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South Front of Master's Lodge (Howard House), 1543-71.

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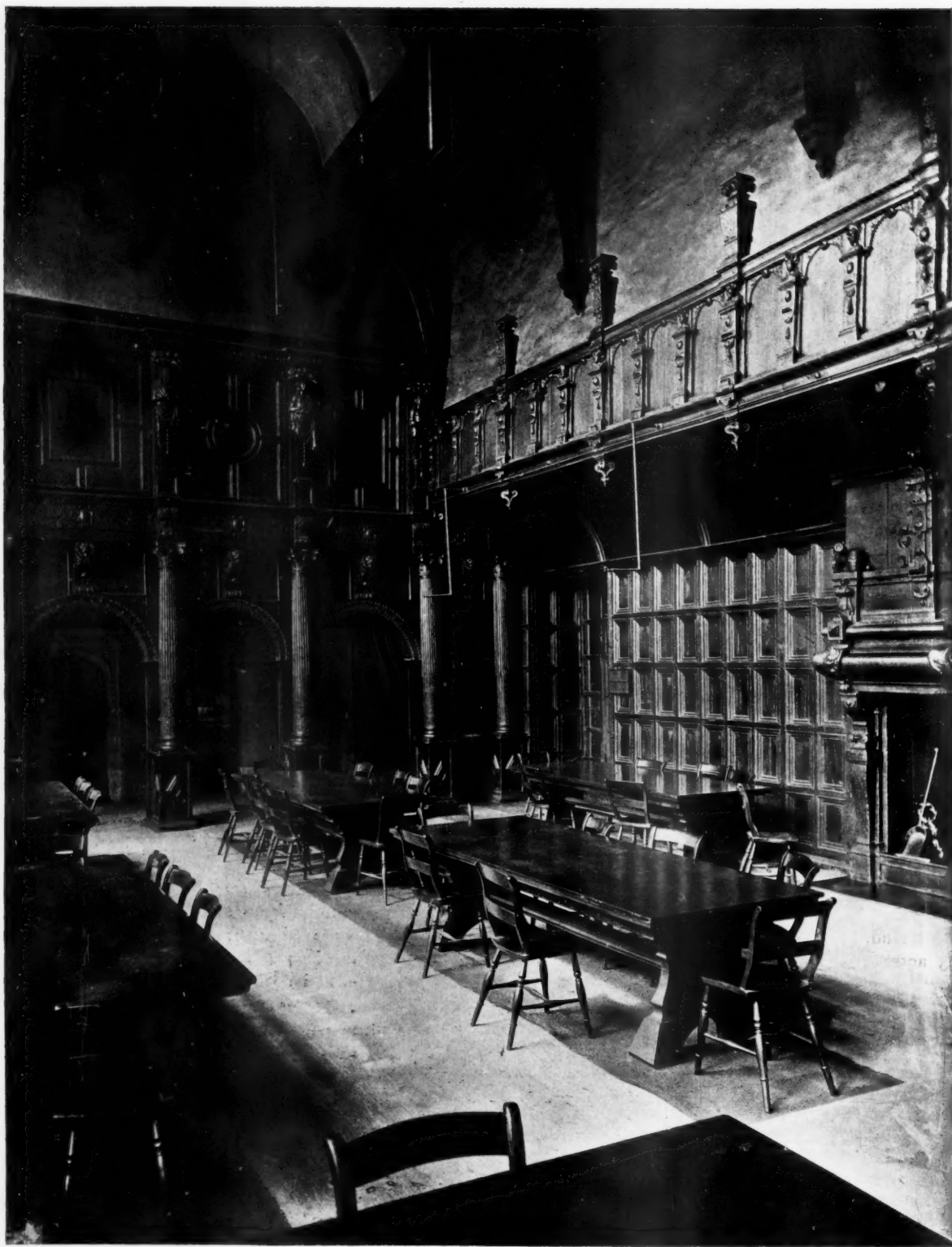


Plate I November 1918.

Photo: Henry Dixon & Son.

VIEW IN THE GREAT HALL, CHARTERHOUSE (SCREEN DATES FROM 1571).

100

SUTTON'S HOSPITAL IN CHARTERHOUSE.

BY GERALD S. DAVIES, M.A.

THE buildings of Charterhouse are, both as architecture and history, a palimpsest manuscript on which five and a half centuries have written their records, one above the other, and yet the groundwork always shows through. The statement may be tested thus: Take a ground-plan of Sutton's Hospital of to-day and lay it side by side with a ground-plan of the Carthusian monastery, and the one will be found to fit the other in most essential details. So, too, it is no great exaggeration to say that, from the first day of its being until now, the place has never failed to be in touch with the history of its day in some shape or sense, and once or twice it has for a moment been the very centre of English history itself. And all this is written on the face of the buildings themselves for those who have the knowledge and the sympathy to read it there. It is, indeed, a priceless national possession.

It was in the early months of 1349 that the Black Death was doing its work in the crowded streets and pestilential alleys of old London. The churchyards were full; the dead, we are told, lay in the streets or were thrown into the Thames. In January and February three new burial grounds were opened: The Minories, Pardon Churchyard (in what is now Clerkenwell Road), and, lastly, a site of 13 acres and a rood lying about half a mile outside the city wall, which Sir Walter de Masny or Manny, one of Edward's foremost fighting knights, bought of the Priory of St. Bartholomew. Hither came at Candlemas, 2 February of that year, the Bishop of London (Ralph Stratford), Sir Walter himself, John Lovekyn, Mayor of London, and the aldermen, mostly barefooted, and they laid the first stone of a little chapel, wherein those who knew that the poor bodies of their dear ones lay hard by might come to pray. The east and south walls and portions of the west wall of this chapel still remain,* and may be seen in places below the heavy nineteenth-century panelling.

* The statement is made subject to the possibility that the chapel was slightly enlarged (if so, probably to the west) twenty-one years later, when it became the Carthusian church.

The plague spent its full fury in the first year, but continued sporadically for many years—indeed, with often long intervals, for three hundred years. Ten years after the first outburst there was a fierce recrudescence known as the *morbis puerorum*. Then came a comparative lull. Here lay some ten acres of soil full of the unknown graves of men. The Bishop of London, Michael de Northbergh, and Sir Walter Manny put their heads together to found here a Carthusian monastery for twenty-four monks and a prior, so that this

sacred soil should be in the charge of an Order, one of whose special functions it was, and is, to offer daily prayers for the dead. In an agreement quoted in a precious MS. in the Record Office, we are told that Manny was to be regarded as the first Founder.

The same MS. tells us that the first Prior of the new Carthusian monastery was John Luscombe, who had been Prior of Charterhouse Hinton, Somerset, a man of great character. We learn, too, from it that the Prior called in the help of Henry Revell to design and lay out the buildings. Now the MS., which is clearly the official record of the monastery, runs from 1349 to about 1470, when it ends. It is all in one hand, and is therefore clearly a transcript from earlier documents, and the first letter of the name is a little difficult to read. Certainly the transcriber seems to have read his original as Henry Revell. The conviction comes upon one that Revell is no other than Henry Yevele, the transcriber mistaking the initial Y for R

and the final small e for a second l. And here we have the "King's Mason" who worked at Stephen's Hall and on the nave and west front of Westminster Abbey itself, to say nothing of other great architecture of the day.

But unless some of the rough walling of the present chapel be due to changes made by Yevele, we can point to no work from him except the entrance to one of the cottages (cells) visible still in the "cloisters," so called (really an arcade built on the site of the true cloisters by the fourth Duke of Norfolk, 1571). We know from the MS. that the foundations of two



Photo: Henry Dixon & Son.

FIREPLACE IN THE GREAT HALL (UPPER PORTION, CIRCA 1613-14).



Photo: Henry Dixon & Son.

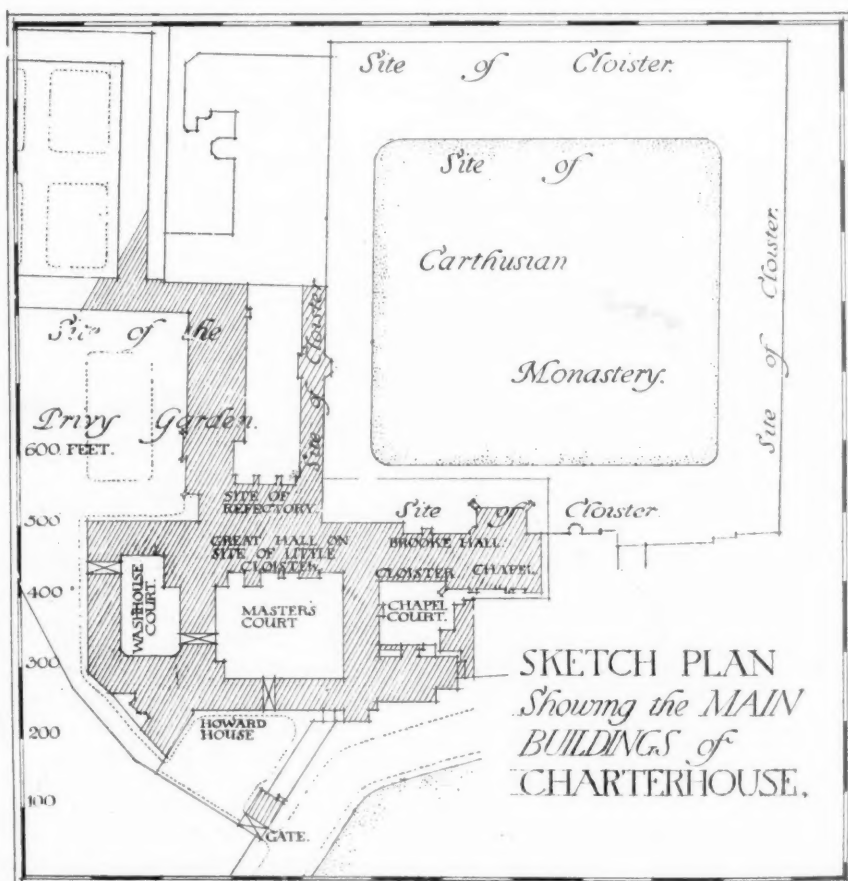
WASHHOUSE COURT: WEST WALL.

cells were laid about Ascension Day 1371, one by Manny himself (now destroyed) and one by William Walworth, of Wat Tyler fame. The door of Walworth's cell still remains, and must have been one of those laid out under the design of Yevele (Revell) for the great cloister. The site of the Great Cloister, about 100 yards square, is now the Merchant Taylors playground, having been sold by Charterhouse in 1870. The cottage cells of the great cloister, however, were not completed—they came into existence as various noble donors felt the inspiration—till early in the fourteenth century. A complete list of these donors, with the position of the cells which they gave, is given in the MS.; and a plan of the whole monastery, which forms part of the plan of the monastic water supply, of the date of Henry VI, is preserved in Charterhouse muniment-room. The great cloister was entirely wrecked at the Suppression, and the stones and materials were, as we learn from another MS. in the Record Office, carted away by various high personages with a taste for such unconsidered trifles. Some portions of these materials were perhaps used in the construction of Howard House.

The Priory had become very rich, and in the last thirty years of its existence much had been spent on improving the parts of the buildings which lay to the south, namely, the guesthouses, the lay brothers' quarters (Washhouse Court), the chapel tower, and,

in my belief, the monks' refectory—often called, without any authority, the Guesten Hall. All these, in more or less completeness, still exist, and are in daily use. The guesthouses, being new and in fine condition, became the nucleus of the mansion constructed by Sir Edward North after the Suppression. This mansion, much improved by his successor, the fourth Duke of Norfolk, was then called Howard House, and, under the will of the founder of the Hospital, in 1611 became the residence of the Master of Charterhouse. Till within recent years the Ordnance map still described it as Howard House. The lay brothers' court (Washhouse Court) had been rebuilt in the last years of the monastery. It contained the monastic washhouse or lavendry, the workshop, the brewery, the bakehouse and kitchen, besides the quarters on the upper floor for the lay brothers, and it easily passed, probably with little or no change, into the uses of the great mansion. It is of excellent Tudor brickwork on the west side, the east and north showing walls of much-worn stone like the rest of the mansion (much of it now under the depressing veneer of eighteenth-century brickwork). The frequency with which a bevy of artists may be flushed in this little court is ample testimony to the fact that it is the most picturesque little corner in Charterhouse. The monks' workshop is still one of the workshops

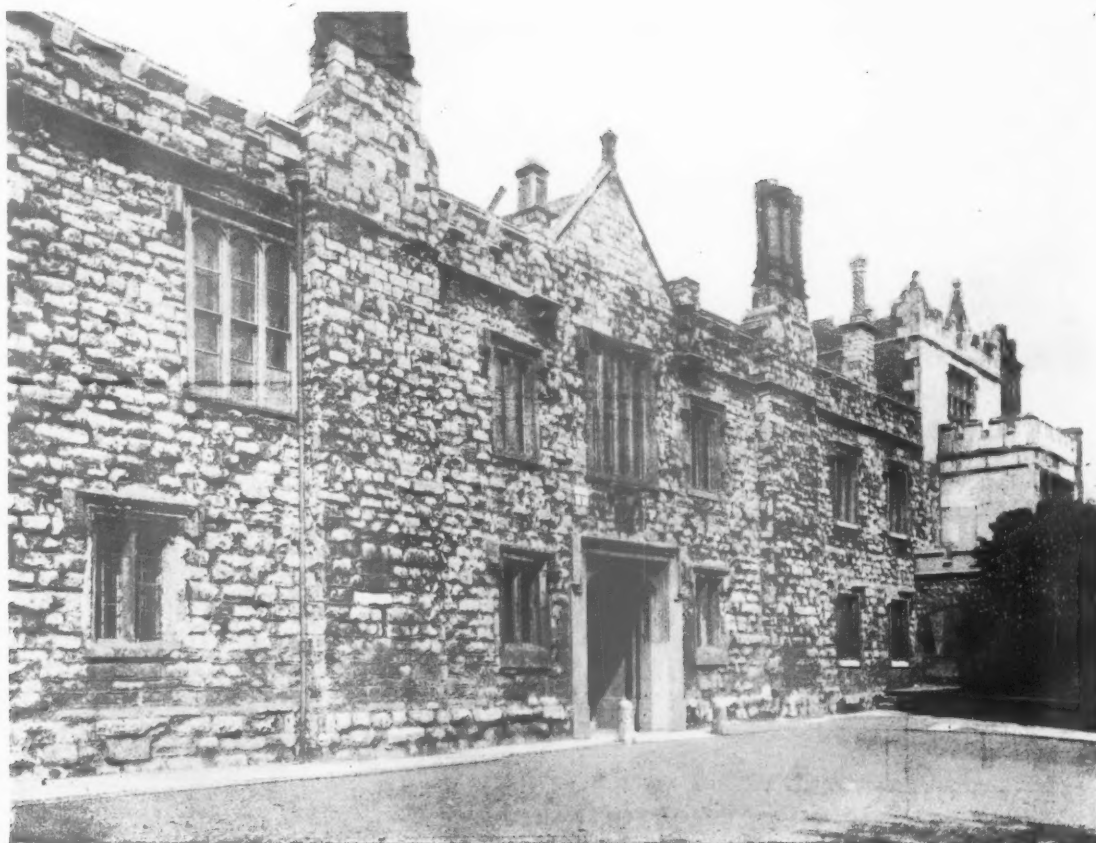
used by Charterhouse workmen to-day. It shows three dilapidated but interesting doors which date, according to our



W. G. A. Del.



GREAT HALL: SOUTH SIDE.



