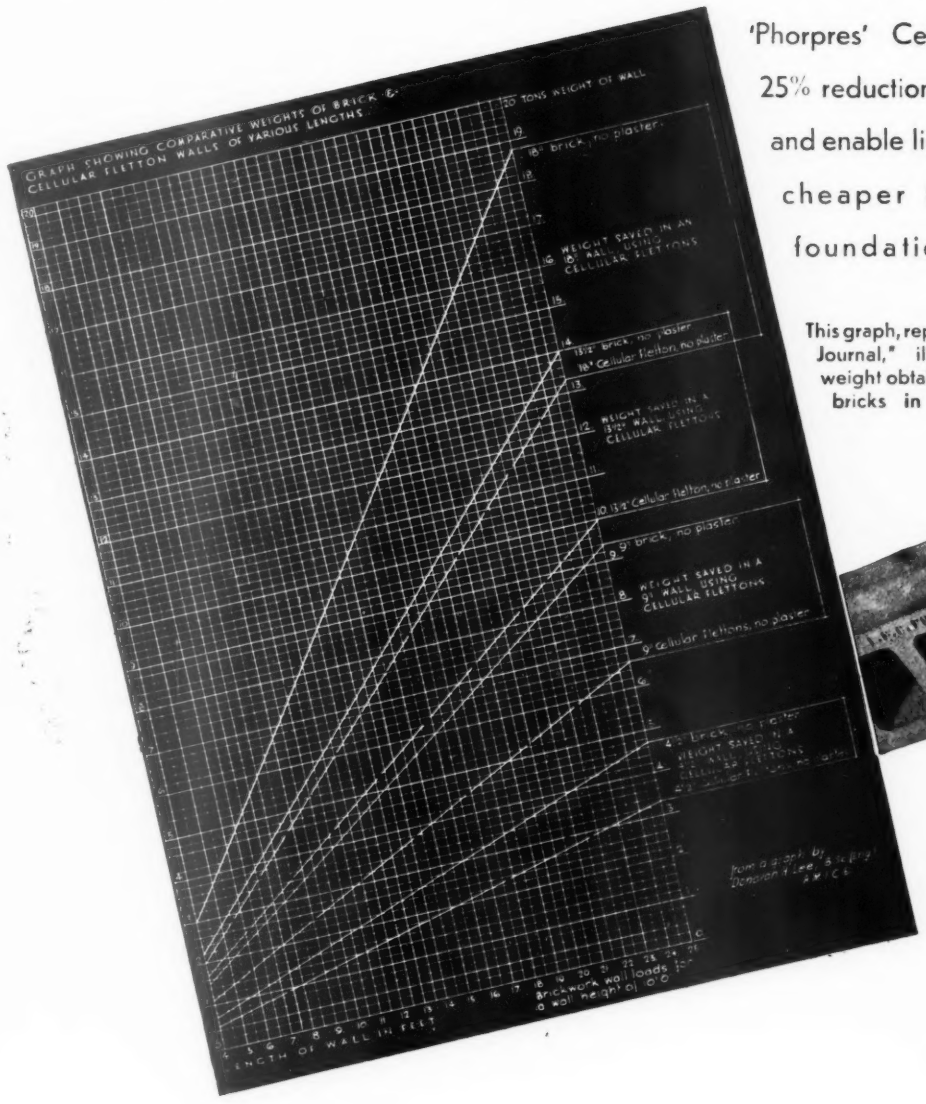
# OFFSETTING THE RISING COSTS OF FRAME CONSTRUCTION




'Phorpres' Cellular bricks give 25% reduction in brickwork load and enable lighter and therefore cheaper framework and foundations to be used.

This graph, reprinted from the "Architect's Journal," illustrates the saving in weight obtained by the use of Cellular bricks in walls of various types.

The new Cellular brick revised to accord with London County Council requirements

PHORPRES

**LONDON BRICK COMPANY LIMITED**

**HEAD OFFICE:** AFRICA HOUSE, KINGSWAY, W.C.2. TELEPHONE: HOLBORN 8282
**BIRMINGHAM DISTRICT OFFICE:** PRUDENTIAL BLGS., ST. PHILIP'S PLACE, BIRMINGHAM, 3. TEL. CCLMORE 4142

C

THE

# ARCHITECTS'

# JOURNAL

THE ARCHITECTS' JOURNAL, WITH WHICH IS INCORPORATED THE BUILDERS' JOURNAL AND THE ARCHITECTURAL ENGINEER, IS PUBLISHED EVERY THURSDAY BY THE ARCHITECTURAL PRESS (PUBLISHERS OF THE ARCHITECTS' JOURNAL, THE ARCHITECTURAL REVIEW, SPECIFICATION, AND WHO'S WHO IN ARCHITECTURE) FROM 9 QUEEN ANNE'S GATE, WESTMINSTER, S.W.1

THE ANNUAL SUBSCRIPTION RATES ARE AS FOLLOWS :
BY POST IN THE UNITED KINGDOM .... £1 3 10
BY POST TO CANADA .. ..... £1 3 10
BY POST ELSEWHERE ABROAD..... £1 8 6
SPECIAL COMBINED RATE FOR SUBSCRIBERS TAKING BOTH THE ARCHITECTURAL REVIEW AND THE ARCHITECTS' JOURNAL : INLAND £2 6s. ; ABROAD £2 10s.
SUBSCRIPTIONS MAY BE BOOKED AT ALL NEWSAGENTS

SINGLE COPIES, SIXPENCE ; POST FREE, EIGHTPENCE. SPECIAL NUMBERS ARE INCLUDED IN SUBSCRIPTION ; SINGLE COPIES, ONE SHILLING ; POST FREE, 1s. 3d. BACK NUMBERS MORE THAN TWELVE MONTHS OLD (WHEN AVAILABLE), DOUBLE PRICE

SUBSCRIBERS CAN HAVE THEIR VOLUMES BOUND COMPLETE WITH INDEX, IN CLOTH CASES, AT A COST OF 10s. EACH. CARRIAGE 1s. EXTRA

*9 Queen Anne's Gate, Westminster, London, S.W.1*
TELEPHONE : WHITEHALL 9212-7 (OWN EXCHANGE)
TELEGRAPHIC ADDRESS : BUILDABLE, PARL., LONDON

*The Editor will be glad to receive MS. articles and also illustrations of current architecture in this country and abroad with a view to publication. Though every care will be taken, the Editor cannot hold himself responsible for material sent him.*

THURSDAY, April 22, 1937. NUMBER 2205 : VOLUME 85

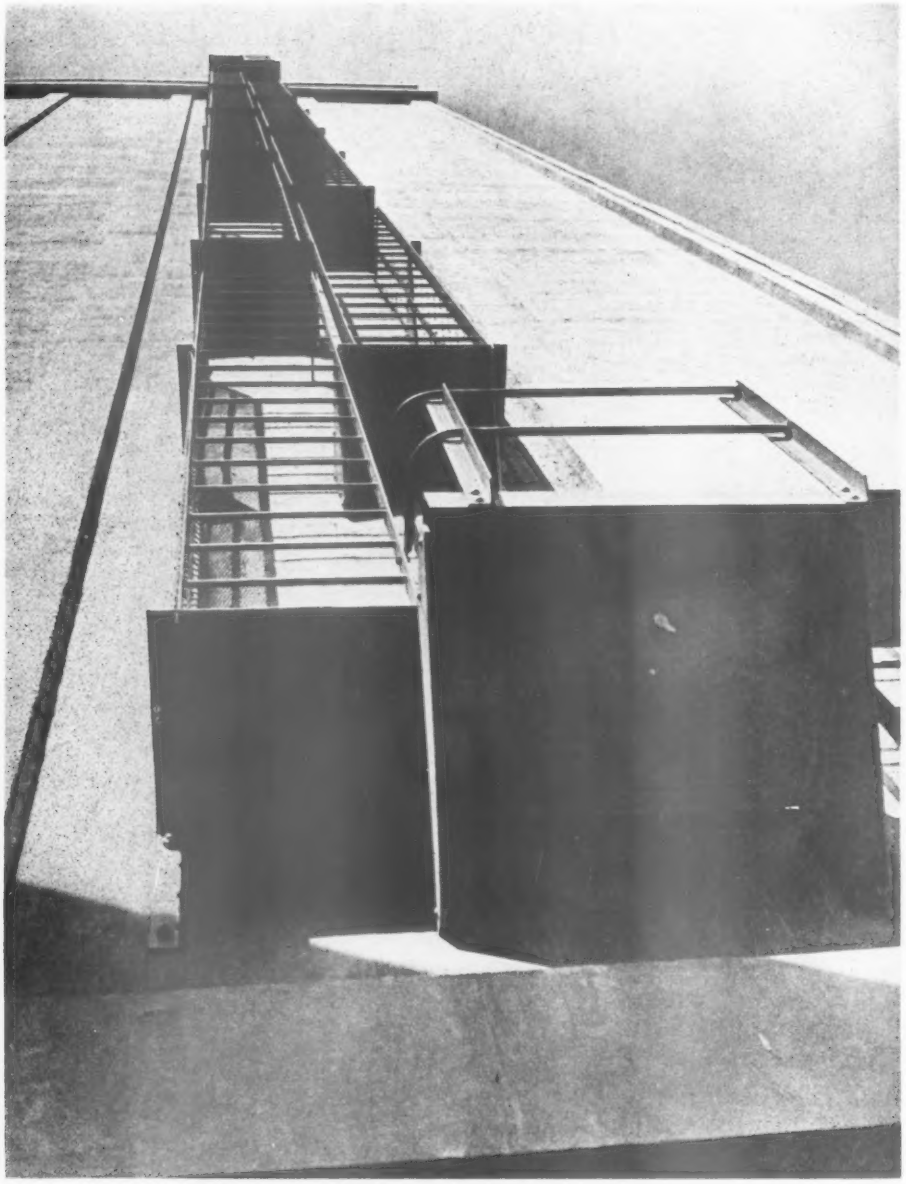
## PRINCIPAL CONTENTS



**This series is now concluded. Working Details will be resumed next week.*

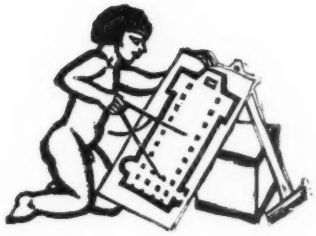
# UNDER CONSTRUCTION: CHELSEA BRIDGE

*A GENERAL view, from the south side, of Chelsea Bridge, which is to be opened by the Rt. Hon. W. L. Mackenzie King, Prime Minister of Canada, on May 6. The architect is G. Topham Forrest, former Chief Architect of the London County Council.*



# GRAIN SILO

*Two views of the Grain Silo at Liverpool, which is now nearing completion. The central tower is 235 feet high.*



# ROADS

ON April 1, hardly noticed by the average person, the Trunk Roads Act came into force, and a very large change took place in the transport system of Britain. In the future, 4,500 miles of main roads will be under the direct and complete control of the Ministry of Transport.

The public of this country have become accustomed to the complex drawbacks and rare merits of local administration. They consider that Governments are meant to keep the peace and hold the ring, and they have been brought up to be sceptical about the efficiency of central departments in tackling practical problems. Thirty-seven years of successive Governments holding the ring concerning road transport in its modern form has resulted, however, in the feeling that it hasn't been done well enough.

Present public opinion about our roads may be summarized under two heads: The average citizen is inclined to condemn all the Governments since 1900 for not doing what he would have tried desperately to prevent them doing; and he wants the anti-social activities of everyone else to be checked whilst the sanctity of private enterprise is scrupulously observed in his own little projects.

But they are small signs that if the state of road transport today is continuously brought to public notice a few modifications of personal designs may be tolerated. For our roads today are, bluntly, in rather a mess.

In 1935 two and a-half million mechanical vehicles were cruising at large over 180,000 miles of what were largely designed as little tracks between villages or lanes between houses; 20,000 miles or so of them have, of course, been improved, widened and straightened, and nearly all have smooth surfaces, but the vast majority were still local service roads. To add to the complication, 84 local authorities administered these roads. Legions of persons and associations erected signs or hoardings near them or strings of houses alongside them, and 40 million or so of citizens wandered, pushed prams or rode bicycles on them or across them exactly as they wanted.

It says much for the careful alertness and consideration of others that has been shown by us all that the friction between these various objects and activities only resulted in 6,500 people being killed and 222,000 more or less seriously injured in that one year.

The Government and its energetic Minister of Transport have had good grounds since then to be pained by the public's not being satisfied with an almost perfect freedom which cost them only great loss of time and 76,000 killed in ten years. Does the public expect the Government really to do something?

This is the question that is now before us. As a preliminary step, the Ribbon Restriction Act was passed which allowed wealthy and enlightened authorities to prevent the grosser forms of exploiting public roads for private profit. And now the Trunk Roads of Britain are under the Ministry of Transport. All that remains is to decide what is to happen next.

The alternatives are tinkering with existing roads or trying new methods.

The Ministry can straighten, widen and extend existing roads, and at the same time regulate the use of cars with increasing severity. (Is it not significant that *The Times* has published a plea that only those who can show good reason should be allowed to own a car?) It can, in fact, continue on a larger and perhaps more intelligent scale exactly what has been done since the war; although 500 new cars are appearing on the roads each day. This is the way of least effort, and the public will be sceptical about the reduction in casualties which it will bring about —however traffic may be regulated or congestion increased.

The alternative approach is outlined in this month's *Architectural Review*. It is the approach which the whole country adopted over a hundred years ago concerning another new method of transport. Railway trains were then recognized frankly as a new and potentially dangerous form of transport, and were promptly provided with special tracks. Exactly the same need for providing tracks for long-distance road traffic has existed for ten years now; but it has been easier not to recognize the fact.

The need is so large that we must either provide for it or stop using cars; in no other way can hopeless congestion be avoided in a very few years, and costly though it would now be to re-arrange our road system, it would be a trifle to the cost at the end of another decade.

If the Ministry of Transport take the harder way, and ultimately the only possible way, it will have to start by teaching the public that roads and streets are of three distinct kinds: local service routes for access to buildings, loitering, shopping and the rest; routes for short distance and heavy volume traffic; and routes for long-distance high-speed traffic.

Pedestrians, prams, bicycles, donkey carts and all the colourful confusion of market-day streets in a county town can be permitted on the service roads, for speed these can be regulated to 5 m.p.h. Carts as well as motor cars might be temporarily allowed on the second class of road, but nothing except fast motor vehicles should be allowed near the third type of road.

The imposition of this classification and its accompanying regulation of road use are not in the least fantastic. A stringent use of the Ribbon Restriction Act, a large, but not extravagant, alteration of existing main roads, could provide most of the Service Roads and Local Through Roads. All that remains is a national system of high-speed Trunk Roads as separate as railway tracks from other human activities. And these or their equivalents we will have to have in any case in ten years.

*The Architects' Journal*
*Westminster, S.W.1*
*Telephones: Whitehall*
*9212-7*
*Telegrams*
*Buildable*
*Part*
*London*

# NOTES & TOPICS

SOUNDS HEARD

*NEW STATESMAN'S* Robert Lynd read in a book of reminiscences how he (Mr. Lynd) was insulted by an eminent novelist at a club luncheon. The insult was a sneer in one syllable. The syllable was "why"; the only retort to which, according to the author of the reminiscences, would have been a sock on the jaw.

*

The fact that neither of the two principals in this drama remembers the occasion leads Mr. Lynd to expatiate in his own nimble way on the dangers of believing what one thinks one hears other people say. The novelist, he says, did not utter that insulting word, or if he did it was in jest, and the author of the reminiscences was the victim of a defective ear.

*

Others will have suggested by now that what the novelist said was not "why," but "Y—Y." I drag in *Not Insulted* to excuse, or at least explain, a lapse of my own at the recent luncheon (Presidents—Board of Education, Royal Academy, R.I.B.A.—present) held in honour of the prize-winners in the *News Chronicle* Schools Competition, who thereat received their cheques from the hands of Mr Oliver Stanley.

*

It was the P.R.I.B.A.'s remarks I misheard. First I thought he said that in a competition like the *News Chronicle's*, where the winning design was not to be built, it would be understood why practising architects had not been inclined to enter for it—leaving it to be inferred that the competitors were all students.

*

Secondly, I thought he said that having been asked to recommend the names of a select list of architects to two important local authorities who were both preparing ambitious school-building projects, he had taken steps to exhort the architects he had chosen to study the results of the *News Chronicle* competition so that they might benefit by the fresh ideas there put forward.

Mr. Thomas is a tactful man. One's ears burn at the mere idea of suspecting him of making such unlikely remarks. Had he done so, the cynic might retort to the second that the honour done by the president in actually recommending his selected architects to cull what ideas they could from the winning designs should more than make up to the winning designers for not being included amongst the selected architects.

INFORMAL MEETING

This celebrated competition is, moreover, to be the chief reason for one more function. The last Informal General Meeting of the season at the R.I.B.A. is to be dedicated to it. At these (unreported) affairs younger members are implored to say exactly what they think—preferably on subjects on which they feel strongly. On this basis the meeting on May 5, at 6.30 p.m., ought to be worth attending.

*

Younger architects have done a terrific amount of unpaid work on this comp.: what they *don't* want now is for the ideas put forward to be quietly forgotten.

*

Assessors, promoters, winners and competitors are to be invited to discuss what has been done in theory, and what may be done in practice, with some of the officials and committee men who are responsible for London's present schools.

*

"Schools—on Paper and in Practice" will give *everyone's* ears the chance to burn.

A.A. *v.* A.P.

Not a future *cause célèbre*, but a darts match, held in the A.A. library the night before the reception. Teams eight a side, the A.A. led by Messrs. Bucknell and Yerbury, the Architectural Press by Mr. Vernon Tatlock of the *Architectural Review*, who adopts the two-eyed stance.

*

The Press built up an early lead which subsequently proved long enough to win the match, though late in the evening Mr. John Grey, a past javelin champ, developed remarkable form. There is to be a return match quite soon. I sincerely hope that by that time Mr. J. M. Richards (*Architectural Review*) and Mr. H. Myles Wright will have been relegated to the second eleven.

*

I hear that Mr. de Cronin Hastings has been seen practising the "double one."

PICCADILLY . . .

I had been looking forward with pleasurable expectation to the Rothschild sale, and I was not disappointed. The de Hooch's have been fetching up to £17,000, but the real *bonnes bouches* are being reserved for Wednesday. View day was a unique experience. This is not the place to write of Carlin secretaires, Sèvres ware and Louis Quatorze commodes; suffice it to say that this 19th century Wallace Collection enshrines with an almost incredible magnificence the real Disraeli and d'Orsay atmosphere, the period of the gilded saloons and of Semitic emancipation.

*

This mansion which Lionel Nathan planned himself, in a grandiose if orthodox manner, is a complete social

*The photograph of shop premises sent with the letter printed in the adjoining column.*

document of the highest interest. Whilst the collectors, curators and dealers were very fully occupied on the *piano nobile* I penetrated to the attics and "below stairs." which proved to be as near to functional as Victorian furnishing ever could come.

*

The servants' hall, however, was a very perfect period piece, complete with horse-hair upholstery, antimacassars, bobbin-fringed table cloth placed diagonally and everything else necessary to complete the picture. As for the kitchens —if anyone wants a pine panelled roasting table or a few batteries-de-cuisine for the kitchenette of their luxury flat— the sale is now on.

*

One hardly expects a Piccadilly mansion to be a "gadget" house, but I discovered one very intriguing example. In the outer vestibule was an oak and marble panelled fixed side-table. This was approached from beneath, from the butler's pantry, by a steep companion ladder, and by lifting one panel and swinging aside another the footman or hall-man could emerge to open the front door. This is almost better than the not dissimilar arrangements at the Mountbattens' "Penthouse" in Park Lane.

### . . . AND TRING

The Rothschilds were nothing if not versatile and it seems strange the creators of this highly artificial, almost stuffy, ensemble should have also created the amateur zoo at Tring; perhaps zoos were fashionable, the Woburn one may be contemporary. It was at Tring, was it not, that Edward VII expressed to Baron Leopold his regret that the trees, however fine, should obscure the view? The Baron gave his orders overnight and when he rose next day the King beheld a wide vista cut clean through the wood.

### THE CASE AGAINST REGISTRATION

A correspondent tells me that a certain skilled workman in the north shares the interest of his fellow countrymen in Association Football, and even from time to time has taken part in a "pool." What is more, he has been lucky in his hobby. A few weeks ago he was featured in the local press as the enviable winner of £1,200.

*

Temptations to spend must have been many; but before the majority of dazzling offers had time to arrive the winner received this letter:

18 South Drive,
Harrogate.
April, 1937.

DEAR SIR/MADAM,*

How would you like to receive £52 a year (20s. a week) from a safe investment in "bricks and mortar," of only £500?

At the moment, I can offer a *freehold, brick-built shop*—electric light, gas and water—in the *main street* of a wealthy south country town, at a bargain price of £500, and as there is a mortgage on it of £200 (which can be transferred), a purchaser need find and put down only £300 to receive a weekly prospective income—rent of £1!

In these days—when worthless investments abound—this offer is worthy of prompt consideration.

Photograph of premises herewith.

Yours faithfully,
(Signed) HUBERT GREGORY (Architect).

PS. — Only this one special property available at the moment, owing to the ceaseless demand for similar first-class investment opportunities of this nature.

* ("Madam" crossed out on original.—Ed. A.J.)

In his phrasing of a doubtless thoroughly attractive financial offer, Mr. Gregory appears to show exactly that *practical* grasp of building and related affairs which Sir Robert Tasker has emphasized as being more important than any school training at 60 guineas a year (or even 2 guineas a year).

*

The Amending Bill which Sir Robert opposed has rarely been more triumphantly condemned.

### WARNING TO TOURISTS WHO VENTURE OUT ALONE

Sir Edwin Lutyens is famous for his humour, but this time it is hard to tell whether he is being humorous in an exceptionally subtle way or whether his recent suggestion for our reception of overseas visitors is serious.

*

It succeeds in being whimsical anyhow; though, if serious, rather ghoulishly. His suggestion appears in a letter to the *Sunday Times*, from which I need only quote this much:

This occasion (the coronation) offers a great opportunity for its citizens to assist in impressing its architecture, historical monuments, natural beauty, and history on the world.

I should like to make the suggestion that at every cathedral, church, historical monument and beauty spot, the services of professional guides be supplemented by enthusiastic and knowledgeable citizens. It would be their duty to watch for unaccompanied visitors and to give them the best of their knowledge. There are large numbers of men and women who are proud of the artistic and natural treasures in their locality, and they could inform our guests both with knowledge and enthusiasm.

*

We all like to be helpful—but what a prospect.

### B.A. (PLUMBING)

"South-eastern Oklahoma State Teachers' College has established a course of instruction in minor house repairs. It includes adjustment of electrical devices, correction of wiring disorders and mending leaks in water pipes in emergency." Thus the Baltimore *Sun*. Other hot news from the various college curricula includes courses in home-making and marriage. And Liverpool, of course, gives a degree in Deep-sea Fishing. ASTRAGAL

# NEWS

## POINTS FROM THIS ISSUE



## THE ARCHITECTS' DIARY

**Thursday, April 22**

IDEAL HOME EXHIBITION. *At Olympia. Until April 24. 10 a.m. to 10 p.m.*

ASSOCIATION OF ARCHITECTS, SURVEYORS AND TECHNICAL ASSISTANTS. *Annual General Meeting. At the Friends' Meeting House, Euston Road, N.W. 7 p.m.*

INSTITUTION OF STRUCTURAL ENGINEERS. *At the Institution of Civil Engineers, Great George Street, S.W.1. "The Southampton Civic Centre." By E. Berry Webber. 6.30 p.m.*

**Friday, April 23**

TOWN PLANNING INSTITUTE. *At Carton Hall, Carton Street, S.W.1. "Segregation in Residential Development." By T. W. Sharp. 6 p.m.*

LONDON SOCIETY. *Visit to the Bethnal Green and East London Voluntary Housing Schemes. 2 p.m.*

**Saturday, April 24**

ST. PAUL'S ECCLESIOLOGICAL SOCIETY. *Visit to Hayes Church, Middlesex. 2.30 p.m.*

**Monday, April 26**

R.I.B.A., 66 *Portland Place, W.1. "Recent Architecture in France." By H. S. Goodhart-Rendel. 8 p.m.*

LONDON SOCIETY. *Visit to the Barclay Workshops for the Blind, Crawford Street, W.1. 3 p.m.*

**Tuesday, April 27**

ARCHITECTURAL ASSOCIATION. 36 *Bedford Square, W.C. "Timber in Architectural Design." By R. Furneaux Jordan. 8.30 p.m.*

R.I.B.A., 66 *Portland Place, W.1. Exhibition of Architects' Working Drawings. Until May 3. 10 a.m. to 8 p.m. (Saturdays, 10 a.m. to 5 p.m.). Also, Special Students' Evening. 8 p.m.*

**Wednesday, April 28**

INSTITUTION OF STRUCTURAL ENGINEERS. *South Wales and Monmouthshire Branch. At the Institute of Engineers, Cardiff. Paper by Prize-winner in Students' Competition. 7 p.m.*

### *L.C.C.*

The first batch of the annual estimates were voted by the L.C.C. when the Council met on Tuesday last after the Easter recess. The more important items on capital account were :—

£275,000 for County Hall extension.

£61,931 for new fire brigade headquarters.

£814,015 for general improvements by the Highways Committee ; £137,500 for Vauxhall Cross improvement ; £442,930 for Thames bridges ; and £17,000 for Cromwell Road extension.

£551,000 for enlargements and improvements at various hospitals, and preliminary expenses for a new hospital.

£562,000 for "Green Belt" contributions.

### *LOAN TO LANCASHIRE INSTITUTION*

The Minister of Health has sanctioned the borrowing of £488,666 by the Lancashire Mental Hospitals Board for works in connection with the extension of the Brookhall Certified Institution for mental defectives to provide accommodation for 1,326 additional patients. This will bring the total accommodation of the Institution up to 2,098. The additional accommodation to be provided includes a hospital, school, workrooms, recreation hall, staff cottages and the necessary administrative buildings.

### *MR. WEBBER ON COMPETITIONS*

In an address to the West Yorkshire Society of Architects last week, Mr. E. Berry Webber discussed competitions. He said that there was never a better chance for young men in architecture than there was today. Young men, he said, must take their turn. The idea that competitions were beneath their dignity was wrong ; there were far worse methods of getting contracts in the open market.

Speaking of the rule which forbade submission of designs by architects employed by the sponsors of competitions, Mr. Webber said that often young architects were employed on part-time terms with a corporation as lecturers and the like, which prevented them from entering.

It had been suggested that this part-time employment should not prevent architects from entering for competitions, but it was impossible to split hairs. If they made the sacrifice they were doing a service to competitions as a whole by keeping them clean, and there were plenty of competitions to go round.

### *THE HEALTH CONGRESS*

The preliminary programme of the Health Congress, which is to be held at Birmingham from July 12 to 17, by the Royal Sanitary Institute, has recently been issued.

The list of subjects for discussion includes the following : The future of our population ; town planning ; housing progress and prospects ; and slum clearances.

The Earl of Dudley is the president of the congress, and he will deliver an inaugural address. The Minister of Health, Sir Kingsley Wood, will also address a general session of the congress.

### *REARMAMENT AND PUBLIC WORKS SCHEMES*

Sir Robert Horne, M.P., speaking at the annual luncheon of the Metropolitan Association of Building Societies on Monday last, suggested that public works schemes not of urgent necessity should be postponed until the rearmament programme had been carried through. That plan, he thought, would help to prevent a slump after the present boom.

He pointed out that rearmament would occupy a bigger place in the years immediately to come. The country had to look forward, and to plan in a way in which it had never done before. In the past the nation had been too haphazard, and had never quite realized or investigated the meaning of the oscillations from booms to slumps. The making of munitions on the scale required would occupy a large number of people and would take up a large proportion of the nation's wealth. Therefore, in the planning ahead it seemed equally obvious that works not immediately required should be postponed until the period in the future when work on the rearmament programme or other kinds of work began to slack. This policy would enable employment to be concentrated on the most urgent work, and permit operations to be conducted at the most economic costs.

