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# South African Architectural Record: Journal of the Transvaal, Natal and Orange Free State Provincial Institutes of South African Architects and the Chapter of South African Quantity Surveyors

**1921**

Institutes of South African Architects and the Chapter of South African Quantity Surveyors

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*The South African Architectural Journal*

# BUILDING.

THE JOURNAL OF THE ASSOCIATION OF TRANSVAAL ARCHITECTS
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EDITOR—
E. M. POWERS, F.R.I.B.A

ASSISTANT EDITORS—
E. H. WAUGH, A.R.I.B.A., M.S.A.
R. HOWDEN, A.R.V.I.A. F.S. ARC.

BUSINESS MANAGER—
MURRAY K. CARPENTER,
67, EXPLORATION BUILDINGS.
COMMISSIONER STREET,
P.O. BOX 2266, JOHANNESBURG.
PHONE 5821.

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## Special General Meeting.

MINUTES of the Special General Meeting of Members held in the Scientific and Technical Club, 100, Fox Street, Johannesburg, on Friday, 2nd December, 1921, at 5 p.m.

Present: The President, Mr. E. M. Powers (in the Chair), Messrs. J. S. Donaldson, F. L. H. Fleming (Vice-Presidents), N. T. Cowin, D. M. Burton, D. M. Sinclair, R. Howden (Members of Council), and Messrs. J. F. Beardwood, G. Bromilow, H. Bell John, S. C. Dowsett, M. J. Harris, P. J. Hill, M. J. Heir, Gordon Leith, S. V. Mann, G. E. Pearse, H. Porter, Walter Reid, C. W. Reid, F. Raine, H. W. Spicer, H. Simonsen, E. H. Waugh, F. Williamson, and the Registrar, M. K. Carpenter.

Nineteen Members were represented by proxy.

The President, in declaring the meeting properly constituted, called upon the Registrar to read the following notice convening the meeting, issued to each member of the Association on the 10th November, 1921:

SPECIAL GENERAL MEETING.

Dear Sir,—I have the honour to invite your attendance at a Special General Meeting of the Association, to be held in the Council Chamber, First Floor, Scientific and Technical Club, 100, Fox Street, Johannesburg, at 5 p.m., on Friday, the 2nd December, 1921.

AGENDA.

Business: (a) To consider, and if approved, to adopt a resolution, recommended by Council, to make payment of a sum exceeding that provided for in by-law 19, that is to say:

UNION REGISTRATION BILL—PRELIMINARY EXPENSES.

That the Council of the Association be and hereby is authorised to pay out of the accumulated funds of the Association to the Union Registration Executive Committee (appointed by the Architectural Conference), a sum aggregating Two Guineas for each member registered under Transvaal Act No. 39 of 1909, at this date.

(b) To consider, and if approved, to adopt the following suggested alteration or amendment to By-law No. 22, recommended by Council.

APPOINTMENT OF COMMITTEES.

To cancel the first sentence of by-law 22 and substitute:

"The Council may appoint Committees from among the registered members."

MURRAY K. CARPENTER,
Registrar.

Mr. Walter Reid stated that as one of the members responsible for the Transvaal Act No. 39 of 1909 he was aware that the proposed Union Act would require money, but he trusted that the members present would follow the lines adopted by the promoters of the first Act and place the objects of the profession above that of finance.

The proposed levy of Two Guineas per member could have been met by the Council contributing the sum of £100 per annum over a period of three years, but in order to obtain the co-operation and immediate support of all members it was decided to submit the proposal to this special meeting, which proceeding he had much pleasure in supporting.

Mr. Walter Reid thereupon formally proposed:

"That the Council of the Association be "and hereby is authorised to pay out of the "accumulated funds of the Association to the "Union Registration Executive Committee "(appointed by the Architectural Conference) "a sum aggregating Two Guineas for each "member registered under Transvaal Act "No. 39 of 1909, at this date."

Mr. J. F. Beardwood, in duly seconding the motion, was of the opinion that we were within our rights in endeavouring to extend registration and to reform our Act where considered necessary.

In response to a request the Registrar read a written opinion obtained from Advocate J. Stratford, K.C. (now a Judge), expressing his conviction that we were within our rights in spending the Association funds upon the objects which prompted the passing of our Act.

Mr. S. C. Dowsett was of the opinion that the Association was exceeding its functions in allocating a sum of money to a sub-committee, outside the Association, because by so doing the Association lost control over those funds.

Mr. M. J. Harris trusted that any venture to which the Association in general meeting gave its sanction would be loyally supported by individual members; it was inconceivable that any member of the profession would query a general decision of members in respect of the adoption of a measure for the general betterment of the aims, objects and status of the profession, and was hopeful that the motion, with which he was in whole-hearted support, would receive the unanimous support of all the members present.

The President here stated that the number of members on the roll at this date was 146, and the proposal involved a payment of 292 guineas.

A vote was thereupon taken on a show of hands, and the proposal was carried nem con, 24 of the members present voting in its favour; of the members represented by proxy, 18 voted for the motion and one against.

The payment of the levy was therefore authorised by a majority of 42 votes to one, while one member refrained from voting.

Mr. F. L. H. Fleming, in introducing the proposed amendment to by-law 22, said that the original promoters of the Act could not have had the idea to appoint members of Committees only from among members of Council.

The work of the main body was very heavy, and it was proposed to utilise the services of other members of the Association in order to give a certain amount of relief to Council members.

He trusted that not only would members agree to the proposed amendment, but that they would accept nomination to Committees and thus become acquainted with the aims and objects of the Council and the work of the Association.

Mr. Fleming then proposed the following resolution :

(b) "To cancel the first sentence of by-law 22 "and substitute 'the Council may appoint Com- "mittees from among the registered members.'"

This was duly seconded by Mr. J. S. Donaldson, and on a show of hands was declared carried unanimously.

In connection with this resolution it is recorded that all the proxy votes were in agreement with the alteration.

A vote of thanks to the President for conducting the proceedings, proposed by Mr. Walter Reid, was carried with acclamation, and the meeting terminated.

---

FRONTISPIECE.—Memorial Hall, Transvaal, Memorial Hospital for Children. This is a prominent feature in the Administration Block of the New Hospital in course of erection at Milner Park, Johannesburg, from the designs of the Architects, Messrs. Cowin, Powers, and Ellis. It is proposed to panel the walls in stinkwood with the names of the donors of cots to the memory of the fallen placed thereon. The hall is top-lighted with steel barrel lights and lead glazing, and it is intended that the floor should be laid with rubber tiling to ensure quietude.

## REINFORCED CONCTETE DESIGN & CONSTRUCTION.—IV.

### SHEAR AND ADHESION.

From the previous article it will be seen that the adhesion varies directly with the shear, and will be a maximum at the supports of a beam. Hence it usually suffices to calculate it at these points. It generally happens that some of the bars are bent up, and are then not available to resist adhesion stresses, and only those bars which run through to the supports can be considered.

The alinement diagram, herewith presented, gives the number and diameter of bars required for any case.

The point in the beam at which the bending up of the bars takes place from the support is ordinarily where the shearing stress attains its permissible value. Let z be this distance, and w be the load per foot run upon the beam,

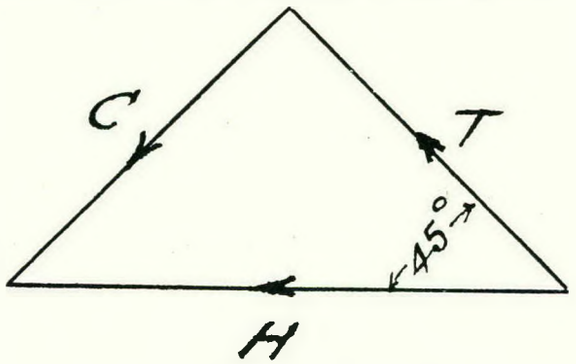
$$\text{Then } V_c = R - wz \text{ and}$$

$$z = \frac{R - V^c}{w}$$

in which $V_c$ is the total shear taken by the concrete. The number of bent-up bars is determined from the diagonal tension T. The horizontal stress which must be taken up by the concrete through the distance z becomes

$$H = \frac{v - V_o}{2} zb$$

in which v is the calculated unit shear, and is the allowable unit shear, or 80lbs. per sq. inch. The rods being bent up at an angle of 45 degrees,




$$T = \frac{1}{2} \frac{H}{\cos 45°} = \frac{1}{2} \frac{(v - v_o)\, zb}{2 \cos 45°}$$

$$= \frac{(v - v_o)\, zb}{2\sqrt{2}} = 0{\cdot}353\,(v - v_o)\, zb$$

The compression stress C is taken up by the concrete. If n rods are bent up, each one takes a stress of T/n, and those remaining should have sufficient sectional area to carry the tension beyond this point.

