis & Co. *Lifts:* The Express Lift Co. *Pressed steel tanks:* Braithwaite & Co. *Bricks (Uxbridge Flint Lime, Staff. Blue Engineering & Dunbriks):* Richard Parton (Builders' Merchants). *Cill tiles:* McKenzie Brytiles. *Sanitary fittings:* Stitsons Sanitary Fittings. *Metal door trims:* John Thompson Beacon Windows. *Basement damp-proofing:* Wm. Briggs & Sons. *Cork insulation:* The Elfix Co. *Plastic tile flooring 'Accotile':* National Flooring Co. *Rubber based enamel paint:* Inertol Co. *Internal paint:* Jenson & Nicholson. *Distemper:* The Walpamur Co. *Relay wireless and television:* British Relay Wireless. *Terrazzo shelves:* W. B. Simpson & Sons. *Pavement lights:* J. A. King & Co. *Waterproof roofing:* The Neuchatel Asphalte Co. *Pumps:* W. H. Wilcox & Co. *Ironmongery:* Yannedis & Co. *District heating mains:* J. Jeffreys & Co.

Shop at 13, St. George's Street, Canterbury, Kent. *Architect:* Ellis E. Somake. *General contractors:* G. H. Denne & Son (*for the structure*); Courtney Pope Ltd. (*for the shopfitting*). *Sub-contractors: Reinforcement:* Constel (Structures) Ltd. *Metal windows:* Williams & Williams Ltd. *Heating installation:* Rosser & Russell Ltd. *Electrical installation:* Courtney Pope (Electrical) Ltd. *Stone facings:* Kendall's Stone & Paving Co. *Sanitary ware:* W. N. Froy & Sons. *Floor tiles:* Semtex Ltd. *Facing bricks:* Richard Parton Ltd. *Balustrading and handrails:* Grundy Arnatt Ltd. *Ironmongery:* A. J. Binns Ltd. *Incinerators:* Wm. Sugg & Co. *Slate cills:* Anselm Odling & Sons. *Drapes and carpets:* F. G. Minter (Decorations) Ltd. *Paints:* Thos. Parsons & Sons. *False ceilings:* Tomei & Sons. *Terrazzo:* Marriott & Price Ltd. *Wallpapers:* Primavera. *Pneumatic cash tubes:* Lamson Engineering Co. *Venetian blinds:* Venetian Vogue Ltd. *Blinds:* Artistic Blind Co.

Factory for Revertex Ltd., Harlow New Town, Essex. *Architects:* Frederick Gibberd, Victor Hamnett, G. T. Goalen. *General contractor:* Rush & Tompkins. *Sub-contractors: Bricks (2nd hard London Stocks):* Eastwood Sales Ltd. *Bricks (Flettons):* London Brick Co. *Bricks (Wire Cuts):* W. Creighton & Co. *Artificial stone:* Stuart's Granolithic Co. *Structural steel:* Dawnays Ltd. *Fireproof construction (precast r.c. floor and roof to office block):* Concrete Ltd. *Ceramic tiles:* Langley London Ltd. *Roofing felt:* General Asphalte Co. *Patent glazing:* County Glazing (Kent) Ltd. *Patent flooring:* Korkoid Decorative Floors; Revertex Ltd. *Waterproofing materials:* R.I.W. Protective Products Co. *Wood wool slabs:* Thermacoust Ltd. *Asbestos cement sheeting:* Turners Asbestos Cement Co. *Central heating, ventilation, water supply:* W. Richardson & Co. *Boilers:* Clarkson Thimble Tube Boiler Co. *Electric light fixtures:* Crompton Parkinson Ltd. *Plumbing:* J. Martin (Brockley) Ltd. *Sanitary fittings:* B. Finch & Co. *Signs:* Lockerbie & Wilkinson (Birmingham) Ltd. *Casements:* Williams & Williams Ltd. *Marble:* The Mosaic & Terrazzo Precast Concrete Co. (Staines). *Painting:* George Jones & Son. *Oil paints and distemper:* Mander Brothers Ltd. *Emulsion paints based on 'Emultex'* Vitretex (England) Ltd. *Cementone:* Joseph Freeman, Sons & Co. *Office fittings:* Cygnet Joinery Ltd.

School of Ceramics, Royal College of Art, South Kensington, SW7. *Architects:* Basil Ward of Ramsey, Murray & White. *General contractors:* Hall, Beddall & Co. *Sub-contractors: Heating and water services:* Ellis (Kensington). *Metal windows:* Aygee. *Gas fired kilns, tracks and rail tracks:* Thermic Equipment & Engineering Co. *Electrical work:* Grierson Ltd. *Linoleum:* Catesbys Ltd. *Ironmongery:* Teuten & Co. *Show cabinets:* Harris & Sheldon. *Sanitary goods:* John Bolding & Sons. *Steel staircase:* Safety Tread Syndicate.

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