SOUTH FRONT OF MASTER'S LODGE (HOWARD HOUSE), 1543-71.



Plate II. November 1918.

Photo: Henry Dixon & Son.

THE FOUNDER'S TOMB, CHARTERHOUSE (1614-15).

11

Thomas Howard, fourth Duke of Norfolk. It is to him that we owe, practically in their present condition, the great staircase, great chamber, or the governors' room, the great screen in the hall, which bears date 1571, and the fireplace in the master's drawing-room. But it is uncertain whether the raising of the roof of the hall by the insertion of the row of upper windows is due to Norfolk or to North.

It is to be noted that the chapel owes nothing to any of the tenants of the mansion. From the outgoing of the monks in 1537 to the incoming of the Hospital 1911, it had lain desolate. Sutton's executors employed Nicholas Stone to build a second wing to receive the tomb of the Founder and for the seating of the Brothers and of the Scholars of his double foundation. To accomplish this he broke through the north wall of the Carthusian church, inserting a row of three arches on round columns—the whole strongly suggestive of Inigo Jones. The Founder's tomb, in which Bernard Jansen of Southwark was his colleague, is one of the finest of Stone's

of Gownboys, and on the whole the external appearance of the place was not very greatly changed from its mansion days. But between 1824 and 1840 these buildings, having lagged behind the improved standard of comfort of the day, were, by the energy and care of the Master, Archdeacon Hale, removed to make way for the two present courts, which were remodelled, as the life itself of the Brothers was, more on the lines of a college at Oxford or Cambridge. These courts do not, it is true, claim architectural distinction, but it must be said for them that they are unobtrusive, and possess the high virtue of expressing their purpose—peace and comfort—the very purpose, indeed, for which Sutton's Hospital exists. Here, since 1614, between two and three thousand old gentlemen, officers in the army and navy, clergy, doctors, lawyers, artists, actors, merchants, and professional men who, at the age of sixty, have gathered or retained too little of this world's goods, have found a rest, cared for and tended till they go out of our gatehouse to the last great rest beyond.*



GREAT STAIRCASE (1565-71).

works. We have the estimate and drawings in our muniment-room, where there has also quite lately come to light an earlier estimate by Stone for the effigy of the Founder in full armour, which he presently seems to have changed on his own authority to a civilian costume.

The organ-loft, not in its original position, dates from the changes made, 1513-14, by Sutton's first body of governors. The pulpit and the pew-ends (most of them) are of the same date, the work of one Jeremy Winkle. The curfew, which sounds every night from the tower above, is rung from the old monastery bell which was hung here by Bishop Russell of Lincoln (who also founded a cell) about 1414.

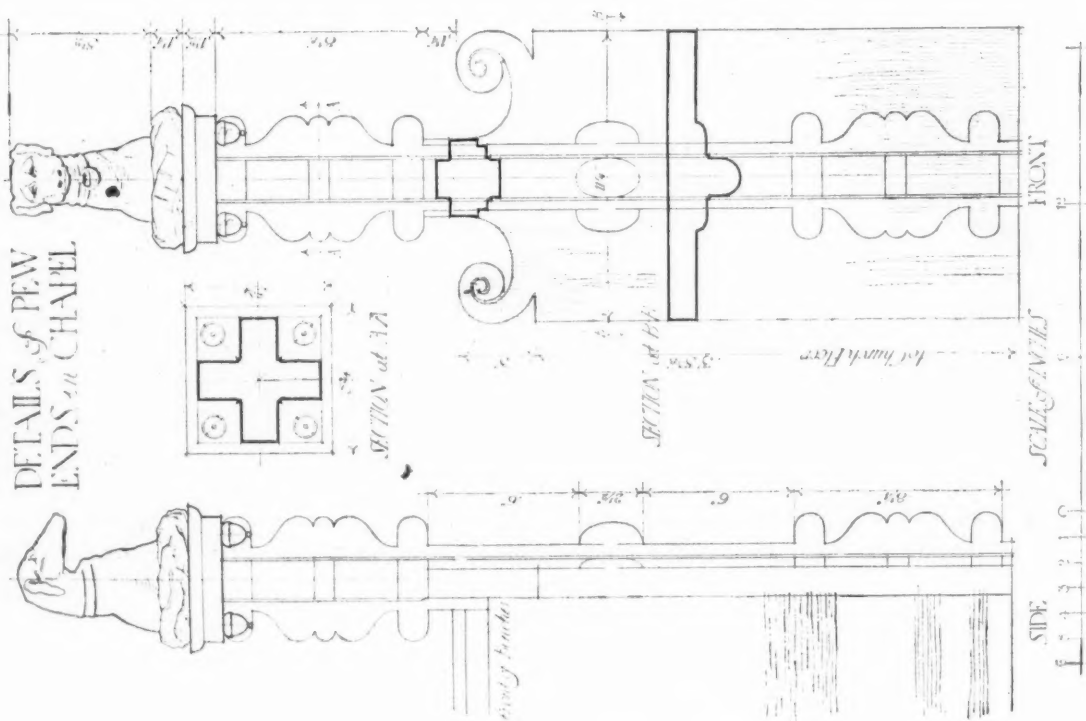
When the executors of Thomas Sutton came into possession, they found the fine range of monastery barns and outbuildings in good condition, having been rebuilt only some eighty years. It was easy to add floors, chimneys, staircase, and thereby to provide room for the pensioners. The Duke of Norfolk's tennis-court, similarly treated, became the House

And here I must say good-bye to a foundation which is unique in England in many points, both as to its buildings, its historical associations (which in this short article I make no attempt to sketch), and in its purpose. It is priceless as one of the only remaining town Elizabethan mansions in England: unique as the one Carthusian monastery in England which, still serving a modern purpose, shows the original plan through it all—above all unique, I venture to think, in the amount of distress of a very special kind which it has relieved for 300 years and still relieves—unique thereby in its service rendered to the State, without ever having received one penny of public money, or practically from any other source whatever, save from the original bequest of its great Founder.

* The Charity is far less widely known and understood than it ought to be. The really good applications are by no means too numerous. A deserving case—that is to say, the case of a man of high character in the social position of a gentleman, sixty years old or over, a member of the Church of England, not possessed of an assured £60 a year—generally obtains a nomination with no excessive delay.

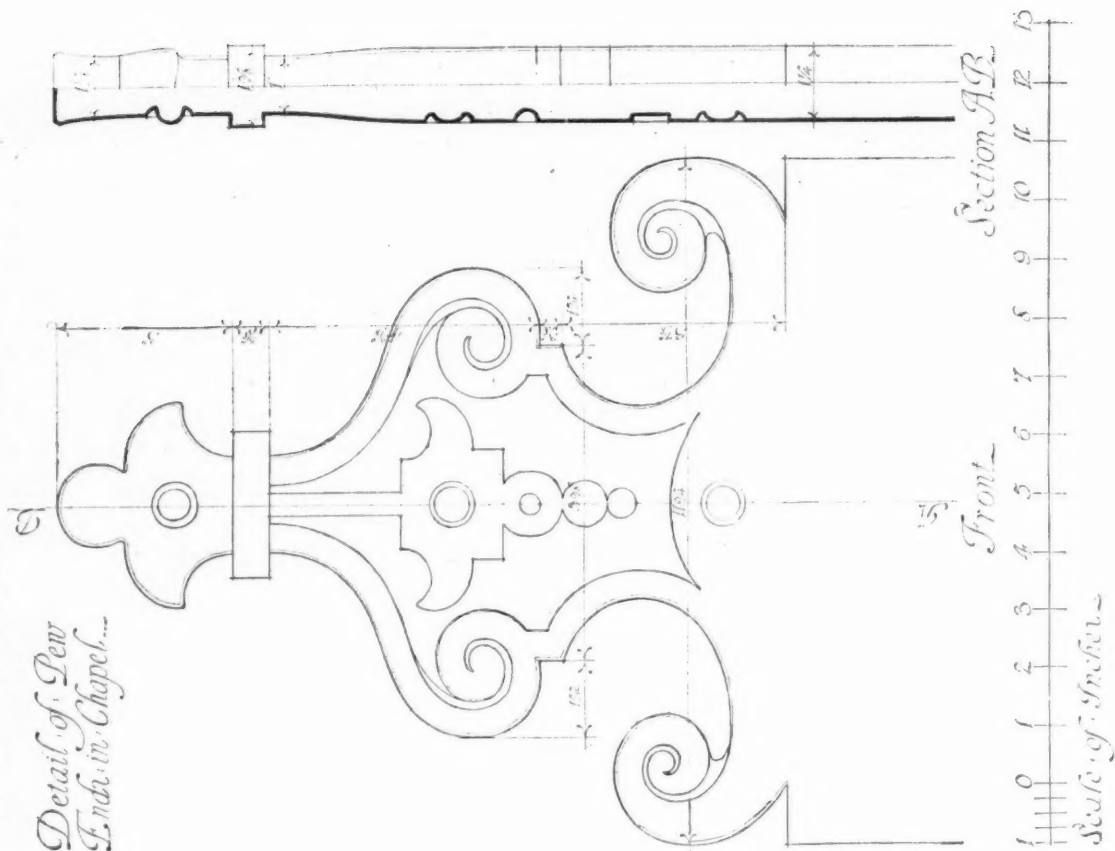
CHARTERHOUSE E.C.

DETAILS OF PEW ENDS IN CHAPEL



CHARTERHOUSE E.C.

Detail of Pew End in Chapel



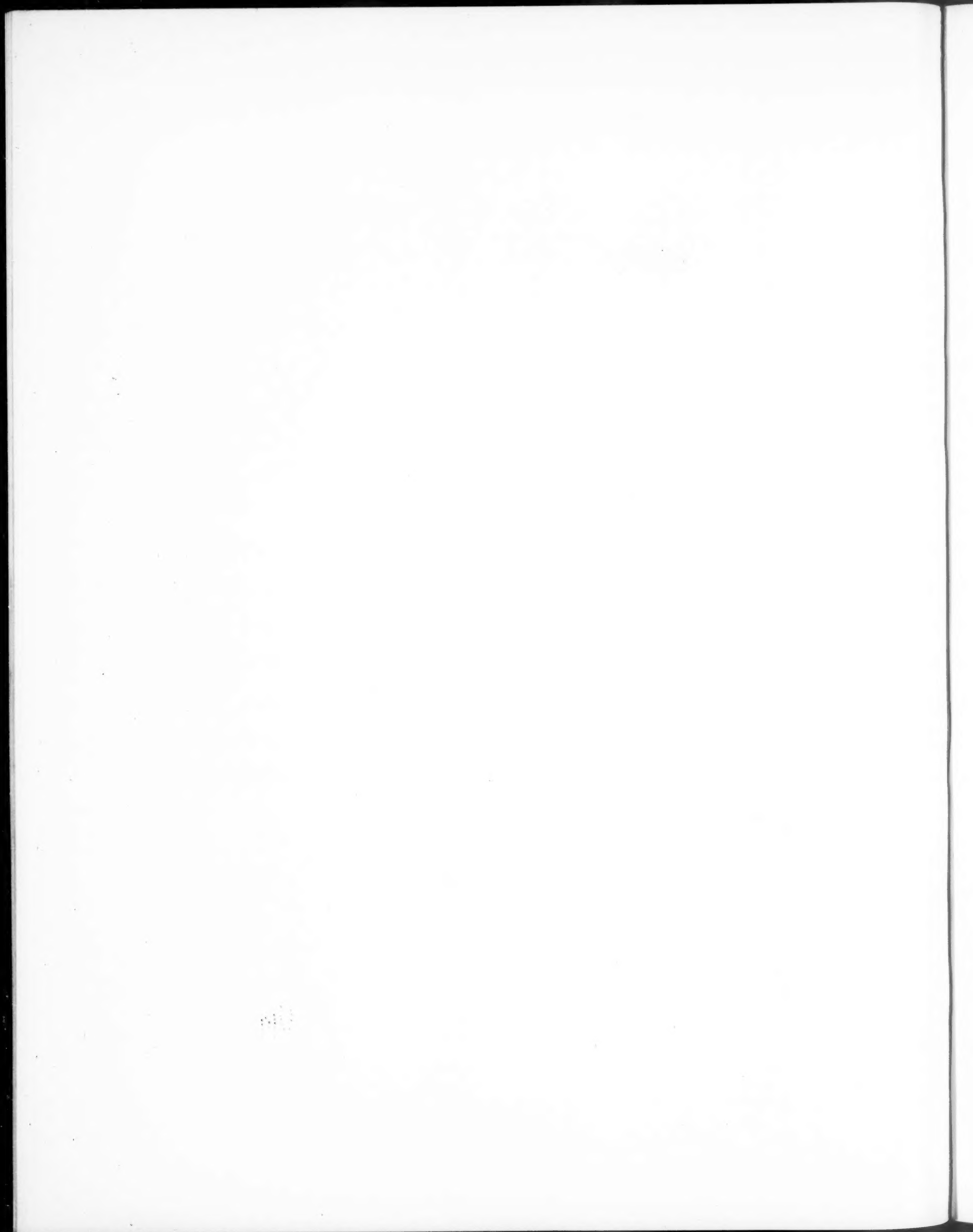
Measured and Drawn by W. Godfrey Allen.



Plate III. November 1918.

Photo: Henry Dixon & Son.

CHARTERHOUSE CHAPEL: THE ORGAN GALLERY (1513-14).



A NEW THEORY OF THE PARTHENON.

By MARIUS IVOR.

IT has always been a matter for wonder that the Panathenaic frieze of the Parthenon, a thing of incomparable beauty, should be largely hidden away from view, but it seems never to have been suggested that the frieze was not originally intended to be so hidden. The ideas now put forward are the outcome of a suggestion communicated to the writer by Mr. W. Walcot, whose sympathies with and understanding of ancient architecture have given us an important series of restorations. Mr. Walcot contends that the frieze is so placed as to sacrifice it as a work of art, or even as a purely architectural feature, and that this sacrifice may be explained by regarding the columns in front as not being part of the temple's original design.

The suggestion is a bold one, and one very liable to be promptly dismissed by authorities on Greek architecture. But if the underlying idea is modified there are several important considerations which do lend weight to the argument, and the writer trusts at least that these are based on less heretical ideas than the great heresy that the subject of the frieze itself is, after all, not connected in any way with the Panathenaic festival.