## Diagram 4

# Bond Stress for Rods in Beams.

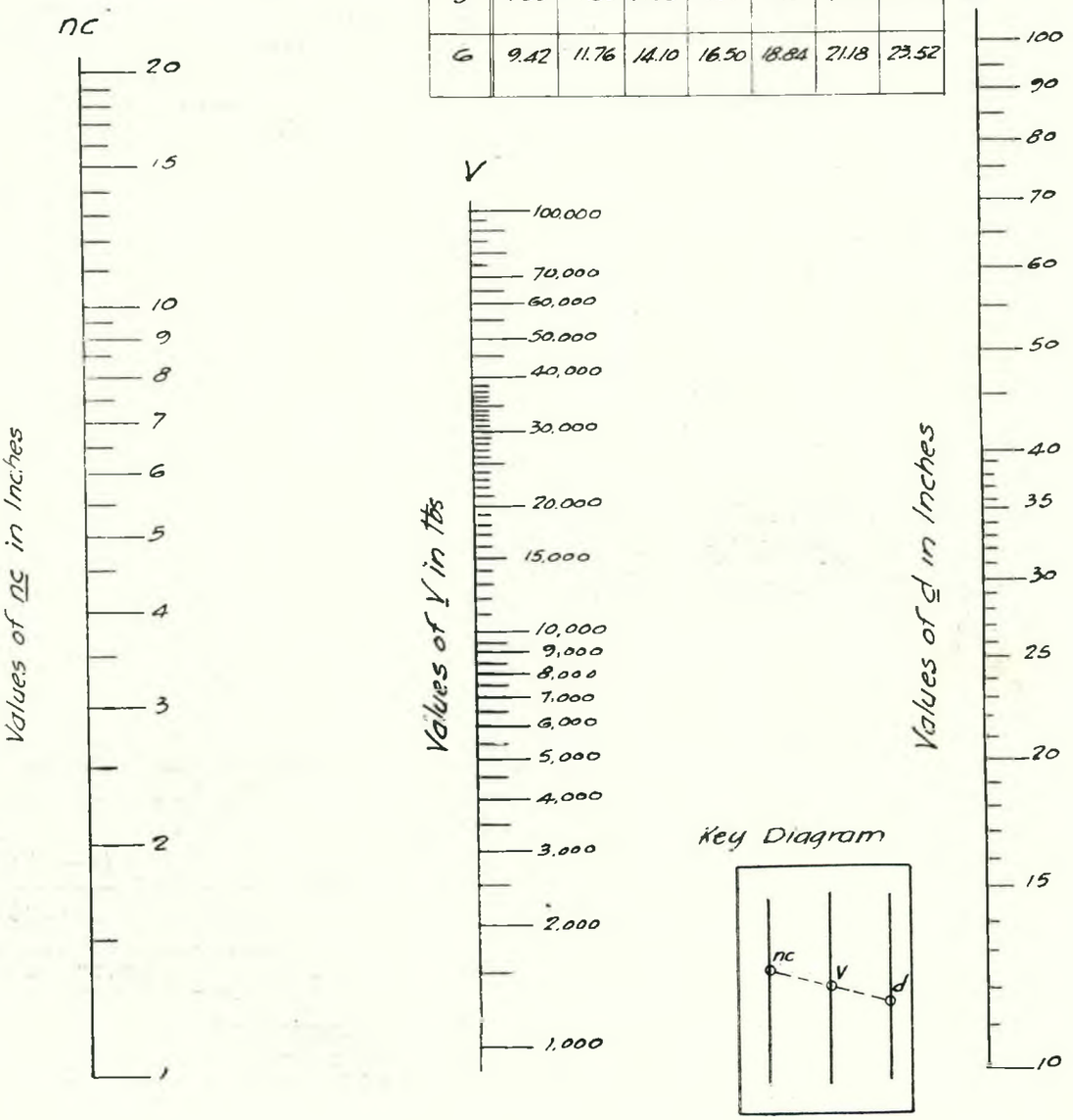
$$u = \frac{V}{ncjd}$$

$u$ = 80 lbs per sq. inch + 50%
$n$ = no. of Rods for bond.
$c$ = circumference of Rod
$j$ = .88
$V$ = Shear
$d$ = effective depth of beam

Note : To be used only in combination with Stirrups.

Values of nc

| No. of Rods | Diameter of Rods | | | | | | |
|---|---|---|---|---|---|---|---|
| | ½ | ⅝ | ¾ | ⅞ | 1 | 1⅛ | 1¼ |
| 1 | 1.57 | 1.96 | 2.35 | 2.75 | 3.14 | 3.53 | 3.92 |
| 2 | 3.14 | 3.92 | 4.70 | 5.50 | 6.28 | 7.06 | 7.84 |
| 3 | 4.71 | 5.88 | 7.05 | 8.25 | 9.42 | 10.59 | 11.76 |
| 4 | 6.28 | 7.84 | 9.40 | 11.00 | 12.56 | 14.12 | 15.68 |
| 5 | 7.85 | 9.80 | 11.75 | 13.75 | 15.70 | 17.65 | 19.60 |
| 6 | 9.42 | 11.76 | 14.10 | 16.50 | 18.84 | 21.18 | 23.52 |



# The "Dower Chest."

Burmese Rosewood (probably "Jacaranda Cabiuna), mounted with Brass. Dimensions, 4ft. 6in. x 2ft. 0in. x 2ft. 7in. high.

(This chest was designed by W. J. McWilliams, F.S.Arc., of Port Elizabeth.)

A rosewood log was landed at Algoa Bay during the time of the Jameson Raid, and was allowed to remain uncut until last year, when it was purchased by Mr. McWilliams for the purpose of making this chest.

The woodwork was executed at the factory of Isaacs Brothers, Port Elizabeth.

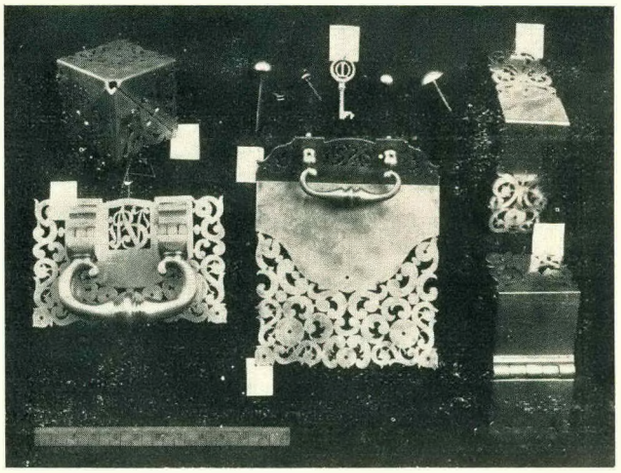
The brass straps, handles, hinges, lock and key were all executed by W. J. McWilliams from his own designs. The straps, etc., are $\frac{1}{16}$in. thick, and the piercing of the design entailed the breakage of four hundred and eighty jewellers' saws. The round heads of nails are brass cast on copper shanks, which are roved and riveted on the inside.



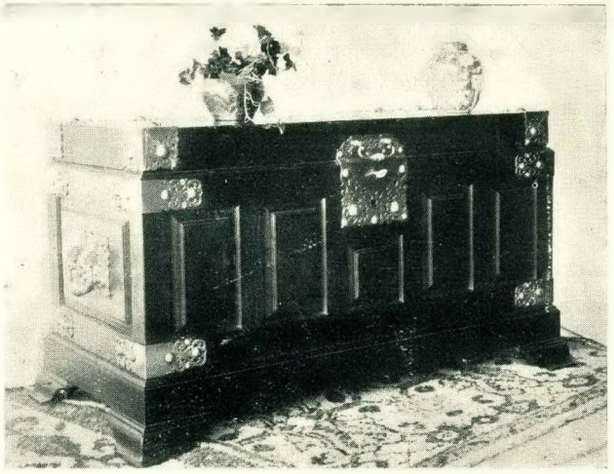
Initials are pierced on each of the handle plates, and the date is pierced over the lockplate between the handle bolts. The key has a monogram pierced in a web in the brass shank. The lock has two levers travelling with the bolt, and is entirely of brass except the spring.

The brasswork before fixing weighed just $44\frac{3}{4}$ lbs.

The rosewood shows a beautiful grain, and is left its natural colour, being brought to a silky surface with oil well rubbed in.



The design, adapted from old Florentine work, is a marvel of delicacy and grace, and is delightfully true to the medium: it is interesting to trace the development of the pattern from the bare statement of the motive at the back of the hinges to the full realisation in the corner-pieces, but perhaps the most remarkable feature of it is the way in which the letters and the very figures of the date are made to harmonise with the pattern, to flow in the very curves of the whole design. The whole chest is a true example of what is meant by the impression of perfect fitness.