### *CHEMICAL INDUSTRY MEDAL*

The medal of the Society of Chemical Industry has been awarded to Professor G. G. Henderson, Regius Professor of Chemistry at Glasgow University. The medal, which is one of the highest awards in the chemical world, is presented every alternate year for conspicuous service to applied chemistry.

### *INSECTS IN TIMBER*

In the annual report of the National Physical Laboratory, published on Monday last (H.M. Stationery Office, price 2s. 6d.), it is stated that the laboratory has designed and constructed highly sensitive microphone-amplifier equipment, whereby it is possible to detect the presence of destructive insects in specimens of timber contained in a soundproof box, by listening to the faint sounds made by them in gnawing or moving about. The most suitable microphone or detector was found to be one depending for its action on the peculiar electrical properties of Rochelle salt, and the minute electrical impulses produced in this detector by the faint sound waves set up in the timber by insects are amplified about a millionfold, up to an audible intensity in headphones or loud-speaker. It has even been found possible to distinguish between different kinds of insects or larvæ, by noting the differences in the sounds made by them, though the insects may be far below the surface of the timber.

### *ARCHITECTURE CLUB*

The twenty-seventh dinner of the Architecture Club is to be held at the Savoy Hotel, W.C., on Thursday, April 29, at 7.45 p.m. Sir William Rothenstein, Mr. Darcy Braddell, Mr. T. P. Bennett, Mr. T. J. Cullen, and others will afterwards speak on the subject of "Modern Flats : A Menace or a Necessity ?"

### *BUILDING IN THE COUNTRYSIDE*

Mr. A. W. Eden, M.A., lecturing to the University of Liverpool Architectural Society on "Building in the Countryside," contrasted the disorder of the towns to the orderliness of the countryside where buildings became elements of the landscape instead of mere harsh outlines.

To a great extent, he said, the materials employed in a rural building were linked with the natural resources of that locality, thus limestone cottages were found in

Swaledale, and flint and brick in Norfolk, Speke Hall exemplifying the abundance of local small timber. The question naturally arose as to whether or not anything was to be learned from these traditions. Until recently they had been taken as a very definite precedent, resulting in a picturesque approach to countryside architecture with all its creation of artificial haphazardness. Even until comparatively recent times the lecturer himself had been a follower of that theory until he had discovered that that line of thought was based on three fallacies, the first of which was the rustic fallacy which decreed wavy lines and rough texture to all elevations. Research into the subject had resulted in the fact that before about 1820 town and country buildings were of similar style, no dictated picturesqueness finding a place in the architecture of that time. It was only since that date that a difference in style between the town and country dwelling had come into being. The second fallacy was that the building must harmonize with its surroundings. This, he maintained, depended upon the background being permanent and unchanging, but again, in the case of Blenheim, for example, the background had been purposely changed, the building being placed in a setting especially designed for it. The third point was in the use of materials. It was quite possible to find an example of a half-timbered house in a Cotswold village or of limestone and brick used in the same building, but they still blended into the remainder of the surroundings. "Many attempts had been made to build modern houses in local materials and in the local style, but they still do not harmonize with the remainder of the surrounding work as conditions have changed to such a large extent, by-laws not admitting such things as rooms of low heights and tiny windows. Changed conditions demand a changed style of architecture. This imitation is mere scene painting."

In determining the basis of this new architecture in the countryside modern transport was a force that had to be considered. It was no use reconstructing a bridge of picturesque repute on the same lines unless it was capable of answering the new calls upon it. Electrical power carried by pylons had caused an outcry from all sides, he said, but to him they had a good effect upon the countryside, giving it grace and scale, while, it must be remembered, today the countryside had to provide a recreational and amusement base for the townspeople. Thus week-end cottages were a necessity, but there was no reason why they should not be of modern style and yet still fit into their natural settings, provided that those same settings were considered in the design. And so, he concluded, had the cycle been completed and the distinction between the town and country house once again abolished.

### *THE LATE R. B. PRATT*

We regret to record the death of Mr. Robert Bailie Pratt, A.R.I.B.A., of Elgin. He was seventy-two years of age.

Mr. Pratt was articled to A. Marshall Mackenzie, of Aberdeen, and completed his training in London. He commenced practice in Elgin some forty-two years ago, and since then has been responsible for the design of numerous buildings in that area.

He was elected an Associate of the R.I.B.A. in 1894.

## 500

*It is now more than four years since Information Sheets started appearing in this JOURNAL. This week we publish the five hundredth.*

### *ON THE AIR*

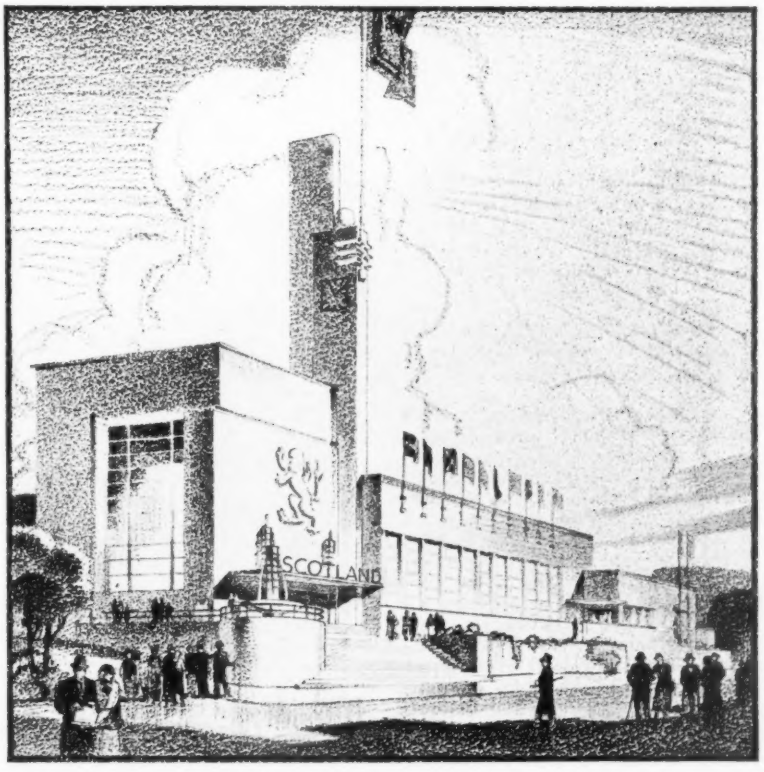
Friday, April 23. National Programme. 10.30 p.m. "Timber." By E. H. B. Boulton.

Thursday, April 29. National Programme. 2.5 p.m. "Your Home and Mine." By Geoffrey Boumphrey.

### *INSTITUTION OF STRUCTURAL ENGINEERS*

The annual dinner of the above Institution was held at the Dorchester Hotel, London, last week, under the chairmanship of Lt.-Col. C. H. Fox, O.B.E., the president.

In the absence of the Rt. Hon. A. Duff Cooper, who was to have been the principal guest, the toast of the Institution was proposed by Lord Strathcona, Under-Secretary of State for War. He said that modern building materials, especially concrete and steel, were the media in which the science of structural engineering was expressed, and the structural engineer was playing an important and ever-increasing part in the employment of these materials. The vast amount of building work now being envisaged could not be brought to a successful and economic termination without the services of structural engineers. He would not attempt to run through a list of the institutions which relied almost entirely on the skill of the structural engineer but, speaking as a member of the Army Council, and taking the place of the Secretary of State for War, he would say that in the War Office they knew how vital had been the services rendered in the past few months and, indeed, years. The War Office, as it was today, with a vast programme that must be carried out rapidly, efficiently, economically and with some prospect of it lasting for a good many years, relied upon structural engineers for advice and help, and this was given in the most splendid way. Structural engineering was essential in connection with the improvement of the living conditions of the men in the Services and, as all knew, the Government was now doing its best to provide better barracks and better conditions for the private soldier. It was high time we did. For that purpose reinforced concrete would be necessary, and he was told there were places in which reinforced concrete was not only going to provide the barracks for the soldier, but also the parade ground. Structural engineers would also play a very great part in home defence by designing and constructing anti-aircraft concrete gun emplacements. Beyond that, while it was financially prohibitive to




*A drawing of the Scottish National Pavilion, which will be one of the principal pavilions at the Empire Exhibition to be held in Glasgow next year. The architect is Thomas S. Tait.*

*The Children's Section at the Ideal Home Exhibition, now being held at Olympia. Mrs. Darcy Braddell was responsible for the design of this section.*

render buildings immune against direct hits of heavy armour-piercing bombs, they could be strengthened and made proof against bomb splinters and incendiary bombs. For instance, the new Westminster Hospital was to have a 9-in. reinforced concrete roof as a protection against incendiary bombs. Here, also, the assistance of the members of the Institution would be of value. He would take this opportunity of thanking those who, in one way or another, had helped the defence programme of Crown, country and Empire.

Responding to the toast, the chairman said that at present the Institution was represented on the following bodies among others: The Ministry of Health Advisory Committee with regard to the Public Health Act, 1936, and the Committee dealing with rehousing in connection with slum clearance. The Institution was also represented on the Home Office Air Raids Precaution Department. Along with the Institution of Civil Engineers, the R.I.B.A. and the Chartered Surveyors' Institution, it was actively engaged in conferring with the L.C.C. regarding new by-laws under the London Building Act, 1935. In this matter satisfactory progress was being made, due to the assistance of the four institutions and the accommodating attitude of the L.C.C. Building Regulations Committee. In the gradual improvement of the roads of the country the members of the Institution could do much, and to Government departments concerned with the mighty task of re-armament structural engineers would be of service in the construction of new factories, barracks, aerodromes and defensive works, such as bomb and gas proof shelters, anti-aircraft gun emplacements, etc. But in this connection the organization of an ample supply of building materials, particularly steel, was a matter that needed serious consideration. The supply of skilled labour also was not unlimited. Might it not be wise for some of the larger public authorities to hold over less urgent work already contemplated until the defence work was out of the way?

Professor C. E. Inglis, O.B.E., etc., proposed the health of the guests, which was responded to by Sir Arnold Wilson.

## R.I.B.A.

In last week's issue we inadvertently stated that Mr. H. S. Goodhart-Rendel had been elected president of the R.I.B.A. Actually, Mr. Goodhart-Rendel has been *nominated* by the council as President of the Institute in succession to Mr. Percy Thomas.

ELECTION OF MEMBERS

At a meeting of the Council of the R.I.B.A., held on Monday, April 12, the following members were elected:—

*As Fellows* (7): R. T. Beck (London); H. E. Gilford (London); A. G. MacDonald (London); T. W. May (Lostwithiel, Cornwall); C. Rowntree (London); and A. R. Shibley (Reigate).

*As Associates* (24): (Miss) W. H. Bateman (Rochdale, Lancs.); E. Beaton (Inverurie, Aberdeenshire); E. L. Black (London); O. S. Brakspear (Corsham, Wiltshire); M. H. Brook (Huddersfield); H. W. Corkill (Ramsey, Isle of Man); E. R. Delbridge (Pretoria); J. I. Elliott (London); J. A. Grundy (Ulverston); F. Heckingbottom (Bradford); N. W. Johnson (Leeds); J. B. Johnston (Strichen, Aberdeenshire); J. T. Latheron (Spennymoor, Co. Durham); O. Leach (London); L. F. Lock (London); E. H. Lockton (London); (Miss) D. J. McMillan (Cape Town); C. M. Middleton (Bolton); E. S. Powers (Durban); J. Reeve (Horbury, near Wakefield, Yorks); J. C. Richardson (Huntly, Aberdeenshire); R. C. Rinaldi (Johannesburg); R. Thompson (Horsforth, near Leeds); and K. C. Wintle (London).

*As Licentiates* (5): A. E. Daniels (London); S. C. Kerr-Bate (London); G. G. Phillips (Bridgnorth); D. Roberts (Aylesbury, Bucks); and H. G. Rowlands (Liverpool).

INTERMEDIATE EXAMINATION

The following are the dates on which the forthcoming R.I.B.A. Intermediate Examination will be held: June 4, 5, 7, 8, and 10, 1937. (Last day for receiving applications, May 4, 1937.)

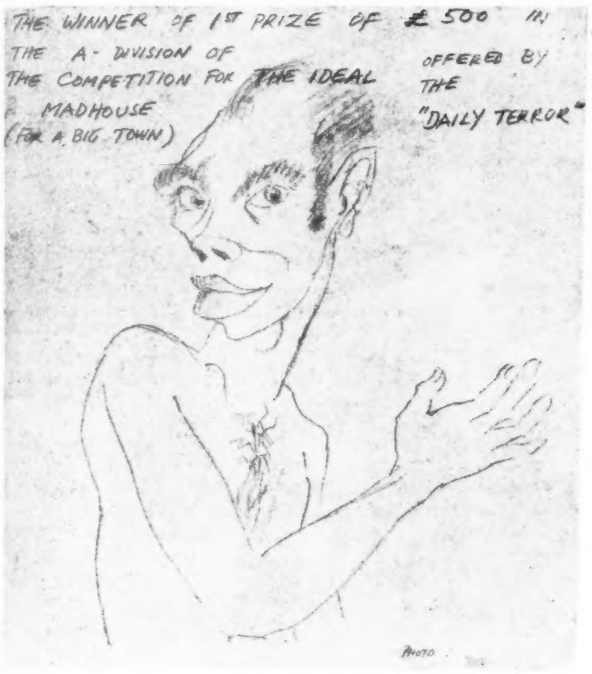
## IN PARLIAMENT

*Two Bills "Thrown Out"*

Two Bills which, if passed, might have caused permanent disfigurement to Dartmoor, were thrown out by the House of Lords last week. They were the North Devon Water Bill and the North Devon Electric Power Bill.

Lord Eltisley, in moving the second reading, said that the two Bills sought to make provision for comprehensive and almost inter-dependent schemes. The aim was to use the high altitude and heavy rainfall of the Taw Marsh area so as to provide primarily a water supply for certain parts of North Devon and, incidentally, an additional source of cheap electricity for the companies who were already authorized to distribute electricity in the North Devon area. Electricity was already extensively used in the district and was available in most of the villages. There were two large companies which distributed electricity in that area, the Exe Valley Electricity Company, Ltd., and the West Devon Electricity Supply Company, Ltd., but it was estimated that the demand for electricity would rapidly increase and that some 6,000,000 units could be and would be provided under the electricity side of this scheme. Provisional arrangements had already been made by which those companies who were charged with the distribution of supplies would be given bulk supplies. It was believed that by 1939-1940 the bulk supply would amount to something like 6,000,000 units from the hydro-

*The portico of University College, London, floodlighted in preparation for the Coronation celebrations.*







*A contributor who had carefully examined the portraits of the winners of a recent competition published in the* JOURNAL *for March 25, felt that the architects concerned were, perhaps, not fairly put before the public. Looking ahead, he has, therefore, submitted imaginative studies of some of the winners of a future competition.*

electric plant which would be put up for the purpose. On the amenity question, the transformation of a marshy basin into a glorious sheet of water must add to the scenic beauty of this moorland district.

Lord Rockly moved the rejection, and asked if Lord Eltisley would sponsor the building of houses all over Hyde Park. Were their lordships going to destroy an area which had been specially well known for centuries as being unusually beautiful? He protested against this tendency to distort natural beauty for speculative purposes.

Lord Iddesleigh, who also opposed the Bill, said that the societies objecting to it were the Council for the Preservation of Rural England; the Commons, Open Spaces and Footpaths Preservation Society: the Dartmoor Preservation Association; and the Devon Branch of the Council for the Preservation of Rural England. There was no case for the further industrialization of North Devon.

The North Devon Water Bill was rejected by 48 votes to 24, and the North Devon Electric Power Bill was rejected without a division.

*Housing*

In the House of Commons, Miss Cazalet asked the Minister of Health how many appeals he had received from local authorities in connection with the erection of new dwelling-houses, and how many he had upheld.

Mr. Hudson, who replied, said he understood that his hon. friend wished to know the number of appeals made under the Town and Country Planning Act, 1932, against the refusal of local authorities to permit development. The total number of appeals during the years 1933 to 1936 was 2,087. In 600 of these the local authority was upheld, and in 346 the appellant was successful. The remainder were either withdrawn or settled by agreement.

## COMPETITION NEWS

CIVIC CENTRE, PRESTWIC

The Prestwich District Council has decided to build a new town hall and public baths

in the centre of the town. An open competition is to be held in connection with the scheme.

MUNICIPAL BUILDINGS, KIRKCALDY

In connection with its proposed new municipal buildings, Kirkcaldy Town Council, who had already agreed that an architectural competition be held, decided last week that the new building should not cost more than £100,000.

## Competitions Open

**APRIL 28.**—Sending-in Day. Cottage Hospital, Dawlish, for the Building Committee of the Dawlish Cottage Hospital. (Open to architects of British nationality practising within 200 miles of Dawlish.) Assessor: Leslie T. Moore. Premiums: £100, £75, and £50. The latest date for questions was February 6. Conditions, etc., are obtainable from the Honorary Secretary, Dawlish Cottage Hospital, Devon. (Deposit £1 1s.)

**APRIL 30** — Sending-in Day. Technical College, Commercial College and College of Art and Crafts, Birmingham, for the Corporation of the City of Birmingham. Assessor: James R. Adamson, F.R.I.B.A. Premiums: £750, £500 and £250. The last day for questions was October 19, and the conditions, etc., are obtainable from the Chief Education Officer, Margaret Street, Birmingham, 3. (Deposit £2 2s.) (The date for sending in designs for this competition has been extended to April 30, 4 p.m.)

**MAY 6** — Sending-in Day. Designs for the planning of a portion of the late Lord Northcliffe's North Foreland estate for the Broadstairs and St. Peter's U.D.C. Assessor: Professor W. R. Davidge, F.R.I.B.A., PP.T.P.I. Premiums: £100, £50 and £25. Conditions, etc., are obtainable from the Clerk of the Council, Pierremont Hall, Broadstairs. (Deposit £1 1s.) The last day for questions was February 20. (The date for sending in designs has been extended to May 6.)

**MAY 7**—Sending-in Day. Public Elementary School for the Education Committee of the Borough of Gosport. (Open to architects resident or practising in Gosport and Portsmouth.) Assessor: Geoffrey C. Wilson, F.R.I.B.A. Premiums: £100, £50, and £25. The last day for questions was March 4.

**MAY 7** — Sending-in Day. (*a*) A five-apartment cottage, and (*b*) a flatted block of four four-apartment houses, in connection with the Housing and Health Exhibition, Glasgow. Assessors: John Wilson, F.R.I.B.A., T. G. Gilmour, F.R.I.B.A., and J. H. Ferrie, L.R.I.B.A. Premiums: (*a*) £70, £40 and £25; (*b*) £80, £50 and £30. Conditions are obtainable from the Manager, Kelvin Hall, Glasgow.

**MAY 14**—Sending-in Day. Bandstand enclosure on the sea-front for the Borough of Weymouth and Melcombe Regis. Assessor: Professor H. S. Goodhart-Rendel. Premiums: £150, £100 and £50. The last day for questions was February 19. Conditions are obtainable from Percy Smallman, Town Clerk, Town Clerk's Office, Weymouth. (Deposit £1 1s.)

**MAY 21**—Sending-in Day. Church at Redfield, St. George's, Bristol, for the St. Leonards (City) Vestry. (Open to members of the Wessex Society of Architects.) Assessors: G. D. Gordon Hake, F.R.I.B.A., H. Stratton Davis, F.R.I.B.A., and the Rev. J. Strancomb and the Rev. I. Page-Wood (to count as one vote). Premiums: £100, £50 and £30. The last day for questions was March 22.

**MAY 27** — Sending-in Day. Secondary School for Boys, Podsmead, for the Governors of the United Schools, Gloucester. (Open to all registered architects.) Assessor: H. Stratton Davis. Premiums: £200, £100, and £50. The last day for questions was March 20. Conditions of the competition may be obtained on application to Dr. H. J. Larcombe, M.A., Clerk to the Governors, Gloucester United Schools, Belsize House, Brunswick Road, Gloucester. (Deposit £1 1s.)

**MAY 31**—Sending-in Day. Central Baths, Clapton Square, Hackney, for the Hackney B.C. Assessor: F. J. Horth. Premiums: £500, £300 and £200. The last day for questions was March 18. Conditions are obtainable from R. H. R. Tee, Town Clerk, Town Hall, Hackney, E.8. (Deposit £1 1s.)

**JUNE 1** — Sending-in Day. Extension of St. Andrew's Cathedral, George Street, Sydney, for the Authority in the Diocese of Sydney of the Church of England. (Open to architects who are British subjects, and members of the Royal Australian Institute of Architects, the R.I.B.A., or the Allied and Associated Societies.) Assessors: His Grace the Archbishop of Sydney, Sir Giles Gilbert Scott, R.A., F.R.I.B.A., and Bertrand J. Waterhouse, F.R.I.B.A. Premiums: £500, £300 and £200. The last day for submitting designs (which must be forwarded direct to Sydney) is June 1, 1937. The last day for questions was August 11, 1936.

**JUNE 12**—Sending-in Day. Nurses' Home for the President and Governors of the Macclesfield General Infirmary. Assessor: Professor R. A. Cordingley, F.R.I.B.A. Premiums: £100, £50 and £25. Conditions are obtainable from Mr. J. N. A. Briscoe, Secretary, Macclesfield General Infirmary. Deposit: £1. The last day for questions was April 17.

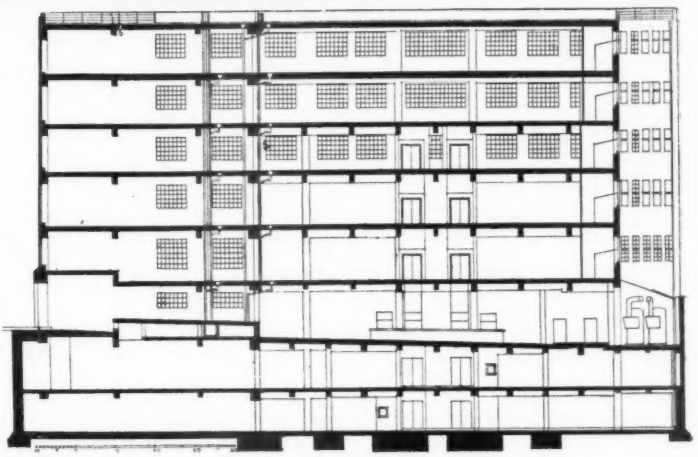
**JUNE 20**—Sending-in Day. Crematorium in Fen Ditton Lane, Cambridge, for the Cambridge Corporation. (Open to architects who have an office within 150 miles from Cambridge.) Assessor: H. S. Goodhart-Rendel, F.R.I.B.A. Premiums: £100, £60 and £40. The last day for questions is April 30; Applications for conditions should be made to Mr. C. H. Kemp, Town Clerk, the Guildhall, Cambridge. (Deposit £1 1s.)

**JUNE 21** — Sending-in Day. Municipal Buildings, Friern Barnet, for the Friern Barnet U.D.C. Assessor: C. Cowles-Voysey, F.R.I.B.A. Premiums: 150 guineas, 100 guineas, and 50 guineas. Applications for the conditions and site plan should be made to Mr. G. T. Fletcher, Clerk of the Council, Council Offices, The Priory, Friern Barnet, N.11. (Deposit £1 1s.) The last day for questions was March 22.

**JULY 31** — Sending-in Day. Layout of a part of the Kincorth Estate, Aberdeen. Assessor: Dr. Thomas Adams, F.R.I.B.A. Premiums: First, £500; and £300, to be divided between the authors of not more than three designs placed next in order of merit. Conditions of the competition are obtainable from Mr. G. S. Fraser, Town Clerk, Town House, Aberdeen. (Deposit £1 1s.) The last day for questions was March 31.

# LOVELL HOUSE, WEST SMITHFIELD, E.C.


*DESIGNED BY JOSEPH HILL*

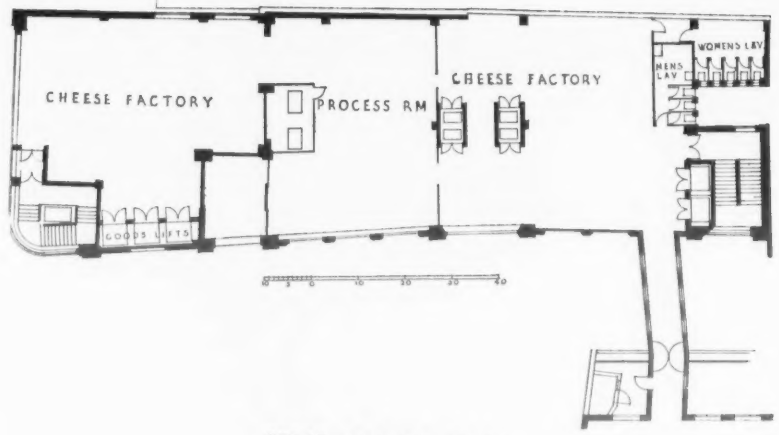


SECTION

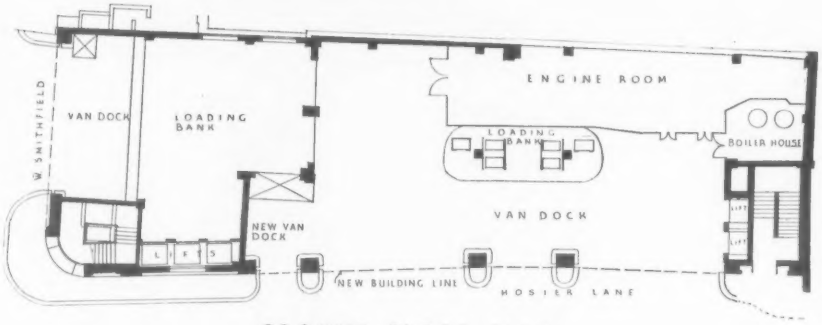
GENERAL—*A building to provide cold storage, loading and unloading van docks, and facilities for butter blending and the production of cheese. The site is at the junction of Hosier Lane and West Smithfield, E.C. All goods are conveyed throughout the building by lifts, elevators and chutes.*

*The photograph is of the West Smithfield front (left) and the return elevation to Hosier Lane.*

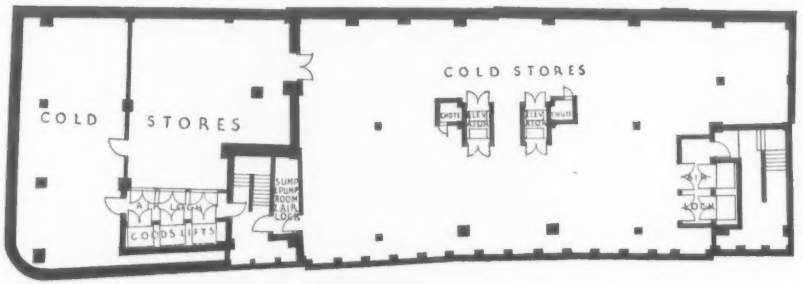
# LOVELL HOUSE: FACTORY IN WEST SMITHFIELD, E.C.




