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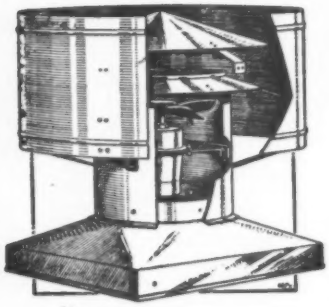
★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to Ic one week, Ie to Z the next. In all cases where the town is not mentioned the word LONDON is implicit in the address.

IEE	Institution of Electrical Engineers. Savoy Place, W.C.2.	Temple Bar 7676
IES	Illuminating Engineering Society. 32, Victoria Street, S.W.1.	Abbey 5215
IGE	Institution of Gas Engineers. 1, Grosvenor Place, S.W.1.	Sloane 8606
IHVE	Institution of Heating and Ventilating Engineers. 75, Eaton Place, S.W.1.	Sloane 3158
IIBD	Incorporated Institute of British Decorators. Drayton House, Gordon Street, W.C.1.	Euston 2450
ILA	Institute of Landscape Architects. 12, Gower Street, W.C.1.	Museum 1783
I of Arb.	Institute of Arbitrators, 35/37, Hastings House, 10, Norfolk Street, Strand, W.C.2.	Temple Bar 4071
IOB	Institute of Builders. 48, Bedford Square, W.C.1.	Museum 7197
IR	Institute of Refrigeration. Empire House, St. Martin's-le-Grand, E.C.1.	Monarch 7391
IRA	Institute of Registered Architects. 47, Victoria Street, S.W.1.	Abbey 6172
ISE	Institution of Structural Engineers. 11, Upper Belgrave Street, S.W.1.	Sloane 7128-29
IWA	Inland Waterways Association. 11, Gower Street, W.C.1.	Museum 9200
LIDC	Lead Industries Development Council. Eagle House, Jermyn Street, S.W.1.	Whitehall 7264
LMBA	London Master Builders' Association. 47, Bedford Square, W.C.1.	Museum 3891
MARS	MARS Group (English Branch of CIAM). 34, Gordon Square, W.C.1.	Euston 2158-9
MOA	Ministry of Agriculture and Fisheries. 55, Whitehall, S.W.1.	Whitehall 3400
MOE	Ministry of Education. Curzon Street House, Curzon Street, W.1.	Mayfair 9400
MOH	Ministry of Health. Whitehall, S.W.1.	Whitehall 4300
MOLNS	Ministry of Labour and National Service. St. James's Square, S.W.1.	Whitehall 6200
MOS	Ministry of Supply. Shell Mex House, Victoria Embankment, W.C.	Gerrard 6933
MOT	Ministry of Transport. Berkeley Square House, Berkeley Square, W.1.	Abbey 7711
MOTCP	Ministry of Town and Country Planning. 32-33, St. James's Square, S.W.1.	Whitehall 8411
MOW	Ministry of Works. Lambeth Bridge House, S.E.1.	Reliance 7611
NAMMC	Natural Asphalte Mine-Owners and Manufacturers Council. 94, Petty France, S.W.1.	Abbey 1010
NAS	National Association of Shopfitters. 9, Victoria Street, S.W.1.	Abbey 5277/8
NBR	National Buildings Record. 37, Onslow Gardens, S.W.7.	Kensington 8161
NCBMP	National Council of Building Material Producers. 2, Caxton Street, S.W.1.	Abbey5111
NFBTE	National Federation of Building Trades Employers. 82, New Cavendish Street, W.1.	Langham 4041
NFBTO	National Federation of Building Trades Operatives, Federal House, Cedars Road, Clapham, S.W.4.	Macaulay 4451
NFHS	National Federation of Housing Societies. 13, Suffolk St., S.W.1.	Whitehall 2881/2/3
NHBRC	National House Builders Registration Council. 82, New Cavendish Street, W.1.	Langham 4041
NPL	National Physical Laboratory. Head Office, Teddington.	Molesey 1380
NSAS	National Smoke Abatement Society. Chandos House, Buckingham Gate, S.W.1.	Abbey 1359
NT	National Trust for Places of Historic Interest or Natural Beauty. 42, Queen Anne's Gate, S.W.1.	Whitehall 0211/2
PEP	Political and Economic Planning. 16, Queen Anne's Gate, S.W.1.	Whitehall 7245
RCA	Reinforced Concrete Association. 94, Petty France, S.W.1.	Whitehall 9936
RIAS	Royal Incorporation of Architects in Scotland. 15, Rutland Square, Edinburgh.	Edinburgh 20396
RIBA	Royal Institute of British Architects. 66, Portland Place, W.1.	Langham 5721/7
RICS	Royal Institution of Chartered Surveyors. 12, Great George St., S.W.1.	Whitehall5322
RFAC	Royal Fine Art Commission. 22A, Queen Anne's Gate, S.W.1.	Whitehall 3935
RS	Royal Society. Burlington House, Piccadilly, W.1.	Regent 3335
RSA	Royal Society of Arts. 6, John Adam Street, W.C.2.	Temple Bar 8274
RSI	Royal Sanitary Institute. 90, Buckingham Palace Road, S.W.1.	Sloane 5134
RIB	Rural Industries Bureau. 35, Camp Road, Wimbledon, S.W.19.	Wimbledon 5101
SBPM	Society of British Paint Manufacturers. 20, Piccadilly, London, W.1.	Regent 6347
SCR	Society for Cultural Relations with the USSR. 14, Kensington Square, London, W.8.	Western 1571
SE	Society of Engineers. 17, Victoria Street, Westminster, S.W.1.	Abbey 7244
SFMA	School Furniture Manufacturers' Association. 30, Cornhill, London, E.C.3.	Mansion House 3921
SIA	Structural Insulation Association. 14, Moorgate, London, E.C.2.	Central 4444
SIA	Society of Industrial Artists. Room 243, Empire House, St. Martin's-le-Grand, E.C.1.	Metropolitan 8344
SNHTPC	Scottish National Housing & Town Planning Council. Hon. sec., Robert Pollock, Town Clerk, Rutherglen.	
SPAB	Society for the Protection of Ancient Buildings. 55, Great Ormond Street, W.C.1.	Holborn 2646
TCPA	Town and Country Planning Association. 28, King Street, Covent Garden, W.C.2.	Temple Bar 5006
TDA	Timber Development Association. 75, Cannon Street, E.C.4.	City 4771 (6 lines)
TPI	Town Planning Institute. 18, Ashley Place, S.W.1.	Victoria 8815
TTF	Timber Trades Federation. 81, Cannon Street, E.C.4.	City 1476
WDC	War Damage Commission. Devonshire House, Mayfair Place, Piccadilly, W.1.	Mayfair 8866
WEDA	Welfare Equipment Development Association. 61, St. Paul's Churchyard, E.C.4.	City 4263/4
ZDA	Zinc Development Association. Lincoln House, Turl Street, Oxford.	Oxford 47988



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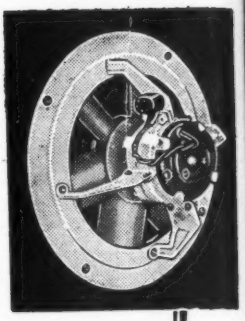

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POTTERY THROUGH THE AGES · NO 20

Specialty drawn by Gordon Nicoll, R.I.

EUROPE DISCOVERS THE SECRET OF PORCELAIN

Portuguese and Dutch traders introduced Chinese porcelain into Europe. Soon there developed among the wealthier classes a great wave of enthusiasm for this precious and translucent expression of the potter's art. Many imitations were made by European potters in tin-glazed earthenware and there was a sustained and widespread search for the secret of true "hardpaste" porcelain.

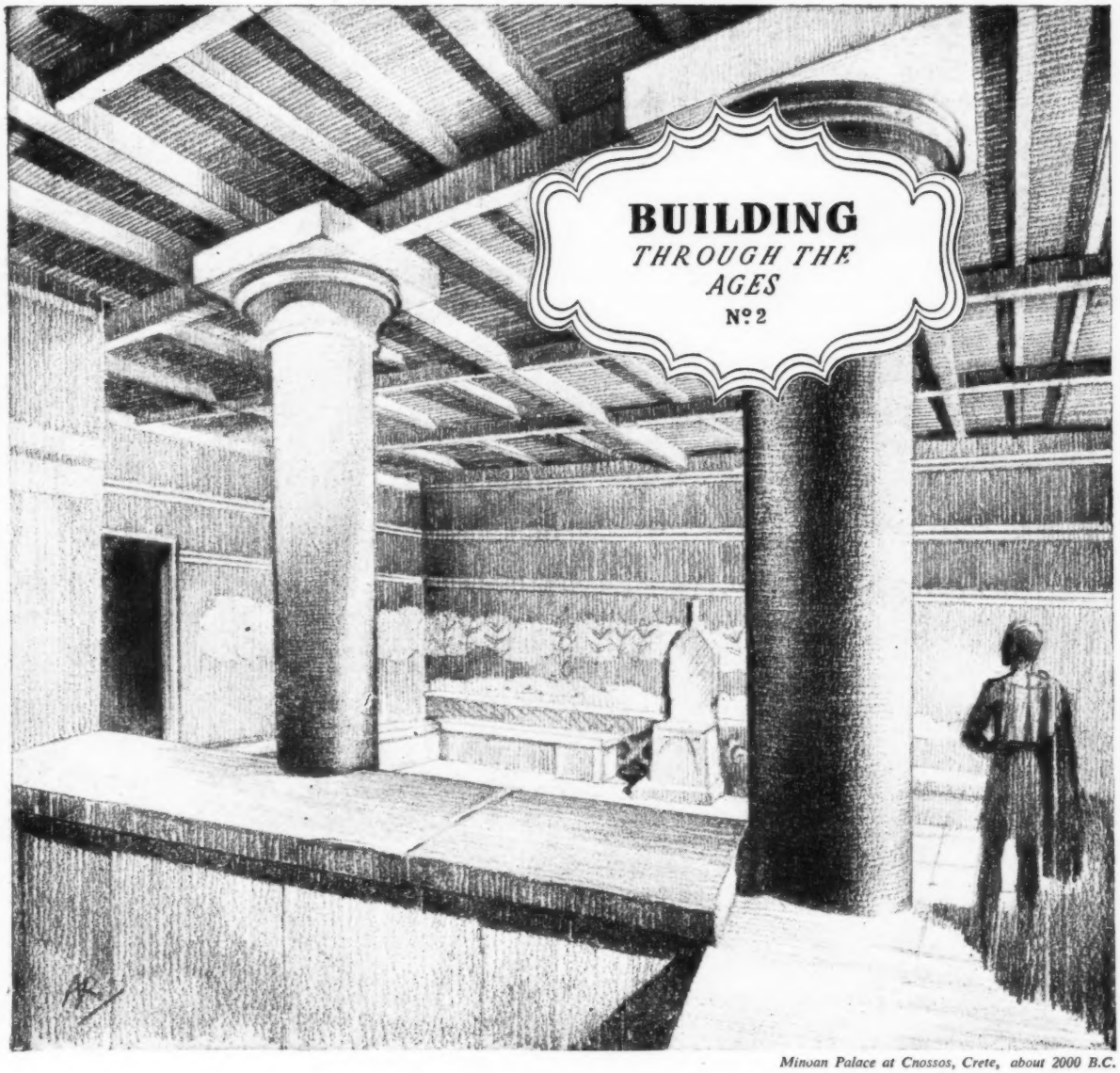
An artificial or "soft-paste" material, known as Medici porcelain, was produced in Florence as early as 1580. Other "soft-paste" types, partly composed of glass, were developed nearly 100 years later in Rouen and Saint-Cloud by French potters. And finally in Saxony early in the 18th century, after many experiments, a German alchemist — Johann Friedrich Bottger — discovered the great secret of the all-essential materials which the Chinese called *Kaolin* and *petuntse*, now known to us as china clay and china stone. He also discovered how the ingredients should be prepared, mixed and fired. Under Royal patronage, the famous Meissen porcelain factory near Dresden was founded in 1710 and retained the leadership in Europe for half a century, despite the betrayal of manufacturing secrets to rival potteries in Vienna and Venice.

The production of porcelain became a luxury art, depending largely on the patronage of princes and noblemen. It was strongly influenced first by the Baroque and later by the Rococo styles so much in vogue at the time. The fragile, delicate material lent itself to the shaping of an almost limitless variety of colourful creations, charming and playful at their best but only too easily becoming crude and over-elaborated.

It was said that every German prince wished to own a porcelain factory! Other European rulers followed suit and works were established in Capo-di-Monte, Vincennes, Sevres and many other places. The first English porcelain productions were those of the famous Chelsea and Bow factories, both of which were established about 1744, the former owing its origin to French and Belgian immigrants.

In the Chelsea productions in particular the influence of Chinese, German and French wares can be seen. During their comparatively brief existence the Bow and Chelsea works produced an astonishingly brilliant and varied output of figures, tablewares, snuff-boxes, scent bottles, powder boxes and other creations which were periodically disposed of at auction sales. These wares are today eagerly sought after by collectors all over the world.

18th century English porcelain, with the exception of that produced for a short period at Plymouth and Bristol, was all of the "soft-paste" variety, fired at a lower temperature than continental or chinese porcelain and comparatively easy to mark with file.



Minoan Palace at Cnossos, Crete, about 2000 B.C.

CRETAN civilisation was one of the earliest in the world, being contemporary with the great days of Egypt, and preceding the much better known Greek period of prosperity.

Centred largely round the royal palace at Cnossos, on the island of Crete, there developed a long era of peaceful and progressive existence uncommon in that ancient world. The remains which have been discovered prove the Cretans to have been a people of remarkable artistic and creative ability.

In addition to producing beautiful sculpture, pottery, metalwork, and other ornaments, they set new standards in building, far superior to anything previously known. The Palace at Cnossos was undoubtedly beyond comparison then for size, luxury and building technique.

The picture gives some idea of its interior construction, using wooden beams on great stone pillars. Apart from this original basic structure there were ingenious details such as water pipes all through the place, and many other conveniences we are apt to think were only developed long after that time.

Though Cretan civilisation was eventually wiped out by its enemies, the relics that remain indicate it as a bright spot in the world's history.

Laying copper roof on the Athenæum Club, London

The Case for Copper

There are several very good reasons why copper is specified for use in making a building watertight. The material selected must be extremely durable yet light and easy to apply. It must be absolutely weather-proof and economical in use. Copper combines these attributes better than any other weathering medium and, in addition, may effect a saving in controlled materials. Many of the most noble buildings in the world are roofed with copper — a fact that bears striking testimony to the out-standing qualities of this beautiful building material.

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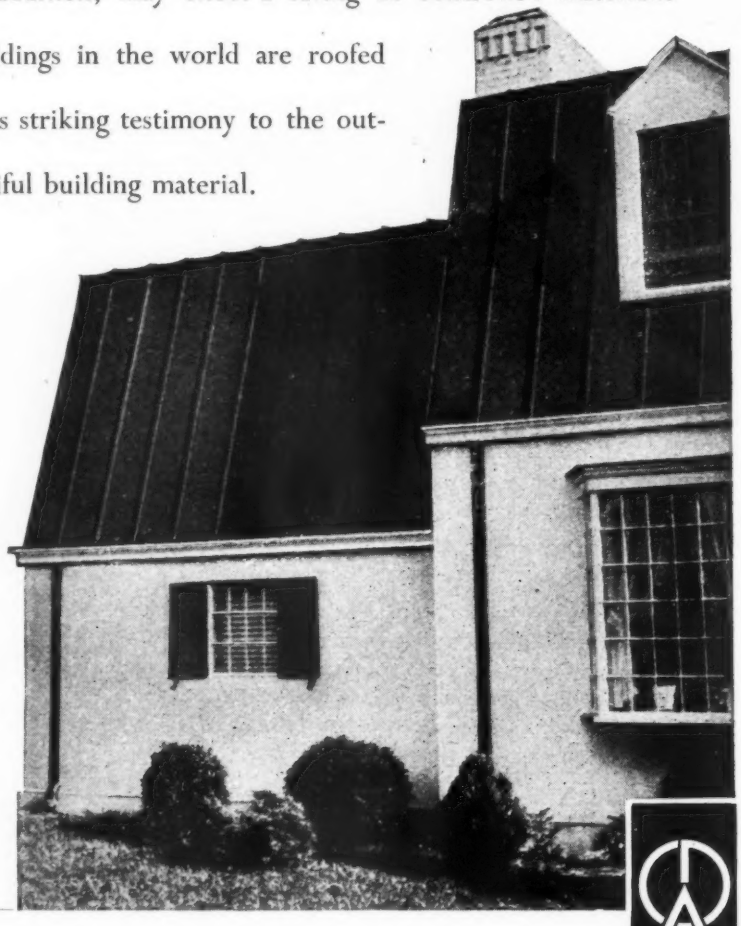

An American all-copper House

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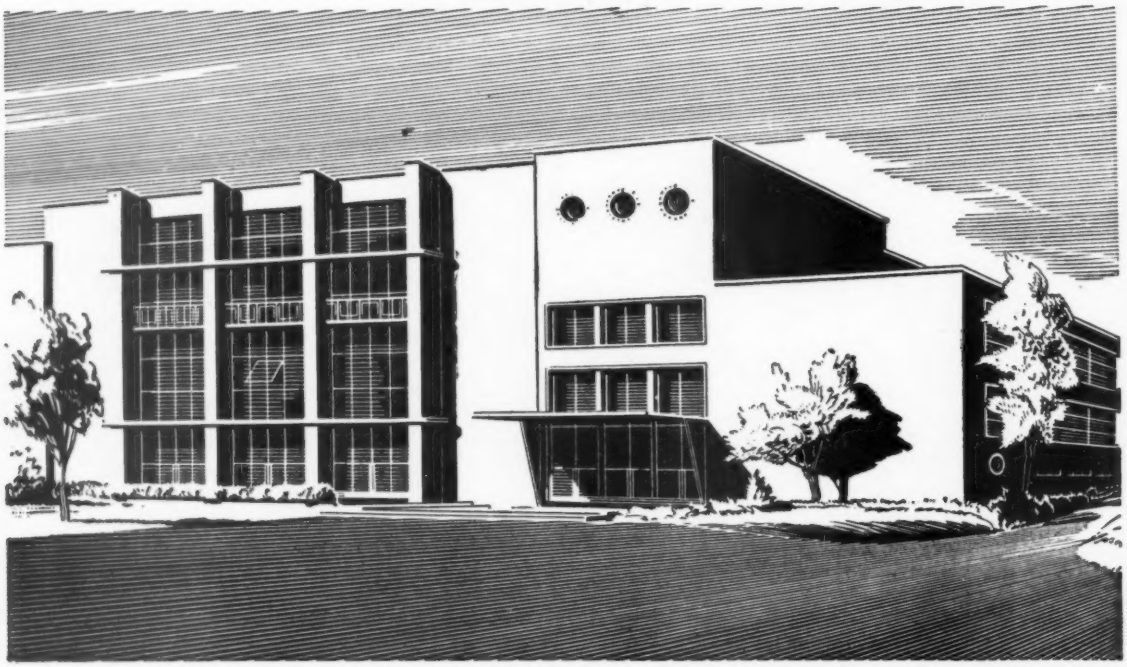

Chatham—Fort Luton County Primary School, for the Kent Education Committee. Architects: Messrs. Read and McDermott, F.R.I.B.A., in collaboration with S. H. Loweth, Esq., F.S.A., F.R.I.B.A., Kent County Architect.

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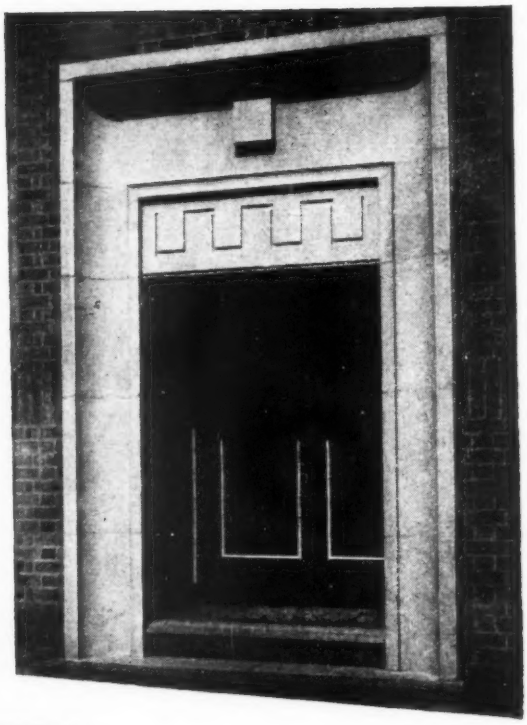

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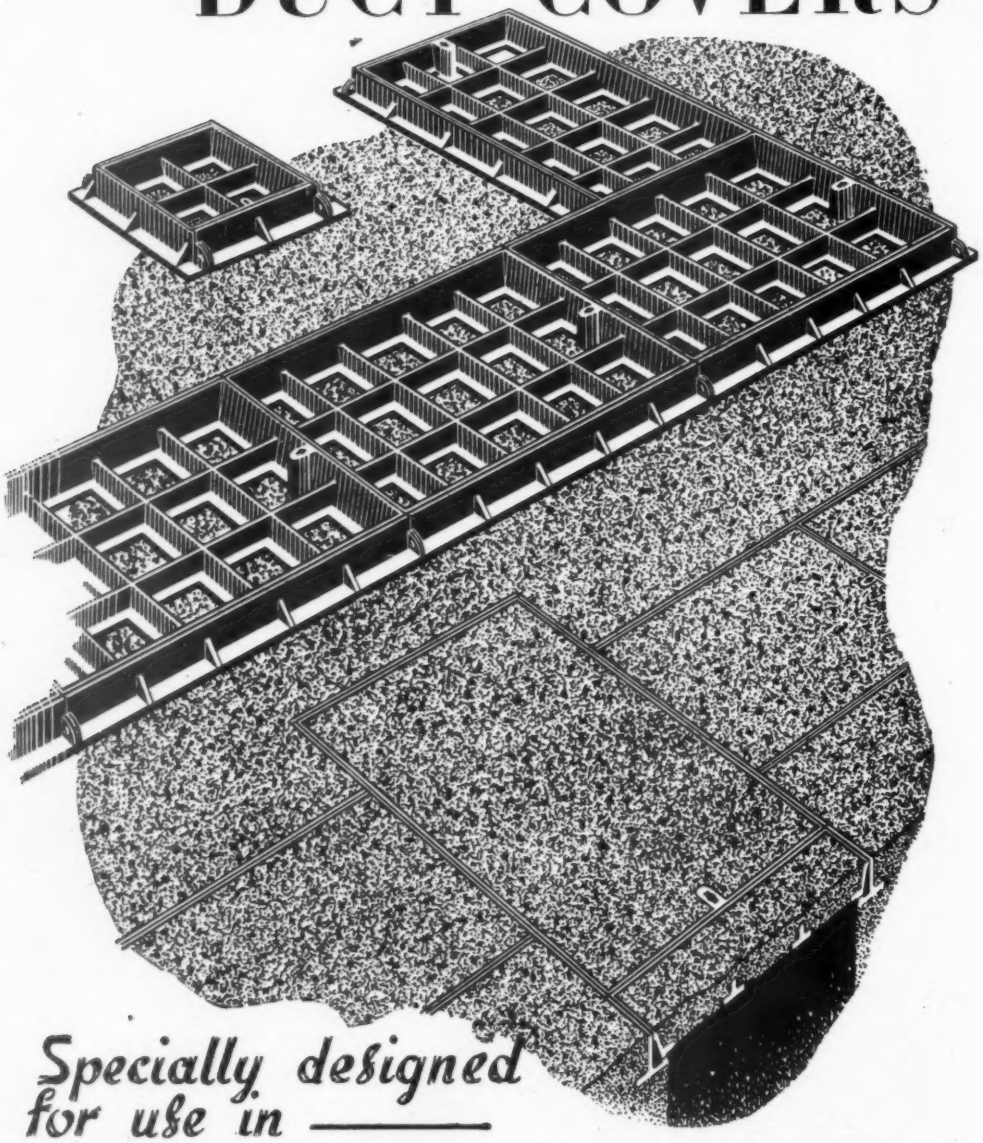

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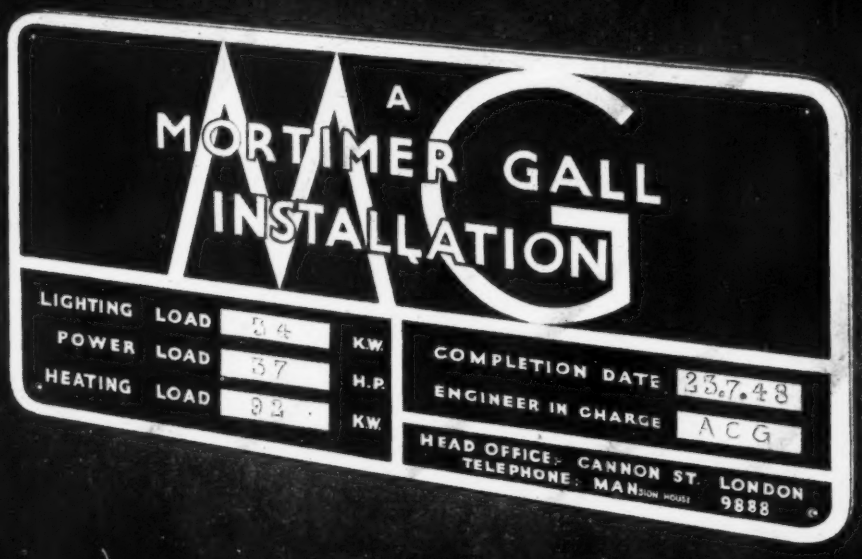

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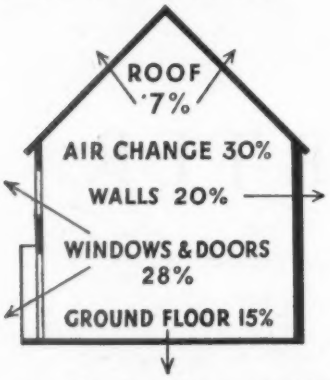
FACTS

about Thermal Insulation of Houses

Thermal insulation of houses, of course, is no new development. The results of Government research have been widely publicised, and many houses now being built are insulated in accordance with official recommendations, which are unbiased, and make due allowance for the fact that :

- **A house is not a hermetically sealed chamber, but something to be lived in.**
- **As long as houses have doors, windows and means of ventilation, they will always be subject to heat losses, however the inner surfaces are treated.**
- **Thermal insulation must be both practical and economical.**

The following diagram shows the heat losses likely to occur from a small terrace house of good modern construction, with insulation up to recommended standards and a reasonable degree of heating.



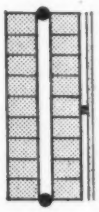
It will be seen that five factors must be taken into account when computing heat losses, that certain losses must be tolerated in all practical and economic house building, and that the loss through walls when insulated to recommended standards is only about one-fifth of the total.

RECOMMENDED STANDARDS FOR WALLS

In the Official Housing Manual, the recommended U-value for walls under normal conditions of exposure is 0.3, with a suggestion that, where the type of construction permits, this figure should be improved to 0.15. In the Post-war Study Committee Report No. 19, it is suggested that external walls should, if possible, have a U-value of not more than 0.2, and that round the living room, where the greatest heat loss occurs, the value should be not more than 0.15, if the mode of heating is capable of close control. Where careful regulation of the heating is not possible, however, e.g. with an open fire, the recommended value for all walls is 0.2.

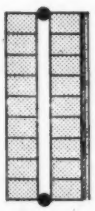
EFFICIENCY OF BRICK WALLS

Brickwork normally provides reasonably good insulation, and the thicker the wall the lower its thermal conductivity. Cavity construction, particularly when the cavity is unventilated, is more efficient than a solid wall. 9″ solid brickwork, plastered on the inner face, has a U-value of 0.43. An 11″ unventilated cavity wall, plastered on the inner face, has a U-value of 0.30. When it is desired, in the interests of fuel economy, to reduce heat losses still further, a lining or decorative panelling may be applied to the inner face. The following diagrams show a few of many alternative treatments, and the results thereby achieved :



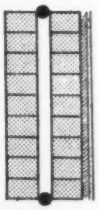
⅜″ Plasterboard on battens :

U=0·23



½″ Cork, plastered :

U=0·21



1″ Wood Wool, plastered :

U=0·20

½″ Fibreboard on battens :

U=0·18

Those fortunate enough to live in brick houses know that good brick construction ensures warmth and comfort. When additional thermal insulation is desired, it may be applied as easily and economically to brick walls as to any other form of construction. But the BRICK house alone possesses all the following important characteristics :
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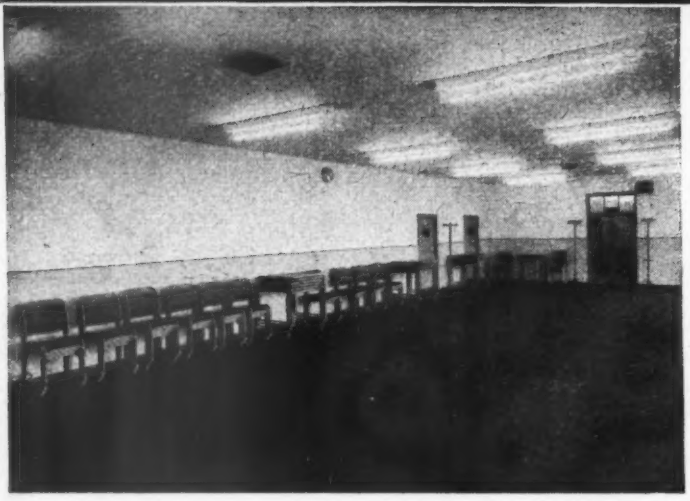

On the left the same floor is shown cleared for dancing with chairs and tables stacked neatly and economically to one side. Kingfisher Chairs and Tables are specially designed for quick and easy assembly or nesting.

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Architect: M. H. G. Blackman, A.R.I.B.A., A.M.T.P.I.

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DIARY FOR OCTOBER NOVEMBER AND DECEMBER

Titles of exhibitions, lectures and papers are printed in italics. In the case of papers and lectures the authors' names come first. Sponsors are represented by the initials given in the glossary of abbreviations on the front cover.

BRISTOL. *Exhibition of Prestressed Concrete.* Electricity House, Colston Avenue, City Centre. (Sponsor, MOW). First day, 2.30 p.m.-5 p.m.; and 10 a.m.-5 p.m. on successive days (including Saturdays). OCT. 21-NOV. 1

LONDON. *Exhibition of Photographs of Italian Architecture.* Buildings of historic interest photographed by Ralph Deakin. At 66, Portland Place, W.1. (Sponsor, RIBA.) Monday to Friday, 10 a.m. to 7 p.m.; Saturday, 10 a.m. to 5 p.m. UNTIL OCT. 29

Pictures for Schools Exhibition. At the Whitechapel Art Gallery, High Street, E.1. (Sponsor, the Society for Education in Art. Weekdays, 11 a.m.-6 p.m.; Sunday, 2 p.m.-6 p.m. UNTIL OCT. 29

Dry Rot Exhibition. Building Centre, 9, Conduit Street, W.C.1. (Sponsor, DSIR.) UNTIL OCT. 22

Textiles and Textures Exhibition. Murray House, Petty France, S.W.1. (Sponsor, CID.) Daily, 10 a.m. to 5 p.m.; Saturdays, 10 a.m. to 12 noon. UNTIL OCT. 21

Professor C. A. Hart. *The Influence of Modern Methods of Surveying on the Advancement of Public Works Engineering and Town Planning.* University College, Gower Street, London, W.C.1. (Chadwick Public Lectures.) 2.30 p.m. Nov. 22

COMPETITIONS

New Civic Hall at Guildford. Promoters: Guildford Corporation. Assessor: G. A. Jellicoe, F.R.I.B.A. Premiums: (1) £1,000. (2) £500. (3) £250. Site: Firs Estate, London Road, Guildford. The promoters require a design for (*a*) a large assembly hall, to seat 1,200 persons, to be used for civic and concert purposes, and (*b*) a small hall, to seat 500 persons, for lectures with an alternative use as a banqueting hall. The halls are to be designed for use separately or together for one function, with ancillary accommodation which includes refreshment rooms and kitchen; lounges; cloakrooms and lavatories; dressing rooms; offices for officials and the caretaker's flat. Drawings, which must be mounted on stiff board, are to be drawn to the scale of 16 feet to one inch. Enquiries must be received by the Town Clerk, Municipal Offices, Guildford, Surrey, with a deposit of £2 2s., to be paid by the competitor for conditions of entry. The last day for questions is November 15, 1949. Designs must be received by April 30, 1950.