# The Matrix (No. 2)

*By G. W. Nicolay, F.S. Arc.*

Many people think and often express themselves as if a general statement was a valueless thing, but when we begin to think about details, its use becomes so clearly visible and obvious as to be proof of its value.

Necessary as it is to go into details, that is to examine the parts, it is equally necessary to remember the whole; the whole is greater than the parts. At present there seems to be much impatience about art in every form and manner, but that is only putting the business on one side and resting content that the art of the day should as represented by results be as poor as the talking and writing about it is exalted. The general statement as to the use of details, plain or enriched in architecture, has been made in the first part of this number (Matrix No. 1), and though entering perhaps a sort of danger zone, some details will now be discussed.

And first of all, it is most necessary to remember that, as has been already noted and cannot be too often repeated, these details are the property of all ages and must not be considered as new inventions if they appear in a treatment or manner of use unlike what has been done before. In the use of the cylindrical shaft or column the best has always been either the cylinder equal in diameter all the way up or the more refined and, when properly placed, far the most beautiful, namely, that with the diminished diameters familiar in the works of the Greeks and Romans. There is a very ancient example, however, with the reverse treatment, the base being much less in diameter than the summit, only about half as great, and it has a rudely carved capital. It is extremely clumsy in appearance, and may have been an attempt to do something fresh, but it appears never to have been repeated. Such eccentricties are not inventions, nor yet variations, and should never be regarded as anything more interesting than mere curiosities. There was recently a taste for such things and much good stone, timber and labour in consequence wasted, and the hopes of permanent good design in such matters much postponed. For there are plenty of people who still crave for the primrose path to art, and cannot distinguish it from the nebulous path to variety.

For there is a primrose path to the Arts, and it is like the primrose path to every other good. It is the path of hard work and cheerful study, and is open to all and ever has been.

It is necessary in a review which is by reason of the conditions under which it is produced little more than a sketch, to limit the number of details to be briefly examined, and seven will be taken as generally principal.

And first the treatment of the general surface which will cover the principle of texture, and it is well to note in passing that although some writers and speakers have recently suggested that the work of the artist is a slippery kind of business which is not fully controllable, and that it happens, and often happens, that the best effects are the result of accident, it cannot be too clearly stated that such is not the case. If the artist can only stumble, as it were, upon success, he is, of course, a failure. His business, and it is often the sole aim and passion of his life, is that admirable control of the material at his disposal that enables him to achieve his effects with the precision and security corresponding to the work of a mathematician. And it has been done in Architecture, almost perfectly in the pagan temple, the Parthenon at Athens, and less perfectly in the Chrisian church at Amiens, and in many others.

1. The general surface of a building may be regarded as the groundwork upon which the general effect is worked out. Whatever the materials of which it is constructed the management of this is easily controlled by the architect. In ancient times the tendency was always to smoothness, of recent years there has been a tendency to roughness. The reason for this is to be found in another modern tendency, that of keeping, at all events externally, the material used on the construction visible to the last, whereas in ancient times, as has been noted, it was the custom to finish with fine plaster and colour. In building, however, the texture of the surface is affected by other matters than the surface finish of the material used, the most important of which is the joint which, viewed from a short distance, gives an appearance of added roughness or smoothness.

This will be apparent if two brick walls, one of hard bricks with a round arris and wide joint, are compared. The one will appear smooth, hard, almost metallic, the other rough, soft, and more akin to the texture of some fruit rind that holds the light but does not glaze.

These may be called the natural textures of building work, and then remain the textures produced by means of manner of working of the surface or the moulding or carving of it. These are like the former common to every material from granite to plaster, in the harder materials all the working of the surface where the marks of the tools are left, and in the plastic materials all scratchings or abrasions of the face of the work, whether in clay and afterwards burnt or in plaster and setting hard afterwards. Last, the actual carving or modelling of the surface whenever it is carried over a considerable part of the surface, as was common in the Romanesque work and onward through the middle ages. The most common form is that called the diaper, which was probably derived from the painted patterns usual far into the Egyptian times. The positive carving of the surface which is the most rare manner of producing texture and only applicable to a work when no spaces are left which are quite plain, and the character of the groundwork is decided by carving containing figures sculptured in low relief.

2. Vertical lines in the more ancient works consist almost exclusively of columns, antie or responds, and the jambs of doors and windows and the short lines enclosing panels and such-like, and were treated as subservient to the horizontal lines. But in later Roman work pilasters were added, and the windows became more numerous, and the buildings two or three storeys high. And this accentuation of the vertical lines was continued by the Romanesque and Gothic builders. The Gothic builders added the buttress and the pinnacle and lengthened the windows, added also the wall shaft and the roof shaft, and generally adopted a more lofty proportion which assist the effect produced by the vertical lines and made the horizontal lines subordinate, although with less insistence in ecclesiastical than in domestic work.

3. Horizontal lines are less often accentuated even in the ancient architecture than the vertical lines, which are also less in number, and here it may be well to note that the lines referred to in these notes are not of the nature of those used in drawing, nor have the effect that such lines have; they are strips, so to say, of light or shade, as for example in columns, in one case giving a line of strong light against the shadow of a portico, or again the strong dark line produced by the column when thrown against the light at the angle of a building where the portico turns away at right angles and leaves the columns in changed positions, the light giving to one the support of a shadow behind it, and light on the surface of the column, and to the other a light so strong behind it as to make it appear dark, that is to say, dark in the centre with graduated shadows at the sides and in the other a bright clear light in about the centre and graded shadows at the sides. In fact, these features of a more or less attenuated condition which arrests the eye and are intended to do so, and which are depended upon for the effect produced when the full modelling of the finished building takes the place of the technical representation of it in the drawings made by the designer who has in many cases been a painter or sculptor first and an architect afterwards.

The principal horizon lines of the building are those forming the base and crown and intermediate bands and the subsidiary lines, those which are intermittent such as the heads and sills of a range of windows which often, besides conferring the horizontal effect desired, give a subtle rhythmical effect often most valuable.

The reason why the principal buildings of ancient days were so characteristically horizontal is because being the only one storey in height their vertical lines were entirely confined between two sets of closely combined horizontal lines. The base commonly consisting of a flight of steps and the crown consisting of the cornice and entablature supported immediately by what could be seen of a very low pitched roof. This is particularly noticeable in the Greek buildings. In Roman work, when structures become more lofty and the roof less visible except in the distant view, the cornice and entablature were reinforced by the addition of the balustrade and the supporting effect of the roof surface being last the sky-line becoming insecure and uninteresting, a row of ornamental devices, vases, little obelisks and blocks of various shapes were added as correctives. The stepped platform which formed the base was probably the direct successor of the mound often quite artificial though of great size, on which the palaces, always

fortresses of the rulers of the various States or districts, were built for security.

4. Of enriched lines it is not necessary to note more than a few general characteristic features. Occasionally the base lines are enriched. The intermittent lines of moulded bases and moulded or carved capitals, also the notched or carved bands and the jambs and heads of doors and windows often are, and such things as balustrades, parapets and the like. Some of the Roman monumental columns had broad spiral bands from base to summit on which the history of a life of some important personage or some events in its were faithfully portrayed by means of sculpture in high relief. Round the eastern part of the Byzantine church at Murano there is a band composed of triangles alternatively of brickwork and marble slabs, some of which are sculptured.

5. Enriched surfaces are of the nature of texture and at a distance always appear as such; the columns just alluded to soon lose any value as sculpture, and the upper part is always reduced in value to a rich though coarse texture. Although there is much of this kind still extant, it is so extremely costly that it is unlikely to be much used at present, and although some affect to treat it with scorn, should it be finely done and the grapes not sour, no one would in all probability object to it. It is used with magnificent effect on some of the great Gothic churches.

6. Panels which may be considered as enclosed spaces of any form have been used from the earliest times; they may be either raised or sunk, and have been used in every good form imaginable and in many that are bad. They are used singly or in combination, and when small in combination and covering a large surface are reduced to mere texture, though often very valuable, but when used as enrichment are of little value. When the panels are large, however, even when of the plainest either in masonry or carpentry, they have been used over the greater part of a building with fine effect. Panels combined in geometric figures, especially those based upon the octagon and hexagon, have been much used, and in elaborate work give a very rich and varied effect. Considered as decorative features, the metopes between the triglyphs are panels, so are the quatrefoils fitted with figure subjects in low relief on the plinth at Amiens. So are pediments and insertions such as the piercings in parapets unless continuous. And they are all used in two principal ways, either to produce rythmical arragement of continuous effect or to mark strong points which the imagination will connect and form into patterns.