There is little if any ground for assuming that there was ever any appreciable break in the building of the temple, or that its completion as we know it belongs to a distinctly subsequent period. But we cannot so summarily dismiss the possibility that the original design did not involve the outer columns, these being the outcome of a revision of the plan during the actual progress of the work, when, say, it came to be realized that the building, as first proposed, was not acceptable as the temple of Athenè Parthenos. The frieze may already have been in position at that stage, and the temple may have been virtually completed, only to be immediately transformed into its final shape. That works were still in progress in the fourteenth year, four years after the great statue of Athenè was consecrated, is proved by fragments of inscriptions found, which might very plausibly refer to the final completion of the additional columns occasioned by the decision to enlarge the plan of the temple. Let us consider what evidence there is to support such a theory.

The cella of the Parthenon is in itself an amphiprostyle temple which stands two steps ($2\frac{1}{2}$ ft.) above the stylobate receiving the outer columns. The six columns at either end of the cella are shorter than the columns of the peristyle, but the inner capitals are at a higher level than the outer ones—that is to say, the architrave of the outer order is lower than the architrave of the inner order. In the Theseion these are on the same level. The outer columns, again, are not axial with the inner, which are not only smaller, but are more closely spaced.

The cella, considered thus as a complete building, cannot be said to exhibit the typical plan of a Doric amphiprostyle temple, because such a type does not seem to occur; but it is the typical Ionic plan, like the demolished temple on the Ilissus and the little temple of Niké Aptéros; then we have the two Doric porticoes of the Propylea, which are prostyle, and, much later, there is the small temple B at Selinus, which was a Doric prostyle temple. The Parthenon cella thus had porticoes at each end, the columns of which are not *in antis*; and when we take the composite plan of the Parthenon we

find that this arrangement of the inner columns does not give the typical peripteral plan, in which the portico columns are *in antis*, as in the Theseion, the temple of Athena at Aegina, or the temple of Zeus at Olympia.

In the Heraion at Olympia the peristyle was originally of wood, and Professor Lethaby has suggested that the surrounding colonnade of columns, which is so characteristic a feature of a Doric temple, originated in a veranda added around the cella of primitive temples to protect the wall. With the Parthenon there may have been an attempt on the part of Ictinus to do away with the "veranda" and build a logical Doric hexastyle prostyle temple, which would account for the enlarged plan being octostyle. The temple of Ceres at Eleusis, as built by Ictinus, was *in antis* before the portico of Philon was added, which suggests that in this case the addition was contemplated, but that in the Parthenon it was not contemplated. It is also interesting to note that the enclosure near to the Erechtheion, with the foundations which are now generally supposed to be those of the earlier Parthenon, measures 145 ft. by 70 ft. The cella of the Parthenon is 194 ft. by 69½ ft. The earlier pre-Persian temple was the famous Hecatompedon, the colonnade of which has been referred to Peisistratus in the sixth century, the temple itself dating from the seventh century. It was known to the Greeks as the "Old Temple" and was an object of endearment, and it would be easy to understand a first impulse to reproduce magnificently, but essentially in its original form, the primitive shrine of the goddess.

No example of a Doric dipteral temple is known, but the logical development of the plan would preserve the portico columns *in antis*, however many rows were added. To this rule the Parthenon would afford a distinct exception, easily explainable if the final plan was an extension of the original plan. In some respects it seems to correspond rather to the pseudo-forms of columnar arrangement, and the peculiar experiments with the temple plan in Magna Graecia, where some suggest that the Doric order originated. The nearest approach to the Parthenon plan is found in the lesser hexastyle temple at Paestum, or the great temple at Selinus, in both of which there are *two* columns in front of the anta.

This deviation in the Parthenon plan has been noted, but no explanation suggested. There is a passage in Vitruvius pointing out such a departure from the usual type, in which, by columns occupying the place of the antae, a lateral entrance to the portico was obtained on each side. There is some doubt as to whether the passage refers to the Parthenon or the Athena temple of the Erechtheion. (See text and notes in Kinnard's edition of Stuart and Revett's "Antiquities of Athens.")

In considering the frieze itself, we have to remember that we are dealing with a secondary Doric order, the Doric order proper having no frieze, but triglyphs and metopes. An external Doric frieze is the most difficult part of the present argument to accept, but is not an insurmountable objection.

At Olympia and Phigalia the metopes belong to the secondary order, being placed over the entrance to the cella. On some of the temples at Selinus we find triglyphs on the cella walls. The Parthenon frieze takes the place of these internal metopes and triglyphs, and not only runs right round the

building but preserves a strong reminiscence of the primary order in the tenea, and the regulae and guttae which occur at regular intervals below the whole length of the frieze. In the temple at Phigalia, Ictinus put the frieze round the inside of the cella.

In the Theseion, quoted above as an example of the typical peripteral plan, the frieze occurs at the ends of the cella only, at one end being extended as far as the peristyle on each side—rather a remarkable arrangement. What is perhaps more remarkable is that there are no guttae below the frieze, but there is a continuous Ionic member, which seems to mark a further transition towards the Ionic entablature, to which the frieze rightly belongs. Can we thus see in the typically Ionic plan of the Parthenon cella, with its external frieze, the first concession to the Ionic element, before the Ionic order itself was actually adopted, a concession that we see fully recognized in the internal Ionic order employed by Ictinus at Phigalia, in the internal Ionic order in the Propylea, and finally in the Erechtheion, where the Doric disappears altogether? The prostyle columns of the cella are more beautiful than those of the peristyle, and the marked suggestion of the outer order does suggest that the frieze was meant to be an external member. As strengthening the tendency towards a compromise between the purely Doric and the purely Ionic, we have the four columns supporting the ceiling of the opisthodomos of the Parthenon, which are supposed to have been Ionic columns.

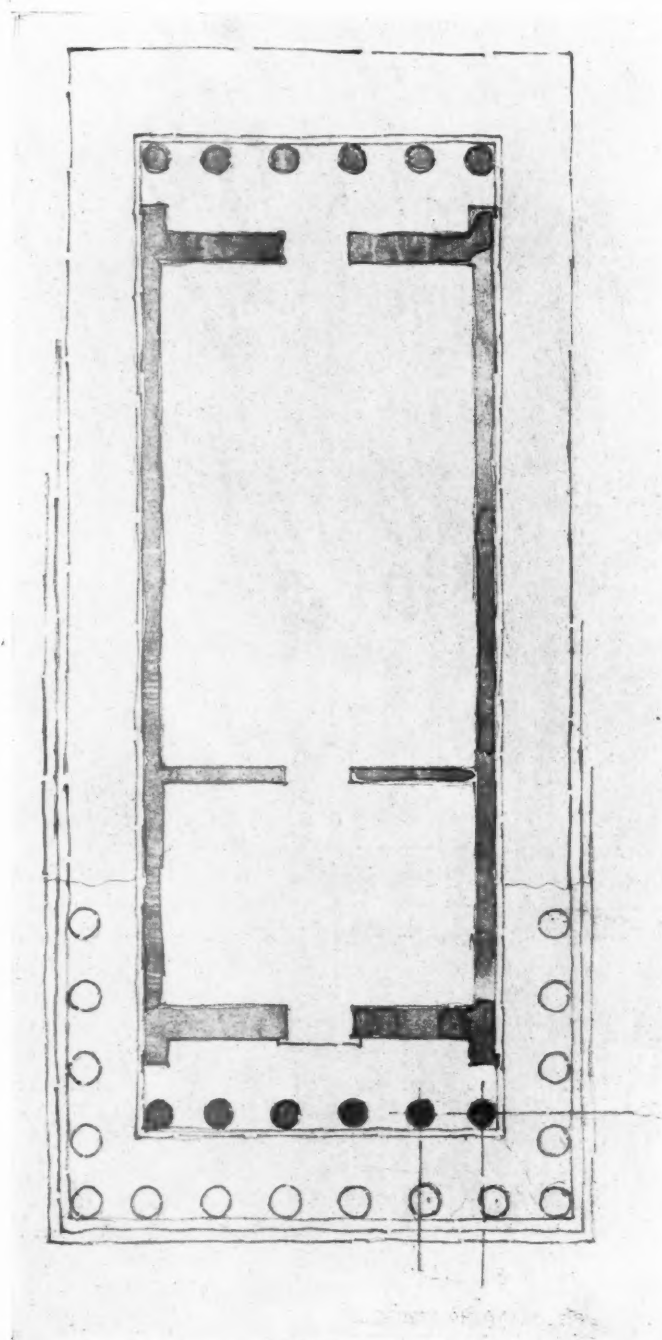
Returning now to a consideration of the position of the frieze, we have to note that it was 3 ft. 3½ in. high, and encircled the entire cella at a height of 39 ft. above the stylobate. It was immediately below the ceiling of lacunaria at the cornice level which closed in the colonnade. This colonnade (the pteroma) is only 9 ft. in width, with a slightly wider space in front of the porticoes. The internal columns are 33 ft. high. In the Theseion the corresponding columns are 17 ft. 9 in. high, and the frieze 2 ft. 9½ in., with a space of 13 ft. between the east front and the outer row of columns and 10 ft. at the west end. There is no low relief at all in the Theseion frieze, whereas the Parthenon frieze is one continual surface of subtle gradations, so increased towards the top as to tilt the whole frieze forward. At the great height at which it was placed this device would be necessary even if the outer columns were removed. Direct light could only reach it from below.

Allowing for reflected light (which, moreover, would be discounted rather than increased by such colouring as was given to the white marble), it remains a puzzle to understand why what we consider the most beautiful series of sculptures ever produced should have been placed in so disadvantageous a position, or how the beauties we know only by close study could ever have been appreciated.

We cannot tell whether the frieze was esteemed by the Greeks as a work of singular merit, whether it meant, in an artistic sense, one quarter of what it means to us, or was merely a characteristic instance of the highest development of their art—an art unconscious of its greatness. That the frieze was not placed within the cella, as at Phigalia, is evidence that it was meant to be seen in daylight, and indeed such an architectural representation of the Panathenaic procession would suggest an intimate connexion with the popular side of the festival itself, even if regarded as but an architectural motif. Those taking part in the procession to the temple would have had the west frieze confronting them in their approach from the Propylea before the outer columns were added, and the route to the eastern door, and entrance, of the temple lay along

either side. The whole significance of the procession could thus have been disclosed in sequence to those observing the sacred festival, far more insistently than when this panoramic survey of the frieze was restricted to the pteroma. The modern tourist knows what a strain on the eye is caused by the attempt to view what slabs are still in position, and we feel that, so skied and enclosed from outer observation as the frieze was, its primary object could not have been properly fulfilled.

The Parthenon's wonderful frieze would present from below a troubled surface only, and, if painted with a deep background, must have looked like flat stencil-work, the delicacy of the carving completely lost. The whole spirit of Greek art prompts the view that it would be more to the credit of an artist like Pheidias to admit his mistake of concurring in the



PLAN OF THE PARTHENON.

Showing the non-axial relation between the Inner and Outer Columns.

(Drawn by William Walcot (after Stuart and Revett).)

substitution of a continuous frieze for the traditional use of metopes and triglyphs as a stone decoration. This combination of triglyphs and metopes is a happy decorative motif in itself, though not without difficulties of application when the angles of the building are concerned, and it must also be admitted that its use under the pediments as well as on the flanks rather invalidates the legitimacy of its function regarded as a survival of wooden construction, which may have been even then recognized. But architectural tradition is not easily resisted; and, however fine the work he was responsible for, it would only be another instance of characteristic Greek frankness for Pheidias to forgo the frieze if he was convinced that an optical mistake had been made, and that after all the regular Doric order must prevail. Loath to sacrifice so much beauty accomplished, Pericles would not be slow in seizing the opportunity of increasing the importance of the temple by the drastic addition of a complete colonnade, the order of which Pheidias and Ictinus could treat in the orthodox manner. Such a theory would explain the, by comparison, inferior merit of the metopes, which are much more readily acceptable as essentially architectural in character than the incomparable marble gem suffered to be eclipsed by them. It would also help to explain the considerable variations met with in the metopes on the pedimental fronts, and, likewise, many discrepancies that are rather to be explained as adjustments than as architectural refinements. Professor Lethaby has instanced the many irregularities "which appear to be accidental or made necessary by circumstances." When once a plan is varied, variations are endless.

Assuming the frieze to have been designedly so placed, Pheidias could not have produced anything finer if an amphiprostyle temple had, instead, been contemplated. And if this was actually the case its subsequent conversion into a peripteral temple would argue that the dissatisfaction with the plan was greater than the appreciation of the frieze. If Pheidias and his school were held to have surpassed themselves, and the frieze regarded as a work of art second to none, we could understand a desire to protect it as far as its position architecturally would

allow, for we know how grievously all that remains *in situ* has suffered by dismantlement of the building; but in any case the frieze would have had a protection equal to that of the metopes, and to expose it to view can hardly be regarded as showing more indifference to its beauty than its present position seems to suggest.

This indifference on the part of the Greeks to the beauty of their own works is after all only the natural result of their sense of beauty. The Greek artist tested everything he did by that sense, and indeed was not so much concerned with creating works of art as with satisfying that sense in whatever work he undertook. What we regard as the finest achievements of plastic art was for Pheidias and his assistants primarily a question of architectural embellishment originating in the mind of the architect. Thus we find that the finest Greek art is to be found where the Greek sculptors were required to apply their skill, and the more subservient this application the finer was their art. Into the flat band around the Parthenon was put a far finer art than in either metopes or the pediment figures, because the artist's sense of sculpture was, not suppressed, but perfectly accommodated to the function demanded of it.

How far the suggestion here made is a plausible one authoritative criticism must decide, but it does give rise to some interesting considerations, especially relating to the secondary order, which is generally neglected so far as the architectural schools are concerned.

In conclusion, it is not to be wondered at that a unique building like the Parthenon, with its unique adornments, should be the subject of endless theories and give rise to problem after problem. What we know is little compared with what we would like to know. What, for instance, was the precise share of Callicrates in the work, and where is the architectural treatise on his masterpiece that Ictinus is said to have written? Were our knowledge complete we might indeed call the Parthenon a "syllogism in marble," but much concerning its exquisite beauty has to be inducted because deduction fails, and the insight of an artist will often lead us where the pure reasoning of the archæologist never will.



SECTION SHOWING THE RELATION OF THE TWO ORDERS AND THE POSITION OF THE FRIEZE, AND FRONT ELEVATION OF THE PARTHENON AS A PROSTYLE HEXASTYLE TEMPLE.

Drawn by William Walcot (after Stuart and Revett).

THE GROWTH OF LONDON.*

By W. R. DAVIDGE, F.S.I., A.R.I.B.A., Assoc.M.Inst.C.E.

DEAR old London! No city in the world has a more fascinating story than London. For well-nigh a score of centuries the story of London is intimately bound up with the story of England, and for the English race everywhere the very name of London speaks of Home and the Homeland.

