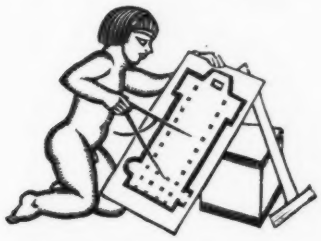
# THE ARCHITECTS' JOURNAL



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CHRISTIAN BARMAN, *Editor*

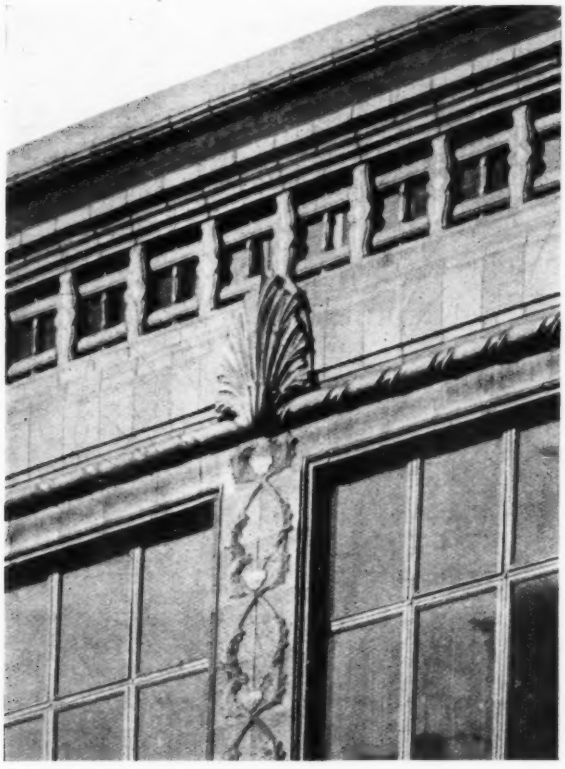
*The Editor will be glad to receive MS. articles, and also illustrations of current architecture in this country and abroad, with a view to publication. Though every care will be taken, the Editor cannot hold himself responsible for material sent him.*

WEDNESDAY, APRIL 6, 1927. NUMBER 1681: VOLUME 65

## PRINCIPAL CONTENTS

Euston Hall, the Suffolk seat of the Duke of Grafton, lies in a park of over 1,200 acres, planted with choice shrubs and trees of great beauty. Its attractions were noted by Bloomfield in his "Farmer's Boy." Through this lovely sylvan spot runs the Little Ouse, and over it—to provide access to the Hall from the West—a wooden bridge was built in years past. Last year this wooden bridge was replaced by a bridge of reinforced concrete. The beautiful surroundings naturally led the designer of the bridge—Mr. George Kenworthy, A.M.I.C.E., of Norwich—to choose a colour content for the structure which would fit into the picture and add to the attractiveness of the spot. "Atlas White" Portland cement was chosen by Mr. Kenworthy as the medium best suited to produce the desired result. The arched ribs and the parapet were alternatively cast in "Atlas White" concrete or finished with "Atlas White" concrete stucco renderings. Messrs. Christiani & Nielson were the contractors. Two views of this delightful white bridge are reproduced on this page. Those interested in similar installations in white concrete should write to me at Regent House, Regent Street, London, W.1, for a copy of "Atlas White for Ornamental Cast Work."

Frederic Toleman



*[A working detail of this faience work appears on the following page]*

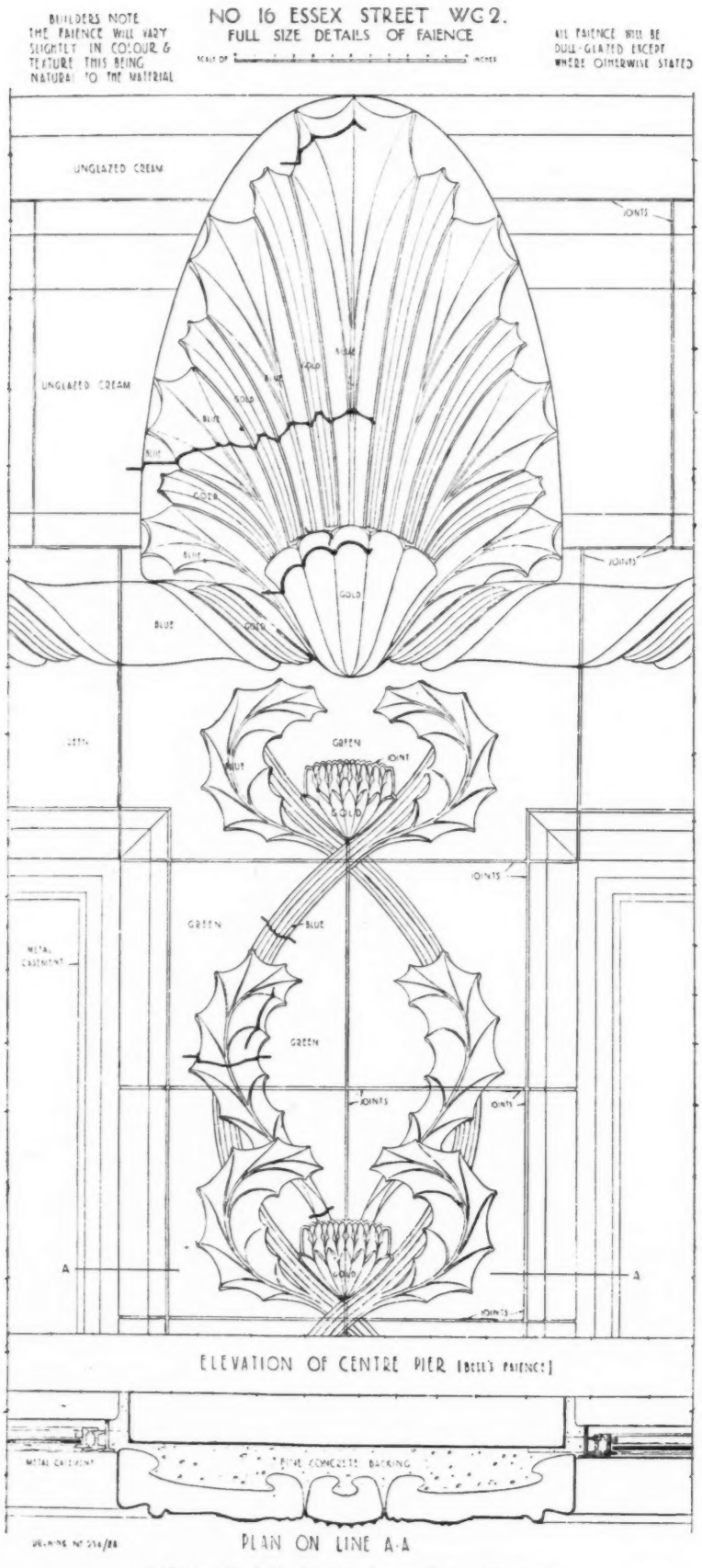
## FAIENCE WORK AT NO. 16 ESSEX STREET, W.C.2

*[ BY WILLIAM AND EDWARD HUNT ]*

## *THE WEEK'S DETAIL*

[ BY WILLIAM AND EDWARD HUNT ]

*The photograph shows part of the treatment of the main façade of No. 16 Essex Street, in which faience is used in conjunction with 2-in. red sand-faced bricks and Portland stone. The windows of the first, second, and third floors are formed into one panel by means of a faience surround, centre pier, and filling, which rests on a base of Portland stone. The drawing shows the top of the central pier, and next week there will be a full-size detail of the balustrade above it.*




*A photograph of this detail is given on the preceding page.*

THE
ARCHITECTS'
JOURNAL

*Wednesday, April 6, 1927*

# THE FARMER AND THE ARCHITECT

The well-known tendency of experts to differ on matters relative to their sphere, which to outsiders will appear to be essential, is as powerfully evident in the farming community as in other fields of specialized knowledge. It is hardly possible to induce a congregation of farmers to discuss such matters as the housing of pigs or the right proportions of a cow-standing without disclosing that the views of equally trustworthy and practical men may be as the poles asunder. As in other communities there are, of course, all shades of opinion and practice—from the stick-in-the-muds at one end of the scale, passing through those who are ordinarily sane but not specially alert, by way of the " live-wire " enthusiasts, to the cranks and faddists at the other extreme. There is, however, one quality which seems almost general to all farmers, and that is an evident feeling that it is almost sacrilege for any but a practical farmer (with accent on the *practical*) to attempt to know anything of farming processes or the arrangement of farm buildings. One is familiar with a rather similar viewpoint, nauseatingly stressed by the daily Press from time to time, and capable of brief statement as " only a woman who lives in a kitchen is fit to design one." This viewpoint, on the farm as in the kitchen, is undoubtedly responsible for much bad amateur planning and needless consequence inconvenience—Mr. G. K. Chesterton has pithily said that " a practical man is usually a man who practises the mistakes of his ancestors." If farmers would put their cards freely on the table and describe fully and in detail their needs and intended routine they might secure from architects much the same kind of guidance as the modern manufacturer commonly does—and with equal advantage, but, as pointed out in an article elsewhere in this issue, a large proportion of architect-designed farm buildings fail from non-acquaintance with simple essentials; probably too simple and obvious to the farmer to be even stated among the preliminaries, and not realized by him until errors and offences in idea have become solid fact.

On the other hand, the architect who is privileged to adventure in the field of homestead design ought to realize that in the present circumstances afflicting agriculture his efforts should be concentrated on a good working plan and a sound structure developed with that appearance of rightness which should be the result of training and competence, rather than upon finding means to introduce any cherished tricks of design or favourite materials. Architecture—with a capital A—will only come in on those rare occasions when a wealthy landowner desires to sacrifice profit to æsthetic satisfaction. He will perform a similar service to his immediate client in particular, and to the community in general, if he succeeds in producing a farm building which shall be convenient, shapely, and sound, as does the housing architect who, with no straining for effect, does the same thing in that field of effort. Such achievement will be more highly esteemed and will redound to the credit of the architectural profession more highly than if he " profiteers in gables " (to use the late Sir Charles Ruthen's historical phrase). It is better social service to design a building which can be built, and when built can be used, and while in use is not viewed with aversion as having cost much more than it should, rather than to produce a " conception " which outruns the means of its intending owner, with equally unsatisfying result whether it is abandoned or translated into fact. The architect must not even jib at the use of asbestos-cement roofing, which offers many advantages for such a structure as a modern double-rank cowhouse. He can, of course, avoid shrimp-pink diagonal tiling. All this is intended to advise the architect that serious farm-building design on a commercial basis is no primrose path.

Cleanliness, light, and air should be striven for in modern farm-building design, as they have been in all other improved forms of building. The innocent old lady in *Punch* who deplored the waywardness of farmers in always placing their gates in the muddiest part of the fields, though her reasoning was absurd, yet had her finger on one of the drawbacks of agricultural employment—particularly as affecting the rising generation, who have a distaste for mud-wallowing. Too often the yards and surroundings of a farm building are tacitly assumed as necessarily filthy throughout a great part of each year, and this is typical of many inconveniences which are held to be inevitable because they " always have been." This is not the way to encourage the younger generation to farm work. Good buildings well planned are worth while.

# NEWS AND TOPICS

CANON ALEXANDER AMONG THE PROPHETS—"METROPOLIS"—TREE WARDENS—NEW TYPE OF FACTORY AT WELWYN—THE STONE FOR THE HOUSES OF PARLIAMENT

My first feeling on looking into Canon Alexander's collection of begging addresses, reprinted under the title "The Safety of St. Paul's," was disappointment that it takes one no farther than the closing of the dome area on March 31, 1925. Probably the most interesting passage to readers of the JOURNAL is that in which Canon Alexander ranks himself among the prophets who have foretold the approaching collapse of Wren's dome. "The truth about it seems to be, as I have stated from the first, that if a certain unknown period (say, of thirty years) had been allowed to elapse without any steps being taken to preserve it, the fabric would either have suffered some serious disaster or its condition would have become such that remedies would be too late." Now, the destructive forces which are preparing to bring down the dome may not be satisfied with the assurance of the St. Paul's Works Sub-Committee that their repairs actually amount to "steps taken to preserve it." A number of people have proclaimed the present repairs to be positively harmful, and the recent Progress Report, in spite of its specious appearance of cheerfulness, admitted the "flaking" of stonework and the continuance of "minute movements" in the structure. What if Nature should agree with Mr. John Todd and say "within twenty-three years" instead of "thirty years"? In that case the time available for formulating and applying a comprehensive scheme of repair would be cut down by seven years or more. It seems to me that this sort of prophetical arithmetic is only valuable if it leads to the recognition that NOW is the time to do something.

* * *

The German film "Metropolis" might have had the sub-title "or the Future of Architecture," and a prodigiously awful future it is. Skyscrapers soar into the infinite, and beneath, the surface of the earth is honeycombed with myriads of dwellings. The vast cliffs of buildings are interlaced with viaducts and bridges thrown over at fantastic heights, and across these trains and motor vehicles hurl themselves at incredible speeds. Higher still, the air throbs with the vibrations of vast flying machines. It is a terrible prognostication, but, fortunately, one which need not be considered seriously. After all, it is easy enough to seize on a tendency and to prolong it to an absurd length. Fortunately progress is never for long in one direction, and history is but the account of unceasing deflections. Still "Metropolis" is an astonishingly interesting production, both as a piece of film technique and as an æsthetic creation. For my own part, I was reminded by it of two very dissimilar works: H. G. Wells's *When the Sleeper Wakes*, and Piranesi's Carceri series of etchings.

* * *

Architects interested in the planting of trees by roadsides will find much valuable information contained in a booklet on this subject issued recently by the United States Department of Agriculture. It is suggested that, if trees are planted 80 ft. apart, even the larger shade trees can be placed opposite one another, although the branches at maturity would interlace. In New York elms must not be planted closer than 70 ft., and other trees 50 ft., apart. Guardians of the trees with the apt title of "Tree Wardens" are being appointed in many States. In New Hampshire trees can be marked by the tree warden, and if the consent of the adjoining owner is given, and no objection is raised within thirty days, the tree becomes the property of the town. If there is opposition it may be purchased compulsorily.

* * *

An interesting new type of factory is now being erected at the Welwyn Garden City. The object is to supply the demand for small sectional factories for light manufacturing industries. It is believed that many small businesses will be glad to leave London, where good accommodation is costly, and to start in a small way in a factory which will expand. The present scheme at Welwyn is devised for a group of fourteen sections, each 41 ft. by 40 ft., which can be let singly or in groups. There will be yard space and lavatory accommodation in each section. The factories are to be soundly built, and will be suitable for almost any type of manufacture. The cost of the group now being built is estimated to be about £14,000. Each section will be let at rentals of from £100 to £110, the tenants paying rates and undertaking all maintenance. It is further proposed to build factories to meet the requirements of the responsible manufacturing firms who desire to purchase by instalments. Needless to say, these factories are being well designed, like all the other buildings at Welwyn. I know of few more well-proportioned industrial buildings, from the architectural point of view, than the electric bakery belonging to the Welwyn Stores. Mr. de Soissons, the architect, happily combines charm with practical utility, and Welwyn is considerably in his debt.

* * *

Architects of City buildings should certainly take an opportunity this spring of visiting the unique garden that is being planted on the roof of Adelaide House, some 180 ft. above London Bridge. There is no flat monotony, and the 18-hole putting links is laid out with cunning undulations. At three corners of the building there are walled-in angles some 8 ft. high. Crazy paving has been laid down on the paths, and the moss is already beginning to grow between the crevices. Fruit trees will shortly be in bloom and rose trees will climb up the posts that have just been fixed in position. There is a marvellous view from the roof across to the Tower Bridge and thence to the mouth of the Thames, while almost on a level is the top of Wren's church of St. Magnus-the-Martyr. Looking down upon the City I wondered why more flat roofs could not be transformed into gardens and thus add not only to the beauty, but provide opportunities for fresh air for the staff at work within. At Adelaide House members of the staff go out frequently for a stroll on the roof, and I am told that their general health has very much improved since they moved from more congested areas at lower altitudes.

The report of the committee of the Privy Council for Scientific and Industrial Research for the year 1925-26 has just reached me. It is published by H.M. Stationery Office at three shillings, and may be purchased at Adastral House, Kingsway, W.C.2. The amount of varied investigation carried on during the year and briefly mentioned in the report is a commentary upon the complexity of our civilization, for the scope of inquiry is practically limitless. On one page there is an account of tests on model ships and of visits to full-size vessels under trial for the purpose of comparison, and on another page one reads of a publication on "The Bursting of Soap-bubbles in a Uniform Electric Field." The part of the book dealing with building research mentions the acquisition of a private house at Garston, near Watford, and its fitting up as a research station. The question of sound absorption was gone into by this department in connection with the selection of building materials for the Legislative Assembly Hall in Delhi.

* * *

That amusing Parliamentary fiction the motion to reduce a money vote, is often the prelude to interesting discussion. Mr. Gardner, the Labour Member for North Hammersmith, made use of it last Thursday to criticise the Government proposals for the restoration work on the Parliament buildings. His chief points were that the R.I.B.A. should have been consulted; also employing and operative builders, rather than chemists and geologists; that the fabric should be entirely and homogeneously refaced with durable stone, not merely patched with casual mixtures of sound and unsound bits of material; that the proposal to use Stancliffe stone was injudicious; and that the health of the workers had not been properly considered. He declared, citing medical authority and vital statistics, that sandstone cutting endangered the health of the workers. He suggested the use of Portland stone as more suitable to the London climate; and he deprecated the proposal to adopt a colour scheme, which would involve the use of decay-inducing oxide. Stancliffe stone, he explained for the enlightment of lay members, was properly called Darley Dale, Stancliffe being the name of the quarry. Captain King, replying on behalf of the Government, said that the cost of refacing with Portland stone was prohibitive—it might run into four millions; adding that owners of sandstone quarries had found, on medical examination of their employees, that the working of sandstone was not specially injurious to health. He said, further, that as the health of the operatives would be safeguarded in every possible way there was no reason why the Government should be debarred from the use of stone ascertained to be suitable.

* * *

Lambeth Bridge, which, it seems is, after all, to be rebuilt, is very infirm for its years. Built from the designs of Mr. P. W. Barlow, at a cost of some fifty thousand pounds, it was opened in November, 1862, and was freed from toll on the 24th of May, 1879. It is of the stiffened suspension type, with sevenfold twisted cables which, being foolishly left exposed to the weather, rusted prodigiously. With a length of 828 ft., the bridge has a width between parapets of 31 ft. 9 in., comprising a carriageway of 16 ft. 9 in., and two pathways having each a width of 4 ft. 10 in. The wood-paved roadway is supported on transverse girders 4 ft. apart, the webs between being formed of quarter-inch plates. . . Poor thing, it has been delicate from its birth, and has cost thousands of pounds for repairs. Years ago, vehicles and crowds were forbidden to use it, and so, as it is definitely neither useful nor beautiful, I am rather taken by the view expressed by Sir William Bull that rebuilding is hardly worth while unless it can be shown that a new bridge would assist in solving the ever-growing street-traffic problem.

* * *

At the annual general meeting held by the Berkshire Society of Architects at Reading University, Mr. Oswald P. Milne delivered a lecture which included an opportune reference to "the neighbouring town of Oxford." All who know and venerate Oxford will applaud Mr. Milne's emphatic protest against the parlous state of that city's unworthy environment. "One of the most beautiful towns in England," Mr. Milne declared, had been ringed-in most unimaginatively with dreary buildings. Headington he cited as being "not now a happy approach to such a city," and he feared that the Rural District Council had in contemplation a project that would, if realized, make the outskirts look more dismal still. To give effect to such a scheme would destroy amenities near and far. His protest, as that of one speaking with authority and not as the scribes, should carry conviction to the most callous civic conscience. We have not in England such a plethora of indisputably lovely towns that we can afford to see with indifference a deadly menace to any—and certainly not to the chief of them.

* * *

I like bricks. I like horses, dogs, men, but also I like bricks. There are some to whom the phrase "bricks and mortar" may be anathema, some who care more for mountains and trees. Well, we have all seen bricks put to poor uses, but that was so by some mistake of the user, was no fault of the brick. A man—but he would not be an architect—might take a brick for an ordinary bit of burnt clay, fit only to build the ugliest streets of Suburbia, and to become a brickbat, and be kicked to pieces in an old alley. But its very manufacture is illustrious with antiquity—with the morning beams that touched the house-tops of Shinaar; there is a clatter of brick-making in the fields of Accad; and the work looks almost as ancient to this day. There are times when I like bricks so deeply that I go in search of good bricks, piled one on another as in Westminster Cathedral, or stacked in wagons in railway sidings and awaiting that end in life to which they may be called.

* * *

In a brick-maker's office in Shoe Lane there is a whole showroom of bricks—its clay population ranged in rows like the drinking vessels in Omar, almost articulate, and displayed with all the expert shopfitter's art. And I like bricks so much that I do not mind them even in a showroom. . . . Hand-made Old English red facings, cherry-red facings, multi-colour stock facings—when I go there, when I visit this room made multitudinous with bricks, I wander from one to the other, pick up first this, then that, as some old bibliophile might move lovingly among his books.

ASTRAGAL

# WET TIME IN THE BUILDING TRADES

[BY THE RIGHT HON. WILLIAM GRAHAM, M.P.]

SOME publicity has been afforded to a draft scheme, propounded in the Manchester area by a joint committee representative of employers and workers in the building trades, for the purpose of providing payment for time lost through inclement weather. Whatever view we take of the future organization of industry it is important immediately to support every proposal for greater economic security. This scheme is part of the constructive effort of capable men on both sides; at the moment it appears to have been submitted for the consideration of the building trades all over the country; but, since certain of the public references which have so far been made are clearly erroneous, it may be valuable merely to record the facts.

The scheme originated in a representative conference of employers' organizations and trade unions in the north-western area in October 1926. For many years building trade workers have emphasized the hardship falling on their members owing to loss of wages during wet weather; the terms of settlement in the industry in 1924 suggested such an inquiry; and recent steps in demarcation have to some extent increased the urgency of the matter. Under this demarcation it is contended that the majority of bricklayers and masons and their labourers are now restricted in the main to outside work; that in consequence their loss of earnings has increased considerably; and that the introduction of some system of compensation is an imperative necessity. Few deny the adverse influence of present losses on the general strength and efficiency of the industry; many able men are deterred from entering the craft; output tends to suffer, and costs are certainly not assisted to such healthy reduction as will minister more effectively to public demand and popular need.

*The Rt. Hon. William Graham, M.P.*

From time to time various schemes have been suggested; as in other inquiries the men in the north-western area speedily found themselves considering three alternatives. Under the first payment would be made by the employer either in full or in part for time lost; the second suggested an addition to the hourly rate of wages; and the third proposed payment or compensation by means of an insurance scheme. Since the first would make it practically impossible to pursue accurate estimating—an essential element in the building trades—it was generally discarded; the indeterminate cost and the unfair incidence of the burden which would follow a period of prolonged inclement weather were generally recognized. The second proposal was more widely supported; but since many of the operatives worked under conditions which did not expose them to the risk, and were therefore not entitled to the compensation, an addition to hourly rate would lead to considerable complication; and such a system would shade almost immediately into ordinary wages, so that the value of the special provision for periods of non-employment due to wet weather would speedily disappear. In view of these considerations, discussion turned with much greater resolution to proposals for a definite and, as far as possible, comprehensive insurance scheme.

Regarded in this area as the more satisfactory and equitable scheme it pointed out that the employer knew his liability; in estimating for work he had the necessary facts at his disposal. The cost was spread over the whole industry; in that way all parties would gain by the increased efficiency which the scheme would bring in the areas particularly affected. Moreover, the proposals were an advance on some of the schemes which have been suggested. The main features urged that employers and operatives began to contribute at the same time; the employers and not the trade unions distributed the benefits of the scheme to the operatives, on the usual pay day, the employers being reimbursed from the fund monthly; contributions would be paid by the purchase of stamps, afterwards affixed to cards; and the service of an employer participating in the scheme would be preferred to that of one who did not participate, the former being thus compensated for the cost entailed, and encouragement given to all employers to come into the scheme.

Of course, these suggestions are not necessarily final; they are offered rather as a basis of discussion, which must also have regard to the precise proposals of the draft. It is thought, for example, that it should endure in the first instance for five years from the date at which the contributions under it first become payable. For the purposes of the scheme a national joint body, to be known probably as the National Building Trade Wet Time Insurance Board, should be set up, this organization to be equally representative of the employers and the operatives; it is proposed that this board shall have full power to control and administer the scheme. It would rest on a joint contributory basis, the total joint contribution in respect of each operative not to exceed fivepence per week, payable in equal proportions by the employer and the worker; the contributions should be in respect of all building trade operatives whether members of the trade unions or otherwise, whose rates of wages are regulated directly or indirectly by or through national agreements or other arrangements governing the building industry. In the first two years provision is made for a reduced total joint contribution; in later years these contributions will be regulated by analysis of the state of the fund, particularly in relation to the demands made upon it. But the aggregate contribution shall not exceed fivepence. In order to give the scheme the necessary start it is thought that from the agreed date of the commencement no payments from the fund should be made; that would be in effect a period of accumulation. Broadly speaking, the system of contribution would be analogous to that of National Health Insurance; and for this purpose

[This is the fifth of a series of articles on the future of the building trades. The articles will be contributed by a distinguished group of architects, builders, politicians, and business men, all of whom have considerable experience of various sides of the subject. The first article, by the Rt. Hon. J. Ramsay MacDonald, M.P., appeared on January 5, the second, by Major Harry Barnes, on January 19, the third, by Mr. Harlan Thomas, on February 2, and the fourth by Mr. Edward J. Strange, J.P., on March 9.—Ed., A.J.]

operatives would have the usual insurance cards. In a matter of this kind much detailed regulation is necessarily involved, but the general outline is clear and impressive. For example, payments under the fund would be made only in respect of time lost through inclement weather during normal working hours, and not in respect of overtime or prospective overtime lost through the same cause. The sole power of deciding whether work shall be suspended because of inclement weather would rest with the employer or his representative; these and many other regulations are clearly material for mutual adjustment. In the case of all indentured apprentices, contributions would begin six months before the termination of their apprenticeship, so that they may be qualified for benefit immediately after such termination. After four years the contributing bodies would review the scheme, analyse its operation, and reach decisions regarding renewal, winding up, or rearrangement. These, in summarized form, are the main propositions.

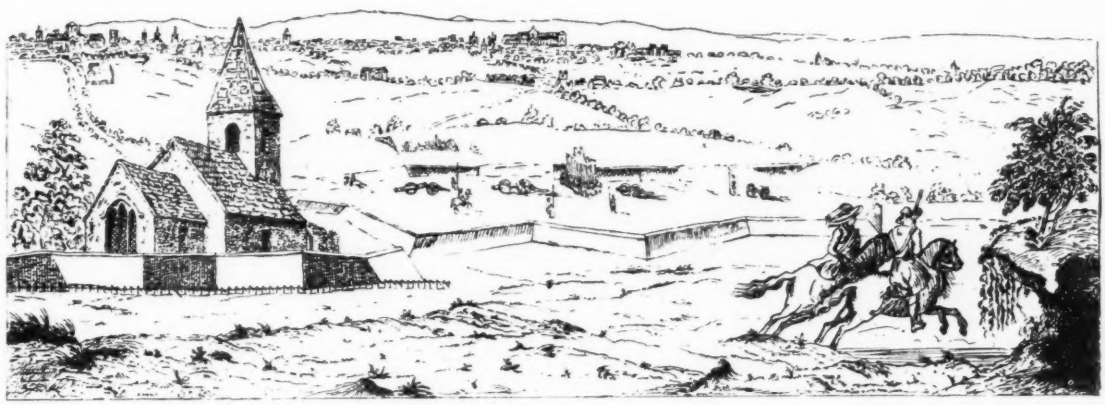
At this stage it is impossible to indicate how they will be received in other parts of the country. But it is plain that they make no appeal for State assistance; they rest on the building industry itself; and they involve the contributory principle which is the characteristic of other forms of insurance. Beyond question, if the scheme succeeded, the efficiency of the industry, and the security of large numbers of its operatives, would be materially improved; and much national benefit would probably flow from the sympathetic consideration of these proposals in Great Britain as a whole.