(*a*) *Hall of Residence and* (*b*) *Site Layout at Nottingham University.* Promoters: the Council of the University of Nottingham. Assessor: Sir Percy Thomas. Premiums: (1) £1,000; (2) £750; (3) £500. Section (*a*) is a design for a hall of residence for 150 women students. The promoters will proceed with the scheme as set out by the winning competitor. Section (*b*) is a layout of the whole site for four halls of residence. The promoters reserve the right to adopt or modify this scheme, or not to proceed with it. Enquiries must be received by the Registrar, the University, Nottingham, by November 1, 1949. A deposit of £2 2s. must be paid by the competitor for conditions of entry. Designs must be received by March 11, 1950.

Competition for designs for interior treatment of two saloon bars and two public bars. (Sponsor, The Architectural Press Ltd.) Prizes: (1) £500; (2) £250; (3) £100. Assessors: Hugh Casson; J. S. Eagles; R. Furneaux Jordan; E. B. Musman; and J. M. Richards (representing the editors of *The Architectural Review*). Questions must be addressed to "Pub Competition Questions," The Architectural Press Ltd., 9-13, Queen Anne's Gate, S.W.1, and must be received by November 15. Designs must be received by mid-day, February 28, 1950.

Festival of Britain Competition. "Vertical Feature" competition. This will be the dominant vertical element in the exhibition. It may be completely abstract in conception or related to the theme of the exhibition. Height should relate to adjoining buildings. Overall area of site is 40 ft. square, excluding surrounding promenade area which may be used for guying. Steel and timber employed should be restricted to a minimum. Assessors: Presentation Panel of the Festival of Britain. Premiums: First prize, £300; second prize, £150; third prize, £100. Further fees will be payable for preparation of detailed working drawings if prize-winning design is constructed.

Design of Community Centre. The Incorporated Association of Architects and Surveyors. Two prizes, £150 and £75, for Urban Design. Two prizes, £100 and £50, for Rural Design. Open to all architect members of the IAAS, and to any architect, whether principal or assistant, in the United Kingdom, Northern Ireland and Eire. Closing date, February 1, 1950. Applications to General Secretary, 75, Eaton Place, Belgrave Square, S.W.1.

NEWS

THURSDAY, October 20, 1949
No. 2854 VOL. 110

Though no feature in the JOURNAL *is without value for someone, there are often good reasons why certain news calls for special emphasis.*

★ *means spare a second for this, it will probably be worth it.*

★★ *means important news, for reasons which may or may not be obvious.*

Any feature marked with more than two stars is very big building news indeed.

★

A DRAFT DESIGNATION ORDER for the NEW TOWN of CORBY has been published.

The area comprised within the order, which has been published by the MOTCP, is some 3,550 acres, on which it is proposed eventually to build a town with a population of some 40,000. Corby is at present a town of some 14,000 people, most of whom are employed at Messrs. Stewarts and Lloyds' steel works, where the present number of employees is nearly 6,000. Further expansion of the works is expected to provide employment for some 4,000 more, but already owing to the shortage of houses, many of the workers have to travel a considerable distance every day. This is particularly inconvenient in view of the fact that the works operate on a continuous shift basis.

Although the steel works will continue to be the principal source of employment, it is intended to offer opportunities for people to find work of other kinds within the new town as well as to provide a number of services which are at present lacking.

Objections may be made to the draft designation order, and grounds for any objection made should be sent in writing to the Minister of Town and Country Planning before November 12, 1949. If any objection is made to the draft order before this date and is not withdrawn, the Minister will arrange for a public local inquiry to be held.

From AN ARCHITECT'S *Commonplace Book*

BUILDING IN THE WEST INDIES. [*From* Treasure in the Caribbean, *by A. W. Acworth* (*Pleiades Books Ltd.* 12*s.* 6*d.*).] The West Indies lie well to the south of the Tropic of Cancer, and the problem set to the builder is to make a house which can be kept cool, not one which will keep out the cold. And so, in contrast to New England where the Colonial house was built around the central chimney and the placing of the chimney or chimneys determined the plan of the house, in the West Indies chimneys and all the paraphernalia of chimney-breasts and flues were quickly discarded—with a corresponding simplification of design. Again, most of the Caribbean area is subject to earthquake and hurricane. This discourages the construction of high buildings—even churches tend to be squat. One- or two-storey buildings are the rule, and it is only lately that the use of reinforced concrete has encouraged architects to be more venturesome. Lastly, design is dependent on material. Few bricks were made locally ; and those that came out from England in the Georgian period as ballast were only sufficient to meet a part of the demand. Stone is available in most of the Islands and plentiful in some, and many fine buildings were constructed in the 18th century of cut-stone, particularly in Barbados, where the coral-stone when newly quarried, is quite soft and can be cut by a hand-saw. For buildings of less consequence, recourse was had to the form of construction known as " Spanish walling " and reputed to have been introduced into the Islands by the Spaniards. This consists of a timber-framing filled in with rough stones set in a composition of red earth and lime mortar. The actual building process is not unlike that used for poured concrete ; and the walls are finished with a surface rendering in similar fashion.

" The Building Industry is substantially indivisible," said Mr. D. E. Woodbine Parish at a meeting of the LMBA.

He was speaking at the October meeting of Central Area No. 1 of the LMBA in London. The sooner those concerned with the industry realized the fundamental fact that it was indivisible, he said, the sooner they would see a solution to some of the production problems which faced them.

Employers, he said, should periodically review their administrative organizations to ensure that they were adequate to cope with the tasks in hand, but it was upon the general foreman or works supervisors that the day-to-day, and maybe even hour-to-hour complexities fell for solution, and it was upon their skill and ability that the measure of success or failure upon contracts could be gauged.

What steps were employers taking to select suitable candidates for supervisory training? Were they doing everything they could to encourage the continued training of those men who had already undertaken supervisory responsibilities? More could and must be done to ensure that the supervisory ranks in the industry were filled with competent and well-trained men. This matter of administrative training was not the concern of one section of the industry alone. It was equally—if not more—important for the small maintenance builder to have good organization as it was for the large building contractor, but this could only be secured by a thorough realization of the whole problem and a firm resolve to find a satisfactory solution. A start had been made as a result of the joint endeavours of the NFBTE, the foremen's associations and the educational authorities, but it was only a start, and there was a vast amount of work yet to be done.

HOUSING PROBLEMS were discussed by Delegates to the 70th Annual Conference of the National Union of Conservative and Unionist Associations at Earls Court last week.

Mr. Sayer (Wellingborough Divisional Conservative and Unionist Association) moved:—That this conference, believing that a family is the basic human unit and that individual ownership is the hallmark of sound citizenship, urges the party to do everything in its power, no matter how great the apparent difficulties, to make it easier for men and women to own rather than rent their own houses, both private and municipal, where they wish to do so.

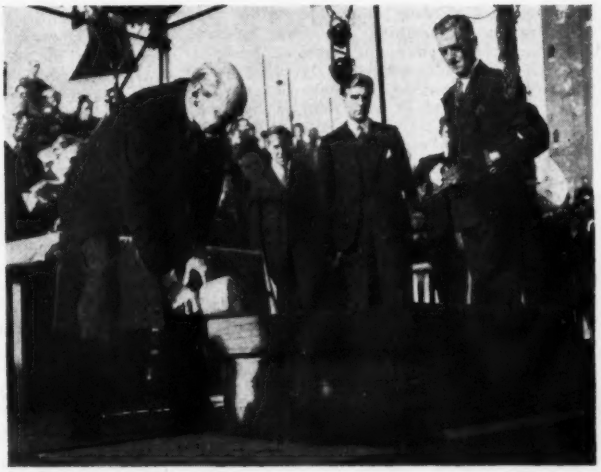
Local authorities, he said, should be encouraged to hand over their houses for ownership where they thought fit.

Mr. A. Becket (Wycombe), who described himself as a speculative builder, supporting, said that they must get rid of the Ministry of Works, which had been a job-making racket, and had not caused one brick to be laid on another. They also wanted to get rid of the Ministry of Supply, which gave annoyance to every industry in the land. The only solution to the housing problem lay with the master builders. Everlasting frustrations should be wiped out to set them free, to bring back competition, to stop burdening England with loans of 60 years or more which were terrifying members of housing committees.

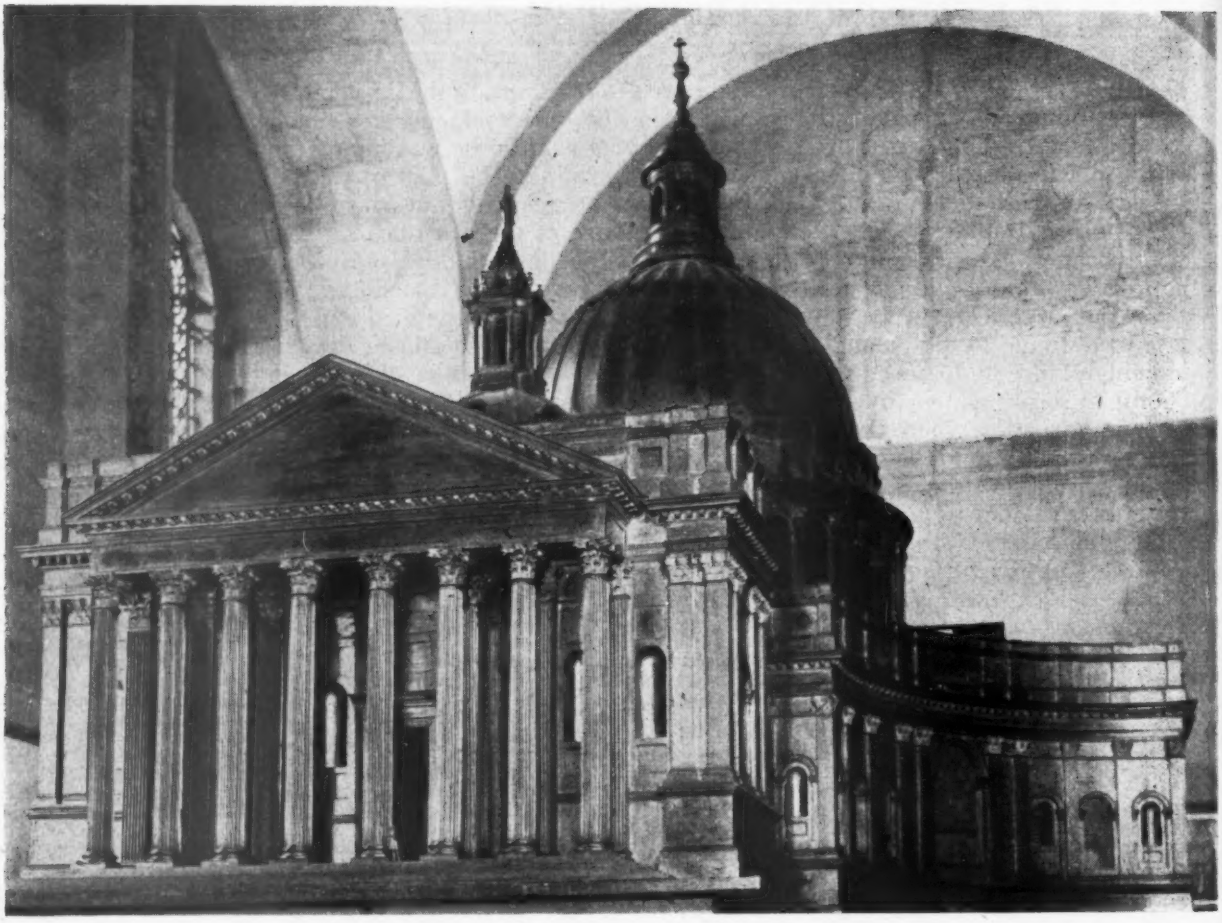
Mr. W. Elliot, M.P., supporting the motion, said there must be a substantial increase in the rate of building in this country. People talked of a possible cut in the social services. The greatest social service was housing, and that had already been cut in the most savage fashion. Before the war they were building 330,000 houses a year and now Mr. Bevan and Mr. Woodburn were building 220,000 houses a year.

They should ensure that the private builder was given a reasonable chance of building. He was now building one house in five—in Scotland one in 10. The Conservative Party pledged itself to give a far larger proportion of the building resources of this country to the ordinary builder to build for the ordinary citizen.

The motion was carried.



Above the foundation stone of the LCC Concert Hall which was laid by the Prime Minister, right, on October 12.



Exhibition at St. Paul's

Last week the Lord Mayor opened the first instalment of what will become a permanent exhibition at St. Paul's Cathedral to illustrate the history of the successive cathedrals which have occupied the site. Among the items of historical interest, which include drawings in Wren's own hand, is the well-known model of the architect's second (and rejected) design, shown above. The exhibits are on view in the triforium gallery, the library, and the trophy room. These rooms and corridors may themselves be regarded as part of the exhibition, and with them Wren's so-called geometrical staircase in the south-west tower. It is hoped that the exhibition will be complete by the end of this year. It will then trace the history of St. Paul's and its site from the end of the Roman occupation, through the Anglo-Saxon and Norman periods and the medieval " Old Saint Paul's " up to the present cathedral.

★

The Prime Minister laid the foundation stone of the LCC CONCERT HALL last week.

Mr. Attlee congratulated the LCC on their enterprise and civic sense in entering upon this great undertaking, for this, he said, was entirely a municipal project, paid for by the council, through the citizens of London, and carried on under its auspices. To many visitors it had been a source of wonder that this site, in the centre of the greatest city in the world, should so long have remained squalid and undeveloped, a sad contrast to the stately sweep of buildings on the north side. As a Londoner he was glad that this reproach was to be removed. 1951 was going to be a notable year, he said. We should be celebrating the great achievements of a hundred years. We were sometimes too modest about all that had been done by the people of Britain in the years since 1851. We were, perhaps, still too close to them to see them in their right perspective, but in 1951 we would proudly show to the world what Britain had done in so many fields of activity.

We would show too, that our old skill had not deserted us, and that our old spirit and determination to serve our country and to serve the world was still strong and vigorous. In our pride in the past and our hopes for the future we could all unite.

In 1951 we would show what our inventors, industrialists and workers could do; what great achievements stood to our credit in the field of social security; and what had been done by our people in lands overseas.

The Exhibition and its festivities would pass. Most of what was shown would be dispersed. Its celebrations would become only memories. But this concert hall would remain, and around it would rise up buildings worthy to take their place with the best of old London and forming part of the replanned London of the future.

Four NORWEGIAN MAYORS are to tour BRITISH TOWNS.

The Mayors of the four principal cities of Norway will visit the United Kingdom, under the auspices of the British Council, between October 26 and November 12. The tour will begin in Aberdeen and will include visits to a number of towns on the east coast route, ending in London. In each centre a programme is being arranged in co-operation with the local authorities and other organizations, which will show them the main civic, industrial, and scenic features.

The Mayors are:—Mr. Halvdan Stokke, Mayor of Oslo and State Secretary in the Ministry of Communications since 1947; Mr. John Aae, Mayor of Trondheim, founder and business manager of the newspaper " Arbeider-Avisa," and chairman of the Norwegian Newspaper Proprietors' Association from 1932 to 1934; Mr. Nils Handal, Mayor of Bergen and headmaster of Bergen Commercial School; Mr. Karl Karlson, Mayor of Stavanger and a member of the town council with brief intervals since 1908.

In Aberdeen, where the group will arrive on October 27, the visits will include the docks and fisheries and a tour of the Highlands. They will visit Edinburgh and the following English towns:—Newcastle (to see docks, shipbuilding and social services); Durham (the university, mining and industrial housing); York (industrial welfare and a tour of the surrounding country); Cambridge (the university and rural education); and finally London.

★ *MOBBERLEY is to be a NEW TOWN SITE.*

The Manchester City Council has approved the recommendations of its General and Parliamentary Committee that Parliamentary powers should be sought for the acquisition of lands at Mobberley, Cheshire, for the development of a new town with a population of twenty thousand to thirty thousand.

The issue was a non-party one, but it aroused considerable opposition which was crystallized in an amendment inviting the General and Parliamentary Committee to reconsider its report. This amendment, which was defeated by 72 votes to 42, was in the name of Councillor H. Bentley, chairman of the Housing Committee, and proposed that the Parliamentary Committee should "reconsider the whole implications involved," that it should prepare a comprehensive report indicating whether there is accommodation for a far greater number of people at Wythenshawe, give "a clear conception" of the number of people who will be accommodated in the 57 neighbourhood units when Manchester is redeveloped, and give consideration to sites north of the city.

Seconding the amendment, Alderman G. H. White pointed out that there were no facilities for large sewage works at Mobberley, nor was there a convenient water supply.

Advocating the redevelopment of city sites, Councillor R. S. Harper said that since 1946 3,900 permanent houses had been built on land available for 23,500 houses. This meant that there must still be room for approximately 20,000 houses in Manchester itself. The way to solve the city's overspill problem was for Manchester and the surrounding authorities to recognize that it was a common problem, and that planning must be on a common basis. The development of Mobberley, insisted Mr. Harper, would take as long as and prove as costly as the development of Wythenshawe, which, even after 19 years, was "not half developed."

Alderman Sir Miles Mitchell could see no difference between the problems of Wythenshawe yesterday and of Mobberley today. Pleading the case of Mobberley "with all my strength" he urged the Council to go on with the acquisition of the estate, "believing as I do that in a few years' time you will be as proud of Mobberley as you are of Wythenshawe."

As chairman of the Parliamentary Committee, Colonel Dawson replied to the debate. The documents before the Council for the past twenty years, he said, proved that highly desirable though it might be, it was quite impossible to rehouse the population of the city within the city and at the same time keep to the standards which the Council wished to retain. All the available land in the city would be built upon by 1953 or 1954 at the latest.

NEWS IN BRIEF

RIBA Final Examination. The questions set at the Final and Special Final Examination held in July, 1949, have been published and are on sale at the Royal Institute, price 1s.

Mr. Robert Duncan, has been appointed chief quantity surveyor for the new town of Glenrothes, Fife.

A Luncheon given by the LMBA at the Savoy Hotel, London, on October 10, was attended by the Lord Mayor, Alderman Sir George Aylwen.

We regret to record the death of Mr. H. C. Price, manager of the Birmingham and District Sales Office of George Ellison Ltd.

PLANNING LONDON

IT was Queen Victoria who said the basic fault of this country was that it invariably acted three years too late.

To some it may seem that the remark is equally applicable to the recently published report of the London Planning Administration Committee. This body, under the chairmanship of Mr. Clement Davies, has advised on the best methods of securing co-ordinated implementation of the regional plan for London and sets out in its report those matters requiring action on a regional basis. These cover planning survey and research, the adjustment of target populations, the preservation of the green belt, road and railway plans and programmes, the distribution and balance of industry, the distribution of major development projects, such as housing, airfields, schools, power stations, etc., mineral workings, and the determination of regional programmes and priorities.

The Committee's long term proposal is the establishment of a regional authority possessing powers both of supervision and of direction and finance. Three years ago there was a chance that such an authority, vested with the necessary powers, might have been effective in controlling and co-ordinating these projects. But not now. In the intervening years great chunks of the regional plan for London have taken shape in bricks and mortar. Greater London has become greater still as the result of the LCC's housing progress at Debden, Chigwell, Oxhey, Boreham Wood and other localities, in which schemes providing a total of nearly 50,000 houses are envisaged. For these and other works large areas of the Abercrombie Green Belt are being annexed. In addition, large scale works have been completed by the London Transport Executive on the recently electrified Liverpool Street-Shenfield line, and on the extension of the Central London line to Epping in the east and to West Ruislip in the west. Moreover, in view of the urgent need for them, schools are being completed at an ever increasing rate, while most London power stations were well under way long ago.

By the time the regional authority has been set up, and there is no knowing how long this will be, what will be left for it to co-ordinate? When the committee was appointed there were 145 separate planning authorities in or near London, but the 1947 Town and Country Planning Act has reduced the number to 12. How much more effective the influence of a regional authority would have been had it been available at the time the Act came into operation.

There is, however, one major matter in which the regional authority, when it is formed, may creditably concern itself—in the determined discouragement of further expansion of a capital already swollen beyond convenient size. Since the war the number of Londoners has appreciably increased. It is estimated that in the Suburban Ring the population is some 8-10 per cent. and in the Green Belt 14-16 per cent. above the pre-war levels. The Greater London population has increased in the same period by over 1,600,000, while the

new out-county estates of the LCC will add another 155,000 or so; it should be remembered, however, that a large proportion of these latter will doubtless be moved from over-crowded central London areas.

These substantial increases are providing the passenger transport services with an ever-growing twice-daily problem, and the completion of new housing estates, coupled with the inherent desire of many people to work in central London if they can get there with but a minimum of convenience, will soon nullify any advantages accruing from post-war rail extensions. Further increase in London's population will promote the situation beyond the point at which passenger services can hope to operate speedily and satisfactorily.

Here, then, is a matter requiring imagination and foresight to which the recommended regional authority, possibly in collaboration with the Distribution of Industry Panel, should accord the highest priority.

The Architects' Journal

9, 11 and 13, Queen Anne's Gate, Westminster, S.W.1

Phone: Whitehall 0611

NOTES & TOPICS

A LESSON FROM ST. LUCIA

I have just seen a report published by the St. Lucia Government on the new town planning proposals for the town of Castries, the capital of St. Lucia, one of the Windward Islands. It is the work of J. C. Rose (an old AA student) who is executive architect to the Windward Islands and was asked to prepare a scheme after the disastrous fire of June, 1948, when in one night almost the whole of the commercial centre of the town and nearly all the Government buildings were wiped out.

*

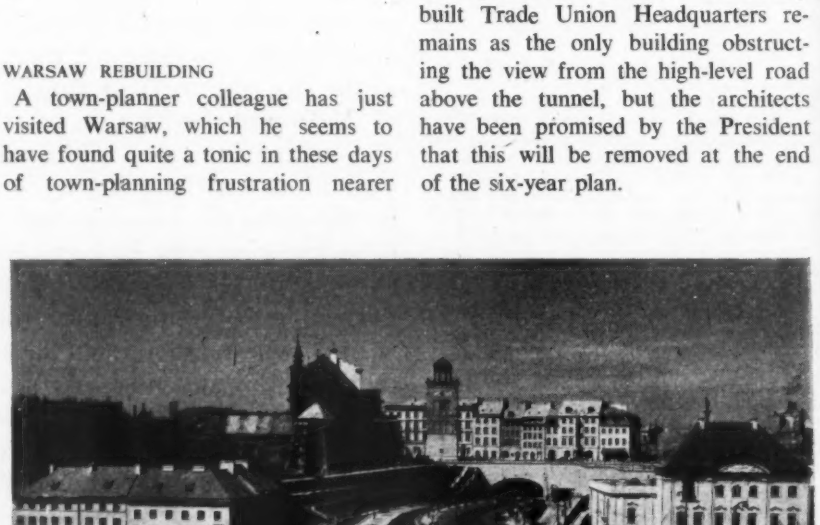
There was an earlier scheme for Castries prepared by Gardner-Medwin for the Comptroller of Development and Welfare, but this is altogether more comprehensive and looks (I am not an expert on the West Indies) a first rate piece of work. The thing that specially strikes me is the presentation. One becomes so resigned to the dreary typography of most official reports that it is a treat to see one that is elegant and lucid, yet not precious. Rose and his (Colchester, Essex) printers are to be congratulated, and HM Stationery Office advised to have a good look at this report and learn some lessons from it.

WARSAW REBUILDING

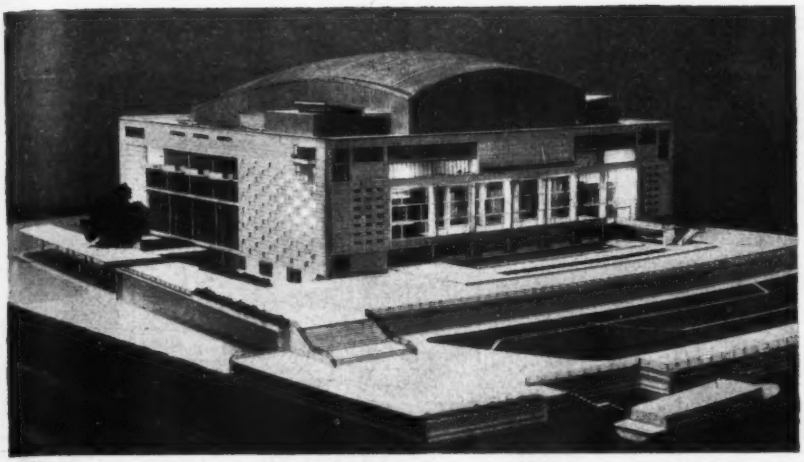
A town-planner colleague has just visited Warsaw, which he seems to have found quite a tonic in these days of town-planning frustration nearer home. There, he says, one can see a new city coming to life with the astonishing speed of a flower opening its petals in a nature film. The east-west route (see this column, 11.11.48) is now complete—a 95 weeks' job including the architects', engineers' and other specialist's work—and now it is thronged with sightseers who wish to forget the ruins. The escalator leading down to it from the higher level is also a great attraction. On the opening day people had to be restrained from making continuous up and down joy rides, so as to give everybody a chance. My colleague was told by Vice Minister of Construction, Zakowsky, that late one night he encountered a drunk cursing and swearing at the Government and all its works, particularly the East-West route. When asked what was the trouble the drunk's reply was—"They have changed all this so much that I can't find my way home!"

*

And there *is* quite a change. The traffic has now a free flow by tunnel under the old city and by slip roads to the embankment route. Moreover, a panorama of the Vistula is opened up for the first time, and lawns and trees (among them 120 trees, 30-40 years old, transplanted from the tree nursery outside Warsaw). The solidly built Trade Union Headquarters remains as the only building obstructing the view from the high-level road above the tunnel, but the architects have been promised by the President that this will be removed at the end of the six-year plan.



The newly-completed east-west tunnel road in Warsaw. (*See Astragal's comments*).



Model of the LCC Concert Hall, showing the revised design of the river front. The foundation stone was laid by the Prime Minister last week. (See Astragal's comments below).

The beginning of this plan in January next marks a new stage in Warsaw's reconstruction. Most of the restoration work is complete, and the period of new construction has started. Significantly the Ministry of Reconstruction has changed its name to Ministry of Construction. The architects are reorganizing themselves in ateliers which are independent of the municipality, but at the same time they have a planned programme of jobs for the six years. As regards planning, BOS—the planning and executive organization for Warsaw's reconstruction—has been, until recently, independent of the Municipality, but now it has become the city planning office mainly for the approval of plans, while the problems of design and execution are being dealt with by independent ateliers of architects and planners. Acceptance of the Warsaw Plan by the Government has made this possible. This seems to be an interesting half-way house between the struggling private architect and the large scale architect's department.

*

Apart from big projects and reorganizations, however, there are a lot of little things happening—new grass, trees and flower beds are appearing everywhere in the streets, hundreds of colourful bookstalls are to be seen on the pavement, and on the street corners there are large hoardings showing the quantity of bricks and amount of rubble people have voluntarily cleared in their areas. September was "Warsaw rebuilding month," when everyone was expected to give 4 hours of their spare time to this work. Every district has new blocks of flats, cinemas, offices or other buildings completed or in construction. A four-storey block of flats has just been completed in 14 days. There will certainly be much for architects and planners to see when the International Union of Architects holds its congress in Warsaw next year.

POSER FOR POSTERITY

ASTRAGAL, like the poet's fairy king, knows a Bank, which, if not covered with wild thyme, is "quite overcanopied with luscious woodbine" at the moment. On Wednesday of last week the woodbine was placed behind the ear and those working on the South Bank site gathered to watch an important event; the laying of the foundation stone of the LCC concert hall by the Prime Minister. The ceremony may have been less inspiring than the occasion demanded. However, the event was enlivened by the jigging tunes of Gilbert and Sullivan and the majestic melodies of Elgar, played by the LCC Fire Brigade Band with as much pomp as was necessary in the circumstances. And of course, Mr. Henry Brooke, Leader of the Opposition, brought poetry to the proceedings. Edmund Spenser, he told us, wrote: "Sweet Thames, run softly till I end my song." And without even stealing a glance in the direction of the river he assured us that it was still there and still running.

*

But all of those present must have given some thought to the time when the Thames will lap the feet of posterity. What will Post-Atom Man think of us when he stubs his toe on a fragment of reinforced concrete and discovers a copy of *The Times* which has been buried beneath the foundation stone together with coins and other objects? Which news item will appear most significant? Will our nation's character be deduced from the letter of a gentleman who wants to help blue tits at a time of drought? And will our fate be mirrored in the Russian denials and protests recorded in that issue?

*

Of course it would be just our luck if future archæologists missed the concert hall site and, instead, unearthed Cleopatra's needle. For beneath this monument is a Bradshaw, a box of cigars, some hairpins and photographs of twelve pretty girls. It is an awesome thought that the verdict of posterity depends on whether it excavates on the South or North sides of the river. However, perhaps there is no need for us to be concerned. After all, a man who can read a Bradshaw deserves as much respect as a man who reads *The Times*. But I can't help feeling sorry about those cigars.

AN APOLOGY

I find that I made a mistake last week in my notes on Radiolympia. I attributed the design of the Murphy radio, A146C, to Associated Designers. It is, in fact, the work of R. D. Russell, whose pioneer work on the design of radio sets needs no praise from me. My apologies.

ASTRAGAL

LETTERS

Niel Martin-Kaye, F.R.I.B.A.

"Civitas"

Architects Registration Act, 1938

SIR,—The whole professional attitude to registration and the interpretation of the purpose of the Registration Acts is utterly fantastic and wrong. There are obviously two distinct factors in architectural practice. Firstly, and most important, is the possession of true

vocation architecturally, and secondly, the right to function. Whether a man possesses the true vocation of an architect can only be determined very indifferently by examination—in fact, the present methods are ridiculous. The real test of this all-essential quality primarily inherent in the individual surely can only be evident by the erection and supervision of actual buildings from his own designs. Now the important point is, to provide evidence of this he *must* be permitted to function, and this is primarily the objective and purpose of the Registration Acts. What do we see? The whole issue made the cockpit of "brickbats," organizational interests with an eye purely on the subscription income, in the manner of the Pharisee, regarding one another as "unqualified" and untouchable, regarding the prospect of unity and combined effort as abhorrent, undignified and unthinkable. We witness the annual spectacle of hordes of candidates, after five or six years of congested training, being examined and dubbed "architects" before they have even had a chance to function and prove what is more vital, *viz.*, vocation in the true and proper sense. If the Acts were interpreted in a non-partisan and impartial manner as intended, a common initial test of static standard and safeguards would be imposed bestowing the right to function. Having functioned and given evidence of true vocation, then is the time to admit him to full and honoured memberships either of the RIBA or any other body (if such is necessary). Other advantages of such a policy are too obvious.

NIEL MARTIN-KAYE

London.

Architectural Assistants

SIR,—With reference to the acute shortage of assistants in public and private architects' offices, is it not time a restriction was placed on their employment by engineers and surveyors, particularly by reason of the fact that these now claim to represent the majority of assistants in the architectural profession?

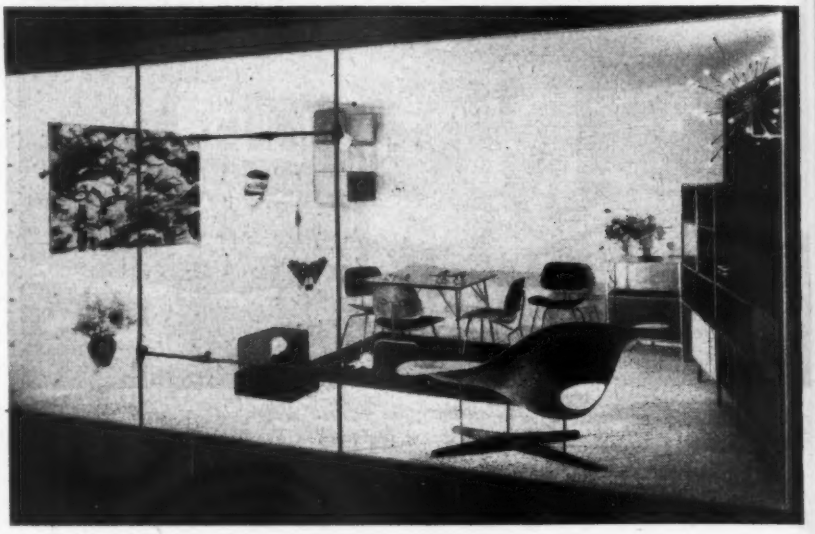
Considerable and valuable time may be lost by the unwary architectural assistants who take positions as hack draughtsmen in offices where persons in authority may know or care little, if anything, about the real professional work of architecture or of the art of architectural design and detailing. Such assistants may well find that years of experience are of little account when competing for executive positions against staff who have been very careful to seek employment only in the offices of properly qualified architects, having a high standard of output, who are completely responsible for the work of design and execution, and so are able, by example and knowledge, to impart to the members of their staffs the necessary competence in their difficult profession. Only too often one has seen drawings, obviously the work of a very capable architect, signed by another person who had little else to do with them except take the building committee round to inspect the work on completion, which committee the architect was probably never allowed to attend.