Its very streets, and even many of its street names, tell us of bygone generations of Englishmen who have trodden these same streets, of great men who have built up the empire, of great men who have built up a great city.

It is a city which is continuously outgrowing its bounds. The "City of London" is no longer *London*; even the great area of the Administrative County is now only a part of *London*; the greater area of the Metropolitan Water Board, or the Metropolitan Police area even, does not include the whole of London.

The Port of London stretches almost to the sea, but this is only waterside London. The area of Telephone London is wider, but even this is insufficient.

London includes all these, is king of all these; in fact, there is no better description than this: The living corporate entity which we know as *London* is in itself old "King Lud," that mythical but symbolical King Lud, who through all the centuries has commanded the affections of all its citizens. For the origins of London we must go back to the ancient pile dwellings of the Fleet and the early British settlement of "Llyn-don"—"the hill fort by the river"—probably where St. Paul's now stands. The history of the city proper, however, begins with Roman days.

ROMAN LONDON.

The first Roman settlement was on a very small area in the neighbourhood of Cannon Street Station, immediately east of the "Wall Brook"; but this first settlement was probably only a military post of limited extent, a rectangular camp roughly about a quarter of a mile long. The Romans always buried their dead outside the city, and within this area no traces of Roman burial have been found.

"London Stone," which is still to be seen in the wall of the church opposite Cannon Street Station, at one time stood in the roadway, and is reputed to be the stone from which distances were measured.

During the long four hundred years of Roman London there were no doubt many changes and extensions of the town. There were assaults on the settlement by the British tribes led by that warrior chieftainess, Boadicea (A.D. 61), whose statue stands on the Embankment by Westminster Bridge, and there are still to be found, fourteen or fifteen feet below the city pavements, charred fragments of the tragedy of those days. Numerous relics and mosaics have come to light, and still there are to be found, especially in the eastern portion of the city, remains which tell of a very high state of civilization and a well-organized community.

The walls of the enlarged city of Londinium Augusta appear to have been erected towards the close of the Roman occupation, probably, as Stow says, about A.D. 306, and these walls served as a protection and enclosure to the city for well

over a thousand years. In fact, the city wall and gates remained practically in their entirety down to their removal about 1760. The wall, which was more than three miles long, was about 8 ft. thick and 24 ft. high.

The streets of the square mile of the city are still substantially the same as in the old walled city, and one can still trace the line of the old wall from Ludgate, along the Old Bailey to Newgate and Aldersgate, and then along London Wall, or 'Fore Street, from Cripplegate past Moorgate and Bishopsgate to Aldgate and the Tower. "Houndsditch" is in reality the old city ditch.

Outside the actual wall was the "pomerium," an additional area about a "bowshot" in width, over which the city had control, and which still, under the City Corporation, is represented by the "Liberties without" or outside the wall.

The City Authorities, however, from time immemorial had a general control over a much larger area than that immediately round the city, and the limits of the "territorium," or Greater London of Roman days, extended as far west as Staines and as far east as Crayford, and possibly north to Stanmore.

Right through the centuries until quite recently the City Corporation have had a general control over the River Thames as far as Staines, and the Sheriffs of London have exercised their powers over the whole of Middlesex.

THE ROMAN ROADS.

The six great roads built by the Roman engineers have for well-nigh two thousand years formed the framework upon which London has grown, and it is interesting even now to trace their line upon the modern map. All unconsciously to-day millions of Londoners journey homeward by motor-bus or electric tram on the same highways along which the Roman legions tramped, along which in later days came crusaders and pilgrims, Cavaliers and Roundheads.

These Roman highways were:—

1. The Watling Street from Rochester, which can still be traced in the line of the Old Dover Road at Blackheath, aiming straight as an arrow for the Stanegate or Horseferry at Westminster and on to Hyde Park Corner.
2. The same street continuing north-westward to St. Albans (Verulam) and Chester along the present Edgware Road.
3. The Stane Street from Chichester to London Bridge following the line of the present Clapham Road and on, by Newington Causeway, past the Elephant to the site of Old London Bridge and through the City to Bishopsgate.
4. The same street, known as the Ermine Street, continuing northward from Bishopsgate, along the line of the present Kingsland Road, past Tottenham High Cross and Waltham Holy Cross to Doncaster and York.
5. The Western road from Silchester and Winchester through Staines and Brentford, past Hyde Park, and on via Old Street to
6. The Eastern Road. This road followed the line of Roman Road, Old Ford, Stratford, Ilford, and Romford to Chelmsford and Colchester.

* Substance of a paper read at the 45th Annual General Meeting and Conference of the Institution of Municipal and County Engineers, with whose permission, and that of Mr. Davidge, it is here reproduced.

The Roman roads were essentially marching roads, and no question of gradient was allowed to interfere with their directness.

It will be seen that, with the exception of the line of the Stane Street and Ermine Street crossing London Bridge, these Roman roads slightly avoided the actual walled city on the high ground by the river, the roads aiming straight for the fording places where the rivers and streams might best be crossed. The "bypass roads" diverting the old Roman highways to pass through the city appear to be of later date, but there can be no doubt that the position of the city near the junction of the highways and the crossing of the river largely contributed to its growth as a centre of commerce.

The rivers in or near the city were the Wallbrook, the Fleet (or Vliet) River, later on called the Hole Bourne, and farther west, the Tybourne and the Westbourne (Bayswater) with its small tributary the Kilburn.

SAXON AND DANISH LONDON.

When the Romans finally left Britain about A.D. 400 the town appears to have fallen on evil days, but with the coming of King Alfred the City walls and wharves, which had fallen into decay, were repaired (A.D. 886), and from that day the City's progress has again been steadily onward. The "folk-moot," the forerunner of the Common Council, met at Christmas, Michaelmas, and Midsummer to settle such matters as the appointment of the surveyors or reeves, arrangement of the City watches, and fire protection.

The Danes, who had given so much trouble, were allowed to settle outside the City boundaries; and the churches of St. Clement Danes, in what was once the village of Aldwych,

just outside Temple Bar, and St. Olaf's (now St. Olave's, Tooley Street, Southwark) still remain to remind us of the compact that was made with the Danes.

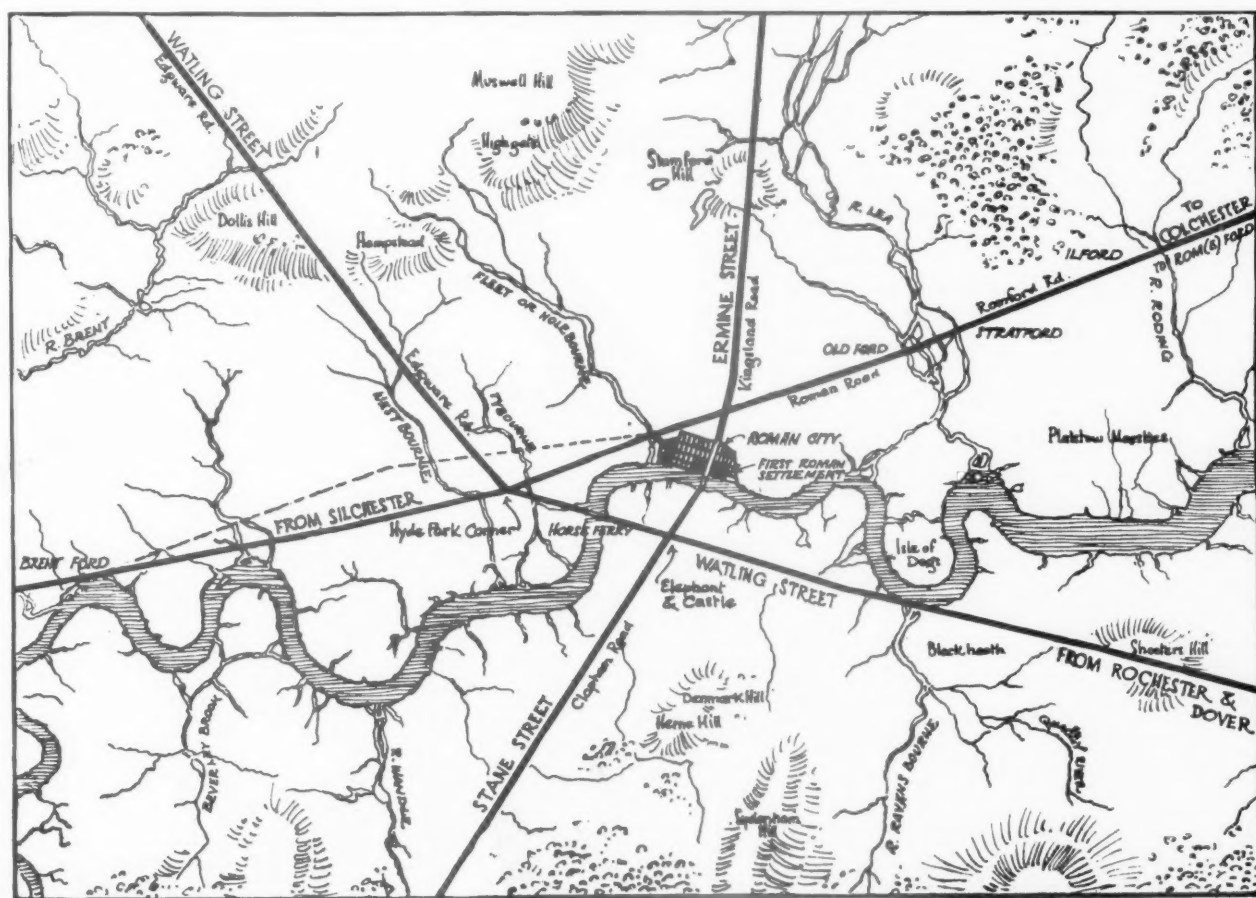
Apart from the trading community who inhabited the City, the Saxons, however, mostly settled down in small detached village communities or homesteads, which in later days have become the nucleus of the thriving suburb, now deeply embedded in bricks and mortar.

These Anglo-Saxon settlements are to be found all over the country, and in later days developed into the manor. There are manors everywhere, but it is a significant fact that the manorial system did not penetrate into the City of London, which was, as we have seen, already a settled municipal organization, with its port reeves and other officials.

In the agricultural communities, the fields were cut up into "long acre" strips, so that no one owner possessed wide stretches of land, but each had perhaps sixteen separate "acre" strips of ploughing land, probably widely separated. Sir Lawrence Gomme has pointed out that in many London districts these long strips of land can still be recognized, and building lines in suburban London are still to be found cutting the road at an awkward angle, owing to this practice of our Saxon ancestors.

Probably one of the greatest engineering works of this period was the embankment of the Lower Thames.

On both sides of the river the marshes were enclosed and a river wall or embankment constructed for miles, serving the double purpose of improving the navigation and reclaiming the land. No record exists of when or by whom this great river wall was constructed, but so far back as Saxon days we have records of its maintenance.



ROMAN LONDON

VOL. XLIV.—M

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APPROXIMATE SCALE OF MILES.

NORMAN AND MEDIAEVAL LONDON.

The building of the White Tower (about 1080) by William the Conqueror to overawe the citizens was accompanied by a Royal Charter—the first of London's Charters, which confirmed the rights and customs of the City. Hitherto the City had governed itself; now it did so by consent of the King.

The City settled down to its business life and prosperity, and FitzStephen's graphic account of the City of London, written shortly after the death of Thomas à Becket (1170), tells us of its thirteen great convent or abbey churches, of its 126 parish churches, and of its many municipal arrangements, which included a municipal canteen, or, as he calls it, "a public cookshop or kitchen on the river bank, very convenient to the city, and part of its civilization. However great the multitude of soldiers or travellers entering the City or preparing to go out of it, at any hour of the day or night—that these may not fast too long and those may not go out supperless—they turn hither, if they please, where every man can refresh himself in his own way."

He goes on to tell of the horse show and cattle market at Smithfield, of the division of the City into Wards, of its sheriffs and magistrates and courts, of the sewers and aqueducts in the streets. "I do not think there is a city with more commendable customs of church attendance, honour to God's ordinances, keeping sacred festivals, almsgiving, hospitality, confirming betrothals, contracting marriages, celebration of nuptials, preparing feasts, cheering the guests, and also in care for funerals and the interment of the dead."

FitzStephen speaks as a Churchman, but there were no doubt other sides of London, for he goes on to say: "The only pests of London are the immoderate drinking of fools and the frequency of fires." In 1136 a fire, at least as destructive as the Great Fire of 1666, had swept London from end to end.

To help check these frequent fires London's first Mayor, Henry FitzAlwyn, who was in office for some twenty-five years, laid down the first important building regulations ever introduced into this country. This, the first London Building Act, dates from 1189, and introduced for the first time rules as to the thickness, height, and joint ownership of party walls, which have ever since been an important feature of London building law. The sanitary accommodation or pit for the "necessary chamber" had to be $3\frac{1}{2}$ ft. from the neighbour's land, unless lined with stone, when it need only be $2\frac{1}{2}$ ft. distant. London at this date had some 40,000 inhabitants.

In the reign of King John, 1212, further amendments were introduced to prevent the spread of fire, and certain wooden buildings and thatched houses were ordered to be plastered over or otherwise protected.

An important rule, too, was that, as an additional protection, "in the summer months every house had to have in front of it a tub, either of wood or stone, full of water." The Aldermen of each Ward were also to provide "a strong iron crook with a wooden handle, two chains, and two strong cords," apparently for pulling down dangerous structures.

One sees thus early that when prompt action was required the local authority was the Alderman of the Ward. Later on the various Trade Guilds were also of great assistance to the City in regulating matters affecting their own trade, and of course all through the Middle Ages the ban of the Church was all-powerful.

The monasteries of the Black Friars, Austin Friars, the White Friars, the Grey Friars, the Carthusians of Charterhouse, the Crutched Friars, and so on, undoubtedly had considerable influence in mediæval London, and the only extension of the City wall of which we have any record was

made in the time of Edward I (1282) to include the Monastery of Blackfriars. The then suburb of Southwark was granted to the City in 1327 by Edward III on payment of £10 annually to the Crown. The title of "Lord" Mayor was granted in 1354.

The Crusaders' Church of St. Bartholomew in Smithfield, the Norman St. John's Chapel in the Tower, the hospital of the Knights of St. John in Clerkenwell, the Knights Templars' church in the Temple, the church of St. Mary Overie (St. Saviour's Cathedral, Southwark), and the old Abbey of Westminster, still remain—almost living memorials of those bygone generations of Londoners who have worshipped within their walls. In the precincts of Old St. Paul's itself Paternoster Row, Creed Lane, Ave Maria Lane, and Amen Corner are names that almost make the choristers rise before our eyes.

It is somewhat astonishing, too, to remember that Old St. Paul's, which watched over the mediæval city, was something like a hundred feet longer than our present cathedral, and that the spire, before its destruction in 1561, was nearly 100 ft. higher than the present dome.