# HOUSING PROBLEMS OF THE PAST: ii

[ BY V. M. CHRISTY ]

THE eighteenth century brought a marked change in the outlook on housing. Partly through awakening interest in garden planning, the dweller in the mansion developed an interest in the village surrounding it. He found, incidentally, perhaps, that cottage-building provided that halo of merit which church building conferred upon his predecessors. The attitude of the road-book writer of the latter part of the century reflects that of travellers when interest is centred around, first, the "seats of the nobility," and then the neat villages or newly-built cottages.

The minds of the younger generation in the following century had already turned to emigration as a solution of the over-population problems suggested by the Malthusian theory. The older men still caressed a dying hope that emigration might be avoided. "I feel conflicting opinions in my mind on the subject of emigration," sighs a pamphlet writer in 1837. "In my young days the population of a country was considered as wealth. A fully employed population must ever be so." The question of housing, however, was not very generally discussed, although "those who take an interest and look into the dwellings of their village poor" existed in considerable numbers. The same writer says: "Whether it is common in villages I know not, but in this, and in many others in the country where the cottages belong to different persons, most of them have but one sleeping room. . . . Should this be the case where the cottages belong to those who own the whole parish, on this fact being known, such persons, it is hoped, would take the necessary steps to remedy so great an evil." To such tactful revelations the dweller in the commodious family residence would hardly fail to respond. In comparing the outlook shown here with that of a more democratic and enlightened age it must be remembered that the slightly sentimental patronage was not necessarily consciously aggressive, nor so regarded by the generality of its recipients. The very real fear and danger of typhus infection was an ever-present dividing gulf: a gulf bridged but slowly by public health pioneers. It was only gradually that any definite connection between housing and health, housing and moral conditions, housing and "unrest" came to be perceived. It was not until the mid-nineteenth century that systematic attention was accorded to the whole great question. It is very illuminating to read the reports of the 1842 "Inquiry," not merely because of the revelation of almost incredible conditions, but because of the insight it affords into the mentality and outlook of those concerned in it, even experts and medical men. For instance, one M.O.H. states: "It appears to me that the improvement of the cottage residences of the poor would exert a very beneficial influence on the prevalence of fever." If such



*St. Pancras Old Church. With the fortifications at Brill during the Civil Wars. 1642.*

was the tentative attitude of a doctor, it is not surprising that other "persons interested in the preservation or the comforts of the poorer classes" were slow to realize what are now regarded as commonplace facts. We read in the same reports: "Among the causes to which may be attributed the existence of such wretched tenements is the want of information on the subject of cottage building." Some of the model cottages described therein are "cited as showing what may be done by a landed proprietor who takes . . . a pride in his good cottages . . . rather than with the least intention of asserting that the example is ever likely to be universally imitated." For, "although individuals, here and there, may build cottages without regard to the pecuniary return, it may be assumed as incontrovertible that no class of cottages will be universally adopted which does not command a reasonable interest for the money expended on them."

Previous to this time two aspects of the housing problem, familiar in our own day, had already presented themselves. One was that of "fictitious population," drawn by war-time employment to particular places; the other was the "fluctuating population" of seaside and other holiday or health resorts. We are familiar with the war-time hutment township, and with the seaside bungalow estate. Both of these, fulfilling their function for a while, outgrow their temporary character and call for drastic regulation.

In almost all the familiar landmarks in the progress of housing reform in the past fifty years (such as the Housing of the Working Classes Acts, the growth of model villages, industrial housing schemes, movements for providing blocks of town dwellings, lodging-houses, hostels, etc.), it was still the "working classes" alone whose housing was the object of anxiety. Less than fifteen years ago it was still true to state that "the housing question is essentially one of poverty." That statement is no longer wholly true. Already at the close of the eighteenth century the town merchant no longer always lived near his place of business, though his employees might. In 1811 Sir Paul Pindar's city residence became a public-house. In the same year a "young Gentleman" describing London, observes: "In the west of the town . . . are many handsome squares . . . surrounded by magnificent houses, in which families of rank and fortune reside. In the city trade is principally carried on, though opulent merchants and even shop-keepers have houses for their families in the fashionable streets or in some of the surrounding villages." Here is a stage in the process of the outward move from the town by those of "rank and fortune," "opulent merchants," and their less impressive brethren. Their previous dwellings were being "made over" to another grade of society, or turned to other uses, an aspect of the housing problem which evoked some of the earliest sanitary and "housing" legislation of the Victorian era. The subject of lodgings for more than one family, in buildings originally designed for one household only, provoked a pamphlet in 1877, exploring the attendant evils and discomforts, and suggesting a scheme for what were later known as "flats." The problem of housing was widening in scope, and eventually movements, such as those advocating garden suburbs, recognized the needs of those whose position was neither so wretched as to excite pity, nor so fortunate as to be envied. Professional and business people began to find flats, hotels, residential chambers, or service flats, a means of solving the servant problem. In turn their former homes became boarding-houses or were converted into "maisonnettes," or pulled down and transformed into business premises. The flat in some form or other is a type of dwelling suited alike to dukes, dustmen, dressmakers, and doctors, but mews, barns, disused churches may be transformed into dwellings by the enterprising, and in all cases æsthetic as well as practical aspects claim consideration.

The railways, and later the motor-car, induced the town-dweller of means to invade the country, to spend week-ends in a palatial "cottage." Nowadays the man with modest income follows suit, in his own less spectacular way. He builds his bungalow or plants his tent or caravan in the beauty spot of his choice, and brings the town into the country. With this habit arose a practice productive of one of the most pressing aspects of the housing problem as it affects rural neighbourhoods: namely, the thoughtless buying up of "real" country cottages, for week-end or holiday use only, by those who are comfortably, or at least adequately, housed elsewhere.

Both in town and country the problem of accommodation for those normally employing domestic servants is insufficiently met by the number of houses capable of being worked by the housewife unaided; but for two or more families to join forces in a house too big for one family is an unpopular expedient. The result is that many a small house originally intended for "working-class" occupation is inhabited by other people. The other side of the question, moreover, has been insufficiently noticed: that the number of inmates in a "working-class" home at the present day is augmented by the presence of girls and women who would formerly have been "housed" as servants in the larger houses.

Never has the many-sidedness of the housing problem been so evident as it is to-day. As one aspect is brought to light and faced, another presents itself. Nevertheless, it is possible that its very complexity may eventually produce some yet unseen solution, because the post-war housing problem in its many aspects is no longer limited to one section of the community, but extends its influence to all alike.

[*Concluded*]

## ARRANGEMENTS

WEDNESDAY, APRIL 6

*The Southend-on-Sea and District Society of Architects.* (At the School of Arts and Crafts, Southend.) 8.0 p.m. General Meeting. W. R. Davidge, F.R.I.B.A., F.S.I., A.M.I.C.E., on Some Aspects of Town Planning.

FRIDAY, APRIL 8

*At the Northern Architectural Association.* 7.30 p.m. Professor Reilly, O.B.E., M.A., F.R.I.B.A., on Liverpool Cathedral.

SATURDAY, APRIL 9

*The Royal Institute of British Architects.* Visit to the Star and Garter Home, Richmond. For full particulars apply to the Secretary, R.I.B.A.

MONDAY, APRIL 11

*At the Institution of Electrical Engineers.* 7.0 p.m. Discussion, opened by Mr. T. Hodge, on The Maintenance of Small Electric Power Plants.

*At the Royal Institute of British Architects.* 8.0 p.m. General Meeting. Professor Patrick Abercrombie on The Planning of East Kent.

# RECENT FARM BUILDINGS

[BY EDWIN GUNN]

As a subject this is rather similar to snakes in Iceland, readily disposed of by the brief sentence, "There are no snakes in Iceland," for, in truth, of modern farm buildings in this country there are so few—so few, that is, which have been built anew as equipment for profit-earning farms—that they are almost non-existent. The classes in which any considerable bulk of new building has occurred since some years before the war are almost entirely either pleasure-farms, forming parts of the estates of wealthy landowners—built, equipped, and run, not perhaps with the express purpose of squandering money, but without expectation of an economic return on expenditure; demonstration farms in connection with agricultural colleges or farm institutes built and run jointly from Government and county funds; and small holdings formed under the Land Settlement Acts of 1908 and 1919.

Among commercial agriculturists there are few who are not hampered by the possession of buildings which have grown in a haphazard fashion, and have possibly been several times adapted to purposes differing from their original one owing to change of farming method, but which, with all their inconvenience, are too good to scrap—the farming industry, in fact, suffers from the same drawback as in an old country afflicts most branches of industry. Not for them is the "clean slate" of Canada or the United States, whose vast "cow cathedrals" can be studied in the wonderful trade lists of Beatty Bros. or the Loudon Machinery Co. Furthermore, farming is usually an inherited occupation—agriculturists grow up and become familiar with surroundings which seem natural to them in the way that use and wont exercise their subtle influence; and when, coupled with these two strong incentives to conservatism, there is also the perennial depression in agriculture with its resultant lack of capital it is, perhaps, not wonderful that farm buildings remain almost an unexplored field to the architectural and building world. As a natural concomitant of this state of affairs very few architects can be found who have ever enjoyed the chance of growing familiar with agricultural requirements, and since to agriculturists generally many of the most important of these requirements seem so obvious that they do not consider it necessary to mention them, it is equally not surprising that few architects are to be found who can be relied upon to avoid even the most elementary mistakes in planning and constructing farm buildings. They are, in fact, called upon to swim without having previously entered the water. Nor does it follow even that a set of farm buildings appropriate and excellent in one district would be at all suitable elsewhere; there is no standardization possible where differing nature of soil and climate enjoins a difference in cropping and routine which has vital consequences; such, for instance, as the annual accumulation of abundance of straw in South Lincolnshire as compared with its almost total absence in Gloucestershire. These remarks are intended to show that there is no easy path before the farm architect.

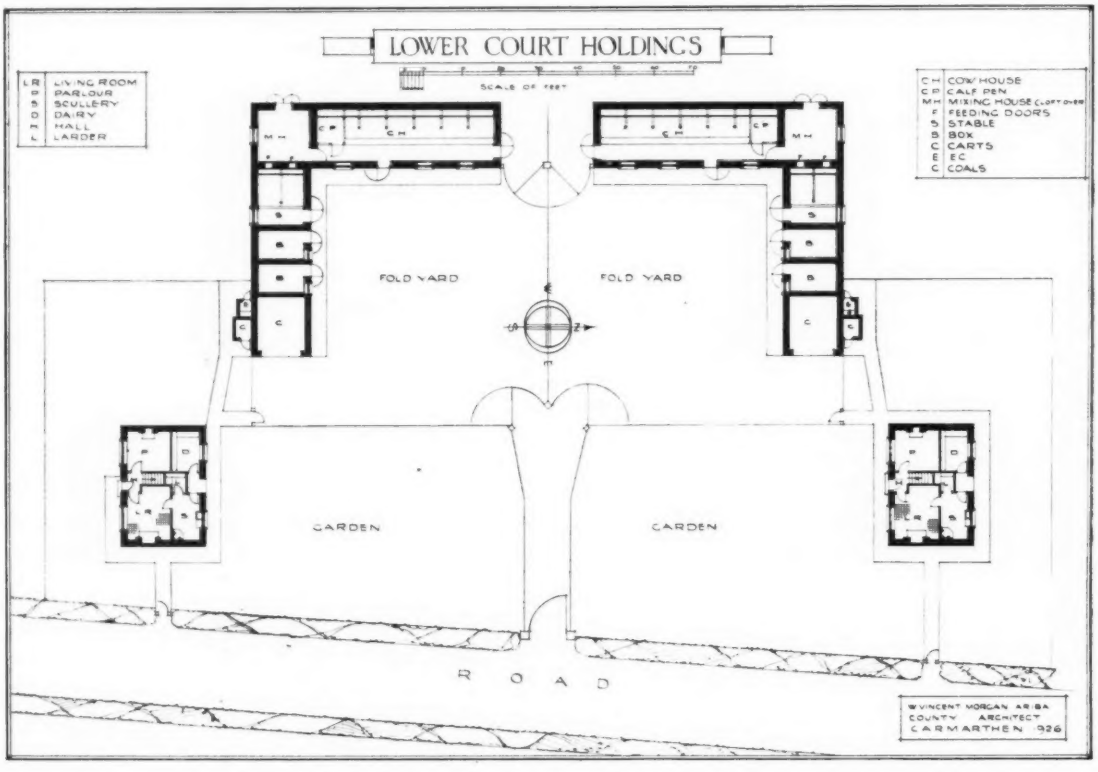
*The Close Farm, Tetbury. By Maurice Chesterton. Farm with stables, dairy, calf-boxes, etc., for eight cows.*

It is quite possible to rear stock satisfactorily and conduct all the operations of farming successfully in the most wretched

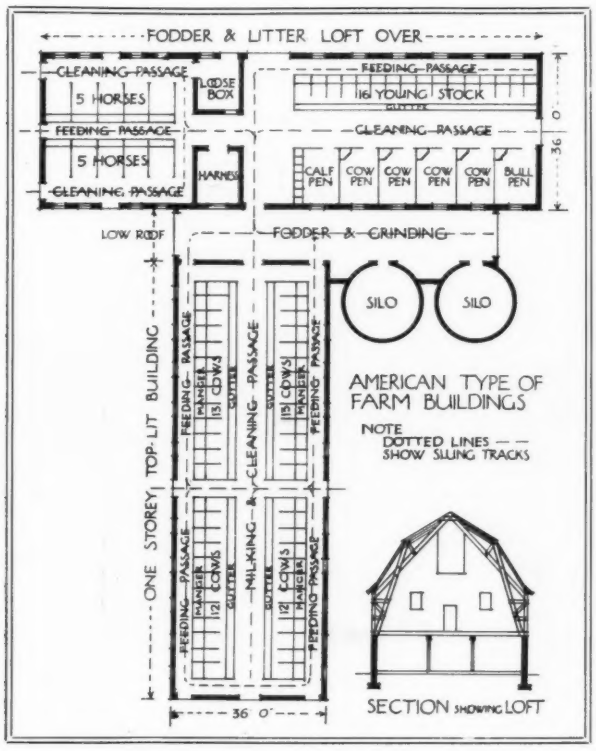
*The Close Farm, Tetbury. By Maurice Chesterton.*

*The Close Farm, Tetbury.*
*By Maurice Chesterton.*

and ramshackle buildings, just as many a manufacturer's fortune has been made in premises of dismal inconvenience. But it will become increasingly more difficult to do so in agriculture as it has become in industry. The plea for well-planned, light, and sanitary buildings depends on the greater ease with which all operations may be performed and the better health of their occupants, both man and beast. A well-planned set of buildings, of whatever size, will be arranged with recognition of the processes therein conducted, and will make provision for these being carried on with the minimum of effort as regards employees. It will also secure clean and reasonably sheltered access from one part to another, both for farm servants and stock, and will admit the maximum of sunshine and a sufficiency of fresh air adaptable to all seasons.




*Small Holding for the Carmarthenshire County Council. By W. Vincent Morgan.*



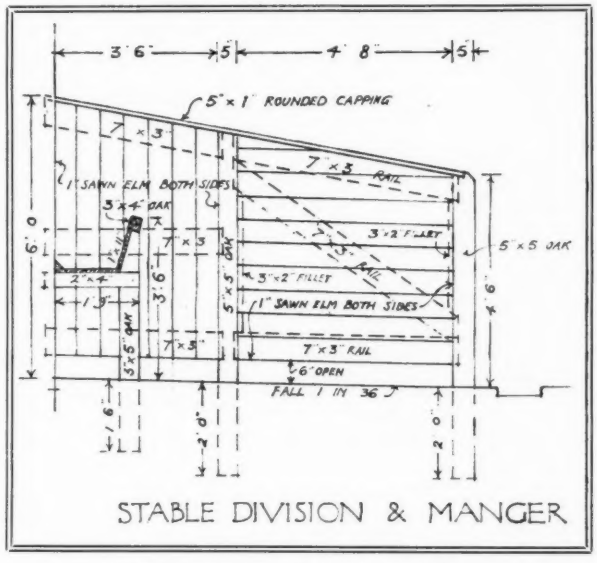

The most important factor in securing this quality is probably a centralized feed section—variously called barn, fodder place, mixing-room, or chop-house. In many old buildings a chaff-house, root store, cake loft, and grain bins are scattered in haphazard fashion akin to the rambling kitchen premises of the older domestic buildings, so that collection of materials for feeding is done with the maximum of effort. The well-designed set of buildings will have the feed-room placed as centrally as may be towards the livestock and contiguous to the stores of feedstuffs. The plans on pages 478, 480, and 481 show the principle applied to a small holding, and that reproduced above to a large dairy outfit. The dotted lines on the latter plan show overhead runways for feed and dung carriers, which in any large establishment are an important means of labour economy.

Planning, so that animals do not enter yards or buildings by or across the same tracks as farm servants employed in feeding or milking, is an important factor in securing cleanliness. The relegation of dungsteads to a distance from stock-housing buildings, formation of paved causeways raised above yard level, good drainage of yards, and setting of floor levels a few inches above external ground or paving are other important factors. In districts where manure is "made" by keeping stock in open or covered yards to tread straw and dung, the circumstances differ to some extent; in such cases causeways will be higher, and both liquid manure tanks and dungsteads will be non-existent, the manure remaining in the yards, increasing from day to day until the year's straw is expended, when it is carted on to the land; and, of course, there are other local variations—the first step to the design of any set of farm buildings is to gain an insight into the method of farming—not so simple a matter as it sounds for reasons already given.

The benefits which stock of all sorts will derive from sun and air are only slowly realized by the farming community. There still exists quite generally a feeling that pigs are appropriately housed in foul, dark lean-tos, and that the atmosphere of moist warmth which characterized an old-time byre is the right thing for the health of cows. The only ground for any such feeling lies in the fact that an atmosphere of "fug" may call for rather less feeding-stuff than one of freshness, in which animals must preserve their bodily temperature from within rather than without, but taking into account greater freedom from disease with better-ventilated buildings there is little doubt that the balance of advantage lies that way. The excellent condition of army horses in France during the war, kept under circumstances as different as might be from the ordinary close stable, probably did good missionary work for more healthy surroundings. Young animals in particular respond wonderfully to sun and air, the most outstanding example (probably because of its naturally quick growth) being the pig. It is noteworthy that the new "Milk and Dairies Order" recently adopted definitely abandons the fallacious "cubic feet per cow" standard, and substitutes insistence on adequate ventilation and cleanliness.

A certain looseness in nomenclature as applied to farm buildings, or the preservation of local names for their several parts, is confusing to the newcomer. A stackyard in the Eastern Counties is a mowhay in Cornwall and a haggard in South Wales, all meaning the place where straw and haystacks are built. A cowhouse in the Home Counties is a byre in Yorkshire, a shippon in Cheshire, and a mistal in Airedale. A store where straw which has been through a chaffcutter is stored in bulk is variously known as a chaffhouse, cuthouse, or chophouse. Even a barn does not always mean the same thing—it is not everywhere restricted to its original meaning as a grain store—in America it has taken on the widened meaning of any farm building, such as a cow barn, horse barn, or hog barn.

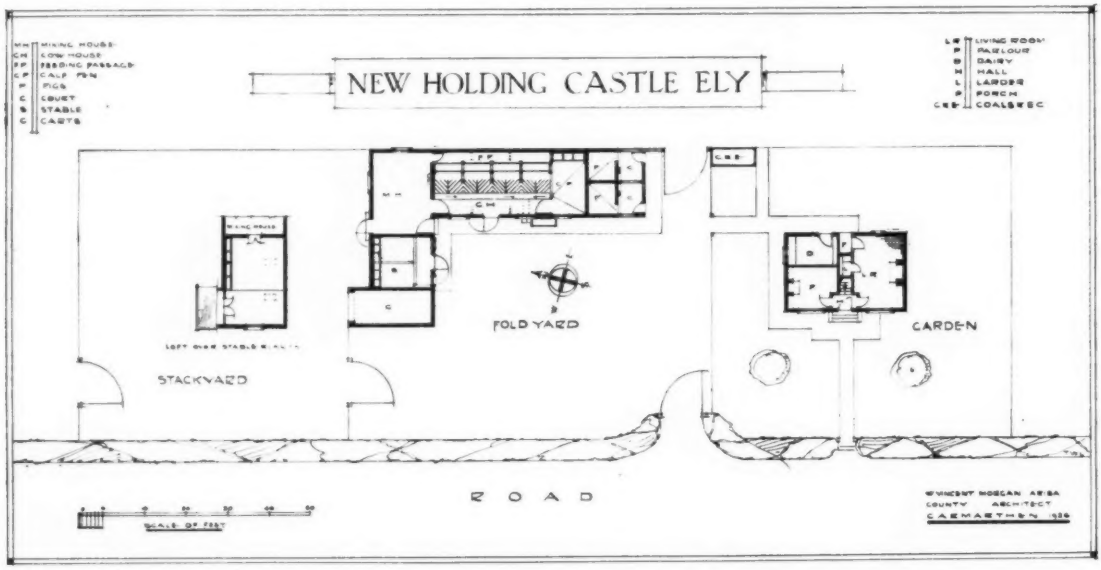
The focal point of these central places is the mixing room, which should be well lighted, have a good cement floor, and be easy of access from the stackyard, haybarn, chaffhouse,




*Above, an American type of farm building.*
*Below, sectional elevation of stable division.*

root store, granary, cakehouse, silo—all or any place where feedstuffs are stored. In large establishments an engine-room will adjoin from which power will be derived for driving chaffcutter, root slicer or pulper, and such other machinery as may be requisite. The American system of storing hay and fodder in a huge haybarn over the ground-floor stock pens and stalls, as shown in the plan at the top of page 479, makes for ease in working, but is not popular in this country as it tends to mechanicalize farming—ventilation, for instance, will not take care of itself under such a system. In passing, it may be noted that the plan given shows ready adaptability to extension in any direction.

In this country hay and straw are usually stored in the open, either in the familiar thatched stacks, or the less picturesque "Dutch Barns," though it is common in some districts to chaff such material in bulk for feeding, in which case a chaffhouse as well is requisite. The requirements of such a place are a dry floor, a sound roof and walls or partitions capable of supporting the load of a depth of about 10 ft. of chaff. Chaff which becomes wet is liable to heat up, swell, and spoil. As most of the chaff will be

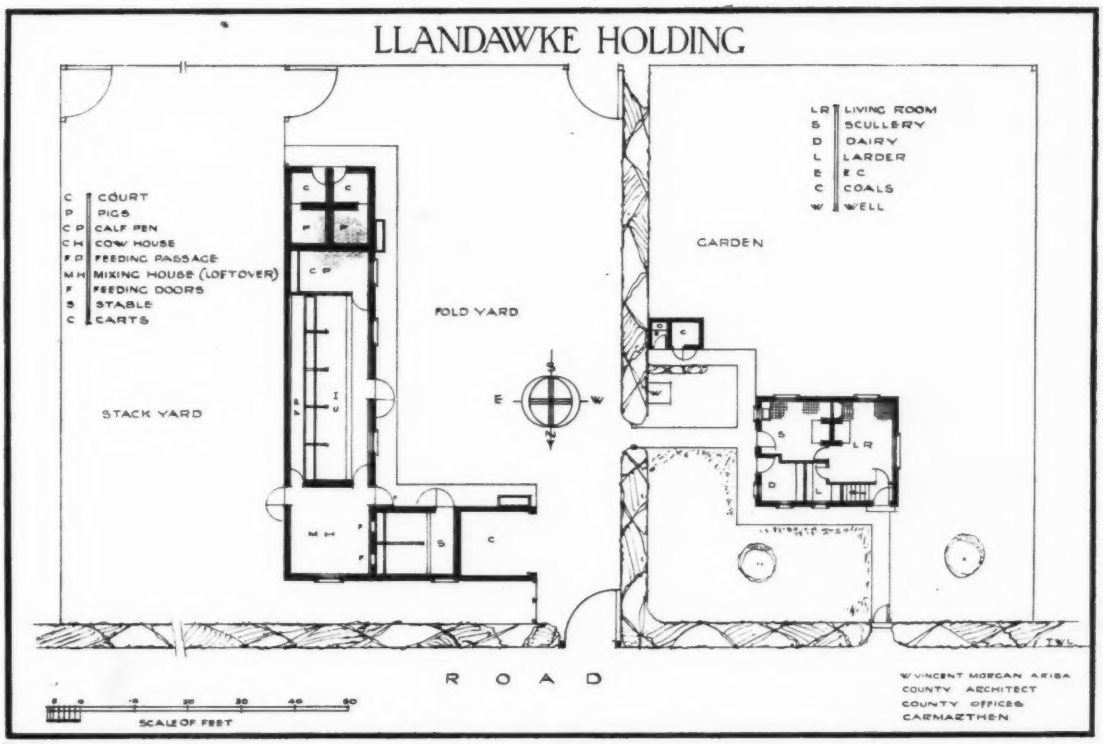



*Small holding at Castle Ely for the Carmarthenshire County Council. By W. Vincent Morgan.*

fed to horses a position handy for the stable is best. Chaff is fed into the house by a pitch-hole door about 3 ft. sq. at about the level of the wall-plate, and to withdraw it either an ordinary doorway with a boarded pent on the inner side (to hold up the higher layers as chaff is withdrawn below), or a " slide " about 3 ft. sq. are the usual resource. Chutes for hay or chaff from lofts above are superficially attractive, but in practice result in dust and seed distribution which is harmful. A root-house will require large double doors off a hard road, so that a cart may back against it for delivery of its load. A hard, dry earth floor is sufficient, though concrete is better. Cake and grain require special protection from rats and mice.

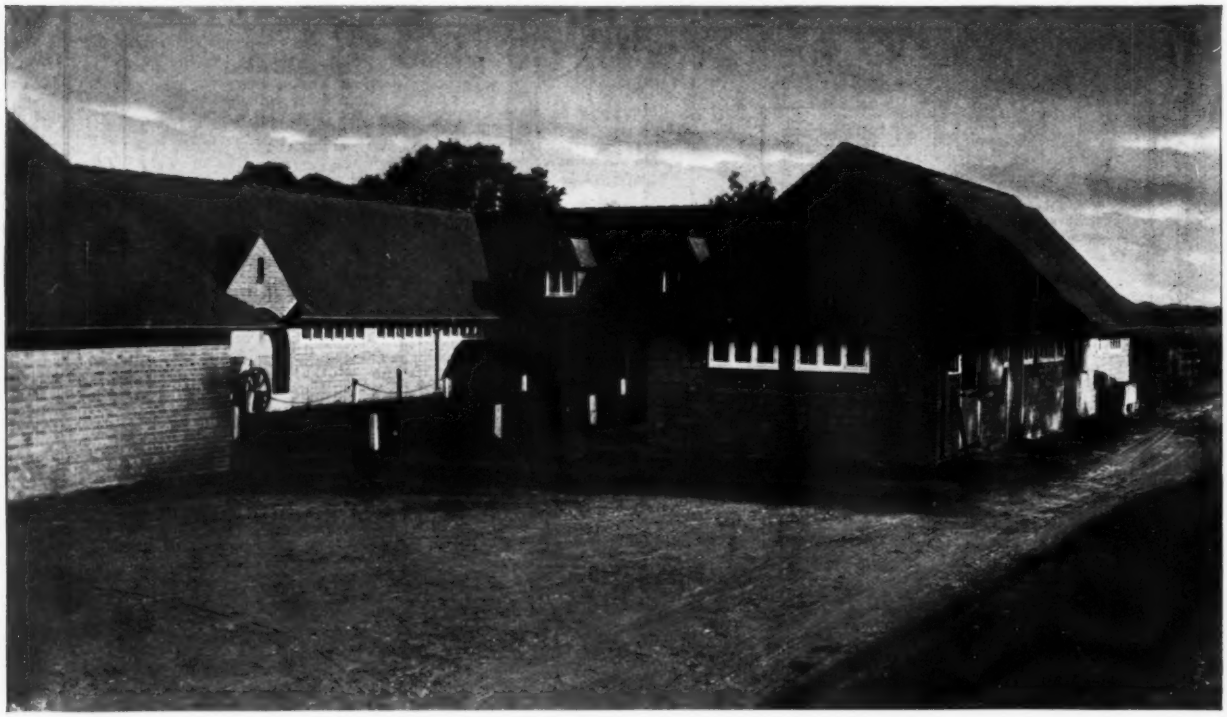
As a general point, all buildings for housing stock should be stoutly constructed with weighty materials firmly fixed. The particular points of detail to which attention should be directed will be mentioned in place, but this is a general overriding condition. Another is that all angles of walls and joinery should be bullnosed or chamfered. It is also highly important that door frames should be set flush with the outside faces of walls so that half-hack doors may be opened and caught back flat by catches when open.

