

# SOUTH AFRICAN ARCHITECTURAL RECORD

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THE JOURNAL OF THE CAPE, NATAL, ORANGE FREE STATE AND  
TRANSSVAAL PROVINCIAL INSTITUTES OF SOUTH AFRICAN ARCHITECTS  
AND THE CHAPTER OF SOUTH AFRICAN QUANTITY SURVEYORS.

611, KELVIN HOUSE, 78, MARSHALL STREET, JOHANNESBURG.  
PHONE 34-2921 VOLUME TWENTY NINE NUMBER FOUR  
JOINT EDITORS: PROFESSOR G. E. PEARSE, W. D. HOWIE

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# CZECHOSLOVAK ARCHITECTURE, 1500-1800

## 1. RENAISSANCE.

By *Dr. L. B. Kreitner.*

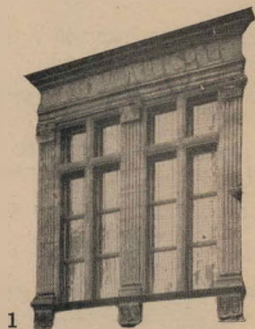
*Late Professor of History of Fine Art, Masaryk People's University, Lecturer at Victoria College, Prague*

Prague, the 1,000-year-old capital of Czechoslovakia, which has been in Nazi hands since 1939, lies in the very heart of Europe. Its history bears the marks of the revolutions and stirring events enacted throughout all Europe. All the currents of thought, all the nations of Europe, have met at one time or another at this cross-road of Western and Eastern ideas. It was there that the first great Reformation struggles in the fifteenth century flamed forth, and it was from there, too, that the glories of the equally passionate restoration of Catholicism issued.

By its geographical position and in respect of intellectual and historical happenings, it would seem to be Prague's particular mission to act as a medium between Slavonic and Germanic culture, a mission which, as no other, has given a peculiar outward stamp to the city, but at the same time has caused the Czechoslovak capital in many things, and more especially in art, to go its own way. The impact of the two worlds—the Slav and the Germanic—and sometimes the almost imperceptible fusion of the two, has produced in the various departments of art, especially in architecture, effects which are remote from the ordinary. It has created that peculiar atmosphere which, though indefinable, nevertheless exists, or has at least existed, and which one has to take into account if one attempts to explain the typical art of Prague.

In this atmosphere, however, there exist still elements other than the Slavonic and the Germanic. A strong Latin element, early introduced into the sphere of Prague art from outside, brings, as it were, the whole mass into fermentation. Sometimes it even appears as if it were precisely this Latin addition which determines the degree of speciality in Prague art, as if it were this element which brings to maturity and full development all that issued from the strange union of the Slavonic with the Germanic.

It was not so much the Romanesque architecture which gave to Prague at the end of the Middle Ages the charac-



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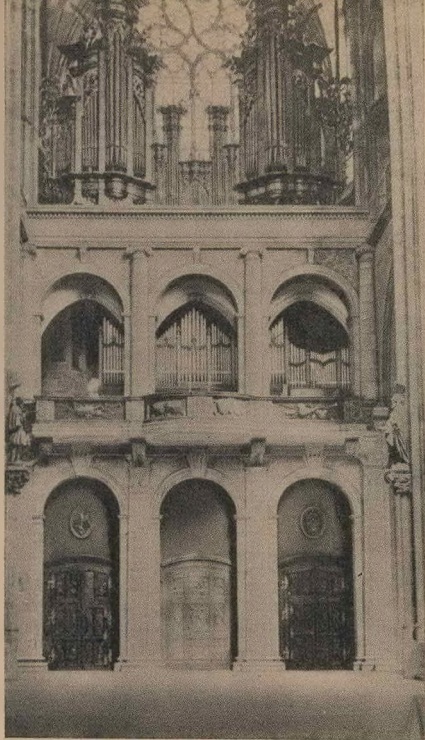
Window of the Wladislaw Hall (1493)



2

Wladislaw Hall. Interior (1492-1512)

Photo: Centropress



Organ Gallery in St. Vitus (1557-1561)

3

teristic appearance, as the Gothic period. The eclecticism of the beginnings had given place to a Gothic architecture which had found in Peter Parler and his school its own expression and which had spread its forms far beyond the borders of Central Europe. At the end of the Fifteenth Century, when the style degenerated into decoration once more, Czechoslovak Gothic had its own ways and forms, the "Bohemian Special Gothic," as it is called. But inventiveness was exhausted; the country was ripe to accept and to assimilate the new ideas and forms of the Italian Renaissance.

It is an outstanding fact, so far not sufficiently appraised by historians of architecture, that in Central and Western Europe Prague shows the first signs of Italian Renaissance. The earliest vestiges of these forms were to be found already in 1493, when an unknown artist decorated the windows (1) of the Wladislaw Hall of the Prague Castle with Renaissance pilasters and architraves.<sup>1</sup>

<sup>1</sup> Hitherto Augsburg, in Southern Germany, was supposed to have exhibited the first Renaissance forms of Central Europe, dated 1496. But in view of the undoubtedly authentic inscription "1493" on the Prague windows, that city can rightly claim to be the first place north of the Alps to show Renaissance forms on a building.