What could better recall to us the busy market streets of the Middle Ages than such names as Cheapside, The Poultry, Bread Street, Milk Street, Wood Street, Friday Street, and such names as Lombard Street and Old Jewry?

ELIZABETHAN AND COMMONWEALTH LONDON.

As we walk along the Strand, going westwards from Temple Bar, the names of the streets leading down to the river recall to us the noblemen's houses which in Queen Elizabeth's time stood along the Strand between Temple Bar and Whitehall.

Arundel House, Somerset House, the Savoy, and Northumberland House will at once rise to one's memory. Even Scotland Yard was once the home of a King of Scotland, and at the time of the Reformation nine bishops had their palaces in the Strand.

Stow tells us that "in the Strand was a continual new building of divers fair houses as far as St. Martin's Lane." Northwards from Bishopsgate towards Shoreditch was a "continual building of small and base tenements," for the "most part newly erected."

London had grown almost to Ratcliff, a mile eastward of the Tower, "also without the bars both the sides of the street be pestered with cottages and alleys even up to Whitechapel Church, and almost half a mile beyond it, into the common field, all of which ought to be open and free for all men."

The famous Act of Queen Elizabeth in 1592 (35 Elizabeth, c. 6) forbidding any new building within three miles of the City of London is, of course, well known. Its opening words give a striking description of the overcrowded and insanitary state of London even in those days, and set out to solve the housing problem by stopping it altogether. The Act begins by referring to the evils from crowded buildings:—

"For the reformynge of the great Mischiefes and Inconveniences that daylie grow and increase by reason of the pesterling of Houses with diverse Families, harboringe of Inmates and converting of great Houses into several Tenements or Dwellings and erectynge of New Buildings within the Cities of London and Westminster and other Places nere thereunto adjoining, whereby great Infection of Sickness and dearth of Victuals and Fuel hath growen and ensued and many idle vagrant and wicked persons have harboured themselves there and divers remote places of the Realme have been disappointed of Workmen and dispeopled. Be it enacted by the Authoritie of this present Parliament, That noe person or persons of what Estate

Degree or Condition soever shall from henceforth make and erect any newe Building or Buildings House or Houses for Habitation or dwelling within either of the said cities (of London and Westminster) or within three miles of any of the Gates."

Under the Commonwealth in 1656 London had grown out as far as Piccadilly, and another Act was passed stopping all building within ten miles of London.

Needless to say, neither of these Acts was a success, and London continued to grow in spite of them.

During the Civil War (1642-3) earthen ramparts and trenches were constructed by order of Parliament for the defence of the city. Traces of these are still to be found in the mounds in the Green Park, in Mount Street, W., and the other Mount Street near the London Hospital.

THE GREAT FIRE.

The great fire in September 1666 burnt through 436 acres of crowded property, and between its start at Pudding Lane and finish at Pie Corner it destroyed no fewer than 87 parish churches, some 13,200 houses, and a large number of the most important public buildings.

The Acts of 1666 and 1670 for the rebuilding of the City were two of the most statesmanlike measures ever enacted, and in addition to the regulation of the buildings to be erected, which for the first time were to be of brick or stone, they provided for the settlement of all disputes between owners, for the rectification of boundaries, for the fixing of prices of materials, and, as in up-to-date town-planning schemes, there was a "betterment" clause giving power to charge the owners of property improved by the opening out of streets. Surveyors

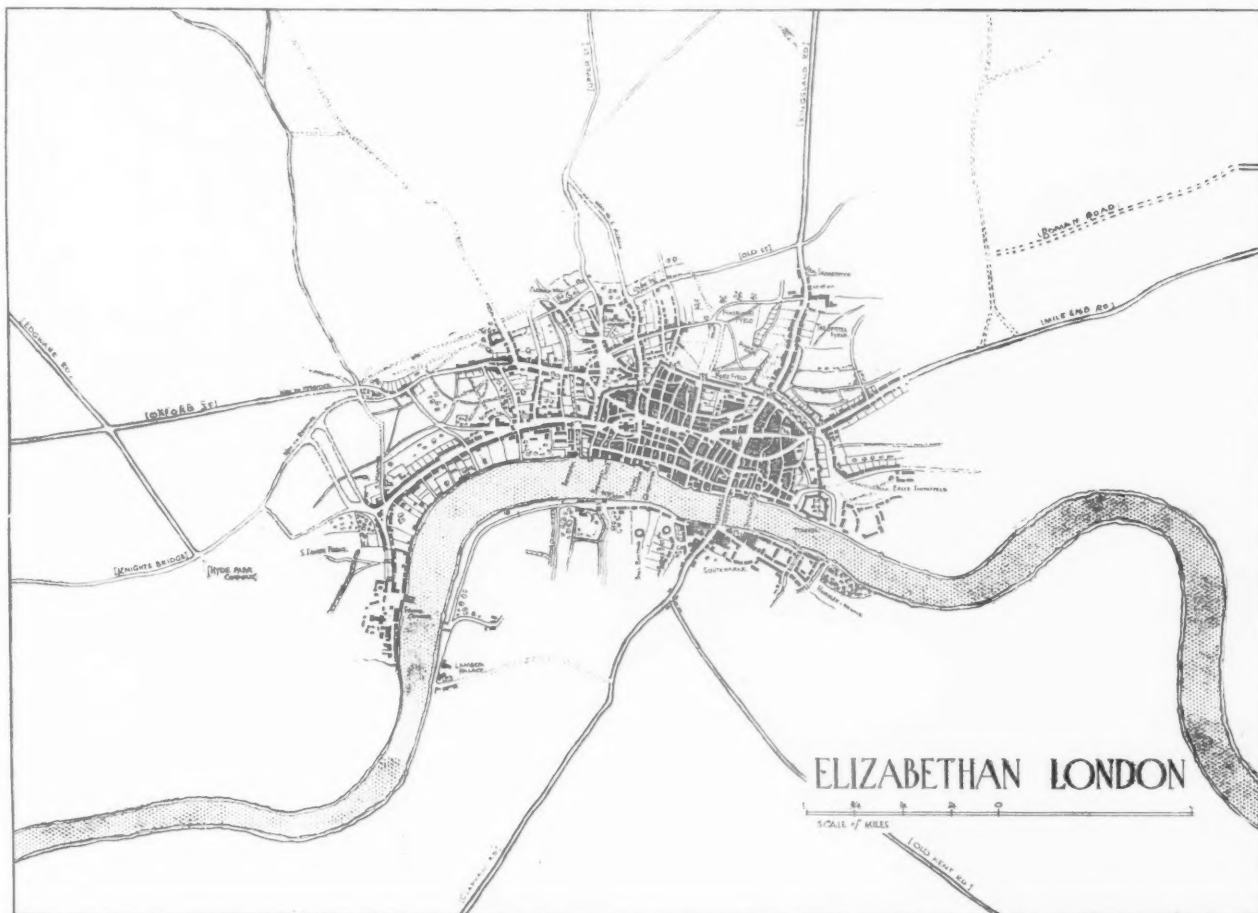
had also for the first time to inspect all foundations, for which a uniform fee of 6s. 8d. was charged. Previous to this date the oversight of all new buildings had been in the hands of four City "viewers," consisting of two master carpenters and two master masons, who were thus the forerunners of the present-day district surveyors.

Sewers, vaults, and paving of streets were to be dealt with by Commissioners who were empowered to levy a special tax for the purpose.

Special Paving Acts for particular streets such as the Strand, Holborn, and so on, had been enacted as far back as Henry VIII, and even earlier, as far back as King John.

WATER SUPPLY.

Water had been laid on from Tyburn to supply the City so far back as 1236, and the great conduit in Cheapside was begun in 1285. The "Tunne upon Cornhill" was another famous water cistern. In the time of Henry VIII (1543) the Corporation was empowered to lay water from springs at Hampstead Heath, Marylebone, Hackney, Muswell Hill, and other places within five miles of the City. The conduit-head at Marylebone was marked by a civic "banqueting house," on the site of Stratford Place (Oxford Street), and it is interesting to note that the freehold of "Conduit Street" is still the property of the City Corporation. Another conduit, known as "Lamb's Conduit," in Snow Hill, was erected in 1577. Additional water-works were erected on London Bridge in 1582, and also near Broken Wharf (1594). The great New River undertaking of Sir Hugh Myddelton, involving a canal thirty-eight miles long, was completed in 1613. At a later date additional supplies were pumped from the Thames at various points in



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London along the river bank. Early in the nineteenth century, however, it became necessary to transfer the waterworks to various positions higher up the river. The bulk of London's water supply is, of course, still obtained from the Thames.

STREET SCAVENGING AND LIGHTING.

In 1469 the duty of repairing the pavement in front of their houses was placed upon the householders in the City; needless to say the streets went muddy and ill paved. The records of the Paviers' Company show the various rules and regulations made from time to time with reference to paving and cleansing the streets.

During the reign of William and Mary the condition of the streets received some attention, and everybody within the London area was required to have the street in front of his house swept twice a week under a penalty of ten shillings. Everybody in London and Westminster was also required to do his share of street lighting by hanging out a lantern.

Street lighting was undertaken by the Commissioners of Sewers in 1767, and the duty of repairing the roads and pavements was then for the first time transferred to the City Corporation. In 1770 a case is recorded of a bricklayer being fined £5 for taking up the pavement and making a cellar window in Thames Street without the leave of the Commissioners.

FIRE PREVENTION.

In the reign of Queen Anne it was made compulsory on each parish to provide two fire engines—viz., one large engine and also a hand engine, and the prompt attendance of the fire engines was secured by offering rewards of 30s., 20s., and 10s. for the first, second, and third parish engines to reach the scene of a fire—"provided they arrived complete and in good order."

The Building Acts were made even more stringent than before, and the party wall was for the first time required to be carried above the roof (1708).

STREET SIGNS AND STREET NUMBERING.

The old street signs began to disappear early in the reign of George III, and in 1765 power was given to the Commissioners of Sewers in the City to regulate projecting signs, and the same Act also made provision for the names of streets to be put up and all houses numbered (within the City of London).

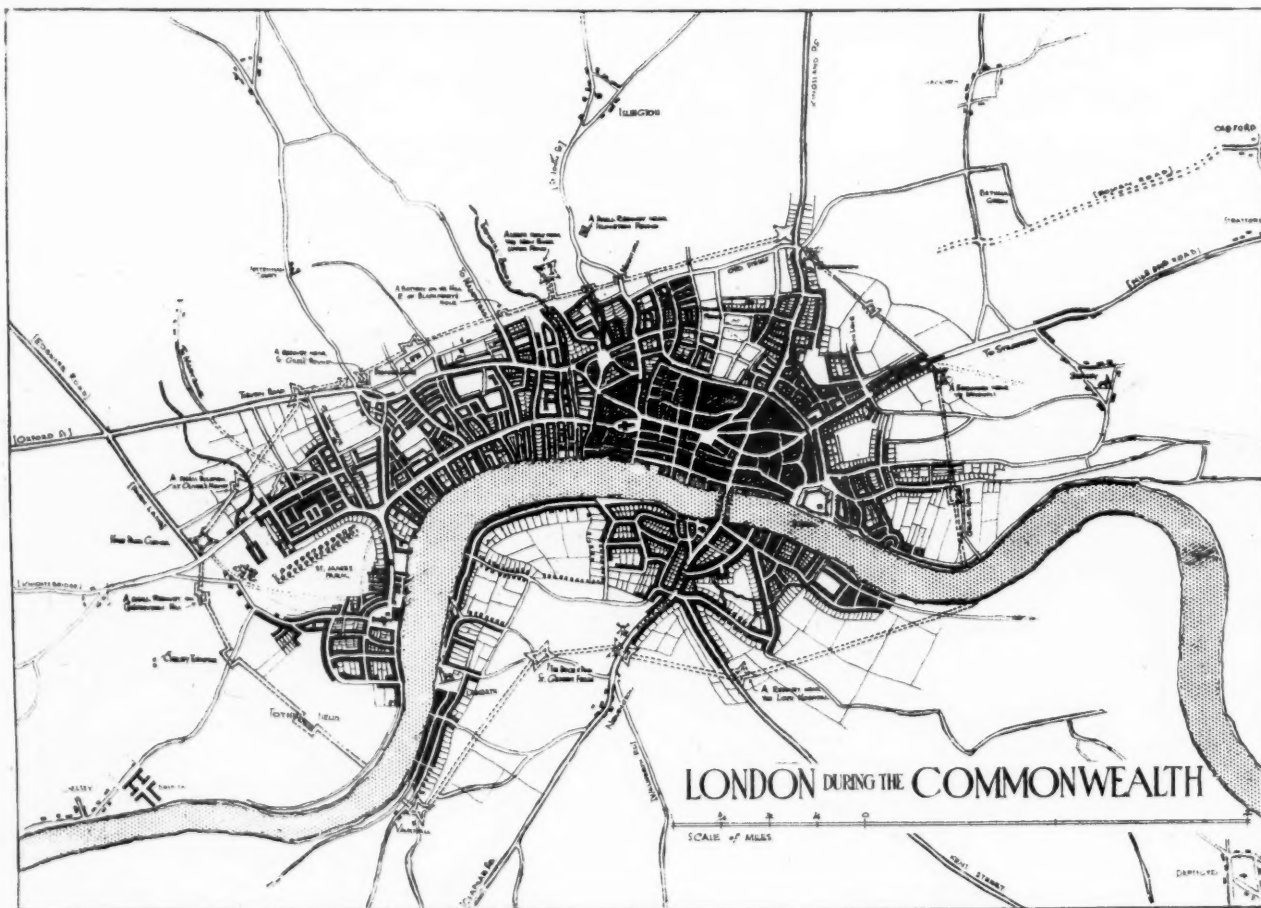
Street naming, however, was not controlled until 1855—not before it was needed, for there were then no fewer than forty High Streets, fifty George Streets, and sixty-five Charles Streets within the area of London.

THE TURNPIKE ROADS.

Small street improvements had been made in the City, but the great era of improvement came about the middle of the eighteenth century, one of the greatest factors in opening out the approaches to London being the introduction of the turnpike system, under which scores of miles of roads were constructed.

One of the most important in the neighbourhood of London was the "New Road," laid out in 1756, forming what is now known as the Euston Road and Pentonville Road. Although the new road was then a mile or more away from the built-up area, it was laid down with a width of 150 feet between the buildings, one of the earliest recognitions of what a building line should be.

The General Turnpike Act, even so long ago as 1773, provided for all turnpike roads to be at least sixty feet wide—a striking commentary on our modern ideas.



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Great Dover Street and the fine East India Dock Road are also examples of roads laid out on town-planning lines in open fields a century ago.

The Metropolitan Road Commissioners also did valuable work (1830-40), after the throwing open of the turnpikes, in the construction of such important link-roads as the Seven Sisters Road, Tottenham, and the Goldhawk Road, Shepherd's Bush, and others.

STREET IMPROVEMENTS.