Of the same kind are recesses, niches and the spaces between the shafts in wall arcades such as those at Pisa.

7. But these have been used so much for the enclosing of single statues that they are better kept separate, because they belong chiefly to the Romanesque Gothic and the Renascence periods. These may be regarded as the principal means used in times past to develop the architectural visions of builders, and they were no doubt used with the freedom with which a painter treats his pictures. All devices for showing form of any kind depend on light and shade or colour. There is no exception, granting that black and white are colours, and in nature as we look about us we see no black and no white but colour everywhere. There are not lines like those we use in drawings, and these said lines are the things which an earnest student of Architecture should as soon as possible completely divest his mind of, thinking of his work as it will appear and not as misrepresented by his technical drawings, however necessary they may be for the execution of the work.

## THE BENEVOLENT FUND.

The Trustees of the Benevolent Fund of the Architects of the Transvaal beg to appeal to all members of the profession for subscriptionos on behalf of this fund.

The revenue this year is considerably under £30, which includes the interest on investments, and it is hoped to greatly augment this amount before the close of the year.

At the present time calls upon the fund will necessitate the payment of a considerable sum, and the Trustees are hopeful that all members in practice will endeavour to forward a donation to replace these very necessary payments.

All cheques should be sent direct to the Registrar, payable as above.

# Bablyonia or Chaldea.

*By Professor G. E. Pearce, A.R.I.B.A.*

(Being the second part of a lecture delivered before the delegates at the First South African Architectural Congress and members of the Association of Transvaal Architects at the usual quarterly meeting held in the Scientific and Technical Club, Johannesburg, on Monday, 5th September, 1921, under the chairmanship of Mr. E. M. Powers, F R I.B.A.)

In this lecture I am indebted to the following authorities: "The Excavations at Babylon." by R. Koldewey; "Guide to the Babylonion Rooms," British Museum.

## THE SOUTHERN CITADEL.

Here stood the palace of Nebuchadnezzar, also an older one of Nabopolassar, which Nebuchadnezzar rebuilt in his levelling up process. Through the east door we enter the usual gateway court, out of which open two rooms probably used by the guard. To the North and South were houses, each with its own court, probably used by officials.

Large numbers of graceful vases were found in the rooms to the South, also cylindrical cores used in their manufacture. The rooms were probably flat-roofed, as is evident in most of the Babylonian houses, which I will mention later.

The Central Court is entered by a doorway similar to the Eastern gate, but with long chambers off ante-rooms.

These were probably used as Government departments, probably as courts of justice.

In the Old Testament the gateways are represented as places for administering justices. The Southern rooms are exceptionally spacious, used probably by the highest State officials.

From the North-East corner of the Central court, a wide passage leads to a building whilh occupies an exceptional place among the buildings of the Citadel, or even of the whole city.

Fourteen chambers, similar in shape and size, balance each other on two sides of a central passage. Round this irregular quadrangle runs a narrow corridor, the North and East sides formed by the citadel walls, while ranges of chambers occupy the South and West.

In one of these cells is a well, differing from any other in Babylonia. It has three shafts placed close together, the central one square, the others oblong.

It appears that a mechanical, hydraulic machine stood here, working on the same principle as the chain pump, where buckets attached to a chain work on a wheel placed over the well. A whim works the wheel in endless rotation. This contrivance, which is used in the neighbourhood to-day, would provide a continuous flow of water.

All the chambers were vaulted with simple barrel vaulting of numerous brick rings. The thrust of these chambers on the North is against the strong citadel wall, and on the South against the outer row of chambers vaulted in the other direction.

The central chamber had very much thicker walls, from which one supposes they were intended to carry a greater weight, which is corroborated by the expansion joints which surround them, by means of which the vaulting is separated from the surrounding walls.

In this respect this vaulted building is unique



in Babylon, and in another respect it is exceptional.

Stone was used to a large extent in this building, and it is remarkable that, in all literature referring to Babylon, including cuneiform writings, stone is only mentioned as being used in two places, i.e., the North wall of the Kasr, and in the hanging gardens.

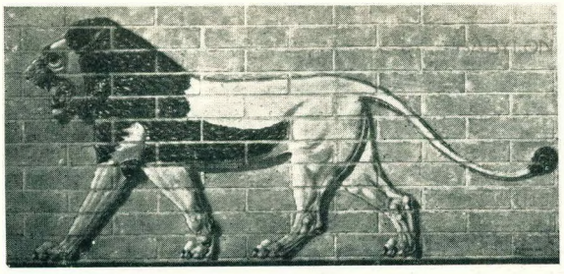
One concludes, therefore, that this building is the substructure of the famous hanging gardens which have aroused the wonder of the world for centuries.

The reason why they ranked as among the seven wonders of the world was that they were laid out on the roof of an occupied building.

The building was intended to be much in use, for two doors in the South wall lead to it, and the passage from the Central court is unusually wide. There are the remains of a staircase in the South side, and the vaulted chambers were probably used as store rooms, as a large number of tablets found in the ruins relate to grain.

The protection of the roof from the permeation of water, as described by Greek and Roman authors, agrees well with what we know of the practice of ancient Architects.

A layer of reeds and asphalte was placed over a strong roofing of hewn stone, part of which was



found in the ruins, and above this rested two courses of bricks laid in mortar.

A lead covering again separated these from the deep layer of earth on top. The central portion probably towered high above the adjoining buildings, and was covered with a deep layer of earth surrounded by pillared halls, with a garden in the centre, through which a stream of water flowed, conveyed here from the well before described.

The bases and capitals of columns were found in the ruins similar in design to those at Persipolis.

At Nineveh, an inscribed stone was found showing a garden occupied on two tiers of arches, planted with trees, and surrounded by columns, with a roadway leading up to it.

It has been stated that Nebuchadnezzar had these gardens constructed for his favourite wife, who pined for her native hills.

## THE PRINCIPAL COURT.

The gate leading to the principal court is considerably larger than the two previous ones. It is more spacious, with thicker walls, and therefore must have been carried higher. Here also are two side chambers, one of which had the remains of a stircase leading to an upper storey or the roof.

It is one of its few examples of its kind in Babylon, but, as the roof is so much used in the East, it is probable that wooden stairs were used in most houses.

The Principal Court is 180ft. x 200ft., and like the others, is paved with tiles. Exactly in the centre is a basin for water, with an overflow into the drain along the Western passage.

The inside is covered with asphalte coated with a fine gypsum mortar. To the north lies a house with two courts, and one with four courts.

Two parallel passages lead to the entrances of the houses. One passage also led to a door in the Citadel wall.

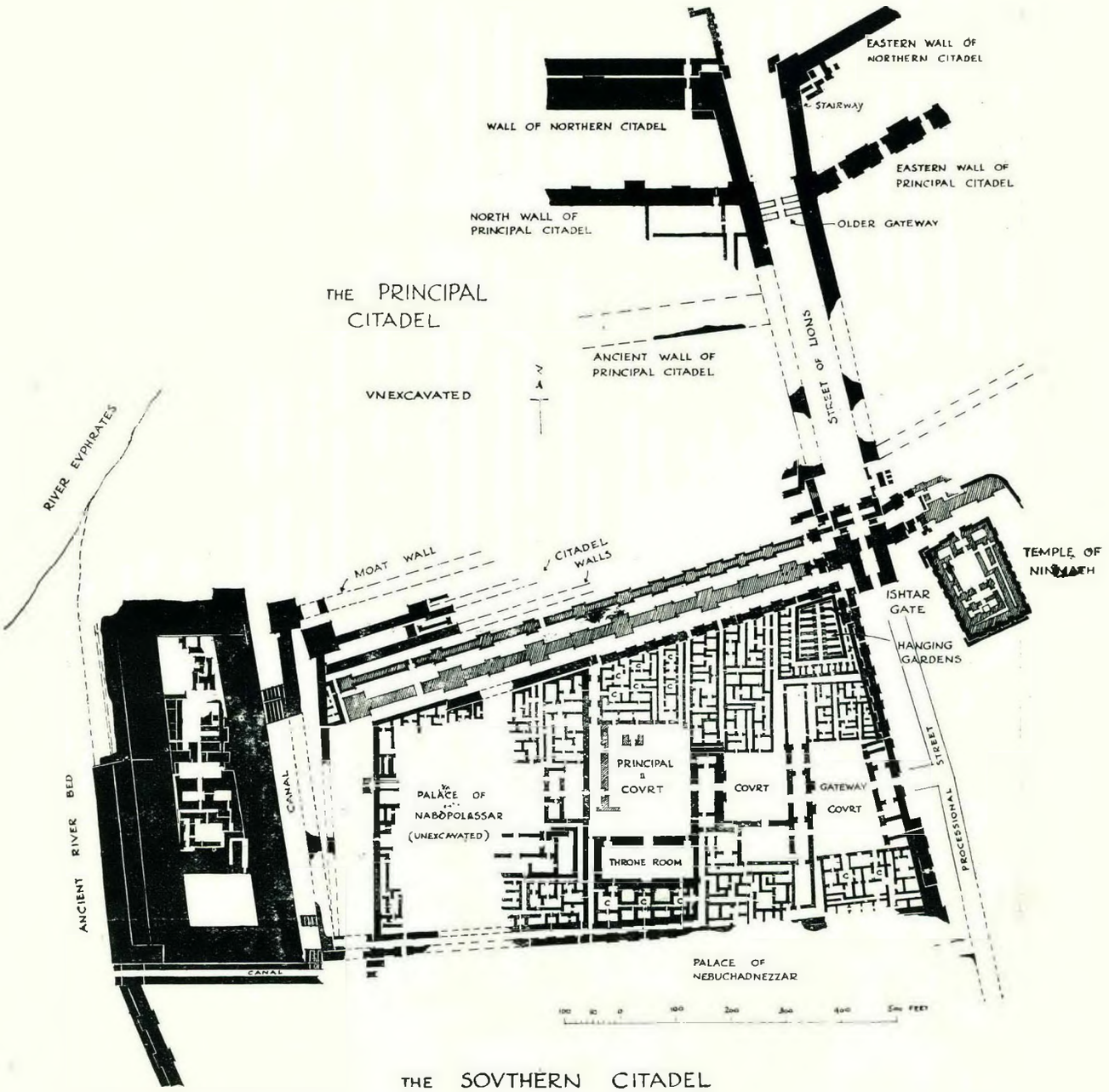
To the South lies the largest chamber of the Citadel, the throne room of the Babylonian kings. It is so clearly marked out for this purpose, that no reasonable doubt can be felt as to its being their principal chamber.