The time has come when the supine manner of regarding young members of the RIBA as well able to pick up their experience as anonymous draughtsmen, in general engineering or surveying practice, should be ended. This can be done in just the same way as the BMA have recently asserted their authority in no uncertain manner over staff appointments with local authorities.

There is now much important work to be designed and constructed. Let it be done by architects in their own right, and let the dignity of the profession be properly upheld.

"CIVITAS"

EXHIBITION OF MODERN L



Above, a room designed by Charles Eames. This is not meant to represent any special section of a house, but rather to suggest an attitude towards the space and objects with which one lives. Left, part of an exhibit showing the development of the cantilevered chair. Below, a room designed by George Nelson in which furniture is incorporated in the design and construction. Right: top, a bedroom designed by Florence Knoll; centre, Jens Risom's conception of a town house study which overlooks a garden; bottom, another design by Florence Knoll —a living-dining room which is said to offer a solution to the need for family unity in the home.

LIVING, DETROIT INSTITUTE OF ARTS

The illustrations on these two pages are of exhibits at the exhibition "For Modern Living," which was opened at the Detroit Institute of Arts in September. The architect was Alexander Girard. It features 3,000 home furnishings and objects. The rooms illustrated here are included in a section of the exhibition which shows the work of prominent designers in this field, such as Alvar Aalto, Bruno Mathsson, Charles Eames, Jens Risom, Georg Nelson and Florence Knoll.

The room shown at the top of the opposite page was designed by Charles Eames who, it is said, has fulfilled the desire of every modern designer to create objects that will serve their purpose better than ever before and at a lower cost. He emphasizes that mass production is not necessarily to be frowned upon if, through it, more people are permitted the opportunity and facilities for personal expression. In this room Eames uses a studded wall on which it is easy to place, in relation to each other, objects selected for some special quality. The free use of colour is demonstrated by the various objects and the variety of colour of the chairs. The lighting fixture was created, not as an efficient method of illumination, but for its "special sparkling optic sensation."

At the bottom of the opposite page is a room designed by George Nelson. There, a built-in unit includes all storage, radio and record-playing requirements of an average living room. At one end of the room is a raised upholstered floor on which people can lie, lounge or sit. This was put in to emphasize the designer's belief that built-in facilities need not duplicate even the forms of existing furniture.

At the top and bottom of this page are designs by Florence Knoll, which incorporate the work of other designers, and are intended to create an arrangement for family group living in the best modern tradition. The main wall panels and the desk-cabinets in the living room permit full expression for individual hobbies. The fireplace can be used out of season as a shelf for plants, objects or television, or as a seat. The bedroom, which is rich in colour and materials, has a wall cabinet with built-in radio and space for books and personal belongings. It is designed as a retreat as well as sleeping quarters.

The town house study (centre), designed by Jens Risom, makes use of contemporary fabrics, furnishings, and engineering to create an interior which is both comfortable and in keeping with traditions in home life. Sound functionalism, as represented in the desk area, open shelves for display of objects and the comfortable seating group, combines with beauty in the form of bright colours, interesting textures, dark natural wood finishes and the plywood wall to create a simple background.

THE ARCHITECTURAL REVIEW'S

PUBLIC HOUSE COMPETITION

The object of this competition is to raise the standard of interior design in the English public house. It should be the aim of competitors to create by means of present-day materials and techniques an atmosphere in direct line with English pub tradition. The complete conditions are printed below.

The competition has been made possible through the co-operation of the Brewer's Society, who have donated the prizes. Apart from the usual exhibition of competitors' designs, which will take place following the announcement of the results, the winning designs and (it is hoped) a full-scale model of one bar from the first premiated design will be exhibited at the Brewers' Exhibition to be held at Olympia in the Autumn of 1950. In view of the fact that there will be a number of bars in the 1951 Festival of Britain and as a token of the Festival's interest in the aims of the competition, the Festival of Britain Office is represented among the assessors.

THE CONDITIONS

1. The promoters, The Architectural Press, Ltd., 9-13, Queen Anne's Gate, Westminster, S.W.1, invite architects and designers to submit designs in competition for four bars in contemporary public houses, in accordance with the following conditions and instructions.

2. The promoters have appointed Messrs. Hugh Casson, M.A., F.R.I.B.A., J. S. Eagles, M.B.E., B.A. (nominated by the Brewers' Society), R. Furneaux Jordan, F.R.I.B.A., E. B. Musman, B.A., F.R.I.B.A., and J. M. Richards, A.R.I.B.A. (representing the Editors of *The Architectural Review*) to advise them on the conduct of the competition, to act as their assessors and to adjudicate on the whole of the designs submitted and to make the award. In the event of the death of one of the assessors before the completion of the competition, or of his being unable to continue to act through illness or some other cause, the promoters will appoint another to act in his place and to carry out the duties of assessor as set forth in these conditions and instructions.

3. No member of the promoting body nor the assessors nor any partner, associate or employee of either shall compete or assist a competitor.

4. The award of the assessors will be accepted by the promoters, and within one month of the date thereof the following premiums shall be paid in accordance therewith, *viz.*:—

To the author of the design placed 1st by the assessors: £500.

To the author of the design placed 2nd by the assessors: £250.

To the author of the design placed 3rd by the assessors: £100.

5. A design shall be excluded from the competition for any of the following reasons:—

(*a*) If sent in after the period named (accidents in transit excepted).

(*b*) If it does not give substantially the accommodation asked for.

(*c*) If any of the conditions or instructions other than those of a suggestive character are disregarded.

(*d*) If a competitor shall disclose his identity or attempt to influence the decision.

6. Each design and the report accompanying it must be sent in without name, motto or distinguishing mark of any kind and accompanied by a letter signed by the competitor or joint competitors, properly sealed, stating that the design is his or their own personal work, and that the drawings have been prepared in his or their own offices, and under his or their own supervision. A successful competitor must be prepared to satisfy the assessors that he is the *bona fide* author of the design he has submitted. A number will be placed on each drawing and on the report and envelope contained in each package, and the envelope will not be opened until after the award has been made.

7. The design of each competitor is to be contained in one package and is to be sent (carriage paid) addressed to The Architectural Press, Ltd., 9-13, Queen Anne's Gate, London, S.W.1, and endorsed "Pub Competition," not later than midday, February 28, 1950, after which no design will be accepted.

8. Any questions which the competitors desire to ask must be sent to The Architectural Press, Ltd., addressed as above, and with the envelope endorsed "Pub Competition Questions," so as to arrive not later than November 15. All such questions and answers thereto, as the assessors consider necessary, will be sent to competitors and will form part of the conditions and instructions to competitors.

9. Intending competitors are asked to notify The Architectural Press, Ltd., by letter, endorsing the envelope "Pub Competition Entry." Failure to do so will not invalidate an entry, but only those who do so will receive the questions and answers.

10. The promoters will communicate the assessors' award to each of the competitors, and the time and place of the exhibition of the designs. Thereafter the whole of the designs with the names of the authors attached, excepting any which may be disqualified, will be exhibited, together with the assessors' award, for a period of not less than six days, after which all the designs submitted, excepting any selected for further exhibition or execution, will be returned to the competitors within fourteen days of the closing of the exhibition, carriage paid. The promoters will exercise every reasonable care with the several drawings, but will not be responsible for any loss or damage which may occur. Apart from publication, copyright of the design remains the property of the author.

11. The drawings must be accompanied by a concise typewritten description of the designs in accordance with the requirements of the schedule and giving such information as cannot be clearly shown in the drawings.

12. In the event of the winner being employed to execute his design, or part of his design, at the Brewers' Exhibition at Olympia, he will be paid a fee, in addition to the premium, in accordance with the RIBA scale.

THE SCHEDULE

The designs to be submitted are for the interior treatment of four separate, unrelated bars, as follows:—

1. SALOON BAR with 1,000 sq. ft. of public space exclusive of counters and service areas (service areas in all cases to include serving space, storage space and all fittings). Provision to be made for the service of snacks.

2. SALOON BAR with 400 sq. ft. of public space exclusive of counters and service areas. Provision to be made for darts.

3. PUBLIC BAR with 800 sq. ft. of public space exclusive of counters and service areas. Provision to be made for darts and other games.

4. PUBLIC BAR with 200 sq. ft. of public space exclusive of counters and service areas.

The bars can be of any shape, but the following must be provided in each: Access to service; access to entrance; access to lavatories (as an alternative, if competitors wish they may assume that the lavatories are reached through an entrance lobby and do not therefore require separate entrances through the bar); window or windows; fireplace, at the discretion of competitors. Although the relationship between the bars on plan is not part of the competition, the interior treatment of the bars may include visual communication with other bars. The interior planning of the four separate bars is naturally a vital part of their design, but otherwise the competition is not an exercise in public house planning. It should be kept in mind that there must be free circulation for the staff behind the counter and access to other bars, and that supervision of the bars should be possible from the service area belonging to each. The aim of competitors must be to design pub interiors in a contemporary idiom, using present-day materials and techniques, in order to create by efficient and imaginative planning, furnishing and decoration, an atmosphere which is in a direct line with English pub tradition. In this connection, competitors are recommended to study the October number of *The Architectural Review*. Competitors who are not subscribers to the *Review* can obtain reprints of the editorial contents of this number at the price of five shillings.* For the purposes of the competition no estimate of cost is required nor are competitors expected to work to a definite cost limit. They should, however, not put forward ideas or specify materials that would obviously involve expenditure beyond a reasonable scale for pub interiors. Durability and the avoidance of excessive cost in maintenance are of the greatest importance in the choice of materials. Competitors need not take into account present shortages of certain materials. The importance of artificial lighting must be taken into consideration and attention should be paid to the design of lighting, heating and ventilating equipment. All bars should have seating—fixed and/or movable at competitors' discretion. Particular attention should be paid to the design of bar-backs and other built-in fittings in the service area. Competitors are invited to design their own furniture and fittings, but at the same time are at liberty to use furniture available in Great Britain at the present time. Competitors should bear in mind that the charm of many traditional pub interiors resides in the casual contributions made by publicans and others, and competitors are at liberty to incorporate such in their drawings to show the proposed finished effect.

*Separate reprints of the competition conditions can also be obtained on request, free of charge to intending competitors.

DRAWINGS REQUIRED

Competitors must supply, on imperial sheets, mounted on card: (*a*) Floor plans of each bar, showing all seating, furniture, fireplaces, floor treatment, etc., to ¼-in. scale. (*b*) Ceiling plans, if the layout is such that it cannot be indicated on the general floor plan, to ¼-in. scale. (*c*) Internal elevations of each wall of each bar, to ¼-in. scale. (*d*) One perspective of each bar fully coloured to show complete decorative scheme, together with small sketches of characteristic details at competitors' discretion. (*e*) Details of decorative features, furniture, etc., of one bar, to be chosen by competitors, sufficient in number and to a large enough scale to show that furniture, light-fittings, etc., are practicable in design. (*a*) (*b*) (*c*) to be in line only; (*d*) (*e*) in colour.

REPORT

Full particulars must be given of all materials, colours, finishes, methods of heating, lighting and ventilating, together with a reasoned argument in support of their choice.

SOCIETIES AND INSTITUTIONS

Speeches and lectures delivered before societies, as well as reports of their activities are dealt with under this title, which includes professional societies, trade associations and government departments. To save space they are represented by their initials—see front cover. Lectures cannot usually be reported in full.

RIBA

L. W. Elliott

October 11. Part of a paper on ECONOMY IN THE USE OF STEEL IN BUILDING, read to members of the Architectural Science Board, RIBA, 66, Portland Place, W.1.

L. W. Elliott : It is unfortunate that whenever a shortage or economic plight overtakes the country, substitutes are evolved and their use pursued with the utmost vigour to the detriment of the material being used as a substitute. Immediately after the war, steel and aluminium were used instead of timber, and when these materials became scarce, due to various reasons, precast concrete and later prestressed concrete were used in place of steel without due regard being paid to economy. It is not suggested that other materials should not be used in place of steel, but that their use should be appropriate to the work required to be done. For example, aluminium alloys have excellent qualities, lightness, non-corrosion, good strength, ease of fabrication into extrudable shapes, and resilience. This last quality, resilience, establishes the fact that aluminium alloys cannot be directly translated into the same form as steel members because the modulus of elasticity is only ⅓ that of steel and therefore greater deflections occur. In order, therefore, to obtain the same stiffness, more metal is used at greater cost than the original steel member, whereas the best way to use aluminium alloys is to alter the form of members to distribute the metal over a greater depth.

Very frequently, in appropriate cases, aluminium can compete with steel due to the ease with which complex shapes can be extruded, especially for lightly loaded members.

PRESTRESSED CONCRETE

Another substitute for steel is prestressed concrete, and here again care must be taken to see that it is an economic substitute. The direct translation of steel members into precast, prestressed concrete members is uneconomic and restricts the materials used, especially if a wide range of members are fabricated and used from stock, as are rolled steel joists. On the other hand, prestressed concrete is an excellent material for long span members where steel trusses or girders would normally be used. It is quite possible to reduce the structural depth required for an economic steel truss with, of course, a cleaner looking job.

The architectural form of a building can have a tremendous effect on the economy of the structure; for example, tall thin buildings require extra structural members to cope with the wind stresses, whereas the introduction of a curve or a set back might avoid this.

Another serious factor is the necessity for columns being carried on heavy beams when one floor is set back from the floor below. Heavy point loads on beams should be avoided at all costs especially when the point load is transmitted through several floors.

In the same way the usage to which the building is to be put can have a very great effect on the amount of steel used. One of the worst factors influencing the economy of the structure is to have one building used for more than one occupation, or use. An example of this is an hotel where clear spans are often required on the ground floor, with small rooms over, or a block of flats with a cinema underneath. These problems are sometimes interesting for the engineer, and I am not suggesting that they cannot be solved economically, but, as a general rule, the road to economy lies in simple treatment of blocks of buildings for what they are —cinemas, concert halls, swimming baths or restaurants, grouped within the residential or shopping area—each building serving the function for which it was designed. I realize this is idealistic, but simplicity is an ideal to be sought after. Structural simplicity is a long way towards steel saving whether the building be carried out in steel or reinforced concrete.

Fortunately the preliminary plans of our new towns all strive towards this planning. This planning factor is probably the more effective one the architect can make towards economy, but there is another important one, too, and that is the construction.

A motor car is designed to transport a fixed number of passengers, but the weight of the vehicle itself decides the power of the engine for the same performance. In the same way, the occupational loads for the building are selected in accordance with acceptable figures, but the deadweight of the building can be varied considerably. Obviously the lighter the weight of the material used, the more saving we can make in the structure, and during and since the war there has been a steady development in the use of lightweight materials—aerated concrete, foamed slag, glasswool, vermiculite, and aluminium alloys, to mention but a few. Quite a lot of information has been given through the efforts of the Architectural Science Board alone.

In Sweden, lightweight concrete known as "Siporex" has now become a standard building product, not only for cladding, but also for structural floors, and roofs, and there has recently been erected two very interesting buildings in America where the architects set out to cut as much weight as possible to give larger spans with less columns, and to save cost, not necessarily steel.

The thermal insulation here was improved by the use of the lightweight concrete and vermiculite plaster. I consider this an important method of saving steel and one which is directly under the control of the architect, although the public may love massive buildings, and popular descriptions of buildings usually contain references to the quantities of materials used in an overaweing way. Descriptions such as "so many train loads of cement were used," or "if the bricks were placed end to end they would reach from London to Edinburgh," or "the total weight of structural steel is equivalent to the weight of one of our largest battleships," are all very well for the imagination of a schoolboy, but it must not be forgotten that massive structures are not necessarily more stable. Movement due to settlement of the ground and changes in temperature are much more troublesome where mass is concerned. A light integrated constructional system is likely to cause less trouble in the long run. In most of the above ground remains of antique buildings, slender columns are frequently left standing whilst the massive ones have crumbled to pieces.

STRUCTURAL SYSTEMS

And now for the structural systems suitable for classes of buildings. Single-storey structures with small roof spans, chiefly occurring in schools, are best dealt with by the use of a portal frame, either in precast concrete or steel. The question of whether to use steel or concrete is largely determined by the weight of the roof covering. With a light roof covering weighing, say, 20-25 lb. per sq. ft. and a span of, say, 25 ft., a rolled steel joist frame welded at the corners is quite economical and shows a saving of up to 25 per cent. over the riveted frame, and as the frame is a rigid one, no additional wind bracing is necessary. Quite a variety of shapes can be confined to the works by providing site joints at approximately one-fifth of the span from each end at the points of contraflexure, where the moments are at a minimum.

Alternatively, the built-up lattice type of light joist can be used, as in the schools erected by the Hertfordshire County Council.

For the heavier concrete type of roof, and where repetition of units is possible, the precast concrete frame is good, especially if prestressing is resorted to. I should like to make the point here and now that with the developments in precasting techniques, con-

crete is suitable for most of these light structures as well as for the heavier buildings.

For the single-storey buildings of long spans for industrial and commercial use with the normal types of loading, the type of structure in the past has been of built-up lattice girders, but shell concrete and prestressed concrete have now been developed in this country. These systems can be used in conjunction, as in the aircraft hangers at Karachi. When steel is used, possibly the tubular type of space frame is good, especially when arched. The frame can be prefabricated in relatively small units and assembled on the job. There have also been a number of excellent buildings erected in Italy on this system with the use of precast concrete elements, notably the automobile exhibition hall in Turin, and some aircraft hangars near Rome. Some countries such as Italy have always suffered from a steel shortage and a study of some of the recent buildings carried out there deserve close attention.

For multi-storey buildings for moderate loadings such as flats, offices and hospitals, there is little to choose between steel and reinforced concrete, but if the shuttering problem can be overcome by economic design enabling a repetition shape, concrete is definitely the best from a steel economy point of view.

There have been quite a number of proprietory systems for precast concrete construction and more development work should be done in the form of construction to save time which so often is an important factor when deciding whether to use steel or concrete.

From the steel frame point of view, there have been a number of interesting developments in the past by combining the use of a steel frame and reinforced concrete. The general principle was to design a light steel frame just sufficient to carry the weight of the cranes and the dead load, and then to cast concrete and reinforce it to cope with the live loads. Quite a number of buildings were erected before the war on this system, and they seemed to make a compromise from the cost of steel economy point of view between steel and reinforced concrete. They were complicated buildings to erect, necessitating high-grade concrete for the steel casing and much detailing on the part of the engineer, and were not generally successful.

HEAVILY LOADED BUILDINGS

For heavily loaded multi-storey buildings such as warehouses and factories, reinforced concrete seems to be the ideal material, especially when used in the flat slab form of construction. Examples of this type of building are to be found in Boots' factory at Nottingham, the Van Nelle tobacco factory in Holland, and Peter Jones' Store in Sloane Square.

Special buildings such as concert halls, theatres and transport buildings can only be treated on their merits, but it should be pointed out that the form of the building is the all-important factor. On these types of buildings it is absolutely important that the specialist engineer be consulted before any shape is decided upon, together with other specialists, such as acoustic engineers. Shell concrete, prestressed concrete and welded steelwork really can show savings in these types of buildings and great care should be taken when deciding on the structural system.

One must always be alive to the question of whether to use more than one structural system in a building. Frequently it is economic to carry out parts of a building, such as ground floors and staircase towers in reinforced concrete and the remainder in steel.

Often the designer selects steel framework for the whole of a structure, just because certain parts are more suitable for steel, whereas possibly with the use of prestressed concrete for those particular parts, the whole building could be carried out in concrete.

Unfortunately there is little published data on the economics of various systems of framing for buildings generally and quite outside the scope of this paper. It can only be hoped that something can be published similar to the German *Stahlbau Kalender*, a designer's handbook published annually containing a record of most of what is interesting or novel in structural design. Some record of the costs and economies of various solutions to a particular problem would be really useful. Even if they were not applicable to a particular problem on hand, they would at least stimulate investigations into structural economies on a sounder basis.

How, then, can we achieve steel economy? We can choose a suitable structural technique, reduce the weight of the structure by using lighter materials, or by the architectural design.

The architectural design aspect is by far the most important factor, and the saving in dead weight by the use of lighter material is the next important, especially as far as the architect is concerned, whereas choosing a suitable structural technique is a factor more important to the engineer, although these factors, too, are linked to the architural design aspect because they are dependent on the spans involved and the depths of the members.

There is no doubt that the architect is all important in this question of steel economy. If the original conception of the building is bad from the structural aspect, then no amount of skill on the part of the engineer can remedy it, although, of course, he can minimize it. The architect also has control of the construction to be used, and lightweight materials should be used to save dead weight wherever possible and, at the same time, improve the thermal insulation. Although collaboration with an engineer is important from the earliest stages of the work, I consider that the initial conception of the building should be in the hands of the architect, except, of course, the more structural type of building, such as industrial buildings. The architect, in order to do this, must be equipped with a basic knowledge of structural design in the broadest sense in order that he may choose the structural technique appropriate to the building. After the initial sketch design, the engineer should then commence to collaborate and the final sketch plans should be a joint effort.

In order to assist the architect in selecting the suitable structure, there is room for more intimate collaboration between the two professions, and the larger firms may find it worth while to engage an engineer on an annual retaining fee basis for the general work in his office.

ARCHITECTS AND ENGINEERS

The unfortunate thing about collaboration between architects and engineers is that there is a definite rift between them in most cases. This could be remedied by both architects and structural engineers having the same basic education, with a gradual development depending on the aptitude of the person. The joint basic education should be in the study of economics, material, structural forms, and techniques in the creative sense and, elementary structural design. The present structural education for architects is, in most cases, entirely wrong and results in architectural students becoming confused and having a narrow outlook on structural techniques. It is no use being taught how to design structural members without a good idea of how to use them structurally.

The client, too, has a responsibility in this matter, especially when most of our clients these days are public bodies. Too much work is always required to be done in a hurry; some years ago when little building work was being carried out, some of the schemes now proceeding could have been given to the architect to enable more thought to be given. Some local authorities even now, do not generally permit an architect to engage a consultant, and the architect is consequently in the hands of firms of constructional engineers without that intimate collaboration which is so essential for design.

Some firms, of course, are quite suitable for the design and execution of structures, but most of them are traditional in their approach and often design for their own methods rather than show enterprise. In any case, the client has to pay in the long run as design overheads have to be borne by someone. The design staffs of constructional engineers in continental firms are often used to designing structures in direct competition with other firms, and this has stimulated economic design and the use of new methods. In any case, there are enough of the day-to-day pure constructional jobs which can be left in the hands of these firms.

FEES AND COSTS

The question of the engineers' fees is one which I feel needs some explaining because he is usually paid, in the same way as an architect, a percentage of the cost. Is this a satisfactory method when we are striving to save steel and cut costs? I am not suggesting that my professional friends are influenced by any consideration in this respect, but it might be a little unfair for an engineer to be involved in a tremendous amount of analytical design to achieve a saving in steel and cut in his fees.

Perhaps he ought to have some form of fixed fee based on traditional methods. Naturally, if the architect provides for a lot of structural repetition, in the form of units or bays, the engineer can afford the time to carry out fuller structural investigations into each unit. I do think that this fee problem is one which needs looking into for consulting engineers.

From the research point of view, whilst there is a lot of fundamental work going on there does not seem to be an adequate means for engineers and architects to become aware of it. In any case, research is not integrated in the right way.

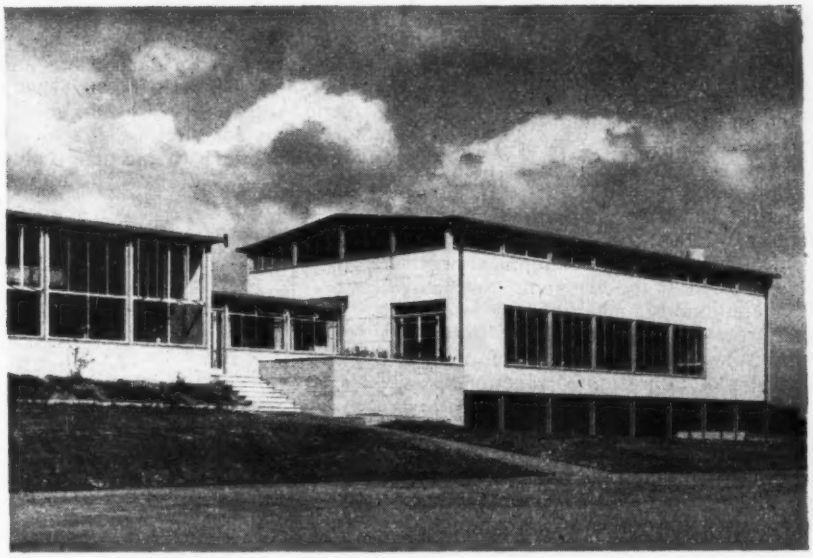
Investigations into thermal insulation are not necessarily coupled to weathering problems or to the fact that structural savings are achieved by using a lighter material. Furthermore, there is an undue lapse of time before the results of research are incorporated into codes of practice and bye-laws. It should be possible for working committees to issue addenda when deemed necessary.

Lastly, there is not enough material available on structural economy. Records should be collected and published in an annual calendar of types of structures used, with their costs, time used and materials consumed. Even a simple retaining wall has many solutions, each using different quantities of materials, and the structural frame could be analysed in the same way, showing how the steel content varies with the centres of columns. A lot of this work could be done quickly and should be commenced so that both architects and engineers can base their economy on fact. I feel that efforts should be made on behalf of both professions to publish this work in an authoritative way as a very practical step towards achieving economical design.

SCHOOLS IN HERTS

BUILDING PROGRAMME

County Architect: C. H. Aslin



A junior mixed and infants' school at Essendon. This, like the school at Cheshunt is the prototype (type I), on which the design of the Hertfordshire schools is based.

ORIGINS

EARLY in 1946 the newly-formed County Architect's Department of the Hertfordshire County Council was presented with a building programme prepared by the County Education Department in which the most urgent item was the need for over 175 new primary schools during the next fifteen years. Some aspects of this problem and the way in which it was tackled have already been stated (AJ, October 16, 1947). The following is a brief restatement of the history of the Hertfordshire County Council's programme.

It was realised, when the problem of providing new primary schools at the rate of 15 to 20 a year was first considered, that prevailing conditions would make building on traditional lines difficult for some time to come; it seemed likely, even, that there would be no return to pre-war conditions and that a gradual, though fundamental, re-organization of the building industry would have to take place. Even taking a short view, however, it was evident that traditional methods were not going to produce anything like the required number of buildings. More serious than any shortage of materials was the shortage of site labour, particularly skilled tradesmen, and it was mainly in the hope of overcoming this problem that pre-fabrication was introduced. The ideal was to devise a system of factory-made components, simple enough to be mass-produced and so reduce costs, and which required the minimum of skilled labour in erection.

Although the requirements of the 1944 Education Act had to be met, it was generally agreed that no regulation could exercise more than a static influence on school design and that the educationalist would have to state positively what sort of environment was needed for good teaching. It was also agreed that the architect would have to go into the schools and study their problems on the spot. It was felt that most existing schools were the result of an over-simple calculation based on cost, administrative convenience and the provision of various amenities which are required by regulations, such as sanitation, cross ventilation, adequate daylighting, etc. The result was an uninspired type of plan, remarkable chiefly for its long rows of contiguous classrooms, endless straight corridors and massed water-closets and an inevitable tank tower, the total effect of which can only be described as "institutional" and which cannot engender the atmosphere of sympathy and freedom so necessary to the teacher.

From discussions with the educationalists, backed by study of schools in action and some dimensional surveys of children, the architects were able to piece together a programme for a typical school. The building should be on a domestic and intimate scale, have a light and cheerful appearance and a reasonably high standard of finishes. In planning, monumentality should be avoided, the various elements should be on one level, as far as possible, and circulation should be kept short. The entrance hall, through which the children themselves were to enter the school, was to be the hub of the plan; from it, they were to pass to the adjacent assembly hall and dining space and to their various cloakrooms and teaching spaces. In infants' schools each teaching space should be as nearly as possible a distinct unit, with its own cloakrooms and lavatories, although in junior schools a larger grouping would be permissible. In the juxtaposed communal spaces—entrance hall, dining hall and assembly hall—flexibility of formation was essential and this suggested the use of glass screens and folding or pivoting doors. It was clear that rooms of several heights and spans would be needed, that the structure should obstruct floor space as little as possible, and that the plan shape was likely to be rather irregular.

CHOICE OF STRUCTURE

To fulfil these and other conditions a structural system of the greatest flexibility was required, especially as it was desired to avoid any stereotyped planning and to be able to build on any site that might be offered without excessive levelling. This requirement ruled out those systems that involved complete prefabricated structures. It also eliminated the "portal" frame type of structure, against which there was the further objection that it tended to produce an "institutional" type of building.

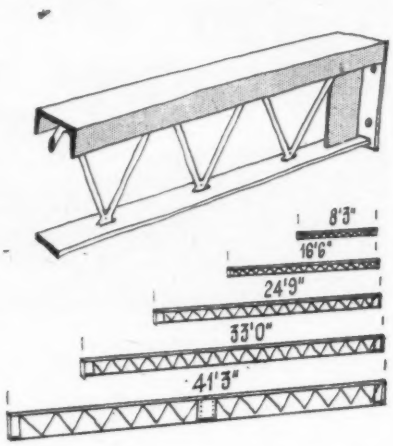
After some research it was decided to adopt a system after the "Meccano" pattern, consisting of light steel members, the size of which would be based on a standard module and to which could be attached slabs of other materials as wall and roof cladding. This type of system has the advantage of allowing the building to be extended in four directions against the limiting two-directional extension of the "portal frame" or "hoop" system, and can be easily adapted, by the use of stanchions of various lengths, to allow changes in ceiling or floor level. An additional advantage was that, as walls and cladding were independent of the frame, the materials used could be varied. The architects were fortunate in finding a firm of steelwork manufacturers who had already devised the elements of such a system and were, in addition, able to supply units suitable for wall and roof cladding.

THE PROGRAMME TO DATE

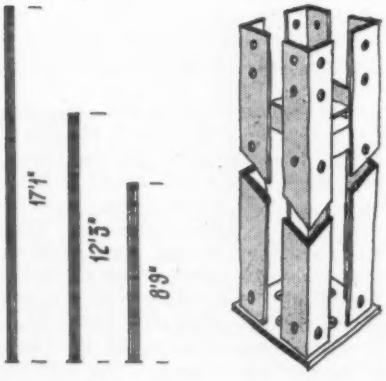
Time did not permit the erection of an experimental prototype and the first building was three infants' classrooms of the Cheshunt School. The structure for this was developed and finalised by architects from the Hertfordshire County Council working with the manufacturers at their works. Architectural control of structural development was thus secured at the beginning and has been continuously maintained. Before the prototype was completed results were sufficiently encouraging for the Ministry of Education to sanction the first production run of ten schools (the 1947 programme). In the current year twenty-two further schools are being put on the ground and a further programme is being undertaken next year. The ten schools of the 1947 programme are now open, in spite of serious delays, and it is hoped that, with the experience gained in this programme, the current run of schools will be open within nine months of their starting dates.

THE 8 FT. 3 IN. MODULE

The planning grid on which the Hertfordshire County Council structure is based uses an 8 ft. 3 in. module. This dimension was adopted, not because experiment had shown it to be particularly suitable for prefabrication, but because it had been recommended in the Wood report of 1944 and the steelwork manufacturers had plant jigged up for it. In practice it has proved reasonably satisfactory for primary school planning, although sometimes extravagant for cloakrooms and corridors. It has been possible, with increasing experience, to produce satisfactory plans for sites as difficult as any normally met with and the vocabulary of architectural effects obtainable with the present type of structure has been by no means exhausted in the thirty-two schools so far designed. At its best the grid system has proved a valuable discipline for the planner and, although it cannot redeem a bad plan, it may lend coherence to a mediocre one.



BEAMS. *The top and bottom chords of the flat or channel section are connected by a lattice composed of short lengths of rod welded together. End plates are drilled for bolting to the stanchions.*



STANCHIONS. *Four equal angles are punched with a fixed number of holes on both faces and are welded to a baseplate and angle distance pieces to form a stanchion 5½ in. square. All faces of the three types of stanchions used throughout the school building programme, are therefore identical and services can be taken through the stanchions horizontally or vertically. Beams and cladding rails can also be connected to any surface.*

MATERIALS AND METHODS

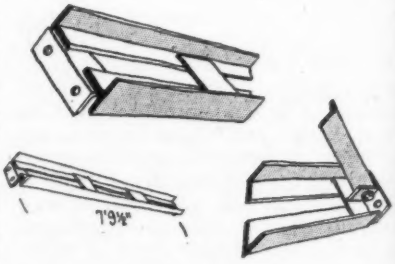
It is not claimed that the current version of the structure used by the Hertfordshire County Council is the final one. Prefabrication is no more than a means of building and it must ultimately face a test, not only of its efficiency, but of its capabilityof being used to produce good architecture. As a technique, however, prefabrication (or at least that type of system used in Hertfordshire) is in its infancy and its exploitation both by architect and manufacturer is still extremely experimental For this reason the Hertfordshire system, which allows not only considerable planning flexibility but also variation in the materials used within the frame, has distinct advantages.