The cart-horse is a heavy animal, and though usually docile is liable to behave violently when frightened or worried, and to chafe and fret when uncomfortable. The ordinary spacing allowed per standing is 6 ft. between stall divisions, and a depth of at least 16 ft. is desirable, so that in passing behind stalled horses room may exist to avoid a kicker. Stall divisions should have the heel-post ending on a level with the ramped top and not prolonged above in however attractive a finial. A frightened horse or mare will sometimes rear up and get astride the division with grave risk of injury if this projection exists. The type of division shown in the plan at the bottom of page 479 makes provision against, a strong thrust from a heavy shoulder, and the direction of the kicking or rubbing boards parallel to the ground, instead of the more usual vertical placing, is found to have the advantage of turning most kicks into a harmless glance. A stable floor is ideally of adamantine clinkers or blue Staffordshire paviours, but concrete is often used on the score of economy. It should be at least 6 in. thick, and grooved or otherwise roughened, and it is a saving in the long run if a heel-panel of blue paviours is formed extending across the standing from the edge of the drain channel for about 2 ft. towards the manger. The wear on this portion of a stable floor is intense. Mangers should be about 3 ft. 6 in. to the chin-rail, and about 18 in. in width. A half-round stoneware trough is very sanitary, but necessitates expensive underworks. Quite good results can be gained with an elm manger covered on the bottom with quarry tiles. Where elm alone is used see that the builder does not cross-joint the bottom or the feed will escape. Two or three strands of hoop-iron nailed to the chin-rail will defeat the occasional crib-biter. Overhead hayracks were once general; they are now going out of use in favour of the low hayrack, in which the manger chin-rail is continuous, but the manger extends only half-way across the standing, the remainder being formed as a low rack to within about 6 in. of the floor, with solid ends and spaced " spels " or staves to the front. The spels should not be less than 1½ in. square, set diagonally. The old type of hay rack was apt to get dust in the animal's eyes, was awkward to fill, and liable to damage by head-tossers. A very good way of introducing light is by a small skylight or patch of glass slates in the roof slope behind the horses—as should be all stable windows.

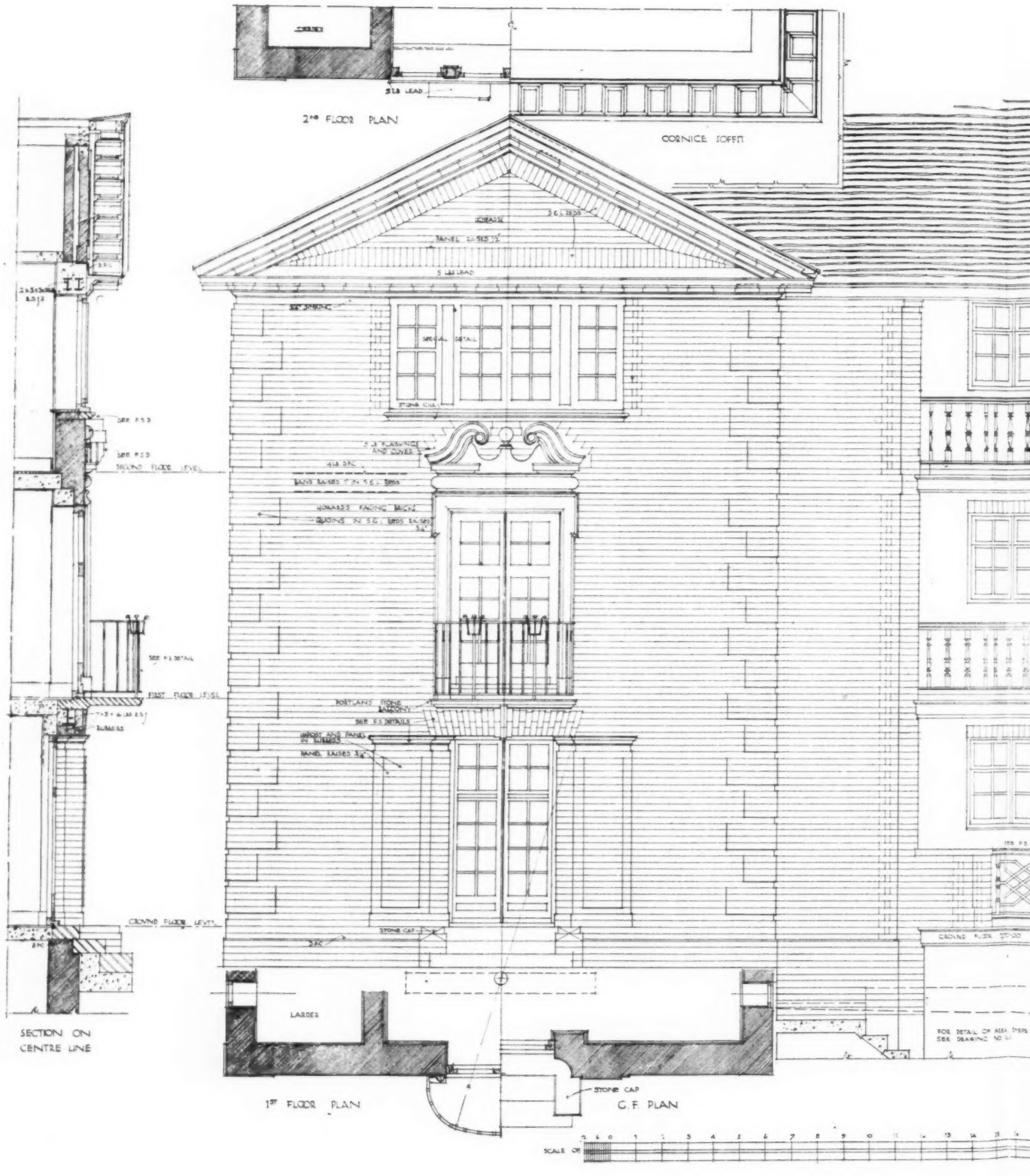



*Plans of the Llandawke small holding for the Carmarthenshire County Council. By W. Vincent Morgan.*

The construction of cowhouses is fully dealt with in the Ministry of Agriculture Miscellaneous Publication No. 40 (H.M. Stationery Office, 6d. net). It is therefore not necessary to traverse the ground fully or to review the pros and cons of the head-to-head or tail-to-tail arrangement. There are, however, one or two points which are commonly overlooked in building. One is the steamy atmosphere which arises from cows' breath and bodies, which results in winter in condensation on the underside of any roof surface liable to condense, unless movement of air is secured. A further point is the possession of horns by many cows, which necessitates allowance of ample space behind the actual manger-trough in a single-rank cowhouse without feeding passage—otherwise the animals are prevented from feeding. There is also often a failure to appreciate the real purpose of the short and narrow standing and high step, with appropriate tethering arrangements—which is, briefly, a desire that the cow should stand and lie on the same ground. Latitude to move back or forward, or to swing sideways, inevitably results in fouling the standing. The ideal flooring material for cowbeds has yet to be found. Concrete is, of course, sanitary,



*Above, dairy, White Place, Cookham. By Paul Phipps. Below, The Clock House, West Grinstead. By Barry Parker. Farm buildings on the estate.*


2ND FLOOR PLAN
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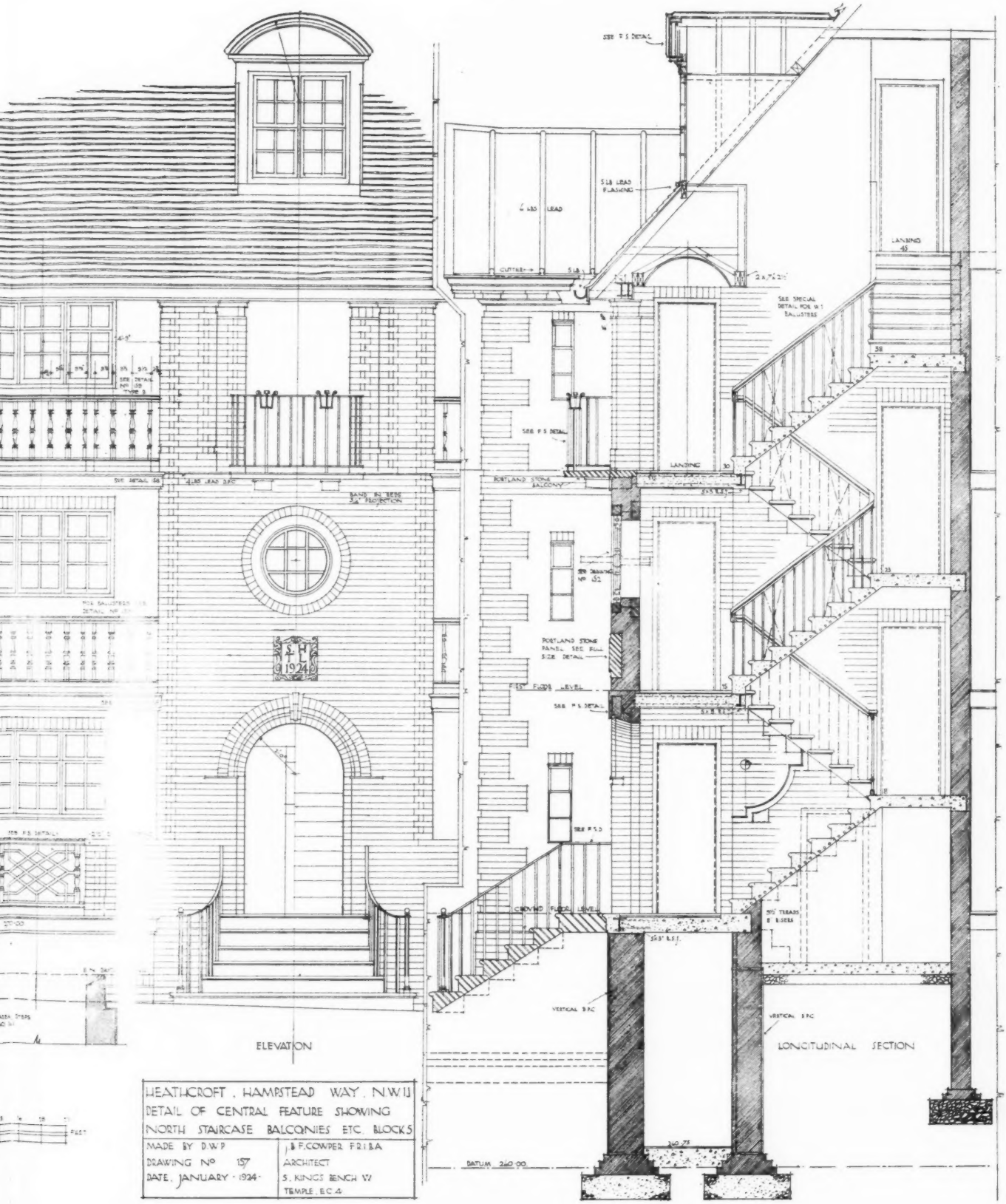
SECTION ON CENTRE LINE
1ST FLOOR PLAN
G.F. PLAN
LARDER
STONE CAP




BLOCK OF FLATS IN HAMPSTEAD WAY, HAMPSTEAD GARDEN SUBURB. BY J. B. F. COWPER. DETAIL OF CENTRAL FEATURE.

*The Clock House, West Grinstead. By Barry Parker. Interior of the cow-house.*

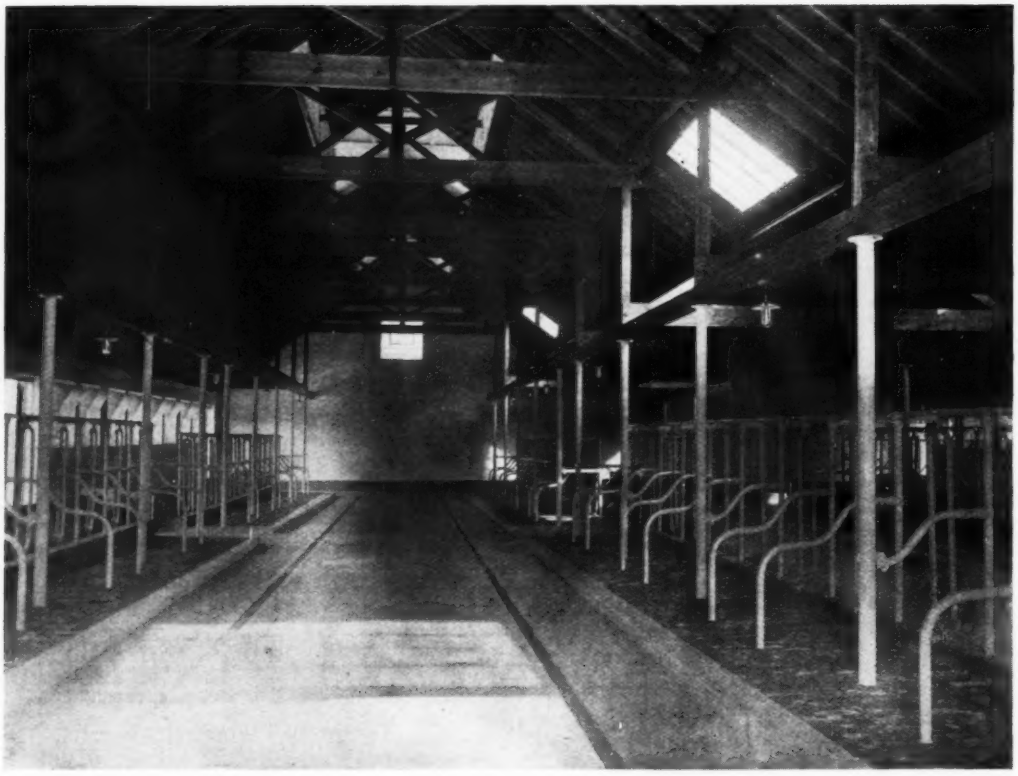
but in the absence of ample bedding, is cold, though its extreme coldness can be mitigated by laying 3 in. of concrete over a layer of hollow floor tile, or even 6 in. of coarsely-broken brick not too closely compacted. The old-fashioned knee-panel of rammed chalk or clay does not go kindly with frequent floor washing. Cork-bitumen bricks seem good, but expensive, and not always so good as they seem. Recent experiments with plastic asphalte mixed with granulated cork and applied hot in the ordinary way, appear to show that this may be a promising material. It is warm, yielding, and sanitary—only use can show whether it remains non-slippery and wears well.

The disposal of washing-water is frequently a difficulty. The liquid drainage of a cowhouse in most grazing districts will be conveyed by gulleys and pipe-drains outside the buildings to a liquid manure tank, which is quickly filled by highly-diluted fluid if the floor washings are allowed to go there also. A simple way out which might be more generally followed is to fit *two* gulleys at each outlet from the internal floor channels, surrounding them by a raised kerb, and providing a stopper which may be employed to close either grating at will. One gulley connects to the drain to manure tank, and the other to a drain to any suitable outlet, such as a dry ditch or depression.

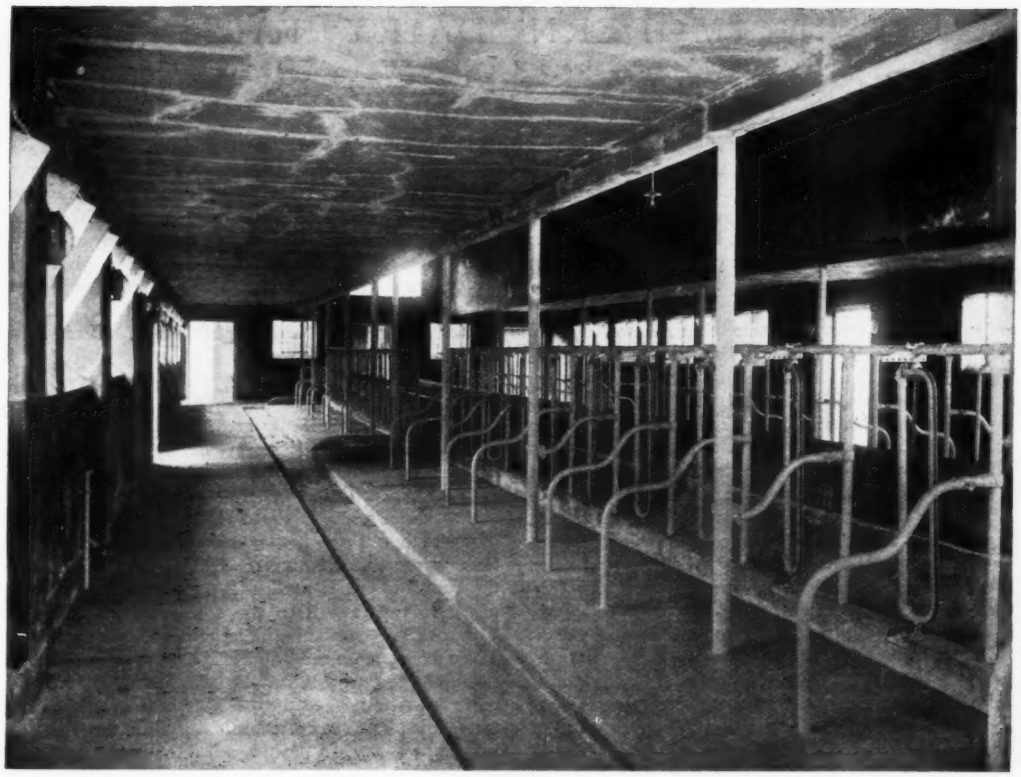
Bullocks nowadays are usually fed chiefly for the purpose of making manure to maintain the land. When so kept in open yards (" crew yards ") for treading in straw, the level of the yard may rise as much as 2 ft. before seasonal dung-carting lowers it. This must be observed in three bearings: mangers must be either adaptable in height (e.g. swing mangers hung on chains from above) or must be protected by stout cross-rails at 3 ft. intervals, so that when the surface level is almost up to the chin-rail there is no risk of an animal being " cast " in the manger—a position from which it could only be extricated with difficulty and danger. The causeways and floors must also allow for the rise in level, and it is advisable to carry foundations 12 in. or more deeper around crew yards, as in many cases annual clearing progressively hollows the yard so as to expose the bottom of the footings.

The Ministry of Agriculture Leaflet No. 121 deals fully with the construction of pigsties, and it is here only necessary to repeat that sunshine is of great benefit to young pigs and that it is well to treat any wall or partition against which a heavy sow may lie as virtually a retaining wall ! Farrowing rails are also essential in breeding-sties, to protect the young pigs from being overlain.

Loose-boxes serve many purposes. They may contain animals which it is desirable to segregate—such as a bull, a sick horse or cow, or one under observation; they are required for foaling or calving; and they are always available to house any stock when not required for special purposes. No farmer ever complained that he had too many loose-boxes. For general utility purposes it is a good plan to make a loose-box with half-high and half-low manger, so that it is available either for horses or other stock, a hinged



*Above, sleeping barn, Hever Castle Farm. Below, milking barn, Hever Castle Farm. By Paul Phipps.*



*Milking barn, Hever Castle Farm. By Paul Phipps.*

hay rack dropping down on the low manger when required. Cart and implements shelters are of two main kinds: the cart shelter housing carts, wagons, milk floats, and vehicles in daily use, and implement sheds containing implements of many and curious shapes having relatively occasional and seasonal use. The former should face north or east for protection of woodwork from the sun's heat, and should be deep enough to protect shafts. The position should be such that vehicles may be dropped on the way to the stables without aimless wandering. The more occasional implements need not be so strictly considered as to position nor so readily accessible.

A good milk-room is a necessity on every farm where dairy stock is kept. It should not communicate directly with the cowhouse or feed store on account of dust and odours, but should be separately approached from the open air, though conveniently to the cowhouse. Its size and arrangement depend on its purpose and output. Where whole milk is sold in bulk only a cooler is required; where milk is bottled for retail trade a much larger milk-house is required, and for butter-making, space for a separator is also needed. In conjunction with the dairy there should be a separate wash-up scullery containing a sink or sinks, a sterilizing chest capable of containing all the apparatus and utensils used (including the cooler), and a steam block upon which churns may be inverted and sterilized. A boiler-house and fuel store will adjoin. Quite a simple steam boiler is capable of giving the temperature which is sufficient for the purpose. Cold water and steam alone are piped to the various apparatus, hot water being obtained when needed by blowing steam into a sink or vessel containing cold water. In large dairies where the milk-room staff is separate from the milkers it is considered best that the latter should not have to enter the dairy, each milker pouring his milk from an outside platform into a metal hopper leading to the cooler.

On page 478 is the plan of a pair of cottages and farm-buildings for dairy holdings created by the Carmarthenshire C.C. under the ex-Service scheme of land settlement; and on the same page is a photograph showing one set of equipment, which is most admirably simple and serviceable. The material and direct straightforward design contrive to maintain a thoroughly Welsh character. The Dutch barn, however, seen rising above the stable wing, though useful, contributes nothing to the effect.

The farm-buildings on the Clock House estate, West Grinstead (by Mr. Barry Parker), show that concession to amenity which the profit-seeking farmer can seldom afford. The delightful thatched buildings at Tetbury (by Mr. Maurice Chesterton) are also in the category of estate buildings and not subject to the fettering trammels of "best economic return"—one may be thankful that there are such occasions when the little more may be added to the bare bones of necessity. A delightful set of farm-buildings at Zennor, Cornwall, in granite, with cloister-like quadrangle, which was illustrated in the *Architectural Association Journal* shortly after the war, but whose authorship has not been traced, shows that it is possible to impart even some poetry into the design of what are now usually humdrum commonplace pieces of building. A fine set of farm-buildings on the American scale, with twin silos interestingly roofed and some suavity of line in place of the rather coarse angularity of detail which America affects, might be an inspiring opportunity.

# THE MODERN DAIRY FARM

[ BY FRANK DARLING ]

IT is with some trepidation that I venture into the pages of THE ARCHITECTS' JOURNAL, but if by doing so I may be giving a little guidance in the construction of modern cowsheds and dairies—serving, as it were, as a link between the cow and the architect—I shall be happy; fortunately, too, I have the co-operation of a member of the profession well known to these pages, who will correct any inaccuracies of terms and provide the necessary sketches.

Members of the profession may be aware that a new Milk and Dairies Order came into operation on October 1, 1926, the administration of which will mean the alteration of many premises, where cows are kept and milk is handled. Agriculture is in a very parlous state at the present time. Labour is scarce and costly, capital is lacking, and returns and outlook are not too good. Considering these points, I would like to emphasize that wherever the architect is consulted upon the subject of farm buildings, he should make for cheapness, compatible with efficiency, in his specification, and wherever possible to adapt existing buildings to modern requirements rather than to advise new ones. *In dairy farming cleanliness is of paramount importance; ease of cleaning, therefore, should be kept constantly in mind.* My emphasis of this point will be considered excusable as the details of cowhouse construction are described. In concluding my *apologia*, I may mention that I give the design of the cowhouse after personal and practical experience in looking after milking cows, the dimensions being those which I find give cleanliness, health, and comfort.

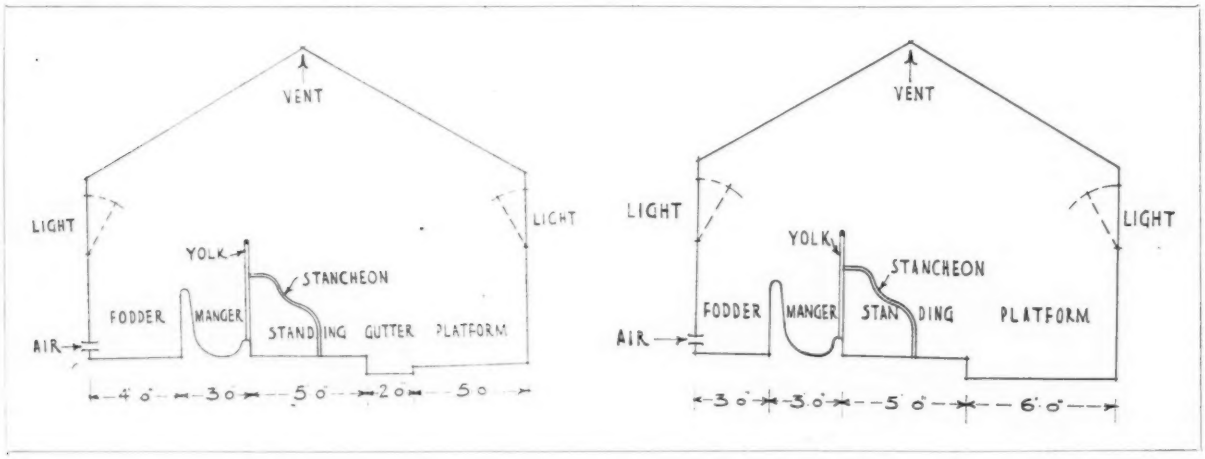
In selecting, first of all, a site for building a cowhouse, let the point of convenience of situation to food-store, dairy, and water supply take a prominent place in the mind's eye. This may seem a superfluous caution to the architect, but the writer has seen some cowsheds built during the last twenty years, and really almost ideal byres, being placed in most out-of-the-way positions on farms, rendering them almost useless as sheds suitable for the modern methods of producing milk. One fetish which seemed to obsess those who planned cowhouses years ago was the idea that the centre of the farm was the right and proper place for the cows to be milked, thinking that the animals could thus be pastured in any part of the farm with convenience, the manure would be in the centre of the holding—thus easily distributed—the hay could be carted to this centre in the summer and no time wasted. This was, no doubt, an excellent idea if the homestead, dairy, and water supply were also at the centre of the farm, but in many instances such an ideal arrangement is not to be found. Position and accessibility, therefore, are highly important, and too much stress cannot be laid on the necessity of having a copious, pure, and convenient water supply. A supply emanating from surface ponds and shallow wells should not be used, as the writer has frequently found such to be contaminated with organic matter and responsible for epidemics of disease in the milking herd.

Facilities for natural drainage and the conservation of drainage from cowsheds should be studied carefully. Nothing can be more disconcerting to a cleanly intentioned cowman than to find his shed in the midst of a morass through which his cows have to wade in the winter time. Such a condition is unhealthy, as well as being expensive of labour.