It is 55ft. 0in. x 170ft. 0in., the walls on the longest sides being 20ft. 0in. thick, which leads one to suppose that the chamber was barrel-vaulted.

Immediately opposite the main door there is a doubly recessed niche, in which the throne stood. One can undoubtedly localise the scene of Belshazzar's eventful banquet in this immense room.

The facades of the Court were strikingly decorated with richly ornamental tiles. On a dark blue ground are yellow columns, with bright blue capitals placed close together, and connected with a series of palmettes.

The capitals with the bold curves of their



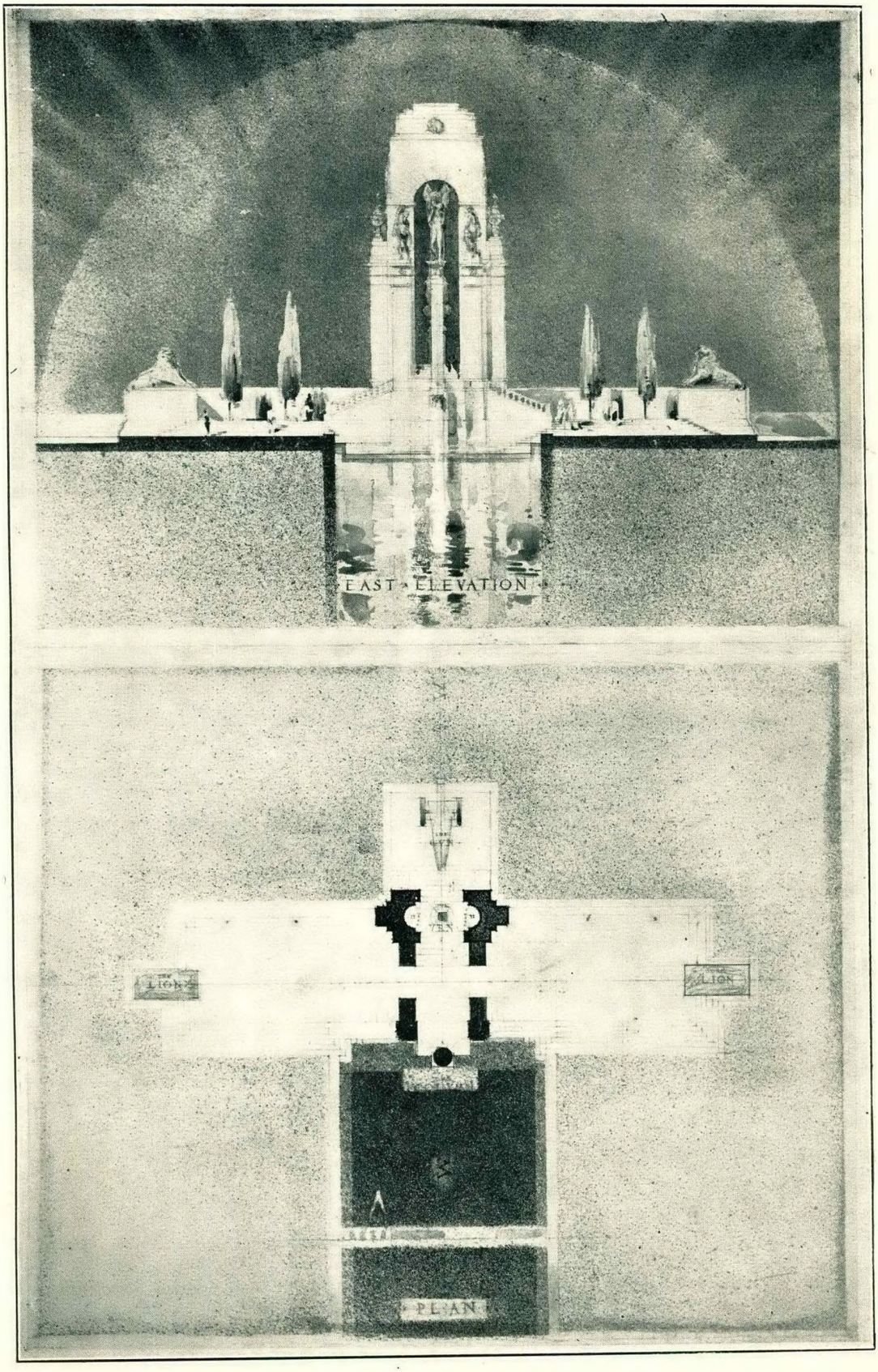

THE SOUTHERN CITADEL

# DURBAN WAR MEMORIAL.




[First Premiated Design.—Eagle, Pilkington and McQueen, Capetown

# DURBAN WAR MEMORIAL.




First Premiated Design.—Eagle, Pilkington and McQueen, Capetown.

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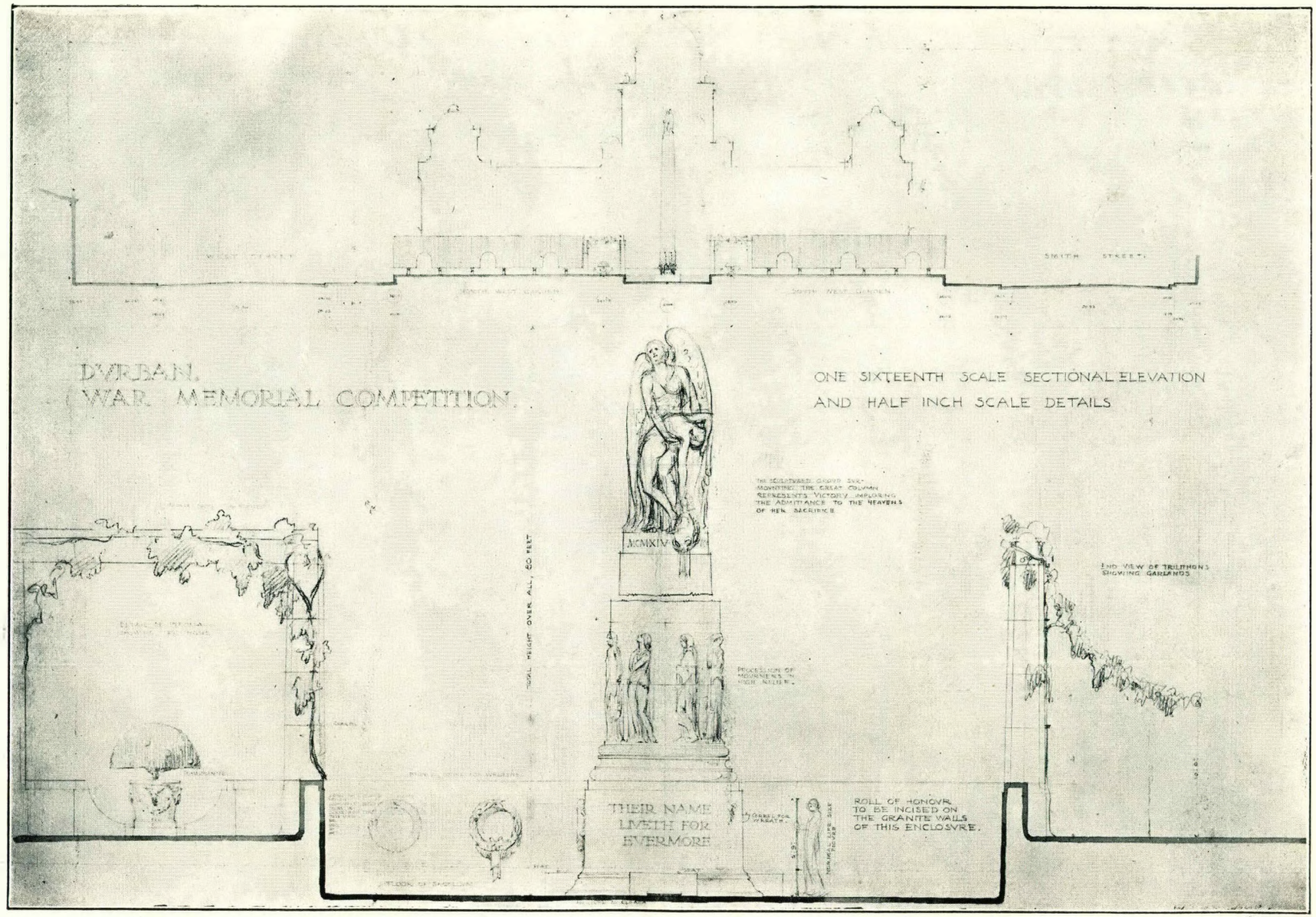