FIRST FLOOR PLAN




GROUND FLOOR PLAN




BASEMENT PLAN


**CONSTRUCTION** — *Steel framed with 14 ins. brick panel walls, concrete flat roof, and reinforced concrete floors. All floors above the basement are completely tanked. The street frontages are faced with faience.*
*The photograph shows the staircase windows at the corner of West Smithfield and Hosier Lane*

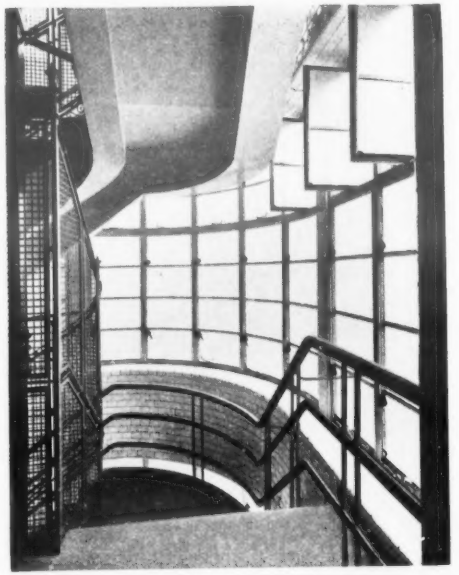
*The photograph shows the staircase windows at the corner of West Smithfield and Hosier Lane*

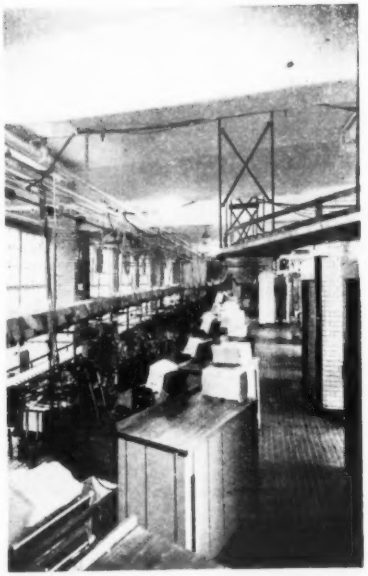
DESIGNED BY JOSEPH HILL

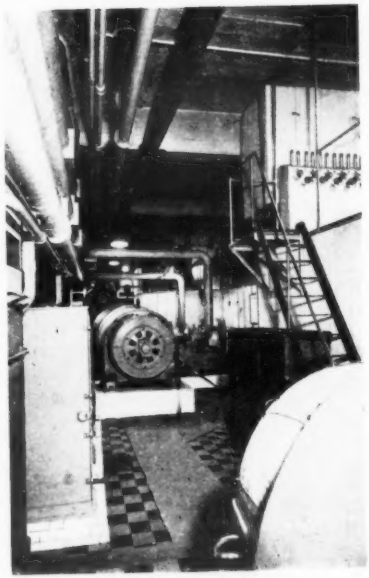
**INTERNAL FINISHES**—*Walls of factory floors are finished in white glazed bricks, with plastered and painted ceilings.*

*The photographs show: left and right, two views of the staircase at the corner of West Smithfield and Hosier Lane; below, a typical factory floor, and the engine room. The staircase is built as an independent structure, and is separated from the main walls of the building by a space as shown in the photograph.*

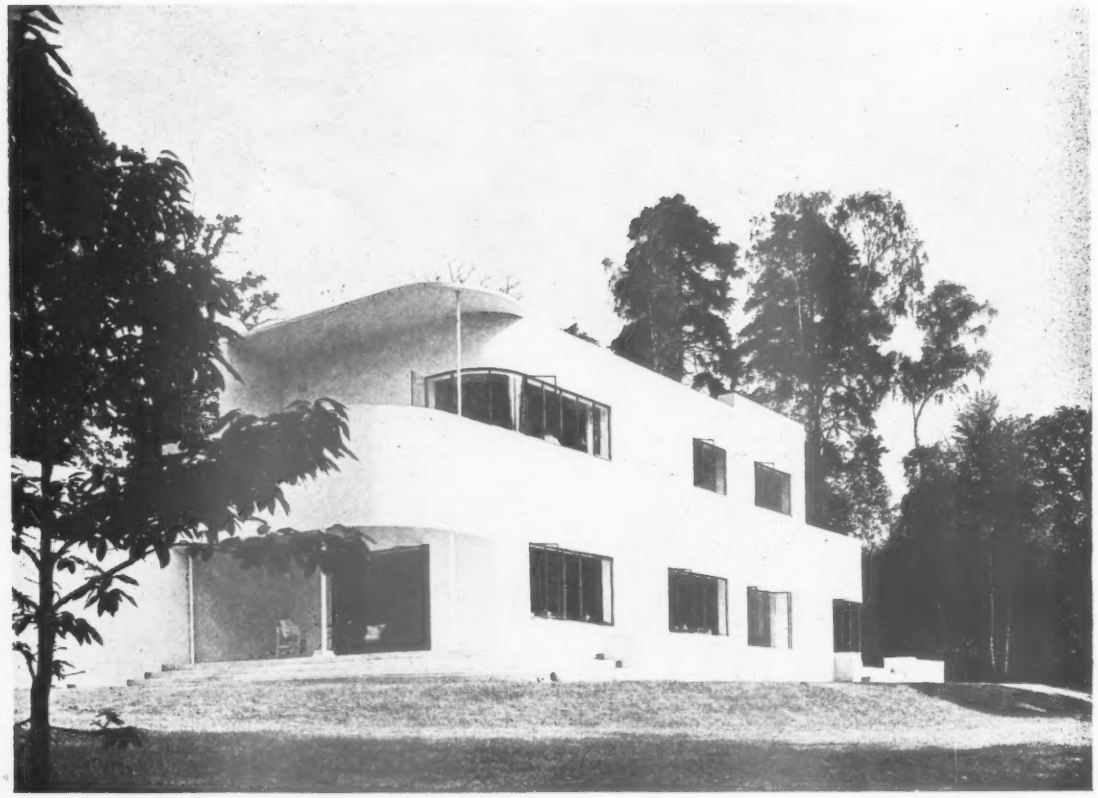
*For list of general and sub-contractors, see page 708.*

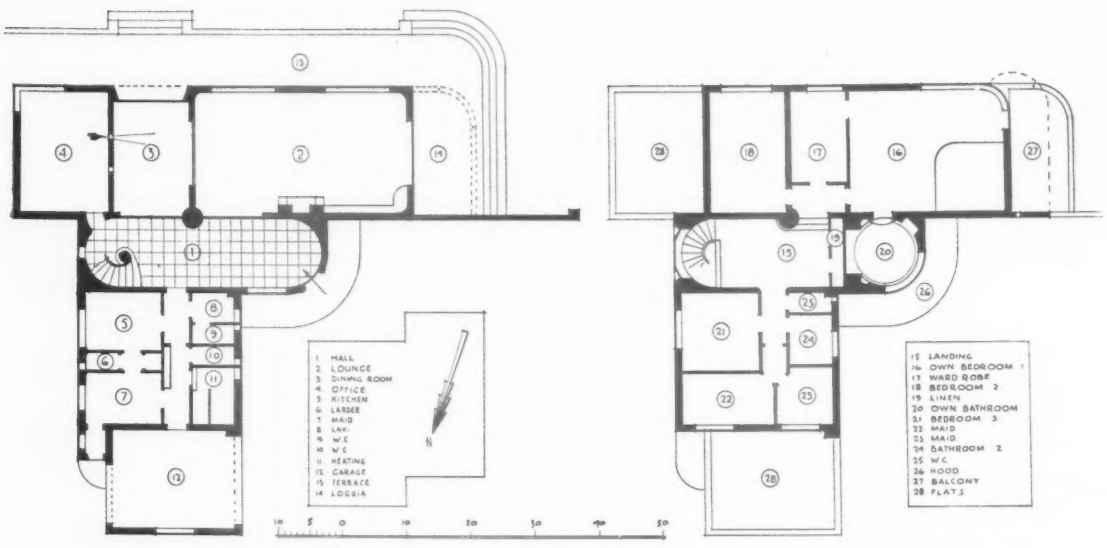






# HOUSE AT VIRGINIA WATER:



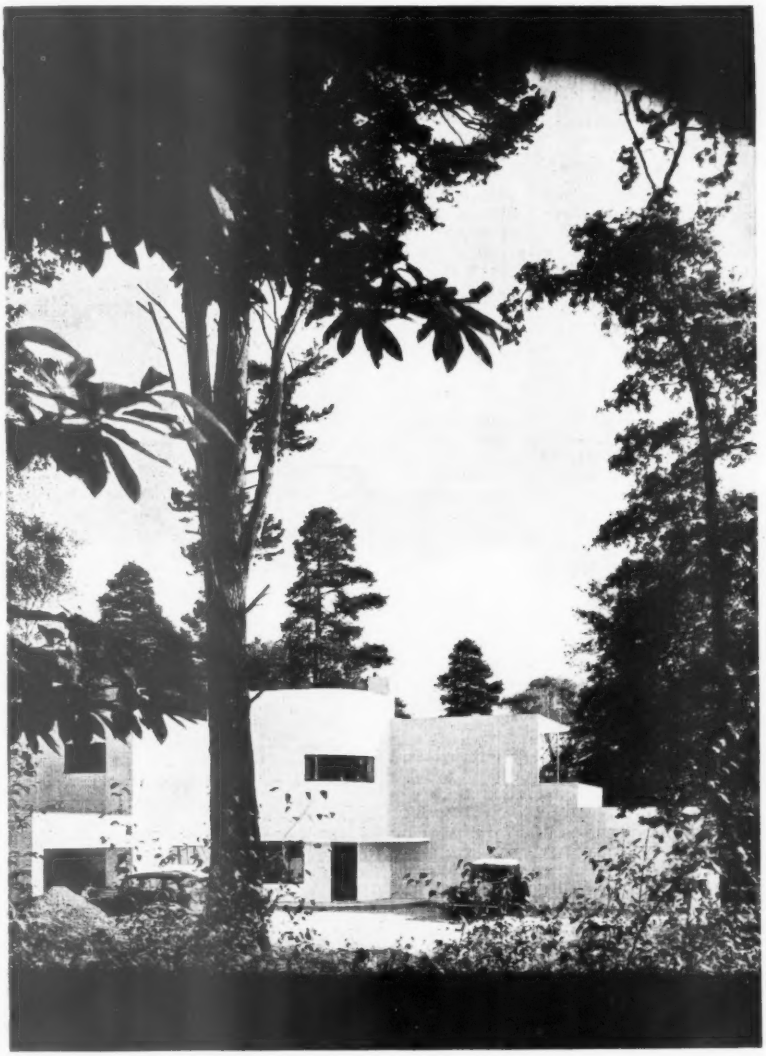



GROUND FLOOR PLAN FIRST FLOOR PLAN

**GENERAL PROBLEM**—*The client, Mr. Ivor Campbell, Director and Producer of Liberty Films, Ltd., required a house of very modern design in keeping with the latest tastes of his profession, and planned so that the principal rooms could be thrown open as a single room for entertaining. Externally the house was to be as simple as possible, with few but pronounced shadows. A small swimming pool is proposed on the south-west side of the lawn, with a sun parlour and gymnasium north of it. Cinematograph films can be projected from the office to a screen on the west wall of drawing room.*

*The photograph is of the south front.*

BY THOMAS SHEPARD



*IN CONJUNCTION WITH GODMAN AND KAY*

SITE—*On a south slope running down to the River Brent which flows out of Virginia Water. It is about 3 acres in extent, and is wooded. Ways have been cut giving vistas of the woods on the slopes beyond.*

CONSTRUCTION AND FINISHES—*External walls are rendered in waterproofed cement. Internally, the walls are to be enamelled. At present they are distempered, with the exception of the principal bathroom, which is finished in blue enamel with a silver ceiling. The front door is solid bronze, and there are silver-bronze handrail and balustrade to the circular stone staircase. The flat roof is of concrete hollow tile, covered with 6 in. concrete and finished with asphalt. The hall floor and the staircase are in pre-cast Hopton wood marble, and the drawing-room and dining-room floors are oak. All doors are flush type, enamelled white. All cooking is electric.*

CONTRACT PRICE—*£3,055, approx. 1s. 1½d. per ft. cube. This does not include the cost of the forecourt and drive, or the excavation on the north-east side of the house.*

*For list of general and sub-contractors, see page 708.*

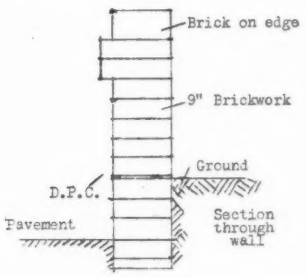
*The photograph is of the west front.*

# *IN THAT CONTINGENCY*

[The following abstracts of inquiries represent a number of those recently submitted to the Building Research Station. The information given in the replies quoted is based on available knowledge. It has to be borne in mind that further scientific investigations may in the course of time indicate directions in which the replies might be supplemented or modified. Moreover, the replies relate to the specific subject of each inquiry, and are not necessarily suitable for general application to all similar problems. Crown Copyright reserved.]

## *Green Stains and Soft Mortar in a Garden Wall*

¶ *A FIRM of architects submitted samples of bricks and mortar taken from a boundary wall, a section of which is shown in the accompanying sketch.*




*The mortar had failed to harden, and the bricks showed a green deposit on the exposed faces. The deposit on the bricks below the damp-proof course was heavier than that on the bricks above. It was thought that chemical action between the bricks and the mortar was retarding the set. A request was made for analysis of the bricks and mortar to determine the cause of the defects mentioned.*

Considering first the green stains on the bricks, a superficial examination of the samples submitted showed that these were due merely to growths of *algæ** on the surfaces. Since growths of this kind appear only in damp situations it could be inferred that the wall was constantly damp—a condition to which, in fact, the absence of a damp-proof course at the top and the projecting courses would conduce. The suggestion that this part of the trouble is associated with damp is supported by the fact that the growth was heavier below the damp-proof course, i.e. that part of the wall in contact with the soil, than above.

Some improvement might be effected by inserting a damp-proof course, below the brick on edge, sufficiently wide to cover the projecting course, and also by excavating the soil in the garden to pavement level.

Algæ growth of this kind occurs commonly on damp walls, and the primary precaution against its formation is to keep the wall as dry as possible by suitable design. In the present case the bottom courses could not keep dry as one side was in contact with the soil. For example, had the pavement and garden been on the same level and a damp-proof course inserted one course of brickwork up, the conditions would have been less favourable to the growth.

As a supplementary treatment to that already indicated a solution prepared according to the

* The *Algæ* are a group of plant organisms which live in fresh or sea water. Many species are very small consisting of a single cell only.

following formula might be applied to the surface. This solution has been found effective in destroying algæ on a discoloured cement rendering and should be equally useful on brickwork :—

5 ozs. copper carbonate,
2–3 pints strong ammonia,
5 galls. water.

(In preparing this solution dilute the ammonia with 2 gallons of water—pour the ammonia into the water—add the copper carbonate and then the remainder of water. Care is needed in handling the strong ammonia.) The solution described is applied to the wall with a wide paint or distemper brush.

To take next the mortar: examination of samples showed no trace of deleterious substances which might have been derived from the bricks. The mortar appeared to contain sand of poor quality and non-hydraulic lime. If, in fact hydraulic lime was originally employed it can only be assumed that all hydraulic properties had been destroyed in slaking or by mixing the mortar too soon before use.

A mortar of this kind has no chemical set ; its early strength is derived purely from drying out. At later stages some slight improvement may occur due to carbonation, but the final strength is in any case small. In a damp wall, such as the present can be assumed to be on account of the presence of algal growth, the joints would have no opportunity to dry out and the mortar would remain much in the condition in which it was originally laid. Doubtless the wet weather conditions during the winter months have made matters worse, and it is possible that during the summer the mortar can dry and harden, particularly if the precautions suggested above for the prevention of algal growth by structural means are carried out.

It is, on the whole, advantageous for mortar for brickwork to have a definite set apart from drying, and although a rich cement mortar is not advocated, an addition of cement to lime mortar is often desirable. A suitable mortar in this instance would be one consisting of non-hydraulic lime and sand, gauged with cement in the proportion of one part cement to three parts lime by volume. The proportion of sand to cement and lime combined should be about 3 : 1 by volume, but this would depend on the quality of the sand, the degree of workability required and also, to some extent, on whether lime putty or dry hydrated lime were used. Although different limes vary considerably in workability, a lime putty, as a general rule, has a higher sand-carrying capacity than a hydrated lime.

No analysis of the bricks themselves was carried out, since it was considered that the nature of the construction and the composition of the mortar sufficed to account for both the defects reported.

### *Condensation in Buildings*

¶ *A FIRM of contractors referred to a recent note from the Information Bureau of the Building Research Station entitled "Dampness in New Buildings" (December, 1936). They stated that a building erected three years ago was still damp, and the dampness was thought to be due to condensation. Further information with regard to the causes of condensation was sought, and information was required as to the avoidance of the trouble in the future.*

The occurrence of condensation depends upon several factors, the most relevant being the amount of moisture in the air inside the house, the relative temperatures of the internal air and the walls, and the nature of the wall surfaces.

Air absorbs moisture, warm air being able to absorb more than cold. Therefore, if in a house the air is warm it usually contains a relatively large quantity of water vapour and if the house is damp the moisture absorbed by the air may be almost the maximum quantity that it is capable of carrying. When this occurs the air is said to have approached "saturation point." As warm air may contain more moisture than is necessary to saturate colder air a sudden cooling may result in the deposition of excess moisture as condensation. The higher the proportion of water contained in the air the less the fall in temperature necessary to cause condensation.

It follows, therefore, that if wall surfaces are kept at approximately the same temperature as the internal air, no deposit of condensation can occur unless the internal air is almost "saturated," a condition arising for the most part only in kitchens and bathrooms. To keep the internal surfaces at about the same temperature as that of the air means providing walls with adequate thermal insulation. Corkboard, fibreboard or a narrow sealed air space are all good insulators. Corkboard or fibreboard fixed to ¾-in. battens plugged to the walls is a valuable addition to the heat insulation of cold walls.

Heat and ventilation are effective means of preventing condensation both as removing moisture from the house and as warming and drying the internal surfaces. In certain weather conditions, such as when warm humid weather follows quickly a cold spell during which walls have become cold, condensation occurs in most buildings without adequate heating. It is more apparent when the internal surfaces are impervious, for porous plaster surfaces treated with porous decorations such as distempers are able to absorb condensation unless the amount is excessive. Glazed tiles, concrete and impervious films such as paint, glazed paper under unfavourable conditions permit the deposition of condensation as small globules of water and in extreme cases the water may flow down or drip from the surfaces.

Houses which are adequately warmed and ventilated and have walls which provide reasonable heat insulation are practically free from condensation. External walls of normal 11-in. cavity construction, the cavity being unventilated, usually provide sufficient protection against this trouble except under abnormal weather conditions or when the heating and ventilation are deficient.

### *Efflorescence on Red Floor Tiles*

¶ *AN architect reported that he was experiencing trouble in one building from a white efflorescence which had appeared on a red quarry tile floor. The efflorescence could be removed by washing, but reappeared after a time. The tiles were laid on a solid concrete ground floor with no damp proof course. The floor appeared to be perfectly dry, however, when the tiles were laid. One of the affected tiles was submitted for examination. Information was required with a view to remedying the trouble.*

An examination of the tile which was submitted showed it to be fairly porous, but not unusually so. The efflorescence on the tile was insufficient to enable a chemical examination to be made, but in similar cases the salts proved to be derived from the cement base and screed. It is considered that moisture, containing such salts, had been absorbed from the concrete and had evaporated at the tile surface, depositing the salts in the form of efflorescence. In this connection it may be mentioned that floor surfaces may appear to be perfectly dry so long as the evaporation of moisture from the surface is more rapid than the penetration from below. It is therefore possible for efflorescence to occur, even though the concrete floor appears to be dry.

The tiles appeared hard and well fired, and it is not considered likely that the salts would cause disintegration. The prevention of the efflorescence is difficult, however, and it can only be suggested that a polish be applied to the surface of the tiles, with a view to filling up some of the pores, and reducing evaporation. In the case under consideration a red polish should be more useful, as the colour in the polish will to some extent mask the white bloom present.

A complete cure can only be effected by the insertion of a damp proof course in the floor. Time alone will, of course, effect its own cure for the trouble will disappear when all the salts have been brought to the surface, but this may be a very lengthy process.

### *Mould Growth on External Distemper*

¶ *AN inquirer desired information on the cause of a mould growth which had occurred on new external distemper and wished to know of means by which such trouble could be avoided. The inquirer stated that the house had been successfully distempered several times before, but in the case under attention a discoloration began to appear on the exposed sides of the house within six weeks of application. The suggestion had been put forward that the new distemper had been infected before it was applied. Information was required as to whether this was a likely cause of the trouble.*

The use of paints and distempers in external decoration always involves some risk of fungus or other organic growth. Although cases such as that described are not general, they are by no means rare, and several have been reported in the last year or two. Possibly they have been more numerous owing to exceptional periods of humidity which encourage the development of moulds.

Distemper coatings, containing as they do nitrogenous organic matter (casein or glue) and vegetable oil, constitute a favourable medium for the growth of moulds. Infection of the coating may be caused by air-borne spores, or, as is frequently the case, the growth may be active (although inconspicuous) in the structure before the distemper is applied. The development or otherwise of the growth in the coating is probably dependent chiefly upon external conditions, especially humidity.

There is no evidence that any one particular brand or consignment of distemper is more liable to become affected than another. It may be regarded as improbable, moreover, that the infection is conveyed to the work by the distemper itself. The paste distemper as manufactured and sold invariably contains an antiseptic, for if this were not incorporated, the material would quickly become mouldy in the tin. The antiseptic, however, is usually volatile or water-soluble, and although it will remain effective for a time after the coating is applied to the wall, it eventually tends to disappear, leaving the coating susceptible to attack.

It is a matter of experience that successful treatment of an infected surface is difficult and although it is possible to make suggestions, the results cannot be guaranteed. The growth on the surface of the distemper can be treated by scrubbing with clean water and then brushing on a solution of formaldehyde (one part commercial formalin in 15 parts of water). This in itself may be sufficient to remove the stains and check further growth, unless the fungus is established deeply in and beneath the distemper coating, in which case it will be necessary to remove the latter and attempt to sterilize the wall itself.

If this more drastic procedure seems unnecessary, the coating should be allowed to dry thoroughly after applying the formalin wash, before re-distempering, which should be carried out in dry weather in summer to minimize the risk of re-infection of the new coating.

# INFORMATION SHEET
# *SUPPLEMENT*

The Architects' Journal Library of Planned Information

*RECENT developments have brought up for reconsideration the question of the looseness of Information Sheets.*

*When the series was first started, it was felt that readers of the Journal would have some grounds for complaint if in a feature that was clearly meant for it, no facilities for filing were provided: and the Sheets were therefore inserted loose in the paper.*

*This method has obvious advantages for filing, but it has also obvious disadvantages, which our readers have not been slow to point out.*

*As a permanent feature, loose inserts are a nuisance in a paper, since they have a way of dropping out in the street or the train, if not before they get into the reader's hands (we have periodical complaints that Information Sheets for such a week have not been delivered with the paper).*

*Or, what is nearly as bad, they have a way of sticking out slightly, and getting bent or torn.*

*Furthermore, those architects who collect the sheets, and there are a great many, are often human enough to delay the act of filing for several days after receiving their copies, in which time the sheets again have a good chance to commit literary hara-kiri.*

*For all these reasons, it has been decided to make an obvious improvement.*

*By binding in the Information Sheets in the Journal so that they cannot fall out, their powers of self-destruction will be curtailed. And to insure that they can be as readily filed as before, the pages are now being perforated.*

## INFORMATION SHEETS

**499** Heating

**500** Chimney Stacks—Weather Proofing

**501** Aluminium

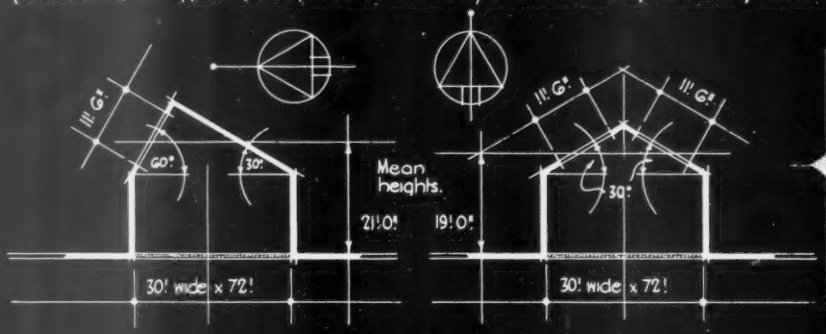
Sheets Issued since Index :

401 : Plumbing to Baths
402 : Waterproofing
403 : Asbestos-aluminium Foil—I
404 : Roofing
405 : Joinery
406 : Asbestos-aluminium Foil—II
407 : Roofing
408 : Joinery
409 : Rubber-faced Building Slabs
410 : Places of Public Entertainment—II
411 : Electric Switchgear
412 : Lead Soakers to Valleys
413 : Plumbing in Welded Copper Pipe
414 : Electric Switchgear
415 : Electric Switchgear
416 : Insulating Board
417 : Work on Glass
418 : Plumbing in Welded Copper Pipe
419 : Places of Public Entertainment—III
420 : Tentest Metal Cover Strip
421 : Wood Preservatives
422 : Welding Sheet Copper Work
423 : Garages and Drives—II
424 : Roof Glazing
425 : Places of Public Entertainment—IV
426 : Asbestos-cement Roofing Tiles
427 : Asbestos-cement Roofing Tiles
428 : Welding Sheet Copper Work
429 : Flat Roofing
430 : Asbestos-cement Roofing Tiles
431 : Automatic Boilers
432 : Plumbing
433 : Places of Public Entertainment—V
434 : Plumbing
435 : Lifts—I
436 : Lead Soakers to Hips
437 : Coloured Cement Renderings
438 : Wallboards
439 : Wall Finishes
440 : Roofing
441 : Sash Operating Gear
442 : Roofing
443 : Wallboards
444 : Rainwater Goods and Fittings—I
445 : Roofing
446 : Rainwater Goods and Fittings—II
447 : Bathroom Cabinets
448 : Roof Glazing
449 : Places of Public Entertainment—VI
450 : Telephone Cabinets
451 : Hardboard
452 : Escalators
453 : Automatic Boilers
454 : Places of Public Entertainment—VII
455 : Places of Public Entertainment—VIII
456 : Ellipses
457 : Roofing
458 : Sanitary Equipment
459 : Hoods and Canopies
460 : Expansion Joints
461 : Roof Pitches, etc.
462 : Gas Refrigerators—I
463 : Asbestos Cement Rubber Floor Tiles
464 : Approximate Estimating—I
465 : Gas Refrigerators—II
466 : Approximate Estimating—II
467 : Gas Refrigerators—III
468 : Approximate Estimating—III
469 : Gas Refrigerators—IV
470 : Stopstara Glazing Compound
471 : Gas Cookers
472 : Lead Insulation against X-Rays
473 : Electrical Equipment—I
474 : Asbestos-Cement Ventilating Ducts
475 : Asbestos-Cement Glazed Panels
476 : Approximate Estimating—IV
477 : Monel Metal Sink Units
478 : Approximate Estimating—V
479 : Roofing
480 : Approximate Estimating—VI
481 : Lead Flashings
482 : Approximate Estimating—VII
483 : Flue Linings
484 : Plumbing Systems
485 : Partition Blocks
486 : Elementary Schools—I
487 : Plumbing
488 : Approximate Estimating—VIII
489 : Sliding and Folding Windows
490 : Flue Linings
491 : Approximate Estimating—IX
492 : Aluminium
493 : Construction of Stepped Balconies
494 : Approximate Estimating—X
495 : Sheet Steel Office Equipment
496 : Roofing—Chimney Flashings
497 : Approximate Estimating—XI
498 : Roof Insulating Blocks

487

# THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

## DETAILED ANALYSIS OF THE HEAT LOSSES THROUGH THE ROOF OF A FACTORY BUILDING: (according to type of roof construction, orientation of building and consequent type of roof glazing).




### TYPES OF ROOF CONSTRUCTION

(a) Built-up roofing on boarding, with a heat transmission coefficient of 0·485 B.T.U's. per square foot per 1° F.

(b) Ditto, but lined on underside of rafters with asbestos-cement sheets. Heat trans. coef. of 0·33 B.T.U's. per 1° F.

(c) Corrugated asbestos-cement roof insulated on underside rafters with 5/8" wall-board. Trans. coef. of 0·306 B.T.U's.

**NORTH LIGHT AT 60° PITCH:**
Inside length of N. slope 15', S. slope 26'
Glazed roof area = 11' 6" x 72' = 828 sq. ft.
Unglazed do. = 29' 6" x 72' = 2124 sq. ft.
Glass temp. = 60 + (60 x ·02 (21-5)) = 79·2° F.