The street improvements of the last century within the built-up area of London are very numerous, but a list of the principal improvements, apart from widenings, may not be out of place:—

West End—Crown Improvements:		Opened in
Regent Street	...	1819
Cranbourn Street	...	1844
New Oxford Street and Endell Street	...	1845
Victoria Street, Westminster	...	1852
City Improvements:		
King William Street, London Bridge	...	1834
Moorgate Street	...	1846
Cannon Street (western portion)	...	1854
Farringdon Road	...	1856
Holborn Viaduct and Charterhouse Street	...	1869
Metropolitan Board of Works and London County Council:		
Garrick Street	...	1861
Southwark Street	...	1862
Burdett Road	...	1862
Queen Victoria Street	...	1871

Commercial Road (extension)	...	1870
Holborn (removal of Middle Row)	...	1867
Great Eastern Street	...	1876
Clerkenwell Road and Theobald's Road	...	1878
Northumberland Avenue	...	1876
Eastcheap (over Metropolitan Railway)	...	1884
Shaftesbury Avenue	...	1886
Charing Cross Road	...	1887
Rosebery Avenue	...	1892
Middlesex Street (extension)	...	1896
Tower Bridge Road	...	1894
Strand widening, Aldwych and Kingsway	...	1905
Charing Cross and Mall	...	1910

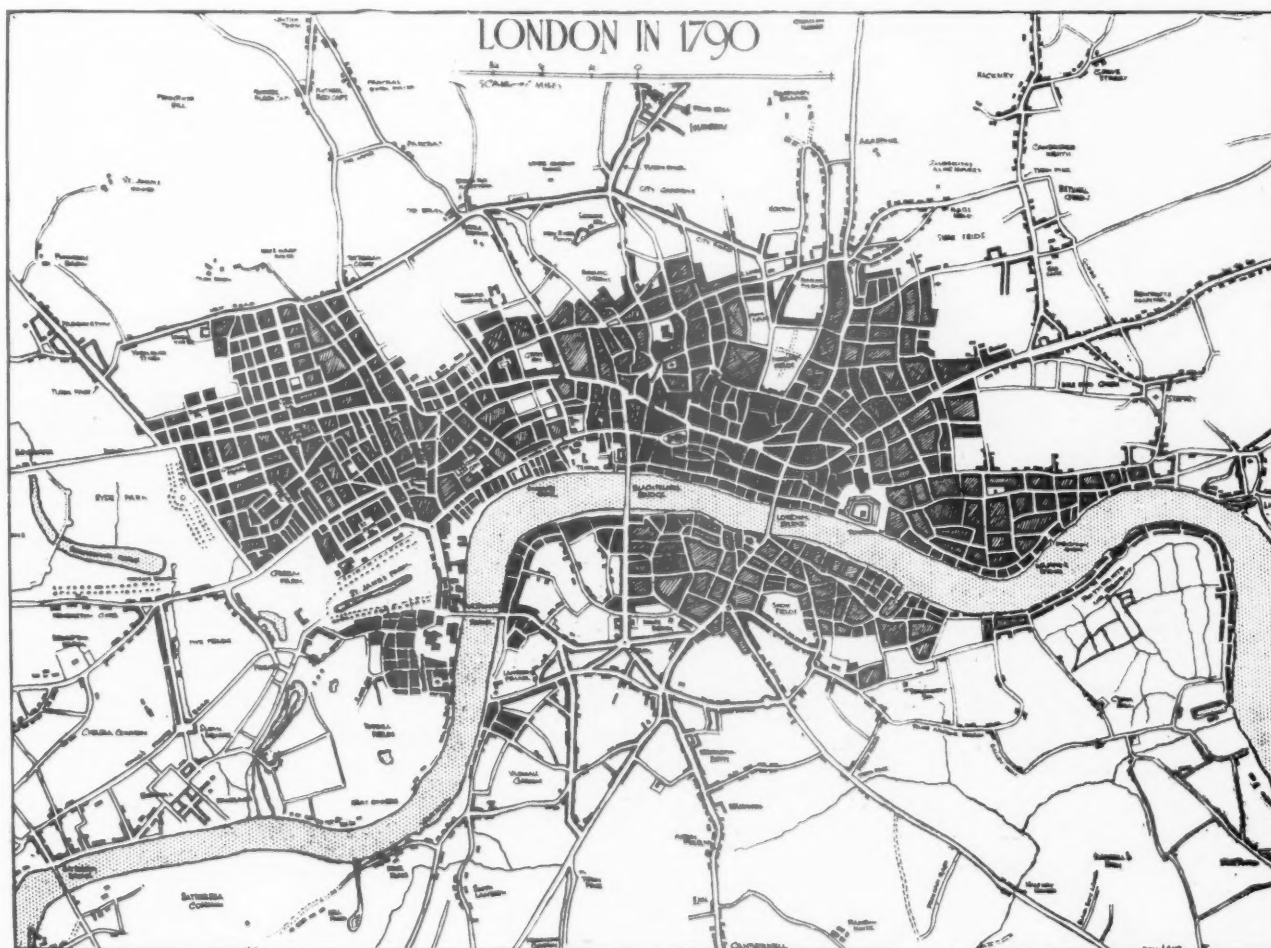
LONDON'S OPEN SPACES AND SQUARES.

In the Middle Ages, no part of London was more than a quarter of an hour's walk from the open fields and the great open spaces known as Moorfields. Finsbury Fields and Spitalfields were for centuries used as the archery ground and playground of the citizens.

Just outside Newgate, passing along Giltspur Street, we come to the Smoothfield, or Smithfield as it is now called, long the ground of tournaments and sports. Here, too, many an Englishman suffered at the stake for his steadfast faith.

As the City grew, these open spaces and common fields were encroached upon and built over, and Stow's Chronicles are full of complaint as to these encroachments, which, as a public-spirited citizen, he felt should not be tolerated.

There were still, however, abundant open spaces within easy reach, and the need for parks in the modern sense did not arise until the nineteenth century.



(Copyright W. R. Davidge.)

The first of the London squares was Lincoln's Inn Fields, laid out in 1618 under the supervision of Inigo Jones, who was also commissioned in 1631 to lay out what is now Covent Garden. Leicester Fields, now Leicester Square, was laid out in 1635. St. James's Square (1676), Soho Square, Kensington Square (1698), and Queen's Square (1708), were followed by Berkeley Square, Hanover Square (1718), and numerous others which have contributed to give the West End of London a character which is all its own.

Hyde Park is of course the oldest as well as the largest of London's Parks; Regent's Park was laid out by the Government in 1820; Victoria Park, in the East End, in 1841; Battersea Park, in 1846.

Finsbury Park, Brockwell Park, and many others have since been added, and farther out, Epping Forest, Burnham Beeches, Box Hill, Riddlesdown, and other breathing spaces have been secured, by the City Corporation or by the London County Council.

STONEHENGE FOR THE NATION.

MR. C. H. E. CHUBB has been justly commended for his generous and public-spirited action in presenting Stonehenge to the nation. The view that national monuments should be under the care of the State is one that seems to be gaining wide acceptance, if we may judge by the number of venerable relics that have been transferred recently from private to national custody. It is not suggested, of course, that ancient monuments are necessarily unsafe in the hands of private owners; for many of these gentlemen (Mr. Chubb himself is a shining example) have displayed the utmost vigilance in protecting and preserving the priceless treasures that have chanced to come into their possession. There have been others, however, who have failed to realize their responsibilities, and who, either by thoughtless neglect or deliberate interference, have inflicted grievous harm upon what are rightly regarded as national possessions.

Another advantage of public ownership is that it ensures adequate opportunities and facilities that might not otherwise be available for research work. Sir Alfred Mond, in accepting the gift on behalf of the nation, referred directly to this aspect of the matter, and observed that his department was determined to encourage further scientific inquiries, and to ensure full protection from any neglect or spoliation. After the War they also hoped to be able to continue and extend the work of excavation in the vicinity, which had already been fruitful of such important results. Here he referred, no doubt, to the excavations that were made in 1901, when stone tools, coins, bones, and fragments of pottery were found.

The origin of Stonehenge (Saxon, *Stanhengist*, hanging stones) has never been definitely determined, though archaeologists are all disposed to agree that it dates from somewhere about 1700 B.C. Sir Norman Lockyer, in advancing his theory that Stonehenge was built as a temple for sun-worship, gives the possible date of erection as 1680 B.C. Other theories regarding its origin are that it was a monument to the four hundred nobles slain near the spot by Hengist (472); that it was moved from Ireland by Merlin: and that it was the burial-place of Boadicea. As a temple it has been ascribed to the Romans, Druids, Phœnicians, Saxons, and Danes. Architects will remember that Inigo Jones, in his "Stone-Heng Restored," published in 1655, endeavoured to prove that Stonehenge was a Roman temple; but even in those days the theory could not find acceptance, a Dr. Charleton attacking it in a pamphlet entitled "Chorea Gigantum," and provoking Webb to his "Vindication of Stone-Heng Restored." The controversy, however, as Mr. Gotch has pointed out, is of no antiquarian value. Sir Arthur Evans maintains that Stonehenge is part of a huge prehistoric cemetery, and belongs to a class of buildings which, in their origin, have always been connected with sepulchral rites. These stone monuments, he says, in their most primitive form, were nearly always placed around the graves of departed heroes.

The general facts concerning the construction and arrangement of Stonehenge are quite familiar, but they may be appropriately restated for purposes of reference in connexion with the very interesting view shown on the opposite plate, which was taken a few weeks ago from an aeroplane at an altitude of 1,600 ft. The stones are situated among a series of barrows of the Bronze Age, and are probably only a small portion of the original structure. They are arranged in two circles and two ovals, with a large stone in the centre. The outer circle, about 300 ft. in circumference, is composed of upright stones about 16 ft. in height and 18 ft. in circumference, with others of similar size placed horizontally on their tops. Originally there were thirty uprights and thirty imposts, but now only seventeen uprights and seven imposts retain their position. The inner circle, which is about 9 ft. distant from the outer, consisted originally of forty single stones, much smaller in size, and, unlike those of the outer circle, showing no evidence of having been hewn. The larger of the ovals was composed of five pairs of trilithons standing separate from each other, and rising gradually in height from east to west. Only two of these now remain entire. One of the uprights of the grand central trilithon has fallen, and is broken in two pieces; the impost, though fallen, is entire, and the other impost is 9 ft. out of the perpendicular; another trilithon fell outward on 3 June 1797; and of a third, one of the uprights is still standing, the other upright and the impost having been broken into three pieces in their fall. The inner oval consisted originally of nineteen stones, of which there are remains of eleven, tapering in form and taller than those of the inner circle. In the centre of the smaller oval is the supposed altar stone, 15 ft. in length. The whole is surrounded by a vallum and ditch about 370 yards in circumference.

In the avenue to the north-east, and outside the ditch, there is a huge cromlech called the "Friar's Heel"; and in line with it, within the area of the work, there is a large prostrate stone on which it is supposed the victims were immolated. The open part of the "horse-shoe" within the stone circles is on a line with the "Friar's Heel," almost facing the sun-rise. It is upon this fact that Sir Norman Lockyer based his sun-worship theory, to which reference has been made, astronomical reckonings having determined that the sun rose exactly over that spot in 1680 B.C., which is therefore supposed to date the monument.

Although not the largest monument of its kind, Stonehenge is perhaps the most carefully carried out, for its builders possessed an astonishing degree of skill in the constructive art. The mortises and tenons by which the lintels are held in position on the uprights are without parallel in megalithic monuments. Careful and accurate measurements, too, were involved in the setting out of the plan and the dressing of the stones. In scale and execution Stonehenge has much in common with the great monuments of Egypt.

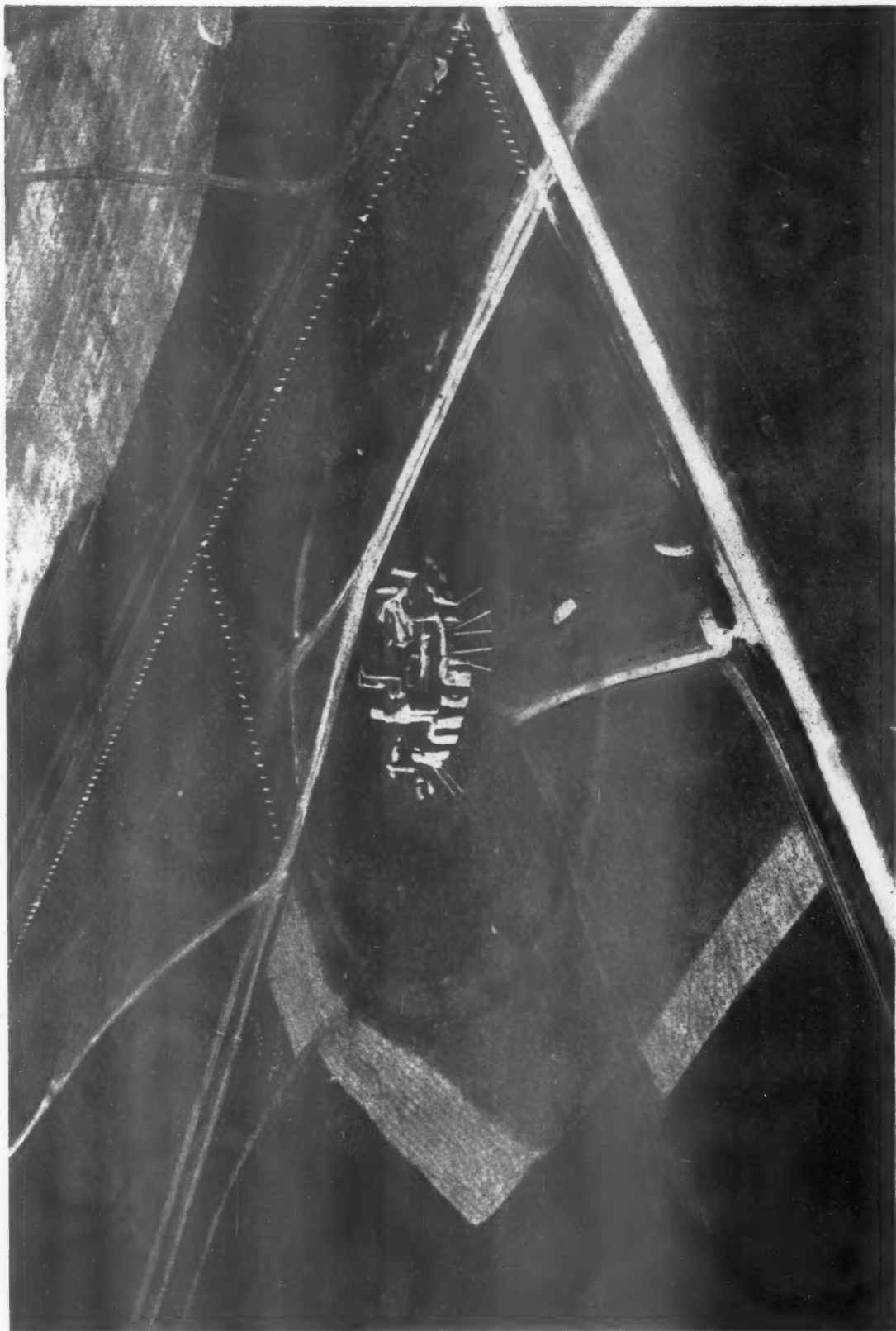


Plate IV.