How did Italian Renaissance penetrate into Bohemia? So far there seems to be no satisfactory answer to the question. The fact that at the end of the Fifteenth Century we are facing Renaissance forms both in Prague and elsewhere in Bohemian towns does not mean that these forms came by a direct route—that they were brought by an Italian architect. Even if these Renaissance elements are organically connected with the building, for instance, the Wladislaw Hall (2), they remain strange within the architecture which at that time was intrinsically Gothic. Probably these forms were brought by a North Italian stonemason employed on that building. His name is, and probably will remain, unknown. So far as I was able to ascertain in the Prague Archives, there are two Italian names of men connected with the building trade: in 1484 a certain "Andreas Murator," thus a mason, and in 1494 "Anthoninus Mutinensis de Capellis Italicus" were given the freedom of the city. But this does not solve the question at all, because there are still two other possibilities. The forms could be simply copied from Italian wood cuts (as, in fact, they were at the portal of the St. George's Basilica, about 1500), or they were designed by an unknown stonemason in the service of King Wladislaw II. I am inclined to assume this latter possibility, as the forms of the windows of the Wawel Castle at Cracow, a later construction of the same King, show the very same characteristic marks.

It was, however, only the forms of the Italian architecture, not the spirit, which conquered the Czech architecture. Gothic was so deeply rooted in the country that "secret" Gothic outlived Renaissance, and only the march of Baroque architecture was able to stamp out this "Gothic feeling" of Czech builders who, in spite of having acquired the Italian forms, remained faithful to mediæval Gothic solutions. Yet, to tell the truth, this "Gothic feeling" was not restricted to the national architects only. Boniface Wohlmut, a South German architect whom King Ferdinand had called to Prague in the middle of the Sixteenth Century, was only in his superstructure a Renaissance architect, whereas the essential proportions of his architecture remained Gothic. The vaulting of his Organ Gallery in the St. Vitus Cathedral (3) in Prague (1557-61) is as Gothic as the proportions are. The dualism of the forms, the protracted openings of the ground floor, and the somewhat squeezed arcades above, can be easily explained by the architect's careful studies of the books of Serlio and Vitruvius.

Yet Wohlmut came to Prague to finish the delightful summer residence of Queen Anne, the "Belvedere" Pavilion (4), which in 1530 Giovanni Spatio, with the help of a few Italians and the skilful sculptor, Paolo della Stella, had begun and left unfinished. Its form is reminiscent of both the Certosa of Pavia and the Palazzo Civico of Padua. But the final solution of the double storey pavilion, with its fine arcade in the basement, suggests that the Italians have planned it entirely in the modern "Italian Style," whereas Wohlmut kept to the Venetian prototype, adding to it Serlio details and the curved roof, a reminiscence either of Padua or Pavia. Another





4



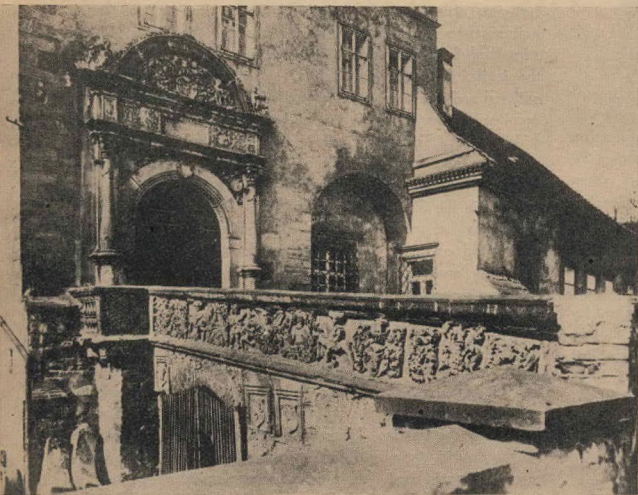
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4 "Belvedere" Pavilion.  
(Ground Floor 1530. First floor and roof 1543-1556.)

5 Schwarzenberg Palace (1545-1563).

6 Entrance to the Pernstein Palace in Pardubice (1564).

6



7 Courtyard of the Town Hall in Bratislava (1520).

8 St. Rochus Church (cir. 1565-70). Entrance 1742.



7



8

building, the King's hunting seat, "Star"—the name is taken from its ground plan in star form—is an entirely Gothic idea, but its decoration shows pure Italian ornaments in stucco which are probably the work of the two Italian stonemasons Giovanni Lucchese and Juan de Pambio.

The building activities of King Ferdinand and his successor, Maximilian, had their reflex in the city itself. The erection of churches was begun, and the nobility imitated the King by using Italian architects for their mansions. Agostino—only the architect's Christian name is known—enriched Prague by the huge Schwarzenberg Palace (1545-63) (5). Characteristically the building already shows a sort of "Court d'honneur" enclosed by arcades of simple but effective design. The facade served as an example for a series of buildings in Prague and in the country. It is covered with a rustica in sgraffito, a cheap but very efficient substitute for stone. The overhanging cornice, with its intrados, points to the architect's North Italian origin, probably from Piacenza.