In selecting materials there are three main considerations; suitability, which includes ease of manufacture and handling, availability and cheapness. Under present conditions availability and cheapness are urgent factors and may often lead to the choice of a material that is only relatively suitable for its purpose and this, in turn, to a technique which is far from ideal. To take one example : the ideal element for external walls in the Hertfordshire type of structure would seem to be a light-weight panel with insulating and weather-resisting qualities, which would serve as both external and internal facing and would fit into the frame in the same way as a window. Suitable materials do, in fact, exist but they are either not yet available in sufficient quantity or are too expensive. It has been necessary therefore to fall back on a more elaborate technique, using concrete slabs supported by steel members for external cladding and a separate internal lining. Not only is this a relatively complicated construction but, as both cladding and lining have to be fixed to the face of the steel frame, instead of fitting inside it like a partition, a set of subsidiary components is required for external walls which is quite different from those used for partitions, and the process of manufacture is further complicated. In addition, the slightly heavy appearance which is unavoidable with concrete cladding is not a very appropriate expression of the very light construction of the frame.

Such problems are inevitable and there are signs, as the Hertfordshire type of structure is being more widely adopted and more manufacturers are becoming alive to its possibilities, that more and better materials will be forthcoming.

THE 1948-9 STRUCTURE

The system used by the Hertfordshire County Council has, to date, passed through three stages. The first, which was used in the prototype, the junior

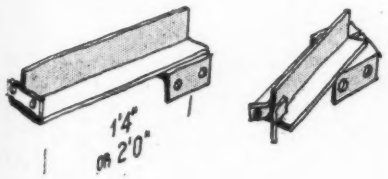


CLADDING RAILS. *These are horizontal rails, composed of angles or tees welded up, which are bolted between external stanchions for fixing cladding, window surrounds and internal linings. Certain rails provide fixing for diagonal bracing.*

school at Chesh.unt and the school at Essendon, and the second, which was used in the 1947 programme schools, were described in some detail in the AJ of October 16, 1947. The following notes are intended as a supplement to the original article, although necessarily covering a great deal of the same ground, and deal mainly with the version of the structure used in the 1948-9 programme.

STEEL FRAME

The frame used in the current programme consists, in the main, of stanchions (three lengths), beams (five



EAVES CANTILEVERS. *The tees are welded to an angle assembly which fits inside the top of the stanchions. The projection is approximately 1 ft. 4 in. for the low and medium height blocks and 2 ft. for the high blocks.*

lengths), cross bracing and ties, cantilever brackets for eaves and horizontal "cladding rails." All these members are completely fabricated to a manufacturing tolerance of $\frac{1}{8}$ in., drilled for all predictable fixing (all connections made on site are bolted) and galvanised in the factory. As considerable numbers of each component are required for each programme it is possible for the manufacturer to set up jigs and simplify the procedure of fabrication. All components are welded. (See drawing of cladding rails on page 432).

STANCHIONS

The stanchions (see drawing on page 432) are $5\frac{1}{4}$ in. $\times$ $5\frac{1}{4}$ in. square on plan and are built up of 2 in. $\times$ 2 in. angles connected together at intervals by angle section battens. The square plan shape, adopted after experience with H-shaped stanchions on two schools, allows fixing on four sides, each side having the same hole positions, so all stanchions of the same length are interchangeable. A 6 in. $\times$ 6 in. base plate is welded to the stanchion and drilled for four holding down bolts, The erection procedure is to set holding down bolts in grout in pockets in the site slab, locating their positions with a special jig (see drawing), then jack up the stanchion to the required level by back-nuts on the holding down bolts and complete grouting.

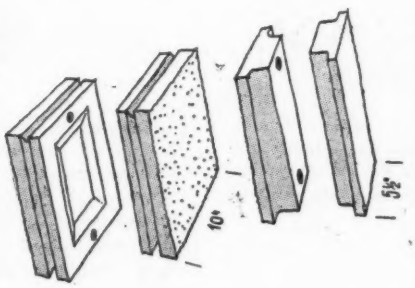
BEAMS

The beams (see drawing on page 432) are of unconventional construction with channel top beams and flat bottom members connected by welded diagonal lacing. At each end a "tee" section member is welded on and its flanges drilled for bolt connection to the stanchions. The light construction means that no cranes are required in erection, the largest beams being manœuvred into position by simple tackle operated by three or four men. The open lacing does not obstruct the view and therefore can be exposed and painted (giving an instance of the decorative value of a straightforward structural object) and allows free passage for heating pipes.

The remaining components may best be considered in relation to the roof and cladding.

ROOF

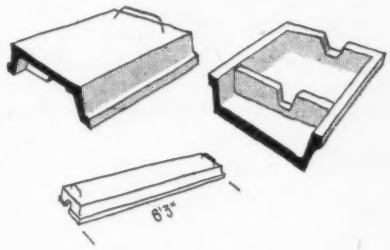
The roof structure is composed of precast concrete blocks of trough section normally 8 ft. 3 in. long and 14 ft. wide, with a number of additional types for special purposes. The span is constant



CLADDING BLOCKS. *Reinforced concrete blocks with coloured cement finish. Ferrules for fixing bolts are embedded in back. Blocks in front of stanchions are 2 in. thick, 5½ in. wide and are trowel finished, and the wall blocks between them are 2½ in. thick, 10 in. wide and are given a textured finish. The most commonly used block is 8 ft. 4 in. long. All other blocks are shorter.*

at 8 ft. 3 in. It was therefore possible to standardise the thickness of roof blocks at 4 in. allowing a loading of 30 lb./sq. ft. As the roof blocks are laid, flat metal ties, notched at either end to hook over the steel beams are dropped into the joints to counteract tensional forces. Cement grouting of joints gives a roof which is monolithic in compression.

Although the precast concrete block has proved reasonably satisfactory for roofing, it is, in its present form at least, by no means an ideal solution to the problem. Although concrete can be easily moulded to the various shapes required and is comparatively cheap, the finished product is crude in appear-



ROOF BLOCKS. *These are reinforced concrete coffers 4 in. deep which span between the steel beams. Intermediate stiffeners are notched in order to allow electrical services to pass above the ceiling level.*

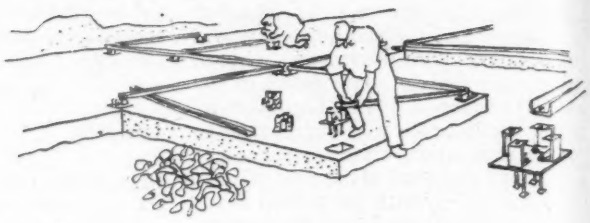
ance, liable to fracture, heavy to handle and difficult to chip away when minor adjustments have to be made. As yet, however, no satisfactory alternative has presented itself.

The roof units are covered with a screed of between $\frac{3}{4}$-in. and 2 ft. 2 in. minimum thickness made up of a vermiculite mix protected against traffic and weather until the bituminous covering is laid by a skim coat of cement mortar. The screed is laid to falls, and sumps are provided in the roof-blocks to carry off rainwater. The ceiling is of $\frac{1}{2}$-in. insulation board, backed by aluminium foil and screwed to 1 in. $\times$ 1 in. battens, which are, in turn, fixed to small tapered wooden fillets dropped into the joints between roof blocks. Nailable grout has been tried as a substitute for these fillets but has proved ineffective. The insulation factor for the complete roof is 0·23 BTU.

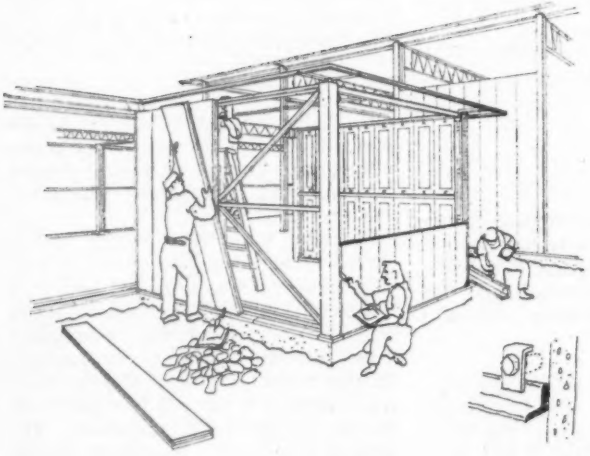
EAVES

These are of two types. The first has a projection of 1 ft. 4 in. and is used on blocks of low and medium height, while the second, which projects 2 ft. 4 in., is used on assembly halls. A wider roof-block is used with cast-in wooden fillets on its outer edge, to which are screwed pressed steel fascia plates. The fascia, together with a closure piece, which also masters the top of the cladding, supports a $\frac{1}{2}$-in. asbestos wood soffit. The eaves blocks are supported by cantilever brackets (see drawing on this page) consisting of a "tee" section bracket welded to a cropped channel which fits inside the head of the stanchion and is secured by bolts. This component has proved difficult to level up and is undergoing modification.

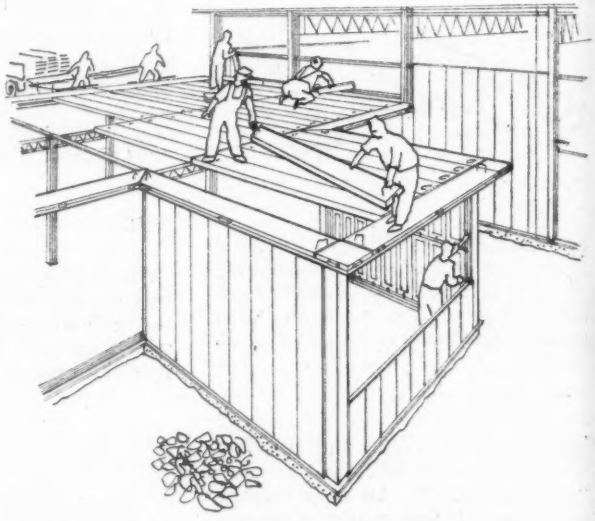
1. *Site slab is poured with deepened slab at edges and reinforced to form an edge beam. Forms are left in at stanchion position and later removed to form mortices for the holding down bolts.*



2. *Holding down bolts are located by a standard jig and dropped into the mortices with nuts above the baseplate adjusted to give required depth. The mortices are then fitted around the holding down bolts with cement grout.*



5. *Grooves in the edge of cladding blocks are "buttered" with mortar and the blocks bolted to the cladding rails. Joints are pointed in white cement. The detail shows the method of bolting the slab to the cladding rail angle, with the threaded ferrule shown dotted.*

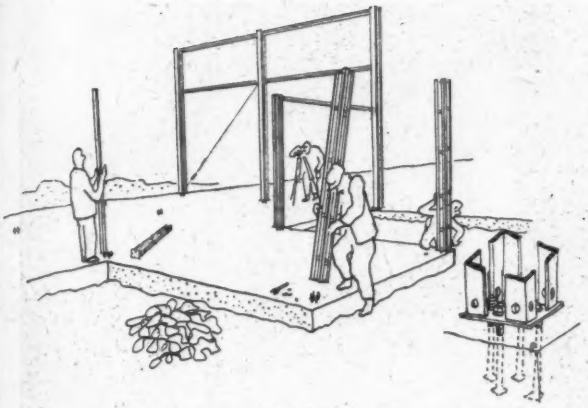


6. *Concrete roof blocks are off loaded up a ramp on to the roof, and laid across the steel beams. The special eaves blocks are provided with wooden lugs to which the fascia is screwed. At junctions between blocks of different height, horizontal cladding blocks are laid on top of the lower roof blocks, a damp proof course laid over them and vertical cladding blocks fixed above. Joints between blocks are grouted up and the whole roof covered with a vermiculite screed laid to falls. Angle surrounds to windows are placed into the grooves in the cladding blocks and bolted to the steel frame.*

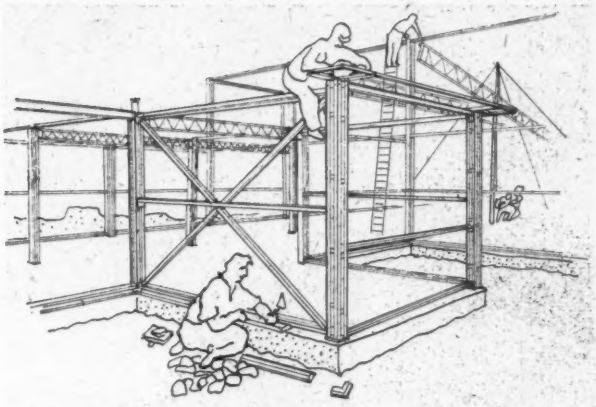
WALL CLADDING

This is in the form of precast coffered blocks (see drawing on page 433) with various facings. The facing originally chosen was Leighton Buzzard spar rolled in to a thickness of ½-in. but in the 1947 programme this was changed for reasons of economy to a ballast surface. The appearance of the latter was crude and unsatisfactory and in the 1948-9 programme some schools are using Derbyshire spar while others are to have a rough tyrolean finish. The use of a coloured finish is now being considered. Normally these blocks are 2½ in. thick, a 2-in. block being used as a stanchion cover. In the current programme these blocks are set vertically, the grooves being "buttered" with mortar before erection, in line with the face of steelwork and are held back by clips and bolts to horizontal cladding rails spanning between stanchions. The cladding rail type depends on its position and the nature of the internal lining and may consist of one or two angles, an angle and "tee" combination or a single "tee." The angles or tees are welded to cleats which are bolted to the stanchions. Joints are raked and pointed to a colour approximating to that of the cladding.

The first two schools to be built in the Hertfordshire County Council structure used horizontal cladding blocks, each 8 ft. 3 in. long and fixed to the stanchion. This system had the advantage of requiring no cladding rails, but was somewhat heavy in appearance and meant that all openings had to be a full bay in width. The vertical cladding system permits openings of ¼ and ½ of a bay width, but is less economical on steel and leads to an awkward clutter of components at the heads of some stanchions. For this and other reasons a reversion to the horizontal system is being considered.

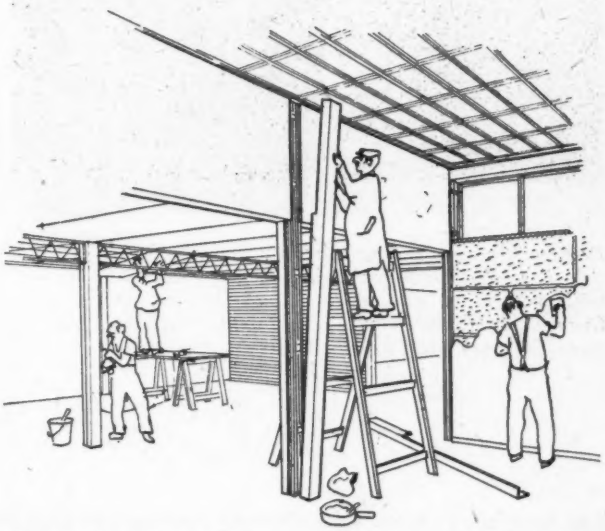


3. *Locknuts are placed on the holding down bolts and levelled up. Stanchions are then dropped over the holding down bolts and held down with a further set of nuts above the baseplate.*



4. *Cladding rails, beams bracing and eaves cantilevers are fixed and the frame lined up. The space between the stanchion base and the side slab is fitted with a cement grout. Concrete cills are laid on the edge of the concrete slab to take the cladding blocks.*

7. *Metal fascias are fixed to the eaves and the bituminous felt roof covering dressed over them. Soffits are lined with asbestos. Window frames are screwed to the angle surrounds and the openings glazed or fitted with metal inserts consisting of two metal dished panels with glass silk filling.*



8. *Internal walls and linings are of brick or wood-wool slabs, with precast fibrous plaster panels as the internal lining at clerestory level. Cornices of stanchion casings are in ¾ in. precast fibrous plaster with the joints made up with fibrous plaster. Ceilings are of insulation board screwed to the battens.*

WINDOWS

Windows and external doors are generally of galvanised steel factory glazing sections, though aluminium universal sections are also used, and are made to a range of about 40 types. They vary in height from about 2 ft. 3 in. to 17 ft. and may be ⅓, ⅔ or a whole bay in width, and are bedded in mastic and screwed to angle sub-frame which fits into the rebates of cladding-blocks and is fixed to the steel frame. In teaching spaces side-hung opening lights are used from cill height (2 ft.) to door head height with ventilators above as required. Metal panels may be substituted for fixed lights. Excessive glare is controlled by venetian blinds with adjustable metal slats.

INTERNAL SCREENS

There is a range of glazed screens and doors, all of which are a full bay width. Fixed screens are of various sizes, ranging from types large enough to fill a bay, to smaller types which are inserted above partitions or doors or at clerestorey level. Metal doors have three leaves, one fixed and the others with swing action. Where it is required to open up a bay fully a three-leaf sliding-door is now used, in place of the pivoting screen employed in the 1947 programme. Internal doors in partitions are flush doors to BSS sizes, set in metal frames. Glazing in metal screens is replaceable by medium hardboard where additional "pin-up" space is required.

PARTITIONS AND WALL LININGS

Until the present programme, the desire to eliminate "wet" construction as far as possible led to the choice of fibrous plaster for both wall linings and partitions. This material was made up

Detail of the eaves and wall finish at Essendon School (type I) for comparison with, above right, the eaves and wall treatment of a junior school (type II) at Little Green Lanes, Croxley Green. This latter school was part of the 1947 school building programme.

into large sheets (¼-in. thick for wall linings, with a backing of aluminium foil and 2 in. thick with a wood-wool core for partitions) and jointed with the same material on the job. The result was a hard, smooth, quick-drying surface which, although more expensive than brickwork, involved far less site labour. The difficulty lay in obtaining from a firm accustomed to hand-methods a large quantity of standard units and in the acute shortage of skilled plasterers which developed as the '47 programme got under way. Fibrous plaster caused more delay on the '47 programme than any other factor.

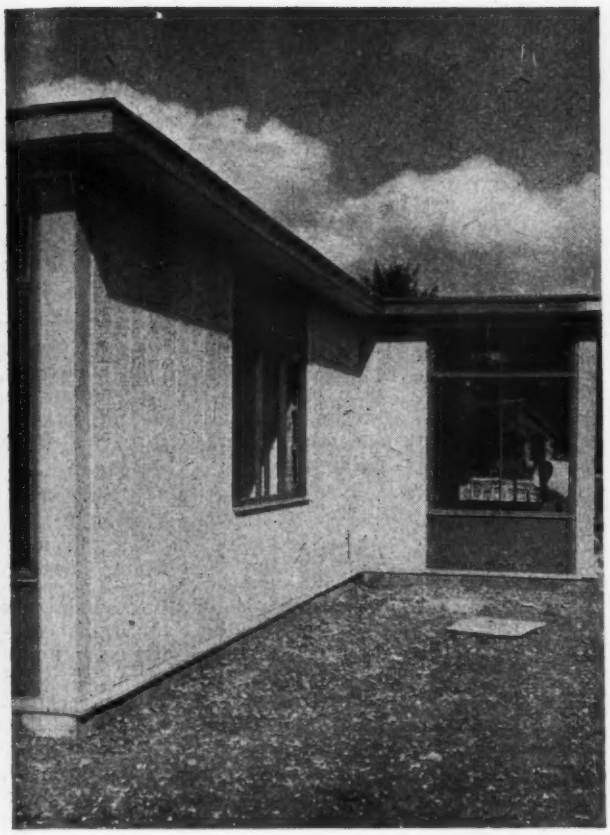
In the current programme, wood-wool, plastered *in-situ*, is being extensively used. This has the disadvantage of taking longer to dry out and thus delaying that finishing coat of oil paint. 2 ft. wood-wool plastered both sides is used for wall linings and 1½ in. for partitions. Where additional sound insulation is called for, 3 in. wood-wool, flettons or clinker blocks are used. Flettons or clinker blocks are also used where cisterns, etc., have to be supported and for most partitions that are independent of the steel frame.

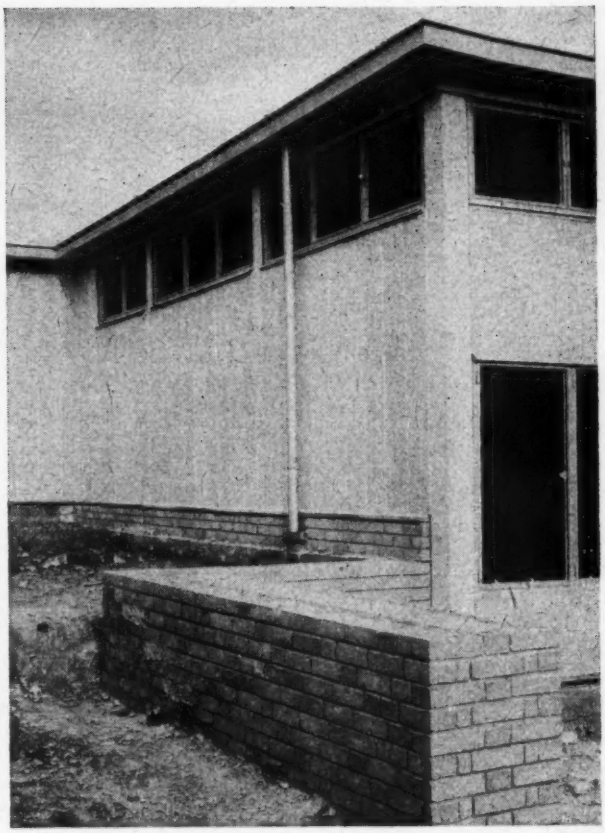
STANCHION AND BEAM CASINGS

It has been said that in most pre-fab systems the process of standardising components tends merely to transfer certain problems from one component to the next until one element of the structure becomes heir to the accumulated snags of the others. In the Hertfordshire County Council structure this burden falls upon stanchion casings of which many profiles are required, and no clear system of coding has been evolved (between floor and ceiling a single casing may take up as many as five "profiles"). Beam casings are scarcely less complicated, but a workable coding system has been contrived. For both these purposes, fibrous plaster is not only the ideal material, but in view of the number of profiles required probably the only possible one. Stanchion casings are of ¾ in. fibrous plaster and master adjoining wall surfaces, thus acting as cover strips and minimising visible cracking in partitions. Beam casings are ½ in. thick and are fixed to steel with blobs of wet plaster. Fibrous plaster is also used for wall linings to the upper part of assembly halls and dining and teaching spaces.

SERVICES

Heating. A warm air system is used in most schools, the air being drawn into a heating cabinet where it is propelled through a hot-water heating element and thence back into the room. The heater cabinets are thermostatically controlled and are fed with hot water from pipes running at ceiling level in the corridors. The same flow and return system feeds calorifiers which supply water at controlled temperature to basins. Radiators are used only in staff-rooms. The system





Left, junior mixed and infant school at Hertford (type III). Above, a school at Barnet showing the return to the overhanging eaves in the design as in type I.

is designed to maintain an average temperature of 60° in teaching spaces, 45° in corridors and lavatories, when the outside temperature is 30°.

Water Services are contained in 6 in. × 6 in. chases in the floor slab, central storage tanks being situated, if required, above and behind the stage or on the roof.

Electricity. The structure is designed for wiring with tough rubber-covered cable which can easily pass down stanchions and above ceilings. A return has recently been made to conduit for wiring, in order to secure a longer life. The concealment of conduit has raised numerous problems which have not yet been entirely resolved.

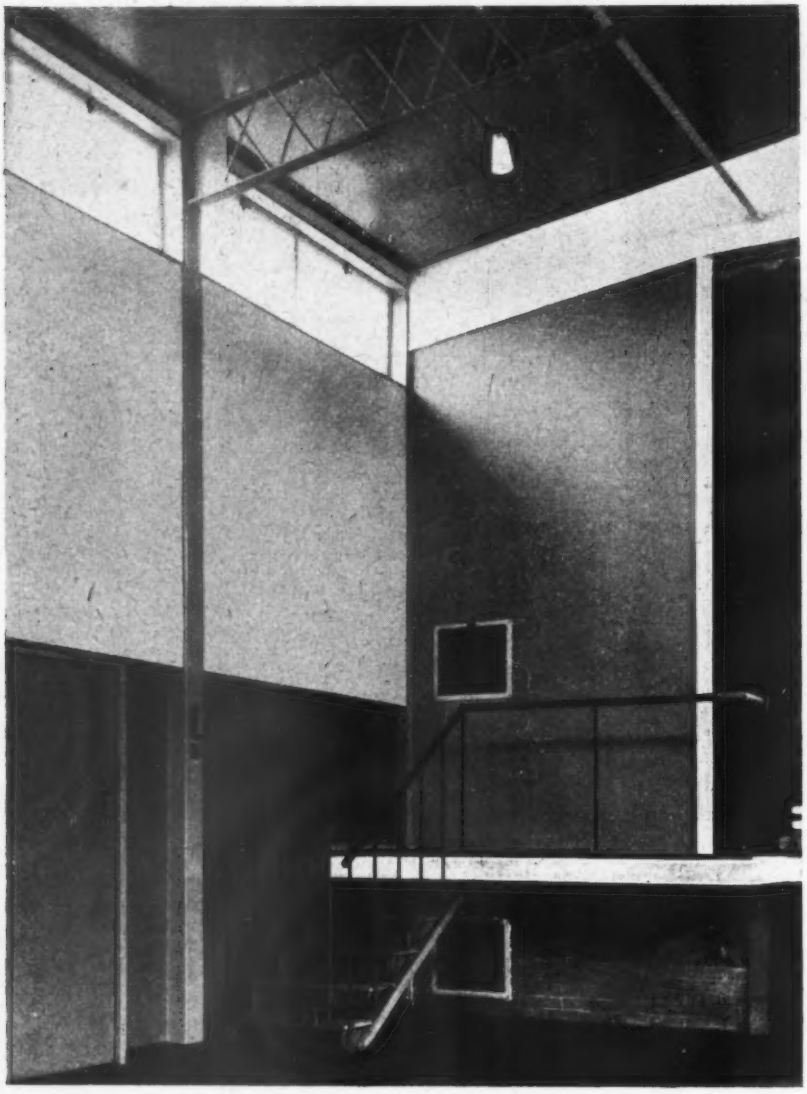
FOUNDATIONS

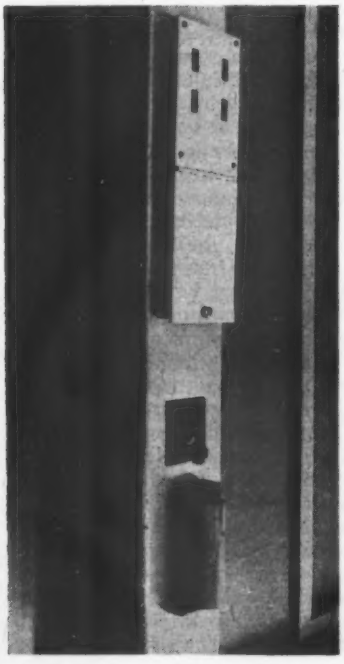
The foundations and site slab are of orthodox construction, consisting of a continuous reinforced edge beam. Site slabs and pads under stanchions are reinforced only when soil conditions are poor. Retaining walls are normally in brickwork.

ADMINISTRATION

Bulk Ordering

A peculiar advantage of a standardised structure with interchangeable components is that it allows a stock pile to be built up on which individual jobs can draw as required and thus the risk of jobs being held up for lack of components is minimised. Since manufacturers' delivery periods are uncertain at the present time this risk would be acute if components were only ordered when the general contract for each job is let. The County Architect's Department has therefore been permitted by the responsible committees of the County Council, with the approval of the Ministry of Education, to enter into direct contracts with various manufacturers and to issue them, before each programme commences, with orders for an estimated minimum number of components, which are then manufactured and held in stock. This method is, of course, only applied to those components such as steel frame, roofing components, windows and cladding materials which are basic to the structure. Except in the case of the steel frame, certain parts of which are protected by patents, it is not always customary to hand out the whole programme to any one manufacturer, and in each year's programme one or two schools may be held back in respect of some components for experimental work with untried manufacturers or materials. As these orders are placed often before most of the schools in the programme are designed, there is a risk of over-ordering as changing design trends may produce a quite startling disparity between, say, the wall to window ratios of the first and last schools in any programme. Recent experience, in which a number of





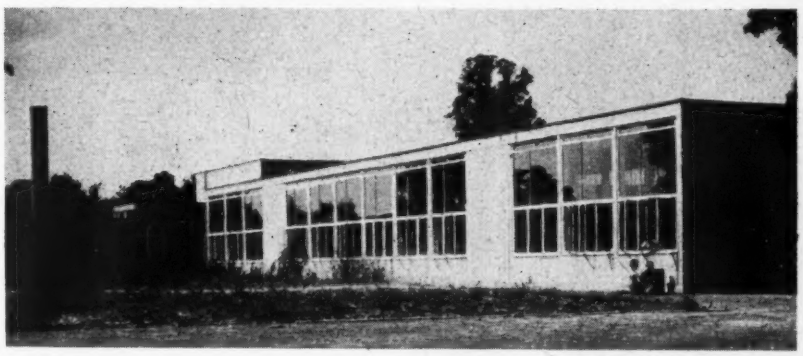
Left, the steps up to the stage of the assembly hall at the school at Cheshunt (type I). Bottom: left, a stanchion casing with thermostat, light switches and fuse box ; right, specially designed wash-basins, with single taps supplying warm water, in the cloakroom at Cheshunt.

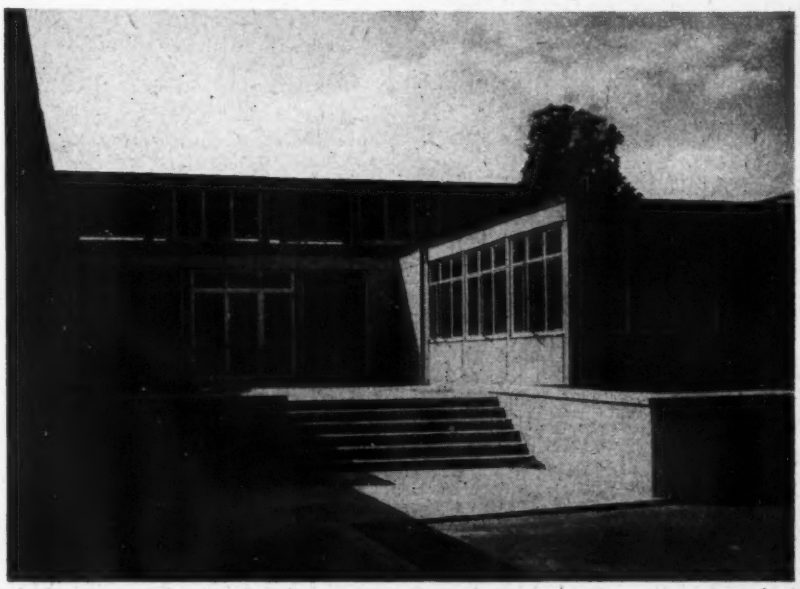
schools which actually commenced on the ground at about the same time as orders were placed with manufacturers, have been seriously held up for deliveries, indicates that the risks of advance bulk ordering are well worth running.

DRAWING OFFICE

Although it is difficult to obtain exact figures, it can be claimed that standardised construction results in a considerable saving of drawing office and administrative time spent on each job. There is an initial saving on the time normally taken to secure Ministry of Education approval for individual jobs. Once the structure for the programme has been approved the architect responsible for each job can get down to his sketch design knowing that, provided it does not exceed a reasonable area and complies with regulations, his plan will be passed. Sketch designs, together with all necessary consultations with the educational authority, usually take about four man weeks and are followed almost immediately by working drawings. These are undertaken by the job architect with a team of three or four other architects and normally occupy about 700 man hours. The working drawings are supplemented by sets of standard details of which about 50 are prepared for each programme. Working drawings themselves tend to become increasingly diagrammatic with symbols, notes and references taking the place of normal draughtmanship. The standard details cover items that are common to all schools, fibrous plaster profiles, roof and wall cladding, play equipment, etc., and include a number of assembly drawings for the builder. For the instruction of new staff and for reference there is also a series of information sheets. Upon completion of working drawings the job architect shepherds his school through the Quantity Surveyor's Department and prepares schedules of components for sub-contractors to price and for the guidance of the builder when ordering. The total of man hours spent on each job before it goes out to tender (excluding quantity surveyor's time) average between 1,000 and 1,200 man hours, spread over about four months.