Second Premiated Design.—Gordon Leith, M.C., A.R.I.B.A., Johannesburg.

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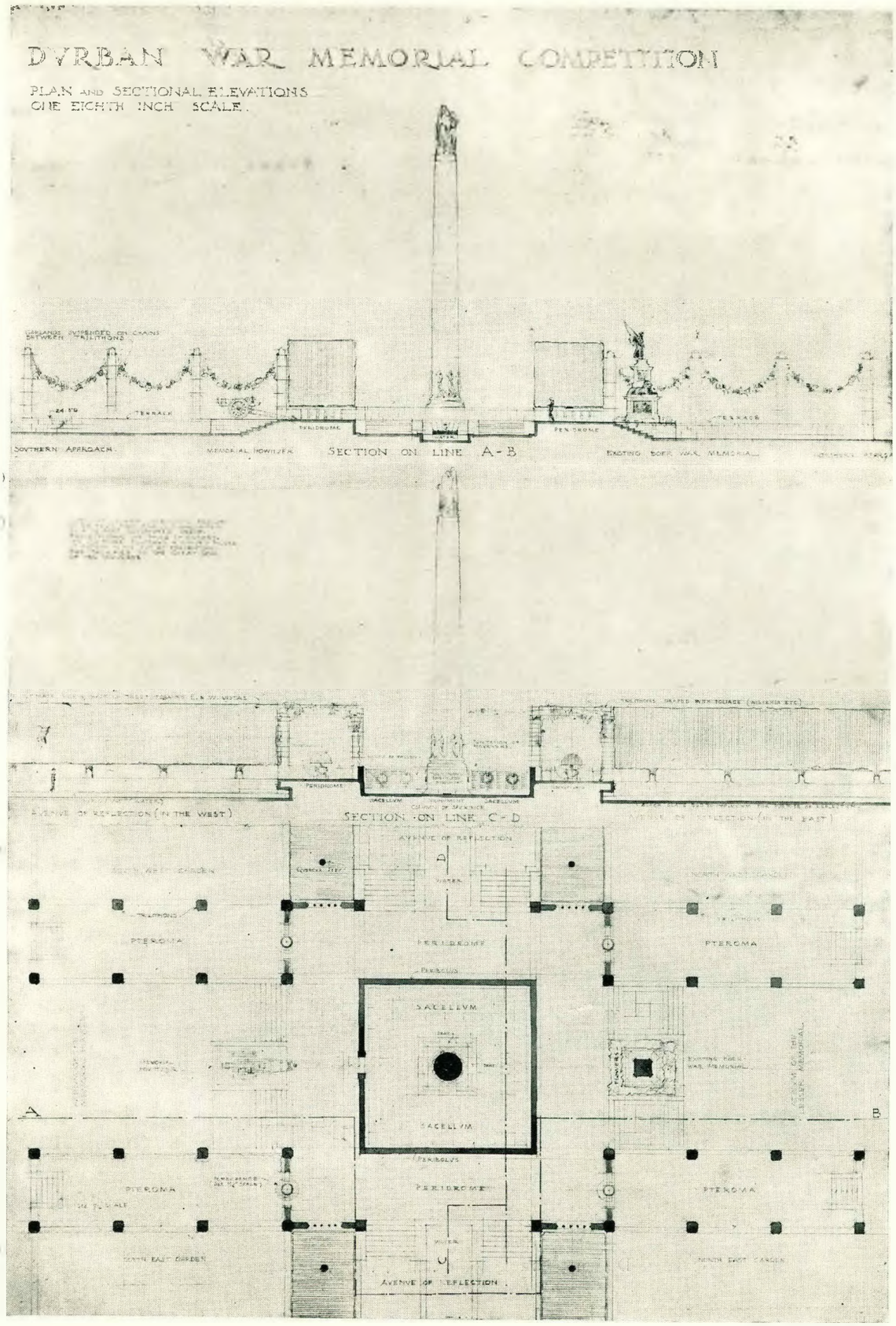


Second Premiated Design.—Gordon Leith, M.C., A.R.I.B.A., Johannesburg.