**EAST & WEST LIGHTS AT 30° PITCH:**
Inside length of each slope, 17' 0"
Glazed roof area = 2 x 11' 6" x 72' = 1656 sq. ft.
Unglazed do. = 11' x 72' = 792 sq. ft.
Glass temp. = 60 + (60 x ·02 (19-5)) = 76·8° F.

**GLASS HEAT TRANS. COEFFICIENTS:**
(i) Thermolux Diffusing glass, 0·70 B.T.U's. per square foot per degree F.
(ii) Clear glass, 1·03 B.T.U's. per square foot per degree F.

DATA USED FOR CALCULATIONS: External temperature = 30° F. min. Internal temperature = 60° F. at breathing line. The increase of internal temperature due to height of building is 2% of the breathing line temperature for each foot that the mean height of the roof is above the breathing line, that is, above 5' 0".

## DETAILED CALCULATIONS OF RELATIVE HEAT LOSSES:

| ROOF TYPE (a) | ROOF TYPE (b) | ROOF TYPE (c) |
|---|---|---|
| 1. North light roof, clear glass. | 1. North light roof, clear glass. | 1. North light roof, clear glass. |
| MAXIMUM HEAT LOSS EQUALS | MAXIMUM HEAT LOSS EQUALS | MAXIMUM HEAT LOSS EQUALS |
| (828 × 1·03 × 49·2) + (2124 × 0·485 × 49·2) | (828 × 1·03 × 49·2) + (2124 × 0·33 × 49·2) | (828 × 1·03 × 49·2) + (2124 × 0·306 × 49·2) |
| 92,642 B.T.U's./hr. | 76,445 B.T.U's./hr. | 73,937 B.T.U's./hr. |
| 2. East & west light roof, Thermolux glass. | 2. East & west light roof, Thermolux glass. | 2. East & west light roof, Thermolux glass. |
| MAXIMUM HEAT LOSS EQUALS | MAXIMUM HEAT LOSS EQUALS | MAXIMUM HEAT LOSS EQUALS |
| (1656 × 0·7 × 46·8) + (792 × 0·485 × 46·8) | (1656 × 0·7 × 46·8) + (792 × 0·33 × 46·8) | (1656 × 0·7 × 46·8) + (792 × 0·306 × 46·8) |
| 72,227 B.T.U's./hr. | 66,482 B.T.U's./hr. | 65,593 B.T.U's./hr. |
| CONCLUSION: The increased light intensities due to east & west glazing are obtained with a 22 % reduction in heat loss. | CONCLUSION: The increased light intensities due to east & west glazing are obtained with a 13 % reduction in heat loss. | CONCLUSION: The increased light intensities due to east & west glazing are obtained with a 11·3 % reduction in heat loss. |

RELATIVE LIGHT INTENSITIES: For diagrams illustrating the increased light intensities obtainable by east & west lighted roofs glazed with Thermolux Diffusing Glass, see previous Information Sheet No. 372.

*Information from the Thermolux Glass Co. Ltd.*

INFORMATION SHEET: SMOOTH-SURFACED LAMINATED DIFFUSING GLASS. No.
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1 • Bca. a. Bay.

THE ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

# INFORMATION SHEET

# • 499 •

# HEATING

**General :**

On this Sheet are set out the relative heat losses from factory buildings through roofs with north lights and clear glass, and with east and west lights, and Thermolux glass.

The buildings are assumed to be 72 ft. long by 30 ft. wide internally, and three types of roof construction have been analysed.

**Glazing :**

The north light roof is glazed with clear glass in the usual manner, but the east and west lighted roof is glazed with Thermolux diffusing glass in order to ensure an even illumination over the whole area at working bench level, with minimum heat loss.

Diagrams illustrating the increased light intensities obtained by the use of Thermolux diffusing glass in a similar building of north and south orientation, have been shown on Information Sheet No. 372.

**Thermolux Glass :**

Thermolux is a compound glass with smooth, brilliant surfaces for glazing roofs and windows to diffuse light and insulate against heat and cold. It consists of a sandwich of spun glass between two sheets of clear glass. The spun glass is in the form of a felt consisting of glass threads so arranged that when in position they shall be horizontal. The edges are hermetically sealed with a material chosen for the permanence of its adhesive properties and for its powers of resistance to exposure and damp.

The type of interlayer chosen for use in the 30° pitched roof shown overleaf, would be $\frac{1}{16}$ in. (1.5 mm.) thick.

**Basis of Calculations :**

Coke fired heating has been assumed, with hot water radiators or pipes with an annual heating period of 5,000 hours (October 1 to April 30), and effective heating capacity of 6,000 B.T.U./lb. of coke, a heat output from radiators or pipes of 160 B.T.U./ft.$^2$, a fuel cost of 35s. per ton, and an installation cost of 4s. 6d./ft.$^2$ radiating surface.

In each case the cost of installation =

$$\frac{\text{Max. heat loss B.T.U./hr.} \times \text{cost/ft.}^2}{\text{Heat output/ft.}^2 \text{ radiating surface}}$$

and the fuel cost/year =

$$\frac{\text{average heat loss} \times \text{hours/year} \times \text{price of fuel}}{\text{B.T.U./lb. of fuel} \times 2{,}240.}$$

The average heat loss =

$$\text{Max. heat loss} \times \frac{\text{internal temp. of surface} - \text{Mean external temp.}}{\text{Internal temp. of surface} - \text{Min. external temp.}}$$

The mean external temperature = 43° F.

**Heating Analysis :**

North light roof. Type (a). Clear Glass.

$$\text{Cost of installation} = \frac{92{,}642 \times 4.5}{160 \times 20}$$

= £130 5s. 4d.

$$\text{Fuel cost/year} = \frac{92{,}642 \times 36.2 \times 5{,}000 \times 35}{49.2 \times 6{,}000 \times 2{,}240 \times 20}$$

= £44 7s. 9d.

East and west light roof. Type (a). Thermolux Glass.

$$\text{Cost of installation} = \frac{72{,}227 \times 4.5}{160 \times 20}$$

= £101 11s. 4d.

$$\text{Annual cost of fuel} = \frac{72{,}227 \times 33.8 \times 5{,}000 \times 35}{46.8 \times 6{,}000 \times 2{,}240 \times 20}$$

= £34 0s. 2d.

| | Cost of Installation | | | Annual Fuel Cost | | |
|---|---|---|---|---|---|---|
| | £ | s. | d. | £ | s. | d. |
| North light roof. Type (b). Clear glass ... | 107 | 9 | 9 | 36 | 12 | 6 |
| East and west roof. Type (b). Thermolux | 93 | 9 | 10 | 31 | 6 | 0 |
| North light roof. Type (c). Clear glass ... | 103 | 19 | 2 | 35 | 8 | 6 |
| East and west roof. Type (c). Thermolux | 92 | 4 | 10 | 30 | 17 | 8 |

**Previous Sheets :**

Previous sheets in this series are Nos. 372 and 373.

**Information from :** The Thermolux Glass Co., Ltd.

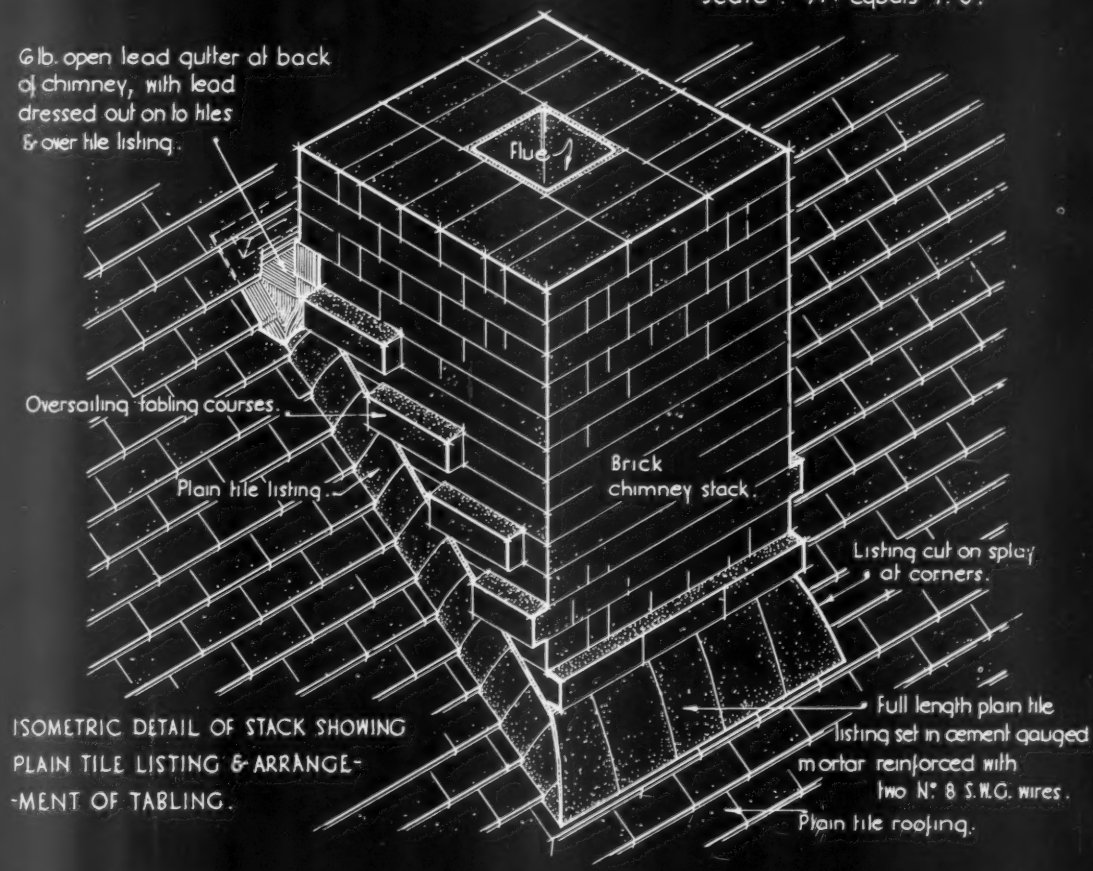
**Address :** 1, Albemarle Street, Piccadilly, London, W.1

**Telephone :** Regent 8171

# THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

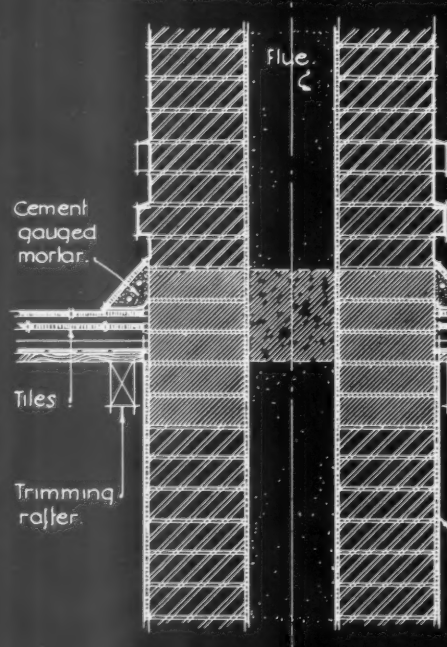
## TILE LISTING TO CHIMNEY STACK PROVIDED WITH IMPERMEABLE (ENGINEERING) BRICK DAMPCOURSE.

Scale : 3/4" equals 1' 0"

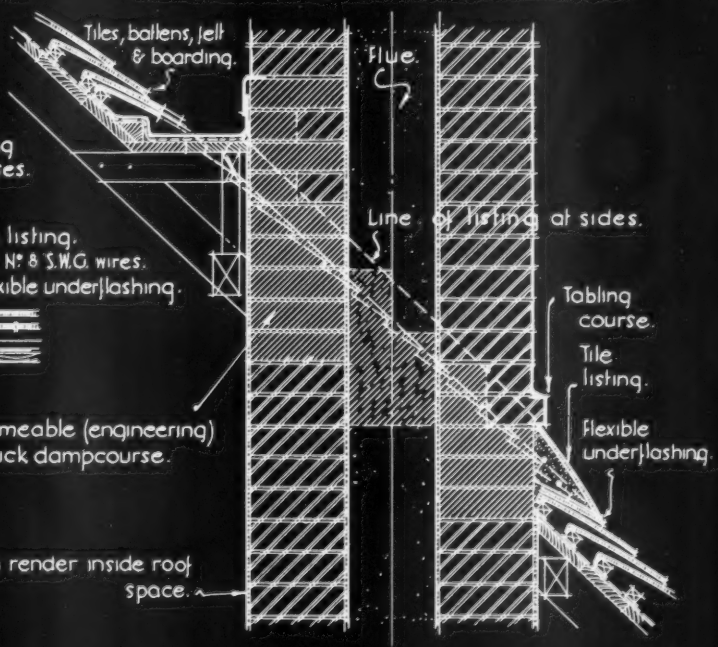



ISOMETRIC DETAIL OF STACK SHOWING PLAIN TILE LISTING & ARRANGEMENT OF TABLING.

SECTION ACROSS SLOPE OF ROOF : showing chimney & roof junction, & D.P.C.




SECTION ALONG SLOPE OF ROOF showing lead back gutter & listing to chimey front.




*Information from Clay Products Technical Bureau of Great Britain.*

INFORMATION SHEET : TILE LISTING TO CHIMNEY STACKS.
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1 • Alec A. Bayne

THE ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

# INFORMATION SHEET

## • 500 •

# CHIMNEY STACKS—WEATHER PROOFING

Subject : Tile listing to Chimneys in conjunction with brick damp-proof courses

On the face of this Sheet are shown typical details of a method of flashing a chimney stack by the use of pieces of plain tile, and for this purpose the tile used should be of such a grade as will resist the effects of frost action. The method is known as tile listing and forms a decorative and waterproof junction between the stack and the roof. The listing is sometimes used without the oversailing bricks which are shown in the detail ; lead soakers are then usually fitted beneath the tiling.

**Mortar bedding :**

It should be noted that the mortar bedding is here used merely as a supporting device for the actual water-shedding units, i.e. the tile listing. The reservoir effect (akin to that of torching) of such a moisture-retaining bedding will be negatived by the air gap which develops between the roof tiles and the flexible underflashing. The presence of such a gap ensures that the mortar dries out as rapidly as the tile. As regards mortar composition, the use of a cement gauged lime mortar is preferable to a cement mortar bedding since mortars containing a bulk of lime form stronger and more permanent bonds with bricks than do cement mortars, the cement component of which tends to shrink away from brick-mortar interface.

A suitable mortar for the purpose would be one part Portland cement to one part slaked lime or lime putty, and four parts of sand (all by volume).

**Construction :**

(*a*) *Sides*

In the isometric detail, it will be seen that tile pieces equal in length to the gauge of the roof tiles have been used, butt jointed and set on the cement gauged lime mortar fillet at an angle of 45 degrees to the plane of the roofing tiles. To ensure freedom from fractures due to shrinkage or slight movements in the roof, the mortar fillet is shown set on a continuous flexible underflashing where it rests upon the roof, and is reinforced by two lengths of No. 8 S.W.G. wire turned into a suitable brick joint at the upper end and returned 6 in. around the chimney front. The flashing separates the listing proper from the face of the roof tiles, and the exposed edges may be neatly trimmed back to the fillet upon completion. To assist adhesion between the fillet and the brickwork, rough surfaced or chipped engineering bricks should be used.

After the tile listing is positioned the top edges are pointed up in mortar, the bottom edges providing the mortar ventilating gap already mentioned.

The oversailing tabling or creasing bricks above the top line of the listing have been indicated as 9 in. long, each course overlapping that immediately below. Where the roof pitch is less steep, 4½ in. long tabling may be used, one to each brick course, and in this case the top edge of the tile listing may be shaped to fit tight underneath ; the tabling in both instances acts as a cover flashing to throw down-flowing water clear of the junction between the listing and the brickwork ; added efficiency is obtained by slightly haunching the top of the tabling in mortar.

(*b*) *Base*

Here full length plain tiling has been used, set hard up under the continuous creasing and finishing flush with a roofing tile course. The fillet is shown set on the roof tiling on flexible underflashing, and is reinforced with the aid of wires as before.

The tiles at either end of the listing are cut with their outer edge splayed to fit neatly over the triangular profiled mortar bedding of the side listing.

(*c*) *Back of chimney*

A 6-lb. lead open gutter is shown at the back of the chimney, the lead being carried across the gutter bed, over a tilting fillet and a short distance up the roof slope to be close copper nailed in the usual manner. At the ends this lead is turned down and out on to the roof tiling, and is also carried a few inches around the corner of the brickwork to be neatly dressed over the top of the side listing. The short lead apron flashing on the chimney side of the gutter is brought around the corner in a similar manner.

**Dampcourse :**

The damp-proof course is formed of a number of courses of impermeable bricks, typical examples of which are the so-called "engineering" bricks. It will be noticed that in order to avoid what may be clashing colour contrasts, these bricks are not permitted to show externally, being kept below the top edge of the tile listing by steppings arranged as near as possible to suit the bonding.

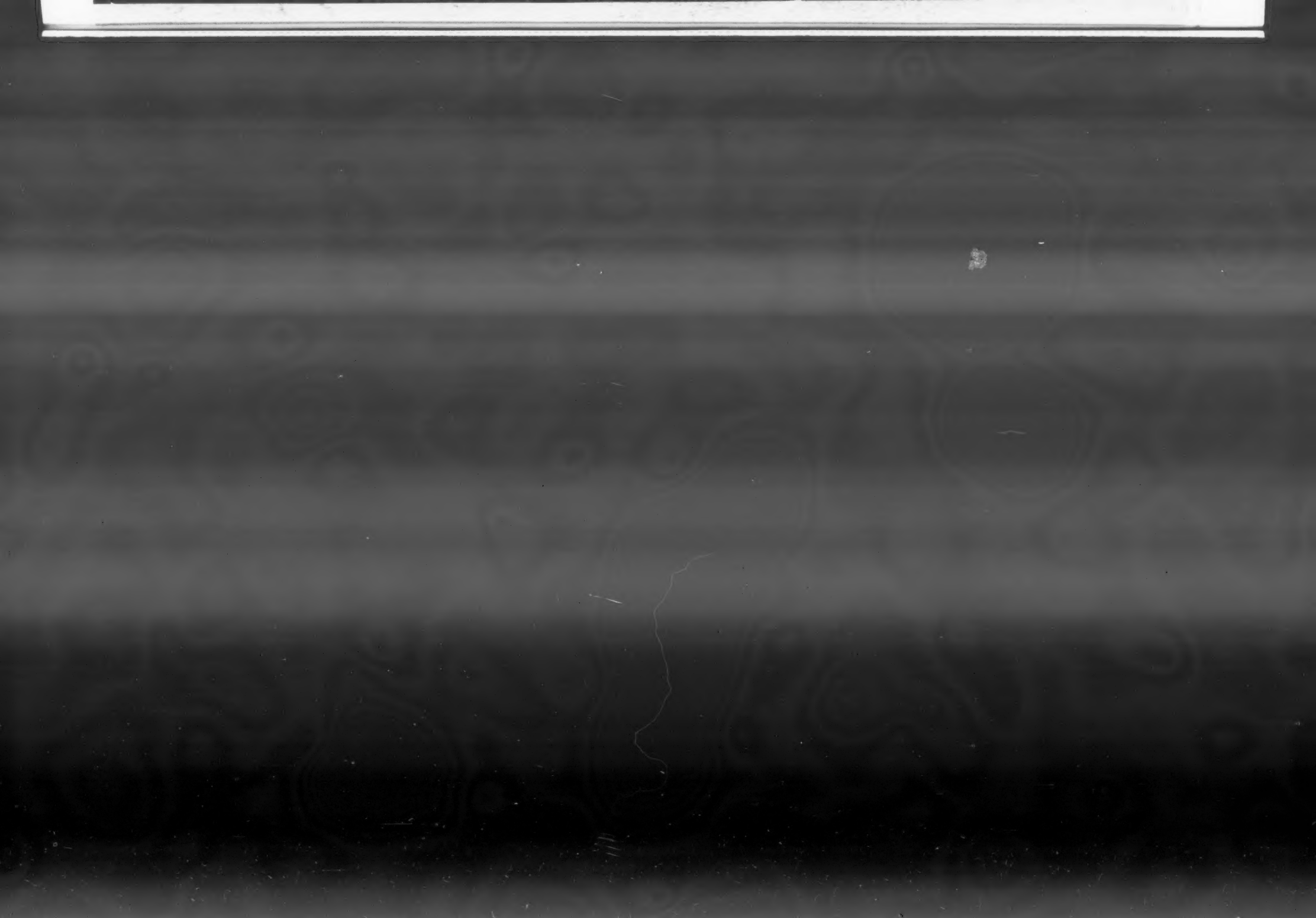
The impermeable bricks should be carried up to the same level as the apron flashing at the rear of the chimney.

Differences in thickness, if any, between the impermeable brick and the brick generally used for the rest of the work can be made up in the joints, since they are hidden below the listing.

**Information from :** The Clay Products Technical Bureau of Great Britain

**Address :** 19 Hobart Place, Eaton Square, London, S.W.1

**Telephone :** Sloane 7805



# THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

## (A) THE WORKING OF WROUGHT AND CAST ALUMINIUM:

### MALLEABILITY:

The cutting properties of aluminium and most of its alloys approach very nearly those of hard wood.

The material may be worked by any of the well known metal-forming operations, including rolling, forging, casting, extruding, drawing, etc.

Stamping, spinning, beating and hammering operations may also be successfully carried out.

### MACHINING:

All aluminium alloys are able to be cut, lathed, sawn, drilled, & tapped, reamed etc. with sharp steel tools.

Aluminium machining tools are usually slightly modified from those of other metals, to suit the properties of the particular alloy used.

### COLOUR AND FINISHES:

A number of different finishes and combinations of finishes may be obtained on aluminium ornamental castings and wrought metal products. The natural finish is similar to silver with a bluish tinge, varying slightly, however, in the colour of the different products, depending on the method of manufacture.

A variety of different finishes has been developed, including sandblasting, frosting, deplating, high-lighting, wire-brushing, and satin-finishing. Surfaces may also be enamelled, painted, etched or plated.

### ANODISING:

This is an electrolytic process by which the surface of the aluminium is oxidised, and also permits permanent colouring by dyes & pigments.

The film so oxidised is extremely hard & resistant to abrasion and corrosion.

## (B) THE JOINING OF WROUGHT AND CAST ALUMINIUM:

### (1) RIVETING.

The standard method of joining heat treated wrought aluminium alloys is by cold-riveting with rivets of the same composition.

In large work steel or aluminium rivets may be driven hot without serious strength losses by the aluminium due to the annealing effect.

Rivets may be hand or machine driven with relatively heavy-squeezed-blows, while the rivet holes should be drilled.

### (2) WELDING.

Both wrought & cast aluminium may be readily fusion-welded using the oxyhydrogen or oxyacetylene flame with suitable welding rod & flux.

Except for 51 S. and 55 S. alloys, fusion-welding is not recommended for the heat-treated alloys unless facilities are available for re-heat-treatment after welding. Both strain-hardened and heat treated alloys can be welded successfully by the spot, seam, & butt electric resistance methods.

## (C) TABLE GIVING THE TYPICAL COLD BEND RADII FOR WROUGHT SHEET ALUMINIUM:

For all other alloys the bend radius increases progressively with the hardness of temper & thickness of gauge.

| N.A. ALLOY GRADE & TEMPER. | APPROXIMATE THICKNESS IN S.W.G. AND INCHES. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 27 .016 | | 21 .032 | | 16 .064 | | 10 1/8 | | 6 3/16 | | 3 1/4 | |
| | 90° bend | 180° bend | 90° bend | 180° bend | 90° bend | 180° bend | 90° bend | 180° bend | 90° bend | 180° bend | 90° bend | 180° bend. |
| NA. 2 S O. | O. | O. | O. | O. | O. | O. | O. | O. | O. | O. | O. | O. |
| NA. 2 S 1/4 H. | O. | O. | O. | O. | O. | O. | O. | O. | A. | A. | A. | A. |
| NA. 2 S 1/2 H. | O. | O. | O. | O. | O. | O. | O. | O. | A. | A. | A. | B. |
| NA. 2 S H. | A. | A. | B. | B. | C. | C. | D. | D. | E. | E. | E. | F. |
| NA. 3 S O. | O. | O. | O. | O. | O. | O. | O. | O. | O. | O. | O. | O. |
| NA. 3 S 1/4 H. | O. | O. | O. | O. | O. | O. | O. | O. | A. | A. | A. | B. |
| NA. 3 S 1/2 H. | O. | O. | O. | O. | O. | O. | A. | A. | A. | A. | B. | B. |
| NA. 3 S H. | B. | B. | C. | C. | D. | E. | E. | F. | F. | G. | G. | H. |

KEY: O. = O. RADIUS. B. = 1/2 t. to 1 1/2 t. RADIUS. D. = 1 1/2 t. to 3 t. RADIUS. F. = 3 t. to 5 t. H. = 5 t. to 7 t.
A. = O. to 1 t. " . C. = 1 t. to 2 t. " . E. = 2 t. to 4 t. " . G. = 4 t. to 6 t. (t. = thickness of sheet)

### REMARKS.

This table is intended only as an approximate guide in the selection of a suitable alloy of proper forming radius.

Since the minimum bend radius depends on the nature of the forming operation, the type of equipment & the design and condition of the tools, the final choice of alloy & temper or radius should be based on actual trial under the proposed operating conditions.

In general, somewhat smaller radii can be used when the axis of the bend is at right angles to the direction of rolling, rather than parallel to it.

NA 2 S. = Commercially pure aluminium.
NA 3 S = Aluminium Manganese Alloy.
O. = Soft, H. = full-hard condition

*Information from the Northern Aluminium Company Limited.*

INFORMATION SHEET: ALUMINIUM: No 2: WORKING JOINING & BENDING.
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1 · Oscar A. Bayne

THE ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

# INFORMATION SHEET

## • 501 •

# ALUMINIUM

Subject : Aluminium

**General :**

This is the second of a series of Sheets dealing with the architectural uses of aluminium, and gives a brief résumé of the working, joining and bending of wrought and cast alloys ; on the previous Sheet were set out the manufacturing limits of flat sheet and plate wrought aluminium, with an explanation of alloy and temper symbols.

**Wrought Aluminium Products :**

Under this heading are fabricated sheet, plate, and circles, wire rod, and bar, extruded sections and tubing. In the case of all wrought products the letter "S" follows the alloy designation number, thus : NA.2S, representing commercially pure wrought aluminium.

**Cast Aluminium Products :**

This type of alloy is designated by numbers above 100 placed after the letters NA, thus : NA.123, etc. For the guiding principles for the design and manufacture of cast work, see future Sheets of this series.

**Production :**

Bauxite, the ore from which aluminium is produced, is an impure hydrate of aluminium, the impurities being mainly oxides of iron and silicon. It has the appearance of reddish clay, the colour becoming a deeper red with increasing iron oxide content. Bauxite deposits are usually covered by a thin layer of soil, which has to be removed by hand, or, when it reaches a moderate thickness, by appropriate stripping methods. The bauxite is generally broken by explosives, loaded in small mine cars and hauled to loading bins.

A number of different processes have been developed for the production of alumina—that is, for the purification of bauxite. The process most widely used to-day is the Bayer process. The aluminium oxide is separated from the impurities contained in the bauxite (iron, silicon, and titanium oxides) by dissolving it under pressure in a solution of caustic soda and hot water. The undissolved impurities are then filtered off in the form of a red mud, and pure aluminium hydrate is precipitated from the solution and calcined at high temperatures to give aluminium oxide in the form of a white powder. The caustic soda solution is then concentrated and used to dissolve more bauxite.

The next and final step in the production of raw aluminium is the reduction operation. Alumina being an aluminium oxide, aluminium is produced by reducing the oxide—that is, by splitting it into aluminium and oxygen.

This operation consists of the electrolysis of a molten solution of alumina in cryolite according to the process developed simultaneously in 1886 by Hall in America, and Heroult in France. The molten bath is contained in an open steel box or cell lined with carbon, the lining forming the cathode. The anodes consist of carbon electrodes dipping below the surface of the bath. Direct current of 8,000 to 30,000 amperes is passed through the bath and molten pure aluminium is deposited at the bottom of the cell and is tapped off periodically and cast into ingots.