The assembly hall at Little Green Lanes junior school at Croxley Green (type II). Below, the main classroom block. Bottom, the main entrance to the infants' school at Croxley Green.





SUPERVISION

Each job architect supervises at least two schools under construction with a clerk of works who may be responsible for two or three schools. Supervision, however, should not occupy more than about one day a week per school.

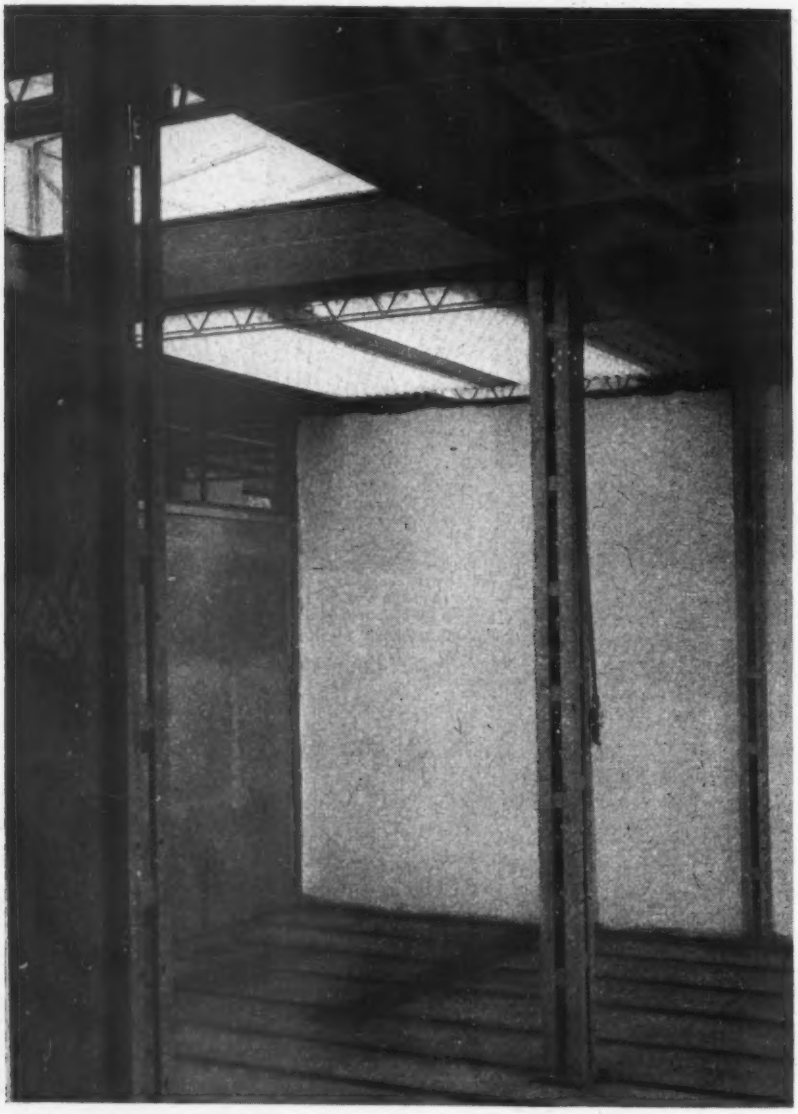
As soon as it is possible to draw general conclusions from each programme and as individual jobs pass their teething stages it has become the practice to withdraw architects from work other than supervision to design the first school of the new programme, and to set about preparing standard drawings incorporating their experience. At this time new structural developments and new materials are investigated. This continual process of design, supervision and reconsideration through which all architects concerned pass annually will, it is hoped, prevent stagnation.

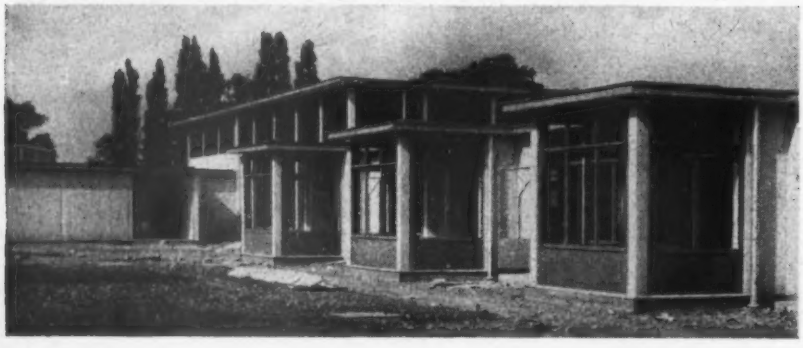
FUTURE DEVELOPMENT

A good deal of development work has already been done in the County Architect's office for a structure based on a 3 ft. 4 in. module, using a different type of frame and an entirely new system of partitions and external walls. A small prototype, forming part of a secondary school, is being started this year. In the meantime the bulk of the coming programme will be using a re-designed version of the 8 ft. 3 in. grid structure.

The immediate need is for a two-storey construction and an attempt is being made to devise a structure which will meet both primary and secondary school requirements. It is likely that this form of the structure will remain substantially unchanged until it is possible to judge the success of the 3 ft. 4 in. module, which will probably not be for two or three years.

By way of an interim report it can be claimed that the adoption of a prefabricated structure by the Hertfordshire County Council has fully justified itself in the number of schools built with the available labour force, the relative speed with which they have been completed and in their comparative cheapness. The adoption of similar systems by other authorities (with the encouragement of the Ministry of Education) suggests that, as experience





Top, progress photograph showing the construction of a school at Hertford (type III). Centre, infants' classroom (type I). Bottom, infants' classrooms in L-shaped school at Hertford.

increases and the size of the manufacturers' market grows, erection periods and costs will be further reduced.

Architecturally, it is to be regretted that the exteriors of the 1947 programme did not maintain the standard set by the schools at Cheshunt and Essendon. For reasons of economy the eaves unit used in the first two schools was suppressed and a coarser finish used on the external cladding. The results were unfortunate, the appearance of these schools being somewhat crude and austere. The lesson has, however, been well learnt and the exteriors of the 1948-9 programme promise to be in many ways superior to Cheshunt and Essendon. Internally, the 1947 schools maintained a standard of finish and appearance probably superior to most comparable buildings of orthodox construction, and the standard of these schools has been considerably raised in the current programme.

STAFF

Deputy County Architect: W. E. Tatton Brown. *Principal Assistant Architect:* G. C. Fardell.

The following staff worked on the initial programme :—S. Johnson Marshall (Deputy County Architect until 1948) ; S. Morrison (Principal Assistant Architect until 1949) ; O. Carey ; Anthony Cox ; Mary Crowley ; A.R. Garrod ; W. Henderson ; W. D. Lacey ; Bruce Martin ; D. L. Medd.

The present staff engaged on the New School Programme is :—Ole Bang (Denmark) ; A. W. C. Barr ; D. G. Barron ; P. Cherry ; O. J. Cox ; R. de Yarburgh-Bateson ; K. C. Evans ; A. R. Garrod; Wendy Harries; W. A. Henderson; F. K. Hicklin; D. Lacey; Bruce Martin; Margaret Mason; D. G. Middleton J. T. Redpath; M. Smith; E. C. Tory; Eunice Twist; K. C. Twist; G. Newell (Surveys) ; A. H. W. Pollicutt (Surveys); T. E. S. Thwaite (Heating and Electrical Engineer); G. Powis (Assistant Engineer); H. Sugden (Chief Quantity Surveyor); G. A. Bower, K. C. Gill, A. McMillan, E. J. Norman, C. M. Nott, D. L. W. Terry and C. A. Willmott (Quantity Surveyors).

The main entrance.

SHOWROOMS, QUEEN STREET, E.C.

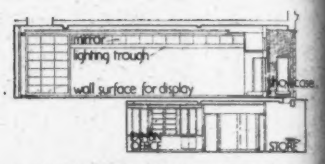
BY EASTON AND ROBERTSON

GENERAL.—These showrooms for the City of London Electric Lighting Co., Ltd., were designed to demonstrate the commercial uses of electricity and to provide flexibility for the changing of displays. The clients also required the necessary mechanical installations to be used for display purposes. The showrooms are situated on the ground floor and basement of a building previously used as an office. The two floors had to be connected by a new staircase which was to be of such a character as to attract visitors to the basement. The plan form was dictated by this consideration and by the need for an office on the ground floor and one in the basement. The need for air conditioning also affected the planning and decorative form. Exhibits calling for drainage necessitated a fixed location. Otherwise the building was wired so that light and power could be tapped at will. The display window is set back and offers a platform for flexible displays. The original window was in one sheet of plate glass, but this was bombed and replaced by three sheets owing to difficulties of supply. The showrooms were practically complete when war broke out, but all the final installations were delayed and the whole showrooms dismantled apart from fixed fittings. Mural panels by Frederick Rowntree, which had been specially painted for the showrooms, were protected from damage caused by bombs and the interior of the building was not seriously damaged.

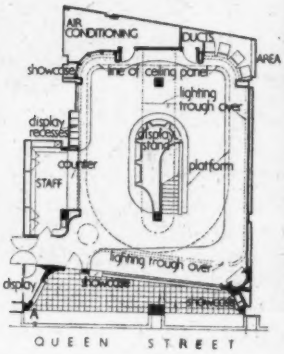
The showrooms were taken over in July by the London Electricity Board and the display installed illustrates the latest developments in the industry and problems of production, distribution and consumption, and contains many novel types of equipment. The display area is divided into twelve sections, comprising agriculture, catering, communications, distribution, domestic uses, electronics, enter-

tainment, generation, health, industry, transport and ventilation. The general character, as originally planned, was unchanged, though recent developments in the use of electricity have been incorporated. The external lighting was considerably limited owing to electricity restrictions. The showrooms are in light colours, and there is a fairly ample use of mirrors in order to give a sense of spaciousness.

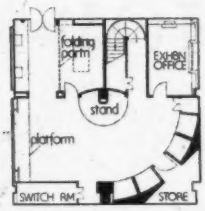
The general contractors were D. Burkle & Son, Ltd. For list of sub-contractors see page 448.



LONGITUDINAL SECTION



GROUND FLOOR PLAN

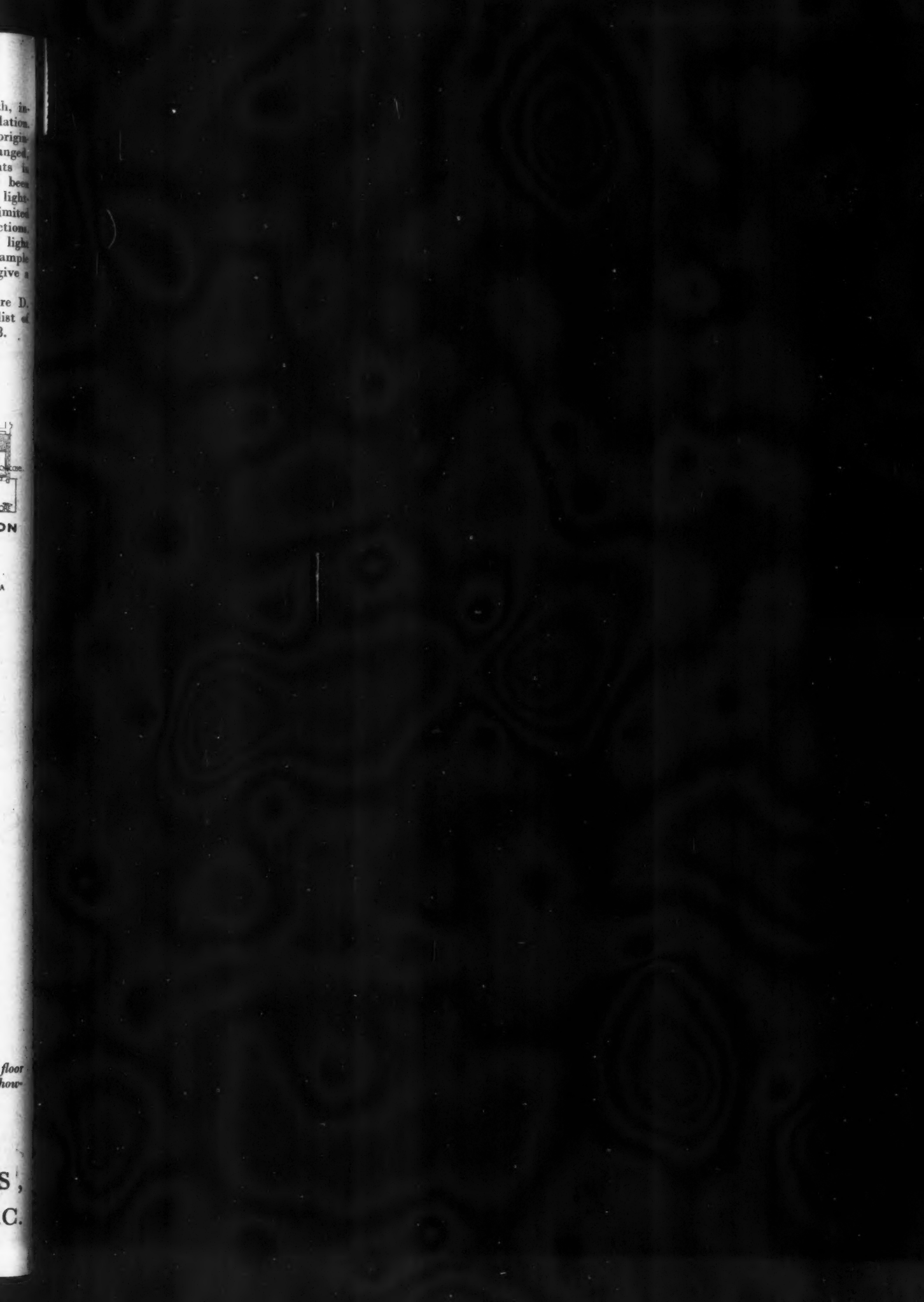


BASEMENT PLAN

[Scale: $\frac{1}{8}$" = 1'0"]

Left: top and centre, the ground floor showroom; bottom, the basement showrooms.

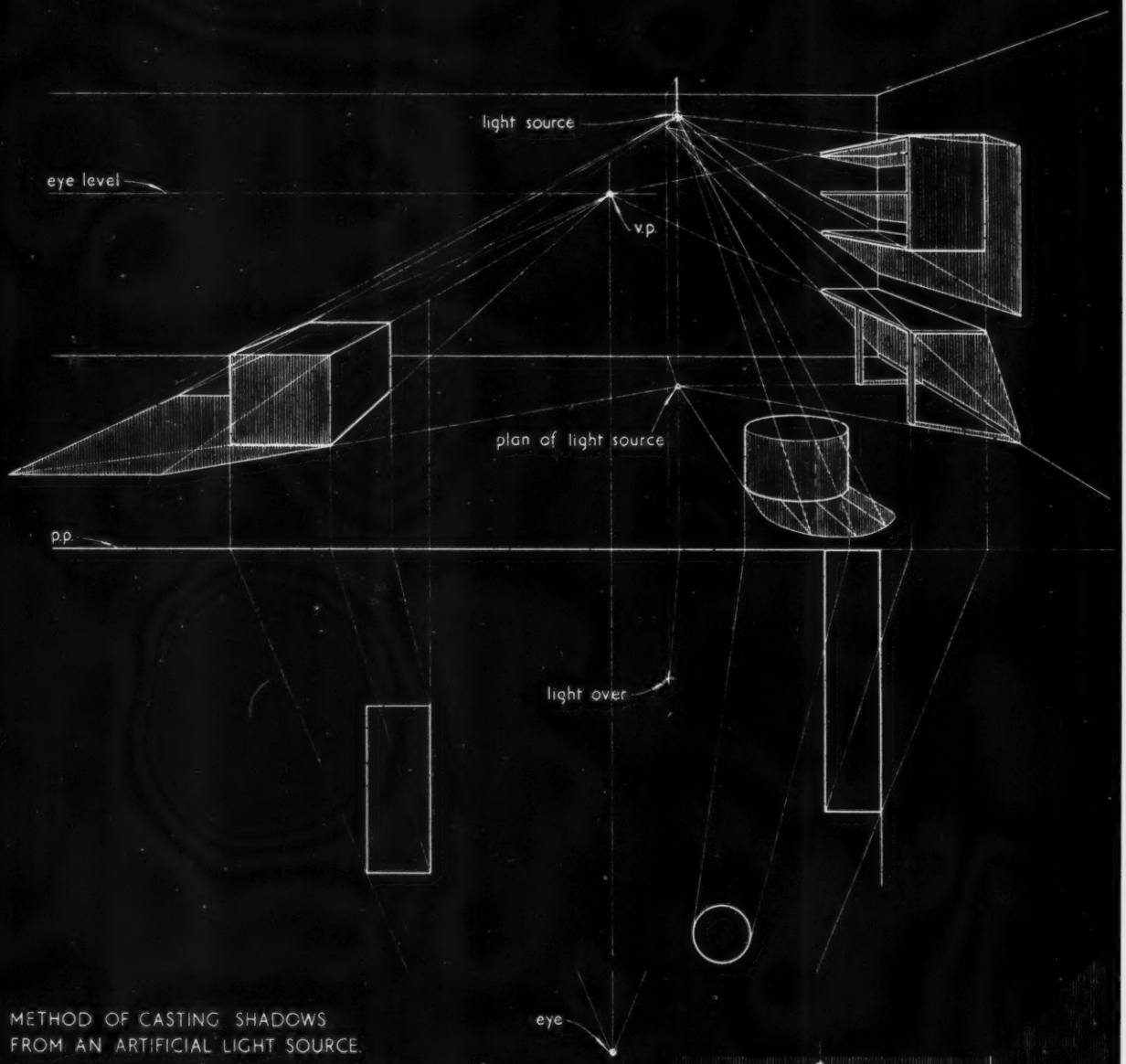
SHOWROOMS, QUEEN STREET, E.C.



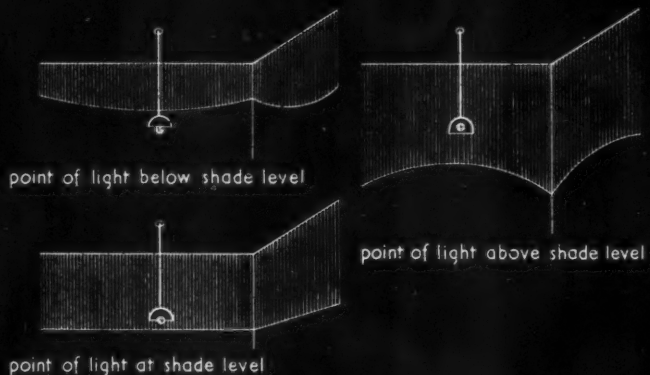
Architects' Journal 20 10.49

DRAUGHTSMANSHIP | PERSPECTIVE

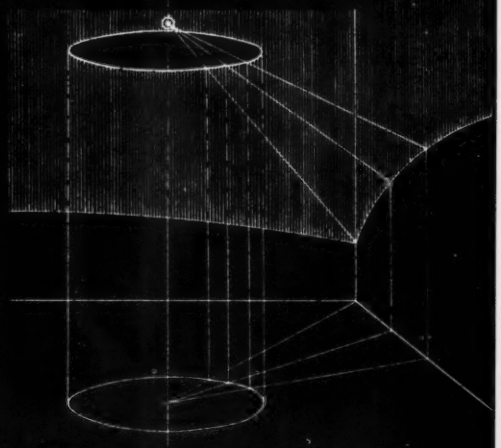
The Architects' Journal Library of Information Sheets 215. Editor: Cotterell Butler, A.R.I.B.A.



METHOD OF CASTING SHADOWS
FROM AN ARTIFICIAL LIGHT SOURCE.



SHADOWS OF LAMP SHADES ON WALLS
WITH POINT OF LIGHT IN VARIOUS POSITIONS.



EXAMPLE SHOWING CONSTRUCTION OF
SHADOWS WITH POINT OF LIGHT ABOVE SHADE

PERSPECTIVE DRAWING: SHADOWS CAST BY ARTIFICIAL LIGHT SOURCE.

Compiled by Leslie A. Lee, L.I.O.B., and H. N. Hoskings, A.R.I.B.A., for Eagle Pencil Company – Chemi-Sealed Turquoise pencils.

Architects' Journal 20.10.49

1.B37 PERSPECTIVE DRAWING : SHADOWS CAST BY ARTIFICIAL LIGHT SOURCE

This Sheet, one of the series on draughtsmanship, describes a method of construction for showing on perspective drawings shadows cast by an artificial light source.

Method of Construction

The room and objects within it are set up in perspective. The light point is drawn and a point on the floor immediately below it is found.

Shadow of any point : The shadow of any point is found by drawing a line from the light source through the point casting the shadow ; this line represents the light ray. Another line is drawn from the plan position of the light source on the floor in the perspective through a point on the floor immediately below the point casting the shadow until it intersects the light ray already drawn, thus locating the shadow of the point on the floor.

It will be seen that a triangular plane is constructed, the light source forming one angle, the plan of it another and the shadow of the point the third angle. The long side contains the point which casts the shadow and the horizontal side (in perspective) the plan position of this point.

Shadow on vertical surface : If the shadow falls on a vertical surface, as in the case of the shelves on the side wall, the construction is similar. Where the line on the floor drawn through the plan positions of the source of light and of the point casting the shadow cuts the base of the wall a vertical line is drawn up the wall face until it intersects the light ray line drawn from the source of light through the point casting the shadow, thus locating the shadow point on the wall face. The shadows on the end wall are found by projecting the light source point back to the end wall, giving its elevational position on the picture plane which forms the end wall. By drawing lines from this point through the front edges of the shelves to cut the angle of the room the triangular shaped shadows are found.

Shadow on horizontal surface : The shadow of a vertical edge cast on a horizontal surface will be part of a line radiating from the plan position of the source of light on that horizontal surface and passing through the bottom of the edge casting the shadow.

Shadow of any line parallel to plane on which shadow falls : This will be parallel to the line or edge casting it and will therefore vanish to the same vanishing point. Thus the shadow of edges of shelves or box which are parallel to the sides of the room if produced will be found to radiate from the vanishing point for the sides of the room.

Shades on Lights

If a shade is incorporated in the light fitting its edge will cast a line of shadow round the room. Only if the light source and the edge of the shade are on the same horizontal plane will a horizontal shadow be cast. The height of the shadow on the wall will be at the same height as that of the light source above the floor level.

If the source of light is below the rim of the shade (assuming a circular shade) the shadow cast will be lowest on the nearest, and highest on the furthest parts of the wall, measured from the light source. If the point of light is above the rim of the shade the reverse will be the case.

To obtain the shadow line in these cases it is necessary to draw the rim of the shade in relation to the light and its plan position on the floor in perspective. A number of radial lines are taken from the light source through points on the rim of the shade and the position of the shadow would be found as already described.

This Series of Sheets covers geometrical drawing, orthographic, isometric and axonometric projections, perspective, rendering, lettering and draughtsmanship generally.

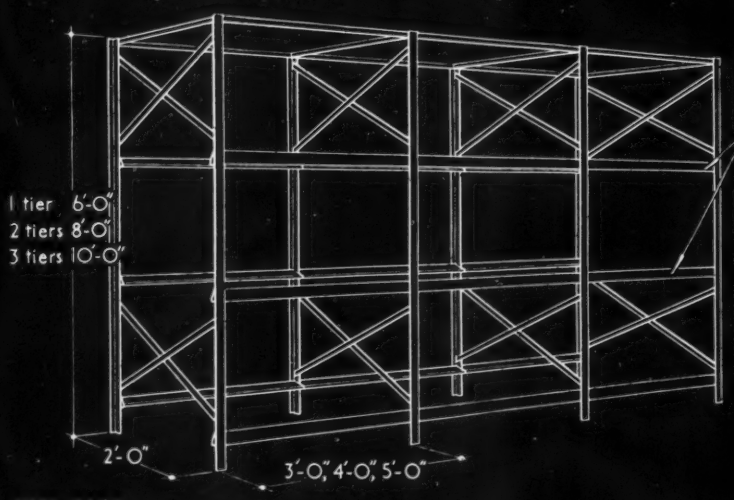
Compiled from information supplied by :

Eagle Pencil Company.

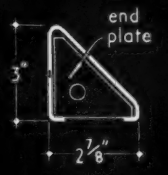
Address : Ashley Road, Tottenham, London, N.17.
Telephone : Tottenham 4435-6-7.
Telegrams : Octennial, London.

FURNITURE | STEEL | RACKS

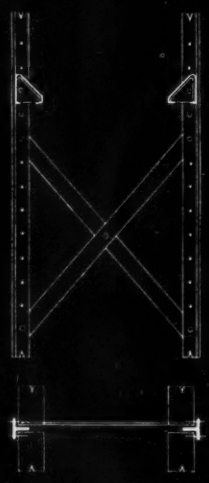
The Architects' Journal Library of Information Sheets 216. Editor: Cotterell Butler, A.R.I.B.A.



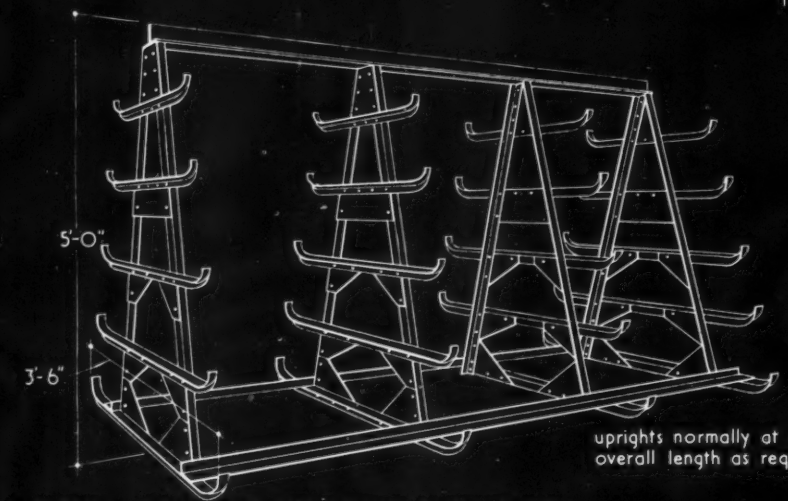
TYRE RACK.



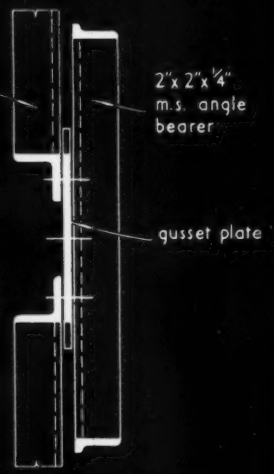
SECTION THRO' TYRE SUPPORT.



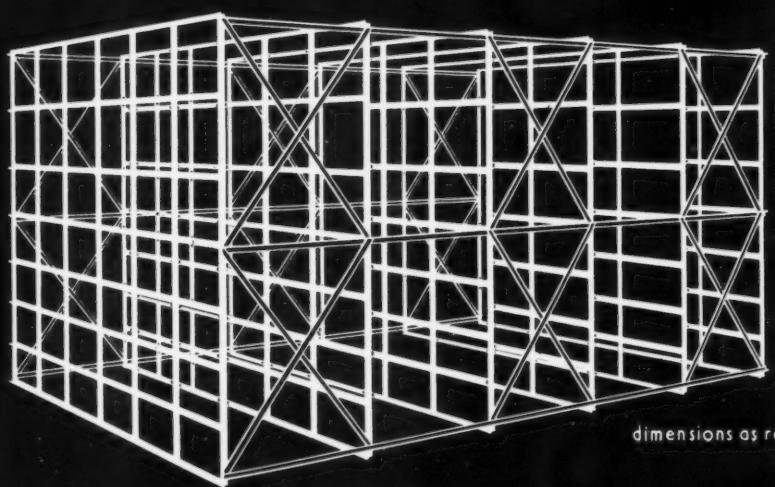
PART SECTION AND PLAN OF RACK.



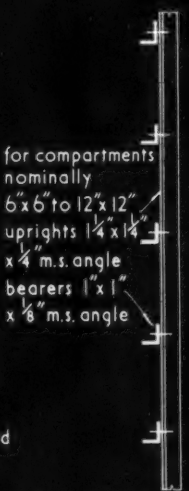
BAR RACK: HEAVY TYPE PERMITTING BARS TO BE PLACED IN POSITION WITH OVERHEAD TACKLE.



SECTIONAL PLAN.



BAR RACK: MEDIUM TYPE, FOR HORIZONTAL STORAGE OF SQUARE, ROUND AND FLAT BARS, AND TUBES.



PART VERTICAL SECTION.

STEEL TYRE RACKS AND BAR RACKS. Manufacturer: G. A. Harvey and Co. (London) Ltd.

42.C4 STEEL TYRE RACKS AND BAR RACKS

This Sheet describes a selection of steel racks indicating the types of special rack which may be obtained. The examples illustrated are for the storage of tyres, steel bars, tubes, etc.

Tyre Rack

This is constructed from rolled steel tee sections with flat steel diagonal bracing members. The tyre supports are of mild steel sheet shaped to form a cradle for carrying the tyres and permit of quick storage and easy access. The racks are available in sizes allowing for 1, 2 or 3 tiers and can be supplied with or without top cover plates. The main uprights are drilled at 3 in. centres so that the tyre supports and braces can be positioned as required.

Bar Rack : Heavy Type

This rack, designed for the storage of heavy steel joists, channels, billets, etc., is constructed from heavy rolled steel angle and tee sections with bolted mild steel gusset plate connections. The rack is so designed that the material to be stored can be placed in position by overhead tackle. Being of bolted construction it is easily erected or dismantled.

Bar Rack : Medium Type

This rack, designed for the storage of steel square, round and flat sections, and tubes, is constructed from rolled steel angle sections with flat steel diagonal bracing members bolted together to form a strong and rigid assembly. The material to be stored is passed through the frames, the sizes of the individual compartments and total rack length being dependent on the number and size of the sections to be stored.

Finish

The racks are supplied stoved olive green enamel or primed one coat as specified.

Further Products

Steel storage bins, racks and shelving, lock-up stores and works offices, lavatory partitions, clothes-lockers transporter platforms.

This Series of Sheets deals with tanks, cisterns, bins, bunkers, cycle-racks, non-ferrous metal mouldings, perforated and embossed metals, woven wire screens, steel partitions and furniture, railings, fencing, gates, manhole covers, rainwater goods and ventilators.

Compiled from information supplied by :

G. A. Harvey & Co. (London), Ltd.
Head Office : Greenwich Metal Works, London, S.E.7.
Telephone : Greenwich 3232 (20 lines).
Telegrams : Cheaper, Wol, London.
London Office : 58, Victoria Street, S.W.1.
Telephone : Victoria 4963.

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Editor: Cotterell Butler, A.R.I.B.A.

INFORMATION CENTRE · INFORMATION SHEETS
QUESTIONS AND ANSWERS · CURRENT TECHNIQUE
THE INDUSTRY · PRICES · TECHNICAL ARTICLES

TECHNICAL SECTION

THE INDUSTRY

By Brian Grant

DOUBLE GLAZING UNITS

In the months immediately after the war the American architectural papers were making a mild fuss about Thermopane, a double glazing unit with good heat insulating properties. After several years of experiments, interrupted from 1939 to 1945, Pilkingtons have now introduced a double glazing unit under the name of Insulight. Here the two sheets of glass are separated by a ¼-in. metal spacer and are hermetically sealed, so that there should be no trouble from internal condensation—one heard rumours that the seal of Thermopane units was sometimes unsatisfactory. After the glass is bonded to the spacer, Pilkingtons pump dry air through the space between the panes and then seal the holes with soldered grub screws.

As far as heat insulation is concerned, the improvement is considerable. A single sheet of glass $\frac{1}{16}$-in. thick has a "U" factor varying from 0·70 to 1·30 according to exposure, but with the Insulight units these figures are reduced to 0·47 from 0·65, the fuel saving in a living room with a window of 20 sq. ft. working out at about £4 a year in the north, and about £3 in the London area. Sound insulation is also improved, but to no great extent, as the air space has been kept small so that the units can be used in normal windows, whereas for optimum sound insulation the spacing should be 10 in., and in any event not less than 4 in.

As far as supplies are concerned, common sizes are available in 4 to 5 weeks, specials in 6 to 8 weeks. Any sizes up to 80 in. by 80 in. can be produced, normally in square or rectangular shapes; radiused corners and special shapes are more difficult and can be considered only against drawings. Triple and quadruple units are also made for such purposes as refrigerated display cabinets, where the absence of condensation on the inner face is an additional advantage to the saving in running costs. Plate, sheet and most patterned glasses can be employed in Insulight, and Armourplate is also available, though with this there are limitations in size varying with the thickness.

No rule of thumb method of estimating prices can be given, but, roughly, the larger areas are relatively cheaper than small panes.