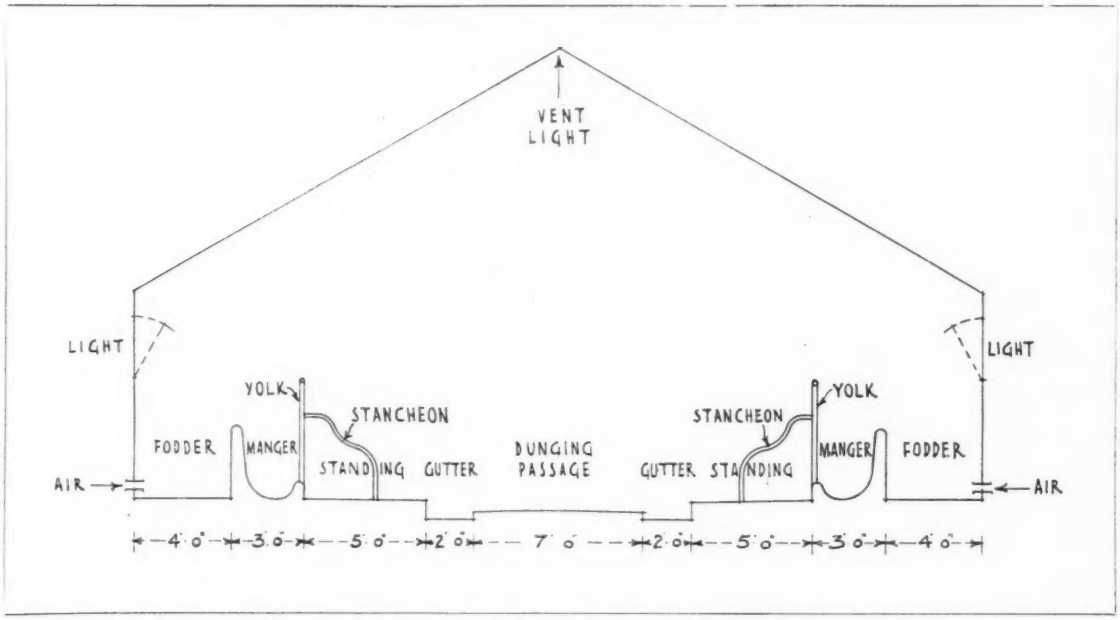
The writer suggests that a liquid-manure tank should be an adjunct of every cowshed, much manurial matter of great value is thus conserved, and a better drained and healthier condition of the surroundings is attained. No drain, however, should lead direct to the tank from the cowshed without a suitable trap. This point is emphasized in the new Milk and Dairies Order. The manure heap should not be placed just outside the cowshed door, but several yards away, and for preference should have a concrete base with central drain leading to the liquid-manure tank, and an inexpensive roof. This latter is well worth the monetary outlay if a drain is not fitted from the heap to the tank, as rain percolates easily through manure and removes from it the most soluble and valuable constituents.

Having considered primary needs, I will deal now with the shell of the building. Ventilation and light come at once to the mind with all that they embody—cubical contents, equable temperature, freedom from draughts, elimination of dark corners, and so on. In the old days, cubic content was the factor which one considered first of all when deciding the dimensions of the shed. In the writer's opinion this is not nearly so important as the method of ventilation, by which is implied the frequency of the change of air which the cows breathe. The changes of incoming fresh air should be continual, whilst the importance of preventing draughts should be borne constantly in mind.

From the height of about 5 ft. from the ground windows of the




*Diagrammatic sections of, left, a single-range cowshed and, right, a single-range arrangement where width is limited to seventeen feet. Where fifteen feet only are available the fodder-run can be cut out to allow plenty of room behind.*



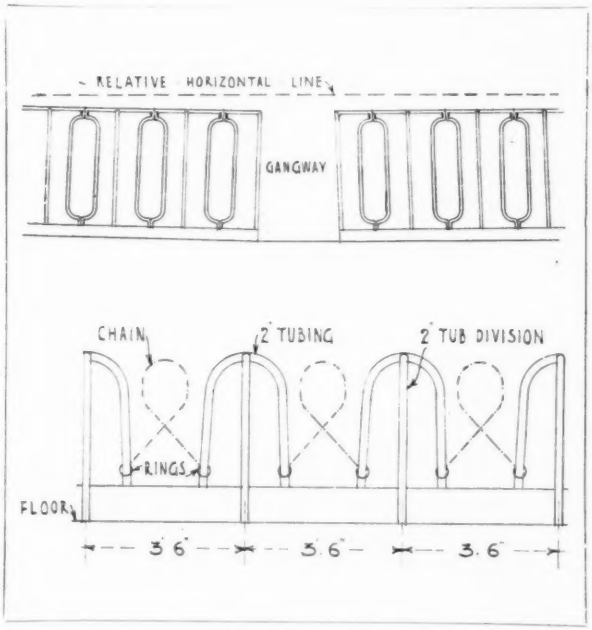

*A double-range cowshed. The animals stand back to back, and the dunging passage is in the centre.*

hopper type and of ample dimensions should be built in to each side of the cowhouse, that is, back and front of the cows. The roof should be well ventilated along the ridge by louvres or other suitable contrivance. In addition to this ventilation of the upper air for the drawing upwards of the lower atmosphere and the assurance of fresh air coming to the cows' heads, a 4-in. drainpipe to each two cows should be fixed in the front wall of the shed about 6 in. from the floor level. It must be remembered that tuberculosis is a disease of the sheds, and anything that tends to remove stale air without draught is an advantage. Some authorities advise a system of inlet pipes at the back of the shed, too, but I am very much against this. Sufficient air will come from that quarter from under the doors. Ventilation of the nature suggested can easily be adjusted to weather conditions, and the temperature of the shed kept equable, the optimum being 40° to 50° Fahr.

The roof is an important item of the shed from the point of view of materials used. Slates are excellent, so are tiles, but bare corrugated iron should never be used if possible, as it is so susceptible to change of temperature. The underside of the roof should be rendered as smooth as possible, as dirt is very apt to collect in a roof of bare rafters; if these can be covered with matchboarding the result is very satisfactory.

When calculating the overall dimensions of a cowshed, the following factors should be kept in mind. Seven feet to 7 ft. 6 in. per two cows for width of stall should be allowed exclusive of partitions between each two animals. Thus, a twenty-cow range would occupy an inside length of approximately 72 ft. to 76 ft., exclusive of any centre gangway which may be desired. It is not practical to carry more than twenty cows in one range. For any larger number of cows kept in the same shed a double-range cowshed should be built, the cows lying tail to tail. Head to head arrangement of double-range cowsheds is not advised, as the animals breathe more or less into each other's faces, which, for obvious reasons, is not hygienic. The tail to tail design also gives greater ease of cleaning out.

To deal with the cross section of the single-range shed first, the following set-out is found to give the best results in practice. There should be a 4-ft. fodder-run, a 3-ft. manger (overall) having a back wall 3 ft. high, and a front one of 6 in. to 9 in., the inside of the manger being smooth cement or glazed stoneware half-round pipes, curved as in the diagram (page 486). The standing should be 5 ft. in length, and level, or with, if anything, a very slight fall to the gutter. The surface of this should be of sand, gravel, and cement concrete, roughened when almost set with a stiff broom in a crosswise direction. This will prevent the animals slipping. Grooves cut in the concrete of this standing are to be deprecated, as the writer has found that sore hocks frequently result when cows lie on such grooved standings. A slight depression in the first 2 ft. of the concrete from the manger may be made, in which may be placed straw, peat moss, or some such material for the ease of the cows' knees. The writer would say, however, that he has




*Above, diagram showing how tubular yokes are set slightly out of the perpendicular following the fall of the floor to the central drain. The diagram has been exaggerated. Below, cheap tubular cow ties (3' 6" per cow.)*

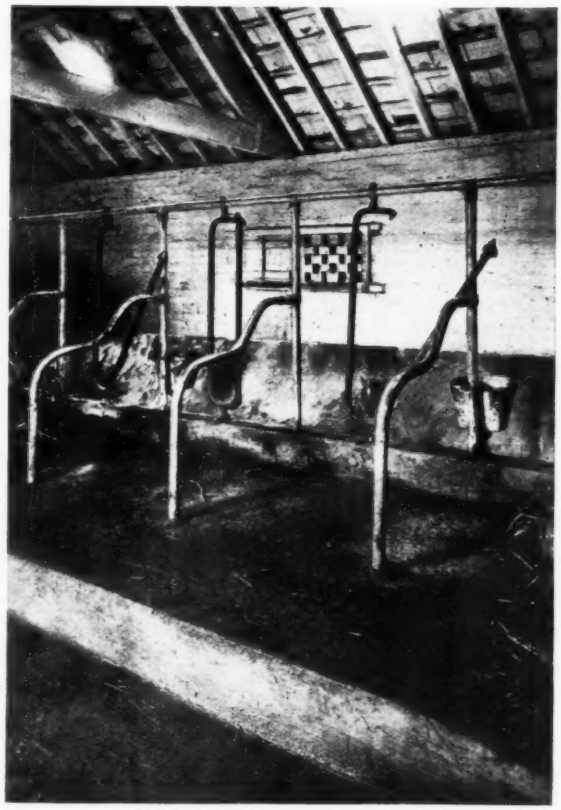
found that cows kept simply on the concrete standing rarely develop big knees, although the opposite opinion is very frequently expressed. The standard length of the standing should be 5 ft., or the range of standings may be graduated from 4 ft. 10 in. to 5 ft. 2 in. These measurements would accommodate cows of the Shorthorn breed ; Channel Island and smaller breeds would not need more than 4 ft. 6 in., whilst Friesian cows may need 5 ft. 2 in. as standard. There is a great deal of prejudice in some quarters against the 5-ft. standing, it being considered much too short for the comfort of the cow. The writer, however, having had practical experience of most types and lengths of standing, has found that the 5-ft. figure gives both cleanliness and comfort. It must be borne in mind that with a 5-ft. standing the manger must be on the floor level and not in any way raised, thus the cow lies and stands in one place. With a raised manger the cow feeds forward and lies down a couple of feet farther back in the dung which has been made whilst standing in the feeding position. Obviously such a condition is not to be desired.

The gutter behind the standing should be 10 in. deep, and the edge of the standing should fall at right angles into it, a curved edge being a frequent cause of the animals slipping. The channel should be 2 ft. wide, 18 in. is often advised, but the 2-ft. channel gives a very great deal easier cleaning. Between night and morning a lesser channel would become choked with manure and liquid, whereas in the wider channel the liquid has a chance to soak away, rendering the manure easier to remove. The shovels of the workers are also more easily manipulated in such a channel. The gutter, in addition, should have a slight fall, say, 1 in. to the back.

Reasons not commonly apprehended for the combination of high step and wide channel are: (1) the high step renders it practically impossible for cows to stand with hind feet in the channel; (2) it prevents manure which falls into the channel from splashing on to the cow standing ; (3) with a narrower channel cows may have a tendency to jump across, whereas the wide channel encourages them to step in it when crossing, with less risk of slipping and injury.

From the back of the gutter a platform 4 in. high should be made, and should run back 4 ft. 6 in., or over to the back wall. The more room that can be had on this back platform the better. There should be a very slight fall from the wall to the gutter. The surface of the platform and the gutter should be the same as that of the standings, sand, gravel, and cement concrete, brushed over with a stiff broom to give a non-slip surface. The back wall, to a height of 4 ft., should be faced with smooth cement, giving a surface which can be swilled down frequently, as the back wall is the recipient of a considerable amount of dung-splashing.

Thus the overall inside width of the single-range shed, taking the back passage as being 4 ft. 6 in. wide, will be 18 ft. 6 in. It will be convenient, perhaps, to make a few remarks here on the matter of adapting the floors of existing single-range sheds. It will be found frequently that the inside dimensions will be not more than 15 ft. or 17 ft. across. If the former measurement is found, it will be practically impossible to provide a fodder-run. The existing mangers, if raised, should be dropped to the standing level. Taking the length of standing and width of gutter as before, we find a convenient back passage 5 ft. wide. In the instance of the 17-ft. shed, one is tempted to provide a fodder-run at the expense of the back platform. However, the writer would emphasize here that the architect should think of the back passage and gutter first, and, despite the inconvenience of a narrow fodder-run, it should be the first to suffer rather than the back of the cowshed. Giving a fodder-run of 3 ft., we are left with 2 ft. for the gutter and 4 ft. for the rear gangway. Whilst this may be found satisfactory, the writer suggests that the rear gangway should be dispensed with and that the walking passage should be on the same level as the gutter, having a slight fall to the outer edge of the gutter, which may then have a semicircular depression running the length of it about 3 in. wide. The reason for doing away with the platform is that the cows, having to turn round and manœuvre in a more confined space when being brought in or turned out, are better able to accomplish this if an actual gutter has not to be stepped over.

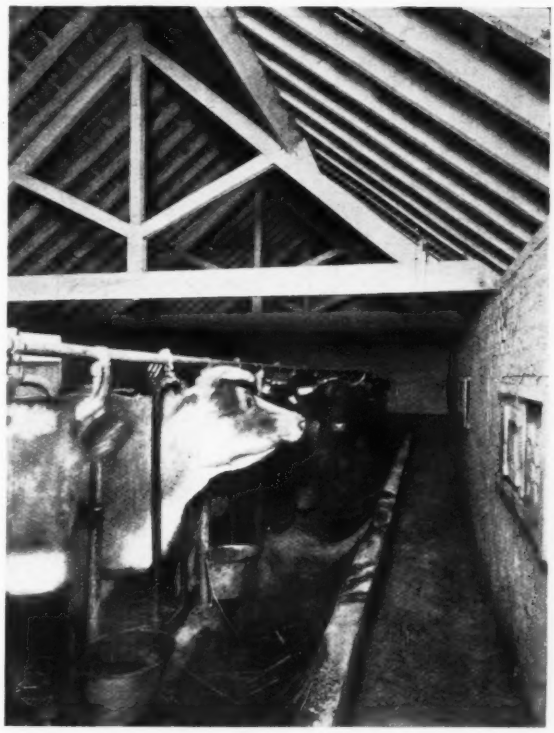


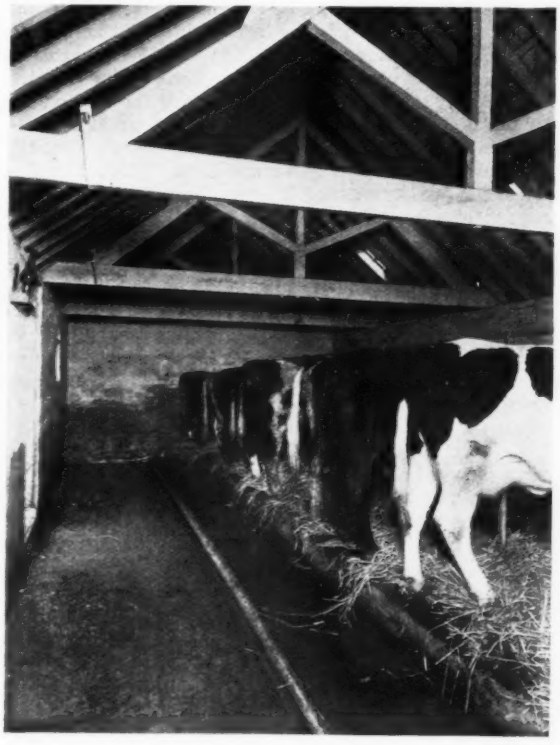
*Above and below, cowshed at Hoggeston, Bucks, before and after being converted on the lines laid down in this article.*

Coming to the flooring arrangement of the double-range cowshed (see diagram, page 487), the measurements already given for fodder-run, manger, standing, and gutter would hold good. The centre walking platform, however, needs special attention. This platform should not be in any way limited in width at the expense of later convenience. It should be broad enough for a horse and cart to be taken through from end to end easily, and a man should be able to walk down the centre of it carrying a pail in each hand, so that the cows' tails do not reach the pails or the man when they are switched. A convenient breadth for this platform would be 7 ft., and it should have a slight camber. A pronounced camber should, however, be guarded against, as the animals may slip on it. In such a cowshed the doors should be at each end, preferably of the sliding variety, being high and wide enough to admit with ease a horse and cart.

At this juncture it would be as well to consider the form which the partitioning and yoking of the cows may take. There is no doubt that the tubular yoke and division is the ideal arrangement, the reasons being economy of space, inability to harbour dust and dirt, and general strength and efficiency. Several forms of these yokes and partitions are on the market, but it may be said here that the most expensive are not always the best, and all makes should be studied before the final choice is made, as it would be invidious for me to indicate my own choice here. As the partitions between the cows take up only 2 in. of width it is very advisable to have such between each cow, the shape being as shown in the diagram (page 487), so that when the cow is released, she is able to turn round without first going backward, her brisket and shoulder not being impeded by a partition of the shape indicated. If there is not some form of partitioning between each cow, it will be found that one of each pair will stand over and either prevent her companion lying down or will soil her companion's bedding. Where wood partitions are employed, there should be main partitions harbouring two cows with a smaller partition between each cow of lighter construction, just sufficient to prevent the cows standing over. Where tubular yokes are provided with an alignment device, this should be taken advantage of.

With regard to the actual fixing of the yokes, they should follow the fall of the floor, that is if in a range of twenty cows there were a central gangway and a central drain, the floor would have a fall to the drain from each, and the yoke and standings would follow the fall also. The top rail of the yokes and the top of the manger would, therefore, be parallel, but slightly out of the horizontal, and the yoke itself would be slightly out of the vertical. The tubular yoke is especially to be preferred where there is a fodder-run in front of the cows. If, however, on the score of expense, it is decided that chains attached to the partitions must be used, a rail should be run the length of the cowhouse, about 6 in. to 9 in. above the top of the back of the manger to prevent the cow stepping forward into the manger, and feeding from whatever may be in the fodder-run. A cheap cow-tie of tubular construction is made by most manufacturers, the design of which is shown on page 487.

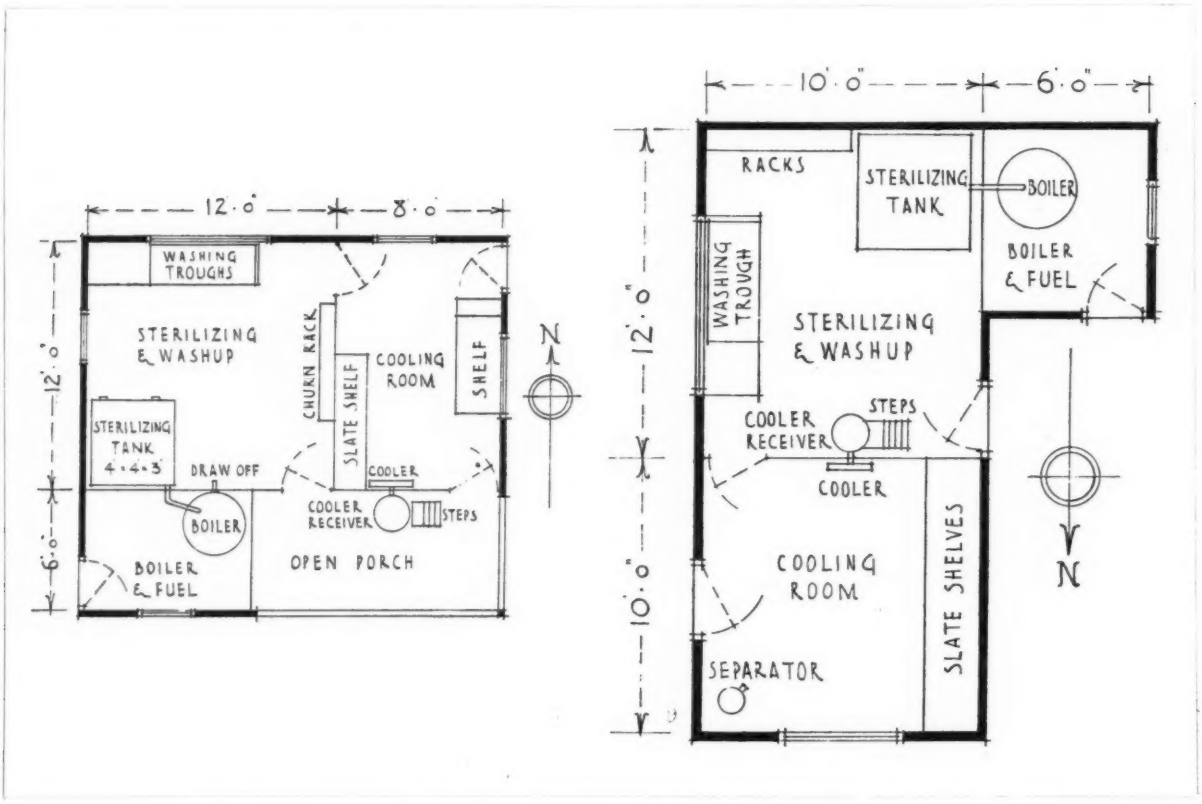




*Above and below, a cowshed at Hoggeston, Bucks, as converted on the lines laid down in this article.*

This concludes the remarks pertaining to the cowshed, and I will continue with an outline of the design of the cooling-house, sterilizing, and washing-room and boiler-shed. All these may go under one roof, and are known collectively as the dairy. In passing, a few remarks will be made on the fixtures.

The site for the dairy should be of northern aspect, perhaps on the northern side of some existing building, or, if standing by itself, the windows should not be on the south side. As regards water supply the same remarks apply to the dairy as to the cowshed. It is perhaps needless to say also that the dairy should be as near the cowshed as is convenient, and in as clean surroundings as possible. In construction, the material used should offer as little conductivity to heat as possible, brick or stone being by far the best material for the walls. Wood could be used, say tongued and grooved weatherboarding, with an interior lining of matchboarding. This gives as it were a cavity wall. The windows should be large and capable of being easily opened, the panes being as large as possible. It is undesirable to have dairy windows in which glazing bars are used to an undue extent, or where the section of bar is such as to harbour dust




*Alternative designs for a model dairy.*

and dirt. The floor should be screeded with cement and sand with a hardener resistant to lactic acid and abrasive action, and having a fall to the drain. The necessity for accuracy in this fall should be emphasized, as it is disconcerting to the workers to find portions of the floor so uneven as to prevent proper surface drainage. The drain should not be in the dairy, but outside, and a trap provided, so that there is absolutely no fear of evil smells arising in this building. The roof should be of tiles or slates, and the underside of the roof should be lined with matchboarding. It is very important that a non-conductor of heat, such as either of the roofings mentioned, should be used and not a material like corrugated iron.

As regards the interior arrangement of the dairy, there should be a small porch where the cooler receiver is placed. At the side of this should be a small boiler-house, a cooling-room, and a sterilizing and washing-up room must also be accommodated. A perusal of the plans shown above will best convey the position these rooms should occupy. Alternative sketches of buildings are given, as the arrangement of the building is often dependent on the site. It is necessary to have the cooling-room quite by itself, as at this stage the milk is subjected to great contamination if other operations are carried out in the same room. For this reason it is desirable to have the milk poured into the cooler from an outside container in order that the milkers should not walk into the cooling-room with dirty boots. This outside container should be, say, 6 ft. to 7 ft. above the ground level, a few wooden steps leading up to it. The container bears a pipe which runs through the wall to project over the cooler itself. The pipe and the tap should be easily detachable. The cooler on the other side of the wall should be high enough from the ground to allow easily a seventeen-gallon churn being placed underneath it, or for the convenient bottling of milk direct from the cooler. In the cooling-room a sufficiency of slate shelves will be found very helpful.

The sterilizing-room should be larger than the cooling-room. Plenty of space here is a great help, as in a herd and retail round of some size there is a considerable number of utensils. The fittings of this room should comprise a 5 ft. to 6 ft. semicircular galvanized iron washing-up trough, divided into two portions, and a galvanized iron sterilizing tank measuring $4\times4\times3$ ft., or, if for a large dairy, $5\times5\times4$ ft. This tank should be connected to the boiler by a short steam pipe, and it should be as steam tight as possible. The utensils, after being washed and rinsed, are placed in this sterilizing tank and steamed for half an hour. After this the utensils are not removed from the tank until used, so that a large number of racks are unnecessary, although a shelf or two for cases of bottles might be useful. A door should connect the two rooms, and it might be said that self-closing springs should be fitted to each door in the building so that they shut automatically and allow as little contamination from the outside as possible. The boiler may be of the low-pressure type, and need take up very little room.

In the adaptation of existing dairies, care should be taken to avoid placing the boiler and the sterilizing tank in the same room, as fuelling operations are not conducive to clean milk production. A farm copper may be utilized for steaming purposes by placing a grid and a galvanized tank over the top, or for sterilizing a churn, the copper lid having a pipe which would allow escape for the steam. It is usually possible by careful planning of old buildings to arrange for the cooler receiver to be outside the actual cooling-house.

The foregoing remarks bear principally upon a dairy used for clean milk production and retailing, and no mention has been made of places suitable for butter- and cheese-making, as these arts of dairying would need a different arrangement of the dairy altogether, and would at this juncture take up too much space. However, room for a separator, butter churn, and worker may be included in the cooling-room, as these appliances are often convenient for use at times when there is a surplus of milk.

[The cowshed illustrated on pages 488 and 489 is on the farm of Mr. Warren W. Wise, Maynes Hill, Hoggeston, Bucks.]

# LITERATURE

## THE ARCHITECTURE OF THE BRITISH ISLES

One opens this book with a hope of finding a fresh view-point and a selection of examples outside the more familiar range, and this hope is justified. The work is marred, however, by several inaccuracies, and clogged by small irrelevances, as well as by too frequent revelations of the skeleton or scaffolding of authorship. A book of any worth is inevitably the product of "a considerable amount of thought and planning"; many points in history are "very difficult"; but it is more seemly for a writer to bear such burdens himself without transmitting the consciousness of their weight to his readers. It seems unfortunate, too, that guidance is withdrawn from the "general reader" precisely at those places where the path traverses the bogs of speculation. "Anyone interested" is bidden to consult "special books," but no list of such books is offered.

The author sets out to expand the theme that: "As a rule, when we find any striking development of art . . . we are able to explain it. . . . We must realize the importance of . . . social conditions before we can understand the history of our own architecture." In the first chapter comes the exploration of social conditions and consequent art from China to Peru—something of a feat in a score of pages—and the development of "architecture of the British Isles" is then examined century by century. "Pre-Christian architecture in England" rather strangely includes not only Scotland, but Ireland. In the third chapter Scottish brochs, Irish oratories, round towers, lake-dwellings, and castles hold the field and claim special attention, besides justifying the title of the book. In the other chapters the architectural history of these islands almost seems to resolve itself into that of England alone, owing to her more prosperous condition. The illustrations from Ireland, however, are of considerable interest, and the Scottish examples reveal the French influence which distinguished them during a long period.

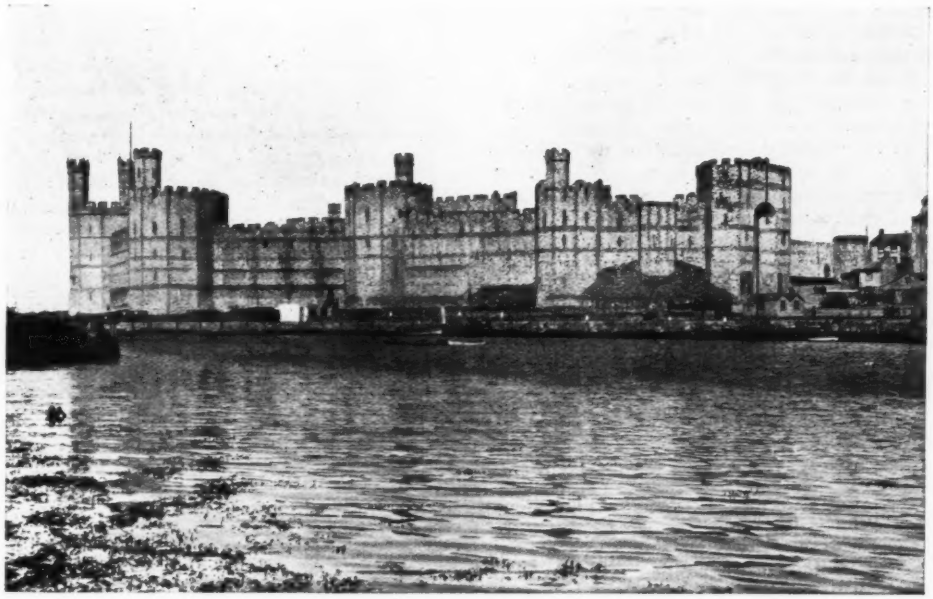
The sub-headings, which the author regards as sufficient substitute for an index, are not always so well disciplined as to discharge this duty. For instance, it is not clear why Scottish and Irish seventeenth-century architecture in general should fall under the heading "Lighting Arrangements." One receives an impression of undue haste in the preparation of extensive material. A phrase like "as equally simple as" surely ought not to remain after revision in a serious work; "Mogus Park" is presumably meant for Moynes Park, and "H. Revell" for Stuart's associate Revett. "Hockham Hall" for Holkham Hall, and "Byzantine" for Byzantium are minor errors among other failures in crossing t's or dotting i's in a more or less literal sense.

There is much interesting information in this book, but it would be easier to accord it greater commendation if there were more thoroughness and decision in its execution. One feels tempted to wish that the author were a little more dogmatic in matters of opinion and more cautious in matters of fact. V. M. C.