**Working :**

The ductility and malleability of aluminium and most of its alloys make them particularly suitable to metal-working processes, such as rolling, forging, extrusion, and drawing. Plate, sheet, bar, rod, wire, and mouldings are regularly produced.

Foil—that is, sheet less than 0.005 ins. in thickness—is generally rolled from pure metal.

**Machining :**

The machining of aluminium and its alloys is an important operation which may decisively affect the cost of the finished article. In general the aluminium casting alloys machine easily and enjoy an advantage over cast iron, and although pure aluminium and some of the softer wrought alloys do not machine as readily as competitive wrought metal, for example, brass or copper, the machining operation is not essentially different as between aluminium and other metals, the most important element of the technique required being in the design of the cutting tool.

**Welding and Riveting :**

The welding of aluminium is accomplished by gas flame and electric resistance and arc welding methods and without special difficulties. This is true also of most of the alloys, except that the annealing effect of the welding somewhat affects the strength of those alloys susceptible to heat treatment.

Aluminium and its alloys are usually joined by rivets of the same composition as the sheets or members. The pure metal and the softer alloys are especially easy to join with rivets driven cold. The riveting of the strongest alloys is also done cold, with special heat-treated alloy rivets. In a very few types of work large aluminium alloy rivets are driven hot. Steel rivets, which must be driven hot, are sometimes used for joining heavy aluminium sections, and here the good heat conductivity of the aluminium prevents local overheating from the hot steel rivets.

**Bending :**

On the face of this Sheet are set out the bend radii for two of the common wrought aluminium alloys. The increases in bend radii due to hardness of alloy and temper are approximately typical for all the other grades, the hardest of which, in the $\frac{1}{4}$ in. thickness, is not able to be bent under normal conditions to a smaller radius than six to ten times the thickness. Provided, however, that the correct alloy and temper are selected for the particular work in hand no difficulties should be experienced. For severe forming it is advisable to use a lubricant, and the tools should be smooth and highly polished.

**Previous Sheet :**

The first sheet in this series dealing with the architectural uses of aluminium was No. 492.

**Information from :** The Northern Aluminium Company, Ltd.

**Address :** Bush House, Aldwych, London, W.C.2

**Telephone :** Temple Bar 8844

*The Architects' Journal Library of Planning*

# SHOPS

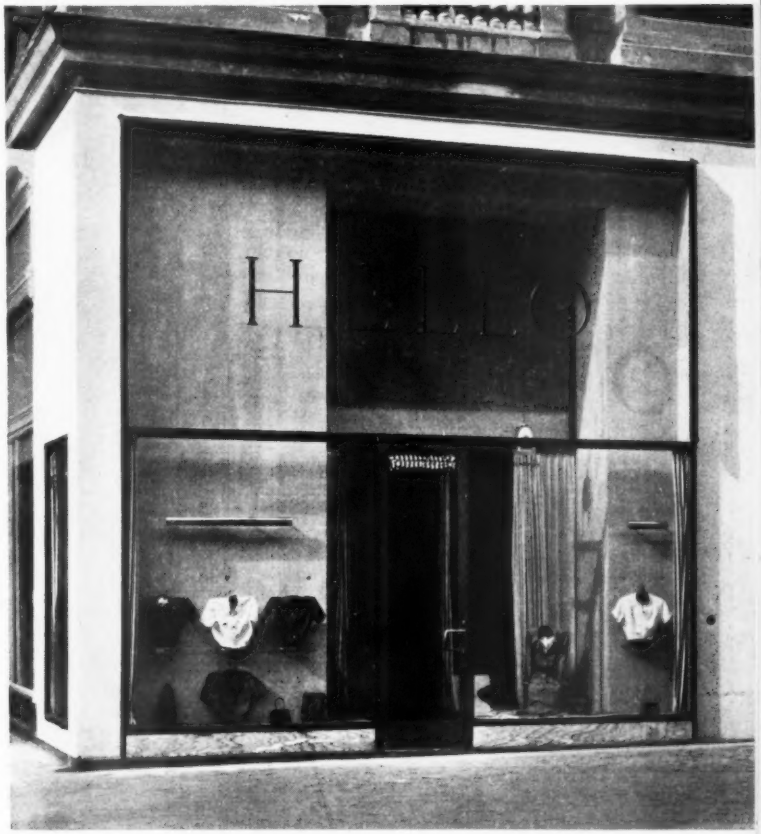
## Conclusion

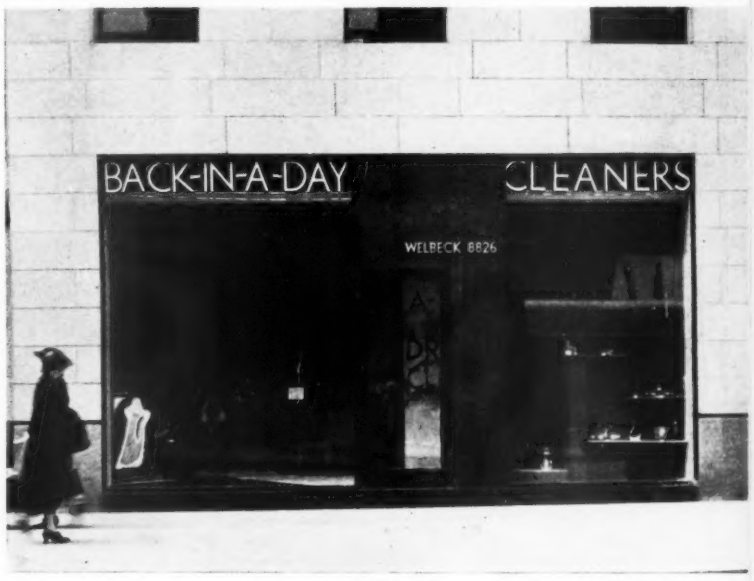
[By Bryan Westwood and Norman Westwood]

*WITH the examples of shop front design reproduced on this and the following three pages, the series of articles on the planning and design of shops comes to an end. This section, by authors of great experience in shop design, was begun on November 26 last year, and has dealt in detail with the plan components and equipment of very many types of shops which are not large enough to be called stores.*

*"Shops" is the second section of the series which the* JOURNAL *will publish from time to time on the planning of special building types, the first section being "Town Halls," which appeared last year from February 27 to June 4.*

*The series of Working Details will be resumed in next week's issue.*






Top : Dress shop in Vienna, by Baumfeld and Schlesinger. Surround in light artificial stone, framing in greenish copper alloy and plinth of pale green marble. Lettering is of copper and display backing of coarse-textured matting. Messrs. Baumfeld and Schlesinger were also the architects for the Immendorf shop published on December 3, 1936.

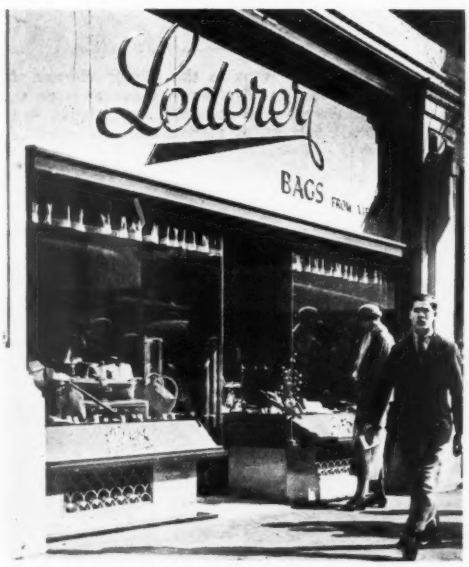
Right : Shop front in black granite and bronze set in Portland stone façade. Windows are as large as possible so as to leave the whole of the interior visible to the passer-by.


Above : Metal furniture showroom, Henrietta Street, W. Architects, Robertson and Marsh. The materials are Hornton stone plinth with Clipsham stone above. The fascia is made of corrugated asbestos finished with green cement. It is of double construction so as to give " hit and miss " ventilation to the interior, hence the space above the blind box. The metalwork is bronze, and the lettering on the left-hand side is lit by a spotlight above.


Above : The main interest of this furniture shop at Rotterdam is the opal-glass fascia. It is illuminated from behind and is well arranged as a background for lettering describing the various classes of goods sold.

Right : Shop in Sloane Street, S.W. Architect, Sidney Jacques. Lettering, in double neon, is made to dominate the façade. As a contrast, the more recent example in Regent Street for the same firm (see page 37 of this series) has very subordinate lettering. The material used for the rest of the façade is dark polished Marmorite.

Above : A pleasant arrangement of display windows fitted to show small goods. A large display can be made without the crowded effect so common in shops of this type. The façade is finished in sycamore onyx and bronze.




Above : Leather goods shop, Regent Street, London. The character of the shop is gained by the low transome and correspondingly deep fascia. This and the stallboard are in grey opaque glass. The transome is of wood painted green, and the lettering is in bright metal.

Right : Dairy and restaurant, Brewer Street, W. By J. G. Haswell. This façade relies largely on colour for attracting customers. The upper part is finished in yellow-painted match boarding. The stallboard is in mottled yellow tiles, and the door is of teak.



Above : "The Minimum Shop." An example of a neat grouping of automatic machines on an Underground Station to form a shop. Not only is there a great gain in tidiness, but attention is focused upon these facilities which are otherwise largely overlooked. By courtesy of London Transport.

Above (left) : Beauty shop in the Kärntnerstrasse at Vienna, designed by Professor Oswald Haerdtl. Framing and lettering of stainless steel, fascia and plinth of black and white marble and stallboard of zebrano.

Above : A Swedish kiosk. Chocolates, cigarettes and papers are sold in kiosks of this kind at the side of Swedish roads. The construction is of wooden framing covered with plywood and painted ; the metalwork is bronze. The projecting roof and the flowers are attractive features.

Right : Confiserie by Franz Singer. The floor is of rubber and most of the equipment stainless steel and glass.

# LITERATURE

## WESTMINSTER ABBEY AND PALACE

[*BY HUBERT FITCHEW*]

*Royal Westminster and the Coronation.* By J. G. Noppen, F.S.A. Country Life Limited. Price 8s. 6d.

"ROYAL Westminster consists of a palace and an abbey. The former was the favourite home of our kings for about five hundred years. . . The latter continues to provide the religious background for national ceremonial. . . The Abbey church still is, as it was in the Middle Ages, 'the diadem of the kingdom, the head and crown. . . '"

A truly fortunate foreshadow thrown by the Coronation for the architect and antiquarian, to say nothing of the general reader, Mr. Noppen's work is planned virtually in three parts—histories of the buildings and of the Coronation ceremonies, respectively, with, between, by way of interlude, a guide for the present-day visitor (this includes a plan on page 64 : its number might well have been quoted in various references made to it, as it does not appear in the list of illustrations).

The Abbey was before the Palace. Mr. Noppen dismisses as mythical King Lucius's British church dated at A.D. 184. But there was a Roman building here ; remains have been found beneath the existing church's pavement. As the Venerable Bede makes no mention of the Abbey, it can scarcely have been in existence before his death (735). It was probably founded *circa* 740, since a charter of 785 grants lands (at Aldenham) "to St. Peter and to the men of God living in Thorney (at that time, an island) in the terrible place that is called Westminster." (Winchester was then capital of England, London not having as yet recovered from its decline following upon the withdrawal of the Roman legions). The buildings in question (among which legend affirms the church to have been miraculously visited and consecrated by its patron saint—Peter—in person) was possibly sacked by Danes a century or so later, and was certainly restored by St. Dunstan and King Edgar, whose charter of 959 (?) recites the bounds of the Abbey's territory.

That it does so is important. For so does a charter of King Ethelred, dated 1002, and

> it will be noticed that the Abbey lands no longer include the site on which the Palace was built. Why had this site been alienated ? I suggest that we have here a clue to the date of the foundation of the Palace, and that when Ethelred granted this charter he had either begun, or projected, the building of a residence here.

No trace of such Palace, however, survived to recorded times.

Edward the Confessor rebuilt the Abbey church to a cruciform plan on the site of the present one, though smaller. Here William the Conqueror was crowned on Christmas Day, 1066, and, as is well known, the shouts of acclamation within the building were misinterpreted by his Norman soldiery on guard without, insomuch that they began to fire the neighbouring houses, by way of reprisal for a fancied "demonstration" against the king.

William Rufus built the new hall of the Palace of Westminster, which "astonished his contemporaries." It was finished in 1099, but

> was different from that with which we are now familiar. The existing hammer-beam roof was built about three hundred years later by King Richard II and at the same time the walls were slightly heightened.

King Stephen is accepted as founder of of St. Stephen's Chapel, which, in the sixteenth century, became the House of Commons (still sometimes called "St. Stephen's").

Being now in documented times, the author is able to describe both Palace and Abbey in considerable detail, and the tale becomes more and more absorbing. The Confessor was ultimately canonized in 1161. In 1163 his body was raised to a shrine behind the high altar in the Abbey church. "This event greatly strengthened the bond between Palace and Abbey."

Henry III enlarged and decorated the Palace "beyond recognition," and then, in deep veneration for the Confessor, set about, in 1220, the great work of rebuilding and expanding the Abbey, which had fallen into serious disrepair. He spent money like water. Individual wealthy Jews, and their widows, were laid under contribution to the tune of hundreds of thousands of pounds (of our money). In October, 1269, came the culminating event of his reign. He, his heir, his brother and several of his leading nobles bore on their shoulders into the church the new shrine of St. Edward, which was thereupon consecrated. The scene is wonderfully constructed in a passage too long for quotation (pages 35–6).

Among innumerable sidelights is the following :—

> After the accession of Edward I there was less royal interest in the Abbey ; but work continued at the Palace. The King's Mews at Charing is mentioned. This was the falconry, and Henry VIII had it reconstructed as a royal stable. That is how a range of stables in London came to be called a mews.

Outstanding incidents in a crowded and glorious history were a disastrous fire (1298), which crippled the Palace and spread to the Abbey, of which only the church and chapter-house escaped ; the completion of the church's nave under Henry V, who enlisted as "Warden of the New Work," Master Richard Whittington, mayor of London (he was neither knight nor "Lord" Mayor) ; the building of Henry VII's chapel ; another serious fire at the Palace in 1512 (since when it has been abandoned as a residence) : the dissolution of the Abbey in 1539 and, supervening upon that, the foundation of the Collegiate Church of St. Peter as it now exists, under Elizabeth (1560).

> The close association of the Abbey with English sovereignty saved it from the fate of many others. Its eastern arm was full of royal tombs. . . The "Protector" Somerset proposed to use its stones for his new mansion in the Strand ; but this sad intention was not permitted to materialize. Since then, the church has never been in danger of destruction. Many, including Wren, have laid heavy hands upon its venerable fabric, and it has been marked here and there with a pompous touch . . . but it remains our greatest architectural treasure.

Stories and legends centred about the Abbey and the Coronation are grouped in chapters to themselves. One of the most amazing describes the Abbey burglary of 1303, when, as the result of four months' silent toil, booty to the value of a million of (our) money was "hauled" (most of it was recovered).

The book is beautifully produced, and illustrated with no fewer than eighty-three superbly-printed plates, the majority of the highest interest as to architectural details, and many others including prints never hitherto published.

## Publications Received

*The Architects' Journal Library of Planned Information : Volume 3.* London : The Architectural Press. Price 21s.

*The Building Encyclopædia.* London : The Waverley Book Co., Ltd. Price (complete set) : £2.

*English Homes.* By H. Avray Tipping. London : Country Life. Price £3 3s.

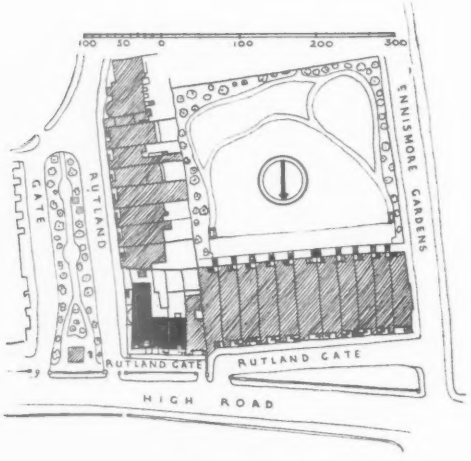
*North Country.* By Edmund Vale. London : Batsford. Price 7s. 6d.

*B.B.C. Annual.* B.B.C. Price 2s. 6d.

## Appointment

Mr. C. C. Shaw, B.ARCH. (L'POOL), A.R.I.B.A., has been appointed borough architect of Barking, the Architectural Department being now separated from the Borough Engineer's Department.

# FOUR HOUSES IN RUTLAND GATE, S.W.: BY


SITE PLAN

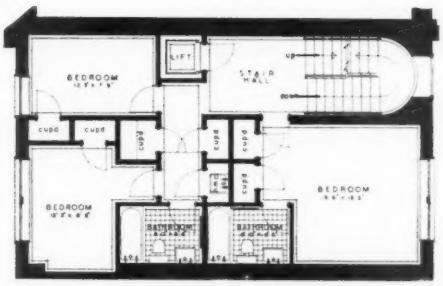
SITE—*On a corner site in Rutland Gate, overlooking Hyde Park.*

GENERAL—*There are four houses, Nos. 4, 6, 8 and 8a; each house has five floors, and at the rear are garages.*

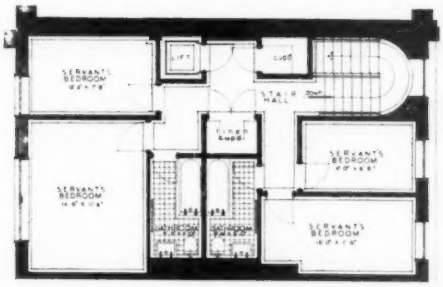
*The photographs show: above, the entrance to No. 8 and the elevation to the gardens in Rutland Gate.*

# SIR JOHN BURNET, TAIT AND LORNE

HOUSE
No. 4



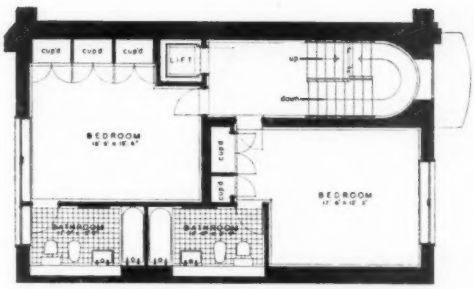

SECOND FLOOR PLAN



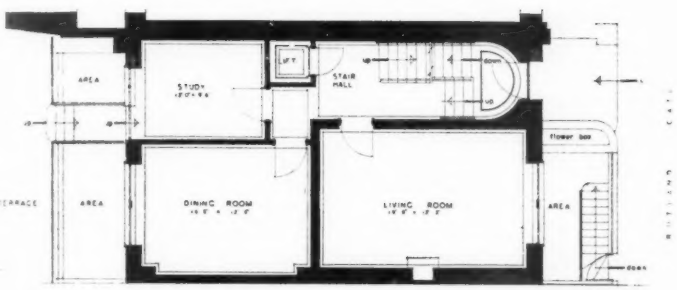

THIRD FLOOR PLAN

*The photograph is of the lift control switch in the basement. During the service of meals the key in the switch is turned to "trolley." This cuts out the normal running of the lift and enables it to be used only between the basement and ground floors.*

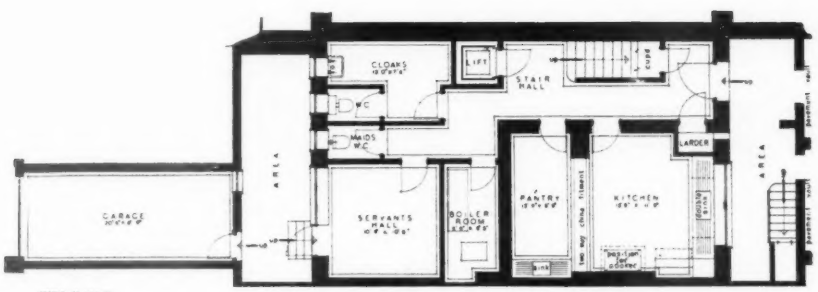
*The plans of house No. 6 are identical to No. 4 shown on this page. Plans of houses Nos. 8 and 8a are reproduced on the two following pages.*




FIRST FLOOR PLAN




GROUND FLOOR PLAN

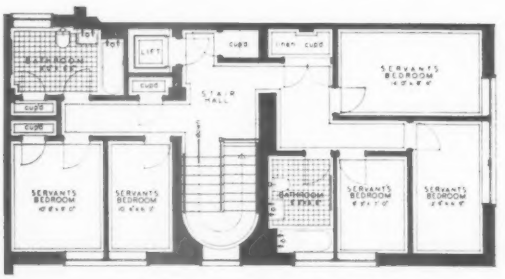



BASEMENT PLAN

# FOUR HOUSES IN RUTLAND GATE, S.W.

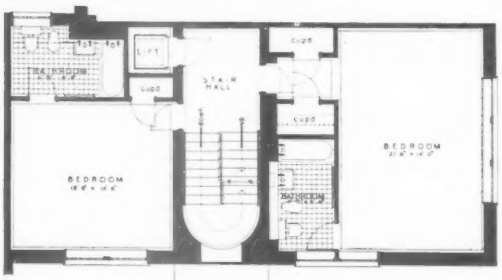
*In the courtyard.*

*DESIGNED BY SIR JOHN BURNET, TAIT AND LORNE*

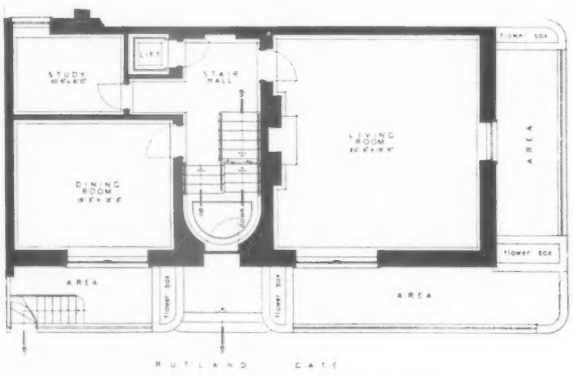



THIRD FLOOR PLAN


SECOND FLOOR PLAN




FIRST FLOOR PLAN

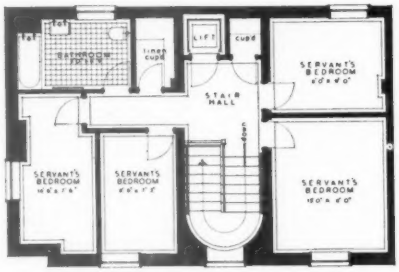



GROUND FLOOR PLAN


HOUSE No. 8

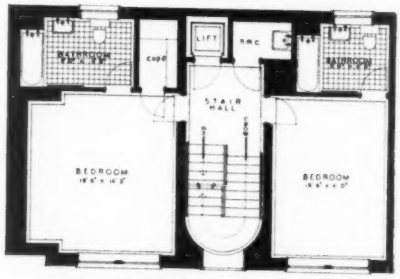
BASEMENT PLAN

# FOUR HOUSES IN RUTLAND GATE, S.W.



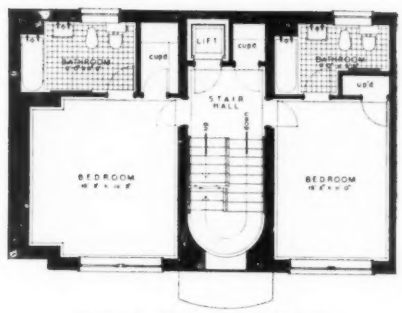

THIRD FLOOR PLAN

HOUSE
No. 8A

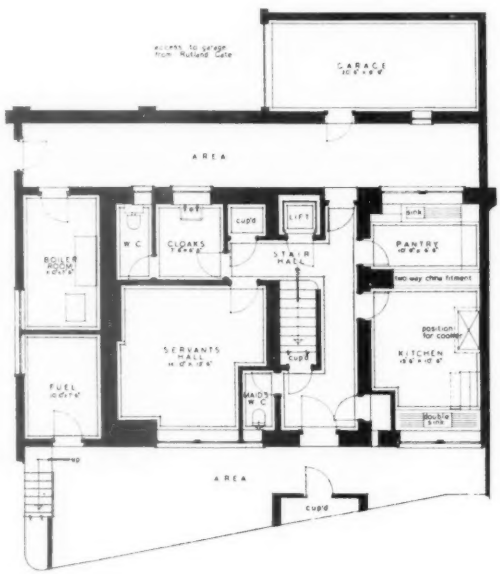



SECOND FLOOR PLAN

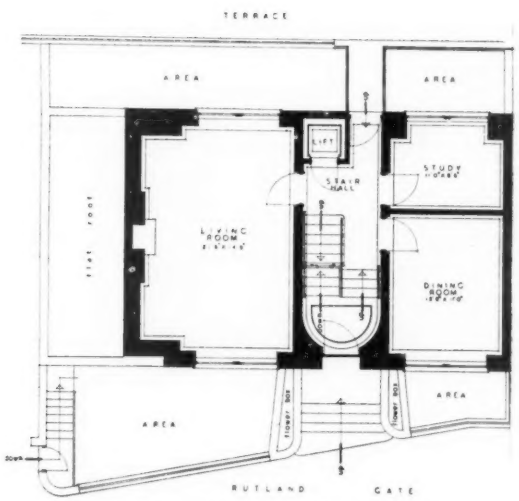
*DESIGNED BY SIR JOHN BURNET, TAIT AND LORNE*




FIRST FLOOR PLAN




BASEMENT PLAN




GROUND FLOOR PLAN

CONSTRUCTION—*Brick construction, with flat wood roofs, finished in asphalt, and wood floors. The exterior is faced with silver grey facing bricks; cills and copings are reconstructed stone: and hoods over entrances are pre-cast terrazzo. The surrounds to the entrances and the window boxes are in black bricks. The ground floor and the stairs and landings up to the second floor are oak.*

*For list of general and sub-contractors, see page 708.*

# LAW REPORTS

## QUANTITY SURVEYOR AND ARCHITECTS' CLAIM

*Bridgman and Bridgman and Hills* v. *Burford.—Official Referee's Court—By Mr. S. R. C. Bosanquet, K.C.*

IN this action Messrs. Bridgman and Bridgman, architects, of Palace Avenue, Paignton, Devon, and Mr. William Thomas Hills, a quantity surveyor, of Tormohun House, Torquay, sought to recover from Mr. J. W. Burford, of 47 Rodney Street, Liverpool, their fees for professional services rendered, Messrs. Bridgman and Bridgman's claim being for £150 and Mr. Hills' for £110.

The facts of the case emerge from the judgment of the Official Referee.

Mr. Bosanquet said that as the case involved a charge of negligence against professional men it had caused him a great deal of anxiety. The plaintiffs in the case were a firm of architects and a quantity surveyor, both practising in the neighbourhood of Torquay, the defendant being a gentleman who had been engaged for many years professionally abroad, he having been manager of a large engineering undertaking in South America.

In 1928 the defendant conceived the idea of building for himself a small house, first talked about as a bungalow, in Devonshire, and for that purpose he consulted Mr. Bridgman. Defendant had acquired a site and asked Mr. Bridgman for drawings of a small house, indicating that the most he wished to spend was £3,000. Nothing was settled at that time, but in 1931 defendant was in England again, when the plans were discussed. Mr. Bridgman consulted his quantity surveyor, Mr. Hills, and on July 7 an approximate estimate of £3,125 was given to the defendant for the construction of the house as planned.

The question of the building of the house remained in abeyance until the autumn of 1935. On June 12, Mr. Bridgman was able to send an approximate estimate for the construction of the house prepared by Mr. Hills and this amounted to £4,555, and then the defendant made it clear that the maximum he could afford to pay for the house was £3,300. Mr. Hills stated that if necessary the conservatory could be cut out and informed the defendant that he was convinced that the sum of £3,300 would not be exceeded.

Having this assurance the defendant gave instructions to Mr. Bridgman to go ahead and obtain tenders. When the tenders came in they ranged from £4,444 to £5,276. To both plaintiffs and defendant these figures came as a great shock.