Glazing offers no particular difficulties, but it must be realized that changes in temperature or barometric pressure set up a flexing action on both panes of glass so that the units must not be rigidly held. (*Pilkington Bros. Ltd., St. Helens, Lancs.*)

SAVING STEEL

Shown for the first time at the Shipping and Engineering Exhibition, the Appleby-Frodingham castellated beam is produced by flame cutting the BS beam and re-welding it so that the depth of the web is increased while the weight per foot run of the beam remains the same.

The process was initiated by Mr. G. M. Boyd, and was originally known as Boyd Beams, but the British patent rights have been taken over by the Appleby-Frodingham Branch of the United Steels Companies.

The member to be treated is taken from standard British rolled sections, which are flame-cut in a predetermined profile along the web. One of the resulting two pieces is turned end for end and rejoined to the other piece by welding in such a way that the crests of the undulations meet. As a rough basis it can be taken that a joist is good enough for spanning a distance of at least twenty times its depth, so that while, for example, a 12 by 5 joist at 30 lb. per ft. can be taken as being good for a 20 ft. span, the same joist at the same weight per ft. made into a Castellated Beam would be 18 in. deep, and good for a 30 ft. span.

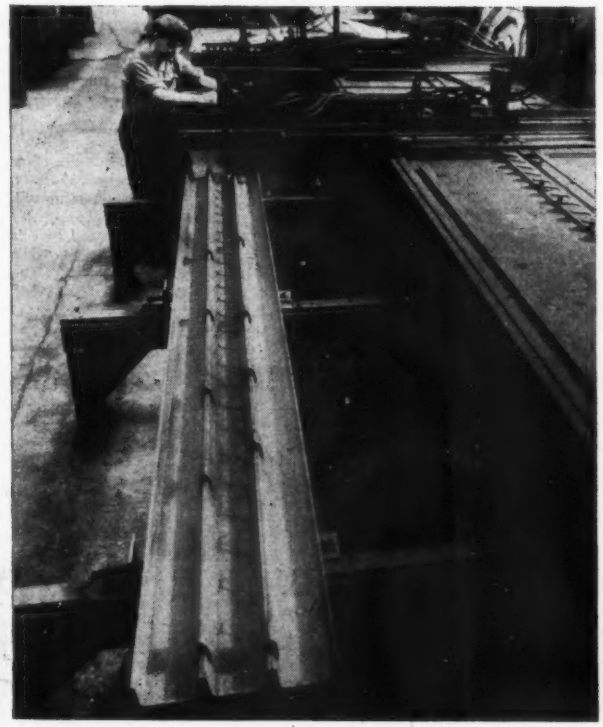
To summarize the technical advantages; when the depth is increased by 50 per cent., the modulus is increased by 56 per cent., and the moment of inertia by 135 per cent., thus, the load carrying capacity of large spans is more than doubled. The shear stress is, of course, reduced, but this only affects short spans.

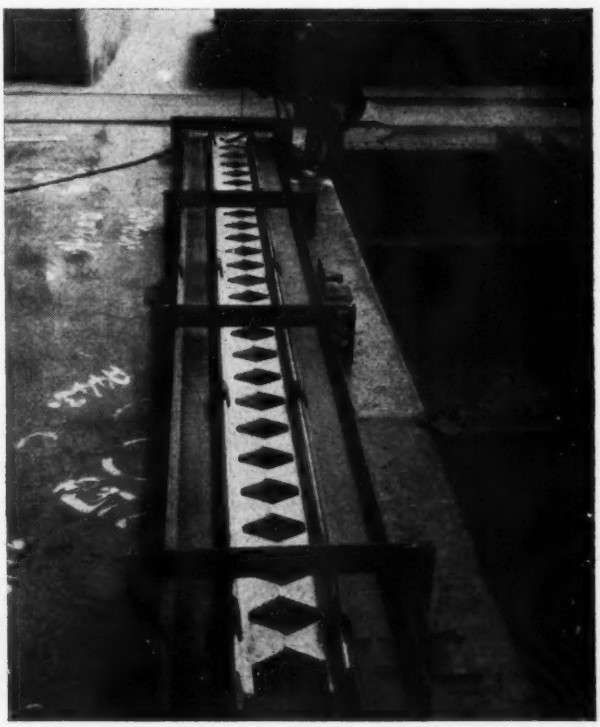
Compound girders and other built-up sections can be produced by this system with great economy in weight and cost, while the holes serve the practical purpose of providing a passage for pipes, conduits and ducts.

Engineers and architects are at liberty to incorporate this method of construction in their designs, provided that the patent is acknowledged on the plans and formal permission is obtained. The fabricator concerned must, however, take out the appropriate licence for manufacture.

This method of construction seems very suitable for long, low, buildings, and is being used in several schools now being built. (*Appleby-Frodingham Steel Co. Ltd., Scunthorpe, Lincs.*)

Left, British Standard steel being flame-cut to profile along the web. Right, the two pieces are rejointed by welding after they have been turned end for end so that the undulations meet. The process is referred to on this page under the heading "Saving Steel."





A digest of current information prepared by independent specialists; printed on one side of the paper only, to allow readers to cut out the items for filing and paste them up in classified order. Headings below.

INFORMATION CENTRE

1 SOCIOLOGY. 2 PLANNING: General. 3 PLANNING: Regional and National. 4 PLANNING: Urban and Rural. 5 PLANNING: Public Utilities. 6 PLANNING: Social and Recreational. 7 PRACTICE. 8 SURVEYING, SPECIFICATION. 9 DESIGN: General. 10 DESIGN: Building Types. 11 MATERIALS: General. 12 MATERIALS: Metal. 13 MATERIALS: Timber. 14 MATERIALS: Concrete. 15 MATERIALS: Applied Finishes, Treatments. 16 MATERIALS: Miscellaneous. 17 CONSTRUCTION: General. 18 CONSTRUCTION: Theory. 19 CONSTRUCTION: Details. 20 CONSTRUCTION: Complete Structures. 21 CONSTRUCTION: Miscellaneous. 22 SOUND INSULATION-ACOUSTICS. 23 HEATING, VENTILATION. 24 LIGHTING. 25 WATER SUPPLY, SANITATION. 26 SERVICES EQUIPMENT: Miscellaneous. 27 FURNITURE, FITTINGS. 28 MISCELLANEOUS.

2.100 planning: general
LEGISLATION 1909-49

Forty Years of Statutory Town Planning. Sir George L. Pepler. (Town Planning Review, July, 1949, pp. 103-108.)

Concise and informative summary of planning legislation in Great Britain since 1909 and review of evolution of planning thought during that period.

8.18 surveying and specification
ESTIMATING ANALYSIS: BUILDERS

Estimating Analysis for Builders. G. Chrystal Smith. (The Illustrated Carpenter and Builder. 2s. 6d.)

A book of nearly 70 pages primarily devoted to labour and materials "constants," but with an additional section on "How to Order Materials."

The first 40 pages are divided into trades, and analyses are given for a large selection of items commonly to be found in a bill of quantities. Rather more emphasis is placed upon labour than upon materials but this is probably an advantage if space is limited, because materials "constants" can be obtained from a number of reference books whereas most of the books dealing with output of labour are out of date.

The remainder of the book gives advice on ordering materials and the references to allowance for waste, in effect, supplement the materials "constants" in the previous section.

For 2s. 6d. the book is very good value and, in an age of fluctuating prices, a book showing how prices are built up is often of more value than one giving actual prices, which may soon be out of date.

12.39 materials: metal
COPPER FLASHINGS

Additional Copper Flashings and Weatherings. Copper Development Association Publication No. 42A. (CDA: 1949.)

Useful additions to earlier publication, this deals with aprons to pantiles, dormer coverings, flagpole flashings, copings for stone and concrete and expansion joints. Clear diagrams and photographs.

13.48 materials: timber
WOODWORK TERMS

Glossary of Terms Applicable to Timber Plywood and Joinery. BS 565: 1949. (British Standards Institution. 5s.)

Revised edition augmented and improved. Valuable as a means of standardizing trade practice in nomenclature.

15.61 materials: applied finishes and treatments
PLASTERING

Plasters and Wall Finishes. J. S. Cothliff. (National Builder, Sept., 1949. Pages 43-47.)

A general article on internal plastering. Much of the information closely follows the code of practice but author speaks with authority on practical details and faults which occur and makes useful recommendations.

15.62 materials: applied finishes and treatments
PLASTERING FIBRE BOARD

Plastering on Insulating Board. (Building Research Station Digest No. 10, 1949.)

Difficulties arising from moisture movement of fibre boards. Method of fixing the boards, plaster mixes and methods of application.

Cracking is always somewhat liable to occur in plastering, and especially so when thin plaster finishes are used over a backing which itself is liable to movement. Fibre boards have appreciable moisture movement so the problem is not easy except where such movement is restrained by the continuous fixing of the boards to a strong background, *e.g.* when stuck to concrete.

The Digest gives useful advice about methods of fixing the boards, the choice of plasters and methods of application. It should certainly be read by anyone who wishes to use fibreboard as a base for plaster.

15.63 materials: applied finishes and treatments
PAINTING

Painting and Decorating. A. E. Hurst. (Griffin. 32s.)

Seventh edition of Standard Work on subject. Current edition a re-written version of the work of the late H. J. Pearce. Complete textbook on the subject. Illustrations with photographs, colour plates and diagrams. 470 pages. A valuable book particularly for the painter and builder and useful reference for the architect.

The subject is dealt with comprehensively and clearly, much trouble has been taken to ensure that the information is in conformity with modern theory and that it covers recent developments in materials and technique.

A number of chapters, such as those dealing with "premises and equipment" will not be of first importance to architects, but on the other hand notes are included about mural painting and applied decoration which will be a useful guide for architects who may wish to revise their knowledge of the possible techniques without having to refer to special books on the subject.

Some of the information about specific processes or materials has necessarily been made brief, but the author has included a bibliography of books for further reference.

The written matter is profusely illustrated, there is a good index, and the typography is commendably clear. The inclusion of photographs of good mural decoration will appeal to architects, but it seems inevitable that the familiar coloured photographs of interior decorative treatments of very doubtful taste should creep into all books dealing with the painters craft.

16.55 materials: miscellaneous
MARBLE DURABILITY

A New Durability Test for Marble. D. W. Kessler. (ASTM Bulletin [USA], July, 1949. pp. 45-49.)

American investigation into durability tests on marble shows accepted tests are of little use but suggest new test which appears to give correlation with long period exposure changes.

22.37 sound insulation and acoustics
NOISE AND SOUND REDUCTION

Acoustics in Comfort and Safety. Two articles, one by V. O. Knudsen and the other by L. L. Beranek. (J. Acoustical Society of America, July, 1949, p. 296 and p. 302 respectively.)

Knudsen refers to high European standards; traffic noise; need for codes. Beranek refers to British work; Burt Committee; BRS and British standards; better training of American architects. Interesting.

These two articles are attempts by American investigators to persuade their countrymen to start dealing properly with noise in buildings. It is interesting to find them using European, and especially British, examples as sticks with which to beat their audience.

Apart from these tributes to the work of the Burt Committee, the BRS and various European achievements, the most interesting technical material is in V. O. Knudsen's paper. He discusses traffic noise in much detail, comparing levels all over the world. He argues for a 10 d.b. reduction in street noise to make it feasible to protect buildings against its entry. There is a technical defect in his data that he appears to use intensity measurements and not units of noise loudness, which is what really matters. This doesn't affect his point, but makes the data itself difficult to interpret.

Beranek takes up the question of domestic noise, and following the BRS survey of noise in homes he describes some tentative small surveys in the USA to see whether Americans really object to their living conditions in the same way. He concludes that they do, and that the British standard of 55 d.b. reduction for party walls would be the least which would be needed to deal with the problem.

The remainder of the paper concerns policy for American readers.

23.114 heating and ventilation
MAINTAINING HOT WATER SUPPLIES

Maintaining Hot Water Supplies. Frank H. Slade. (The Plumber and Journal of Heating, June, 1949. 1s.)

Article discussing economics of coal-electric water heating systems in light of Minister of Fuel's statements.

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The Minister of Fuel suggested recently that electricity should be used as widely as possible during the summer months, to conserve solid fuel supplies. This article discusses the economics of this advice from the householder's point of view: points out that it can be most uneconomic unless great care is exercised, and suggests methods by which it can be made practical.

The author applauds the Manchester Corporation's decision to subsidize electric power users on their Wythenshawe Estate: though many believe that subsidies do not provide the true solution of any economic problem. He then discusses more practical points of economy, making, in particular, the following points:—

(1) Use of main water heater need not be continuous in summer, but supplemented by non-storage heaters for sink and basin.

(2) Loading of water heaters, in relation to capacity, should be as small as possible consistent with an adequate supply being maintained.

(3) Thermostatic control should always be used for storage heaters.

(4) Heaters, thermostats, draw-offs and feed must be correctly located in the cylinder.

(5) No circulating pipes must be connected to the heater, back circulation through the boiler and single-pipe circulation must be avoided, and dead legs kept as short as possible.

(6) Insulation must be complete and heat leaks, *e.g.* for airing cupboards, must be avoided.

He goes on to point out the very great improvement in washing facilities in factories and schools in the past twenty years, quoting figures for sanitary fittings for such buildings; points out the severe risk of fuel wastage if these are fed with hot water by inefficient means, and recommends the use of thermostatic mixing valves as a means of achieving economy both in capital and running costs.

23.115 heating and ventilation
GERMAN HEATING, VENTILATING

Heating, Ventilating and District Heating in Germany. British Intelligence Objectives Sub-Committee. Technical Information and Documents Unit. (HMSO. £1 10s.)

Report on investigations by British Intelligence Objectives Sub-Committee into heating, ventilating and district heating in Germany.

A very full survey of German practice in the above fields, as applied to industrial, public and institutional buildings. Though, in the main, of special value to heating engineers, part will be found of considerable interest to architects as well. Some of the findings may seem surprising to us: notably those in connection with automatic controls, ventilation of factories, schools and offices, and precautions against injury and other regulations governing the safety and health of factory workers. In view of the German love of regulations, the latter is the more surprising: nothing in the nature of our "Factories Acts" exists, and protection, *e.g.* of moving machinery, is of the most primitive. If must, however, be remembered throughout that economy has been of enormous importance in Germany for many years, and that there have been severe strictures on materials, firstly on account of the hidden armament programme, later on account of war production. Against this, the comparatively large use of district heating—especially in connection with thermal electric stations—deserves favourable comment: as also does the careful use of methods of heat recovery and conservation, and the use of combined heat and power plant, even in small installations.

Except for these, German practice shows, in the main, no advance over that in this country, and, in some respects, it is less developed. Low pressure steam is more used than here; perhaps, because, as in America, winter temperatures are much lower and the usual design outside temperature is 5 deg. F. Nevertheless, there is a tendency towards the use of hot water low pressure for smaller, and high pressure for larger installations. The latter is frequently used for process purposes in factories. As in Switzerland, special boilers have been developed for use with high pressure hot water, though in many instances ordinary steam boilers have been adapted, often by means of an ingenious mixing pipe. Radiators, gilled pipes and unit heaters are all employed for factory heating: the first two for office and school heating. The use of unprotected steam pipes at 220 deg. F. in schools seems dangerous to us, but doubtless the children soon get into the habit of avoiding them. There are a few embedded panel installations for low pressure hot water, but they are rare.

The absence of automatic controls in ordinary systems is the opposite of that which one might expect to find in Germany, where, in other branches, engineers sometimes seem to over-complicate mechanisms. Cost has of course been an important factor here: the automatic equipment is available in Germany if wanted. There seemed to be a body of opinion which thought that sensible manual regulation gives at least as good results, especially in the case of hot water heating, which has a long time lag in responding to outdoor conditions when under indoor automatic control. The outdoor pilot compensator seems to be unknown. A high standard of intelligence and technical training amongst boiler room staff seems general in Germany.

Now, a further surprise. Not only is no standard rate of ventilation laid down for factories, offices and schools, but much care is taken in many cases to prevent the ingress of outside air. This is clearly a measure of fuel economy, and, in fact, air change is ordinarily neglected in heating calculations. Two schools visited had double glazing, without provision for any ventilation; doors were close fitting. Classrooms were 11 ft. 6 in. high. In spite of this lack of ventilation, the children seemed to the investigators to be alert and well; no undue incidence of illness is reported.

This same absence of ventilation is remarked in other types of building: mechanical ventilation is very little used; even the operating theatres of hospitals lack it.

The Egerton Committee report on domestic heating and ventilation laid down a comparatively low rate of air change for domestic type buildings; and these results attained in Germany may encourage the save-through-fug movement to be extended here to other classes of building.

District heating: There is little with which to compare the German systems in this country, but an interesting comparison may be made with the American systems described in the Government Missions Report. The progress made in Germany may be judged by the fact that as early as 1936 there were no less than twenty-eight district heating installations working, of these, eighteen were thermal electric systems. The connected load was 33,840 therms/hour. The majority of the systems are "down town" systems: their application to housing estates is rare, and some doubt whether it is economically possible.

The systems are generally orthodox. There is a preference for steam, with condensate return, rather than high or low pressure hot water, though the latter are found: research has shown that the power required for condensate return, by comparison with water circulation, is far less, being of the order of 1/10 to 1/15th. Corrosion in steel condense return mains is reduced by passing the condensate, as it leaves the consumer's system, through manganese steel turnings. The pipe ducts themselves are in most cases of reinforced concrete, and have removable covers throughout their length. Access manholes are provided at spacing to correspond with that of the expansion compensators. These latter are generally of the bellows type. Insulation is generally of magnesia, though glass fibre is coming increasingly into use. In some recent installations, pipes with prefabricated insulation are used.

A review of breakdowns for five different plants in 1936 is given, and here it is noticed that one system, apparently, eschewed pipe conduits, and made use of pipes buried direct in clay soil. External corrosion, and unequal expansion resulted in thirty-two leaks during the year: evidently an experiment not to be repeated. Efficiency varied widely: losses varying from 1.7 per cent. to 49 per cent. for different plants and load factors: the overall average being 23 per cent. The opinion was held that it should be possible to keep within 20 per cent. In 1936, the selling price of heat, after allowing for depreciation, loan redemption and profit (up to 15 per cent.) averaged 5.5d./therm: present cost is not stated.

The publication covers other more technical points of detail such as fan blade design and splitters in ducts, which are more the province of the engineer than of the architect. But even to the latter, it is well worthy of study. The authors are to be congratulated on such a full and clear exposition.

23.116 heating and ventilation
HEAT PUMP

The Heat Pump. J. B. Pinkerton. (Princes Press Ltd., London. 1949. 25s.)

Book on heat pumps, chiefly Swiss, with a note on atomic energy.

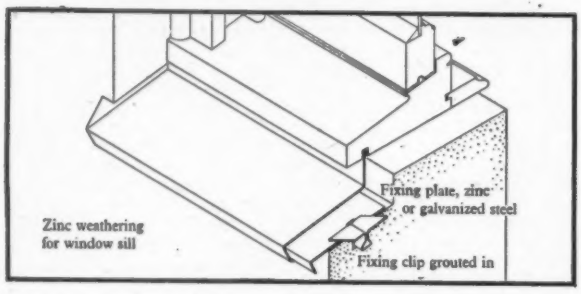
The heat pump has attracted much notice of late, not only among engineers, but among architects and others concerned with the comfort and equipment of buildings, on account of the very real advantages, by way of economy, which it can, in suitable circumstances, offer. In addition, many will be anxious to know what developments have been made to harness the energy produced by atomic fission, a subject which more than any other has given rise to much ill-informed speculation. The relationship between the two subjects is closer than may at first sight appear, for the large majority of heat pumps, envisaged or existing, use electricity as the motive power, and electricity will also certainly be the means of distributing the power derived from nuclear fission. It is, therefore, shrewd forethought to place the two subjects together in the same book.

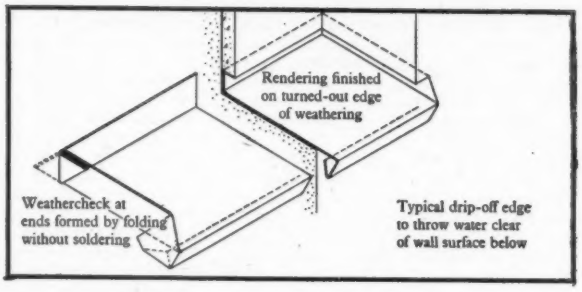
The heat pump section is largely compiled from the technical publications of the three great Swiss engineering firms, Sulzer, Brown-Boveri and Escher-Wyss, and the majority of the diagrams are taken from the same source. The author has wide knowledge of Swiss heat pump installations, and has clearly arrived at the same conclusion as the Swiss manufacturers, namely, that the heat pump is of greater economic value in comparatively large sizes. He includes technical descriptions of a number of large Swiss installations both for heating, combined heating and cooling, and evaporation of liquids; and, of course, of the sole British representative, the Norwich heat pump. He also gives details of a British-made compressor which would lend itself well to heat-pump work.

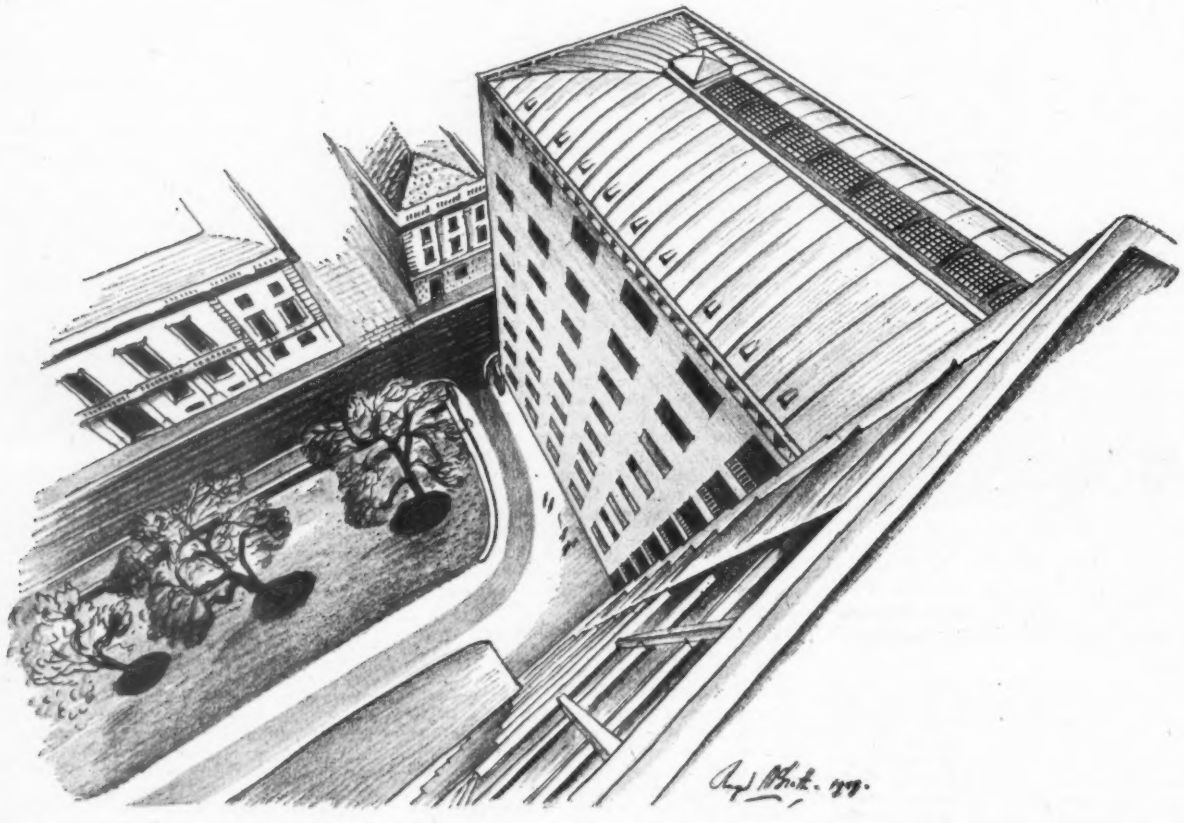
The examples given all use water or industrial waste heat as the heat source,

DATA SHEET FOR ARCHITECTS No. 5

ZINC PROTECTIVE WEATHERINGS







Zinc weatherings serve to protect horizontal surfaces from moisture penetration. The metal, being rigid, can be formed into a projecting drip-off edge which will discharge water clear of the building and so prevent disfiguring stains. Their initial cost is low, and the sheet is easy to work and to fix. They can be used painted or unpainted. No. 14 zinc gauge sheet (21 I.S.W.G.) will last as long as most buildings, except in highly corrosive atmospheres, when No. 16 Z.G. should be used. These weatherings allow great variation in design and, if carefully handled, can form a useful functional and decorative feature on any modern building. Further information on weatherings, gutters and other uses of zinc in building can be had from the Association, together with a list of publications.

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though there is a brief quotation from a Swiss work in respect of the unsuitability of the atmosphere as a heat source. It is a pity that, for the sake of completeness, some further reference is not made to air and the earth as heat sources, as considerable development work has been done in these respects in America, and some also in this country; and a suitable source of water, though certainly ideal, is not always available. Some reference also to smaller heat-pump installations and their economics would be useful, even if only to disprove their value; though all are not agreed that such machines need be inefficient or uneconomic.

There are a number of unfortunate little errors which should be corrected in a future edition. Thus, here and there, kilocalories are converted to B.Th.U.'s by dividing by four instead of multiplying. This will not confuse engineers, but could well worry the less technical; and is a cogent argument for the standardization of a measurement of heat throughout the world.

The section on atomic energy is particularly interesting; it is probably the best brief survey of developments in this country yet published.

24.121 lighting
SHOP LIGHTING

Planned Lighting for Stores. A group of articles by American architects. (Lighting and Lamps, June, 1949, p. 41.)

Examples of shop lighting described and illustrated. Moderately useful, 56 photos.

This is a group of articles by American architects on the lighting of shops, with some remarks on planning. The shops are among America's best known, and the descriptions therefore give a representative picture of current good practice in the USA. The articles are just too superficial to give an exact idea of what has been done, and such hints as are to be obtained from them should be taken with caution. There is much striving for effect without a clear idea of what is good or bad. In principle there is nothing new, but shop designers ought to find the examples worth study.

The journal "Lighting and Lamps" now incorporates "Illumination," and this article comes from the latter.

24.122 lighting
IES CODE: LIGHTING INTERIORS

IES Code for the Lighting of Building Interiors. (The Illuminating Engineering Society, 32 Victoria Street, London, S.W.1. Aug., 1949. 2s. 6d.)

Definition of good lighting; daylight factor, distribution and glare (natural lighting); quality, glare, intensities (artificial lighting); assessing values required; list of BS on lighting. Good illustrated charts.

This document is good as codes go, but will not carry an architect or engineer all the way to what we would call really good lighting. It is the old difference between an engineer's and an architect's approach. Perhaps the best way to sum up is to say that with the code it is possible to avoid bad lighting.

In respect of natural light the code describes daylight factors (which would now be correctly termed sky factors), and gives a general idea of what constitutes adequacy. It refers briefly to distribution and much too briefly to glare.

Far more is said about artificial lighting. There is a useful list of factors affecting design (especially the engineering aspects) and an excellent little chart summing up different classes of fittings. Mention is made of colour, flicker and glare, and under this last heading are given limiting brightnesses for fittings. General points about values of illumination and about local *versus* general lighting are mentioned as a prelude to the actual assessing of the proper intensities. Some extremely good charts illustrate the assessment. The schedule of recommended intensities and the list of BS on lighting and fittings conclude the document.

Even if architects sense or see deficiencies in this publication, it is undoubtedly as good and as objective a code as could be obtained from lighting engineers anywhere in the world. Architects could do themselves and lighting much good therefore by insisting on their lighting contractors conforming to the strictest letter of the code. No assumption should be made that without insistence they will get conformity. The IES have as hard a job to do raising their members' standards as they have in discovering what lies beyond engineering.

26.56 services and equipment: miscellaneous
LAUNDRY EQUIPMENT

Modern Laundry Plant. Frank H. Slade. (The Plumber and Journal of Heating, July, 1949. 1s.)

The Laundry Wash and Drying Room. Frank H. Slade. (The Plumber and Journal of Heating, August, 1949. 1s.)

Articles on equipment of laundries for economical operation.

Although the number of architects who have to design commercial laundries must be limited, those who have to include laundries in the planning of institutional and similar buildings must be numerous.

These two articles, which give useful information in a small space, should therefore be interesting to them and prove an aid to planning for economy.

In the first place, water treatment is dealt with, and especially treatment by a new electronic device, whereby an electronic charge is induced into hardness salts, so that instead of coagulating as scale, they precipitate as fine sludge. Even sea water can be so treated.

Then the great value of thermal storage is mentioned, a point of importance to the architect, for thermal storage cylinders are by no means things which can be tucked away into an odd corner as an afterthought.

Different types of steam traps and other fittings are discussed, including also thermostatic mixing valves, and the quantities of hot water, and temperatures, for various sizes of wash in the various processes through which it passes.

Finally, the actual machines are covered: washing machines, hydro-extractors, and calenders or ironing machines, with illustrations and some dimensions.

26.57 services and equipment: miscellaneous
CAST-IRON SECTIONAL TANKS

Cast Iron Sectional Tanks (Rectangular). BS 1563 : 1949. (British Standards Institution. 5s.)

New BS dealing with cast iron rectangular tanks.

Although the exact details of materials and construction are the business of the maker rather than the architect, the latter will, nevertheless, find this BS of value. In the first place, it may save him the trouble of making a detailed specification: in the second, he will find the tables of sizes, capacities and weights very useful in planning and in structural calculations, where these tanks are used.

This feature answers any question connected with building confidentially and free of charge. Questions to the Technical Editor, The Architects' Journal, 9, 11 *and* 13, *Queen Anne's Gate, S.W.*1.

QUESTIONS AND ANSWERS

3005 WIND PRESSURES: SOUTH BANK SCHEME

Q *Apropos Festival of Britain main vertical feature: what wind speeds are likely to be encountered on the South Bank development site at heights up to, say,* 400 *ft.? At such speeds what wind pressures should be allowed for on flat and spherical surfaces?*

A Wind speeds at 400 ft. are likely to be of the order of 100-120 m.p.h. The pressure on flat plates would be 24-34 lb./sq. ft. whether perforated or imperforate. Spheres and circular members 17-24 lb./sq. ft.

Announcements

On October 1 the Ministry of Supply published a report on "Abrasives: Their manufacture and use in Germany, during the period 1939-1945." This report is a review of the British Intelligence Objectives Sub-Committee, Combined Intelligence Objectives Sub-Committee, Field Information Agency Technical and Joint Intelligence Objectives Agency reports relating to the German Abrasives Industry. The report has been prepared by the Metals Division of the Ministry, and deals with artificial abrasives, grinding wheels and abrasives cloths and papers in Germany during this period. Detailed investigations were made into the manufacturing capacities and methods of production of the various factories, and all the points of interest raised and noteworthy features discovered are embodied in the report. A full bibliography and subject index is included. The report may be obtained from HMSO, price 6d.

The Linoleum and Felt Base Floorcovering Industry has set up a Research Council with the approval and support of the DSIR. The membership includes substantially the whole industry and the headquarters are in London at Roxburghe House, 273-287, Regent Street, W.1. Dr. S. R. W. Martin has been appointed Superintendent of Research, and a programme of fundamental research has been agreed. The Secretary is Mr. A. G. Vaughan.

Mr. Henry Braddock, A.R.I.B.A., announces that he will be setting up independent practice at the end of this year. Until then he will remain in association with Mr. Arthur W. Kenyon, C.B.E., F.R.I.B.A., at 15, Adeline Place, Bedford Square, W.C.1.

Mr. Michael Bunney, M.A., F.R.I.B.A., and Mrs. Charlotte Bunney, A.R.I.B.A., are now practising from 30, Lowther Street, Kendal, Westmorland.

Mr. Harold S. Barnett, L.R.I.B.A., has resigned from the North Thames Gas Board upon being appointed Divisional Architect to the National Coal Board, East Midlands Division. His office is at 18, Milton Street, Nottingham, where he will be pleased to receive trade catalogues, etc.

The BOT Timber Control announce to those firms who import hardwood and are authorized to import under the Hardwood Overseas Procurement Scheme Part III, that Roumania has been authorized as a source of supply for hardwood (whether reserved for Control procurement or not) of dimensions not exceeding:—(*a*) 4 in. by 4½ in. by 48 in., and (*b*) 1½ in. by 4½ in., without restriction in length. The maximum cost must not be more than 10s. per cubic foot c.i.f. United Kingdom port for material not exceeding 48 in. in length, but the maximum price may slightly exceed this sum for item (*b*) if the length is considered to warrant it.