A BIRD'S-EYE VIEW OF STONEHENGE.

(Taken from an aeroplane at 9 a.m. on 4 October 1918 from a height of 1,600 feet. Copyright Lieut. G. Holt.)

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NEW BOOKS.

A HISTORY OF THE ADELPHI.

THAT the perennial charm of the Adelphi can have lost but little if anything of its fullest potency was made manifest in the energetic protest that was raised against the commandeering of some of the Adam houses of which it might have been thought that the public had forgotten the origin and were oblivious to the beauty. Nor is the charm, or the fame, of the Adelphi wholly æsthetic. Romance, mystery, villainy, invest its "dark arches," which have been celebrated in popular song, with a degree of fascination that seldom attaches to objects of open character and blameless history. An ounce of wickedness has in it more of interest than a ton of innocence: and the Adelphi has a wicked past apart from the nefariousness simulated in "the Adelphi drama."

Those arches inspired Dickens with a sort of awe. They reminded John Timbs, "in their grim vastness, of the Etruscan

inconsiderable feat of architecture and engineering. As Peter Cunningham concisely puts it, they "connected the river with the Strand by a spacious archway, and over these extensive vaultings erected a series of well-built streets, a noble terrace towards the river, and a house with a convenient suite of rooms for the then recently established Society of Arts." In the racily eighteenth-century phrasing of Thomas Malton, the architectural draughtsman, "The extreme depth of the foundations, the massy piers of brickwork, and the spacious subterranean vaults and arcades, excited the wonder of the ignorant and the applause of the skilful; while the regularity of the streets in the superstruction [*sic*], and the elegance and novelty of the decorations, equally astonished and delighted all sorts and conditions of people."

Mr. Brereton recalls that the brothers had to get a special Act of Parliament giving them power to embank the river (they are therefore the real originators of the Thames Embankment),



Benjamin Green, del.

"THE BUILDINGS CALLED THE ADELPHI," 1777.

(From "The Literary History of the Adelphi and Its Neighbourhood.")

cloaca of ancient Rome. Beneath the 'dark arches,'" Mr. Austin Brereton quotes him as saying, "as they were (and are) called, the most abandoned characters used to lurk; outcasts and vagrants came there to sleep; and many a street-thief escaped from his pursuers before the introduction of gas-lights and a vigilant police." Cows used to be kept there, and excited the pity of Thomas Miller because they were "doomed to dwell in the unbroken darkness of the Adelphi arches, without ever breathing any other than the sepulchral air which stagnates this murky purgatory." They are still a little Dantesque; and as they were used as air-raid shelters, they would have formed a rather better setting for Mr. Bay's picture in this year's Academy than the Tube railway station chosen by the artist. Those arches form, in Mr. Brereton's phrase, a subterranean city.

There is no need to recapitulate in detail the history of the Adelphi. Everybody knows how (in 1768) the brothers Adam, having obtained from the Duke of St. Albans a ninety-nine years' lease, at £1,200 a year—a hard bargain for the Duke, who was heavily in debt—achieved what was, for its time, no

and that the Bill was blocked for no better reason than that the Court and the City were at loggerheads, and lost no opportunity of scoring off each other. A similar feud has been known to operate to the public detriment in our own day; the ancient City Fathers considering it their bounden duty to oppose to the utmost every improvement proposed by an upstart County Council of socialistic taint. As a correspondent of "The Morning Advertiser" wrote in 1771, with a deadly "Now, sir," to burb his shaft, "A great City ought not to act the Part of the Dog in the Manger, but should encourage every Scheme of public Advantage."

Mr. Brereton does himself some slight injustice by the narrowness of his title; for this is by no means merely a literary history. Its literary ana are copious and delightful; but a good deal of general history is also included, as well as much matter that is purely topographical and descriptive. It would appear also, from the miscellany of personal names—of actors, artists, bankers, beauties, quacks, statesmen—that the tit-bits of biography, the good stories of "characters" and "worthies" in which the book abounds, are by no means

exclusively literary. There are, for example, very useful, if necessarily concise, biographical particulars of the brothers Adam, besides, as our citations will have served to show, an account of their Adelphi doings, and an estimate of their position in architecture, that will prove quite adequate for the general reader.

More than a score of admirably chosen illustrations, and an excellent index, enhance respectively the beauty and the value of a book in which the architectural interest is certainly not greatly subordinate to the literary. It is, indeed, so pleasant a volume, and is written with so infectious a relish, that—

names redolent of romance and enchanting to the ear by their mere sonorousness. In course of time, the property passed to Henry Howard, Earl of Northampton, second son of the poet Earl of Surrey. Howard built there Northampton House, having for his architects Bernard Jansen and Gerrard or Garret Christmas. James, third Earl of Suffolk, having inherited the property, conveyed it, in 1642, to Algernon Percy, Earl of Northumberland, who had married Suffolk's sister, the Lady Elizabeth Howard, and then the name of the mansion was changed to Northumberland House. Its front was 162 ft. long, and the court was 81 ft. square. "The famous lion,"



ADAM STREET, ADELPHI.

(From "The Literary History of the Adelphi and Its Neighbourhood.")

the fact of its being a new edition is easily explicable; and it is not the less delightful for being at the moment quite topical. Its charm, however, like that of the Adelphi itself, is not accidental and ephemeral, but inherent and perennial.

Concerning Northumberland House, of which views are included among the illustrations here reproduced from Mr. Brereton's book, there are a round dozen of interesting pages. Northumberland House stood on the site of the hospital or chapel of St. Mary Rounceval, which was a cell to "the priory and convent of Roncesvalles" in Navarre, in Pamplona diocese

Mr. Brereton writes, "which delighted Londoners for a century and a quarter was placed in his proud position in 1752. It was cast in lead, from a model by Carter, and was twelve feet in length." The property was acquired in 1874 by the Metropolitan Board of Works, for £500,000, and the materials fetched at auction only £6,500. Northumberland Avenue was opened in March 1876.

"The Literary History of the Adelphi and its Neighbourhood." By Austin Brereton. New Edition, with Introductory Chapter and twenty-seven illustrations. Price 10s. 6d. net. London: T. Fisher Unwin, Ltd., Adelphi Terrace.



View from the Gardens.



The Ballroom.

H. Mauns, del.

NORTHUMBERLAND HOUSE (DEMOLISHED 1874).

(From "The Literary History of the Adelphi and Its Neighbourhood.")

WELFARE AND HOUSING.

It is among the many paradoxes of war that it teaches a greater respect for life, and calls forth not only ferocity but tenderness each in the superlative degree. An intense desire to kill and maim is accompanied by a passion for saving and healing. If it were not so, the human race would lapse into savagery—a fate that has overtaken the Germans as a consequence of their systematic suppression of pity and their deliberate cultivation of “frightfulness.” They fell into these harsh courses because of their peculiarly soft and plastic temperament. Therein lies another paradox. Although they pose as intellectual, they are in reality emotional to the last degree, and dare not give way to this weakness. Hence they fly to the opposite extreme, and call it Kultur. Luckily for humanity, the world has successfully revolved against this cult of cruelty, and, perhaps by revulsion, but more probably upon *a priori* grounds, has in this war reached a climax of commiseration with the injured, and has shown unprecedented concern for the physical welfare of workers as well as warriors.

It would be hard to say who were the pioneers in the great welfare movement to which the War gave rise. Whosoever they were, theirs is the praise of those who rise nobly to a great occasion, turning to advantage conditions that in feebler hands might easily have caused worsening instead of betterment. For what was the position? We were utterly unprepared for this great war, and it was necessary to get together at short notice hundreds of thousands of munition workers, to extend and adapt workshops for them, and to provide them with house-shelter. Would it have been at all surprising if, in these harassing circumstances, the welfare of the workers had been completely ignored? It was not. From the outset there were at the head of affairs cool-headed and far-sighted persons who were so determined to make the best possible provision for the health and comfort of the workers, that a very considerable advance upon current practice was immediately made, and there was established a general standard of welfare that can never again be lowered. On the contrary, there will ensue many refinements upon it; for if war-time is more prolific in the invention of schemes, peace-time gives greater liberty for their development.

A rather ironical passage in the second chapter of Mr. Hutton's book has it that “The effect of the War, in concentrating attention upon the value of the individual worker, since a large proportion of the normal supply of labour has been withdrawn to the fighting forces concurrently with the demand for an increased output of munitions, has become a commonplace observation. And suddenly the discovery has been made, though it is hardly yet fully appreciated, that the economics of industry depend at least as much upon the capacity of the worker—a capacity which is directly proportional to his vigour and health—as upon the wages paid to him. This discovery,” our author continues, “carries with it as a corollary that the environment and conditions of life, which not only render possible but also maintain a vigorous and healthy staff of workers, are as much a part of successful factory management as the devising of machinery, the perfection of processes, and the fixing of rates of wages. There is rapidly springing into existence, though still rather indefinite in its methods, a branch of factory management to-day called Welfare, but which might more scientifically be known as Physiological Management.” What it is called is no great matter. A tank by any other name would spell defeat for the Germans; and “Physiological Management” may be a more

scientific substitute for “Welfare,” but it goes less trippingly on the tongue, and the neater term, besides being more nimble, has a long start. We do not think that it is worth while to discuss so paltry a point. Science and pedantry should be kept as far as possible asunder, lest the latter corrupt and corrode the former like rust or electrolysis. We British simply waste time and energy when we fall to quarrelling about terms and definitions that simply do not matter a brass button: so *cadit questio*.

In America, Mr. Hutton reminds us, the expression “Scientific Management” is used for system that regards the work rather than the worker, and is altogether a less humane thing than “Welfare.” Not that Welfare is, either in its motive or in its aims, purely, or even mainly, philanthropic. Its object is to secure the utmost efficiency of the worker, and that this happens to coincide with the worker's health and with as much of comfort as conduces to physical well-being, and therefore to willing and energetic productive activity, is, to put the matter quite frankly, a mere accident of the situation. It has been discovered by business men that philanthropy in the manufactures, like honesty in trading, is the best policy; and in both instances there are very many who are glad of so hard-headed an excuse for the exercise of a virtue that they secretly admire, although they dare not openly reveal their passion for it lest they be thought sentimental, or, as they would say, unbusinesslike. In America there used to be a saying about business: “I am not in it for my health.” It was at best a foolish and a sinister saying. There is no reason why a man should not be in business for his health; the exercise, taken under proper conditions, is eminently healthy for body and mind. That absurd saying is therefore a confession that, generally speaking, business conditions are anything but what they should be. Bad management, like bad building, conduces to worry and ill-health. Mr. Hutton, who is manager of the labour and catering department of Vickers, Limited, which is probably the largest of all industrial organizations, has had, obviously, quite exceptional opportunities for acquiring experience in welfare work, and he has been therefore able to produce a volume that should be of great practical value to all to whom such work is likely to come. In this category architects are most assuredly included, as it must fall to them to give a local habitation to most of the ideas that are conceived by enlightened managers of labour and of catering departments. We have seen no book on this subject that conveys so much useful information in such small compass; the chapters on temporary and permanent housing, and on the planning of canteens, being particularly valuable as including actual data from Vickerstown, a “marine garden city” on the Isle of Walney. Plans, charts, and photographic views illustrate the author's main points; and there are useful appendices (chiefly official documents) dealing respectively with certificates of fitness, sanitary accommodation, washing conveniences, factory and workshop welfare as required in Orders by the Secretary of State, and first aid. It is a book that is capable of much service to the architect, in showing him in detail the conditions that he must meet.

“Welfare and Housing. A Practical Record of War-time Management.” By J. E. Hutton. With twelve illustrations from photographs and two plans. Price 5s. net. London: Longmans, Green & Co., 39 Paternoster Row.

PUBLISHERS' NOTE.—Any works noticed in THE ARCHITECTURAL REVIEW may be obtained through the publishers of the REVIEW, and may be inspected at the Architects' Reading Room, 27-29 Tothill Street, Westminster.

CORRESPONDENCE.

"THE CHURCHES OF BRIGHTON AND HOVE."

To the Editor of THE ARCHITECTURAL REVIEW.

SIR,

IN THE ARCHITECTURAL REVIEW for the month of August is an interesting article with illustrations on "The Churches of Brighton and Hove."* I venture to believe that I may be able to add a few notes to what has, up to now, been said, as I have had a fairly intimate acquaintance with very many of the doings mentioned in the article under consideration.

The first church referred to is naturally what is commonly called "The Old Church"—that of St. Nicholas (I have studied a goodly number of documents, and do not recall that in any one of them a dedication to St. Mary was to be found).

As regards the aisle walls of St. Nicholas Church, Carpenter was directed to increase the accommodation on the floor, the galleries being all removed. He did this with the least apparent change by adding several feet in width to each aisle, but reproducing the ancient windows. Unfortunately he took no thought for the fact that he very largely increased the cubic capacity of the building. There being no clerestory, the interior became exceedingly dark and horribly stuffy. After enduring much discomfort for many years it was decided to raise Carpenter's roof and introduce a range of clerestory windows. The roof was a close reproduction of the old one, which had been sadly cut to pieces by garret windows and holes of various sorts. The existing roof was raised 2 ft. 6 in. by screwjacks, whilst the clerestory windows were built as it rose: which I did.

May I next mention Trinity Church. The "arrested transformation" was, as far as it goes, designed by me—Somers Clarke. (Mr. G. Somers Clarke, my cousin, has been dead some thirty years, and did not design any church work in Brighton.) There is nothing to be said about this poor building, except to relate that when we broke a hole through the flat plaster ceiling the space above was found peopled by legions of fleas; these were not Christian fleas, for there is no evidence that they entered the church and annoyed the faithful. On what, then, did these fleas subsist?

We will next refer to St. Peter's, now the Parish Church. It is with much pleasure that one reads the appreciative account of this building—as it was. It was with no little regret that the apse was sacrificed, but it was only an outside piece of effect, and churches are, or should be, after all, built to be used. The inside of the building was a testimony to the young Barry, even in those days. He designed with no little skill a most convenient preaching-house, there being two very lofty pulpits—one for the church service, the other for the sermons—and it was difficult to find any one of the painfully crowded seats which was not well in view of these pulpits. But, preaching-house as it was, it had, not only outside, but inside, a quiet air of dignity very unusual in those days. The detail, painfully thin as it is, showed much observation.