Admittedly, allowance had to be made for additions made by the defendant and also for a rise in the price of labour, but it appeared that the plaintiffs' estimate was far too optimistic. In these circumstances the defendant found himself unable to proceed with the plans as proposed and they were abandoned.

In these circumstances, the two plaintiffs brought the action, Mr. Bridgman claiming £150, less £20 already paid him by the defendant, and Mr. Hills £110.

The defendant denied liability and based his denial on two grounds, viz., (1) that the plaintiffs, in putting forward the estimate they did, so far below the real cost of the work, were guilty of negligence, and (2), that it was a condition of the contract made between Mr. Bridgman and the defendant, that the former should prepare his plans which could be carried out at approximately the price which defendant fixed as his maximum, and that in producing plans for work, which from its nature must inevitably cost so much more than the stipulated price, Mr. Bridgman was guilty of a breach of contract and was not entitled to be paid anything.

The plaintiffs' reply was that any increase in the price was caused by the defendant's own alterations and additions and by other circumstances not under plaintiffs' control, and that had they obtained tenders at the time when the original site was decided on, and as the specifications then agreed to, the tenders would have been obtained at approximately the figures put forward by Mr. Hills.

Having referred to the material evidence given in the course of the case, the learned Referee said that if the architect failed to give the quantity surveyor proper information, or if the quantity surveyor, acting as the agent of the architect, made a blunder in preparing his estimate, in his (the Referee's) opinion the architect was liable. He had gone through the evidence very carefully and he was not at all sure that the key to a part of the mystery was not to be found in the admission of Mr. Hills that he never saw the site until after he had prepared his provisional estimate, and that in his view a part of the extra cost, which he put at £100, was caused by the difficulties of the site and the extra cost of haulage. In any view it was the duty of the architect to indicate to the quantity surveyor the obvious difficulties of the site before the quantity surveyor was asked to calculate a price, or of the quantity surveyor himself to make himself personally acquainted with the site and any special circumstances which would add to the cost of the work.

Looking at the matter broadly he thought the undue optimism of both Mr. Bridgman and Mr. Hills, founded largely upon a failure to take into account the special circumstances of the case, amounted to negligence, and that on that ground the plaintiffs were not entitled to recover. There were some small items in Mr. Bridgman's bill for which it was admitted the defendant was liable, but it appeared to be amply covered by the £20 which the defendant had already paid. In the circumstances he gave judgment for the defendant with costs.

Serjeant Sullivan, K.C., and Mr. H. E. R. Boileau appeared for the plaintiffs, and Mr. B. B. Stenham for the defendant.

## A VILLAGE ESTATE.—QUESTION OF ROAD REPAIRS AND UPKEEP OF DRAINS

*Jordans Village, Ltd.* v. *Hankinson.—Chancery Division.—Before Mr. Justice Farwell*

THIS action had reference to the maintenance of the Jordans Village estate at Jordans, near Beaconsfield, and was brought by plaintiffs against Mrs. Mary Hankinson, of One Ash, Jordans, for a declaration that she was liable to contribute towards the cost of repairing private roads and cleansing sewers on the whole estate or in Seers Green Lane, to which her house had a frontage.

Mr. Roxburgh, K.C., for the plaintiffs, explained that the plaintiffs were a society registered under the Industrial and Provident Societies Act, 1893, and their object was to maintain and govern the estate by means of a village community. The estate was bounded by public roads, but all the roads on the estate were private. The defendant held a 99-year lease from plaintiffs of her house from October, 1924, and counsel said the lease was in an unfortunate form, the case turning upon a covenant in the lease by the defendant to pay a due proportion of all expenses in respect of the demised premises of constructing, repairing, rebuilding and cleansing all party walls and fences, sewers, drains, roads, pavements and other things, the use of which was common to the demised premises and to adjoining premises, the amount of such proportion, in the absence of agreement, to be settled by arbitration. If his lordship held that this meant that the defendant was not under a liability to contribute, then it should be known that the society was not under a liability to repair the roads or cleanse the drains. Counsel's contention was that in the true construction of the clause the defendant was liable to contribute to the costs of works carried out on the estate generally or in particular to work carried out in Seers Green Lane.

Mr. Vaisey, K.C., for the defendant, contended that the clause in question only dealt with matters affecting her own house, or that to which it was attached, her own house being semi-detached.

His lordship dismissed the action, holding that the language of the covenant was not such as to enable the plaintiffs to succeed. In his opinion the word "adjoining," as used in the clause, was confined to the defendant's house and to that to which it was attached. His lordship recognized that his construction of the covenant might have unfortunate results, but he thought that if the defendant and others in her position wished to preserve the amenities of the property and continue the village community, they would be well advised, notwithstanding any rights they conceived they had, to see whether some arrangement could not be made to keep the roads in repair and the drains in order.

Mr. Vaisey intimated that his client was doing her best to facilitate an amicable arrangement being arrived at with all parties.

•

## Official Openings

The Duchess of Gloucester opened, last week, 36 flats and 18 cottages at Prince Regent Lane, Custom House, E., which have been built by Church Army Housing, Ltd., for rehousing families from slum clearance and overcrowded areas. The maximum rent, including rates, for both flats and cottages is 14s., while the minimum is 10s. 9d.

A block of flats in Upper Cheese Lane, Bristol—to be called Kingsley House—was opened by Sir Kingsley Wood, Minister of Health, on April 6.

# TRADE NOTES

[EDITED BY PHILIP SCHOLBERG]

### *Stainless Sinks*

THE stainless steel sink is an obvious amenity, even though it may be rather more expensive than the ordinary type, for it has so many advantages that price becomes almost a secondary consideration, while the owners of flat blocks and the builders of small speculative houses (people who seldom do anything unless they are fairly certain that it will show a good financial return) are finding that a stainless sink is worth while from the point of view of its sales value.

•

These points crop up again because I have just discovered, rather to my surprise, that it is ten years since stainless sinks were seriously used, the photograph at the head of these notes showing an early example which still looks pretty good to me. It was made by Johnson & Co., who have now got a large range of different types, all of which have welded flush joints and are buffed to a satin finish. The sinks are produced in four units which, being pressings, cannot be varied in size except at prohibitive cost, but various types of surrounds and extensions can easily be welded on, so that the designs can be looked upon as being more or less flexible, and easy enough to fit into almost any sort of space.

•

The material used is about 1 millimetre thick, and all flat surfaces are sound-deadened with a layer of felt, so that careless washing-up produces rather dull thuds instead of a metallic clang. Since the material has a certain amount of spring, there is also less risk of breakage, though it is self-evident that nothing can stop breakages entirely. I see that this firm is now making "beer sinks" which are presumably intended for washing glasses in bars, and it seems that this is one case where the non-chipping virtues of stainless sinks should be particularly worth while.

•

The catalogue gives all the necessary data with tables showing the range of sizes available and details of fixing, with good clear plans and sections of typical models. In general, the designing has been sensibly done, particularly in the way that the lip has been turned up instead of down at the back, so that a tiled splash-back can be arranged without producing a dirt-collecting crevice. As a further testimonial, the Good Housekeeping Institute have done their worst with these sinks in the way of maltreatment and yet still approve of them.

### *Two New Gas Heaters*

Bratt Colbran have just introduced a new inset gas fire, designed for rooms which possess no flue. I am, I confess, firmly prejudiced against any form of gas heating where there are no flues, for although the products of combustion may be relatively harmless, they cannot do anybody any good, and very often give rise to headaches, quite apart from a feeling of general stuffiness and oppression. This heater, however, uses only 10 cubic feet an hour, a figure which could easily be exceeded in the old days when gas was used for lighting, and one used to survive without much difficulty, so that I can see no logical reason why one should object nowadays.

•

This particular heater is designed mainly for blocks of flats which are equipped with central heating, but where some form of visual warmth would also be an advantage, and it would seem also to be quite suitable for halls and landings where the free-standing types of flueless heater are in use at the moment. The heating unit consists of a row of small burners at the bottom, above which is suspended a horizontal coil of wire; this is heated by the burners and the resultant glow is reflected by the curved and corrugated back of the heater, giving an even effect which is free from the patchiness which would exist if the burners were used alone. The dimensions are 15 ins. by 23¾ ins. by 5 ins. deep, and the price is £2 12s. 6d.

•

The other heater recently designed by this firm is of the overhead radiant type; made in three versions, a rectangular wall panel, a ceiling bowl giving uniform distribution and a ceiling wedge giving unsymmetrical distribution, the surfaces run at a temperature of about 640 deg. F. and give a total heat output of 11,250 B.T.U.s an hour with a gas consumption of 25 cubic feet. About half this output is in the form of radiant heat, and, since the majority of the convected heat will also be usefully employed, the heating capacity may be taken as from 200 to 300 square feet of floor area for each heater.

•

The booklet describing them gives full instructions for layout and fixing, which should generally be at a height of 9 or 10 ft., with a minimum clearance of 3 ft. above them, to avoid staining ceilings. Control is by Newbridge switch and cable, or thermostats may be used, though it is suggested that, on a large job, the heaters may best be controlled in batches, alternate heaters being linked to the same thermostat. This point must, of course, be decided upon before the layout of the gas services is fixed.

•

For churches, halls, clubs and other large areas where heating is only intermittent, these heaters would seem to be very useful, for they heat up quickly, and the final air temperature necessary for comfort is lower than when heating is by convection only. For shops and restaurants it should be possible to save a good deal of the valuable floor space which is normally taken up by radiators.

### *Design in Plastics*

A fortnight or so ago I wrote a note about an exhibition of American plastics to be held at Dorland Hall by Synplas, Ltd., one of whose directors had spent a good deal of time collecting examples from many different American sources. The exhibition was open for most of last week, and provided a useful lesson for British moulders. The finish of the American jobs is not quite so good, and I gathered that the powders used are not quite so good either, but in many cases the design is far ahead of equivalent jobs in this country. And this, I gather, is because nearly all American moulders maintain a staff of designers as a necessary part of their organization.

•

The plastics industry in this country doesn't seem to do anything of the kind. People like Bakelite, Ltd., who supply the raw materials, admit quite frankly that designs are generally awful, but pass the blame to the moulders, who say that they can only do what they are asked to do. Attacked with this argument, Mr. Green,

of Synplas, admitted that it was largely true, but defended himself by saying that his firm always encouraged customers to go to good designers, and quoted one design firm that he always recommended and who knew something about moulding. Buyers being what they are, one cannot very well say fairer than that.

•

And if anyone is really interested in moulding technique they can go and see it being done at Synplas's works at Willesden.

*Addresses*

A. Johnson & Co. (London), Ltd., Africa House, Kingsway, London, W.C.2.

Bratt Colbran, Ltd., 10 Mortimer Street, London, W.1.

Synplas, Ltd., 99 Minerva Road, London, N.W.10.

## MANUFACTURERS' ITEMS

Brown and Tawse, Ltd., of St. Leonard's Street, Bromley-by-Bow, E.3, have just issued a six-page leaflet illustrating and describing their "L.W." panel board for interior construction and decoration. This board has been used for lining all walls and ceilings in the house built by the Universal House Co. at the *Daily Mail* Ideal Home Exhibition, now being held at Olympia, and illustrations in the leaflet show the various rooms in the house where "L.W." panel board has been used.

•

Mr. L. Brooke has been appointed manager of the Leeds Branch of W. T. Henley's Telegraph Works Co., Ltd. Mr. Brooke, who joined the company in 1926 as a representative at the Leeds branch, has been manager of their Sheffield sub-branch since September, 1928, and will continue to manage that branch. Their branch at Hull will continue under the managership of Mr. S. R. Gee and will not in future be under the control of Leeds branch.

•

Constructors, Ltd., of Erdington, Birmingham, have just issued a four-page leaflet giving the prices of their slotted steel and accessories.

The same firm have also issued a sixteen-page illustrated brochure devoted to their lockers.

Copies of the leaflet and brochure are obtainable, free of charge, on application to the firm at the above address.

•

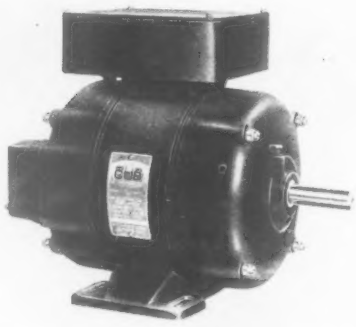
The name of Edward Lloyd Wallboards, Ltd., of Sittingbourne and Shell-Mex House, London, has been changed to Lloyd Boards, Ltd.

•

The introduction of a new series of fractional h.p. motors is announced by Brook Motors, Ltd., of Empress Works, Huddersfield. This series, called "Cub," includes capacitor, split-phase and 2 and 3 phase types. See illustration on this page.

•

Marryat and Scott, Ltd., have secured the contract to instal the lift installation for Fuad-el-Awal Hospital, Cairo, the architects for which are Nicholas and Dixon-Spain, FF.R.I.B.A. The firm have also received the contract for the goods lift installation required for the Royal Hospital,



*The "Cub," one of the new series of electric motors announced by Brook Motors Ltd.*

Wolverhampton. Architects: Messrs. Elcock and Sutcliffe.

•

Benjamin Electric, Ltd., of Brantwood Works, Tariff Road, Tottenham, N.17, have recently issued a brochure illustrating and describing their Anglite units. The Anglites, it is stated, "are particularly adapted to general commercial and utility lighting, their installation being simple and involving no structural alterations. They can be used in practically any location and for a variety of purposes and are introduced as a solution of many decorative lighting problems."

•

The directors of the Ketton Portland Cement Co., Ltd., announce an interim dividend at the rate of 10 per cent. per annum on the ordinary shares on account of the company's financial year to June 30, 1937.

•

Lead Bulletin No. 2, recently issued by the Lead Technical Information Bureau and published by the recently reconstituted Lead Industries Development Council, takes the form of a small, handy reference work primarily intended for users of the metal in any of its forms. The extensive tabulated matter gives information not readily available from other sources.

An introductory chapter is devoted to a brief indication of the uses of lead from prehistoric times to the present day and of contemporary sources of supply and methods of production.

Other chapters, which are accompanied by illustrations of manufacturing processes and examples of the work of well-known lead craftsmen, are devoted to milled and cast sheet lead, sheet and ornamental cast lead, laminated lead and solders. Under the last-mentioned heading analyses are given of British Standard soft solders, tabulated according to the use for which each type is specially designed.

To meet the special need for a comprehensive schedule the section on lead pipe includes a list of the sizes of pipe available in this country, with special reference to the standard sizes laid down by the British Standards Institution.

New developments in production are mentioned under the heading "Alloys of Lead." They include the ternary alloys containing cadmium, developed under the auspices of the British Non-Ferrous Metals Research Association and tellurium lead, evolved in Great Britain and recently introduced in the United States and on the Continent.

The final chapters, on the properties of lead, are accompanied by a well-arranged series of tables of data with regard to density, weight, thermal properties and the electrical, mechanical and other characteristics of the metal.

Lead Bulletin No. 2 will be sent post free on request by the Lead Industries Development Council, Rex House, 38 King William Street, London, E.C.4.

•

In the list of contractors for the Garage at Olympia, published in our issue for April 8, we omitted to state that the Bostwick Gate and Shutter Co. carried out the whole of the flush tubular guardrailing and balustrading to staircases, roof, ramps etc.

## OBITUARY

We regret to record the death of Mr. George Alfred Harvey, founder of the firm of G. A. Harvey & Co. (London), Ltd., of Woolwich Road, London, the sheet metal and steel plate workers.

Mr. Harvey, who was 84 years of age, and lived at Preston Park, Brighton, was chairman of the firm until the time of his death. He founded the undertaking in 1874 in a small shed at Lewisham where, with the assistance of one boy, he carried on the business of a zinc worker. From this modest beginning, the business grew rapidly. By 1894, the range of the firm's activities had increased to such an extent that the galvanizing and tank-making departments were removed to new premises at Iron Wharf, Greenwich.

Both the Lewisham and Greenwich works were eventually found to be inadequate and, in 1913, the firm moved to the site of the present works at Woolwich Road. Since that time, developments have been even more rapid and continuous; building after building and department after department have been added, until today the works cover 40 acres of ground and employ 2,000 hands.

The interest of Mr. Harvey in the welfare of his employees was given expression to by his inauguration of the Harvey Benevolent Fund with a gift of £15,000, and the foundation in 1935 of a Jubilee Trust Fund of £5,000 for necessitous cases in respect of junior workers. He also took a great personal interest in the development of a housing estate near the works for the benefit of his employees.

## THE BUILDINGS ILLUSTRATED

**LOVELL HOUSE (EXTENSIONS AND COMPLETION), HOSIER LANE AND WEST SMITHFIELD, E.C.1** (pages 683-685). The general contractors were W. H. Gaze and Sons, Ltd., and the principal sub-contractors and suppliers included: Empire Stone Co., Ltd., artificial stone; Shaws Glazed Brick Co., terra-cotta; Lawford Asphalte Co., Ltd., dampcourses and asphalt; Luxfer Limited, patent glazing; Bower Engineering Co., Ltd., electric wiring; J. Wontner-Smith, Gray & Co., Ltd., hot water and heating; Clarke and Vigilant Co., sprinklers; J. and E. Hall, Ltd., insulation, refrigerating equipment, and lifts; O'Brien, Thomas &

Co., sanitary fittings; Yannedis & Co., door furniture; Crittall Manufacturing Co., Ltd., iron casements; Haskins, Ltd., rolling shutters; Moreland Hayne & Co., structural steel.

**HOUSE AT VIRGINIA WATER** (pages 686-687). The general contractors were Mussellwhite and Sons, who were also responsible for the central heating installation and domestic water supply. The sub-contractors and suppliers included: Welstead, silver-bronze handrail and balustrade to the circular stone staircase; E. J. and A. T. Bradford, Ltd., sculptors; Hopton Wood Stone Firms Ltd., marble; Froy and Sons, sanitary goods; Kleine & Co., flat roof; F. McNeill & Co., roofing.

**HOUSES, RUTLAND GATE, KNIGHTSBRIDGE, S.W.1** (pages 702-705). The general contractors were Holland & Hannen and Cubitt, Ltd. who were also responsible for the plumbing, drainage and electrical work. The sub-contractors and suppliers included: Willment Brothers, demolition; D. G. Somerville & Co., Ltd., artificial stone; Waygood-Otis, Ltd., lift installation; Young, Austen and Young, heating, hot water and ventilation; Grano-Metallic Paving and Plastering Co., plastering and granolithic; Limmer and Trinidad Lake Asphalt Co., asphalt; Stevens and Adams, Ltd., American oak flooring; John Hall and Sons, glass and glazing; Haywards Limited, ferro-crete roof lights; T. W. Palmer & Co., wrought-iron railings; Frazzi Limited, Paropa roofing; F. and E. Eastman, w. g. tiling; Treloar and Sons, cork carpet; R. Y. Ames, light and dark facing bricks; James Gibbons, Ltd., ironmongery; Cement Marketing Co., sand lime bricks and second stocks; Diespeker & Co., precast entrance canopies; Dorman, Long & Co., structural steel; John Bolding and Sons, sanitary fittings; Fredk. Braby and Sons, metal windows; Easiwork Ltd., kitchen equipment.

# THE WEEK'S BUILDING NEWS

### LONDON AND DISTRICT (15 MILES RADIUS)

ISLINGTON. *Dwellings.* The Islington B.C. has approved a revised scheme for the erection of 206 dwellings on a site in Hornsey Lane and Hazellville Road.

LEWISHAM. *Flats, etc.* Plans passed by the Lewisham B.C.: Public-house, to abut upon Verdant Lane and Whitefoot Lane, Catford, Messrs. Watney Combe Reid & Co.; 42 flats, St. Peter's College, Loampit Hill, Mr. E. W. Palmer; flats, West Hill, Sydenham, Mr. E. M. Tuck; flats, Vian Street, Messrs. Wright and Renny; flats, "Perry Mount," Mayow Road, Mr. M. J. Denson; shops with flats over, Southend Lane, Lower Sydenham, Mr. A. Frampton; flats, Silverdale, Mr. R. G. Covell; 132 flats, rear of Chinbrook Road, Grove Park, Messrs. Fitt and Prior-Hale; factory, Century Works, Conington Road, Messrs. Griggs and Son, Ltd.; stores, rear of High Street, Mr. M. de Metz; squash rackets court, Alford Club, Crantock Road, Catford, Alford Club; houses, Beckenham Lane Estate, Catford, Messrs. L. A. Culliford and Partners; three blocks maisonnettes, Chinbrook Road, Grove Park, Messrs. Anderson, Forster, Warren and Wilcox; block of flats, etc., junction of Westwood Road and The Drive, Sydenham, Messrs. H. F. Thoburn, Ltd.; 683 houses, Hall Park Estate, Catford, Messrs. A. J. Glock, Ltd.; block of flats, junction of Bromley Road and Allerford Road, Catford, and 10 shops, Verdant Lane, Messrs. Wates, Ltd.; 31 flats, Sydenham Park, Mr. E. R. Woodford.

WALTHAMSTOW. *Town Hall.* The Walthamstow Corporation is to proceed with the construction of the foundations for the new town hall at a cost of £17,845.

### SOUTHERN COUNTIES

CHICHESTER. *Extensions.* The West Sussex Education Committee is to enlarge the High School for Girls, Chichester, at a cost of £14,665.

CHICHESTER. *Court House.* The West Sussex C.C. is to provide a court house on the site of Southgate House, Chichester, in accordance with the draft plans submitted by the County Architect.

COULSDON. *Houses.* Plans passed by the Coulsdon U.D.C.: 31 houses, Mead Way and Tollers Lane, Mr. P. D. Sullivan; eight houses, Lyndhurst Road, Mr. W. H. Gorham; six houses, Inwood Avenue, Old Coulsdon, Mr. R. R. Turner.

EPSOM. *School.* The Surrey C.C. has obtained sanction to borrow £47,113 for the erection of a secondary school for boys at Epsom.

GRAVESEND. *Schools.* The Gravesend Education Committee is to erect new schools at Northcourt and Westcourt at a cost of £17,904 and £27,944 respectively.

GRAVESEND. *Shop.* Messrs. Harland and Wolff, Ltd., are to construct a general engineering shop at Albion Parade, Gravesend, for Messrs. R. L. Priestley, Ltd.

GUILDFORD. *Technical College.* The Surrey C.C. has obtained sanction to borrow £145,906 for the erection of new premises for the Guildford technical college and art school.

HAMPSHIRE. *Extensions.* The Hampshire Education Committee is to enlarge the senior boys' school at Andover at a cost of £11,270.

HAMPSHIRE. *School.* The Hampshire Education Committee is to erect a senior school at Bartley at a cost of £26,446.

HAMPSHIRE. *School.* The Hampshire Education Committee is to erect an elementary school for about 240 children at Cowplain.

HAMPSHIRE. *School.* The Hampshire Education Committee is to erect an elementary school for about 480 senior children at Lymington, at a cost of £25,985.

KENT. *School.* The Kent Education Committee has obtained sanction to borrow £46,841 for the erection of a secondary school for boys at Sidcup.

MARGATE. *Extensions.* The Margate Education Committee is to erect infants' departments at the Drapers Mills and the Garlinge Schools at a cost of £33,200.

NEWPORT. *Houses.* The Newport (Isle of Wight) Corporation has asked the Borough Surveyor to prepare plans for the erection of 49 houses at Whitepit Lane and Melbourne Park.

OXFORD. *School.* The Oxfordshire Education Committee is to erect an elementary school at Witney at a cost of £12,337.

PETWORTH. *Court House.* The West Sussex C.C. has instructed the County Architect to prepare a scheme for the provision of a new courthouse at Petworth.

### MIDLAND COUNTIES

BURTON-ON-TRENT. *Mortuary.* The Burton-on-Trent Corporation has approved plans by the Borough Surveyor for the erection of a borough mortuary in Belvedere Road.

WOLVERHAMPTON. *Houses.* Plans passed by the Wolverhampton Corporation: 16 houses, Wyrley Street, for Messrs. A. Poole, Son & Co.; 81 houses, Mason Crescent, for Provincial Developments (Stourbridge), Ltd.; 12 houses off Bhylls Lane for Bushbury Estate Co.; factory extension, Wednesfield Road, for Messrs. Chubb and Son, Ltd.; factory off Thompson Avenue, for Express Valet Service; factory extension, Heath Street, for Utility Electrical Co.; six houses, Pinfold Lane, for Mr. L. T. Taylor; laboratory, Park Lane, for Messrs. Henry Meadows, Ltd.; eight houses, Regent Road, for Mr. L. F. Butler; dance hall, Hill Street, for Mr. A. Hawker; six houses, Canterbury Road, for Mr. E. T. Dakin; factory extension, Graiseley Row, for Messrs. T. Wilkes and Sons; seven houses, Woodhall Road, for Mr. M. F. Griffiths.

WOLVERHAMPTON. *Medical and Turkish Baths.* The Wolverhampton Corporation is to erect medical and Turkish baths in Bath Avenue at a cost of £15,070.

### NORTHERN COUNTIES

BLACKPOOL. *Police Court.* The Blackpool Corporation is to invite Mr. Percy Thomas to prepare plans for the erection of new police court and fire brigade buildings on the site of the existing buildings and adjoining premises.

BLACKPOOL. *Hospital, etc.* The Blackpool Corporation is to purchase the old Victoria Hospital premises for the provision of a maternity hospital and new public health offices.

BLACKPOOL. *Lifeboat House.* The Blackpool Corporation recommends in principle to a site on the Promenade being afforded to the Royal National Lifeboat Institution for the erection thereon of a lifeboat house, but has asked the institution to consider the possibility of utilizing a site south of the Central Pier.

GRIMSBY. *Elementary School.* The Grimsby Education Committee is to erect an elementary school in Macaulay Street, the Ministry of Health having sanctioned a loan of £34,295 for the purpose.

KEIGHLEY. *Houses.* Plans passed by Keighley Corporation: 11 houses, Malsis Road, Hartley Pickles; 143 houses and 17 bungalows, Housing Committee; eight houses, Ash Mount, and Exley Road, Messrs. Hird Bros. & Co., Ltd.

MANCHESTER. *Furniture and Fittings.* The Manchester Corporation has obtained sanction for a loan of £10,000 for furniture and fittings for the new police headquarters.

MIDDLESBROUGH. *Instruction Centre.* The Middlesbrough Education Committee is to erect an instruction centre at Lansdowne Road, at a cost of £11,432.

MORECAMBE. *Depository, etc.* Plans passed by the Morecambe Corporation: Furniture depository, James Street, Mr. G. P. Fowler; 40 houses, Anstable Road, Messrs. Russell Bros.

SCARBOROUGH. *Houses.* The Scarborough Corporation has approved plans by the borough engineer for the erection of 98 further houses on the Barrowcliff Estate.

SOUTHPORT. *School.* The Southport Education Committee has acquired 14 acres between Cockle Dick's Lane and Paul's Lane, as a site for the proposed new High School for Girls.

SOUTHPORT. *Pleasure Grounds, etc.* The Southport County Borough Council has voted £11,500 for the purchase of the Botanic Gardens, Barkfield Lane, for purposes of public works and pleasure grounds, including a recreation ground for children, bowling greens, boating lake and a museum. Part of the gardens will be set aside as a memorial to his late Majesty, King George V.

YORK. *Houses, etc.* Plans passed by the York Corporation: 333 houses and 50 flats, Water Lane estate, York Corporation; 10 houses, Park Street and Holgate Rise, Messrs. Sorrell and Scaife; 28 houses, Beech Avenue, Ainsty Building Estates.

YORK. *Municipal Offices.* The York Corporation has received a report by the architect and plans of the proposed municipal offices. The revised estimate of the cost of the buildings is £111,300, exclusive of the cost of any special foundations which may be found necessary.

### WALES

GLAMORGAN. *Police Station.* The Glamorgan County Council is to erect a police station and court at Maesteg at a cost of £13,389.

SWANSEA. *Extensions.* The Swansea Education Committee has obtained sanction to borrow £17,668 for extensions at Gors School.