The Institution of Heating and Ventilating Engineers announce that the next examinations for graduateship and associate membership will be held in London and the Provinces on Saturday, April 22, 1950. New applicants must submit a completed proposal form for membership by December 31, 1949, if they wish to be considered for the 1950 examinations. Applicants who have been accepted as examination candidates must submit an examination application form before February 28, 1950 (January 31 for overseas candidates).

The BOT, in agreement with the Ministry of Food, announces that a limited quantity of linseed oil can now be allowed for export. Applications for export licences should be made to the Export Licensing Branch of the BOT, Regis House, 43-46, King William Street, E.C.4. Application forms and further information may be obtained from the Export Licensing Branch at the above address.

Mr. Norman A. E. Wyatt, A.I.A.A., A.I.A.S., Incorporated Architect and Surveyor, has recommenced in private practice, after Government service, at Great Hall Buildings, Tunbridge Wells, Kent, where he will be pleased to receive trade catalogues, etc. Tel.: Tunbridge Wells 880.

Buildings Illustrated

Showroom at 3-4, *Queen Street, E.C.4, for the London Electricity Board, Electricity Service Centre* (pages 441-442). Architects: Easton & Robertson. Main contractor: D. Burkle & Son, Ltd. Subcontractors: Structural steel, Matthew T. Shaw & Co. Ltd.; tiles, Dunbrik Ltd.; glass, Lenscrete Ltd., glass bricks; Dectorstone Ltd., decor-glass to column; patent flooring, Figg Flooring, Ltd.; central heating, ventilation, Abair Engineering, Ltd.; electric wiring, Mortimer, Gail & Co. Ltd.; electric light fixtures, GEC; plumbing, G. E. Wallis & Sons, Ltd.; sliding partition, North of England School Furnishing Co. Ltd.; joinery, furniture, D. Burkle & Son, Ltd.; wall fabric, Morton Sundour Fabrics, Ltd.

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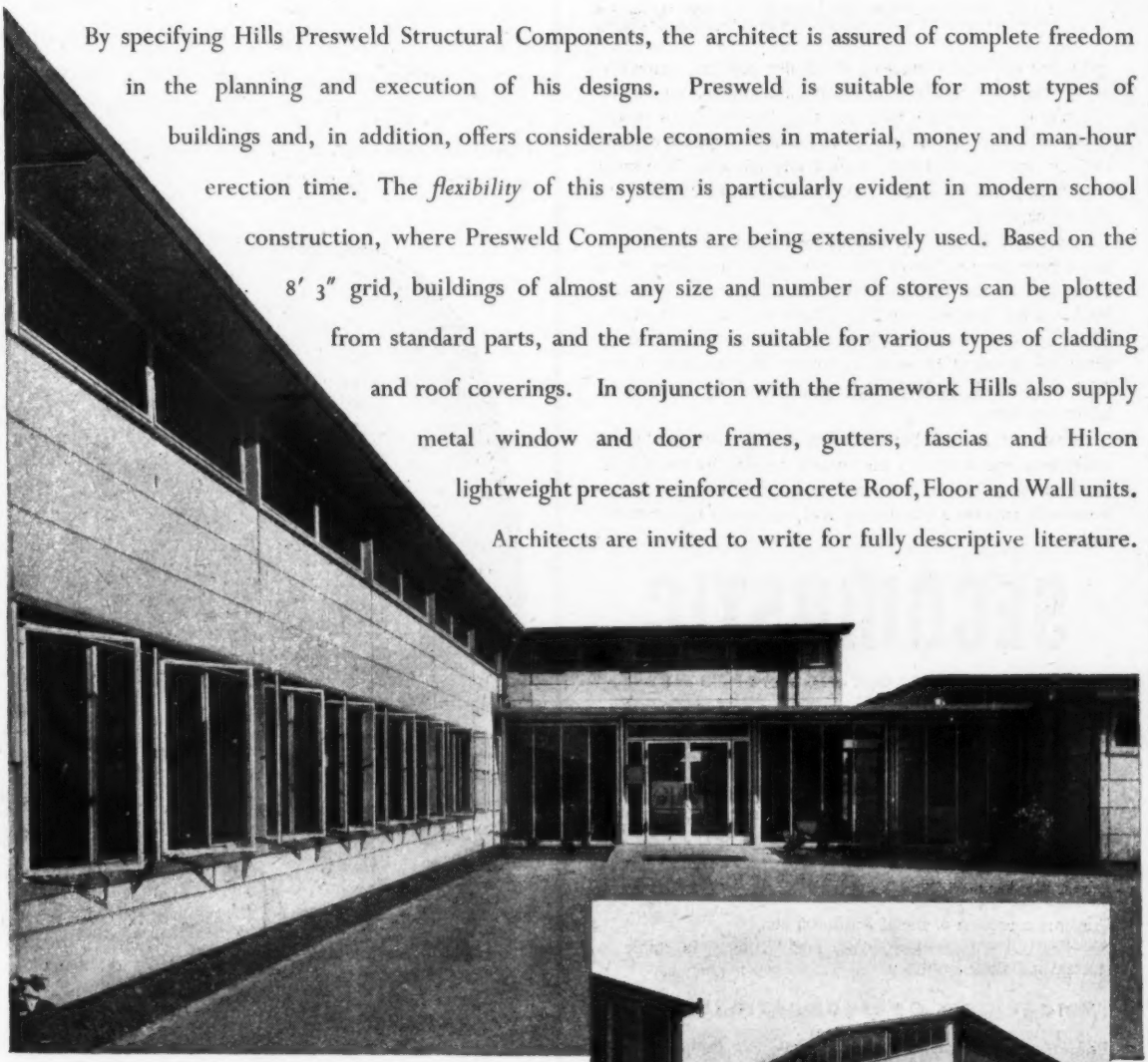

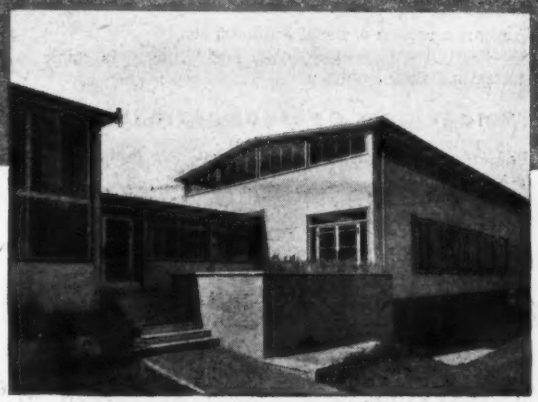

Above. *Junior Mixed & Infants School, Cheshunt, Herts.*
Right. *Junior Mixed & Infants School, Essenden, Herts.*
County Architect: C. H. Aslin, F.R.I.B.A., M.I.Struct.E.

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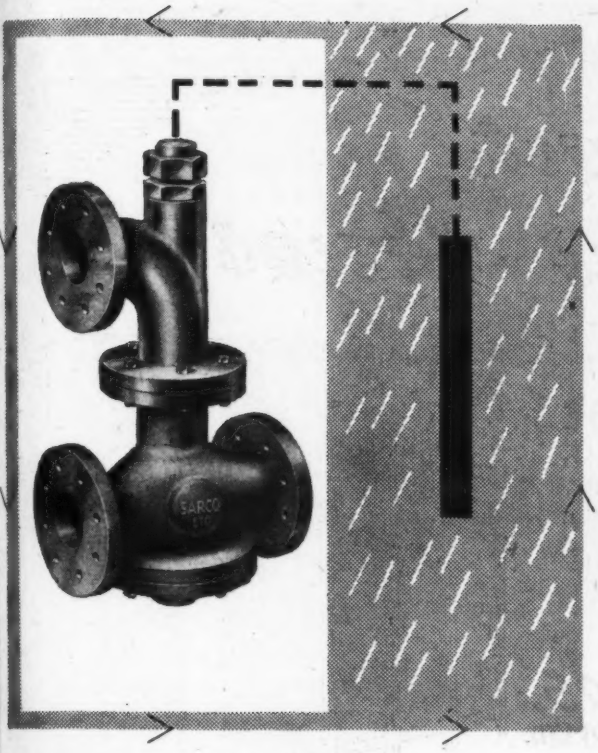

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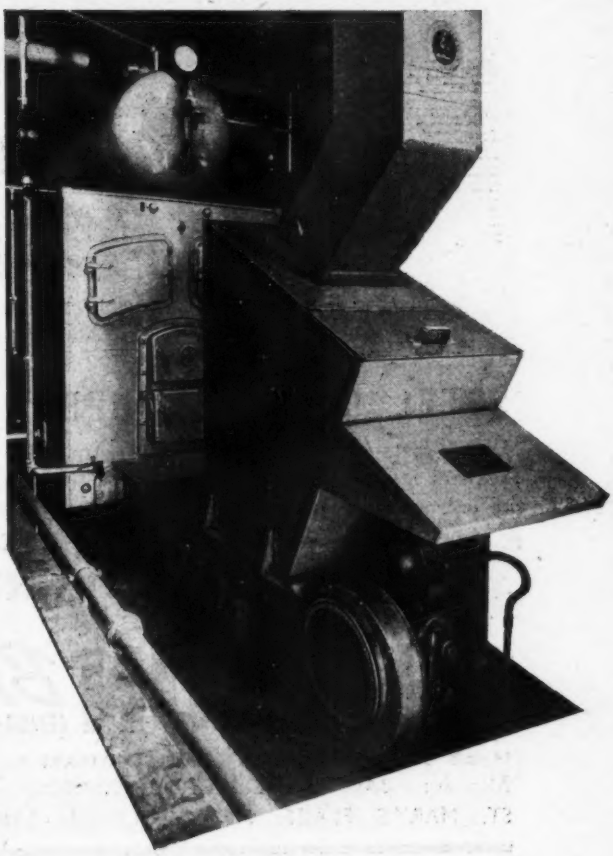

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CLASSIFIED ADVERTISEMENTS

Advertisements should be addressed to the Advt. Manager, "The Architects' Journal," 9, 11 and 13, Queen Anne's Gate, Westminster, S.W.1, and should reach there by first post on Friday morning for inclusion in the following Thursday's paper.

Replies to Box Numbers should be addressed care of "The Architects' Journal," at the address given above.

Available only to applicants excepted from the Control of Engagement Order, 1947.

Public and Official Announcements

21s. per inch; each additional line, 2s.

THE INCORPORATED ASSOCIATION OF ARCHITECTS AND SURVEYORS maintains a register of qualified architects and surveyors (including assistants) requiring posts, and invites applications from public authorities and private practitioners having staff vacancies. ADDRESS: EMPLOYMENT REGISTER, WREN PARK, WHITELEAFE. Tel.: Uplands 0935. 991

LONDON COUNTY COUNCIL.

Applications are invited for unestablished positions of (i) ARCHITECT, Grade III (salaries up to £700 a year) and (ii) ARCHITECTURAL ASSISTANTS (salaries up to £580 a year), in the Housing and Valuation Department. Commencing salaries in either grade will be determined according to qualifications and experience. Engagement will be subject to the Local Government Superannuation Acts, and successful candidates will be eligible for consideration for appointment to the permanent staff on the occurrence of vacancies.

Successful candidates will be required to undertake the design, layout and preparation of working drawings for housing schemes (cottages and multi-storey flats), and will be employed in the Housing Architect's Division. Preference will be given to candidates holding a recognized professional qualification.

Forms of application may be obtained from the Director of Housing, The County Hall, Westminster Bridge, S.E.1 (stamped addressed envelope required, and quote Ref. G.R.3). Canvassing disqualifies. (2269) 1046

MINISTRY OF WORKS.

There are vacancies in the Chief Architect's Division for ARCHITECTURAL ASSISTANTS, with recognized training and fair experience. Successful candidates will be employed in London and elsewhere on a wide variety of Public Buildings, including Atomic Energy and other Research Establishments, Telephone Exchanges, and Housing. Similar vacancies also exist for ASSISTANTS, with specialized knowledge and experience in stonemasonry, particularly in detailing and jointing of ashlar and carved stonework.

Salary: Architectural Assistants, £300-£525 per annum; Leading Architectural Assistants, £500-£625, plus overtime. Starting pay will be assessed according to age, qualifications and experience. These rates are for London; a deduction is made in the Provinces.

Although these are not established posts, some of them have long-term possibilities, and competitions are held periodically to fill established vacancies.

Apply in writing, stating age, nationality, full details of experience, and locality preferred, to Chief Architect, W.C.10/T, Ministry of Works, Abell House, London, S.W.1. 2065

COUNTY OF ESSEX.
ILFORD COMMITTEE FOR EDUCATION.

The Essex County Council invite applications for the post of ARCHITECTURAL ASSISTANT, in the Office of the Borough Engineer of Ilford. Applicants should have had good general training and experience.

The scale of salary will be in accordance with the National Joint Council, A.P.T. Division, Grade III, £450×£15 to £495, plus the appropriate London area allowance.

Application should be made on a form to be obtained from, and returned to, the Borough Education Officer, Education Offices, Town Hall, Ilford, together with copies of not more than three recent testimonials, within 14 days of the appearance of this advertisement. 2307

MIDLANDS ELECTRICITY BOARD.
BIRMINGHAM AND DISTRICT SUB-AREA.
APPOINTMENT OF ARCHITECTURAL ASSISTANT.

Applications are invited for positions as Architectural Assistants in the Sub-Area Engineer's Department.

Applicants should have received a recognized architectural training and should be conversant with the design and construction of industrial and commercial type buildings.

The appointment will be permanent and superannuable, and the provisional salary, according to qualifications and experience, will be within the range of Scale "A" of the National Joint Council (Administrative and Clerical) Electricity Supply Industry, £270-£450 per annum, or Class "O," Grade 10c-10, of the National Joint Board, £436-£524 per annum, in either case subject to negotiation with such organisations as are appropriate.

Applications, giving full details of experience, professional and technical qualifications, present salary and position held, should be endorsed "Architectural Assistant," and forwarded within 14 days, to Mr. A. C. Evans, Sub-Area Manager, Midlands Electricity Board, 14, Dale End, Birmingham, 4.

A. STEPHENS,
Secretary.

24th August, 1949. 2321

NEWCASTLE-UPON-TYNE REGIONAL HOSPITAL BOARD.
NEWCASTLE GENERAL HOSPITAL
(Regional Psychiatric Unit).

The Board desires to appoint a practising ARCHITECT or FIRM OF ARCHITECTS for the conversion of a 3-storey Building at the Newcastle General Hospital into a unit of seventy-five beds, including sixteen beds for the intensive investigation of acute cases. Applicants should preferably have had experience in the planning of Accommodation for Mental Health work and will be desired to contribute fresh and up-to-date ideas to the planning of this unit.

Particulars of the Board's system of administration for architectural projects, including, *inter alia*, committee organisation and arrangements for consultations with the appropriate officers of the Hospital Management Committee and the Regional Hospital Board, may be obtained from the undersigned.

The appointment will, in the first place, be limited to the preparation of a sketch scheme.

Architects who are willing to receive an invitation to act for the Board are desired to state their special qualifications for undertaking this project (quoting examples of hospital work executed), and to submit their applications not later than Saturday, 5th November, 1949, to E. B. Jenkins, Esq., Secretary, Newcastle-upon-Tyne Regional Hospital Board, "Dunira," Osborne Road, Newcastle-upon-Tyne, 2.

E. B. JENKINS,
Secretary.

6th October, 1949. 2378

COUNTY COUNCIL OF NORTHUMBERLAND.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the post of ASSISTANT ARCHITECT. A.P.T., Grade IV (consolidated salary £480-£525), or Grade V (consolidated salary £520-£570).

The commencing salary and grade will be in accordance with the qualifications and experience of the candidate.

The appointment will be subject to one month's notice on either side and to the provisions of the Local Government Superannuation Act, 1937. The successful candidate will be required to pass a medical examination.

Applications, stating age, qualifications and previous experience, accompanied by recent testimonials, should be forwarded to the County Architect, County Hall, Newcastle-upon-Tyne, not later than 27th October, 1949. 2358

CO-OPERATIVE WHOLESALE SOCIETY, LTD.
ARCHITECT'S DEPARTMENT, LONDON.

Applications are invited for the following:—

QUANTITY SURVEYORS, experienced in all branches of building work, with sound knowledge of present day prices, and preferably Members of the R.I.C.S. (Quantities Section). Salary £600-£750.

WORKERS-UP, with thorough knowledge Abstracting and Billing. Salary £350-£600.

The appointments are permanent and offer prospects of up-grading.

Successful candidates will be required to undergo medical examination for a compulsory Superannuation Scheme.

Applications, stating age, experience, and qualifications, to the Chief Architect, Co-operative Wholesale Society, Ltd., 99, Leman Street, London, E.1. 2266

THE CO-OPERATIVE WHOLESALE SOCIETY, LTD.,

invite applications for the following appointments on the staff of the Manchester Architect's Department:—

THREE ASSISTANT ARCHITECTS. Salary £510-£625 per annum. Applicants are required to have a sound knowledge of building construction and be able to produce working drawings and details from sketch plans. Experience in design and planning of modern industrial buildings, or shopping emporia and retail shops, will be considered an advantage.

ONE ASSISTANT STRUCTURAL ENGINEER. Salary £610-£710 per annum. Applicants are required to have general experience in designing and detailing of structural steel, reinforced concrete and foundation works, and be able to work with a minimum of supervision.

The above appointments are permanent and offer prospects of up-grading to competent Assistants. Successful candidates will be required to undergo a medical examination for entry into compulsory superannuation scheme.

Applications, stating age, experience, and qualifications, to be addressed to the Chief Architect, Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester. 2404

THE CO-OPERATIVE WHOLESALE SOCIETY, LTD.,

invite applications for the following appointments on the Staff of the Manchester Architects' Department:—

ASSISTANT QUANTITY SURVEYORS. Salary £510 to £625 per annum. Applicants must have a sound experience in the preparation of Bills of Quantities, measuring and adjusting variations for large commercial buildings, and able to undertake work with a minimum of supervision.

The above appointments are permanent and offer prospects of up grading to competent Assistants. Successful candidates will be required to undergo a medical examination for entry into compulsory Superannuation Scheme.

Applications, stating age, experience, qualifications, and commencing salary required, to be addressed to the Chief Architect, Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester. 2405

BOROUGH OF WILLESDEN.
APPOINTMENT OF ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of an Architectural Assistant, on the Permanent Staff of the Borough Engineer and Surveyor's Department.

The salary attaching to the post will be Administrative, Professional and Technical, Grade VI, of the National Whitley Council's Scale for the London area, namely £595 per annum, rising by two annual increments of £20 per annum and one of £25 per annum to £660 per annum, plus London weighting of £30 per annum.

Candidates must be Associates of the Royal Institute of British Architects or hold an equivalent qualification, and preferably have general knowledge and experience of architectural work in the service of a local authority.

The appointment will be terminable by one month's notice on either side, is subject to the provisions of the Local Government Superannuation Act, 1937, and the successful candidate will be required to pass a medical examination.

Applications, giving age, experience, etc., accompanied by copies of not more than three testimonials, should be addressed to the undersigned, endorsed "Architectural Assistant," not later than 10 a.m. on Monday, 7th November, 1949.

It will be necessary for the successful candidate to provide his own housing accommodation as the Council is not in a position to assist.

Canvassing, directly or indirectly, will be deemed a disqualification.

(Sgd.) R. S. FORSTER,
Town Clerk.

Town Hall, Dyne Road, Kilburn, N.W.6.
5th October, 1949. 2371

ISLE OF ELY COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the undermentioned additional appointments on the staff of the County Architect's Department:—

(1) CHIEF ASSISTANT ARCHITECTS (TWO). Salary Grade VIII (£685×£25—£760).

(2) SENIOR QUANTITY SURVEYOR. Salary Grade VII (£635×£25—£710).

(3) SENIOR ASSISTANT ARCHITECT. Salary Grade VI (£595×£20—£660).

(4) SECOND SENIOR ASSISTANT ARCHITECT. Salary Grade V(a) (£550×£20—£610).

(5) CHIEF CLERK. Salary Grade IV (£480×£15—£525).

The appointments are permanent and are subject to the provisions of the National Scheme of Conditions of Service, to the Local Government Act, 1937, and to the passing of a medical examination.

The office is progressive, and excellent experience is available over the whole field of County Council building administration.

Forms of application may be obtained from the County Architect, County Hall, March, Cambs., and are to be returned not later than the 28th October, 1949.

R. F. G. THURLOW,
Clerk of the County Council.

County Hall, March.
5th October, 1949. 2366

CITY OF CARDIFF.
CITY SURVEYOR'S DEPARTMENT.
ARCHITECTURAL ASSISTANT (EDUCATION).

Applications are invited for the appointment of Architectural Assistant (Education), in accordance with A.P.T., Grade VII, £635×£25—£710.

Preference will be given to candidates with experience in School Design who are Associates of the R.I.B.A.

The Council will assist in finding housing accommodation for the successful applicant.

Details of conditions and duties may be obtained from the City Surveyor, City Hall, Cardiff.

Applications, endorsed "Architectural Assistant (Education), Grade VII," together with the names and addresses of three persons to whom reference may be made, should be delivered to the undersigned not later than 10 a.m. on Friday, the 28th October, 1949.

S. TAPPER-JONES,
Town Clerk.

City Hall, Cardiff.
12th October, 1949. 2354

LONDON COUNTY COUNCIL.
QUANTITY SURVEYORS.

Vacancies exist for Quantity Surveyors in the Housing and Valuation Department, for work in connection with the development of cottage estates and the construction of multi-storey dwellings, at salaries of up to £700 a year, the commencing salary in each case being determined according to qualifications and experience. Successful candidates will be required to contribute to the Council's Superannuation and Provident Fund, and will be eligible for appointment to the Council's permanent staff and for advancement on the occurrence of vacancies.

Duties will include:—

(a) Measurement of work in construction of houses, roads and sewers, preparation of interim and final bills; measurement and adjustment of sub-contracts; preparation of cost statistics, estimates, etc.

(b) Management of housing contracts of considerable value; interim valuations for payments; measurement of variations and settlement of final accounts.

Forms of application may be obtained from the Director of Housing and Valuer, The County Hall, Westminster Bridge, S.E.1 (a stamped addressed foolscap envelope required), quoting Q.S.1.

Canvassing disqualifies. (2140) 782

NORFOLK EDUCATION COMMITTEE.

The Norfolk Education Committee invite Architects resident in Great Britain to submit designs in Competition for a County Modern (Secondary) School at Hunstanton, to accommodate 450 (mixed) pupils.

The assessor nominated by the President of the Royal Institute of British Architects is Mr. Denis Clarke Hall, F.R.I.B.A., 6, Masons Yard, Duke Street, St. James, London, S.W.1.

The last day for submitting designs is 28th February, 1950. The premiums will be £500, £250, £150.

Conditions of the competition may be obtained, on the payment of a deposit of £2, from the undersigned. The deposit is returnable under the conditions governing architectural competitions, as issued by the Royal Institute of British Architects.

W. O. BELL,
Chief Education Officer.

Norfolk Education Committee,
Stracey Road, Norwich. 2388

BOROUGH OF HESTON AND ISLEWORTH.

Applications are invited for the following appointments in the Department of the Borough Engineer and Surveyor :—

(a) TWO SENIOR ARCHITECTURAL ASSISTANTS.

Salary in accordance with Grade VI of the A.P.T. Division, at the rate of £595×£20×£20×£25—£660 per annum, plus London weighting of £30 per annum.

Applicants must hold the examination qualification for the Associateship of the Royal Institute of British Architects or a University degree or diploma in architecture approved by the Institution.

Applicants must have had good experience in architectural design of a general character, and preference will be given to candidates experienced in housing and other local government work.

(b) GENERAL ARCHITECTURAL ASSISTANT.

Salary in accordance with Grade III of the A.P.T. Division, at the rate of £450×£15—£495 per annum, plus appropriate London weighting.

Applicants should have good architectural experience, and should have passed the Intermediate Examination qualifying for Associate Membership of the Royal Institute of British Architects.

Preference will be given to candidates who have had experience in the preparation of working and detail drawings in connection with housing and other local government work.

The appointments are to established posts and subject to the National Scheme of Conditions of Service. Forms of application may be obtained from the Borough Engineer and Surveyor, 88, Lampton Road, Hounslow, Middlesex, by sending a stamped addressed envelope.

Application on the forms provided, endorsed (a) "Senior Architectural Assistant," or (b) "General Architectural Assistant," to be delivered to the Borough Surveyor not later than noon on 31st October, 1949.

Canvassing will disqualify.

HAROLD SWANN,
Town Clerk.

October, 1949. 2384

CAMBRIDGESHIRE COUNTY COUNCIL.
COUNTY PLANNING DEPARTMENT.

Applications are invited for the following appointments :—

(a) PLANNING OFFICER. Grade A.P.T., VIII (salary £685-£760 per annum).

(b) PLANNING ASSISTANT. Grade A.P.T., V (salary £520-£570 per annum).

(c) PLANNING ASSISTANT. Grade A.P.T., IV (salary £480-£525 per annum).

Candidates for the Grade VIII appointment must be Corporate Members of the Town Planning Institute. The appointments are subject to the Provisions of the Local Government Superannuation Act, 1937, and to the Council's Condition of Service and a medical examination.

Applications, stating age, past and present appointments (with dates), qualifications, present salary, and the names of two referees, should be sent to the undersigned not later than the 31st October, 1949, endorsed "Planning Officer" or "Planning Assistant."

CHARLES PHYTHIAN,
Clerk of the County Council.

Shire Hall, Castle Hill, Cambridge. 2368

CITY OF WAKEFIELD.
CITY ENGINEER'S DEPARTMENT.
PRINCIPAL ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of one Principal Architectural Assistant, on Grade A.P.T., VII (£635-£710).

Applicants should be A.R.I.B.A. and have had good experience in Housing and General Municipal work.

The appointment will be subject to the Local Government Superannuation Act, 1937, and to the passing of a medical examination.

Candidates must state in writing whether to their knowledge they are related to any member or senior official of the Corporation. Canvassing will be a disqualification.

Applications, endorsed "Principal Architectural Assistant," stating age, qualifications, present and previous appointments, and details of experience, should be accompanied by copies of two testimonials, and sent to me not later than Tuesday, the 25th October, 1949.

The Council will consider the provision of housing accommodation if required.

W. S. DES FORGES,
Town Clerk.

3rd October, 1949. 2363

COALVILLE URBAN DISTRICT COUNCIL.
ENGINEER AND SURVEYOR'S DEPARTMENT.

Applications are invited for the following appointment in the Department of the Engineer and Surveyor :—

JUNIOR ARCHITECTURAL ASSISTANT. Grade II, A.P.T.

Applicants should have received Architectural training and have passed the Intermediate Examination of the R.I.B.A. or its equivalent.

Housing accommodation will be made available to the successful candidate if required.

The appointment will be subject to the National Scheme of Conditions of Service and the provisions of the Local Government Superannuation Act, 1937, and the successful applicant will be required to pass a medical examination by the Council's Medical Officer.

Applications, stating age, qualifications and experience, and previous appointments held, together with copy of one recent testimonial and names of two referees, should be delivered to the undersigned appropriately endorsed not later than 26th October, 1949.

H. B. CHYNOWETH,
Clerk of the Council.

Municipal Offices, Coalville, Leics.
6th October, 1949. 2398

COUNTY BOROUGH OF ROCHDALE.
BOROUGH SURVEYOR'S DEPARTMENT.

Applications are invited for the appointment of a SENIOR ASSISTANT ARCHITECT (A.P.T., Grade Va), in the Borough Surveyor's Department, at a salary in accordance with the National Joint Councils' Scales *viz.*, £550, rising to £610 per annum.

Applicants must be Registered Architects, and have passed the Final Examination of the R.I.B.A. They should have a thorough knowledge of architectural work, with practical experience in the design of public buildings of all types.

The appointment will be subject to the provisions of the Local Government Superannuation Acts, and to the selected candidate passing a medical examination. Canvassing is prohibited and candidates must disclose whether to their knowledge they are related to any member or Senior Officer of the Council.

Applications, stating age, qualifications, and full particulars of experience, together with the names of two persons to whom reference may be made, and endorsed "Senior Assistant Architect," must be delivered to the Borough Surveyor, Town Hall, Rochdale, not later than 9 a.m. on Saturday, the 5th November, 1949.

G. F. SIMMONDS,
Town Clerk.

2400

BLABY RURAL DISTRICT COUNCIL.
ENGINEER AND SURVEYOR'S DEPARTMENT.

The Council invites applications for the appointment of ARCHITECTURAL ASSISTANT, at a salary of £480 per annum, rising by annual increments of £15 to £525 per annum, plus travelling allowance on the Council's Scale. Applicants must be suitably qualified and experienced in taking off quantities, setting-out, measuring up, dealing with interim statements, and preparation of final accounts for housing work.

The appointment, which will be terminable by one month's notice on either side, is subject to the provisions of the Local Government Officers' Superannuation Act, 1937, and to the Conditions of Service of the National Joint Council where applicable.

Applications, stating age, qualifications and full details of experience, together with copies of two recent testimonials, to be delivered to the undersigned in a sealed envelope endorsed "Architectural Assistant" within 14 days from the appearance of this advertisement.

J. J. DERRY,
Clerk of the Council.

Council Offices, Narborough, Leicester.
5th October 1949. 2402

COUNTY BOROUGH OF DUDLEY.
BOROUGH ARCHITECT'S DEPARTMENT.
APPOINTMENT OF CHIEF ASSISTANT ARCHITECT, GRADE VII (£635-£710).

Applications are invited for the above appointment in the office of the Borough Architect.

The position is on the permanent establishment, and the person appointed will be responsible direct to the Borough Architect.

Applicants should be Associates of the Royal Institute of British Architects and should possess a considerable knowledge of the design and construction of schools, housing estates, and public buildings, should be able to control staff, and should be capable of carrying out complete works from start to finish of a building contract.

The successful applicant will be required to pass a medical examination, and the appointment will be subject to the Scheme of Conditions of Service of the National Joint Council for Local Authorities' Administrative, Professional, Technical and Clerical Services, and the provisions of the Local Government Superannuation Act, 1937.

Applications, stating age, qualifications, previous and present experience, with the names of three persons to whom reference can be made, must reach me not later than Friday, the 4th November, 1949.

P. D. WADSWORTH,
Town Clerk.

The Council House, Dudley.
11th October, 1949. 2436

BOROUGH OF DROITWICH.
APPOINTMENT OF ARCHITECTURAL ASSISTANT.

Applications are invited for the above appointment in the Surveyor's Department of the Council.

The salary will be in accordance with Grade II of the A.P. and T. Division of the National Scale of Salaries (£420-£465 per annum).

Preference will be given to applicants who have passed the Intermediate Examination of the Royal Institute of British Architects or other recognized professional Institution.

The appointment will be subject to one month's notice on either side and to the provisions of the Local Government Superannuation Act, 1937, and the passing of a satisfactory medical examination.

Applications, stating age, training, qualifications and experience, together with copies of two recent testimonials, are to be delivered to the undersigned not later than mid-day on Friday, 4th November, 1949.

S. G. FOSTER,
Town Clerk.

Town Hall, Droitwich.
October, 1949. 2426

COUNTY BOROUGH OF EAST HAM.
BOROUGH ENGINEER'S DEPARTMENT.

Applications are invited for the undermentioned appointments :—

ENGINEERING ASSISTANT (Grade A.P.T., III). Salary £450 to £495 per annum.

ARCHITECTURAL ASSISTANT (Grade A.P.T., V). Salary £520 to £570 per annum.

TEMPORARY ESTIMATOR (Grade A.P.T., V). Salary £520 to £570 per annum.

The appropriate London weighting is paid in addition to the above salaries, and salaries in excess of the minima of the grades may be paid according to the qualifications and experience of successful candidates.

The Council will be prepared to consider applications for a subsistence allowance in appropriate cases from persons appointed should they be unable to obtain suitable housing accommodation.

Full particulars of the duties, terms and conditions of appointment and form of application (which must be returned by Monday, the 31st October, 1949) may be obtained from the undersigned.

Canvassing in any form will disqualify.

H. A. EDWARDS,
Town Clerk.

Town Hall, East Ham, E.6. 2425

SURREY COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointment :—

ARCHITECTURAL ASSISTANT, Grade I. Salary £390 to £435 per annum, plus London allowance of up to £30 per annum, according to age.

Applicants should be of good general training and give full details in their applications.

It is desirable that applications should be accompanied by a small sample of the applicant's work.

The appointments will be subject to the provisions of the Local Government Act, 1937, and the successful applicants will be required to pass a medical examination.

Applications, stating age, qualifications and experience, and accompanied by copies of three recent testimonials, should be sent to the County Architect, Surrey County Council, County Hall, Kingston-upon-Thames, not later than the 5th November, 1949.

Canvassing, either directly or indirectly, will disqualify a candidate from consideration.