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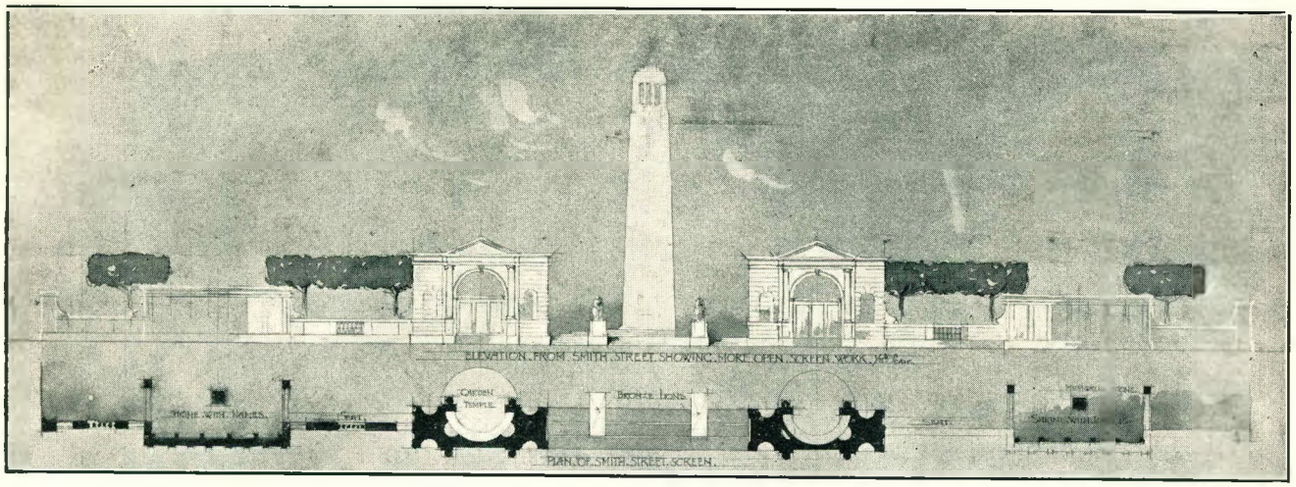
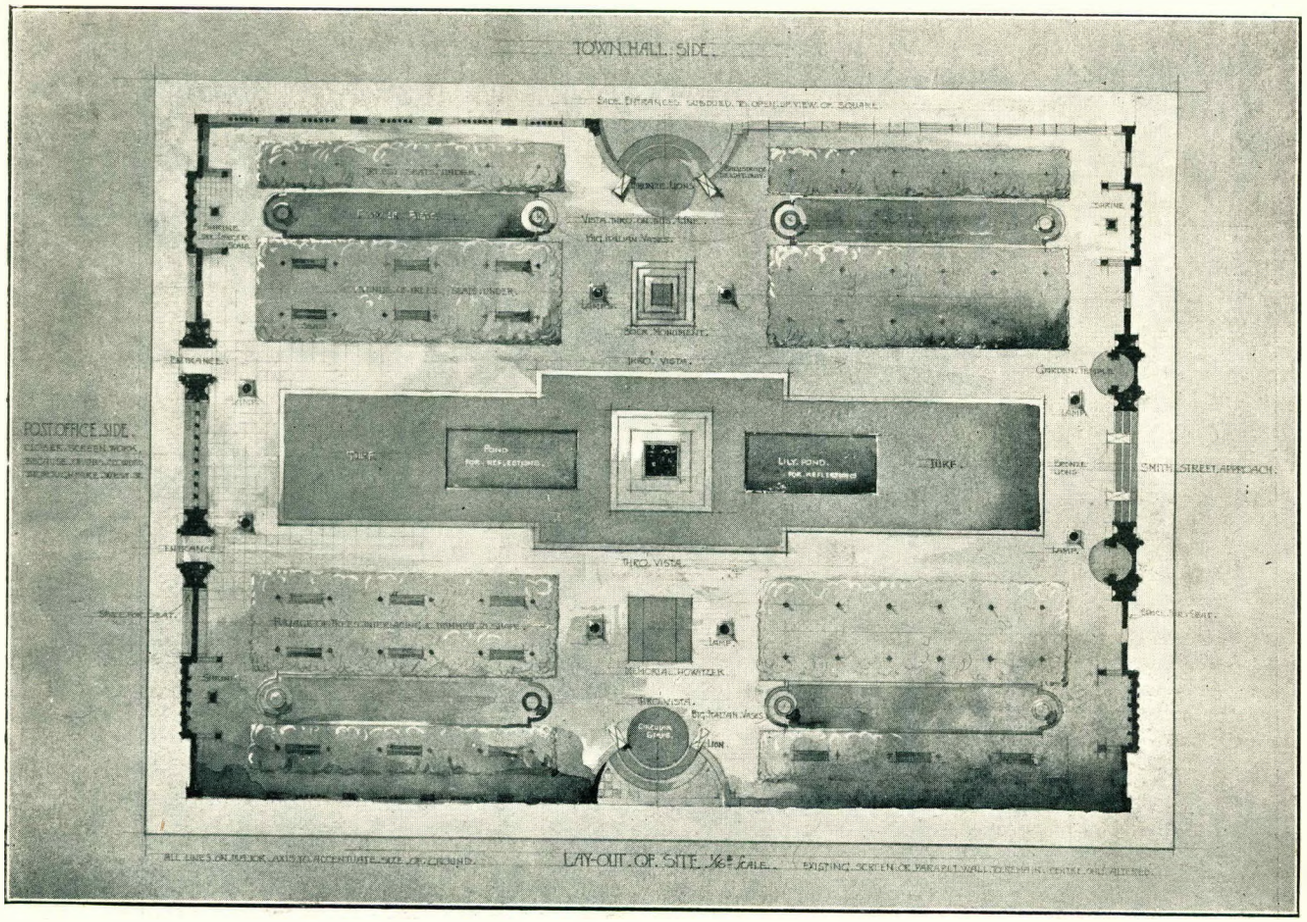
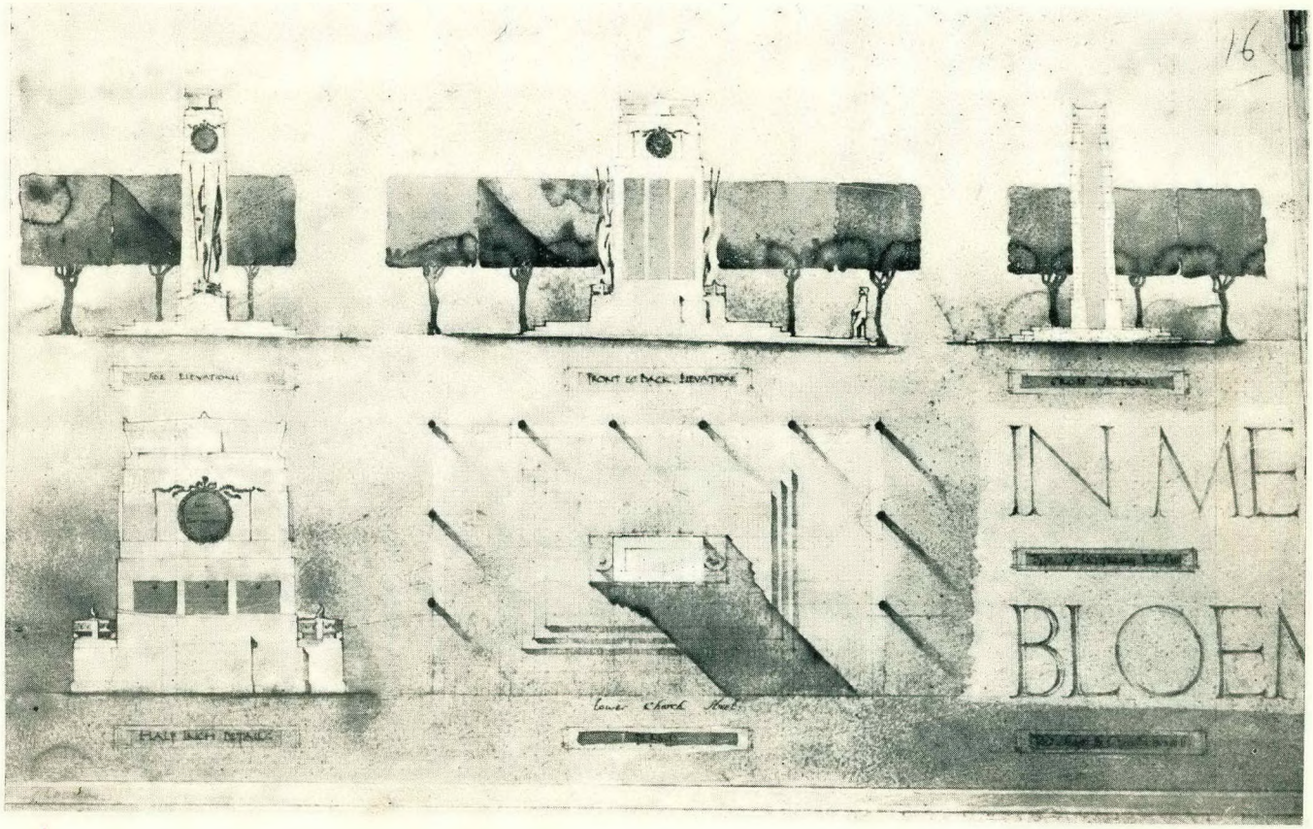
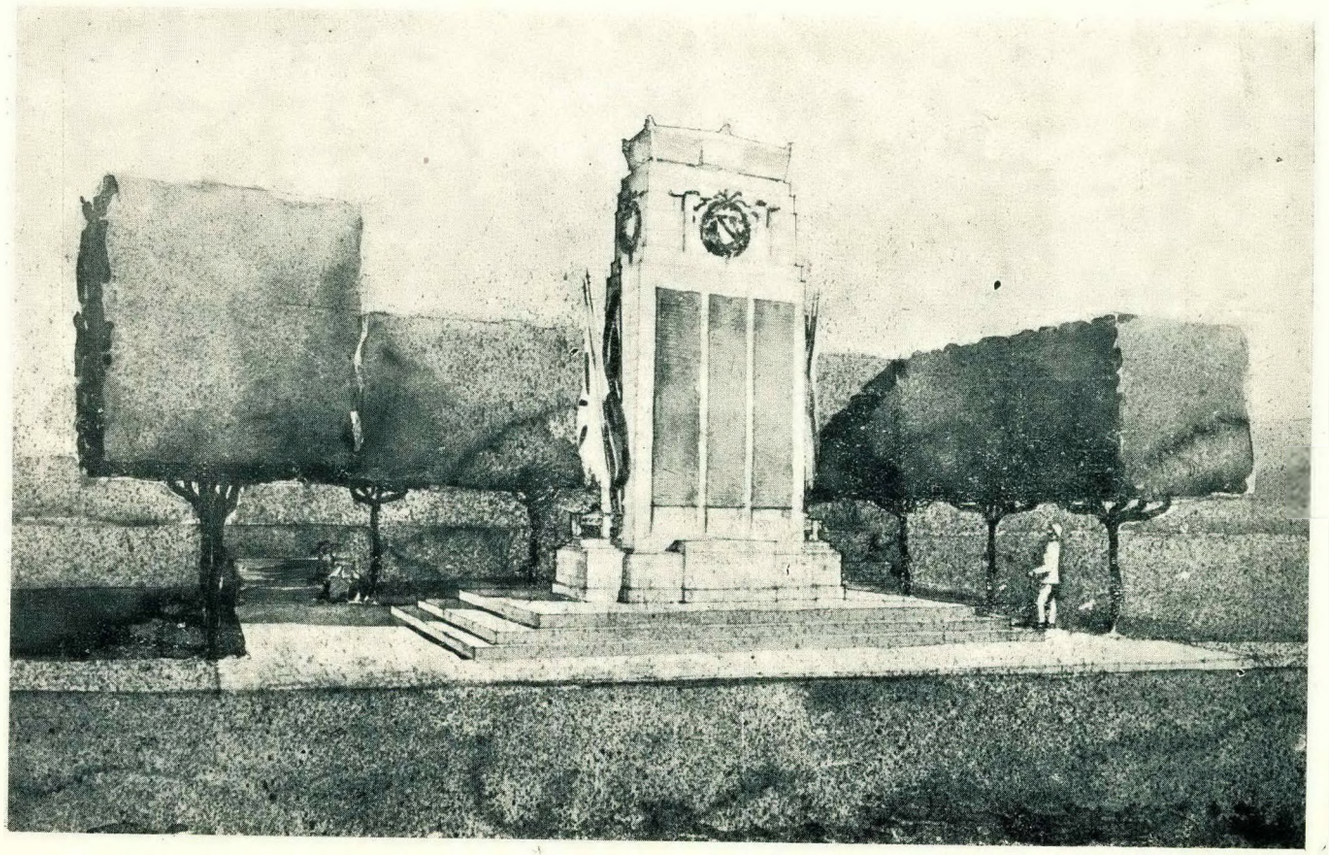