*An Outline History of Architecture of the British Isles.* By P. L. Dickinson, F.R.I.A.I. and M.T.P.I. Cape, 1926. Price 15s.

## SEVENTEENTH-CENTURY FABRICS

Here we may find an admirable and concise statement of the various conditions and influences affecting European fashion in fabrics of the seventeenth century. This, we learn, is the outcome of that increasing intimacy with the East, consequent on the opening up of trade with India in the sixteenth century, which led first to the casual, and later to the highly-specialized importation of Oriental tissues of gorgeous tints and exquisite design. The influence exercised on European taste was extraordinary; not only were these utilized for articles of wearing apparel, "for corsage, gilet, poinpoints, and dressing-gowns, but for garnishing the beds, decorating the walls, and the supply of furnishing fabric for the members of the élite." Indeed, during the period 1640-1740 the India Company made these commodities their principal and, we conclude, most lucrative form of commerce. Tracing this history from its early advent, we read not only of the adaptation of Oriental design to European demands, but the gradual exploitation of the secrets of dye and mordant "once carefully guarded," and which would withstand "innumerable washings"; likewise the general reproduction in cheaper materials, and later of the more commercialized processes used for supplying the ever-growing market.



*Carnarvon Castle.* [*From* An Outline History of Architecture of the British Isles.]

The illustrations, carefully chosen in relation to the text, also show the fusion of Oriental with Occidental motive, and the ingenuity displayed in the retention of Oriental interpretation. Splendidly reproduced in collotype, these form not the least interesting part of a comprehensive and delightful little volume.

G. E. ROGERS

*La Manufacture de Jouy.* Pas Henri C. Pouzet. Paris and Bruxelles.

*Castletown, Ireland. An eighteenth-century mansion.* [*From* An Outline History of Architecture of the British Isles.]

## FREE LIME IN HYDRAULIC CEMENT

It is well known that free lime is usually present in cement in varying quantities, and that it has a very marked influence on the lasting properties of the resultant concrete. From a fire-resisting point of view the presence of free lime in cement is deleterious, and cases are known where an excessive amount of free lime has actually endangered the stability of a concrete structure. Erosion by sea water is much more rapid with cements containing free lime in excess than with cements such as Portland blast furnace cement, in which most of the free lime originally present in the cement is now combined with the slag in an insoluble form. Again, it is well known that sugar and many other organic substances have an injurious action on the lasting properties of cement-concrete. A case is known where cement failed to set in a sugar warehouse, the cause being 0·06 per cent. sugar in the mixing water. The ease with which free lime combines with sugar is utilized as the basis of the sugar test.

From this we see the importance of finding a reliable method for determining the free lime content of any cement. Four different methods are outlined in this pamphlet. 1: phenol test; 2: sugar test; 3: Passow's test; 4: thermal test. The first two are wet methods, and depend on the ease with which free lime combines with phenol or sugar to form calcium phenate or saccharate respectively. Both these tests are somewhat indefinite, as when you vary the time of extraction and the concentration of the solvent you materially affect the result. Passow's test depends on heating the sample with pure dry ammonium carbonate and estimating the lime present by decomposition of the calcium carbonate so formed. This test is also unreliable, as it involves heating cement with a substance which evolves water on heating, leading to hydration of the unset cement, and hence giving a fictitious value for the free lime content. The authors of this pamphlet favour the thermal test, which depends for its action on the fact that when cement is heated to a suitable temperature the calcium hydroxide in it is completely converted to calcium oxide. It is then possible to estimate this oxide by mixing the heated cement with water and observing the subsequent rise in temperature.

Details of how to carry out this test in practice are given, which show that for a calorimetric test it is both quick and easy to carry out.

E. RICHARDS-ORPEN

*Department of Scientific and Industrial Research: The Determination of Free Lime in Hydraulic Cement (Building Research Technical Paper No. 4).* By F. L. Brady and F. J. McConnel. Price 6d. net.

## THE ART OF ENRICO GLICENSTEIN

Mr. Enrico Glicenstein has pursued his calling by many and devious paths. We learn he has been led to study in various parts of the Continent and several years in England, and to test and express the styles of various schools in the search for more amplified or a more personal form of expression. Born in Polonia of true Bohemian abstraction, we might anticipate the spirit of adventure which inspired him at an early age to break with superficial acceptance of established formula and attempt to face all problems in art with an unprejudiced mind, to wrest the secret or force the ultimate from each in turn.

It might be said, essentially individual, his art is of no particular persuasion, and though influences of such opposite aims as the classic and the impressionists are manifest, yet the special manner adopted appears more as an incident in the striving to give an adequate statement of some emotional experience. Ideas, with Enrico Glicenstein, are part of an intimate process. "Untiring in his research, dissatisfied and anxious, he ever seeks to purify his art from superficial dogma, inspired by that confidence that in the fulfilment of the artist's vision is likewise the accomplishment of a superior destiny." Though principally known as a sculptor "who speaks magnificently in marble," he is known also as a painter; a worker in fine aquatint and a master of both dry-point and etching, displaying considerable facility in a variety of media. This little volume will be welcome to all appreciators of his art, to which the illustrations, necessarily limited, effectively conduce.

*Francesco Orestano. Enrico Glicenstein e la sua arte.* Roma. Casa Editrice Optima, 1926.

## IN PARLIAMENT

[BY OUR PARLIAMENTARY REPRESENTATIVE]

Sir W. Joynson-Hicks, the Home Secretary, has introduced the Government's new leasehold reform Bill, known as the Landlord and Tenant Bill. The measure has been read a first time.

In the course of a debate on a vote for a sum of £86,610 for expenditure in relation to the Houses of Parliament buildings, Captain King, speaking on behalf of the First Commissioner of Works, said that the figures included a sum of £20,000 for the restoration of the stonework of the Houses of Parliament. A great deal of decay had been taking place for years. Before the building was actually completed, even before 1852, decay was already beginning to show. In 1920 a complete examination of the outside of the building was undertaken, and in recent years a large amount of money had been spent in trying to preserve the stonework. So far no efficient preservative had been found, and it had been necessary to resort to hand-picking to remove loose fragments of stone which were a danger to the rest of the building and to passers-by. It was not economical to continue that method, and it had been decided to undertake a more complete restoration. In selecting the stone to be used, care had to be taken that it should be of a colour which would blend with the existing stonework, and that it was of a suitable texture and durability. It had also to be adaptable for Gothic detail, and it must be a stone of which ample supplies could be obtained. After taking the advice of Mr. J. Allen Howe, the Assistant Director of the Geological Society, Sir Robert Robertson, the Government chemist, and other experts, it was proposed that the repairs should be carried out in Stancliffe stone. It had been selected as being a hard-wearing stone, suitable for the purpose. The total cost of the restoration was estimated to amount to £1,062,000, to be expended over some twelve to fifteen years. In addition to the £20,000 asked for this year, £5,000 was required for hand-picking, which could be continued while the restoration was in progress, but would be reduced as the work neared completion.

Mr. Gardner, a Labour member, moved to reduce the vote by £100. He said that the Palace of Westminster was the greatest building of its kind in the world, and it was of the utmost importance that its preservation should be undertaken in a proper way. The Government had not consulted the Royal Institute of British Architects, the builders of the country, and the workers, who would have to carry out the restoration. They had again gone on the basis of chemical, geological, and laboratory tests. If the Government introduced Stancliffe stone into London, they would raise the maximum of opposition on the part of the workers who were called upon to use it. He admitted that they had got a very fine colour-scheme, but if they had a fine colour-scheme they must have oxide, and that meant decay. Wren chose Portland stone for St. Paul's Cathedral, and that had stood for 300 years. Portland stone had also been used for Government buildings in Whitehall, had proved its durability, and was ousting sandstone even in the sandstone districts.

Sir William Bull said he did not think that Portland stone was suitable, having regard to the difficulty of the detailed carving that was essential to the buildings. It would be very difficult to work in the same way as Stancliffe stone had been worked. Stancliffe stone was remarkable for withstanding the acids in the atmosphere. The present architect of the building had taken an enormous amount of trouble, and had travelled widely for the purpose of discovering which was really the best stone for the purpose in the present conditions. He did not think it was possible to consider refacing the whole of the building. On the whole he would support the Government. He did not think that any other stone was so suitable in all the circumstances as Stancliffe stone. It was amazing to think that, instead of putting in copper standards to go down into the pinnacles, they had put in iron, with the result that the iron got wet, became rusty, and that had been responsible for splitting a great deal of the stone. He hoped it would not be repeated.

Captain King, replying to the discussion, said that the cost of refacing the building entirely with Portland stone would be somewhere between £3,500,000 and £4,000,000. That was a very large sum, and it was not considered that Portland stone would be a suitable material. The Office of Works would keep in close touch with the Fine Arts Commission throughout the work in all the design and details. In many quite inaccessible and invisible places there was much very interesting detail. It was not considered that that detail need be reproduced, and the Fine Arts Commission were being consulted as to whether the details of architecture in high elevation could be modified, and if so, in what form. All the advice available would be made use of. It was not desired to take any false steps in the restoration of the building.

The motion for the reduction was negatived and the vote agreed to.

During a debate on the revival of rural industries, Brig.-Gen. Clifton Brown referred to what he termed " the crying scandal " of the way in which houses were built along country roads. That, he said, was one of the surest ways to produce slums in the future. As a member of one of the Local Legislation Committees of the House he was able to see the way in which boroughs and towns were trying to extend their powers along the main roads, instead of taking a circle and planning proper economical ways of gas and lighting, not for ten or fifteen miles along a road, but round a compact little village or town. That made one very anxious for the future of the country, and he hoped that in the matter the advice of the Society for the Preservation of Rural England would be taken. Now was the time to encourage a voluntary movement for the planning of rural districts, as had been done by the Society for the Preservation of Rural England.

Sir George Courthope paid a tribute to the movement for the preservation of the countryside, the encouragement of local authorities and others concerned to prevent the destruction of some of the most beautiful parts of this country by the uncontrolled spread of hideous buildings along the frontage of our great roads. This could effectively be done by the creation of popular opinion.

At question time, Mr. Chamberlain, in reply to Mr. Montague, gave the following statement showing the numbers of houses erected in England and Wales since January 1, 1919:

| | Houses erected by | |
|---|---|---|
| | Local Authorities | Private Enterprise |
| 1. *State-assisted houses (to March 1, 1927)*: | | |
| (a) Housing, Town Planning, etc., Act, 1919 .. .. .. .. | 169,805 | 4,545 |
| (b) Housing (Additional Powers) Act, 1919 .. .. .. .. | — | 39,186 |
| (c) Housing, etc., Act, 1923 .. | 47,859 | 185,373 |
| (d) Housing (Financial Provisions) Act, 1924 .. .. .. .. | 82,553 | 1,516 |
| Total State-assisted houses .. | 300,217 | 230,620 |
| 2. *Non-subsidy houses (to Sept. 30, 1926)*: | | |
| (a) *Not exceeding £26 rateable value .. .. .. .. .. | — | 207,700 |
| (b) *Exceeding £26 rateable value, but not exceeding £73 .. .. | — | 80,505 |
| Total non-subsidy houses .. | — | 288,205 |

Replying to Mr. Lawson, Mr. Chamberlain said that on March 1, 1927, 245 houses were in course of erection in connection with schemes under the Housing, Town Planning, etc., Act, 1919, and sixty-nine had not been commenced. The boroughs in which no houses had been provided under any of the post-war Housing Acts were Beaumaris, Cowbridge, and Montgomery. None of those was county boroughs. Since 1919, ninety-three slum

* The corresponding rateable values in the Metropolis were £35 and £105.

schemes relating to seventy-one local authorities had been approved by the Ministry of Health. The number of houses and other buildings included in those schemes was approximately 12,000.

Sir J. Gilmour, Secretary of State for Scotland, in reply to Mr. Stephen, said that as at February 28, 1927, the latest date for which figures were available, the numbers of houses built in Scotland under the 1923 and 1924 Housing Acts were 16,933 and 6,161 respectively; and the corresponding numbers under construction were 5,829 and 14,084.

## LAW REPORTS

### LOCAL BODIES AND APPEAL: RECOGNIZANCES

*Leyton Corporation* v. *Wilkinson. Court of Appeal. Before Lords Justices Bankes, Scrutton, and Atkin*

This appeal raised an unusual point on a question arising under the Public Health Act. The appeal was from a King's Bench Divisional Court by the Corporation, formerly the Leyton Urban District Council; a preliminary point was raised by the respondent as to the power of the Divisional Court to give leave to appeal, but this point was overruled by the Court and the appeal was heard.

Originally the matter came before the Divisional Court on a case stated under the Public Health Act, and the question raised was whether a Corporation was bound to enter into a recognizance to prevent an appeal, and if so whether the recognizance entered into in this case by the chairman to the Council, as clerk, satisfied the statute. The Divisional Court held that it did not.

Mr. Montgomery, K.C., for the Corporation, contended that the appellants were entitled to appeal without entering into a recognizance at all, though the recognizance actually entered into here by the clerk was in order even if not correctly recorded. He contended that the form in which it was recorded was sufficient.

The Court, without calling on Sir James O'Conner, K.C., for the respondent, dismissed the appeal.

Lord Justice Bankes said the appeal would be dismissed on the ground that the recognizance was not in proper form. Whatever the old law on the point was, a practice had grown up all over the country of allowing companies and corporations to enter into recognizances by duly authorized agents. But the recognizances which the agents entered into must be binding on the principals.

Lords Justices Scrutton and Atkin concurred.

### WATER SUPPLY: OBLIGATIONS OF A CORPORATION

*Ryde Corporation* v. *Carter. King's Bench Division. Before Mr. Justice Roche*

This matter came before the Court in the form of a special case stated for the opinion of the Court, and raised a point as to whether the Corporation were under an obligation to supply at their own cost a main to carry water to a cottage on the Knighton estate, the property of Mr. Edward Carter.

Mr. A. J. Hawke, K.C., appeared for the Corporation, and Mr. R. Coventry, K.C., for Mr. Carter.

Mr. Hawke stated that the facts were that the Corporation were empowered by Act of Parliament to take and use water from the Knighton ponds or springs on Mr. Carter's estate. They had to pay him £180 a year for the right and to afford a water supply to any building on the Knighton estate. The Corporation were willing to afford a supply, but contended they were not under an obligation to carry it to a cottage on the estate. They submitted Mr. Carter must himself supply the main and fitments for conveying the water to any particular part of the estate where it was wanted by his tenants.

Mr. Coventry contended that the Corporation were obliged to bring water to the cottage.

His lordship found in favour of the Corporation, and made a declaration that they were not obliged at their own cost to provide and lay new mains or communication of the service pipes from the mains to the respondent's estate. The Corporation were to supply the water and the owners or tenants must go to the existing mains and could not require other mains to be laid.

## CORRESPONDENCE

### ARCHITECTURAL STAFF SALARIES

*To the Editor of* THE ARCHITECTS' JOURNAL

SIR,—Arising from my letter which appeared in your columns of March 30, I have received several letters from many parts of the country congratulating the A.A.S.T.A. for its stand on behalf of salaried architects. May I be permitted to quote from one of them which throws more light on the value placed on the services of these men, this time in the Government service.

"May I draw your attention to the commencing scales of salaries for surveying and architectural staffs awarded by the Arbitration Court for Government servants?

"1: Quantity surveyors (graded as assistant surveyors) (P.A.S.I. qualification). Salary £170 per annum, plus variable cost of living bonus. Equal to a weekly salary of about £5 5s.

"2: Assistant surveyors (graded as surveyors' clerks). Salary £120 per annum, plus variable cost of living bonus. Equal to a weekly salary of about £3 14s.

"3: Architectural assistants (graded as draughtsmen). Salary £140, plus cost of living bonus. Equal to a weekly salary of about £4 6s.

"Applicants for the above posts must be ex-Service men, and the minimum age must therefore be about twenty-seven or thirty years."

If any doubt still exists that the professions of architecture and surveying can continue without a basic minimum scale of salaries, such revelations must effectively dispel it. The quality of work is very often deplored, but it will generally be found that the standard varies as the salary accompanying the post is good or bad. Good salaries will invariably command efficient service, and the operation of basic minimum salaries will attract the best type.

JOHN MITCHELL,

General Secretary, Association of Architects', Surveyors', and Technical Assistants.

*To the Editor of* THE ARCHITECTS' JOURNAL

SIR,—The timely letters which have appeared in your columns from Mr. John Mitchell, secretary, A.A.S.T.A., cannot fail to provoke much heart-searching among salaried architects. The salaries quoted are quite common, and this week the number is increased by a further notice from the County of Hereford which requires the services of an assistant in connection with architectural and school work at £150 per annum, 5 per cent. payable to superannuation. The actual salary which will be available to the successful candidate will be about £2 14s. 8d. per week. Not only is this less than an operative's weekly wage, but it is open to question if a general labourer would accept such terms. Mr. Mitchell mentioned the wretched salaries paid in Plymouth. I know of a case in that town where an assistant was in receipt of a disablement pension, and his employer, a private architect, paid him about 30s. a week to make up his salary to existence level!

Basic minimum salaries, in my opinion and in the opinion of many of my colleagues, are an absolute necessity if such underpayment is to be checked. The A.A.S.T.A., of which I am a member, is tackling in the right manner the abuses abounding in professional life.

On the occasion of the last building dispute, the R.I.B.A., or certain of its more prominent members, made overtures to act as mediators. Should the occasion ever arise again, it is to be hoped that employing architects will have put their own houses in order by recognizing the fair claims of their salaried colleagues.

"A.R.I.B.A."

[*Owing to the pressure on our space we are reluctantly compelled to hold over several letters until our next issue.*]

## COMPETITION CALENDAR

*The conditions of the following competitions have been received by the R.I.B.A.*

*April* 12. New offices at Trowbridge for the Wiltshire Working Men's Conservative Benefit Society. Assessors, Messrs. Cyril A. Farey, A.R.I.B.A., and Robert Lowry, F.R.I.B.A. Premiums amounting to £250. Particulars from the Chief Secretary, Mr. Henry H. Dyer, Stallard Street, Trowbridge, Wilts. Deposit one guinea, which will be returned on receipt of a bona fide design or if the conditions are returned two weeks before the closing date of the competition.

*April* 30. Town Hall and Library, Leith. Assessor, Sir George Washington Browne, P.R.S.A. Four premiums are offered. Particulars and a plan of the site will be supplied to competitors on payment of a fee of two guineas, which will be returned on receipt of a design in accordance with the conditions. Should architects on receipt of the particulars not desire to compete, the deposit will be refunded provided the papers are returned within four weeks. Inquiries to be addressed to Mr. A. Grierson, Town Clerk, City Chambers, Edinburgh.

*May* 31. New school for 1,000 boys for the Governors of the Bradford Grammar School. Premiums, £300, £200, and £100. Assessor, Mr. Arnold Mitchell, F.R.I.B.A. Particulars and plan of site from Mr. W. Brear, Secretary, Grammar School, Bradford, Yorks. Deposit £1 1s.

*June* 15. Shakespeare National Memorial Theatre, Stratford-upon-Avon. The competition is open to architects of the British Isles and America. It will be in two sections—a preliminary competition for sketch design only, from which six designs will be selected by the assessors; each of the selected competitors will be paid £100 premium towards the cost of preparing a further more detailed design, which will form the second half of the competition. The selected architect will be paid in accordance with the Schedule of Charges sanctioned by the R.I.B.A. Assessors, Mr. E. Guy Dawber, P.R.I.B.A., and Mr. Cass Gilbert, who will both act in an honorary capacity, and Mr. Robert Atkinson, F.R.I.B.A. Particulars, with site plan, etc., from the Secretary, Shakespeare Memorial Theatre, Stratford-upon-Avon. Deposit £1 1s., which will be refunded should the conditions be returned within one month.

*June* 30. Designs for the planning of the Civic Centre, Birmingham. Assessor, Mr. H. V. Lanchester, F.R.I.B.A. Premium of £1,000 to the design placed first, and a further sum not exceeding £1,000 divided between the authors of other approved designs. Particulars from Mr. Herbert H. Humphries, M.INST.C.E., City Engineer and Surveyor. Deposit £1 1s., which will be returned after the receipt of a design or the return of the documents supplied.

*The conditions of the following competition have not as yet been brought to the notice of the R.I.B.A.*

*April 30.* Designs for a memorial to be erected in the public recreation ground at Merthyr Vale. Cost of the design, materials, and erection of the superstructure not to exceed the sum of £500. The foundation and laying-out of site will be undertaken by the Committee. Only the accepted design will be paid for, and the Committee does not bind itself to accept any design. Designs with plans and specifications to Mr. E. L. Jones, Hon. Sec., Aeronfa, Merthyr Vale, Merthyr Tydvil.

## TRADE NOTES

Mr. K. D. Campbell, late sales manager of the Campbell Gas and Oil Engine Company, Halifax, has been appointed to a similar position with Petters (Ipswich), Limited, Ipswich Works, Ipswich.

Messrs. Gent & Co., Ltd., have just issued a new edition of their catalogue of electric watchman's or tell-tale clocks. These clocks have been installed by the firm in all parts of the world, and are made in a variety of patterns suitable for every individual requirement. Among the many uses to which they may be put are for checking the movements of watchmen in warehouses, factories, mills, and hotels, and for assuring the strict attention to duty of night nurses and attendants in hospitals and other public institutions. The firm have specialized in the manufacture of tell-tale clocks for the past fifty years, and have embodied all the most modern improvements into their construction.

In a new booklet on the Nautilus coke-heated domestic boiler, the Nautilus Fire Co., Ltd., state that the boiler has emerged triumphantly from severer tests in the laboratory than it is ever likely to be subjected to in actual use. It embodies many special features. When the bars are turned by means of a special tool provided for the purpose, the clinker is crushed and falls into an enclosed ashpan. If the fire-door be kept shut the while, no dust or ashes escape into the room; there is no dirtying of hands. The Nautilus is constructed of mild steel, electrically welded. The trivet and the door of the boiler are two separate parts. The Nautilus is particularly suitable for installing with a gas stove. Its white, tile-pattern finish matches a modern high-grade gas-cooker, while it can be fitted closed in on both sides, as, for instance, by the side of a gas stove, in the average coal range recess. The boiler has also many special technical features.

## THE HOSPITALS EXHIBITION

The Hospitals and Institutions Exhibition and Conference will be held at the Royal Horticultural Hall, Westminster, on May 26, 27, and 28. It has been organized so that hospital and institution officials, local government and poor law officers, and everyone concerned in, or associated in any way with institutional life will be able to meet to consider and discuss the many aspects of their undertakings and to acquire first-hand a personal knowledge of the most up-to-date methods necessary to the efficient working of their departments, whether it be construction, equipment, administration, or domestic management. The exhibits will include building construction and engineering; internal decoration and furnishing; office requirements; domestic appliances and necessities, and everything that is needed in the upkeep of the largest and best equipped hospital or the smallest institution. Further particulars can be obtained from the Secretary, The Hospitals and Institutions Exhibition, 46 Strand, W.C.2. Telephone: Holborn 3019. Regent 3958.

## NEW INVENTIONS

[The following particulars of new inventions are specially compiled for THE ARCHITECTS' JOURNAL, by permission of the Controller of H.M. Stationery Office, by our own patent expert. All inquiries concerning inventions, patents, and specifications should be addressed to the Editor, 9 Queen Anne's Gate, Westminster, S.W.1. For copies of the full specifications here enumerated readers should apply to the Patent Office, 25 Southampton Buildings, W.C.2. The price is 1s. each.]

### LATEST PATENT APPLICATIONS

6466. Berliner, E. Walls. March 8.
6915. Crowther, W. Chimney, &c., pots. March 12.
6335. Drysdake, H. Mills for grinding paints. March 7.
6322. Eyre, W. S. (Lambie). Mould plates for building construction. March 7.
6613. Hayward, G. O. Stone-cutting saws. March 9.

### SPECIFICATIONS PUBLISHED

266769. Shepherd, J. E. Method of and apparatus for applying plastics, cement, and the like.
266775. Hills, A. E. Production of cementitious material.
266814. Knipe, A. C. Manufacture of cement concrete and apparatus for use therewith.
266836. Barker, A. H. Apparatus for heating buildings and for like purposes.
266847. Florence, A. P. Combined closed and open fireplace and cooking-stove.

### ABSTRACT PUBLISHED

264715. Maxwell, G. Building-blocks; walls.

## A CORRECTION

In our issue for March 23 it was stated that Messrs. G. Gregor Grant, A. S. Knott, and D. F. Martin Smith, AA.R.I.B.A., and Miss Moseley, A.R.I.B.A., chartered architects, have removed their office to 45 Bloomsbury Square, London, W.C.1 (Holborn 4609). In that issue, however, the name of Miss Moseley, A.R.I.B.A., was incorrectly spelt.

# THE WEEK'S BUILDING NEWS

The HAMMERSMITH Town Hall is to have added a three-story building with new Council chamber and offices.

*

The FINSBURY Central Foundation School proposes to buy for £13,000 the leases of the Technical College to enlarge the boys' school.

*

All Souls College, OXFORD, has given a site at Cricklewood for a public library.

*

Sanction has been received from the Ministry of Health to borrow £15,900 for Hatfield scheme No. 7, by the HATFIELD Urban District Council.

*

The Ministry of Health has sanctioned the proposal of the BOLSOVER Council to borrow from the Public Works Loan Board the sum of £12,800 for the erection of thirty houses on the Whaley Thornes housing site.

*

The NOTTINGHAM Council is considering the erection of a new £22,000 road bridge across the canal at Wollaton Road, to relieve traffic during the Royal Show next year.

*

Scaffolding is now being erected on the west side of the south transept of LICHFIELD Cathedral preparatory to the restoration work.

*

A scheme for the erection of extensive cement works at PITSTONE, near Aylesbury, has been approved by the Ministry of Transport.

*

A start has been made by the LONDON C.C. in erecting large blocks of flats, which will be 92 ft. high, in St. Pancras, upon which £1,250,000 is being spent.

*

Progress is being made with the building of the new Church of St. Vincent, KNUTSFORD.

*

Among plans passed by the CROYDON Council were those for 179 houses and thirteen garages in Dixon, Nugent, Elm Park Roads and Whitehorse Lane. Other plans passed were: One house at Beulah Hill, Upper Norwood; two houses with garages at Grecian Crescent, Beulah Hill; two houses at Norbury Hill; two bungalows in Downsview Road, Upper Norwood.

*

The SLIGO County Council has approved the County Board of Health proposal to borrow £10,000 for a housing scheme at Ballisodare.

A Roman Catholic school for 400 children is to be built in Lucas Street, WHITECHAPEL.

*

The Unopposed Bill Committee of the House of Commons has passed the DERWENT Valley Water Board Bill, which authorizes new works estimated to cost £112,040.

*

The IPSWICH Corporation has resolved to proceed with the reconstruction of a number of Class I roads, at an estimated cost of £37,775, and to carry out improvement works on unclassified roads, at an estimated cost of £29,267. It has also been agreed to construct the by-pass road from Westerfield Road to Tuddenham Road.

*

Improvements and extensions are being carried out at the Cowdray Club, ABERDEEN, which was provided six years ago by Lady Cowdray; the cost is between £10,000 and £12,000.

*

It is proposed to develop a further section of the London County Council DOWNHAM estate by the erection of 1,266 houses and flats at a cost of £810,000. The dwellings will comprise 229 houses of five rooms, 235 of four rooms (parlour type), 280 of four rooms (non-parlour type), 408 of three rooms, seventy-eight two-room flats in two-story buildings, and thirty-six flats (twenty-four of three rooms and twelve of four rooms) in three-story buildings. A site has been allocated for an elementary school, and a further site has been reserved for leasing for the erection of a licensed refreshment house.

*

The new grand stand at EPSOM will be completed in time for the Derby, which will be run on June 1. The architects are Messrs. Elcock and Sutcliffe. The new stand, which will be the biggest on any racecourse in Europe, will hold 20,000.

*

Through the generosity of Alderman C. Thomas-Stanford, by giving up a portion of the grounds of his residence, the Brighton Town Council will shortly be able to carry out an important widening improvement to the main London road at Preston.