A real building fever seized the country: aristocracy and rich citizens rebuilt their residences, partly copying the Italian forms, partly calling into the country Italian architects. The new imperial and aristocratic châteaux competed with the ambitious city houses throughout the country, so that in a short period of time the wealthier cities, such as Pardubice, Chrudim, Litomyšl, changed their whole appearance. Whereas the aristocracy preferred, corresponding to its immense wealth, rich sculptured decoration—a characteristic example is the entrance to the Pernštejn Palace (6) in Pardubice (1564)—the cities, in their town halls, showed broad sense for simplicity. The court yard (1520) of the Town Hall of Bratislava (7) is a striking example of such buildings. The irregularity of the rhythm, both in arcades and semi-circular gables, adds a mediaeval note to the picturesque aspect. Ecclesiastic monuments of the same period show only in their facades the signs of the new style. Structurally, churches built during the first half of the Sixteenth Century remained Gothic. A characteristic example is the St. Rochus Church (8), with its simple Renaissance forms erected over a Gothic ground plan.

The climax of the busy architectural life was reached during the last quarter of the century, during the reign of King Rudolph II. This grandson of the Hapsburg Charles V brought to Prague the real spirit of the Renaissance and made the city temporarily the centre of Europe. The King, a reserved and melancholic figure, sought distraction from the business of ruling a kingdom in occupation with art and science. Thus he created in Prague an artistic centre and surrounded himself with artists and skilled artisans who, conforming with the customs of the age, took positions as chamberlains and servants at court.

The Castle of Prague, which Rudolph had chosen as his residence, did not provide for the requirements of the court and the King in its existing architectural form. By order of the King the Italian architect Giovanni Gargioli erected,



9 Decoration of the Spanish Hall, Prague Castle (cir. 1570).

therefore, a new annex which contained in the basement huge mews and in the first floor two big halls, the so-called Gallery and the Spanish Hall. These halls were destined for Rudolph's collections of "Art and Science," the "Chamber of Art and Wonders."<sup>2</sup>

Gargioli, an eclectic, who took his patterns from Rome and Northern Italy alike, solved the task of providing the King with suitable rooms for his collection of fine art, rarities and scientific instruments by connecting the two parallelograms without being bothered with an architectural programme. Thus the decoration, especially that of the "Spanish Hall" (9), a work of Adriaan de Vries and J. B. Quadri, seems more important than the building itself. Still, the noble proportions of both halls, which were constructed about 1570, show Gargioli worthy of his title as the King's superintendent of buildings.

<sup>2</sup> Rudolph's collections contained i.e. paintings of Raphael, Durer, and Titian; moreover, there were antiques such as the Ilioneus and Roman portrait busts. Beside these there were many paintings of the King's contemporaries.





10 Copy of Bramante's Sta Casa di Loreto (1592).

Again the aristocracy took advantage of the presence of "modern" Italian architects by entrusting some of them with the constructions of châteaux. Vaccami, an assistant of Gargioli, planned and erected the Lobkowitz chateau at Roudnice. An unknown French architect is responsible for the chateau of Nelahozeves for the same Prince Lobkowitz. The Princesse Lobkowitz had Bramante's Santa Casa di Loreto copied in Prague (10) by two architects whose names are not known. In its proportions this copy, built in 1592, already shows the approaching Baroque style.

By the end of the Sixteenth Century, Renaissance had firmly established itself in Czechoslovakia, and native builders and

stonemasons were fully conversant with Italian forms. The city houses, erected throughout the country, showed Renaissance facades somewhat modified by national elements. It had become quite a fashion to modernise Gothic facades by covering them with Renaissance forms, and hence the strange conglomerates resulted, which are to be seen in many a smaller town in Czechoslovakia, for instance, the Town Hall in Krumlov.

The stirring political events of the beginning of the Seventeenth Century and the consequent Thirty Years War mark the end of the Renaissance in Czechoslovakia and pave the way for the new Baroque Style.

# THE CITY HALL

ARCHITECTURAL RESEARCH AND PROGRAMME FOR DESIGN

By K. Hall Gardner

THIS IS THE CONCLUDING PART OF VOLUME TWO OF AN ARCHITECTURAL THESIS, "A CITY HALL FOR CAPE TOWN."

## CHAPTER IV.

### THE CITY HALL: EXISTING EXAMPLES.

A really exhaustive treatise on city hall design would have to cover a wide period from well before the Christian era, up to the latest phantasies of Le Corbusier—and would be of little practical use. Four instructive examples from our present century have therefore been selected. Cape Town has been chosen for the what-not-to-do lessons it teaches (see for example the planning of the Council floor). Wembley is a sound example of the recent trend in England, a healthy trend. Stockholm and Hilversum have been chosen because they are the finest civic buildings that the writer has had the good fortune to visit, and actually see in use.



CITY HALL, CAPE TOWN.

REID & GREEN, ARCHITECTS.