Third Premiated Design.—Frank Emley, F.R.I.B.A., Johannesburg

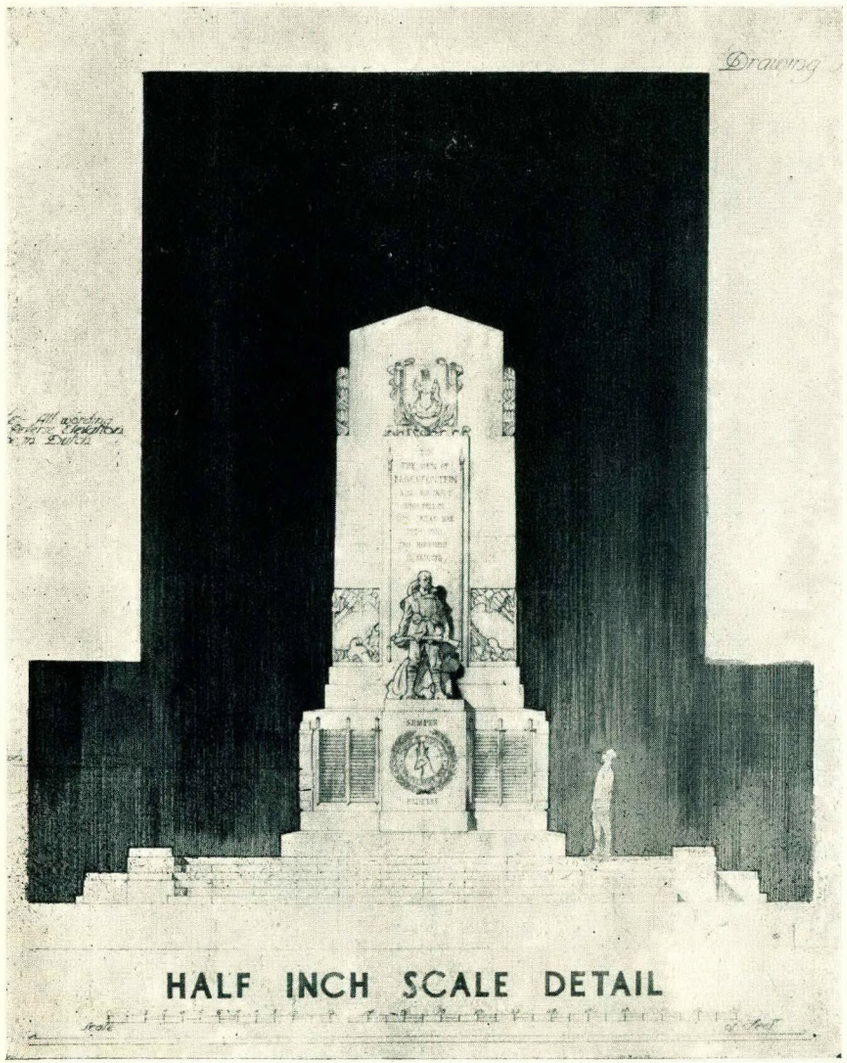
# BLOEMFONTEIN WAR MEMORIAL.

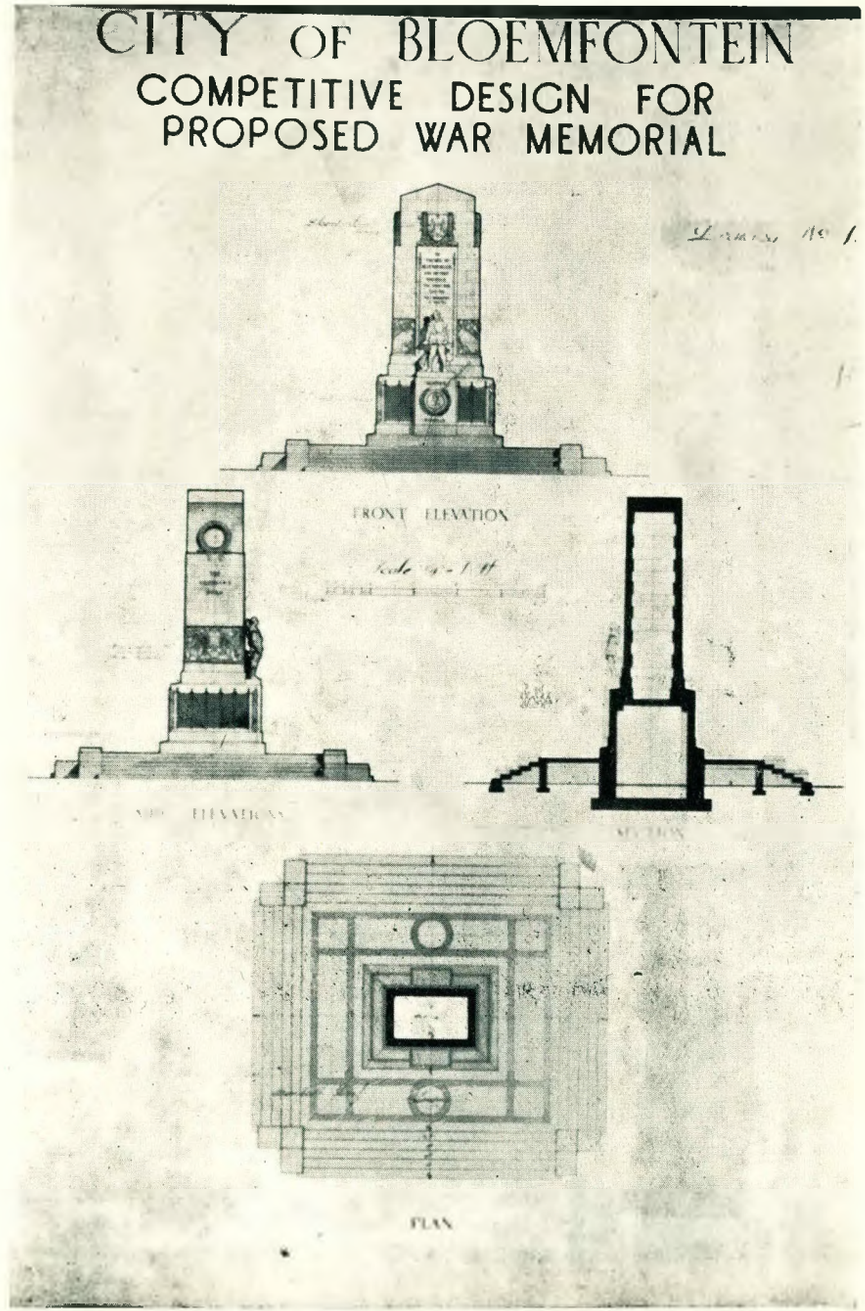


First Premiated Design.—L. A. Elsworth, A.R.I.B.A.-Capetown.

# BLOEMFONTEIN WAR MEMORIAL.




Second Premiated Design —E. N. Jackson, Durban.






The National Bank, Pietersburg.—Cowin, Powers and Ellis, F. and A.R.I.B.A., Architects.

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