*

Plans passed by the MERTHYR Corporation: Alterations, Angel Inn, Bridge Street, Troedyrhiw, for Mr. W. J. Rogers; new road on Goitre Coad estate, for Messrs. Guest, Keen and Nettlefolds, Ltd.

*

The Kent Education Committee is to erect an open-air school at Wickham Street, BEXLEY WELLING.

Mr. W. L. Dolman, architect, of Windermere, is to erect twelve houses at Heron Hill, KENDAL, for Messrs. Somervil Bros., Ltd.

*

Messrs. John Adam & Co., 97 Titwood Road, Crossmyloof, are to erect fourteen terrace houses at Shawlands, GLASGOW.

*

The Board of Education has passed plans for the improvement of the premises of the boys' department of CHORLEY Parochial School.

*

The CHORLEY Corporation Housing Committee proposes to build twenty houses on the Rangletts site.

*

The NEWCASTLE Corporation has agreed to receive a deputation from the Newcastle-upon-Tyne Society for the purpose of submitting proposals for a green belt around the city, of approximately five miles in length, of parks and parkways, by linking up on the east, Heaton to the Town Moor, via Jesmond Vale, and, on the west, Scotswood to the Town Moor, via Denton Dene, and continued parkways.

*

The GLASGOW Corporation is to obtain Parliamentary powers to carry out sewage works which include diversion of the Duntocher Burn and the closing up of the dock by constructing a wharf adjoining the River Clyde.

*

Plans passed by the HARWICH Corporation: Eight houses, Lime Avenue, for Messrs. Fisher and Woods; lay-out of Highfield estate, for Mr. E. E. Newton.

*

The West Riding Education Committee has decided to erect a school for 300 on a site recently acquired at CUDWORTH.

*

The MORLEY Corporation has in contemplation a scheme for the erection of houses in the vicinity of Stump Cross farm.

*

The PLYMOUTH Corporation is to erect twelve houses on vacant sites near Henderson Place.

*

The governors of the Astor Housing Trust are seeking a site at Mount Gold, PLYMOUTH, for the erection of an institute.

*

The PLYMOUTH Corporation Land Committee has asked the borough engineer to prepare a block plan of the premises at the rear of the Guildhall to enable the committee to submit its report on the question of providing, as part of a larger scheme, office accommodation on the land already in the possession of the Corporation at the rear of the Guildhall.


This photograph depicts a house in Inverness, which is covered with Beauvais Tiles on a mansard roof.

Beauvais Tiles are specified for many reasons, and among them, suitability for vertical hanging claims no small part.

Sole Importers and Distributors: Langley London Limited, 161 Borough High Street, London, S.E. 1

# Beauvais
## ROOFING TILES

The York Hotel,
Albemarle St.,
W.

*Architects:*
Messrs. Williams & Cox,
FF.R.I.B.A.

**Eighty years or more ago,** Nos. 9, 10 and 11 Albemarle Street, W. were joined together and converted into an Hotel, known for many years as the "York Hotel." The trend of business movements called for reconstruction once more. Shops had to be formed on the Ground Floor, entailing the entire internal redesign and reconstruction of the upper floors.

Such alterations are full of surprise and interest. For instance, here were found teak carved floor joists which probably served for facia boards of a building previously standing on the site; also, old Adam chimney pieces and moulded architraves coated with generations of paint. In the reconstruction walls needed to be underpinned, and heavy shoring was called for where internal walls had to disappear.

In such work the Contractor can render assistance which the erection of a new building does not call for. Heavy alteration work can cause the Architect many anxious hours, but confidence in the Contractor's skill and experience can give relief and a quiet mind.

## HIGGS & HILL, Ltd.

BUILDING CONTRACTORS

Crown Works, South Lambeth Road, S.W.8

Telephone: Brixton 4210.

City Office: 14 Godliman Street, St. Paul's Churchyard, E.C.4. Telephone: Central 2311.

The SURREY C.C. is to carry out an improvement scheme on the Ashtead-Leatherhead section of the London-Worthing Road at an estimated cost of £27,000. The scheme involves the widening of the highway from the Leatherhead Urban District boundary to Ashtead.

*

The Monmouth diocesan conference has decided that the new cathedral for GWENT should be erected at an estimated cost of £500,000, on a site of 5 acres on the outskirts of the town.

*

Another old country mansion and park in the DONCASTER district are to be developed for building purposes. A firm of builders has bought St. Catherine's Hall and park, which are situated off the Doncaster-Tickhill Road, for building purposes.

*

The Mansfield Corporation is to erect 113 houses on the RAVENSDALE estate.

*

Alterations and extensions at St. Luke's Hospital are to cost CHELSEA Guardians £28,864.

*

Plans for CROYDON's super-cinema, for which six shops have been pulled down, have been passed.

*

The Office of Works is to erect a telephone exchange at FLEET, Hampshire.

*

The LIVERPOOL Education Committee is to enlarge the elementary school in Hall Lane.

*

Plans passed by BEXHILL Corporation: Shops, London Road, for Mr. Fisher; two houses, Magdalen Road, for Harrison Smith Buildings, Ltd.; two houses, Collington Lane, for Mr. J. E. Maynard; ten houses, Little Common Road, for Mr. J. E. Maynard.

*

The BEXHILL Corporation Housing Committee has passed a plan of a lay-out submitted by the surveyor for thirty-six additional semi-detached houses on the Burnt House Farm site. The estimated cost of the houses is £16,500.

*

The Surrey Education Committee has obtained a site at SELSDON Garden Village for the erection of an elementary school.

*

The trustees of Pinnock's Charity are to erect further almshouses on a site in Wrotham Road, GRAVESEND.

Plans passed by the GRAVESEND Corporation: Sheds, West Street brewery, for Russell's Gravesend Brewery, Ltd.; extensions, factory, Shrubbery Road, for Messrs. Axwell and Son; shop and flats, Kitchener Avenue, for Mr. C. A. Mills; new road, South Gravesend estate, for Gravesend Land Co.

*

Plans passed by the BARKING U.D.C.: Three houses, Victoria Road, for Mr. G. Saxton; factory, Abbey Road, for Messrs. W. Warne & Co., Ltd.; six houses, Hulse Avenue, and twenty-two houses in Buller Road, for Messrs. E. Glenny and Son; workshop and garages, Ripple Road, for Messrs. H. and J. Alleston.

*

The BARKING TOWN U.D.C. has obtained permission to borrow £50,000 for housing advances.

*

Plans passed by the STOKE-ON-TRENT Corporation: Four houses, Werrington Road, Bucknall, for Mr. F. J. Williams; seventeen houses, Park Road, Fenton, for Mr. A. Perry; four houses, Ricardo Street, Longton, for Mr. C. A. Walters; six houses, Blurton Road, Longton, for Messrs. Prestwood Bros.; workshop, High Street, Norton, for Mr. E. Brocklehurst; warehouse and office off Leek Road, Milton, for Messrs. Bullers, Ltd.; shop premises, Liverpool Road and Peel Street, for Burslem and District Co-operative Society, Ltd.; additions, Portland Works, Longton, for Messrs. J. G. Aynsley.

*

The BARKING TOWN U.D.C. has asked the architect to prepare detailed plans and invite tenders for the erection of a refreshment pavilion in the park.

*

The GRAVESEND Corporation has authorized alterations at the Swan Yard Depot pending the preparation of a general scheme of improvements.

*

The GRAVESEND Corporation has approved plans of the diphtheria and cubicle wards proposed to be built at the isolation hospital.

*

Plans passed by the COULSDON U.D.C.: Three houses, Selcroft Road, Purley, for Mr. F. T. Brown; four houses, Bramley Avenue, Coulsdon, for Mr. C. L. G. Morgan; ten houses, Warwick Road, Coulsdon, for Messrs. Chester and Hopkins; nine houses, Brancaster Lane, for Messrs. Lawes Cherry & Co.; ten houses, Bury Avenue, and eight houses, Yew Tree Walk, Purley, for Mr. E. Wallace Jacobs.

*

Mr. D. King proposes to erect twenty-five houses at Rickman Hill, COULSDON.

Messrs. Richard Costain and Sons are to build fifty houses at SELSDON Garden Village, Surrey.

*

Plans passed by the ILFORD Corporation: Fourteen houses, Ellesmere Gardens, for Mr. H. G. Needham; two houses, Baxter Road, for Mr. M. Savill; nine shops and dwellings, Victoria Parade, and twenty-six houses, Albemarle Gardens, for Suburban Developments, Ltd.; six houses, Vaughan Gardens, for Mr. G. V. Beauclark; conservatory, Highbury Gardens, for Messrs. Rawlins, Culver & Co.; hall, Becontree Avenue, for Mr. F. Smith; five shops and dwellings, Green Lane, for Mr. A. Romain; and rebuilding of "Red House" public-house, Redbridge Lane, for Mr. T. F. Ingram.

*

The ILFORD Corporation has passed plans submitted by Messrs. G. Baines and Son for the erection of a congregational church at the corner of Broomhill Road, Green Lane.

*

The ILFORD Education Committee is acquiring a site for a proposed elementary school in the Redbridge district.

*

The Surrey Education Committee has submitted to the Board of Education plans of the new building for the Tiffin Boys' School, KINGSTON. The plans show classroom accommodation for 400 pupils at an estimated cost of £41,850.

*

The West Riding Education Committee has acquired a site of 5 acres at LINTHWAITE for the erection of a middle school.

*

The West Riding Education Committee has voted £10,000 for the adaptation of premises at WEATHERBY for a middle school and the erection of an elementary school.

*

Plans passed by the SEAHAM HARBOUR U.D.C.: Cottages, near Edward Street, for Mr. J. W. Claxton; shop front and garage, Stewart Street, for Messrs. R. Stafford and Son; house and shop, Princess Road, for Mr. J. W. Claxton.

*

The borough engineer of BRIGHTON has prepared a plan for the lay-out of a further portion of the East Brighton estate.

*

The TYNEMOUTH Education Committee is to alter and improve the Western School.

*

The TYNEMOUTH Corporation is seeking sanction to borrow £21,000 for further housing subsidies.

*

The L.C.C. has acquired a site on the Grove Park housing estate, LEWISHAM, upon which to erect an elementary school.

Plans passed by the LEWISHAM B.C.: Eight houses, Dallinger Road, for Messrs. W. J. Scudamore, Ltd.; sixty-seven houses, Downham estate, for Mr. J. G. Stephenson; six houses, Burnt Ash Hill, for Messrs. Eaglen Bros.; sixteen houses, Holmesley Road, for Messrs. W. T. Champion and Son.

*

Plans passed by the UXBRIDGE U.D.C.: Alterations, "Canteen" beer house, Villier Street, for Benskin's Watford Brewery, Ltd.; garage and petrol store, Cowley Road, for the Anglo-American Oil Co., Ltd.; meeting-room adjoining St. Margaret's Parish Hall, for the trustees.

*

The Southern Railway is to alter BRIGHTON Station to improve the accommodation, including the booking offices, waiting-rooms, parcels office, etc.

*

Plans passed by the BRIGHTON Corporation: New premises, Victoria Nurseries, Dyke Road, for Mr. A. Lambourne; alterations, 35 Queen's Road, for Mr. J. Baldwin; stores, York Hill, for Mr. J. Stringer; addition and alterations, South Road, for Messrs. Corrall & Co.; development, Dudley estate, for Mr. J. Morley; thirty houses, Barnett Road, for Messrs. Haywards, Ltd.; alterations, 187 Western Road, for Messrs. J. Brigden & Co.; seven houses, Hollinbury Rise, for Mr. J. Morley, Jun.; extensions, 25 Ship Street, for Dreadnought Garage and Motor Engineering Works, Ltd.; alterations, 16 and 17 East Street, for the McKergow estate; alterations, 30 and 31 Western Road, for Messrs. J. Sears & Co., Ltd.; additions, Nurses' Quarters, Royal Sussex County Hospital, for the Hospital Committee; alterations, Hartington Hotel, Whippingham Road, for Kemp Town Brewery.

*

The TYNEMOUTH Corporation Housing Committee has passed plans for the erection in Percy Square of blocks of tenements. They will be three stories high and of three bedrooms for each tenement, and will accommodate 223 persons.

*

Plans passed by the TYNEMOUTH Corporation: Additions to assembly rooms, for Tynemouth Assembly Rooms Co., Ltd.; sixteen semi-detached houses, Chirton Green, for Messrs. F. R. N. Haswell and Son; six houses, Mast Lane, for St. Oswin's Estate Co., Ltd.; four houses, Sunniside Field, for Mr. W. Stockdale.

*

The borough engineer of TYNEMOUTH has submitted sketch plans for pavilions for enteric and scarlet fever cases, an isolation pavilion, administration block and accessory buildings on a site at Balkwell.

Plans have been prepared for alterations of shop premises at The Strand, TORQUAY, for Messrs. J. Troulan and Sons, opticians. The plans were prepared by Mr. Lionel F. Vanstone, architect, Midland Bank Chambers, Paignton.

*

The PLYMPTON Rural District Council has approved plans for house, garage, etc., at Crownhill, for Capt. Charles C. Cartwright, O.B.E. The architect is Mr. Lionel F. Vanstone, of Plymouth.

*

The CHELMSFORD Education Committee has acquired a site for a proposed Council School in Lady Lane.

*

Messrs. J. Sainsbury, Ltd., are to reconstruct their premises at 16-20 Stamford Street, SOUTHWARK.

*

The STEPNEY B.C. proposes to provide 154 flats in New Gravel Lane.

*

The West Riding County Council is acquiring land in connection with the proposal to reconstruct Stock Bridge, near KEIGHLEY.

*

The WOOLWICH B.C. is to borrow £64,500 for the construction of roads on a section of the Eltham estate where the Council is erecting 500 concrete houses.

*

Mr. R. J. Jones is obtaining from the L.C.C. land on the Wormholt estate, HAMMERSMITH, for the erection of twenty-two shops and houses.

*

The Church of England authorities are acquiring a site on the L.C.C. Castlenau estate, BARNES, for the erection of a church hall.

*

The Essex Baptist Association is acquiring a site on the L.C.C. BECONTREE housing estate for the erection of a church.

*

Mr. W. White is acquiring from the L.C.C. land in Becontree Avenue, BECONTREE, for the erection of about thirty shops and houses.

*

The L.C.C. is to proceed with further housing developments on the Downham estate, LEWISHAM, at a cost of £810,000, the scheme providing for the erection of 1,266 houses. On the new section sites are reserved for the erection of an elementary school and a people's refreshment house.

The West Riding Education Committee has had the approval of the Board of Education of plans for the erection of new buildings in connection with the THORNE Grammar School.

*

The West Riding Education Committee has obtained land in CUDWORTH for the erection of a new school at Snydale Road.

*

Plans passed by the TROWBRIDGE U.D.C.: Garage and house, Bradley Road, for Mr. A. W. G. King; boot repairing depot, Castle Street, for the Trowbridge Co-operative Society; villa, Frome Road, for Mr. S. H. Culverhouse; house, Bradley Road, for Mr. C. Culverhouse; cottage, Upper Studley, for Mr. G. H. E. Stokes.

*

The LEEDS University states that independently of the help which is given by various authorities, it is itself taking effective steps towards the provision of funds for development. The public appeal has already produced a sum of nearly £300,000, and it is confident of succeeding ultimately in obtaining the half million for which the appeal was launched.

*

The West Riding Education Committee has obtained land in FEATHERSTONE for the erection of a middle school.

*

A site for a school at COLNE VALLEY has been obtained by the West Riding Education Committee.

*

The COVENTRY Corporation has prepared schemes for the prevention of flooding and for the improvement of watercourses at a total estimated cost of £52,000.

*

The West Riding Education Committee has obtained land at NORTON for the erection of a school.

*

The West Riding Education Committee has obtained land at ROTHWELL for the erection of a middle school.

*

The Surrey C.C. has instructed the county surveyor to submit alternative schemes and estimates of the cost for the provision of a new bridge or the adaptation of the existing bridge at GREAT GODALMING.

*

The Surrey Education Committee has passed plans for the erection of a dispensary and clinic at SURBITON, and tenders will shortly be invited.

*

The Surrey Education Committee has obtained a site at PURLEY for the erection of a dispensary, clinic, and school centre.

# READERS' QUERIES

## RENDERING IN WATERCOLOURS

*F. H. writes : " How can I obtain a graduated wash in watercolour painting, especially as applied to perspective renderings? Although I am aware that certain colours like French blue are necessary, I am never able to get the desired effect where required. Richmond, in a recent work on the technique of watercolour painting, states that the use of the heaviest and coarsest paper is essential. Nevertheless, I believe I have seen this graduation executed on the ordinary paper such as Watman's Not surface. In fact, I once managed to obtain this effect myself, quite by accident, but unfortunately I have never been able to repeat it. There is much misunderstanding among students with regard to this matter."*

Before the methods of obtaining a graduated wash in rendering (watercolour) can be explained, certain preliminary facts about the properties of various colours must be stated. It is assumed that good stout paper is used for working upon, and that hot pressed paper is avoided because, as its name implies, it is actually " ironed " to give it a cream-laid surface suitable for pen work, or point, only. Any good paper is suitable so long as it is strained down sufficiently to avoid " cockling," and generally speaking the larger the surface the tighter it should be strained. If it is possible to paste down completely, so much the better.

For the purpose of this explanation, colours may be divided into clear, transparent colours, e.g. gamboge or raw sienna, and heavy opaque colours, e.g. yellow ochre and cadmiums. It is common experience that very cheap colours always blend into muddy tints because they are insufficiently ground: also that some colours, e.g. emerald green, cadmium yellow, and vermilion dry up very much more quickly than others when in cakes, and if in tubes allow the " glycerine " substance in which they are mixed to come to the top. Some colours are minerals, e.g. emerald green (copper); some vegetables, e.g. blues and the charcoals, while many are earths, e.g. ochres and umbers.

All these different sources need different mediums to keep them in. Generally speaking, earth mixes well with earth, vegetable with vegetable, etc., but if intermixed they form sediments of the heavier type if allowed to stand. The darker colours are obviously more noticeable than the lighter, and in many cases their particles lie on the top surface of the paper and can be easily washed off, leaving the purer colour beneath. Emerald green mixed with light red makes a warm-grey sediment, and if sponged after drying leaves this grey on the paper releasing only the minute particles of green or red. Crimson lake and prussian blue, on the other hand, make so strong a purple that it can hardly be removed with a sponge; these two colours are strong stains and should never be used but with caution, and only as a final wash. Again, grease is a well-known enemy to water, and any dry, greasy marks refuse to take a water on a self-respecting paper. In rendered architectural drawings backgrounds are only needed to act as a foil to the elaborate finish and detail of the scheme without forcing themselves upon the spectator, and a wash which is broken up into indistinct colours is preferable to a plain flat one. This wash may be darkened or strengthened at the edges to assist in concentrating the focus on to the scheme itself.

The easiest way to make such a wash is to mix the desired colour (e.g. grey made from light red and lamp black) and split it up by dropping in a brushful of grease (soap is excellent) which effectively " curdles " the colour, making it useless for all purposes but ours. It must be kept well stirred, with a little office dust added and washed on very wet to allow the inevitable precipitate to take place on the paper itself. This method is the simplest way and obviously the crudest.

A better method, generally adopted, needs a further note of explanation. Several of the finest colours on the market, owing to the nature of their manufacture, contain more " glycerine " substance than others; these include rose madder (expensive), brown-pink, paynes grey, peach black, and chinese orange. The last two will be found the strongest and absolutely refuse to mix with their fellows. If a dish of French ultramarine is mixed and touched at the edges of the colour with a brushful of Chinese orange, an immediate aversion is noticed which breaks up the blue and makes a strong sediment: add to this a little strong earth colour, e.g. Indian red, and a fine grey full of sediment will result. Mix a large bowl of this grey, slope the board with paper strained tightly, and take a large mop brush full of the stirred colour to dripping point.

Start at left top of board, free arm (assuming an imperial sheet or larger for practice), and with full brush pass a shaky hand across the top of the paper; work quickly but firmly allowing the colour to *almost* run down the paper. Take the second line in the same way, joining the first at every point and allowing the colour to collect in the centre of the sheet by a slightly curved stroke; continue these lines, sometimes starting left and sometimes right, but always joining with a wobbly line and collecting pervious colour as you proceed. The first brushful should be still wet and shining when the last stroke is made. *Do not touch* the work again until dry. If the paper cockles it is not sufficiently strained for its size, or you have been working too slowly, and it is better to raise the board and drain off any surplus colour at the corner: some men always allow the colour to float back on itself by rocking the board, but this needs care and experience.

A light sponging before starting the wash is occasionally used and this is useful for graduating such washes, but a better way to graduate them is to sponge gently after it is bone dry, or to commence washing with a weak colour, gradually strengthening as desired.

Details and examples of such technique can be seen in such books as *Rendering*, by Magonigle; *Watercolour Technique*, by Richmond and Littlejohn; A. W. Rich; W. Hallam Brown, etc. The method is similar and can be experimented with on large or small area and different textures of paper. Many of the best drawings are washed and sponged several times, and therefore need good, clean drawings in preparation.

It must be remembered that a wash that looks hopelessly dark when wet usually dries much lighter and more transparent. A very excellent mixture is F. ultra, emerald green and rose madder. Avoid all stains, e.g. crimson lake, brown-pink, prussian blue, and violet of any sort. Use good-quality colours, large size brushes, and mix them with plenty of brains and courage.

*The Editor welcomes readers' inquiries on all matters connected, directly or indirectly, with architectural practice. These inquiries are dealt with by a board of experts, to which additions are constantly being made as, and when, need arises. No charge is made to readers for this expert service. Diagrams must be clearly and legibly drawn out and lettered in black ink. Querists must enclose name and address. — Ed.* A.J.

## PERCENTAGE COST OF HOUSE

*R. H. writes : " I should like to know if any approximate percentage of cost has been worked out for a two-storey house or cottage, giving percentage of total cost at, say, ground floor sill level, first floor level joists in, roof flat level, and roofing completed."*

There are no percentages of this description published which could be utilized for any responsible purpose, nor has it been found in actual practice that the figures for any one job apply to another, although the buildings may be of almost similar character. To quote just a few of the more important causes of difference there are: 1: Design particularly below ground; 2: environment affecting cartage subsoil site; 3: the various methods of building adopted by different builders. If, as assumed, the data are required for purposes of valuations for certificates, *the only* reliable methods of dealing with the question are: 1: To measure the actual work executed and price same at current rates; 2: to prepare an abbreviated bill of quantities and price the items to total with the contract amount. Such bill would then be used for all valuations.

F.

# RATES OF WAGES

| | | | I | II |
|---|---|---|---|---|
| | | | s. d. | s. d. |
| A | ABERDARE | S. Wales & M. | 1 8 | 1 3½ |
| A₁ | Abergavenny | S. Wales & M. | 1 7½ | 1 2½ |
| B | Abingdon .. | S. Counties | 1 6 | 1 1½ |
| A | Accrington | N.W. Counties | 1 8 | 1 3½ |
| A₃ | Addlestone | S. Counties | 1 6½ | 1 2 |
| A | Adlington .. | N.W. Counties | 1 8 | 1 3½ |
| A | Airdrie .. | Scotland | *1 8 | 1 3½ |
| C₁ | Aldeburgh | E. Counties | 1 4 | 1 0½ |
| A | Altrincham | N.W. Counties | 1 8 | 1 3½ |
| B₃ | Appleby .. | N.W. Counties | 1 4½ | 1 0½ |
| A | Ashton-under-Lyne | N.W. Counties | 1 8 | 1 3½ |
| A₃ | Atherstone | Mid. Counties | 1 6½ | 1 2 |
| B₃ | Aylesbury .. | S. Counties | 1 4½ | 1 0½ |
| B₃ | BANBURY | S. Counties | 1 4½ | 1 0½ |
| B₃ | Bangor .. | N.W. Counties | 1 5 | 1 1 |
| A | BarnardCastle | N.E. Coast | 1 8 | 1 3½ |
| A | Barnsley .. | Yorkshire | 1 8 | 1 3½ |
| B₁ | Barnstaple | S.W. Counties | 1 5½ | 1 1½ |
| A | Barrow .. | N.W. Counties | 1 8 | 1 3½ |
| A | Barry .. | S. Wales & M. | 1 8 | 1 3½ |
| B₃ | Basingstoke | S.W. Counties | 1 4½ | 1 0½ |
| B | Bath .. | S.W. Counties | 1 6 | 1 1½ |
| A | Batley .. | Yorkshire | 1 8 | 1 3½ |
| B | Bedford .. | E. Counties | 1 6 | 1 1½ |
| A₃ | Berwick-on-Tweed | N.E. Coast | 1 7 | 1 2½ |
| A₃ | Bewdley .. | Mid. Counties | 1 7 | 1 2½ |
| B₃ | Bicester .. | Mid. Counties | 1 4½ | 1 0½ |
| A | Birkenhead | N.W. Counties | *1 10 | 1 4½ |
| A | Birmingham | Mid. Counties | 1 8 | 1 3½ |
| A | Bishop Auckland | N.E. Coast | 1 8 | 1 3½ |
| A | Blackburn | N.W. Counties | 1 8 | 1 3½ |
| A | Blackpool | N.W. Counties | 1 8 | 1 3½ |
| A | Blyth .. | N.E. Coast | 1 8 | 1 3½ |
| B₃ | Bognor .. | S. Counties | 1 4½ | 1 0½ |
| A | Bolton .. | N.W. Counties | 1 8 | 1 3½ |
| A₃ | Boston .. | Mid. Counties | 1 6½ | 1 2 |
| B₁ | Bournemouth | S. Counties | 1 6 | 1 1½ |
| B₂ | Bovey Tracey | S.W. Counties | 1 5 | 1 1 |
| A | Bradford .. | Yorkshire | 1 8 | 1 3½ |
| A₃ | Brentwood | E. Counties | 1 7 | 1 2½ |
| A | Bridgend .. | S. Wales & M. | 1 8 | 1 3½ |
| B₃ | Bridgwater | S.W. Counties | 1 5 | 1 1 |
| A₁ | Bridlington | Yorkshire | 1 7½ | 1 2½ |
| A | Brighouse | Yorkshire | 1 8 | 1 3½ |
| B₁ | Brighton .. | S. Counties | 1 6 | 1 1½ |
| A | Bristol .. | S.W. Counties | 1 8 | 1 3½ |
| B₃ | Brixham .. | S.W. Counties | 1 4½ | 1 0½ |
| A₃ | Bromsgrove | Mid. Counties | 1 7 | 1 2½ |
| C | Bromyard .. | Mid. Counties | 1 4 | 1 0½ |
| A | Burnley .. | N.W. Counties | 1 8 | 1 3½ |
| A | Burslem .. | Mid. Counties | 1 8 | 1 3½ |
| A₃ | Burton-on-Trent | Mid. Counties | 1 7 | 1 2½ |
| A | Bury .. | N.W. Counties | 1 8 | 1 3½ |
| A₁ | Buxton .. | N.W. Counties | 1 7½ | 1 2½ |
| B | CAMBRIDGE | E. Counties | 1 6 | 1 1½ |
| B₃ | Canterbury | S. Counties | 1 4½ | 1 0½ |
| A | Cardiff .. | S. Wales & M. | 1 8 | 1 3½ |
| A | Carlisle .. | N.W. Counties | 1 8 | 1 3½ |
| B | Carmarthen | S. Wales & M. | 1 6 | 1 1½ |
| B₃ | Carnarvon | N.W. Counties | 1 5 | 1 1 |
| A₁ | Carnforth .. | N.W. Counties | 1 7½ | 1 2½ |
| A | Castleford | Yorkshire | 1 8 | 1 3½ |
| B₁ | Chatham .. | S. Counties | 1 5½ | 1 1½ |
| B₁ | Chelmsford | E. Counties | 1 5½ | 1 1½ |
| A₃ | Cheltenham | S.W. Counties | 1 6½ | 1 2 |
| A | Chester .. | N.W. Counties | 1 8 | 1 3½ |
| A | Chesterfield | Mid. Counties | *1 8 | 1 3½ |
| B₃ | Chichester | S. Counties | 1 4½ | 1 0½ |
| A | Chorley .. | N.W. Counties | 1 8 | 1 3½ |
| B₃ | Cirencester | S. Counties | 1 5 | 1 1 |
| A | Clitheroe .. | N.W. Counties | 1 8 | 1 3½ |
| A | Clydebank | Scotland | 1 8 | 1 3½ |
| A | Coalville .. | Mid. Counties | 1 8 | 1 3½ |
| B₁ | Colchester .. | E. Counties | 1 5½ | 1 1½ |
| A | Colne .. | N.W. Counties | 1 8 | 1 3½ |
| B₁ | Colwyn Bay | N.W. Counties | 1 5½ | 1 1½ |
| A | Consett .. | N.E. Coast | 1 8 | 1 3½ |
| B₁ | Conway .. | N.W. Counties | 1 5½ | 1 1½ |
| A | Coventry .. | Mid. Counties | 1 8 | 1 3½ |
| A₃ | Crewe .. | N.W. Counties | 1 6½ | 1 2 |
| A₃ | Cumberland | ..... | 1 6½ | 1 2 |
| A | DARLINGTON | N.E. Coast | 1 8 | 1 3½ |
| A | Darwen .. | N.W. Counties | 1 8 | 1 3½ |
| B₃ | Deal .. | S. Counties | 1 4½ | 1 0½ |
| B₁ | Denbigh .. | N.W. Counties | 1 5½ | 1 1½ |
| A | Derby .. | Mid. Counties | 1 8 | 1 3½ |
| A | Dewsbury .. | Yorkshire | 1 8 | 1 3½ |
| B | Didcot .. | S. Counties | 1 6 | 1 1½ |
| A | Doncaster | Yorkshire | 1 8 | 1 3½ |
| C₁ | Dorchester | S.W. Counties | 1 4 | 1 0½ |
| A₃ | Driffield .. | Yorks | 1 6½ | 1 2 |
| A₃ | Droitwich .. | Mid. Counties | 1 6½ | 1 2 |
| A₁ | Dudley .. | Mid. Counties | 1 7½ | 1 2½ |
| A | Dundee .. | Scotland | 1 8 | 1 3½ |
| A | Durham .. | N.E. Coast | 1 8 | 1 3½ |
| B₁ | EAST-BOURNE | S. Counties | 1 6 | 1 1½ |
| A | Ebbw Vale | S. Wales & M. | 1 8 | 1 3½ |
| A | Edinburgh | Scotland | 1 8 | 1 3½ |
| A | E. Glamorganshire & Monmouthshire | S. Wales & M. | 1 8 | 1 3½ |
| B | Exeter .. | S.W. Counties | *1 7 | 1 2½ |
| B₂ | Exmouth .. | S.W. Counties | 1 5 | 1 1 |
| B | FELIXSTOWE | E. Counties | 1 6 | 1 1½ |
| A₃ | Filey .. | Yorks | 1 6½ | 1 2 |
| A | Fleetwood .. | N.W. Counties | 1 8 | 1 3½ |
| B₂ | Folkestone | S. Counties | 1 5 | 1 1 |
| A | Frodsham .. | N.W. Counties | 1 8 | 1 3½ |
| B₃ | Frome .. | S.W. Counties | 1 4½ | 1 0½ |
| A | GATESHEAD | N.E. Coast | 1 8 | 1 3½ |
| B₁ | Gillingham | S. Counties | 1 5½ | 1 1½ |
| A₃ | Gloucester | S.W. Counties | 1 6½ | 1 2 |
| A₃ | Goole .. | Yorkshire | 1 7 | 1 2½ |
| B | Gosport .. | S. Counties | 1 6 | 1 1½ |
| A₃ | Grantham | Mid. Counties | 1 6½ | 1 2 |
| A₁ | Gravesend | S. Counties | 1 7½ | 1 2½ |
| A | Greenock .. | Scotland | *1 8 | 1 3½ |
| A | Grimsby .. | Yorkshire | 1 8 | 1 3½ |
| B₁ | Guildford .. | S. Counties | 1 5½ | 1 1½ |
| A | HALIFAX .. | Yorkshire | 1 8 | 1 3½ |
| A | Hanley .. | Mid. Counties | 1 8 | 1 3½ |
| A | Harrogate | Yorkshire | 1 8 | 1 3½ |
| A | Hartlepools | N.E. Coast | 1 8 | 1 3½ |
| B₂ | Harwich .. | E. Counties | 1 5 | 1 1 |
| B₃ | Hastings .. | S. Counties | 1 4½ | 1 0½ |
| B₁ | Hatfield .. | S. Counties | 1 5½ | 1 1½ |
| B | Hereford .. | S. W. Counties | 1 6 | 1 1½ |
| B | Hertford .. | E. Counties | 1 5½ | 1 1½ |
| A₁ | Heysham .. | N.W. Counties | 1 7½ | 1 2½ |
| A | Howden .. | N.E. Coast | 1 8 | 1 3½ |
| A | Huddersfield | Yorkshire | 1 8 | 1 3½ |
| A | Hull .. | Yorkshire | 1 8 | 1 3½ |