### CAPETOWN.

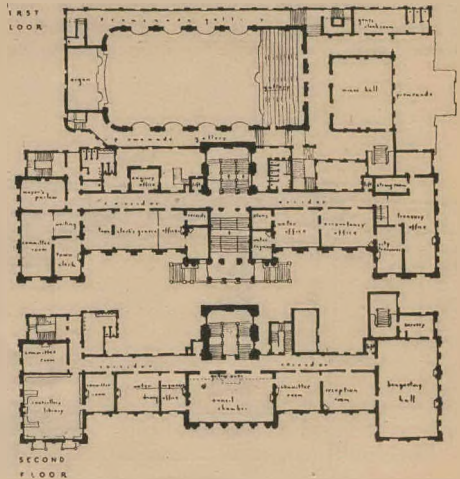
The practical and aesthetic merits of this building have been discussed elsewhere in this thesis; the following remarks on the subject, however, have a certain academic interest, and are therefore recorded here without comment.

"The inauguration of the City Hall Buildings is, perhaps, the most important event of the year, and I am gratified to know that the Council have accommodation in these buildings which will suffice for the administration of the work of the City for many years to come. The concentration of the various departments will tend to increased efficiency and economy."—Sir William Thorne, Deputy Mayor, 1904.

"Viewed from any vantage point, the classic lines of the City Hall Buildings are ornate and beautiful. Citizens of Cape Town are proud of their Guildhall, and pardonably so; civic patriotism would indeed be at a low ebb were it otherwise. In and around it cluster the manifold activities of the body politic which make for the general uplift, and from the point of view of municipal administration it is the hub of the Peninsula. The buildings are in the style of the Italian Renaissance, with classical facades, and a noble campanile towers high over the centre, its pinnacle about 200 feet above the causeway. The exterior of the structure is of Bath stone, on a massive granite base."—"Current" (1942) Handbook of the City of Cape Town.<sup>1</sup>

"Almighty God, we gratefully acknowledge that Thou hast filled the architects and builders with Thy spirit of wisdom, in understanding, in knowledge, and in all manner of workmanship."—The Rev. A. P. Bender, at the inauguration ceremony, Tuesday, 25th July, 1905.

"The building, from whatever point the same is viewed, forms a prominent feature of the City."—Non-committal comment of H. Liberman, Mayor, in 1905.



FIRST AND SECOND FLOOR PLANS

## STOCKHOLM AND HILVERSUM

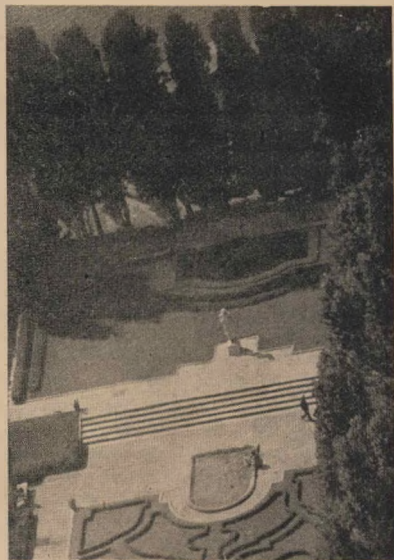
(Population 502,000 and 57,000 respectively).

Scandinavia and Holland, or more specifically the work of Dudok, have in recent years exercised a profound influence on the architectural style and finish of civic buildings in England, and, although to a much lesser extent, in South Africa. In a few isolated cases, good buildings have resulted, but nine times out of ten it is merely the clichés that have been copied or taken over, without any understanding of the aesthetic and philosophic principles out of which the two styles have sprung in their respective lands of origin. The significance of the popularity which these two styles have found outside their lands of origin lies in the fact that, while they differ from each other in almost every other respect, both are essentially romantic in conception.

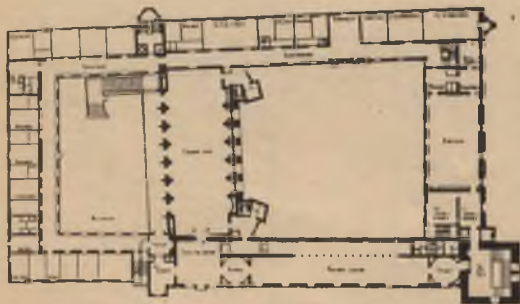
The town halls of Stockholm and Hilversum, to take specific examples, have an equal claim to be regarded as truly great architecture, yet it is difficult to imagine two buildings more different—Stockholm conjures up memories of the days of the merchant-guilds, of the colour and barbarism of peasant life, of fine craftsmanship; it is the embodiment of the historical romantic spirit, honouring the city's noble past; Hilversum is a romantic structure in the contemporary idiom, expressing the city's pride in its present and confidence in its future. Stockholm and Hilversum typify the two main methods of construction—the solid weight-bearing, and the frame with non-structural partitions; and also the two fundamental approaches to planning—the traditional (not in the derogatory sense, implying forced academic subordination of plan to elevations), and the free, or organic. In Stockholm the emphasis is on the ceremonial functions of the city hall, with the administrative definitely kept in the background; in Hilversum, which is incidentally a fine piece of planning, the



STOCKHOLM CITY HALL, SWEDEN  
LAKE FRONT AND PEOPLE'S COURT.