DUDLEY AUKLAND,
Clerk of the Council.

County Hall, Kingston-upon-Thames. 2434

BOROUGH OF STRATFORD-UPON-AVON.
BOROUGH ENGINEER'S DEPARTMENT.

Applications are invited for the appointment of ASSISTANT ARCHITECT, A.P.T. Division, Grade III (£450-£495). Conditions of the appointment and forms of application may be obtained from the undersigned, to whom completed application forms should be returned not later than 14th November, 1949.

P. C. SMART, A.M.I.C.E.,
Borough Engineer.

Municipal Offices, Stratford-upon-Avon. 2441

NORTH RIDING OF YORKSHIRE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment on the permanent staff of an

ASSISTANT ARCHITECT, A.P.T., Grade VI (£595-£660).

The appointment will be superannuable and subject to medical examination; in special circumstances a house will be made available.

Forms of application are not being issued, but further information may be obtained from the County Architect, County Hall, Northallerton. Applications, stating age, qualifications and experience, together with particulars of present and previous appointments and the names and addresses of three persons to whom reference can be made, must be delivered to the undersigned not later than 31st October, 1949.

Canvassing will disqualify, and a candidate who is related to a member of or a senior officer under the Council must disclose the fact when applying.

H. G. THORNLEY,
Clerk of the County Council.

County Hall, Northallerton.
6th October, 1949. 2392

HAMPSHIRE.

Applications are invited for the following appointments on the established staff of the County Architect's Department:—

SENIOR ENGINEERING ASSISTANT, for drainage and sewage disposal work, on Grade VI of the National Salary Scales (£595×£20×£25—£660).

Candidates should be Chartered Civil Engineers or have equivalent qualifications, and should have had extensive experience of sewage schemes of all sizes gained through service with a Consulting Engineer or in the Main Drainage Department of a Local Authority.

TWO SENIOR ASSISTANT ARCHITECTS, on Grade VI of the National Salary Scales (£595×£20×£25—£660).

Candidates must be Registered Architects, preferably A.R.I.B.A., with experience in design and construction of public buildings, including schools.

ARCHITECTURAL ASSISTANT, on Grade III of the National Salary Scales (£450×£15—£495).

Candidates should be Students R.I.B.A., with suitable experience.

The appointments will be subject to the provisions of the Local Government Superannuation Act, 1937, and to the National Scheme of Conditions of Service, and will be terminable by one calendar month's notice on either side. In approved cases, the County Council are prepared to assist newly appointed members of the staff to meet removal and other expenses.

Applications, on forms to be obtained from the County Architect, The Castle, Winchester, should be returned to him not later than Monday, the 31st October, 1949.

G. A. WHEATLEY,
Clerk of the County Council.

The Castle, Winchester.
10th October, 1949. 2432

SURREY COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of PRINCIPAL ASSISTANT ARCHITECT, at a commencing salary of £800 per annum, rising by annual increments of £25 to a maximum of £900 per annum.

Applicants must be Members of the Royal Institute of British Architects, and should have had experience in the control of staff, the organization of work, and an adequate experience in the design and construction of modern buildings.

The appointment will be subject to the provisions of the Local Government Act, 1937, and the successful applicant will be required to pass a medical examination.

Applications, stating age, qualifications and experience, and accompanied by copies of three recent testimonials, should be sent to the County Architect, Surrey County Council, County Hall, Kingston-upon-Thames, not later than the 5th November, 1949.

Canvassing, either directly or indirectly, will disqualify a candidate from consideration.

The Council will be unable to provide any housing accommodation, and the successful applicant will be expected to make his own arrangements in this direction.

DUDLEY AUKLAND,
Clerk of the Council.

County Hall, Kingston-upon-Thames. 2430

BOROUGH OF BARKING.
DEPARTMENT OF THE BOROUGH ARCHITECT.

Applications are invited for the following appointments:—

(*a*) CHIEF CLERK, Grade A.P.T., V. Salary £520, rising to £570 per annum.

(*b*) ASSISTANT ARCHITECT, Grade A.P.T., IV. Salary £480, rising to £525 per annum.

(*c*) ASSISTANT ARCHITECT, Grade A.P.T., III. Salary £450, rising to £495 per annum.

(*d*) CLERK OF WORKS, Grade A.P.T., II. Salary £420, rising to £465 per annum.

(*e*) JUNIOR CLERK (Male or Female), age not to exceed 16 years; on the General Division Scale of Salaries, i.e., commencing at £135 per annum for males and £108 for females.

The appropriate London weighting will be paid in addition to the above salaries.

Terms and conditions of the appointments and forms of application may be obtained from the Borough Architect, Town Hall, Barking, and must be received by the undersigned not later than Thursday, 27th October, 1949.

E. R. FARR,
Town Clerk.

Town Hall, Barking. 2428

CROWN AGENTS FOR THE COLONIES.

ARCHITECTURAL ASSISTANT required by Public Works Department, Uganda, for tour of 24 to 36 months in first instance, with prospects of permanent and pensionable employment. Salary according to age and experience in scale £550 to £690 a year. Outfit allowance £30. Free passages. Candidates not over 35 years of age, must be rapid and accurate Architectural Draughtsmen, and have had experience in the preparation of working drawings of buildings and be capable of carrying out calculations for reinforced concrete structures. Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper to the Crown Agents for the Colonies, 4, Millbank, London, S.W.1, quoting M/N/24985/3D on both letter and envelope. The Crown Agents cannot undertake to acknowledge all applications, and will communicate only with applicants selected for further consideration. 2444

MOUNTAIN ASH URBAN DISTRICT COUNCIL.
ASSISTANT ARCHITECT.

Applications are invited for the permanent appointment of Assistant Architect.

Conditions of employment will be in accordance with the National Scheme of Conditions of Service for Local Authorities Services, and the latest provisions of grading for Architectural Assistants (A.P.T., Grade III, £450-£495, or A.P.T., Grade IV, £480-£525, according to qualifications and experience).

Applicants must have had good housing and general Architectural experience, and must have passed the Intermediate Examination of the Royal Institute of British Architects or hold equivalent qualifications.

The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937, and will be terminable by one month's notice on either side. The successful applicant will be required to pass a medical examination.

Applications, stating age, qualifications and experience, together with the names of two persons to whom reference may be made, must reach the undersigned not later than Monday, 31st October, 1949.

Housing accommodation will be provided if required.

BERNARD M. MURPHY,
Clerk of the Council.

Town Hall, Mountain Ash.
10th October, 1949. 2412

BOROUGH OF LUTON.
BOROUGH ENGINEER'S DEPARTMENT.
TECHNICAL STAFF.

Applications are invited for the following appointments:—

(*a*) SENIOR ARCHITECTURAL ASSISTANT (A.P.T., Grade VII, £630×£25—£710 per annum). Housing accommodation will be made available to the successful candidate, if required.

Applicants should be A.R.I.B.A. and have extensive Municipal experience, especially in housing and school works.

(*b*) ARCHITECTURAL ASSISTANTS, in salary grades ranging between A.P.T., I (£390-£435), and A.P.T., IV (£480-£525), according to qualifications and experience. Applicants must have made some progress in obtaining architectural qualifications, and have had Municipal experience, with particular reference to housing and school works.

The appointments will be subject to the Local Government Superannuation Act, 1937, to the National Scheme of Conditions of Service, and to the successful candidates passing a medical examination.

Applications, appropriately endorsed, giving details of age, qualifications, experience, present appointment and salary, and accompanied by the names of three persons to whom reference may be made, should be sent to

THE BOROUGH ENGINEER,
Town Hall, Luton,

not later than first post on Tuesday, 1st November, 1949. Canvassing will disqualify. Applicants must disclose whether they are related to any member or senior officer of the Council.

W. H. ROBINSON,
Town Clerk.

Town Hall, Luton.
6th October, 1949. 2372

EAST SUFFOLK COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the following posts in the County Architect's Department:—

Grade "A" ASSISTANT ARCHITECTS. A.P.T., Grade VII. Consolidated salaries £635-£710 per annum.

The commencing salary in this grade will be fixed according to the qualifications and experience.

Applicants must be Members of the R.I.B.A., quick and accurate draughtsmen, capable of carrying a job through in all its stages, including sketch plans, working drawings, supervision of work in progress, as well as the administration work in connection therewith. They should have a sound knowledge of design and building construction, and should be capable of writing specifications. Office experience after school training or articles is essential. The work to be dealt with is that normally carried out by a Local Authority.

The appointment will be subject to one month's notice on either side and to the provisions of the Local Government Superannuation Act, 1937. The successful applicants will be required to pass a medical examination.

Applications, stating age, qualifications, and full details of previous experience, accompanied by copies of three recent testimonials, should be sent to E. J. Symcox, F.R.I.B.A., County Architect, County Hall, Ipswich, not later than 4th November, 1949.

Canvassing, either directly or indirectly, will disqualify a candidate from consideration.

G. C. LIGHTFOOT,
Clerk of the Council.

County Hall, Ipswich.
October, 1949. 2455

BUCKS COUNTY COUNCIL.

The County Architect invites applications from qualified ASSISTANT ARCHITECTS who possess a keen and energetic enthusiasm for their profession. Candidates should preferably have been trained at a recognized School of Architecture. Salary Grade VI, £595-£660 p.a.

Further particulars and form of application may be obtained from the County Architect, County Offices, Aylesbury, to whom they must be delivered by 11th November, 1949. 2456

COUNTY BOROUGH OF CROYDON—EDUCATION DEPARTMENT.
SCHOOL ARCHITECT'S SECTION.

Applications are invited for the appointment of JUNIOR ARCHITECTURAL ASSISTANT from persons of Inter. R.I.B.A. standard, experienced in preparing working drawings.

Salary A.P.T., II, £420×£15—£465 p.a. (plus London weighting).

The appointment is established and superannuable, subject to medical examination.

Living accommodation is not offered.

Forms of application obtainable from the Chief Education Officer, Katharine Street, Croydon (on sending stamped addressed foolscap envelope), must be returned to him not later than the 4th November, 1949.

Canvassing will disqualify.

E. TABERNER,
Town Clerk.

2447

HERTFORDSHIRE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments:—

(*a*) CHIEF ASSISTANT ARCHITECT. Grade IX, £750-£900.

(*b*) SENIOR ASSISTANT ARCHITECTS. Grade VII, £635-£710.

(*c*) ASSISTANT ARCHITECTS. Grade V, £520-£570.

(*d*) SENIOR ASSISTANT ENGINEERS. Grade VII, £635-£710.

(*e*) ASSISTANT ENGINEERS. Grade VI, £595-£660.

(*f*) ASSISTANT ENGINEERS. Grade IV, £480-£525.

(*g*) CHIEF ASSISTANT QUANTITY SURVEYORS. Grade VII, £635-£710.

(*h*) SENIOR QUANTITY SURVEYORS. Grade VI, £595-£660.

(*i*) ASSISTANT QUANTITY SURVEYORS. Grade V, £520-£570.

Applicants for appointments (*d*) and (*e*) should be A.M.I.E.E. or A.M.I.H.V.E.

Applicants for appointments (*f*) should be Graduates of the I.E.E. or the I.H.V.E.

Applicants need not have had previous Local Government experience.

Applications, stating which post is applied for, together with three references, should be addressed to the County Architect, County Hall, Hertford, to be received not later than first post on Saturday, the 5th November, 1949. 2448

COUNTY BOROUGH OF BURNLEY.
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.

Applications are invited for the following appointments:—

(*a*) TWO SENIOR ARCHITECTURAL ASSISTANTS. Grade V (£520-£570 per annum).

Applicants for these appointments should be Associates of the Royal Institute of British Architects or hold equivalent qualifications.

In respect of one of these appointments preference will be given to candidates who have had considerable experience in housing work and in the other experience in general and educational work is required.

(*b*) ARCHITECTURAL ASSISTANT. Grade II (£420-£465 per annum).

Applicants for this appointment should have passed the Intermediate Examination of the Royal Institute of British Architects, and some experience of educational buildings and/or housing would be an advantage.

Conditions of service are those formulated by the National Joint Council, and the appointments are on the established staff and subject to the provisions of the Local Government Superannuation Act, 1937. The successful applicant will be required to pass a medical examination.

Forms of application may be obtained from the Borough Engineer, Town Hall, Burnley, to whom applications should be returned in the envelope provided not later than 12 noon on Friday, the 11th November, 1949.

Canvassing, directly or indirectly, will disqualify the candidate, and any relationship to a member or senior officer of the Council must be clearly stated in the application.

C. V. THORNLEY,
Town Clerk.

Town Hall, Burnley. 2452

SALOP COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of a CLERK OF WORKS, at a salary of £8 8s. per week, to supervise site works and the erection of School buildings at Ellesmere. The appointment will be temporary but, in the first instance, will be for a minimum period of two years with a possibility of extension.

Candidates must have had practical experience of building work, and preference will be given to those who have supervised the erection of new schools or other public buildings.

The appointment will be subject for its termination to one month's notice in writing on either side.

Forms of application may be obtained from Mr. A. G. Chant, F.R.I.B.A., County Architect, Column House, London Road, Shrewsbury, to whom they must be returned, accompanied by copies of two recent testimonials, not later than Thursday, 3rd November, 1949.

G. C. GODBER,
Clerk of the Council.

Shirehall, Shrewsbury.
October, 1949. 2417

NATIONAL COAL BOARD—EAST MIDLANDS DIVISION.

Applications are invited for the following permanent and superannuated posts in the DIVISIONAL ARCHITECT'S DEPARTMENT, in Nottingham.

(*a*) SENIOR ARCHITECT. Salary £850 by £35 to £1,150 per annum.

Applicants should be Members of the Royal Institute of British Architects, with extensive administrative and supervisory experience, and capable of taking charge of a section of Architectural work.

(*b*) ARCHITECTS, GRADE I. Salary £700 by £25 to £875 per annum.

Applicants should be Members of the Royal Institute of British Architects and have had considerable experience in the preparation of Sketch Plans, Working Drawings and Specifications, and large works of an Industrial and Welfare nature.

(*c*) QUANTITY SURVEYOR, GRADE I. Salary £700 by £25 to £875 per annum.

Applicants should preferably be Members of the R.I.C.S. and be experienced in the preparation of Bills of Quantities for all trades, and for engineering work, detailed approximate estimates, settlement of final accounts, make valuations and measurements for interim certificates, prepare specifications, etc., and have had considerable experience in a Quantity Surveyor's Office.

(*d*) ARCHITECTS, GRADE II. Salary £450 by £25 to £700 per annum.

Applicants should be Members of the R.I.B.A. and have had considerable experience in the preparation of Sketch Plans, Working Drawings and Specifications.

(*e*) QUANTITY SURVEYOR, GRADE II. Salary £450 by £25 to £700 per annum.

Applicants should preferably be Members of the R.I.C.S., with experience in the preparation of Bills of Quantities, detailed approximate Estimates, and preparation of Specifications.

(*f*) ARCHITECTURAL ASSISTANTS, GRADE I. Salary £410 by £20 to £550 per annum.

Applicants should have passed or be working for Inter. R.I.B.A. examination, and have had at least 5 years' office experience, with considerable experience of Sketch Plans and Working Drawings.

(*g*) ARCHITECTURAL ASSISTANTS, GRADE II. Salary £300 by £20 to £440 per annum.

Applicants should have passed, or be working for, the Inter. Examination R.I.B.A., and be able to assist in the preparation of Sketch Plans and Working Drawings.

(*h*) CLERK OF WORKS. Provisional salary scale £400 per annum upwards, according to qualifications and experience.

(*i*) WORKS CLERICAL OFFICER. Salary £300 by £15 to £410 per annum.

Candidates should have general clerical experience, with knowledge of building contracts.

The point of entry into the relevant salary scales will depend on the qualifications and experience of the successful applicants.

Applications, stating age, education, qualifications, experience, present appointment and salary, should be submitted within 14 days of publication to the Secretary, N.C.B., East Midlands Division, Sherwood Lodge, Arnold, Notts.

Applicants should state clearly the appointment for which application is made, both in the letter and on the envelope. 2423

NORFOLK COUNTY COUNCIL.
COUNTY PLANNING DEPARTMENT.

Applications are invited for the following appointments:—

(1) THREE SENIOR PLANNING ASSISTANTS. Salary A.P. & T., Grade VI (£595-£660). Applicants should have passed the Final Examination of the Town Planning Institute, or of one of the following bodies: the Institution of Civil Engineers; the Institution of Municipal Engineers; the Royal Institution of Chartered Surveyors; the Institute of Landscape Architects; or the Royal Institute of British Architects; or hold a University Degree in an appropriate subject. They should also have had good general experience in the administrative and technical work of a County Planning Department, including development control, survey, research, and development plan proposals.

(2) ONE JUNIOR PLANNING ASSISTANT. Salary A.P. & T., Grade II (£420-£465). Preference will be given to applicants with good drawing office experience and to those who are students of one of the professional bodies referred to in (1) above. Experience in field survey and in the revision of ordnance maps will also be an advantage.

The persons appointed to the posts of Senior Planning Assistant will be required to provide and maintain a motor car, for the use of which a travelling allowance will be payable in accordance with the County Council's scale. Facilities will be afforded, where desired, for the purchase of a car by means of a loan, repayable over a period of up to four years.

The person appointed to the post of Junior Planning Assistant may also, in certain circumstances, be required similarly to provide and maintain a motor car.

The appointments are subject to the provisions of the Local Government Superannuation Act, 1937, and to the passing of a medical examination.

Forms of application may be obtained from the Clerk of the Norfolk County Council, County Offices, Thorpe Road, Norwich, and must be completed and returned to him not later than 10 a.m. on 4th November, 1949.

Canvassing will be a disqualification. 2413

BOROUGH OF BEXLEY.
APPOINTMENT OF ENGINEERING AND ARCHITECTURAL STAFF.

Applications are invited for the undermentioned appointments in the Borough Engineer's Department:—

TECHNICAL ASSISTANT in the Building and Town Planning Section, within Grade A.P.T., IV.

ARCHITECTURAL ASSISTANT (Housing and General), within Grade A.P.T., IV.

ARCHITECTURAL ASSISTANT, within Grade A.P.T., II.

In each case London "weighting" will be paid in addition to the salary.

Forms of application, with conditions of appointment, may be obtained from the Borough Engineer and Surveyor, Council Offices, Bexleyheath, to whom completed applications must be returned by noon, Saturday, 5th November, 1949.

Canvassing, directly or indirectly, will disqualify.

W. WOODWARD,
Town Clerk.
2454

CITY OF BRADFORD.
CITY ENGINEER AND SURVEYOR'S DEPARTMENT.
APPOINTMENT OF TWO SENIOR TOWN PLANNING ASSISTANTS, GRADE A.P.T., VI.

(*a*) Town Planning and Architectural.
(*b*) Town Planning.

Applications are invited for the position of Two Senior Town Planning Assistants, in the City Engineer and Surveyor's Department, in accordance with Grade A.P.T., VI, of the National Scale of Salaries, *i.e.*, £596-£660 per annum.

Candidates for (*a*) should be Associates of the R.I.B.A. and hold a University Degree or Diploma in architecture, or the Final Examination of a recognized School of Architecture, with experience in Town Planning and Civic Design; (*b*) should be Associate Members of the Town Planning Institute or hold a recognized diploma in Town Planning, Municipal or Civil Engineering, and should have had several years' experience in Town Planning.

These appointments are subject to the provisions of the Local Government Superannuation Act, 1937, and the successful candidates will be required to pass a medical examination.

Canvassing will disqualify and any applicant who is related to a member of, or a senior officer of, the Council must disclose the fact in his application.

Applications, stating age, present and previous appointments, with dates, qualifications and experience, accompanied by copies of three recent testimonials, should reach the undersigned not later than Wednesday, 9th November, 1949.

W. H. LEATHEM,
Town Clerk.
Town Hall, Bradford. 2418

COUNTY BOROUGH OF BLACKBURN.
ARCHITECTURAL ASSISTANT, GRADE VII

Applications are invited for the post of SENIOR ARCHITECTURAL ASSISTANT, on the permanent staff of the Borough Engineer's Department, on Grade VII of the National Scale of Salaries, *viz.*, £635-£710 per annum.

Applicants must be Registered Architects and have had considerable experience in the design and construction of School buildings. Preference will be given to Associates of the R.I.B.A.

It is the Council's practice to give sympathetic consideration to the provision of housing accommodation for newly appointed officers.

Applications, endorsed "Senior Architectural Assistant," stating age, qualifications, experience, present and past appointments, together with copies of recent testimonials, should be submitted to the Borough Engineer and Surveyor, Town Hall, Blackburn, not later than Thursday, 3rd November.

(Sgd.) CHAS. S. ROBINSON,
Town Clerk.
2398

CITY OF OXFORD.
CITY ARCHITECT AND PLANNING OFFICER'S DEPARTMENT.

Applications are invited for the undermentioned post on the Permanent Staff of the City Architect and Planning Officer's Department:—

SENIOR PLANNING ASSISTANT.

Salary within the grade £550×£20—£610 per annum (Grade Va, A.P.T. Division).

The successful applicant will be required to carry out work in connection with the preparation of the Development Plan and planning administration in the City, and should have passed the Final Examination of the Town Planning Institute.

Housing accommodation at a reasonable rent will, if required, be made available by the Council to the successful applicant.

The appointment will be subject to the National Conditions of Service, the Local Government Superannuation Act, 1937, and the successful candidate will be required to pass a medical examination.

Further details of the duties and application forms, which must be used in applying for the post, may be obtained from E. G. Chandler, A.R.I.B.A., A.M.T.P.I., City Architect and Planning Officer, Town Hall, Oxford, and completed forms must be returned not later than Monday, the 24th October, 1949.

HARRY PLOWMAN,
Town Clerk.
2331

GOVERNMENT OF NORTHERN IRELAND.
MINISTRY OF HEALTH AND LOCAL GOVERNMENT.
ASSISTANT ARCHITECTS.

Applications are invited for unestablished posts of Assistant Architect, Grades A and B, in the Ministry of Health and Local Government. The appointments will, so far as can be foreseen, last for several years.

Salary range: Grade A, £700-£900; Grade B, £500-£750, and the commencing salary within these ranges will be fixed according to qualifications and experience.

Qualifications: Candidates for the Grade A post must be Registered Architects by examination, should have experience in up-to-date house design and layout, and some aptitude for research into comparative standards of design and construction. Candidates for the Grade B post must be either Registered Architects by examination, Corporate Members of the Institution of Civil Engineers, or Associates of the Royal Institution of Chartered Surveyors, and in addition possess a recognized qualification in town planning or have good experience in town planning work.

Preference will be given to candidates who served with H.M. Forces during the 1914-18 or 1939-45 war, providing the Ministry is satisfied that such candidates can, or within a reasonable time will be able to, discharge the duties efficiently.

Applications, giving date of birth, full particulars of qualifications and experience, together with copies of two recent testimonials, should be sent without delay to the Director of Establishments, Ministry of Finance, Stormont, Belfast. 2399

METROPOLITAN BOROUGH OF WANDSWORTH.
ARCHITECTURAL ASSISTANTS.

Applications are invited for the under-mentioned vacancies in the Borough Architect's Department:—

(*a*) ONE ESTABLISHED ARCHITECTURAL ASSISTANT, at a salary in accordance with Grade A.P.T., V (£550-£600 per annum, inclusive). Candidates should have had good professional training, experience of housing schemes, the layout of estates, and general architectural design. Preference will be given to Associates of the R.I.B.A.

(*b*) TWO ESTABLISHED ARCHITECTURAL ASSISTANTS, at a salary in accordance with Grade A.P.T., I (£420-£465 per annum, inclusive). Candidates should be studying for the R.I.B.A. examinations, and have had some experience in general architectural work.

(*c*) ONE UNESTABLISHED TRACING ASSISTANT (Male), at a salary in accordance with Miscellaneous Division II (£405-£450 per annum, inclusive).

Candidates should be experienced in colouring and tracing architectural drawings, and also be capable of setting up drawings from preliminary sketches.

Application forms may be obtained from the Borough Architect, and must be returned to the undersigned not later than 1st November, 1949.

R. H. JERMAN,
Town Clerk.
Municipal Buildings, Wandsworth, S.W.18.
7th October, 1949. 2414

BRECONSHIRE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the following permanent appointments (Male or Female) in the County Architect's Department:—

(*a*) ONE ASSISTANT ARCHITECT. Grade V (£520-£570 per annum).

(*b*) ONE ASSISTANT ARCHITECT. Grade IV (£480-£525 per annum).

(*c*) TWO ARCHITECTURAL ASSISTANTS. Grade III (£450-£495 per annum).

(*d*) Two ARCHITECTURAL ASSISTANTS. Grade I (£390-£435 per annum).

(*e*) ONE QUANTITY SURVEYOR. Grade VII (£635-£710 per annum).

Applicants for the appointment under (*a*) above must be Registered Architects.

The appointments will be subject to (i) the National Scheme of Conditions of Service, (ii) the provisions of the Local Government Superannuation Act, 1937, (iii) the passing of a satisfactory medical examination, and (iv) one month's written notice on either side.

Canvassing, directly or indirectly, will definitely disqualify the candidate for the appointment.

Applications must be made on a form to be obtained from the County Architect, Mr. H. C. W. Strickland, F.R.I.B.A., Watton Offices, Brecon, South Wales, and must be received by the undersigned not later than 6th November, 1949.

No housing accommodation can be provided by the Council for the successful applicants.

C. M. S. WELLS,
Clerk of the County Council.
County Hall, Brecon. 2439

JUNIOR SURVEYORS, with experience in line surveying and preparation of O.H. Line Profiles and Quantity Schedules, required. Must be mobile and hold current driving licence. Commencing salary £330 per annum, subject to negotiation, plus travelling and subsistence allowances when on detached duty. Detailed applications to reach the Assistant Secretary (Establishments), South-Western Electricity Board, Electricity House, Colston Avenue, Bristol, 1, within seven days. 2437

COUNTY BOROUGH OF WEST BROMWICH.

Applications are invited from suitably qualified persons for the following appointments in the Borough Surveyor's Department :—

(1) ENGINEERING ASSISTANT. A.P.T., Grade V (£520-£570).

(2) ARCHITECTURAL ASSISTANT. A.P.T., Grade V (£520-£570).

The appointments may be at a point within the scales, according to qualifications and experience.

The appointments are subject to the Local Government Superannuation Act, 1937, and the successful applicants will be required to pass a medical examination.

Applications, appropriately endorsed, stating age, qualifications, experience, present and past appointments, together with the names of two persons to whom reference may be made, should be delivered to the undersigned, not later than Saturday, 29th October, 1949.

Note.—A flat will be provided for the successful applicant, if required.

H. SCHOFIELD, B.Sc.(Eng.), A.M.I.C.E.,
Borough Engineer and Surveyor.

Town Hall, West Bromwich.
10th October, 1949. 2415

CITY AND COUNTY OF THE CITY OF EXETER.

Applications are invited for the following appointments on the staff of the City Architect's Department :—

(*a*) ASSISTANT QUANTITY SURVEYORS, on the permanent staff. The salary will be within A.P.T., Grade V (£520 to £570 per annum).

Applicants must be experienced in the preparation of Bills of Quantities, interim valuations and final accounts.

(*b*) QUANTITY SURVEYORS' ASSISTANTS. Vacancies on the permanent and temporary staff. Salaries within A.P.T., Grades I, II, III or IV (*i.e.*, £390 to £525 per annum), according to experience.

Applicants must be experienced in abstracting, working up Bills of Quantities, and site measurement.

All the above appointments will be subject to one month's notice on either side.

Permanent appointments will be subject to the provisions of the Local Government Superannuation Act, 1937, and successful applicants for these appointments will be required to pass a medical examination.

Canvassing will disqualify, and candidates must disclose whether, to their knowledge, they are related to any member of the Council or to the holder of any senior office under the Council.

Applications, stating age, qualifications, previous and present appointments and salaries, full details of experience, and the earliest possible date when available, together with copies of recent testimonials, should be sent to H. B. Rowe, F.R.I.B.A., A.M.I.Struct.E., City Architect, 2, Southernhay West, Exeter, not later than the 7th November, 1949. Applicants for posts under (*b*) above should also state salary required.

C. J. NEWMAN,
Town Clerk.

Exeter.
October, 1949. 2440

CITY OF COVENTRY.
CITY ARCHITECTURAL DEPARTMENT.
APPOINTMENT OF DEPUTY CITY ARCHITECT AND PLANNING OFFICER.

Applications are invited from suitably qualified persons for the appointment of Deputy City Architect and Planning Officer, at a commencing salary of £1,005 per annum, rising by annual increments of £85, £100 and £10 to a maximum of £1,200 per annum. Applicants must have had extensive experience of the work undertaken in a City Architectural Department, and previous local government experience will be an advantage.

The appointment will be terminable by three months' notice on either side, and will be subject to the Conditions of Service of the National Joint Council for Local Authorities' Administrative, etc., Services, as amended in favour of officers by decisions of the City Council.

The successful applicant will be required to pass a medical examination and to contribute on the statutory basis to the Superannuation Fund under the Local Government Superannuation Acts (as amended in regard to Annuities to Widows by the Coventry Corporation Act, 1936), and will be required to contribute to the Staff Widows' and Orphans' Pensions Fund.

Applications, stating age and particulars of experience, accompanied by not more than three recent testimonials, must reach the undersigned not later than Wednesday, the 26th October, 1949. Candidates who submitted applications in response to the original advertisement for the appointment of Deputy City Architect need not, unless they so wish, renew their applications. Canvassing, directly or indirectly, will be considered a disqualification, and applicants should disclose any relationship within their knowledge to a member or senior officer of the Council.

CHARLES BARRATT.
Town Clerk.

Council House, Coventry.
7th October, 1949. 2389

BRITISH ELECTRICITY AUTHORITY.
SOUTH-EASTERN DIVISION.

Applications are invited for the position of LEADING DRAUGHTSMAN at Divisional Headquarters. The sections involved cover electrical, mechanical and civil. Applicants should have undergone sound workshop and drawing office training on either heavy electrical or mechanical plant or on heavy civil engineering construction.

Opportunities for early promotion are available to an officer possessing sound engineering knowledge and good organising ability, combined with quality of leadership. Candidates should preferably have had considerable experience in the design and layout of plant as a co-ordinated whole as distinct from detailed draughtsmanship.

Salary will be within the range of £560 17s. to £698 13s. per annum, dependent upon experience and ability. The salary is provisional pending negotiations with the appropriate organisations.

Forms of application may be obtained by sending a stamped addressed foolscap envelope to the Divisional Secretary, British Electricity House, Lower Ham Road, Kingston-upon-Thames, Surrey. Completed applications, clearly endorsed, must be returned to the above address not later than 5th November, 1949. 2419

BOROUGH OF FOLKESTONE.
ARCHITECTURAL ASSISTANT

Applications are invited for the established post of Architectural Assistant in the Borough Engineer's department. Salary Grade A.P.T., VI (£595-£660). Terms and conditions of the appointment and forms of application, which are returnable to the undersigned not later than the 31st October, 1949, may be obtained from the Borough Engineer, Municipal Offices, Folkestone.

C. F. NICHOLSON,
Town Clerk.

Town Clerks's Office, Folkestone.
6th October, 1949. 2390

Tenders

PEMBROKESHIRE COUNTY COUNCIL.
PUNCHESTON (NEW) COUNTY PRIMARY SCHOOL.

Building Contractors, desirous of TENDERING for the ERECTION of the above SCHOOL (3 Class) are requested to submit their application to Walter Barrett, M.B.E., A.R.I.B.A., County Architect, County Offices, Haverfordwest, Pembrokeshire, by the 29th October, 1949.

General Conditions of Contract and Bills of Quantities will be supplied on receipt of £5 5s. deposit, returnable upon receipt of a *bona fide* Tender or the return of all documents. Drawings, etc., can be inspected at the office of the County Architect during the usual working hours.

No Tender will be considered unless submitted in the endorsed envelope provided for the purpose, and the Council does not bind itself to accept the lowest or any Tender received.

Contractors will be required to provide proof that they are in a position to provide the necessary labour to carry out the works.

Last day for the receipt of Tenders is 12th November, 1949.

D. T. JONES,
Clerk to the Education Committee.

County Offices, Haverfordwest.
11th October, 1949. 2435

Business for Sale

GOLSPIE, SUTHERLAND.—For Sale, by private bargain, the Architects' and Surveyors' Business in Golspie, carried on by the late Major George Murray, under the Firm name of Horne & Murray; Major Murray had a retainer from the Sutherland Estates, which will be continued to a suitable person; offices in Sutherland Estate buildings; office furniture, books, instruments, etc., to be taken at valuation. For further particulars apply to A. N. Macaulay & Co., Solicitors, Golspie, who will receive offers. 2360

Architectural Appointments Vacant

4 lines or under, 5s.; each additional line, 1s. 6d.

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