# RATES OF WAGES

**The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.**

| | | | I. s. d. | II. s. d. |
|---|---|---|---|---|
| A | ABERDARE ... | S. Wales & M. | 1 7 | 1 2½ |
| A | Aberdeen ... | Scotland | 1 7 | 1 2½ |
| $A_1$ | Abergavenny ... | S. Wales & M. | 1 6½ | 1 2 |
| $A_2$ | Abingdon ... | S. Counties | 1 5½ | 1 1½ |
| A | Accrington ... | N.W. Counties | 1 7 | 1 2½ |
| $A_2$ | Addlestone ... | S. Counties | 1 6 | 1 1½ |
| A | Adlington ... | N.W. Counties | 1 7 | 1 2½ |
| A | Airdrie ... | Scotland | *1 7 | 1 2½ |
| C | Aldeburgh ... | E. Counties | 1 3 | 11½ |
| A | Altrincham ... | N.W. Counties | 1 7 | 1 2½ |
| $B_2$ | Appleby ... | N.W. Counties | 1 3½ | 11½ |
| A | Ashton-under-Lyne | N.W. Counties | 1 7 | 1 2½ |
| B | Aylesbury ... | S. Counties | 1 5 | 1 0½ |
| B | BANBURY ... | S. Counties | 1 5 | 1 0½ |
| $B_1$ | Bangor ... | N.W. Counties | 1 4½ | 1 0½ |
| $A_2$ | Barnard Castle | N.E. Coast | 1 5½ | 1 1½ |
| A | Barnsley ... | Yorkshire | 1 7 | 1 2½ |
| B | Barnstaple ... | S.W. Counties | 1 5 | 1 0½ |
| A | Barrow ... | N.W. Counties | 1 7 | 1 2½ |
| A | Barry ... ... | S. Wales & M. | 1 7 | 1 2½ |
| B | Basingstoke ... | S.W. Counties | 1 5 | 1 0½ |
| $A_2$ | Bath ... ... | S.W. Counties | 1 6 | 1 1½ |
| A | Batley ... | Yorkshire | 1 7 | 1 2½ |
| $A_2$ | Bedford ... | E. Counties | 1 6 | 1 1½ |
| $A_2$ | Berwick-on-Tweed | N.E. Coast | 1 6 | 1 1½ |
| $A_2$ | Bewdley ... | Mid. Counties | 1 6 | 1 1½ |
| B | Bicester ... | S. Counties | 1 5 | 1 0½ |
| | Birkenhead ... | N.W. Counties | *1 8 | 1 3 |
| A | Birmingham ... | Mid. Counties | 1 7 | 1 2½ |
| A | Bishop Auckland | N.E. Coast | 1 6½ | 1 2 |
| A | Blackburn ... | N.W. Counties | 1 7 | 1 2½ |
| A | Blackpool ... | N.W. Counties | 1 7 | 1 2½ |
| A | Blyth ... ... | N.E. Coast | 1 7 | 1 2½ |
| B | Bognor ... | S. Counties | 1 5 | 1 0½ |
| A | Bolton ... | N.W. Counties | 1 7 | 1 2½ |
| $A_2$ | Boston ... | Mid. Counties | 1 5½ | 1 1½ |
| $A_2$ | Bournemouth ... | S. Counties | 1 6 | 1 1½ |
| $B_2$ | Bovey Tracey ... | S.W. Counties | 1 4 | 1 0 |
| A | Bradford ... | Yorkshire | 1 7 | 1 2½ |
| $A_1$ | Brentwood ... | E. Counties | 1 6½ | 1 2 |
| A | Bridgend ... | S. Wales & M. | 1 7 | 1 2½ |
| B | Bridgwater ... | S.W. Counties | 1 5 | 1 0½ |
| A | Bridlington ... | Yorkshire | 1 6½ | 1 2 |
| A | Brighouse ... | Yorkshire | 1 7 | 1 2½ |
| A | Brighton ... | S. Counties | 1 6 | 1 1½ |
| A | Bristol ... | S.W. Counties | 1 7 | 1 2½ |
| B | Brixham ... | S.W. Counties | 1 5 | 1 0½ |
| A | Bromsgrove ... | Mid. Counties | 1 7 | 1 2½ |
| B | Bromyard ... | Mid. Counties | 1 5 | 1 0½ |
| A | Burnley ... | N.W. Counties | 1 7 | 1 2½ |
| A | Bursiem ... | Mid. Counties | 1 7 | 1 2½ |
| A | Burton-on-Trent | Mid. Counties | 1 7 | 1 2½ |
| A | Bury ... ... | N.W. Counties | 1 7 | 1 2½ |
| $A_1$ | Buxton ... | N.W. Counties | 1 6½ | 1 2 |
| $A_1$ | CAMBRIDGE... | E. Counties | 1 6½ | 1 2 |
| $B_1$ | Canterbury ... | S. Counties | 1 4½ | 1 0½ |
| A | Cardiff ... | S. Wales & M. | 1 7 | 1 2½ |
| A | Carlisle ... | N.W. Counties | 1 7 | 1 2½ |
| B | Carmarthen ... | S. Wales & M. | 1 5 | 1 0½ |
| B | Carnarvon ... | N.W. Counties | 1 5 | 1 0½ |
| $A_1$ | Carnforth ... | N.W. Counties | 1 7 | 1 2½ |
| A | Castleford ... | Yorkshire | 1 7 | 1 2½ |
| $A_2$ | Chatham ... | S. Counties | 1 5½ | 1 1½ |
| $A_2$ | Chelmsford ... | E. Counties | 1 5½ | 1 1½ |
| $A_3$ | Cheltenham ... | S.W. Counties | 1 5½ | 1 1½ |
| A | Chester ... | N.W. Counties | 1 7 | 1 2½ |
| A | Chesterfield ... | Mid. Counties | 1 7 | 1 2½ |
| B | Chichester ... | S. Counties | 1 5 | 1 0½ |
| A | Chorley ... | N.W. Counties | 1 7 | 1 2½ |
| $B_1$ | Cirencester ... | S. Counties | 1 4½ | 1 0½ |
| A | Clitheroe ... | N.W. Counties | 1 7 | 1 2½ |
| A | Clydebank ... | Scotland | 1 7 | 1 2½ |
| A | Coalville ... | Mid. Counties | 1 7 | 1 2½ |
| $A_2$ | Colchester ... | E. Counties | 1 6 | 1 1½ |
| $A_1$ | Colne ... ... | N.W. Counties | 1 6½ | 1 2 |
| $A_2$ | Colwyn Bay ... | N.W. Counties | 1 6 | 1 1½ |
| $A_1$ | Consett ... | N.E. Coast | 1 6½ | 1 2 |
| $A_2$ | Conway ... | N.W. Counties | 1 6 | 1 1½ |
| A | Coventry ... | Mid. Counties | 1 7 | 1 2½ |
| $A_2$ | Crewe ... ... | N.W. Counties | 1 6 | 1 1½ |
| $A_2$ | Cumberland ... | N.W. Counties | 1 5½ | 1 1½ |
| A | DARLINGTON | N.E. Coast | 1 7 | 1 2½ |
| A | Darwen ... | N.W. Counties | 1 7 | 1 2½ |
| $B_1$ | Deal ... ... | S. Counties | 1 4½ | 1 0½ |
| $A_2$ | Denbigh ... | N.W. Counties | 1 5½ | 1 1½ |
| A | Derby ... ... | Mid. Counties | 1 7 | 1 2½ |
| A | Dewsbury ... | Yorkshire | 1 7 | 1 2½ |
| B | Didcot ... | S. Counties | 1 5 | 1 0½ |
| A | Doncaster ... | Yorkshire | 1 7 | 1 2½ |
| $B_1$ | Dorchester ... | S.W. Counties | 1 4½ | 1 0½ |
| $A_3$ | Driffield ... | Yorkshire | 1 5½ | 1 1½ |
| $A_2$ | Droitwich ... | Mid. Counties | 1 6 | 1 1½ |
| A | Dudley ... | Mid. Counties | 1 7 | 1 2½ |
| $A_2$ | Dumfries ... | Scotland | 1 6 | 1 1½ |
| A | Dundee ... | Scotland | 1 7 | 1 2½ |
| A | Durham ... | N.E. Coast | 1 7 | 1 2½ |
| $A_2$ | EASTBOURNE | S. Counties | 1 6 | 1 1½ |
| $A_1$ | Ebbw Vale ... | S. Wales & M. | 1 6½ | 1 2 |
| A | Edinburgh ... | Scotland | 1 7 | 1 2½ |
| $A_2$ | Exeter ... | S.W. Counties | *1 6 | 1 1½ |
| B | Exmouth ... | S.W. Counties | 1 5 | 1 0½ |
| $A_2$ | FELIXSTOWE | E. Counties | 1 5½ | 1 1½ |
| $A_2$ | Filey ... ... | Yorkshire | 1 5½ | 1 1½ |
| A | Fleetwood ... | N.W. Counties | 1 7 | 1 2½ |
| $B_1$ | Folkestone ... | S. Counties | 1 4½ | 1 0½ |
| A | Frodsham ... | N.W. Counties | 1 7 | 1 2½ |
| $B_2$ | Frome ... | S.W. Counties | 1 4 | 1 0 |
| A | GATESHEAD | N.E. Coast | 1 7 | 1 2½ |
| B | Gillingham ... | S. Counties | 1 5 | 1 0½ |
| $A_1$ | Glamorgan-shire, Rhondda Valley District | S. Wales & M. | 1 6½ | 1 2 |
| A | Glasgow ... | Scotland | 1 7 | 1 2½ |
| $A_2$ | Gloucester ... | S.W. Counties | 1 6 | 1 1½ |
| $A_2$ | Goole ... ... | Yorkshire | 1 6 | 1 1½ |
| $A_2$ | Gosport ... | S. Counties | 1 6 | 1 1½ |
| $A_2$ | Grantham ... | Mid. Counties | 1 5½ | 1 1½ |
| $A_1$ | Gravesend ... | S. Counties | 1 6½ | 1 2 |
| A | Greenock ... | Scotland | *1 7 | 1 2½ |
| A | Grimsby ... | Mid. Counties | 1 7 | 1 2½ |
| B | Guildford ... | S. Counties | 1 5 | 1 0½ |
| A | HALIFAX ... | Yorkshire | 1 7 | 1 2½ |
| A | Hanley ... | Mid. Counties | 1 7 | 1 2½ |
| A | Harrogate ... | Yorkshire | 1 7 | 1 2½ |
| A | Hartlepools ... | N.E. Coast | 1 7 | 1 2½ |
| B | Harwich ... | E. Counties | 1 5 | 1 0½ |
| B | Hastings ... | S. Counties | 1 5 | 1 0½ |
| $A_2$ | Hatfield ... | S. Counties | 1 6 | 1 1½ |
| B | Hereford ... | S.W. Counties | 1 5 | 1 0½ |
| $A_2$ | Hertford ... | E. Counties | 1 6 | 1 1½ |
| A | Heysham ... | N.W. Counties | 1 7 | 1 2½ |
| A | Howden ... | N.E. Coast | 1 7 | 1 2½ |
| A | Huddersfield ... | Yorkshire | 1 7 | 1 2½ |
| A | Hull ... ... | Yorkshire | 1 7 | 1 2½ |
| A | ILKLEY ... | Yorkshire | 1 7 | 1 2½ |
| A | Immingham ... | Mid. Counties | 1 7 | 1 2½ |
| $A_2$ | Ipswich ... | E. Counties | 1 6 | 1 1½ |
| $B_2$ | Isle of Wight ... | S. Counties | 1 4 | 1 0 |
| A | JARROW ... | N.E. Coast | 1 7 | 1 2½ |
| A | KEIGHLEY ... | Yorkshire | 1 7 | 1 2½ |
| $A_2$ | Kendal ... | N.W. Counties | 1 5½ | 1 1½ |
| $A_2$ | Keswick ... | N.W. Counties | 1 5½ | 1 1½ |
| $A_1$ | Kettering ... | Mid. Counties | 1 6½ | 1 2 |
| $A_2$ | Kidderminster | Mid. Counties | 1 6 | 1 1½ |
| $B_1$ | King's Lynn ... | E. Counties | 1 4½ | 1 0½ |
| A | LANCASTER ... | N.W. Counties | 1 7 | 1 2½ |
| $A_1$ | Leamington ... | Mid. Counties | 1 6½ | 1 2 |
| A | Leeds ... ... | Yorkshire | 1 7 | 1 2½ |
| A | Leek ... ... | Mid. Counties | 1 7 | 1 2½ |
| A | Leicester ... | Mid. Counties | 1 7 | 1 2½ |
| A | Leigh ... ... | N.W. Counties | 1 7 | 1 2½ |
| B | Lewes ... ... | S. Counties | 1 5 | 1 0½ |
| $A_2$ | Lichfield ... | Mid. Counties | 1 6 | 1 1½ |
| A | Lincoln ... | Mid. Counties | 1 7 | 1 2½ |
| | Liverpool ... | N.W. Counties | *1 8½ | 1 3½ |
| $A_2$ | Llandudno ... | N.W. Counties | 1 6 | 1 1½ |
| A | Llanelly ... | S. Wales & M. | 1 7 | 1 2½ |
| | London (12-miles radius) | | 1 8½ | 1 3½ |
| | Do. (12-15 miles radius) | | 1 8 | 1 3 |
| A | Long Eaton ... | Mid. Counties | 1 7 | 1 2½ |
| A | Loughborough ... | Mid. Counties | 1 7 | 1 2½ |
| $A_1$ | Luton ... ... | E. Counties | 1 6½ | 1 2 |
| A | Lytham ... | N.W. Counties | 1 7 | 1 2½ |
| $A_1$ | MACCLESFIELD | N.W. Counties | 1 6½ | 1 2 |
| $A_2$ | Maidstone ... | S. Counties | 1 5½ | 1 1½ |
| $A_2$ | Malvern ... | Mid. Counties | 1 5½ | 1 1½ |
| A | Manchester ... | N.W. Counties | 1 7 | 1 2½ |
| A | Mansfield ... | Mid. Counties | 1 7 | 1 2½ |
| $B_1$ | Margate ... | S. Counties | 1 4½ | 1 0½ |
| $A_2$ | Matlock ... | Mid. Counties | 1 5½ | 1 1½ |
| $A_1$ | Merthyr ... | S. Wales & M. | 1 6½ | 1 2 |
| A | Middlesbrough | N.E. Coast | 1 7 | 1 2½ |
| $A_2$ | Middlewich ... | N.W. Counties | 1 6 | 1 1½ |
| $B_2$ | Minehead ... | S.W. Counties | 1 4 | 1 0 |
| $B_2$ | Monmouth & S. and E. Glamorganshire | S. Wales & M. | 1 4 | 1 0 |
| A | Morecambe ... | N.W. Counties | 1 7 | 1 2½ |
| $A_2$ | NANTWICH ... | N.W. Counties | 1 6 | 1 1½ |
| A | Neath ... | S. Wales & M. | 1 7 | 1 2½ |
| A | Nelson ... | N.W. Counties | 1 7 | 1 2½ |
| A | Newcastle ... | N.E. Coast | 1 7 | 1 2½ |
| A | Newport ... | S. Wales & M. | 1 7 | 1 2½ |
| A | Normanton ... | Yorkshire | 1 7 | 1 2½ |
| A | Northampton | Mid. Counties | 1 7 | 1 2½ |
| A | North Shields... | N.E. Coast | 1 7 | 1 2½ |
| A | North Staffs ... | Mid. Counties | 1 7 | 1 2½ |
| $A_1$ | Norwich ... | E. Counties | 1 6½ | 1 2 |
| A | Nottingham ... | Mid. Counties | 1 7 | 1 2½ |
| A | Nuneaton ... | Mid. Counties | 1 7 | 1 2½ |
| $A_2$ | OAKHAM ... | Mid. Counties | 1 5½ | 1 1½ |
| A | Oldham ... | N.W. Counties | 1 7 | 1 2½ |
| $A_2$ | Oswestry ... | N.W. Counties | 1 5½ | 1 1½ |
| $A_1$ | Oxford ... | S. Counties | 1 6½ | 1 2 |
| A | PAISLEY ... | Scotland | *1 7 | 1 2½ |
| $B_2$ | Pembroke ... | S. Wales & M. | 1 3½ | 0 11½ |
| A | Perth ... ... | Scotland | *1 7 | 1 2½ |
| $A_1$ | Peterborough .. | E. Counties | 1 6½ | 1 2 |
| A | Plymouth ... | S.W. Counties | *1 7 | 1 2½ |
| A | Pontefract ... | Yorkshire | 1 7 | 1 2½ |
| $A_1$ | Pontypridd ... | S. Wales & M. | 1 6½ | 1 2 |
| $A_2$ | Portsmouth ... | S. Counties | 1 6 | 1 1½ |
| A | Preston ... | N.W. Counties | 1 7 | 1 2½ |
| A | QUEENSFERRY | N.W. Counties | 1 7 | 1 2½ |
| $A_2$ | READING ... | S. Counties | 1 6½ | 1 2 |
| B | Reigate ... | S. Counties | 1 5½ | 1 1½ |
| $A_2$ | Retford ... | Mid. Counties | 1 5½ | 1 1½ |
| $A_1$ | Rhondda Valley | S. Wales & M. | 1 6½ | 1 2 |
| A | Ripon ... ... | Yorkshire | 1 5½ | 1 1½ |
| A | Rochdale ... | N.W. Counties | 1 7 | 1 2½ |
| B | Rochester ... | S. Counties | 1 5 | 1 0½ |
| $A_1$ | Ruabon ... | N.W. Counties | 1 6½ | 1 2 |
| A | Rugby ... | Mid. Counties | 1 7 | 1 2½ |
| $A_2$ | Rugeley ... | Mid. Counties | 1 6 | 1 1½ |
| A | Runcorn ... | N.W. Counties | 1 7 | 1 2½ |
| $A_1$ | ST ALBANS ... | E. Counties | 1 6½ | 1 2 |
| A | St. Helens ... | N.W. Counties | 1 7 | 1 2½ |
| $B_2$ | Salisbury ... | S.W. Counties | 1 3½ | 0 11½ |
| $A_1$ | Scarborough ... | Yorkshire | 1 6½ | 1 2 |
| A | Scunthorpe ... | Mid. Counties | 1 7 | 1 2½ |
| A | Sheffield ... | Yorkshire | 1 7 | 1 2½ |
| A | Shipley ... | Yorkshire | 1 7 | 1 2½ |
| $A_2$ | Shrewsbury ... | Mid. Counties | 1 6 | 1 1½ |
| $A_2$ | Skipton ... | Yorkshire | 1 6 | 1 1½ |
| $A_2$ | Slough ... | S. Counties | 1 6 | 1 1½ |
| $A_1$ | Solihull ... | Mid. Counties | 1 6½ | 1 2 |
| $A_2$ | Southampton | S. Counties | 1 6 | 1 1½ |
| $A_1$ | Southend-on-Sea | E. Counties | 1 6½ | 1 2 |
| A | Southport ... | N.W. Counties | 1 7 | 1 2½ |
| A | S. Shields ... | N.E. Coast | 1 7 | 1 2½ |
| $A_1$ | Stafford ... | Mid. Counties | 1 6½ | 1 2 |
| A | Stirling ... | Scotland | 1 7½ | 1 2½ |
| A | Stockport ... | N.W. Counties | 1 7 | 1 2½ |
| A | Stockton-on-Tees | N.E. Coast | 1 7 | 1 2½ |
| A | Stoke-on-Trent | Mid. Counties | 1 7 | 1 2½ |
| B | Stroud ... | S.W. Counties | 1 5 | 1 0½ |
| A | Sunderland ... | N.E. Coast | 1 7 | 1 2½ |
| A | Swansea ... | S. Wales & M. | 1 7 | 1 2½ |
| $A_2$ | Swindon ... | S.W. Counties | 1 5½ | 1 1½ |
| $A_1$ | TAMWORTH ... | N.W. Counties | 1 6½ | 1 2 |
| B | Taunton ... | S.W. Counties | 1 5 | 1 0½ |
| A | Teesside Dist.... | N.E. Counties | 1 7 | 1 2½ |
| $A_2$ | Teignmouth ... | S.W. Coast | 1 6 | 1 1½ |
| A | Todmorden ... | Yorkshire | 1 7 | 1 2½ |
| $A_1$ | Torquay ... | S.W. Counties | 1 6½ | 1 2 |
| $B_2$ | Truro ... ... | S.W. Counties | 1 4 | 1 0 |
| $A_2$ | Tunbridge Wells | S. Counties | 1 5½ | 1 1½ |
| A | Tunstall ... | Mid. Counties | 1 7 | 1 2½ |
| A | Tyne District | N.E. Coast | 1 7 | 1 2½ |
| A | WAKEFIELD | Yorkshire | 1 7 | 1 2½ |
| A | Walsall ... | Mid. Counties | 1 7 | 1 2½ |
| A | Warrington ... | N.W. Counties | 1 7 | 1 2½ |
| $A_1$ | Warwick ... | Mid. Counties | 1 6½ | 1 2 |
| $A_1$ | Wellingborough | Mid. Counties | 1 6½ | 1 2 |
| A | West Bromwich | Mid. Counties | 1 7 | 1 2½ |
| $A_2$ | Weston-s.-Mare | W. Counties | 1 6 | 1 1½ |
| $A_2$ | Whitby ... | Yorkshire | 1 6 | 1 1½ |
| A | Widnes ... | N.W. Counties | 1 7 | 1 2½ |
| A | Wigan ... | N.W. Counties | 1 7 | 1 2½ |
| B | Winchester ... | S. Counties | 1 5 | 1 0½ |
| $A_2$ | Windsor ... | S. Counties | 1 6 | 1 1½ |
| A | Wolverhampton | Mid. Counties | 1 7 | 1 2½ |
| $A_2$ | Worcester ... | Mid. Counties | 1 6 | 1 1½ |
| $A_2$ | Worksop ... | Yorkshire | 1 5½ | 1 1½ |
| $A_2$ | Wrexham ... | N.W. Counties | 1 6½ | 1 2 |
| $A_2$ | Wycombe ... | S. Counties | 1 5½ | 1 1½ |
| B | YARMOUTH | E. Counties | 1 5 | 1 0½ |
| B | Yeovil ... | S.W. Counties | 1 5 | 1 0½ |
| A | York ... ... | Yorkshire | 1 7 | 1 2½ |

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given.

**The rates for every trade in any given area will be sent on request.** The rates of wages have been revised consequent upon the increase in wages which came into operation on February 1, together with all revisions following authorized annual regradings.

# CURRENT PRICES

**The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.**

## WAGES

| | | s. | d. |
|---|---|---|---|
| Bricklayer | per hour | 1 | 8½ |
| Carpenter | ,, | 1 | 8½ |
| Joiner | ,, | 1 | 8½ |
| Machinist | ,, | 1 | 9½ |
| Mason (Banker) | ,, | 1 | 8½ |
| ,, (Fixer) | ,, | 1 | 9½ |
| Plumber | ,, | 1 | 8½ |
| Painter | ,, | 1 | 7½ |
| Paperhanger | ,, | 1 | 7½ |
| Glazier | ,, | 1 | 8½ |
| Slater | ,, | 1 | 8½ |
| Scaffolder | ,, | 1 | 4½ |
| Timberman | ,, | 1 | 4½ |
| Navvy | ,, | 1 | 3½ |
| General Labourer | ,, | 1 | 3½ |
| Lorryman | ,, | 1 | 6½ |
| Crane Driver | ,, | 1 | 7½ |
| Watchman | per week | 2 | 10 | 0 |

## MATERIALS

### EXCAVATOR AND CONCRETOR

| | | £ | s. | d. |
|---|---|---|---|---|
| Grey Stone Lime | per ton | 2 | 2 | 0 |
| Blue Lias Lime | ,, | 1 | 18 | 6 |
| Hydrated Lime | ,, | 2 | 5 | 0 |
| Portland Cement, in 4-ton lots (d/d site, including Paper Bags) | ,, | 1 | 19 | 0 |
| Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags) | ,, | 2 | 5 | 0 |
| White Portland Cement, in 1-ton lots | ,, | 8 | 15 | 0 |
| Thames Ballast | per Y.C. | | 6 | 6 |
| 1″ Crushed Ballast | ,, | | 7 | 0 |
| Building Sand | ,, | | 7 | 6 |
| Washed Sand | ,, | | 8 | 6 |
| 2″ Broken Brick | ,, | | 8 | 0 |
| ½″ ,, ,, | ,, | | 10 | 3 |
| Pan Breeze | ,, | | 6 | 6 |
| Coke Breeze | ,, | | 8 | 9 |

### DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

| | | 4″ s. | 4″ d. | 6″ s. | 6″ d. |
|---|---|---|---|---|---|
| Straight Pipes | per F.R. | 0 | 9 | 1 | 1 |
| Bends | each | 1 | 9 | 2 | 6 |
| Taper Bends | ,, | 3 | 6 | 5 | 3 |
| Rest Bends | ,, | 4 | 3 | 6 | 3 |
| Single Junctions | ,, | 3 | 6 | 5 | 3 |
| Double | ,, | 4 | 9 | 6 | 6 |
| Straight channels | per F.R. | 1 | 6 | 2 | 6 |
| ½″ Channel bends | each | 2 | 9 | 4 | 0 |
| Channel junctions | ,, | 4 | 6 | 6 | 6 |
| Channel tapers | ,, | 2 | 9 | 4 | 0 |
| Yard gullies | ,, | 6 | 9 | 8 | 9 |
| Interceptors | ,, | 16 | 0 | 19 | 6 |
| IRON DRAINS: | | | | | |
| Iron drain pipe | per F.R. | 1 | 6 | 2 | 6 |
| Bends | each | 5 | 0 | 10 | 6 |
| Inspection bends | ,, | 9 | 0 | 15 | 0 |
| Single junctions | ,, | 8 | 9 | 18 | 0 |
| Double junctions | ,, | 13 | 6 | 30 | 0 |
| Lead Wool | lb. | | 6 | | — |
| Gaskin | ,, | | 5 | | — |

### BRICKLAYER

| | | £ | s. | d. |
|---|---|---|---|---|
| Flettons | per M. | 2 | 12 | 0 |
| Grooved do. | ,, | 2 | 14 | 0 |
| Phorpres bricks | ,, | 2 | 15 | 0 |
| ,, Cellular bricks | ,, | 2 | 15 | 0 |
| Stocks, 1st quality | ,, | 4 | 11 | 0 |
| ,, 2nd ,, | ,, | 4 | 2 | 6 |
| Blue Bricks, Pressed | ,, | 8 | 14 | 0 |
| ,, Wirecuts | ,, | 7 | 12 | 6 |
| ,, Brindles | ,, | 7 | 0 | 0 |
| ,, Bullnose | ,, | 9 | 0 | 0 |
| Red Sand-faced Facings | ,, | 6 | 18 | 6 |
| Red Rubbers for Arches | ,, | 12 | 0 | 0 |
| Multicoloured Facings | ,, | 7 | 10 | 0 |
| Luton Facings | ,, | 7 | 10 | 0 |
| Phorpres White Facings | ,, | 3 | 17 | 3 |
| ,, Rustic Facings | ,, | 3 | 12 | 3 |
| Midhurst White Facings | ,, | 5 | 0 | 0 |
| Glazed Bricks, Ivory, White or Salt glazed, 1st quality: | | | | |
| Stretchers | ,, | 21 | 0 | 0 |
| Headers | ,, | 20 | 10 | 0 |
| Bullnose | ,, | 27 | 10 | 0 |
| Double Stretchers | ,, | 29 | 10 | 0 |
| Double Headers | ,, | 26 | 10 | 0 |
| Glazed Second Quality, *Less* | ,, | 1 | 0 | 0 |
| ,, Buffs and Creams, *Add* | ,, | 2 | 0 | 0 |
| ,, Other Colours | ,, | 5 | 10 | 0 |
| 2″ Breeze Partition Blocks | per Y.S. | | 1 | 7 |
| 2½″ ,, ,, ,, | ,, | | 1 | 10 |
| 3″ ,, ,, ,, | ,, | | 2 | 1 |
| 4″ ,, ,, ,, | ,, | | 2 | 8 |