The initial letter opposite each 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 | II |
|---|---|---|---|---|
| | | | s. d. | s. d. |
| A | ILKLEY .. | Yorkshire | 1 8 | 1 3½ |
| A | Immingham | Mid. Counties | 1 8 | 1 3½ |
| B | Ipswich .. | E. Counties | 1 6 | 1 1½ |
| C₁ | Isle of Wight | S. Counties | 1 4 | 1 0½ |
| A | JARROW .. | N.E. Coast | 1 8 | 1 3½ |
| A | KEIGHLEY | Yorkshire | 1 8 | 1 3½ |
| B₁ | Kendal .. | N.W. Counties | 1 5½ | 1 1½ |
| B₁ | Keswick .. | N.W. Counties | 1 5½ | 1 1½ |
| B | Kettering .. | Mid. Counties | 1 6 | 1 1½ |
| A₃ | Kiddermin-ster | Mid. Counties | 1 7 | 1 2½ |
| B₂ | King's Lynn | E. Counties | 1 5 | 1 1 |
| A | LANCASTER | N.W. Counties | 1 8 | 1 3½ |
| A₂ | Leamington | Mid. Counties | 1 7 | 1 2½ |
| A | Leeds .. | Yorkshire | 1 8 | 1 3½ |
| A | Leek .. | Mid. Counties | 1 8 | 1 3½ |
| A | Leicester .. | Mid. Counties | 1 8 | 1 3½ |
| A | Leigh .. | N.W. Counties | 1 8 | 1 3½ |
| B₃ | Lewes .. | S. Counties | 1 4½ | 1 0½ |
| A₃ | Lichfield .. | Mid. Counties | 1 6½ | 1 2 |
| A | Lincoln .. | Mid. Counties | 1 8 | 1 3½ |
| A | Liverpool .. | N.W. Counties | *1 10 | 1 4½ |
| B | Llandudno | N.W. Counties | 1 5½ | 1 1½ |
| A | Llanelly .. | S. Wales & M. | 1 8 | 1 3½ |
| | London (12 miles radius) | | 1 9½ | 1 4½ |
| | Do. (12-15 miles radius) | | 1 9 | 1 4 |
| A | Long Eaton | Mid. Counties | 1 8 | 1 3½ |
| A | Lough-borough | Mid. Counties | 1 8 | 1 3½ |
| B | Luton .. | E. Counties | 1 6 | 1 1½ |
| A | Lytham .. | N.W. Counties | 1 8 | 1 3½ |
| A₁ | MACCLES-FIELD | N.W. Counties | 1 7½ | 1 2½ |
| B | Maidstone | S. Counties | 1 5½ | 1 1½ |
| A₃ | Malvern .. | Mid. Counties | 1 6½ | 1 2 |
| A | Manchester | N.W. Counties | 1 8 | 1 3½ |
| A | Mansfield .. | Mid. Counties | 1 8 | 1 3½ |
| B₃ | Margate .. | S. Counties | 1 4½ | 1 0½ |
| A₃ | Matlock .. | Mid. Counties | 1 6½ | 1 2 |
| A | Merthyr .. | S. Wales & M. | 1 8 | 1 3½ |
| A | Middles-brough | N.E. Coast | 1 8 | 1 3½ |
| A₃ | Midlewich | N.W. Counties | 1 6½ | 1 2 |
| B₂ | Minehead .. | S.W. Counties | 1 5 | 1 1 |
| A | Monmouth | S. Wales & M. | 1 8 | 1 3½ |
| | S. and E. Glamorganshire | | | |
| A₁ | Morecambe | N.W. Counties | 1 7½ | 1 2½ |
| A₃ | NANTWICH | N.W. Counties | 1 6½ | 1 2 |
| A | Neath .. | S. Wales & M. | 1 8 | 1 3½ |
| A | Nelson .. | N.W. Counties | 1 8 | 1 3½ |
| A | Newcastle .. | N.E. Coast | 1 8 | 1 3½ |
| A | Newport .. | S. Wales & M. | 1 8 | 1 3½ |
| A | Normanton | Yorkshire | 1 8 | 1 3½ |
| A₂ | Northampton | Mid. Counties | 1 7 | 1 2½ |
| A | North Staffs. | Mid. Counties | 1 8 | 1 3½ |
| A | North Shields | N.E. Coast | 1 8 | 1 3½ |
| A₃ | Norwich .. | E. Counties | 1 6½ | 1 2 |
| A | Nottingham | Mid. Counties | 1 8 | 1 3½ |
| A | Nuneaton .. | Mid. Counties | 1 8 | 1 3½ |
| B | OAKHAM .. | Mid. Counties | 1 5½ | 1 1½ |
| A | Oldham .. | N.W. Counties | 1 8 | 1 3½ |
| A₃ | Oswestry .. | Mid. Counties | 1 6½ | 1 2 |
| B | Oxford .. | S. Counties | 1 6 | 1 1½ |
| A | PAISLEY .. | Scotland | *1 8 | 1 3½ |
| C | Pembroke | S. Wales & M. | 1 4½ | 1 0½ |
| A | Perth .. | Scotland | *1 8 | 1 3 |
| A₃ | Peterborough | Mid. Counties | 1 6½ | 1 2 |
| A | Plymouth | S.W. Counties | *1 8 | 1 3½ |
| A | Pontefract | Yorkshire | 1 8 | 1 3½ |
| A | Pontypridd | S. Wales & M. | 1 8 | 1 3½ |
| B | Portsmouth | S. Counties | 1 6 | 1 1½ |
| A | Preston .. | N.W. Counties | 1 8 | 1 3½ |
| A | QUEENS-FERRY | N.W. Counties | 1 8 | 1 3½ |
| B | READING .. | S. Counties | 1 6 | 1 1½ |
| B | Reigate .. | S. Counties | 1 5½ | 1 1½ |
| A₃ | Retford .. | Mid. Counties | 1 6½ | 1 2 |
| A | Rhondda Valley | S. Wales & M. | 1 8 | 1 3½ |
| A₃ | Ripon .. | Yorkshire | 1 6½ | 1 2 |
| A | Rochdale .. | N.W. Counties | 1 8 | 1 3½ |
| B | Rochester .. | S. Counties | 1 5½ | 1 1½ |
| A₁ | Ruabon .. | N.W. Counties | 1 7½ | 1 2½ |
| A₂ | Rugby .. | Mid. Counties | 1 8 | 1 3½ |
| A₃ | Rugeley .. | Mid. Counties | 1 6½ | 1 2 |
| A | Runcorn .. | N.W. Counties | 1 8 | 1 3½ |
| A₃ | ST. ALBANS | E. Counties | 1 6½ | 1 2 |
| A | St. Helens | N.W. Counties | 1 8 | 1 3½ |
| B₃ | Salisbury | S.W. Counties | 1 4½ | 1 0½ |
| A₁ | Scarborough | Yorkshire | 1 7½ | 1 2½ |
| A | Scunthorpe | Mid. Counties | 1 8 | 1 3½ |
| A | Sheffield .. | Yorkshire | 1 8 | 1 3½ |
| A | Shipley .. | Yorkshire | 1 8 | 1 3½ |
| A₃ | Shrewsbury | Mid. Counties | 1 6½ | 1 2 |
| A₂ | Skipton .. | Yorkshire | 1 7 | 1 2½ |
| B | Slough .. | S. Counties | 1 5½ | 1 1½ |
| A₂ | Solihull .. | Mid. Counties | 1 7 | 1 2½ |
| A₃ | South'pton | S. Counties | 1 6½ | 1 2 |
| B₁ | Southend-on-Sea | E. Counties | 1 5½ | 1 1½ |
| A | Southport .. | N.W. Counties | 1 8 | 1 3½ |
| A | S. Shields .. | N.E. Coast | 1 8 | 1 3½ |
| A₂ | Stafford .. | Mid. Counties | 1 7 | 1 2½ |
| A | Stockport .. | N.W. Counties | 1 8 | 1 3½ |
| A | Stockton-on-Tees | N.E. Coast | 1 8 | 1 3½ |
| A | Stoke-on-Trent | Mid. Counties | 1 8 | 1 3½ |
| B | Stroud .. | S.W. Counties | 1 5½ | 1 1½ |
| A | Sunderland | N.E. Coast | 1 8 | 1 3½ |
| A | Swadlincote | Mid. Counties | 1 8 | 1 3½ |
| A | Swansea .. | S. Wales & M. | 1 8 | 1 3½ |
| B | Swindon .. | S.W. Counties | 1 6 | 1 1½ |
| A₁ | TAMWORTH | N.W. Counties | 1 7½ | 1 2½ |
| B₁ | Taunton .. | S.W. Counties | 1 5½ | 1 1½ |
| A | Teeside Dist. | N.E. Counties | 1 8 | 1 3½ |
| B | Teignmouth | S.W. Coast | 1 6 | 1 1½ |
| A | Todmorden | Yorkshire | 1 8 | 1 3½ |
| A₂ | Torquay .. | S.W. Counties | 1 7 | 1 2½ |
| C | Truro .. | S.W. Counties | 1 4 | 1 0½ |
| B₁ | Tunbridge Wells | S. Counties | 1 5½ | 1 1½ |
| A | Tunstall .. | Mid. Counties | 1 8 | 1 3½ |
| A | Tyne District | N.E. Coast | 1 8 | 1 3½ |
| A | WAKE-FIELD | Yorkshire | 1 8 | 1 3½ |
| A₁ | Walsall .. | Mid. Counties | 1 7½ | 1 2½ |
| A | Warrington | N.W. Counties | 1 8 | 1 3½ |
| A₂ | Warwick .. | Mid. Counties | 1 7 | 1 2½ |
| B | Welling-borough | Mid. Counties | 1 6 | 1 1½ |
| A | West Bromwich | Mid. Counties | 1 8 | 1 3½ |
| B | Weston-s-Mare | S.W. Counties | 1 6 | 1 1½ |
| A₃ | Whitby .. | Yorkshire | 1 7 | 1 2½ |
| A | Widnes .. | N.W. Counties | 1 8 | 1 3½ |
| A | Wigan .. | N.W. Counties | 1 8 | 1 3½ |
| B₂ | Winchester | S. Counties | 1 5 | 1 1 |
| B | Windsor .. | S. Counties | 1 6 | 1 1½ |
| A | Wolver-hampton | Mid. Counties | 1 8 | 1 3½ |
| A₃ | Worcester .. | Mid. Counties | 1 6½ | 1 2 |
| A₃ | Worksop .. | Yorkshire | 1 6½ | 1 2 |
| A₁ | Wrexham .. | N.W. Counties | 1 7½ | 1 2½ |
| B | Wycombe .. | S. Counties | 1 6 | 1 1½ |
| B₁ | YARMOUTH | E. Counties | 1 5½ | 1 1½ |
| B₂ | Yeovil .. | S.W. Counties | 1 5 | 1 1 |
| A | York .. | Yorkshire | 1 8 | 1 3 |

* In these areas the rates of wages for certain trades (usually Painters and Plasterers) vary slightly from those given. The rates for each trade in any given area will be sent on request.

# PRICES CURRENT

## EXCAVATOR AND CONCRETOR

EXCAVATOR, 1s. 4½d. *per hour*; LABOURER, 1s. 4½d. *per hour*; NAVVY, 1s. 4½d. *per hour*; TIMBERMAN, 1s. 6d. *per hour*; SCAFFOLDER, 1s. 5½d. *per hour*; WATCHMAN, 7s. 6d. *per shift.*

| | | | |
|---|---|---|---|
| *Broken brick or stone, 2 in., per yd.* | £0 | 11 | 6 |
| *Thames ballast, per yd.* | 0 | 13 | 0 |
| *Pit gravel, per yd.* | 0 | 18 | 0 |
| *Pit sand, per yd.* | 0 | 14 | 6 |
| *Washed sand* | 0 | 15 | 6 |
| *Screened ballast or gravel, add 10 per cent. per yd.* | | | |
| *Clinker, breeze, etc., prices according to locality.* | | | |
| *Portland cement, per ton* | £2 | 19 | 0 |
| *Lias lime, per ton* | 2 | 10 | 0 |
| *Sacks charged extra at 1s. 9d. each and credited when returned at 1s. 6d.* | | | |
| *Transport hire per day:* | | | |
| *Cart and horse* £1 3 0 *Trailer* | £0 | 15 | 0 |
| *3-ton motor lorry* 3 15 0 *Steam roller* | 4 | 5 | 0 |
| *Steam lorry, 5-ton* 4 0 0 *Water cart* | 1 | 5 | 0 |

EXCAVATING and throwing out in ordinary earth not exceeding 6 ft. deep, basis price, per yd. cube . 0 3 0

Exceeding 6 ft., but under 12 ft., add 30 per cent.

In stiff clay, add 30 per cent.

In underpinning, add 100 per cent.

In rock, including blasting, add 225 per cent.

If basketed out, add 80 per cent. to 150 per cent.

Headings, including timbering, add 400 per cent.

| | | | |
|---|---|---|---|
| RETURN, fill, and ram, ordinary earth, per yd. | £0 | 1 | 6 |
| SPREAD and level, including wheeling, per yd. | 0 | 1 | 6 |
| FILLING into carts and carting away to a shoot or deposit, per yd. cube | 0 | 10 | 6 |
| TRIMMING earth to slopes, per yd. sup. | 0 | 0 | 6 |
| HACKING up old grano. or similar paving, per yd. sup. | 0 | 1 | 3 |
| PLANKING to excavations, per ft. sup. | 0 | 0 | 5 |
| DO. over 10 ft. deep, add for each 5 ft. in depth, 30 per cent. | | | |
| IF left in, add to above prices, per ft. cube | 0 | 2 | 0 |
| HARDCORE, 2 in. ring, filled and rammed, 4 in. thick, per yd. sup. | 0 | 2 | 1 |
| DO. 6 in. thick, per yd. sup. | 0 | 2 | 10 |
| PUDDLING, per yd. cube | 1 | 10 | 0 |
| CEMENT CONCRETE, 4-2-1, per yd. cube | 2 | 3 | 0 |
| DO. 6-2-1, per yd. cube | 1 | 18 | 0 |
| DO. in upper floors, add 15 per cent. | | | |
| DO. in reinforced-concrete work, add 20 per cent. | | | |
| DO. in underpinning, add 60 per cent. | | | |
| LIAS-LIME CONCRETE, per yd. cube | £1 | 16 | 0 |
| BREEZE CONCRETE, per yd. cube | 1 | 7 | 0 |
| DO. in lintels, etc., per ft. cube | 0 | 1 | 6 |
| CEMENT concrete 4–2–1 in lintels packed around reinforcement, per ft. cube | 0 | 3 | 9 |
| FINE concrete benching to bottom of manholes, per ft. cube | 0 | 2 | 6 |
| FINISHING surface of concrete spade face, per yd. sup. | 0 | 0 | 9 |

## DRAINER

LABOURER, 1s. 4½d. *per hour*; TIMBERMAN, 1s. 6d. *per hour*; BRICKLAYER, 1s. 9½d. *per hour*; PLUMBER, 1s. 9½d. *per hour*; WATCHMAN, 7s. 6d. *per shift.*

| | | | |
|---|---|---|---|
| *Stoneware pipes, tested quality, 4 in., per yd.* | £0 | 1 | 3 |
| DO. 6 in., *per yd.* | 0 | 2 | 8 |
| DO. 9 in., *per yd.* | 0 | 3 | 6 |
| *Cast-iron pipes, coated, 9 ft. lengths, 4 in., per yd.* | 0 | 6 | 9 |
| DO. 6 in., *per yd.* | 0 | 9 | 2 |
| *Portland cement and sand, see "Excavator" above.* | | | |
| *Lead for caulking, per cwt.* | £2 | 5 | 6 |
| *Gaskin, per lb.* | 0 | 0 | 5½ |

STONEWARE DRAINS, jointed in cement, tested pipes, 4 in., per ft. 0 4 3

| | | | |
|---|---|---|---|
| DO. 6 in., per ft. | 0 | 5 | 0 |
| DO. 9 in., per ft. | 0 | 7 | 9 |
| CAST-IRON DRAINS, jointed in lead, 4 in., per ft. | 0 | 8 | 0 |
| DO. 6 in., per ft. | 0 | 10 | 0 |

*Note.*—These prices include digging concrete bed and filling for normal depths, and are average prices.

Fittings in Stoneware and Iron according to type. *See* Trade Lists.

## BRICKLAYER

BRICKLAYER, 1s. 9½d. *per hour*; LABOURER, 1s. 4½d. *per hour*; SCAFFOLDER, 1s. 5½d. *per hour.*

| | | | |
|---|---|---|---|
| *London stocks, per M.* | £4 | 15 | 0 |
| *Flettons, per M.* | 2 | 18 | 0 |
| *Staffordshire blue, per M.* | 9 | 10 | 0 |
| *Firebricks, 2½ in., per M.* | 11 | 3 | 0 |
| *Glazed salt, white, and ivory stretchers, per M.* | 24 | 10 | 0 |
| DO *headers, per M.* | 24 | 0 | 0 |
| *Colours, extra, per M.* | 5 | 10 | 0 |
| *Seconds, less, per M.* | 1 | 0 | 0 |
| *Cement and sand, see "Excavator" above.* | | | |
| *Lime, grey stone, per ton* | 2 | 17 | 0 |
| *Mixed lime mortar, per yd.* | 1 | 6 | 0 |
| *Damp course, in rolls of 4½ in., per roll* | 0 | 2 | 6 |
| DO. *9 in. per roll* | 0 | 4 | 9 |
| DO. *14 in. per roll* | 0 | 7 | 6 |
| DO. *18 in. per roll* | 0 | 9 | 6 |

| | | | |
|---|---|---|---|
| BRICKWORK in stone lime mortar, Flettons or equal, per rod | £33 | 0 | 0 |
| DO. in cement do., per rod | 36 | 0 | 0 |
| DO. in stocks, add 25 per cent. per rod. | | | |
| DO. in blues, add 100 per cent. per rod. | | | |
| DO. circular on plan, add 12½ per cent. per rod. | | | |
| DO. in backing to masonry, add 12½ per cent. per rod. | | | |
| DO. in raising on old walls, etc., add 12½ per cent. per rod. | | | |
| DO. in underpinning, add 20 per cent. per rod. | | | |
| HALF-BRICK walls in stocks in cement mortar (1–3), per ft. sup. | £0 | 1 | 0 |
| BEDDING plates in cement mortar, per ft. run | 0 | 0 | 3 |
| BEDDING window or door frames, per ft. run | 0 | 0 | 3 |
| LEAVING chases 2½ in. deep for edges of concrete floors not exceeding 6 in. thick, per ft. run | 0 | 0 | 2 |
| CUTTING do. in old walls in cement, per ft. run | 0 | 0 | 4 |
| CUTTING, toothing and bonding new work to old (labour and materials), per ft. sup. | 0 | 0 | 7 |
| TERRA-COTTA flue pipes 9 in. diameter, jointed in fireclay, including all cuttings, per ft. run | 0 | 3 | 6 |
| DO. 14 ft. by 9 in. do., per ft. run | 0 | 6 | 0 |
| FLAUNCHING chimney pots, each | 0 | 2 | 0 |
| CUTTING and pinning ends of timbers, etc., in cement | 0 | 1 | 0 |
| FACINGS fair, per ft. sup. extra | 0 | 0 | 3 |
| DO. picked stocks, per ft. sup. extra | 0 | 0 | 7 |
| DO. red rubbers gauged and set in putty, per ft. sup. extra | 0 | 4 | 9 |
| DO. in salt white or ivory glazed, per ft. sup. extra | 0 | 5 | 6 |
| TUCK pointing, per ft. sup. extra | 0 | 0 | 10 |
| WEATHER pointing, do. do. | 0 | 0 | 3 |
| TILE creasing with cement fillet each side per ft. run | 0 | 0 | 6 |
| GRANOLITHIC PAVING, 1 in., per yd. sup. | 0 | 5 | 0 |
| DO. 1½ in., per yd. sup | 0 | 6 | 0 |
| DO. 2 in., per yd. sup. | 0 | 7 | 0 |
| If coloured with red oxide, per yd. sup. | 0 | 1 | 0 |
| If finished with carborundum, per yd. sup. | 0 | 0 | 6 |
| If in small quantities in finishing to steps, etc., per ft. sup. | 0 | 1 | 4 |
| Jointing new grano. paving to old, per ft. run | 0 | 0 | 4 |
| Extra for dishing grano, or cement paving around gullies, each | 0 | 1 | 6 |
| BITUMINOUS DAMP COURSE, ex rolls, per ft. sup. | 0 | 0 | 7 |
| ASPHALT (MASTIC) DAMP COURSE, ½ in., per yd. sup. | 0 | 8 | 0 |
| DO. vertical, per yd. sup. | 0 | 11 | 0 |
| SLATE DAMP COURSE, per ft. sup. | 0 | 0 | 10 |
| ASPHALT ROOFING (MASTIC) in two thicknesses, ¾ in., per yd. | 0 | 8 | 6 |
| DO. SKIRTING, 6 in. | 0 | 0 | 11 |
| BREEZE PARTITION BLOCKS, set in Cement, 1½ in. per yd. sup. | 0 | 5 | 3 |
| DO. DO. 3 in. | 0 | 6 | 6 |
| BREEZE fixing bricks, extra for each | 0 | 0 | 3 |

THE wages are the Union rates current in London at the time of publication. The prices are for good quality material, and are intended to cover delivery at works, wharf, station, or yard as customary, but will vary according to quality and quantity. The measured prices are based upon the foregoing, and include usual builders' profits. 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.