It fell to my lot to lengthen the nave and add the chancel and aisles—in fact, to double the area of the church. Your critic's remark about the discord between old and new work is not, on the surface, unreasonable; but he also sees what is the ultimate intention, viz., to recase the original walls and to remodel the windows.

The Mr. G. Cheesman who is called over the coals . . .

* Other articles have since appeared—in the September and October issues.

does not really deserve this fate. He was simply a successful builder . . . employed as an architect.

It is pleasant to read so appreciative a criticism of St. Paul's Church. It would be rather far from the truth to suppose that the interior has the cheerful and well-lighted aspect we see on Plate I or Fig. 10. Mr. R. C. Carpenter screwed himself tight into a mediæval coffin. The type of church he adopted, very common in Sussex and small in scale, was singularly unsuited to a town church squeezed in between houses. So ill provided with windows is it that some years since little dormers were pierced through the roof. Although the modern organ is large—too large—no provision could be found in mediæval structures for its adequate accommodation. At St. Paul's Mr. Carpenter squeezed it into a miserable little hole in the roots of the tower. At St. Nicholas Church the kennel provided would not even hold the little old instrument, which, after being stored for some years in the Pavilion, was finally eaten of mice. At All Saints' Church no provision of any sort was made, resulting in the west window being entirely blocked by an organ and gallery, the internal effect and convenience of the building being not a little damaged.

What a curse to architecture is "Style," so-called!

SOMERS CLARKE.

Cairo, 20 September 1918.

In reply to Mr. Somers Clarke's very interesting letter, Mr. Goodhart-Rendel, to whom we submitted a proof, writes as follows:—

SIR,

I hope that the second and third articles on the Brighton Churches may elicit from Mr. Somers Clarke still further notes—and perhaps corrections—since no one is so well qualified as he to speak on the subject.

My authority for the double dedication of the old Parish Church will certainly not weigh against Mr. Somers Clarke's study of actual documents. It was merely that of an eighteenth-century book about Brighton to which I have not now access, in which the assumed fact of such a dedication was made the text for some exceedingly improper and Protestant remarks. I am too great an admirer of Mr. Somers Clarke's designs to recant hypocritically my criticism of the clerestory at this church, though had I known that it was his work I should have written with less assurance. I think he will agree with me, anyhow, that Carpenter's roof does not gain by being so much better seen.

I think Mr. Somers Clarke will find that one "G. Cheesman, junior," was willing to be called "architect" . . . and thereby qualified for the criticism to which a designer is exposed.

If Mr. Somers Clarke is good enough to write again, perhaps he will tell your readers what I have not been able to discover—the name of the artist responsible for the very complete and fine glazing of St. Martin's Church.

Let me in conclusion apologize for the slip of the pen by which I affixed the initial "G." to Mr. Somers Clarke's name. Although Mr. G. Somers Clarke "did not design any church work in Brighton," am I not right in believing him the architect of Swan Downer's School and the Blind Institution in that town?

I am, Sir,

Yours faithfully,

H. S. GOODHART-RENDEL.

NOTES OF THE MONTH.

The Repair of St. Paul's.

Reparations at St. Paul's Cathedral have now reached a definite stage after five years of work following investigations that revealed considerable grounds for anxiety. Particulars are not yet available, and Canon Alexander's reference to the work that has been done does not overwhelm us with highly technical detail. "Since we started," he said, "our efforts have been almost entirely directed to restoring the most critical part. It was so badly shattered that we have had practically to rebuild it. Now we are starting on the south-east pier." He was more definite on the subject of cost. Originally the estimate was £70,000, but the heavy increase for materials and labour will bring up the figure to the good round sum of a hundred thousand pounds.

* * *

Italian Studies at Oxford and Cambridge.

Mr. Arthur Serena's princely gift of £20 000 to be divided between the Universities of Oxford and Cambridge for the foundation in each of a Chair of Italian and a Department of Italian Studies should be particularly gratifying to architects, who of all men are best aware of the debt we owe to Italy, and would fain increase it. If our language and literature are saturated with the Italian spirit, not less so is our architecture, albeit we responded so sluggishly to Renaissance influence, that while our literature from Chaucer onwards was fed and refreshed from Italian springs, it was not until the days of Inigo Jones and Wren that the genius of Italy in architecture was clearly recognized. It is rather remarkable that a Chair in Italian was not established centuries ago in universities that owe so much to Italian example in art, literature, and science, in the foundation and polity of seats of learning, in the classical culture that is racy of its soil. Looking to the abundance and nobility of art and literature in Italy, and to the supreme beauty of its language, it is humiliating to reflect that, during the Victorian era, Italy was almost entirely neglected by us for so crudely barbaric a country as Germany. And the language of Italy is sheer music, while the language of Germany is most charitably left undescribed. For us, however, the main point is that you cannot establish Chairs in Italian language and literature without simultaneously promoting the study of the arts and sciences, and in this sense Mr. Arthur Serena's gift extends, virtually though not statedly, to architecture.

The late Mr. C. C. Brewer.

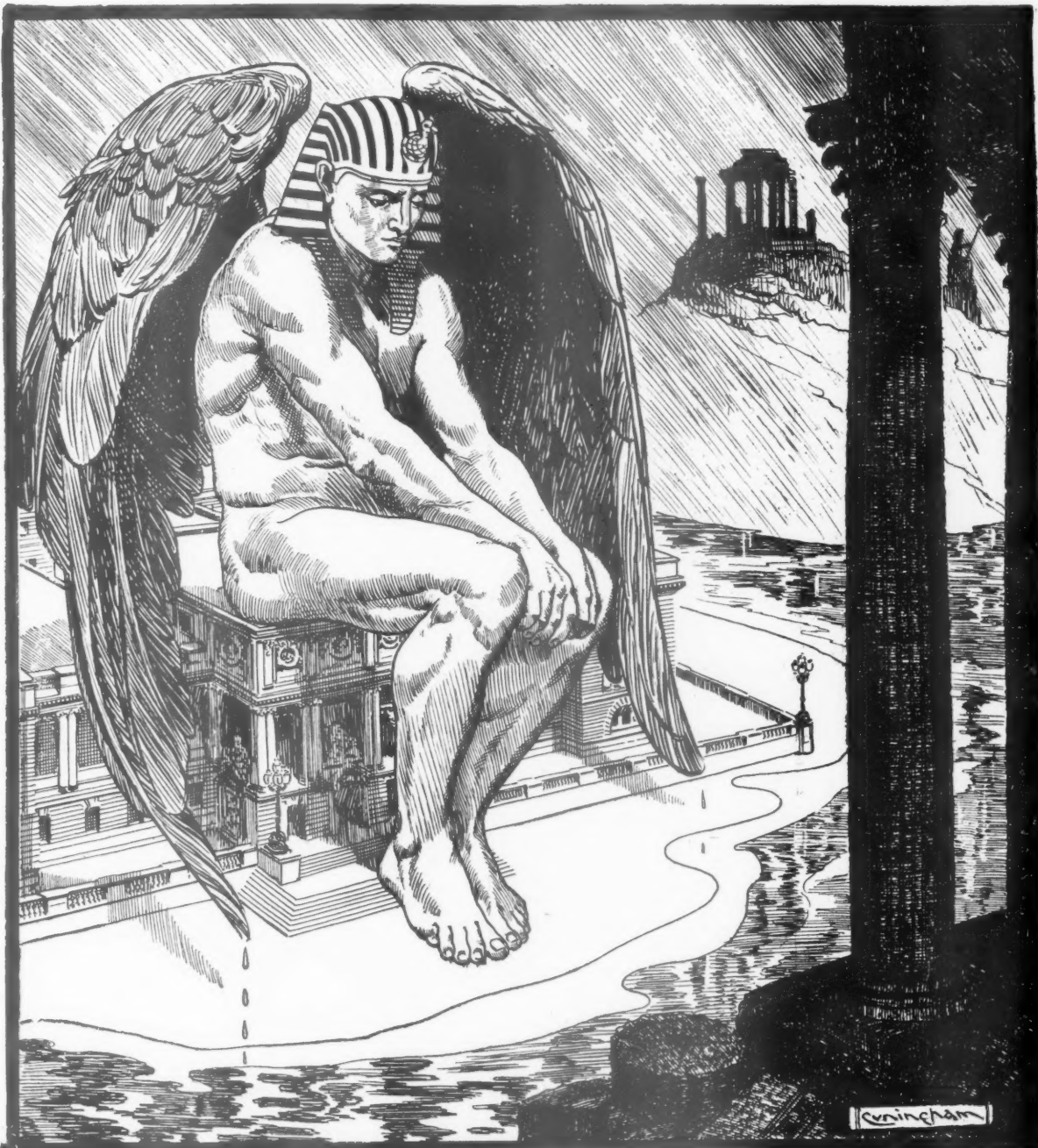
An affectionate memoir of the late Mr. Cecil Claude Brewer, F.R.I.B.A., by his friend and partner, Mr. A. Dunbar Smith, appears in the latest issue of "The Architectural Association Journal." Mr. Smith met him first at the office of Mr. F. T. Baggeley, in 1890, and records that "at this time, as later, he was remarkable for an extreme youthfulness of appearance that contrasted strangely with the ability, keenness, and self-confidence he displayed. Full of high spirits and ready for any fun, he took—I think I am right in saying—a girl's dancing part in one of the A.A. plays, while later he danced in the Art Workers' Guild Masque." He was a lover of art, and had a very pretty knack in it, usually returning from a holiday, as Mr. Dunbar Smith tells us, with a number of charming water-colour drawings. When he won, with some measured drawings of St. David's, the A.A. Travelling Studentship, he went to Brittany, where he made drawings that gained him the Pugin

Prize. Later, the Godwin Bursary enabled him to visit the United States and Canada, where he took notes for his influential report on Museums and Picture Galleries. He held also the Donaldson Medal in Fine Art. His love of art, and his keen desire to promote the love of it in others, led him to become the first secretary of the Junior Art Workers' Guild, and later to become an active member of the Senior Guild. For many years he acted as one of the editors of "The A.A. Sketch Book," and he was keenly interested in the art of calligraphy. His architectural work, done in partnership with Mr. Dunbar Smith, includes the National Museum of Wales, the Passmore Edwards Settlement at Bloomsbury, the Albemarle Club in Dover Street, the East Anglia Sanatorium, and various country houses. In another memoir of him in the same issue of "The A.A. Journal," "H. M. F." records that Brewer's "great natural gifts were enhanced by his extraordinary thoroughness and power of application. His early association with the Arts and Crafts movement led him to acquire an intimate knowledge of all the trades and crafts connected with building; but his mind was of too definitely architectural a bent to leave him content with craftsmanship as an end in itself, and in later years he inclined more and more to the larger view of architecture as a matter of fine planning, ordered massing, and intellectual expression." Alas that he should have died at the age of forty-seven!

* * *

Winchester War Memorial Scheme.

Mr. Herbert Baker has prepared plans and drawings of a gatehouse, memorial cross, and new approach to the west front of Winchester Cathedral—the first portion of a scheme adopted by a committee that (under the presidency of Earl Selborne, K.G.) has been considering the subject of a County War Memorial to fallen officers and men of Hampshire units, both naval and military. The portion dealt with is the broad path which leads down to the great west door of the cathedral from the further end of Great Minster Street, where it is joined by Symonds Street, Little Minster Street and Minster Lane running in practically at the same point. The expression "gatehouse," of course, implies more than a mere gate, and it is intended there shall be a double archway, on each side of which would be two vaulted bays, with tablets on the walls capable of being inscribed with from 15,000 to 18,000 names. Judging from the drawings, the outline of the actual gate, as seen from the exterior, is that of a perpendicular arch. The building will be of flint and stone, to harmonize with the old wall adjoining. The gatehouse will be entered from the roadway by two steps, and at the exit is a step or steps down to a gravelled space, by the side of which four trees are to be planted, which, in time, will grow sufficiently large to form a kind of avenue. Beyond this gravelled space other steps will lead down to what is proposed to be a sunk paved court. In the centre of these steps will be a Memorial (Celtic) Cross, standing on a stone base the height of the steps, on which there will be an inscription. The cross faces the centre of the west door. This paved court will have on one side the present old high wall, and on the other side low walls are to be built, and it is suggested that there may be flower-beds against the walls. From the paved court, steps again will lead down to another large gravelled space immediately in front of the cathedral and on a level with the floor of the nave, the idea being that this space may be necessary in the case of ceremonies, while it would still leave available the carriage approach from Market Street.



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NOTES OF THE MONTH.

A British Institute of Industrial Art.

The Board of Trade, in conjunction with the Board of Education, and with the advice of representative members of the Royal Society of Arts, the Arts and Crafts Exhibition Society, the Art Workers' Guild, the Design and Industries Association, and various persons and organizations connected with manufacture and commerce, have framed a scheme for the establishment of a British Institute of Industrial Art with the object of raising and maintaining the standard of design and workmanship of works of industrial art produced by British designers, craftsmen, and manufacturers, and of stimulating the demand for such works as reach a high standard of excellence.

The Institute will be incorporated under the joint auspices of the Board of Trade, as the department dealing with industry, and the Board of Education, as the authority controlling the Victoria and Albert Museum, and the methods by which it is proposed to achieve its objects include:—

- (a) A permanent exhibition in London of modern British works selected as reaching a high standard of artistic craftsmanship and manufacture.
- (b) A Selling Agency attached to this exhibition.
- (c) A Purchase Fund for securing for the State selected works of outstanding merit exhibited at the Institute.
- (d) The establishment of machinery for bringing designers and art workers into closer touch with manufacturers, distributors, and others.
- (e) The organization of provincial and travelling exhibitions of a similar character, either directly or in co-operation with other organizations.

The scheme has been framed and will be worked in close co-operation with the Council of the Royal Society of Arts, whose own scheme for the encouragement and co-ordination of movements towards the development and improvement of Industrial Art includes as one of its objects the support of the proposed Institute. Those interested should communicate with the Secretary, British Institute of Industrial Art, Board of Trade, 7 Whitehall Gardens, S.W.1.

* * *

Greek Delegates Visit the Carron Works.

The Greek delegates who are touring business and industrial centres in this country, under the auspices of the Federation of British Industries, visited Carron Works on 9 October. Arriving at Larbert Station at 12.34, the party were conveyed in motor-cars to the Dobbie Hall, where they were entertained to lunch by the Carron Company, under the chairmanship of the Company's manager, Mr. Geo. Pate, who was supported by Bailie King, chairman of the National Light Castings Association, Mr. Robert McFarlan, C.A. (of Messrs. Kerr, Andersons, & MacLeod), the organizer for Scotland of the Federation of British Industries, and by Mr. G. E. R. Young, assistant organizer. After lunch the party went to the Carron Works, and were conducted through the various departments of the Low and Mungal Foundry by Mr. Pate and a few of the Company's officials. Tea was served in the Company's canteen at Mungal Foundry, after which the party drove to Larbert Station to catch the 4.30 train for Glasgow, where they were to be entertained to dinner by the Lord Provost and Corporation of that city.

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