### MASON

| The following d/d F.O.R. at Nine Elms: | | s. | d. |
|---|---|---|---|
| Portland stone, Whitbed | F.C. | 4 | 4½ |
| ,, ,, Basebed | ,, | 4 | 7½ |
| Bath stone | ,, | 2 | 10 |
| York stone | ,, | 6 | 6 |
| ,, ,, Sawn templates | ,, | 7 | 6 |
| ,, ,, Paving, 2″ | F.S. | 1 | 8 |
| ,, ,, ,, 3″ | ,, | 2 | 6 |

### SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station:

| | | £ | s. | d. |
|---|---|---|---|---|
| 24″ × 12″ Duchesses | per M. | 28 | 17 | 6 |
| 22″ × 12″ Marchionesses | ,, | 24 | 10 | 0 |
| 20″ × 10″ Countesses | ,, | 19 | 5 | 0 |
| 18″ × 10″ Viscountesses | ,, | 15 | 10 | 0 |
| 18″ × 9″ Ladies | ,, | 13 | 17 | 6 |
| Westmorland green (random sizes) | per ton | 8 | 10 | 0 |
| Old Delabole slates d/d in full truck loads to Nine Elms Station: | | | | |
| 20″ × 10″ medium grey per 1,000 (actual) | | 21 | 11 | 6 |
| ,, ,, green ,, ,, | | 24 | 7 | 4 |
| Best machine roofing tiles ,, ,, | | 4 | 5 | 0 |
| Best hand-made do. ,, ,, | | 4 | 17 | 6 |
| Hips and valleys | each | | 9 | |
| ,, hand-made | ,, | | 9½ | |
| Nails, compo | lb. | | 1 | 4 |
| ,, copper | ,, | | 1 | 8 |

### CARPENTER AND JOINER

| | | £ | s. | d. |
|---|---|---|---|---|
| Good carcassing timber | F.C. | | 2 | 2 |
| Birch | as 1″ F.S. | | | 9 |
| Deal, Joiner's | ,, ,, | | | 5 |
| ,, ,, 2nds | ,, ,, | | | 4 |
| Mahogany, Honduras | ,, ,, | | 1 | 3 |
| ,, African | ,, ,, | | 1 | 1 |
| ,, Cuban | ,, ,, | | 2 | 6 |
| Oak, plain American | ,, ,, | | 1 | 0 |
| ,, Figured ,, | ,, ,, | | 1 | 3 |
| ,, plain Japanese | ,, ,, | | 1 | 2 |
| ,, Figured ,, | ,, ,, | | 1 | 5 |
| ,, Austrian wainscot | ,, ,, | | 1 | 6 |
| ,, English | ,, ,, | | 1 | 11 |
| Pine, Yellow | ,, ,, | | 1 | 0 |
| ,, Oregon | ,, ,, | | | 4 |
| ,, British Columbian | ,, ,, | | | 4 |
| Teak, Moulmein | ,, ,, | | 1 | 3 |
| ,, Burma | ,, ,, | | 1 | 2 |
| Walnut, American | ,, ,, | | 2 | 3 |
| ,, French | ,, ,, | | 2 | 3 |
| Whitewood, American | ,, ,, | | 1 | 1 |
| Deal floorings, ⅞″ | Sq. | | 18 | 6 |
| ,, 1″ | ,, | 1 | 1 | 6 |
| ,, 1¼″ | ,, | 1 | 2 | 0 |
| ,, 1½″ | ,, | 1 | 5 | 0 |
| ,, 2″ | ,, | 1 | 10 | 0 |
| Deal matchings, ⅞″ | ,, | | 14 | 0 |
| ,, 1″ | ,, | | 15 | 6 |
| ,, 1½″ | ,, | 1 | 4 | 0 |
| Rough boarding, ⅞″ | ,, | | 16 | 0 |
| ,, 1″ | ,, | | 18 | 0 |
| ,, 1½″ | ,, | 1 | 6 | 0 |

Plywood, per ft. sup.

| Thickness | ⅜″ | | | ½″ | | | ⅝″ | | | ¾″ | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Qualities | A | B | BB | A | B | BB | A | B | BB | A | B | BB |
| | d. | d. | d. | d. | d. | d. | d. | d. | d. | d. | d. | d. |
| Birch 6o × 48 | 4 | 2½ | 2 | 5 | 3 | 2½ | 7 | 5 | 4 | 8 | 6 | 5 |
| Cheap Alder | – | 2 | 1½ | – | 3½ | 2 | – | – | – | – | – | – |
| Oregon Pine | – | 2½ | – | 3 | 2½ | – | 4 | 3½ | – | 5 | 4½ | – |
| Gaboon Mahogany | 4 | 3½ | – | 5 | 4½ | – | 7 | 6½ | – | 8 | 7 | – |
| Figured Oak | 6½ | 5 | – | 7½ | 5½ | – | 10 | 8 | – | 1/- | 9 | – |

| | | £ | s. | d. |
|---|---|---|---|---|
| Scotch glue | lb. | | | 8 |

### SMITH AND FOUNDER

Tubes and Fittings

(The following are the standard list prices from which should be deducted the various percentages as set forth below.)

| | ¼″ | ½″ | 1″ | 1½″ | 2″ |
|---|---|---|---|---|---|
| Tubes 2′–14′ long per ft. run | 4 | 5½ | 9½ | 1/1 | 1/10 |
| Pieces, 12″–23″ long each | 10 | 1/1 | 1/11 | 2/8 | 4/9 |
| ,, 3″–11½″ long ,, | 7 | 9 | 1/3 | 1/8 | 3/– |
| Long screws, 12″–23½″ long,, | 11 | 1/3 | 2/2 | 2/10 | 5/3 |
| ,, ,, 3″ M—½″ long,, | 8 | 10 | 1/5 | 1/11 | 3/6 |
| Bends ,, | 8 | 11 | 1/7½ | 2/7½ | 5/2 |
| Springs not socketed ,, | 5 | 7 | 1/1½ | 1/11½ | 3/11 |
| Socket unions ,, | 2/– | 3/– | 5/6 | 6/9 | 10/– |
| Elbows, square ,, | 10 | 1/1 | 1/6 | 2/2 | 4/3 |
| Tees ,, | 1/– | 1/3 | 1/10 | 2/6 | 5/1 |
| Crosses ,, | 2/2 | 2/9 | 4/1 | 5/6 | 10/6 |
| Plain sockets and nipples | 3 | 4 | 6 | 8 | 1/3 |
| Diminished sockets ,, | 4 | 6 | 9 | 1/– | 2/– |
| Flanges ,, | 9 | 1/– | 1/4 | 1/9 | 2/9 |
| Caps ,, | 3½ | 5 | 8 | 1/– | 2/– |
| Backnuts ,, | 2 | 3 | 5 | 6 | 1/1 |
| Iron main cocks ,, | 1/6 | 2/3 | 4/2 | 5/4 | 11/6 |
| ,, with brass plugs ,, | — | 4/– | 7/6 | 10/– | 21/– |

| Discounts | Tubes. Per cent. | | Per cent. |
|---|---|---|---|
| Gas | 68½ | Galvanized gas | 61½ |
| Water | 66½ | ,, water | 55 |
| Steam | 63½ | ,, steam | 50 |

| | Fittings. Per cent. | | Per cent. |
|---|---|---|---|
| Gas | 61½ | Galvanized gas | 55½ |
| Water | 58½ | ,, water | 50 |
| Steam | 53½ | ,, steam | 46½ |

| | | s. | d. |
|---|---|---|---|
| Rolled steel joists cut to length | cwt. | 14 | 6 |
| Mild steel reinforcing rods, ⅜″ | ,, | 10 | 6 |
| ,, ,, ½″ | ,, | 10 | 3 |
| ,, ,, ⅝″ | ,, | 10 | 0 |

### SMITH AND FOUNDER—*continued*

| | | s. | d. |
|---|---|---|---|
| Mild steel reinforcing rods, ¾″ | cwt. | 9 | 6 |
| ,, ,, ⅞″ | ,, | 9 | 6 |
| ,, ,, 1″ | ,, | 9 | 6 |
| ,, ,, 1¼″ | ,, | 9 | 6 |
| ,, ,, 1½″ | ,, | 9 | 6 |

| | | ½″ s. | ½″ d. | 4″ s. | 4″ d. |
|---|---|---|---|---|---|
| Cast-iron rain-water pipes of ordinary thickness metal | F.R. | | 8 | | 10 |
| Shoes | each | 2 | 0 | 3 | 0 |
| Anti-splash shoes | ,, | 4 | 6 | 8 | 0 |
| Boots | ,, | 3 | 0 | 4 | 0 |
| Bends | ,, | 2 | 7 | 3 | 9 |
| ,, with access door | ,, | | — | 6 | 3 |
| Heads | ,, | 4 | 0 | 5 | 0 |
| Swan-necks up to 9″ offsets | ,, | 3 | 9 | 6 | 0 |
| Plinth bends, 4½″ to 6″ | ,, | 3 | 9 | 5 | 3 |
| Half-round rain-water gutters of ordinary thickness metal | F.R. | | 5 | | 6 |
| Stop ends | each | | 6 | | 6 |
| Angles | ,, | 1 | 7 | 1 | 11 |
| Obtuse angles | ,, | 2 | 0 | 2 | 6 |
| Outlets | ,, | 1 | 9 | 2 | 3 |

### PLUMBER

| | | s. | d. |
|---|---|---|---|
| Lead, milled sheets | cwt. | 44 | 6 |
| ,, drawn pipes | ,, | 42 | 0 |
| ,, soil pipes | ,, | 45 | 6 |
| ,, scrap | ,, | 32 | 0 |
| Solder, plumbers' | lb. | | 9 |
| ,, fine do. | ,, | 1 | 0 |
| Copper, sheet | ,, | 1 | 2 |
| ,, tubes | ,, | 1 | 4½ |

| L.C.C. soil and waste pipes: | | 3″ | 4″ | 6″ |
|---|---|---|---|---|
| Plain cast | F.R. | 1 0 | 1 2 | 2 6 |
| Coated | ,, | 1 1 | 1 3 | 2 8 |
| Galvanized | ,, | 2 0 | 2 6 | 4 6 |
| Holderbats | each | 3 10 | 4 0 | 4 9 |
| Bends | ,, | 3 9 | 5 3 | 10 3 |
| Shoes | ,, | 2 10 | 4 4 | 9 6 |
| Heads | ,, | 4 8 | 8 5 | 12 9 |

### PLASTERER

| | | £ | s. | d. |
|---|---|---|---|---|
| Lime, chalk | per ton | 2 | 0 | 0 |
| Plaster, coarse | ,, | 2 | 15 | 0 |
| ,, fine | ,, | 4 | 7 | 6 |
| Hydrated lime | ,, | 3 | 0 | 9 |
| Sirapite | ,, | 3 | 6 | 0 |
| Keene's cement | ,, | 5 | 0 | 0 |
| Gothite plaster | ,, | 3 | 6 | 0 |
| Pioneer plaster | ,, | 3 | 6 | 0 |
| Thistle plaster | ,, | 3 | 6 | 0 |
| Sand, washed | Y.C. | | 11 | 6 |
| Hair | lb. | | | 6 |
| Laths, sawn | bundle | | 2 | 4 |
| ,, rent | ,, | | 3 | 9 |
| Lath nails | lb. | | | 1 |

### GLAZIER

| | | s. | d. | s. | d. |
|---|---|---|---|---|---|
| Sheet glass, 24 oz., squares n/e 2 ft. | F.S. | | | | 2½ |
| ,, ,, 26 oz. ,, ,, | ,, | | | | 3½ |
| Flemish, Arctic, Figures (white)* | ,, | | | | 7½ |
| Blazoned glasses | ,, | | | 2 | 6 |
| Reeded: Cross Reeded | ,, | | | | 11 |
| Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite | ,, | | | | 9 |
| Crown sheet glass (n/e 12″ × 10″) | ,, | | | 2 | 0 |
| Flashed opals (white and coloured) | ,, | 1 | 0 | and 2 | 0 |
| ⅛″ rough cast; rolled plate | ,, | | | | 9 |
| ⅛″ wired cast; wired rolled | ,, | | | | 10½ |
| ⅛″ Georgian wired cast | ,, | | | | 11½ |
| ⅛″ Polished plate, n/e 1 ft. | ,, | | †10 | to ‡1 | 1 |
| ,, ,, 2 | ,, | †1 | 2 | ,, ‡1 | 4 |
| ,, ,, 4 | ,, | †2 | 3 | ,, ‡2 | 6 |
| ,, ,, 8 | ,, | †2 | 9 | ,, ‡3 | 2 |
| ,, ,, 20 | ,, | †3 | 1 | ,, ‡3 | 9 |
| ,, ,, 45 | ,, | †3 | 3 | ,, ‡4 | 0 |
| ,, ,, 100 | ,, | †4 | 0 | ,, ‡4 | 10 |
| Vita glass, sheet, n/e 1 ft. | ,, | | | | 1 |
| ,, ,, 2 ft. | ,, | | | | 1 |
| ,, ,, over 2 ft. | ,, | | | | 1 |
| ,, ,, plate, n/e 1 ft. | ,, | | | | 1 |
| ,, ,, 2 ft. | ,, | | | | 3 |
| ,, ,, 5 ft. | ,, | | | | 4 |
| ,, ,, 7 ft. | ,, | | | | 5 |
| ,, ,, 15 ft. | ,, | | | | 6 |
| ,, ,, over 15 ft. | ,, | | | | 7 |
| "Calorex" sheet 21 oz., and 32 oz. | ,, | 2 | 6 | and 3 | 6 |
| ,, rough cast ⅛″ and ¼″ | ,, | | | 8½ ,, 1 | 0 |
| Putty, linseed oil | lb. | | | | 3 |

* *Colours, 1d. F.S. extra.*

† *Ordinary glazing quality.* ‡ *Selected glazing quality.*

### PAINTER

| | | £ | s. | d. |
|---|---|---|---|---|
| White lead in 1 cwt. casks | cwt. | 3 | 9 | 9 |
| Linseed oil | gall. | | 3 | 0 |
| Boiled oil | ,, | | 3 | 3 |
| Turpentine | ,, | | 3 | 9 |
| Patent knotting | ,, | | 14 | 0 |
| Distemper washable | cwt. | 2 | 6 | 0 |
| ,, ordinary | ,, | 2 | 0 | 0 |
| Whitening | ,, | | 4 | 0 |
| Size, double | firkin | | 3 | 0 |
| Copal varnish | gall. | | 13 | 0 |
| Flat varnish | ,, | | 14 | 0 |
| Outside varnish | ,, | | 16 | 0 |
| White enamel | ,, | 1 | 15 | 0 |
| Ready mixed paint | ,, | | 13 | 6 |
| Brunswick black | ,, | | 7 | 6 |

# CURRENT PRICES FOR MEASURED WORK

**The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.**

## EXCAVATOR AND CONCRETOR

| | | s. | d. |
|---|---|---|---|
| Digging over surface n/e 12" deep and cart away | Y.S. | 2 | 9 |
| " to reduce levels n/e 5' 0" deep and cart away | Y.C. | 8 | 6 |
| " to form basement n/e 5' 0" and cart away | " | 9 | 0 |
| " " 10' 0" deep and cart away | " | 9 | 6 |
| " " 15' 0" deep and cart away | " | 10 | 0 |
| If in stiff clay | add " | | 6 |
| If in underpinning | " | 4 | 6 |
| Planking and strutting to sides of excavation | F.S. | 1 | 0 |
| " " to pier holes | " | | 5 |
| " " to trenches | " | | 5 |
| " extra, only if left in | " | | 3 |
| Hardcore, filled in and rammed | Y.C. | 10 | 0 |
| Portland cement concrete in foundations (6–1) | " | 1 | 6 0 |
| " " (4–2–1) | " | 1 | 12 6 |
| " " underpinning | " | 1 | 16 0 |
| Finishing surface of concrete, space face | Y.S. | | 7 |

## DRAINLAYER

| | | 4" s. | d. | 6" s. | d. |
|---|---|---|---|---|---|
| Stoneware drains, laid complete (digging and concrete to be priced separately) | F.R. | 1 | 6 | 2 | 3 |
| Extra, only for bends | Each | 2 | 8 | 3 | 9 |
| " junctions | " | 3 | 9 | 4 | 6 |
| Gullies and gratings | " | 16 | 6 | 18 | 0 |
| Cast iron drains, and laying and jointing | F.R. | 4 | 9 | 6 | 9 |
| Extra, only for bends | Each | 10 | 6 | 15 | 6 |

## BRICKLAYER

| | | £ | s. | d. |
|---|---|---|---|---|
| Brickwork, Flettons in lime mortar | Per Rod | 26 | 10 | 0 |
| " " in cement | " | 27 | 12 | 6 |
| " Stocks in cement | " | 38 | 0 | 0 |
| " Blues in cement | " | 50 | 0 | 0 |
| Extra only for circular on plan | " | 2 | 0 | 0 |
| " backing to masonry | " | 1 | 10 | 0 |
| " rising on old walls | " | 2 | 0 | 0 |
| " underpinning | " | 5 | 10 | 0 |
| Fair Face and pointing internally | F.S. | | | 1½ |
| Extra over fletton brickwork for picked stock facings and pointing | " | | | 8 |
| " " " red brick facings and pointing | " | | | 11 |
| " " " blue brick facings and pointing | " | | 1 | 4 |
| " " " glazed brick facings and pointing | " | | 3 | 6 |
| Tuck pointing | " | | | 7½ |
| Weather pointing in cement | " | | | 3 |
| Slate dampcourse | " | | | 10 |
| Vertical dampcourse | " | | 1 | 1 |

## ASPHALTER

| | | s. | d. |
|---|---|---|---|
| ½" Horizontal dampcourse | Y.S. | 4 | 9 |
| ½" Vertical dampcourse | " | 7 | 8 |
| ½" paving or flat | " | 6 | 3 |
| 1" paving or flat | " | 7 | 6 |
| 1" × 6" skirting | F.R. | 1 | 0 |
| Angle fillet | " | | 2½ |
| Rounded angle | " | | 2½ |
| Cesspools | Each | 5 | 6 |

## MASON

| | £ | s. | d. |
|---|---|---|---|
| Portland stone, including all labour, hoisting, fixing and cleaning down, complete | F.C. | 17 | 9 |
| Bath stone and do., all as last | " | 13 | 6 |
| Artificial stone and do. | " | 13 | 0 |
| York stone templates, fixed complete | " | 10 | 6 |
| " thresholds | " | 13 | 6 |
| " sills | " | 1 | 0 6 |

## SLATER AND TILER

| | | £ | s. | d. |
|---|---|---|---|---|
| Slating, Bangor or equal to a 3" lap, and fixing with compo nails, 20" × 10" | Sqr. | 3 | 10 | 0 |
| Do., 18" × 9" | " | 3 | 7 | 0 |
| Do., 24" × 12" | " | 3 | 17 | 0 |
| Westmorland slating, laid with diminished courses | " | 6 | 0 | 0 |
| Tiling, best hand-made sand-faced, laid to a 4" gauge, nailed every fourth course | " | 3 | 0 | 0 |
| Do., all as last, but of machine-made tiles | " | 2 | 16 | 0 |
| 20" × 10" medium Old Delabole slating, laid to a 3" lap (grey) | " | 2 | 16 | 0 |
| " " " " " " " (green) | " | 4 | 15 | 0 |

## CARPENTER AND JOINER

| | | £ | s. | d. |
|---|---|---|---|---|
| Flat boarded centering to concrete floors, including all strutting | Sqr. | 2 | 2 | 6 |
| Shuttering to sides and soffits of beams | F.S. | | | 7 |
| " to stanchions | " | | | 7 |
| " to staircases | " | | 1 | 6 |
| Fir and fixing in wall plates, lintols, etc. | F.C. | | 3 | 9 |
| Fir framed in floors | " | | 4 | 6 |
| " " roofs | " | | 6 | 6 |
| " " trusses | " | | 7 | 6 |
| " " partitions | " | | 8 | 6 |
| ⅞" deal sawn boarding and fixing to joists | Sqr. | 1 | 14 | 6 |
| 1" " " " " " | " | 1 | 17 | 6 |
| 1½" " " " " " | " | 2 | 3 | 0 |
| 1½" × 2" fir battening for Countess slating | " | | 9 | 6 |
| Do., for 4" gauge tiling | " | | 12 | 0 |
| Stout feather-edged tilting fillet | F.R. | | | 4½ |
| Patent inodorous felt, 1 ply | Y.S | | 2 | 3 |
| " " " 2 " | " | | 2 | 9 |
| " " " 3 " | " | | 3 | 3 |
| Stout herringbone strutting to 9" joists | F.R. | | | 10½ |
| 1" deal gutter boards and bearers | F.S. | | 1 | 2 |
| 1½" " " " | " | | 1 | 6 |
| 2" deal wrought rounded roll | F.R. | | | 8 |
| 1" deal grooved and tongued flooring, laid complete, including cleaning off | Sqr. | 2 | 1 | 0 |
| 1¼" do. | " | 2 | 10 | 0 |
| 1½" do. | " | 2 | 17 | 0 |
| 1" deal moulded skirting fixed on, and including grounds plugged to wall | F.S | | 1 | 6 |
| 1½" do. | " | | 1 | 9 |

## CARPENTER AND JOINER—*continued*

| | | s. | d. |
|---|---|---|---|
| 1½" deal moulded sashes of average size | F.S. | 1 | 9½ |
| 2" " " " " | " | 1 | 11½ |
| 1½" deal cased frames double hung, of 6" × 3" oak sills, 1¼" pulley stiles, 1¼" heads, 1" inside and outside linings, ⅝" parting beads, and with brass faced axle pulleys, etc., fixed complete | " | 3 | 7 |
| 2" " " " " " | " | 3 | 10 |
| Extra only for moulded horns | Each | | 6 |
| 1½" deal four-panel square, both sides, door | F.S. | 2 | 0 |
| 2" " " " " | " | 2 | 8 |
| 1½" " but moulded both sides | " | 2 | 4 |
| 2" " " " " | " | 3 | 0 |
| 4" × 3" deal, rebated and moulded frames | F.R. | 1 | 0 |
| 4½" × 3½" " " " " | " | 1 | 4 |
| 1¼" deal tongued and moulded window board, on and including deal bearers | F.S. | 1 | 9 |
| 1¼" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages | " | 2 | 6 |
| 1¼" deal moulded wall strings | " | 2 | 1 |
| 1¼" " outer strings | " | 2 | 4 |
| Ends of treads and risers housed to string | Each | 1 | 9 |
| 3" × 2" deal moulded handrail | F.R. | 1 | 3 |
| 1" × 1" deal balusters and housing each end | Each | 2 | 0 |
| 1¼" × 1¼" " " " | " | 2 | 9 |
| 3" × 3" deal wrought framed newels | F.R. | 1 | 3 |
| Extra only for newel caps | Each | 6 | 0 |
| Do., pendants | " | 6 | 0 |

## SMITH AND FOUNDER

| | | s. | d. |
|---|---|---|---|
| Rolled steel joists, cut to length, and hoisting and fixing in position | Per cwt. | 16 | 6 |
| Riveted plate or compound girders, and hoisting and fixing in position | " | 1 | 0 6 |
| Do., stanchions with riveted caps and bases and do. | " | 19 | 0 |
| Mild steel bar reinforcement, ¼" and up, bent and fixed complete | " | 17 | 6 |
| Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g. | F.S. | | 11 |
| Wrot-iron caulked and cambered chimney bars | Per cwt. | 1 | 10 0 |

## PLUMBER

| | | £ | s. | d |
|---|---|---|---|---|
| Milled lead and labour in flats | cwt. | 2 | 15 | 0 |
| Do. in flashings | " | 2 | 18 | 6 |
| Do. in covering to turrets | " | 3 | 4 | 0 |
| Do. in soakers | " | 2 | 9 | 9 |
| Labour to welted edge | F.R. | | | 3½ |
| Open copper nailing | " | | | 3 |
| Close " " | " | | | 4 |

| | | ½" s. | d. | ¾" s. | d. | 1" s. | d. | 1½" s. | d. | 2" s. | d. | 4" s. | d. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead service pipe and fixing with pipe hooks | F.R. | 1 | 2 | 1 | 4 | 1 | 8½ | 2 | 7 | 3 | 6 | — | |
| Do. soil pipe and fixing with cast lead tacks | " | — | | — | | — | | — | | — | | 7 | 3 |
| Extra, only to bends | Each | — | | — | | — | | — | | 2 | 3 | 7 | 6 |
| Do. to stop ends | " | 6½ | | 8 | | 9 | | 11 | | 1 | 0 | — | |
| Boiler screws and unions | " | 3 | 3 | 3 | 9 | 5 | 0 | 8 | 0 | — | | — | |
| Lead traps | " | — | | — | | — | | 8 | 0 | 11 | 6 | — | |
| Screw down bib valves | " | 6 | 9 | 9 | 6 | 11 | 0 | — | | — | | — | |
| Do. stop cocks | " | 7 | 0 | 9 | 6 | 12 | 6 | — | | — | | — | |

| | | s. | d. |
|---|---|---|---|
| 4" cast-iron ½-rd. gutter and fixing | F.R. | 1 | 0 |
| Extra, only stop ends | Each | 1 | 8 |
| Do. angles | " | 1 | 6 |
| Do. outlets | " | 2 | 9 |
| 4" dia. cast-iron rain-water pipe and fixing with ears cast on | F.R. | 1 | 2 |
| Extra, only for shoes | Each | 1 | 3 |
| Do. for plain heads | " | 5 | 6 |

## PLASTERER AND TILING

| | | s. | d. |
|---|---|---|---|
| Expanded metal lathing, small mesh | Y.S. | 2 | 0 |
| Do. in n/w to beams, stanchions, etc. | " | 2 | 9 |
| Lathing with sawn laths to ceilings | " | 1 | 3 |
| ½" screeding in Portland cement and sand or tiling, wood block floor, etc. | " | 1 | 5 |
| Do. vertical | " | 1 | 7 |
| Rough render on walls | " | 1 | 2½ |
| Render, float and set in lime and hair | " | 1 | 9 |
| Render and set in Sirapite | " | 1 | 11 |
| Render, backing in cement and sand, and set in Keene's cement | " | 2 | 9 |
| Extra, only if on lathing | " | | 4 |
| Keene's cement angle and arris | F.R. | | 6 |
| Arris | " | | 1½ |
| Rounded angle, small | " | | 3 |
| Plain cornices in plaster, including dubbing out, per 1" girth | " | | 1½ |
| 1" granolithic pavings | Y.S. | 3 | 6 |
| 1½" " " | " | 4 | 6 |
| 6" × 6" white glazed wall tiling and fixing on prepared screed | " | 17 | 0 |
| 9" × 3" " " " " | " | 1 | 2 6 |
| Extra, only for small quadrant angle | F.R. | | 8 |

## GLAZIER

| | | s. | d. |
|---|---|---|---|
| 21 oz. sheet glass and glazing with putty | F.S. | | 6½ |
| 26 oz. do. and do. | " | | 7½ |
| Flemish, Arctic Figured (white) and glazing with putty | " | 1 | 1 |
| Cathedral glass and do. | " | 1 | 2 |
| Glazing only, British polished plate | " | | 7 |
| Extra, only if in beds | " | | 2 |
| Washleather | F.R. | | 4 |

## PAINTER

| | | s. | d. |
|---|---|---|---|
| Clearcolle and whiten ceilings | Y.S. | | 6 |
| Do. and distemper walls | " | | 9 |
| Do. with washable distemper | " | 1 | 1 |
| Knot, stop, prime and paint four coats of oil colour on plain surfaces | " | 3 | 3 |
| Do. on woodwork | " | 3 | 6 |
| Do. on steelwork | " | 3 | 0 |
| Do. and brush grain and twice varnish | " | 3 | 6 |
| Stain and twice varnish woodwork | " | 1 | 11 |
| Stain and wax polish woodwork | " | 4 | 6 |
| French polishing | F.S. | 1 | 2 |
| Stripping off old paper | Piece | 2 | 0 |
| Hanging ordinary paper | from " | 2 | 9 |