VIEW LOOKING DOWN INTO PEOPLE'S COURT



STOCKHOLM CITY HALL, MAIN PLAN.

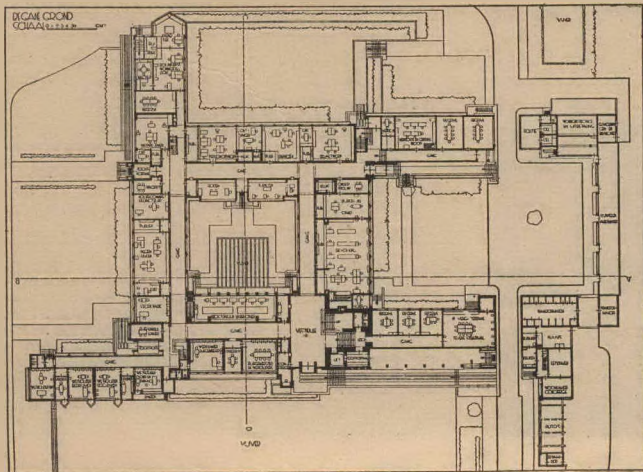
RAGNER OSTBERG, ARCHITECT.



emphasis on ceremony and on administration is more evenly divided, which is as it should be.

It is regrettable that in neither case has provision been made for possible future expansion of the administrative departments or for changes in the nature of the civic organisation, which the buildings house. Additions to the perfectly conceived and carried-out unit which is the Stockholm City Hall are unthinkable—the composition is one of perfect massing which, despite its asymmetry, would be aesthetically ruined if anything were added or taken away. This does not apply quite so definitely to the more rambling massing of Hilversum, and in any case the latter, having been built in a mood of exaggerated far-sightedness at a cost considerably beyond the reasonable means of the city (the modern Hollander evinces a civic pride which is almost pathologically intense), is not likely to become inadequate from the point of view of accommodation until the city's population has at least trebled itself; in other words, the future expansion has been provided for not on paper, or in the architect's mind, but in concrete.

To sum up the comparison, one might say that Stockholm is perfect aesthetically, but is rigid and inflexible as regards planning and possible future extension. While Hilversum is more satisfactory in these practical aspects, it is less good aesthetically—for one thing it is more likely to be "dated" fifty years hence—not (let there be no misunderstanding) because it lacks a flavour of history and tradition, but because, if one wishes to be hypercritical, it may definitely be said to tend towards virtuosity of the its-wonderful-what-we-can-do-with-cantilevers-these-days kind.



HILVERSUM CITY HALL, HOLLAND  
VIEW FROM THE MAIN APPROACH

GROUND FLOOR PLAN: W. M. DUDOK, ARCHITECT

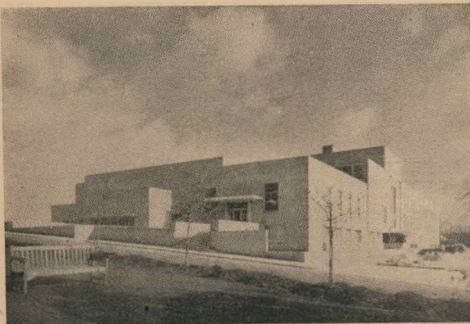
## WEMBLEY

(Population 115,000).

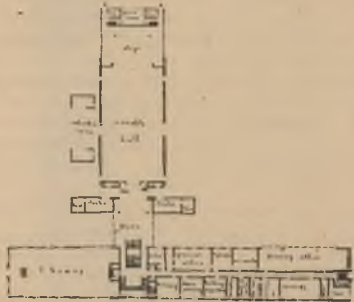
Wembley is one of the very few examples of English civic building where alien influence and the traditions of planning count for nothing—compare it, for example, with Swansea's purified Renaissance (or bleak Roman, according to one's point of view) or Norwich's fancy Scandinavian treatment, or with Beckenham's staid planning. Glance at Wembley's organic plan, intrinsically beautiful even on paper, and at the amorphous mass which is the plan of Cape Town's City Hall—it seems incredible that they belong to the same century. The designers of the latter obviously started with the boundaries of their site, and worked inwards; the designer of Wembley started with his units of accommodation and worked outwards—the compared results are significant.

Both in broad outline and in detail, the planning of Wembley repays close study—note its adaptation to a sloping site; how the Assembly Hall and Administrative Offices form two clearly defined units; how each floor of the latter is devoted to a particular type of activity (thus the lower ground floor is primarily concerned with money; the upper ground floor with building; the first floor with council activities; and the top floor with staff and caretaker); how the floors are graded upwards from major public circulation to purely staff circulation; how units such as foyer, lobbies and staircases are not closed off, but flow naturally into each other, creating a pleasant impression of openness throughout the building; in short, how every part is functionally designed to fulfil its original purpose and, at the same time, to contribute to a harmonious whole.