## MASON

MASON, 1s. 9½d. *per hour*; DO. *fixer*, 1s. 10½d. *per hour*; LABOURER, 1s. 4½d. *per hour*; SCAFFOLDER, 1s. 5½d. *per hour.*

| | | | |
|---|---|---|---|
| *Portland Stone:* | | | |
| *Whitbed, per ft. cube* | £0 | 4 | 6 |
| *Basebed, per ft. cube* | 0 | 4 | 7 |
| *Bath stone, per ft. cube* | 0 | 3 | 0 |
| *Usual trade extras for large blocks.* | | | |
| *York paving, av. 2½ in., per yd. super* | 0 | 6 | 6 |
| *York templates sawn, per ft. cube* | 0 | 6 | 9 |
| *Slate shelves, rubbed, 1 in., per ft. sup.* | 0 | 2 | 6 |
| *Cement and sand, see "Excavator," etc., above.* | | | |

| | | | |
|---|---|---|---|
| HOISTING and setting stone, per ft. cube | £0 | 2 | 2 |
| DO. for every 10 ft. above 30 ft. add 15 per cent. | | | |
| PLAIN face Portland basis, per ft. sup. | £0 | 2 | 8 |
| DO. circular, per ft. sup. | 0 | 4 | 0 |
| SUNK FACE, per ft. sup. | 0 | 3 | 9 |
| DO. circular, per ft. sup. | 0 | 4 | 10 |
| JOINTS, arch, per ft. sup. | 0 | 2 | 6 |
| DO. sunk, per ft. sup. | 0 | 2 | 7 |
| DO. DO. circular, per ft. sup. | 0 | 4 | 6 |
| CIRCULAR-CIRCULAR work, per ft. sup. | 1 | 2 | 0 |
| PLAIN MOULDING, straight, per inch of girth, per ft. run | 0 | 1 | 1 |
| DO. circular, do., per ft. run | 0 | 1 | 4 |

| | | | |
|---|---|---|---|
| HALF SAWING, per ft. sup. | £0 | 1 | 0 |
| Add to the foregoing prices if in York stone 35 per cent. | | | |
| DO. Mansfield, 12½ per cent. | | | |
| Deduct for Bath, 33⅓ per cent. | | | |
| DO. for Chilmark, 5 per cent. | | | |
| SETTING 1 in. slate shelving in cement, per ft. sup. | £0 | 0 | 6 |
| RUBBED round nosing to do., per ft. lin. | 0 | 0 | 6 |
| YORK STEPS, rubbed T. & R., ft. cub. fixed | 1 | 9 | 0 |
| YORK SILLS, W. & T., ft. cub. fixed | 1 | 13 | 0 |
| ARTIFICIAL stone paving, 2 in. thick, per ft. sup. | 0 | 1 | 6 |
| DO. 2½ in. thick, per ft. sup. | 0 | 1 | 9 |

## SLATER AND TILER

SLATER, 1s. 9½d. *per hour*; TILER, 1s. 9½d. *per hour*; SCAFFOLDER, 1s. 5½d. *per hour*; LABOURER, 1s. 4½d. *per hour.*

N.B.—Tiling is often executed as piecework.

| | | | |
|---|---|---|---|
| *Slates, 1st quality, per 1,200:* | | | |
| *Portmadoc Ladies* | £14 | 0 | 0 |
| *Countess* | 27 | 0 | 0 |
| *Duchess* | 32 | 0 | 0 |
| *Old Delabole* *Med.* *Grey* *Med.* *Green* | | | |
| 24 in. × 12 in. £42 11 3 | £45 | 1 | 0 |
| 20 in. × 10 in. 31 4 3 | 33 | 0 | 6 |
| 16 in. × 10 in. 20 18 0 | 22 | 4 | 9 |
| 14 in. × 8 in. 12 1 0 | 12 | 16 | 3 |
| *Green Randoms, per ton* | 8 | 3 | 9 |
| *Grey-green do., per ton* | 7 | 3 | 9 |
| *Green peggies, 12 in. to 8 in. long, per ton* | 6 | 3 | 9 |
| *In 4-ton truck loads, delivered Nine Elms station.* | | | |
| *Clips, lead, per lb.* | £0 | 0 | 6 |
| *Clips, copper, per lb.* | 0 | 2 | 0 |
| *Nails, compo, per cwt.* | 1 | 6 | 0 |
| *Nails, copper, per lb.* | 0 | 1 | 10 |
| *Cement and sand, see "Excavator," etc., above.* | | | |
| *Hand-made tiles, per M.* | £5 | 18 | 0 |
| *Machine-made tiles, per M.* | 5 | 8 | 0 |
| *Westmorland slates, large, per ton* | 9 | 0 | 0 |
| DO. *Peggies, per ton* | 7 | 5 | 0 |

SLATING, 3 in. lap, compo nails, Portmadoc or equal:

| | | | |
|---|---|---|---|
| Ladies, per square | £4 | 0 | 0 |
| Countess, per square | 4 | 5 | 0 |
| Duchess, per square | 4 | 10 | 0 |
| WESTMORLAND, in diminishing courses, per square | 6 | 5 | 0 |
| CORNISH DO., per square | 6 | 3 | 0 |
| Add, if vertical, per square approx. | 0 | 13 | 0 |
| Add, if with copper nails, per square approx. | 0 | 2 | 6 |
| Double course at eaves, per ft. approx. | 0 | 1 | 0 |

SLATING with old Delabole slates to a 3 in. lap with copper nails, at per square.

| | Med. Grey | Med. Green |
|---|---|---|
| 24 in. × 12 in. | £5 0 0 | £5 2 0 |
| 20 in. × 10 in. | 5 5 0 | 5 10 0 |
| 16 in. × 10 in. | 4 15 0 | 5 1 0 |
| 14 in. × 8 in. | 4 10 0 | 4 15 0 |
| Green randoms | 6 7 0 | |
| Grey-green do. | 5 9 0 | |
| Green peggies, 12 in. to 8 in. long | 4 17 0 | |

| | | | |
|---|---|---|---|
| TILING, 4 in. gauge, every 4th course nailed, in hand-made tiles, average per square | 5 | 6 | 0 |
| DO., machine-made do., per square | 4 | 17 | 0 |
| Vertical Tiling, including pointing, add 18s. 0d. per square. | | | |
| FIXING lead soakers, per dozen | £0 | 0 | 10 |
| STRIPPING old slates and stacking for re-use, and clearing away surplus and rubbish, per square | 0 | 10 | 0 |
| LABOUR only in laying slates, but including nails, per square | 1 | 0 | 0 |

*See* "Sundries for Asbestos Tiling."

## CARPENTER AND JOINER

CARPENTER, 1s. 9½d. *per hour*; JOINER, 1s. 9½d. *per hour*; LABOURER, 1s. 4½d. *per hour.*

| | | | |
|---|---|---|---|
| *Timber, average prices at Docks, London Standard Scandinavian, etc. (equal to 2nds):* | | | |
| 7 × 3, per std. | £20 | 0 | 0 |
| 11 × 4, per std. | 30 | 0 | 0 |
| *Memel or Equal. Slightly less than foregoing.* | | | |
| *Flooring, P.E., 1 in., per sq.* | £1 | 5 | 0 |
| DO. *T. and G., 1 in., per sq.* | 1 | 5 | 0 |
| *Planed boards, 1 in. × 11 in., per std.* | 30 | 0 | 0 |
| *Wainscot oak, per ft. sup. of 1 in.* | 0 | 2 | 0 |
| *Mahogany, per ft. sup. of 1 in.* | 0 | 2 | 0 |
| DO. *Cuba, per ft. sup. of 1 in.* | 0 | 3 | 0 |
| *Teak, per ft. sup. of 1 in.* | 0 | 3 | 0 |
| DO., *ft. cube* | 0 | 15 | 0 |

| | | | |
|---|---|---|---|
| FIR fixed in wall plates, lintels, sleepers, etc., per ft. cube | 0 | 5 | 6 |
| DO. framed in floors, roofs, etc., per ft. cube | 0 | 6 | 6 |
| DO., framed in trusses, etc., including ironwork, per ft. cube | 0 | 7 | 6 |
| PITCH PINE, add 33⅓ per cent. | | | |
| FIXING only boarding in floors, roofs, etc., per sq. | 0 | 13 | 6 |
| SARKING FELT laid, 1-ply, per yd. | 0 | 1 | 6 |
| DO., 3-ply, per yd. | 0 | 1 | 9 |
| CENTERING for concrete, etc., including horsing and striking, per sq. | 2 | 10 | 0 |
| TURNING pieces to flat or segmenta soffits, 4½ in. wide, per ft. run | 0 | 0 | 4½ |
| DO. 9 in. wide and over, per ft. sup. | 0 | 1 | 2 |

[*continued overleaf*]

## CARPENTER AND JOINER: *continued.*

| | | | |
|---|---|---|---|
| SHUTTERING to face of concrete, per square | £1 | 10 | 0 |
| DO. in narrow widths to beams, etc., per ft. sup. | 0 | 0 | 6 |
| USE and waste of timbers, allow 25 per cent. of above prices. | | | |
| SLATE BATTENING, per sq. | £0 | 12 | 6 |
| DEAL boarding to flats, 1 in. thick and firrings to falls, per square | 2 | 10 | 0 |
| STOUT feather-edged tilting fillet to eaves, per ft. run | 0 | 0 | 6 |
| FEATHER-edged springer to trimmer arches, per ft. run | 0 | 0 | 4 |
| STOUT herringbone strutting (joists measured in), per ft. run | 0 | 0 | 6 |
| SOUND boarding, $\frac{7}{8}$ in. thick and fillets nailed to sides of joists (joists measured over), per square | 2 | 0 | 0 |
| RUBEROID or similar quality roofing, one-ply, per yd. sup. | 0 | 2 | 3 |
| DO., two-ply, per yd. sup. | 0 | 2 | 6 |
| DO., three-ply, per yd. sup. | 0 | 3 | 0 |
| TONGUED and grooved flooring, 1$\frac{1}{4}$ in. thick, laid complete with splayed headings, per square | 2 | 5 | 0 |
| DEAL skirting torus, moulded 1$\frac{1}{4}$ in. thick, including grounds and backings, per ft. sup. | 0 | 1 | 0 |
| TONGUED and mitred angles to do. | 0 | 0 | 6 |
| WOOD block flooring standard blocks laid herringbone in mastic : | | | |
| Deal 1 in. thick, per yd. sup. | 0 | 10 | 0 |
| DO. 1$\frac{1}{4}$ in. thick, per yd. sup. | 0 | 12 | 0 |
| Maple 1$\frac{1}{4}$ in. thick, per yd. sup. | 0 | 15 | 0 |
| DEAL moulded sashes, 1$\frac{3}{4}$ in. with moulded bars in small squares, per ft. sup. | 0 | 2 | 6 |
| DO. 2 in. do., per ft. sup. | 0 | 2 | 9 |
| DEAL cased frames, oak sills and 2 in. moulded sashes, brass-faced pulleys and iron weights, per ft. sup. | 0 | 4 | 6 |
| MOULDED horns, extra each | 0 | 0 | 3 |
| DOORS, 4-panel square both sides, 1$\frac{1}{2}$ in. thick, per ft. sup. | 0 | 2 | 6 |
| DO. moulded both sides, per ft. sup. | 0 | 2 | 9 |
| DO. 2 in. thick, square both sides, per ft. sup. | 0 | 2 | 9 |
| DO. moulded both sides, per ft. sup. | 0 | 3 | 0 |
| DO. in 3 panels, moulded both sides, upper panel with diminished stiles with moulded bars for glass, per ft. sup. | 0 | 3 | 6 |
| If in oak, mahogany or teak, multiply 3 times. | | | |
| DEAL frames, 4 in. × 3 in., rebated and beaded, per ft. cube | £0 | 15 | 0 |
| Add for extra labours, per ft. run | 0 | 0 | 1 |
| STAIRCASE work : | | | |
| DEAL treads 1$\frac{1}{4}$ in. and risers 1 in., tongued and grooved including fir carriages, per ft. sup. | 0 | 2 | 6 |
| DEAL wall strings, 1$\frac{1}{4}$ in. thick, moulded, per ft. run | 0 | 2 | 6 |
| If ramped, per ft. run | 0 | 5 | 0 |
| SHORT ramps, extra each | 0 | 7 | 6 |
| ENDS of treads and risers housed to strings, each | 0 | 1 | 0 |
| 2 in. deal mopstick handrail fixed to brackets, per ft. run | 0 | 1 | 6 |
| 4$\frac{1}{2}$ in. × 3 in. oak fully moulded handrail, per ft. run | 0 | 5 | 6 |
| 1$\frac{1}{2}$ in. square deal bar balusters, framed in, per ft. run | 0 | 0 | 6 |
| FITTINGS : | | | |
| SHELVES and bearers, 1 in., cross-tongued, per ft. sup. | 0 | 1 | 6 |
| 1$\frac{1}{4}$ in. beaded cupboard fronts, moulded and square, per ft. sup. | 0 | 2 | 9 |
| TEAK grooved draining boards, 1$\frac{1}{4}$ in. thick and bedding, per ft. sup. | 0 | 4 | 6 |
| IRONMONGERY : | | | |
| Fixing only (including providing screws) : | | | |
| To DEAL— | | | |
| Hinges to sashes, per pair | 0 | 1 | 2 |
| Do. to doors, per pair | 0 | 1 | 7 |
| Barrel bolts, 9 in., iron, each | 0 | 1 | 0 |
| Sash fasteners, each | 0 | 1 | 0 |
| Rim locks, each | 0 | 1 | 9 |
| Mortice locks, each | 0 | 4 | 0 |

## SMITH

SMITH, *weekly rate equals* 1*s.* 9$\frac{1}{2}$*d. per hour ;* MATE, *do.* 1*s.* 4*d. per hour ;* ERECTOR, 1*s.* 9$\frac{1}{2}$*d. per hour ;* FITTER, 1*s.* 9$\frac{1}{2}$*d. per hour ;* LABOURER, 1*s.* 4*d. per hour.*

*

| | | | |
|---|---|---|---|
| *Mild steel in British standard sections, per ton* | £12 | 10 | 0 |
| *Sheet steel :* | | | |
| *Flat sheets, black, per ton* | 19 | 0 | 0 |
| *Do., galvd., per ton* | 23 | 0 | 0 |
| *Corrugated sheets, galvd., per ton* | 23 | 0 | 0 |
| *Driving screws, galvd., per grs.* | 0 | 1 | 10 |
| *Washers, galvd., per grs.* | 0 | 1 | 1 |
| *Bolts and nuts, per cwt. and up* | 1 | 18 | 0 |
| * | | | |
| MILD STEEL in trusses, etc., erected, per ton | 25 | 10 | 0 |
| DO., in small sections as reinforcement, per ton | 16 | 10 | 0 |
| DO., in compounds, per ton | 17 | 0 | 0 |
| DO., in bar or rod reinforcement, per ton | 20 | 0 | 0 |
| WROT IRON in chimney bars, etc., including building in, per cwt. | 2 | 0 | 0 |
| DO., in light railings and balusters, per cwt. | 2 | 5 | 0 |
| FIXING only corrugated sheeting, including washers and driving screws, per yd. | 0 | 2 | 0 |

## PLUMBER

PLUMBER, 1*s.* 9$\frac{1}{2}$*d. per hour ;* MATE OR LABOURER, 1*s.* 4$\frac{1}{2}$*d. per hour.*

*

| | | | |
|---|---|---|---|
| *Lead, milled sheet, per cwt.* | £2 | 4 | 6 |
| DO. *drawn pipes, per cwt.* | 2 | 6 | 0 |
| DO. *soil pipe, per cwt.* | 2 | 8 | 0 |
| DO. *scrap, per cwt.* | 1 | 9 | 6 |
| *Copper, sheet, per lb.* | 0 | 1 | 0 |
| *Solder, plumber's, per lb.* | 0 | 1 | 2 |
| DO. *fine, per lb.* | 0 | 1 | 5 |
| *Cast-iron pipes, etc. :* | | | |
| *L.C.C. soil, 3 in., per yd.* | 0 | 4 | 1 |
| DO. 4 *in. per yd.* | 0 | 5 | 0 |
| *R.W.P., 2$\frac{1}{2}$ in., per yd.* | 0 | 2 | 0 |
| DO. 3 *in., per yd.* | 0 | 2 | 5 |
| DO. 4 *in., per yd.* | 0 | 3 | 3 |
| *Gutter, 4 in. H.R., per yd.* | 0 | 1 | 5 |
| DO. 4 *in. O.G., per yd.* | 0 | 1 | 9 |
| * | | | |
| MILLED LEAD and labour in gutters, flashings, etc. | 3 | 12 | 6 |
| LEAD PIPE, fixed, including running joints, bends and tacks, $\frac{1}{2}$ in., per ft. | 0 | 2 | 1 |
| DO. $\frac{3}{4}$ in., per ft. | 0 | 2 | 5 |
| DO. 1 in., per ft. | 0 | 3 | 3 |
| DO. 1$\frac{1}{4}$ in., per ft. | 0 | 4 | 6 |
| LEAD WASTE or soil, fixed as above, complete, 2$\frac{1}{2}$ in., per ft. | 0 | 6 | 0 |
| DO. 3 in., per ft. | 0 | 7 | 0 |
| DO. 4 in., per ft. | 0 | 9 | 9 |
| WIPED soldered joint, $\frac{1}{2}$ in., each | 0 | 2 | 6 |
| DO. $\frac{3}{4}$ in., each | 0 | 3 | 2 |
| DO. 1 in., each | 0 | 3 | 8 |
| BRASS screw-down stop cock and two soldered joints, $\frac{1}{2}$ in., each | 0 | 11 | 0 |
| DO. $\frac{3}{4}$ in., each | 0 | 13 | 6 |
| CAST-IRON rainwater pipe, jointed in red lead, 2$\frac{1}{2}$ in., per ft. run | 0 | 1 | 6 |
| DO. 3 in., per ft. run | 0 | 1 | 11 |
| DO. 4 in., per ft. run | 0 | 2 | 9 |
| CAST-IRON H.R. GUTTER, fixed, with all clips, etc., 4 in., per ft. | 0 | 2 | 0 |
| DO. O.G., 4 in., per ft. | 0 | 2 | 3 |
| CAST-IRON SOIL PIPE, fixed with caulked joints and all ears, etc., 4 in., per ft. | 0 | 4 | 6 |
| DO. 3 in., per ft. | 0 | 3 | 6 |
| Fixing only : | | | |
| W.C. PANS and all joints, P. or S., and including joints to water waste preventers, each | 2 | 5 | 0 |
| BATHS, with all joints | 1 | 3 | 6 |
| LAVATORY BASINS only, with all joints, on brackets, each | 1 | 10 | 0 |

## PLASTERER

PLASTERER, 1*s.* 9$\frac{1}{2}$*d. per hour (plus allowances in London only) ;* LABOURER, 1*s.* 4$\frac{1}{2}$*d. per hour.*

*

| | | | |
|---|---|---|---|
| *Chalk lime, per ton* | £2 | 17 | 0 |
| *Hair, per cwt.* | 0 | 18 | 0 |
| *Sand and cement see "Excavator," etc., above.* | | | |
| *Lime putty, per cwt.* | £0 | 2 | 9 |
| *Hair mortar, per yd.* | 1 | 7 | 0 |
| *Fine stuff, per yd.* | 1 | 14 | 0 |
| *Sawn laths, per bdl.* | 0 | 2 | 9 |
| *Keene's cement, per ton* | 5 | 15 | 0 |
| *Sirapite, per ton* | 3 | 10 | 0 |
| DO. *fine, per ton* | 3 | 18 | 0 |
| *Plaster, per ton* | 3 | 0 | 0 |
| DO. *per ton* | 3 | 12 | 6 |
| DO. *fine, per ton* | 5 | 12 | 0 |
| *Thistle plaster, per ton* | 3 | 9 | 0 |
| *Lath nails per lb.* | 0 | 0 | 4 |
| * | | | |
| LATHING with sawn laths, per yd. | 0 | 1 | 7 |
| METAL LATHING, per yd. | 0 | 2 | 3 |
| FLOATING in Cement and Sand, 1 to 3, for tiling or woodblock, $\frac{3}{4}$ in., per yd. | 0 | 2 | 4 |
| DO. vertical, per yd. | 0 | 2 | 7 |
| RENDER, on brickwork, 1 to 3, per yd. | 0 | 2 | 7 |
| RENDER in Portland and set in fine stuff, per yd. | 0 | 3 | 3 |
| RENDER, float, and set, trowelled, per yd. | 0 | 2 | 9 |
| RENDER and set in Sirapite, per yd. | 0 | 2 | 5 |
| DO. in Thistle plaster, per yd. | 0 | 2 | 5 |
| EXTRA, if on but not including lathing, any of foregoing, per yd. | 0 | 0 | 5 |
| EXTRA, if on ceilings, per yd. | 0 | 0 | 5 |
| ANGLES, rounded Keene's on Portland, per ft. lin. | 0 | 0 | 6 |
| PLAIN CORNICES, in plaster, per inch girth, including dubbing out, etc., per ft. lin. | 0 | 0 | 3 |
| WHITE glazed tiling set in Portland and jointed in Parian, per yd., from | 1 | 11 | 6 |
| FIBROUS PLASTER SLABS, per yd. | 0 | 1 | 10 |

## GLAZIER

GLAZIER, 1*s.* 8$\frac{1}{2}$*d. per hour.*

*

| | | | |
|---|---|---|---|
| *Glass : Aths in crates :* | | | |
| *Clear, 21 oz.* | £0 | 0 | 5 |
| DO. 26 oz. | 0 | 0 | 5$\frac{1}{2}$ |
| *Cathedral white, per ft.* | 0 | 0 | 7$\frac{1}{2}$ |
| *Polished plate, British $\frac{1}{4}$ in., up to 2 ft. sup. per ft.* | 0 | 1 | 8 |
| DO. 4 *ft. sup.* „ | 0 | 3 | 2 |
| DO. 6 *ft. sup.* „ | 0 | 3 | 4 |
| DO. 20 *ft. sup.* „ | 0 | 3 | 11 |
| DO. 45 *ft. sup.* „ | 0 | 4 | 1 |
| DO. 65 *ft. sup.* „ | 0 | 4 | 3 |
| DO. 100 *ft. sup.* „ | 0 | 4 | 6 |
| *Rough plate, $\frac{3}{16}$ in., per ft.* | 0 | 0 | 6$\frac{7}{8}$ |
| DO. $\frac{1}{4}$ *in., per ft.* | 0 | 0 | 7 |
| *Linseed oil putty, per cwt.* | 0 | 17 | 6 |
| * | | | |
| GLAZING in putty, clear sheet, 21 oz. | 0 | 0 | 11 |
| DO. 26 oz. | 0 | 1 | 0 |
| GLAZING in beads, 21 oz., per ft. | £0 | 1 | 1 |
| DO. 26 oz., per ft. | 0 | 1 | 4 |

Small sizes slightly less (under 3 ft. sup.).

Patent glazing in rough plate, normal span 1*s.* 6*d.* to 2*s.* per ft.

LEAD LIGHTS, plain, med. sqs. 21 oz., usual domestic sizes, fixed, per ft. sup. and up | £0 | 3 | 0

Glazing only, polished plate, 6$\frac{1}{2}$*d.* to 8*d.* per ft. according to size.

## PAINTER AND PAPERHANGER

PAINTER, 1*s.* 8$\frac{1}{2}$*d. per hour ;* LABOURER, 1*s.* 4$\frac{1}{2}$*d. per hour ;* FRENCH POLISHER, 1*s.* 9*d. per hour ;* PAPERHANGER, 1*s.* 8$\frac{1}{2}$*d. per hour.*

*

| | | | |
|---|---|---|---|
| *Genuine white lead, per cwt.* | £3 | 11 | 0 |
| *Linseed oil, raw, per gall.* | 0 | 3 | 7 |
| DO., *boiled, per gall.* | 0 | 3 | 10 |
| *Turpentine, per gall.* | 0 | 6 | 2 |
| *Liquid driers, per gall.* | 0 | 9 | 6 |
| *Knotting per gall.* | 1 | 4 | 0 |
| *Distemper, washable, in ordinary colours, per cwt., and up* | 2 | 0 | 0 |
| *Double size, per firkin* | 0 | 3 | 6 |
| *Pumice stone, per lb.* | 0 | 0 | 4 |
| *Single gold leaf (transferable), per book* | 0 | 1 | 11 |
| *Varnish, copal, per gall. and up* | 0 | 18 | 0 |
| DO., *flat, per gall.* | 1 | 2 | 0 |
| DO., *paper, per gall.* | 1 | 0 | 0 |
| *French polish, per gall.* | 0 | 19 | 0 |
| *Ready mixed paints, per gall. and up* | 0 | 10 | 6 |
| * | | | |
| LIME WHITING, per yd. sup. | 0 | 0 | 3 |
| WASH, stop, and whiten, per yd. sup. | 0 | 0 | 6 |
| DO., and 2 coats distemper with proprietary distemper, per yd. sup. | 0 | 0 | 9 |
| KNOT, stop, and prime, per yd. sup. | 0 | 0 | 7 |
| PLAIN PAINTING, including mouldings, and on plaster or joinery, 1st coat, per yd. sup. | 0 | 0 | 10 |
| DO., subsequent coats, per yd. sup. | 0 | 0 | 9 |
| DO., enamel coat, per yd. sup. | 0 | 1 | 2$\frac{1}{2}$ |
| BRUSH-GRAIN, and 2 coats varnish, per yd. sup. | 0 | 3 | 8 |
| FIGURED DO., DO., per yd. sup. | 0 | 5 | 6 |
| FRENCH POLISHING, per ft. sup. | 0 | 1 | 2 |
| WAX POLISHING, per ft. sup. | 0 | 0 | 6 |
| STRIPPING old paper and preparing, per piece | 0 | 1 | 7 |
| HANGING PAPER, ordinary, per piece | 0 | 1 | 10 |
| DO., fine, per piece, and upwards | 0 | 2 | 4 |
| VARNISHING PAPER, 1 coat, per piece | 0 | 9 | 0 |
| CANVAS, strained and fixed, per yd. sup. | 0 | 3 | 0 |
| VARNISHING, hard oak, 1st coat, yd. sup. | 0 | 1 | 2 |
| DO., each subsequent coat, per yd. sup. | 0 | 0 | 11 |

## SUNDRIES

| | | | |
|---|---|---|---|
| *Fibre or wood pulp boardings, according to quality and quantity.* | | | |
| *The measured work price is on the same basis . . . per ft. sup.* | £0 | 0 | 2$\frac{1}{2}$ |
| FIBRE BOARDINGS, including cutting and waste, fixed on, but not including studs or grounds, per ft. sup. . . . from 3d. to | 0 | 0 | 6 |
| *Plaster board, per yd. sup.* . from | 0 | 1 | 7 |
| PLASTER BOARD, fixed as last, per yd. sup. . . . . from | 0 | 2 | 8 |
| *Asbestos sheeting, $\frac{5}{32}$ in., grey flat, per yd. sup.* | 0 | 2 | 3 |
| DO., *corrugated, per yd. sup.* | 0 | 3 | 3 |
| ASBESTOS SHEETING, fixed as last, flat, per yd. sup. | 0 | 4 | 0 |
| DO., corrugated, per yd. sup. | 0 | 5 | 0 |
| ASBESTOS slating or tiling on, but not including battens, or boards, plain "diamond" per square, grey | 2 | 15 | 0 |
| DO., red | 3 | 0 | 0 |
| *Asbestos cement slates or tiles, $\frac{5}{32}$ in. punched per M. grey* | 16 | 0 | 0 |
| DO., *red* | 18 | 0 | 0 |
| ASBESTOS COMPOSITION FLOORING : Laid in two coats, average $\frac{3}{4}$ in. thick, in plain colour, per yd. sup. | 0 | 7 | 0 |
| DO., $\frac{1}{2}$ in. thick, suitable for domestic work, unpolished, per yd. | 0 | 6 | 6 |
| *Metal casements for wood frames, domestic sizes, per ft. sup.* | 0 | 1 | 6 |
| DO., *in metal frames, per ft. sup.* | 0 | 1 | 9 |
| HANGING only metal casement in, but not including wood frames, each | 0 | 2 | 10 |
| BUILDING in metal casement frames, per ft. sup. | 0 | 0 | 7 |

*Waterproofing compounds for cement.* Add about 75 per cent. to 100 per cent. to the cost of cement used.

PLYWOOD, per ft. sup. :

| Thickness | $\frac{3}{16}$ in. | | | $\frac{1}{4}$ in. | | | $\frac{3}{8}$ in. | | | $\frac{1}{2}$ in. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Qualities .. | AA. | A. | B. | AA. | A. | B. | AA. | A. | B. | AA. | A. | B. |
| | d. | d. | d. | d. | d. | d. | d. | d. | d. | d. | d. | d. |
| Birch .. .. | 4 | 3 | 2 | 5 | 4 | 3 | 7½ | 6 | 4½ | 8½ | 7 | 6 |
| Alder .. .. | 3½ | 3 | 2 | 5 | 4 | 3 | 6½ | 5½ | 4½ | 8 | 7 | 6 |
| Gaboon Mahogany | 4 | 3 | 3 | 6½ | 5½ | 4 | 9½ | 7½ | — | 1 0½ | 10 | — |
| Figured Oak 1 side | 8½ | 7 | — | 10 | 8 | — | 11½ | — | — | 1 6 | — | — |
| Plain Oak 1 side | 6½ | 6 | — | 7½ | 7 | — | 9½ | — | — | 1 0 | — | — |
| Oregon Pine | 5 | 4 | — | 5½ | 5 | — | 6 | — | — | — | — | — |