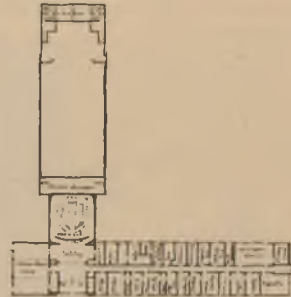
The success of the interior is due to the care with which details of finish and fittings have been considered, as well as to the planning and the proportions. On the whole, the external treatment is disappointing, having a hard quality due to the material, and to careless arrangement of solid and voids.



LOWER GROUND FLOOR



UPPER GROUND FLOOR



FIRST FLOOR

FIRST FLOOR PLAN  
WEMBLEY TOWN HALL. CLIFFORD STRANGE, ARCHITECT

### NOTE ON CHAPTER 4.

1 The following gem from the same source, while not strictly relevant, is, in the writer's opinion, worthy of preservation for posterity:—

"The marine attractions of any watering-place are incomplete without the provision of at least one of those solid highways which push out into the sea, affording the visitor the incomparable pleasure of being surrounded by water though safely ensconced on 'terra firma.' The Promenade Pier at Cape Town, whilst graceful in design, is thoroughly practical in the many functions it was intended to fulfil, and its prospect never fails to delight the visitor, provided the windows of his soul are not entirely closed."

## CHAPTER 5.

### AESTHETIC CONSIDERATIONS.

"Harrow the house of the dead; look shining at new styles of architecture, a change of heart."

—W. H. Auden.

### THE ACADEMIC (OR NEO-CLASSIC) TRADITION.

There are countless examples in the cities of Europe of clumsy over-ornate civic buildings which misguidedly try, by the use of the outworn architectural trappings of former epochs and civilisations (usually the Classical), to impart the dignity of tradition to the squalor of the industrial scene. The citizens, while aware of the spirit of leisured grace which their city possessed in the past, are blind to the romance and precision of the mechanised present: "dignified" academic civic architecture is one of the manifestations of their nostalgia for the "good old days."

In South Africa, with a mere two or three centuries of tradition (and a neopolitan tradition, at that) we have not even the justification of nostalgia. Neo-Classic buildings in our cities are as ridiculous as a cap and gown on a schoolboy. Why are we ashamed of the youth of our civilisation—should not our civic buildings sincerely express that fresh youthfulness, rather than the false dignity of a stale and alien tradition? *Gaudeamus igitur, juvenes quod sumus!*

### THE TRADITION OF SYMMETRY

Inextricably interwoven in the network of academic fallacies is the Baroque tradition that a building should have its parts duplicated about an axis and a dominant, like the parts of the human body about the spine and the head. The fallacy is obvious: rarely do the functions of two wings, say, of a building coincide as closely as the functions of each of two hands; more frequently the functions are entirely dissimilar, and while it is possible to make a library and a group of lavatories resemble each other from the outside, such treatment is ludicrously illogical, and must inevitably entail waste and inefficiency. It is not necessary to give examples of the absurdities which can result from forced design of this nature—every Neo-Classic building bristles with them.

Assuming, then, that asymmetrical treatment is (except in very special cases) the only course consistent with moral integrity, we come to the question: by what criteria can the asymmetrical building be aesthetically judged? There is only one criterion: whether or not the massing and composition are pleasing to the eye. Extremists will shout that if it fulfils its function it cannot but be, *ipso facto*, pleasing to the eye. Be that as it may, the abolition of symmetry should not imply the abolition of discretion and careful design—asymmetrical design is no less subject to rules than academic design: the

fact that the rules are empiric should not be taken to mean that they are unimportant or even non-existent. Balance is essential to any asymmetrical composition—for instance, in the case of a city hall where allowance has to be made for extensions or additions, any pivot or dominant element (e.g., a clock-tower) would have to be introduced with great care, possibly even as a separate unit altogether, if unconsidered additions are not to wreck the balance of the original composition.

### THE DESIRE FOR PERMANENCE

Another tradition which must be fought if reason is to prevail, is the universal desire for the quality of permanence in the design of all types of civic buildings. It is the writer's opinion, on the contrary, that an administrative building should express transience; it is designed to last fifty years, and it should show it. Our civilisation is depressingly transitory! Let our civic buildings, at least, bear mute witness to posterity of our greatness at this climax of human evolution which is the Twentieth Century, in this most progressive of democracies which is South Africa! To-day we laugh at the sanitary arrangements of mighty Rome, and damn the Pont-du-Gard with patronising praise: posterity will laugh to scorn the fossilised shell of a 20th Century municipal machine. On the other hand we worship, as man always has and always will, the simple and sincere architectural expression of the cultural *arête* of a former epoch. We do not laugh at the Theatre of Epidaurus: we revere the spirit, the ethos that clings to the mould that the form has left. The mould of timeless architecture is the last resting place of the spirit of a past culture on this earth; without it the spirit must vanish into the eternity of the Universe: we do not laugh at the Parthenon.

Granted that man's primordial fear of death results in a justifiable desire for the permanent expression in architecture of the ethos of his generation, nevertheless the place for such expression is not in pretentious houses, the monuments of personal financial success; or in sick commercial buildings, the monuments of success of a group of financiers; and certainly not in administrative buildings, which are but a means to an end: but in those civic buildings which have a cultural function—they are the true guide for posterity as to the moral success or failure of a community. The successful design of buildings of this nature as a true interpretation of a city's national, civic and individual spirit is a task for genius—Ragner Ostberg has done it in Sweden, Frank Lloyd Wright could do it in America, and one day an architectural Messiah may arise in South Africa. Not being a genius, the writer has confined himself to an attempt at the sane planning of accommodation of the city's administration in a building designed for a life of, say, 50 years, with the consolation of the reflection that efficient administration is the good ground on which the seeds of the city's material and intellectual well-being can best prosper.



## THE QUESTION OF A NATIONAL STYLE. THE IDEAL.

The following arguments are often put forward in favour of a distinct national style or "flavour" in architecture:—"Civic buildings, above all others, should express the national spirit or genius in their design. In early days, interchange of ideas was impeded by poor communications, and builders of each country unconsciously developed a style of their own; even the international Renaissance style was locally modified into distinct national styles. A building which slavishly copies a traditional style belies its period—we must extract from the traditional forms the qualities (adaptation to climate, local materials, building methods, etc.) which are expressive of the country in which the tradition arose."—H. L. Curtiss, 1934 (condensed). The above is a relatively mild and convincing statement of the case for eclectic traditionalism, but is unfortunately inapplicable to South Africa. We have one of the finest local domestic traditional styles in the world; that of the Cape Dutch farm-house—the best examples of these old houses, with their approach along an avenue of noble oaks, their sturdy proportions, their gleaming white walls dappled with shade and capped with boldly curving mouldings, their richly black thatched roofs, their quaint stoeps with rusbank at one end, their tall windows with delicate glazing-bars and mellow glass, their cool interiors smelling of well-oiled teak and shining with the cheerful cleanliness of polished red-tile floors and burnished brass and copper accessories, and their all-pervading air of the tranquil but full life: such houses are unsurpassed as country architecture: they are the perfect expression of a culture, and of a people.

Unlike the countries of Europe, we have no tradition of communal building on a medium or large scale: the Cape Dutch domestic style is our architectural tradition, and none but fools would insult that noble heritage by "extracting the qualities of its traditional forms" and applying them to multi-storey buildings in the city. As a matter of fact, some have made the attempt, and here and there in Cape Town one finds buildings with old curly teak fanlights (usually in concrete) over the doors, with hanging brass (plated) lanterns housing 500-watt electric globes, with concrete ceiling-beams cased in teak plywood with lots of fat dowel-pin heads stuck on to add to the effect, curved parapets with subtle mouldings tapping the umpteenth floor, and so on ad nauseam. If a South African "flavour" is to be successfully introduced at all, it will have to be done extremely carefully. It will have to be indirect, subtle: more a matter of mood than of detail.

Probably the best thing we can do with this question of a national style, is to forget all about it; and concentrate on trying to produce efficient and aesthetically harmonious buildings. We have a South African climate, which expresses itself in our buildings whether we like it or not: if there is such a thing as a South African national character, it is bound to express itself eventually. A style will evolve.

The ideal at which civic design should aim is flexibility and absolutely functional planning, together with an external treatment and massing in which the lessons of twenty centuries of architectural experience are not entirely swept aside or forgotten. The buildings of Le Corbusier testify to colossal conceit on the part of their designer: they imply that the graph of man's progress and spiritual evolution, which has been creeping up at an infinitesimal angle for thousands of years, has suddenly become almost vertical in the last decade. This is not the case. A certain amount of humility (if not eclecticism) in architecture, is good for the soul.

### CHAPTER 6.

## PLANNING CONSIDERATIONS.

This chapter is a condensation of the data given in "Town Halls" by Cotton and in "Planning" by E. & O.E., to which latter volume the reader is referred for detail diagrams of equipment, etc. The Chapter has been made as brief as possible; in fact, it has been included only because it is a traditional part of thesis-research.

Truly organic planning can arise only from a thorough study of the working of the various organisations and units accommodated, such as is given in Chapter 3.

### GENERAL:

Site.—Should be central; is visited by almost every member of the community at more or less regular intervals, for purposes of business or pleasure. Crowds, traffic, etc., make it advisable to have as much open space around building as possible; forecourts in front of main entrances are indispensable. Parking is probably most suitably provided in the basement of Assembly Hall.

Business and Ceremony.—Entrances and circulation should be kept separate, but possibly Town Clerk's and ceremonial portions of the building may be combined.

Mayor's Apartments.—Less important to-day than in the past, when public hospitality and ceremony were more lavish. Must have good access to both ceremonial apartments and to Town Clerk's Department; access to Council and committee rooms is less important.

Assembly Hall.—Used in the past only for civic functions; to-day, as it is frequently hired out for private purposes, care must be taken that private functions do not disturb the working of the apartments of the Mayor and of the Council.

Committee Rooms.—May be either separate, with a committee room in the offices of each administrative department

(an arrangement most convenient for the various departmental heads); or grouped together and planned en suite near to the Council apartments (an arrangement which favours the convenience of the councillors).

**Council Chamber.**—May be planned as part of the Mayor's suite, or as a kind of board-room to the administrative departments; in the case of a large scheme such as the one in question, the former is more suitable. Should be well away from main public circulation; could even be on a top floor (an arrangement which would allow top-lighting or clerestory). Must have easy access to Town's Clerk's department. Councillors' apartments, lobby, etc., should be likewise semi-private, and off the main public circulation. A usual arrangement is to have the committee rooms over the main entrance front, with the Council Chamber facing the courtyard at the back; both on the first floor.

#### ADMINISTRATIVE DEPARTMENTS:

**Planning.**—Should allow for changes in sizes of the departments in relation to one another; one may expand, another shrink. Hence plan must be flexible, with light partitions and concentrated point loads; care must be taken in this connection with the placing of immovables such as lavatories, lifts, staircases, etc.

**Depth of Offices.**—Not more than 20 ft. from any window-wall.

**Steel Frame.**—Most suitable spacing is approximately 16 ft., as this allows two windows per bay, and economical slabs.

**Window-cills.**—2 ft. 6 in. above floor in general offices; more in drawing offices. Windows should be carried up near ceiling for good ventilation at back of offices. Metal casements with hoppers are probably the most suitable.

**Central Corridors.**—6 ft. to 10 ft. wide, and 8 ft. 6 in. to 9 ft. high, with duct-space over. Any borrowed lights should be double-glazed for sound-proofing.

**Height of Offices.**—10 ft. to 14 ft., average 12 ft.

**Staircases.**—One staircase to 50 persons on each floor is minimum, population of building being reckoned at 50 sq. ft. per person. No office should be more than 100 ft. from a staircase. Secondary staircases (min. width 4 ft.) must be continuous from basement to top floor, and of fireproof construction with cut-off doors at landings.

**Lavatories.**—Reckoning population of building at 50 sq. ft. per person, of which one third are women, allow (in addition to separate lavatories of department heads, etc.) :—

4 W.C.'s and 4 urinals per 100 men.

5 W.H.B.'s per first 100 men, 4 for every further 100.

6 W.C.'s per first 100 women, 5 for every further 100.

10 W.H.B.'s per first 100 women, 5 for every further 100.

**Partitions.**—Should be neat and sound-proof; preferably of the insulated cavity type.

**Floors.**—Allow for services (light, telephone, etc.) either in

2½ in. space above slab under wood floor, or in space under slab and beams above false ceiling.

**Entrances.**—Each department should have a separate ground floor entrance if possible, to avoid confusion of the public, lengthy corridors, etc.

**Rates Office.**—Should be very easy to find by public; usually planned like a banking-hall, with counters 3 ft. wide and 3 ft. 4 in. high, well clear of the office desks behind. Strong-room should be accessible both to general office and to accountancy staff.

**Strong-rooms.**—12 in. concrete or 18 in. brick walls, with concrete floors and ceilings. Doors (min. width, 3ft., for trolleys, etc.) should consist of outward-opening door and inward-opening grille.

**Clinics in M.O. of H.'s Department.**—Should be carefully separated (e.g., Welfare Clinic from T.B. Clinic), and have direct entrances from street. Perambulator store-rooms are advisable.

**Engineer's Department.**—Should be planned primarily for the convenience of staff, not of public. Should have fire-proof stores in basement, in addition to current-plans storage in drawing offices.

**Caretaker's Flat.**—Preferably on an upper floor, near to a vertical circulation of lift and staircase.

**Departments Generally.**—All enquiry-counters and general offices must be readily accessible to public; but the heads of Departments should be off the main public circulation. Waiting and secretary's rooms should be planned en suite with the office concerned. Departmental heads may prefer one large office, or a small private office and large interviewing office.

#### MAYOR AND COUNCIL:

**Council Chamber.**—Semi-circular or horse-shoe seating probably most satisfactory. Corridor around room is a good arrangement as it allows members to enter near their seats without causing disturbance, and also acts as a sound-baffle. Lighting should be high (top- or clerestory-lighting); if in walls, windows must be arranged so as not to dazzle either Mayors or Councillors. Artificial lighting pendant (points or indirect) should be dimmer-switch controlled as daylight passes. Seats should be fixed (not more than 5 seats without a 2 ft. 3 in. gangway) and minimum 2 ft. 3 in. c/c, and 4 ft. back-to-back. Desks should be 2 ft. 4 in. high, sloped, and equipped with inkwells.

**Press Gallery.**—Should have easy access to Members' Lobby.

**Public Gallery.**—Facing Mayor's dais if possible. 10 ft. is minimum height, (a) between Chamber floor and Gallery, and (b) between Gallery floor and Chamber ceiling. Gallery must be served by a separate stair (probably from courtyard). Seating in form of fixed stepped-down benches (2 ft. 9 in. back-to-back; 1 ft. 6 in. run per person), with 5 ft. between

back bench and wall (for supervision), and not more than 10 seats between gangways (2 ft. 6 in. wide).

Robing Rooms.—Allow one locker for each member (size 2 ft. x 2 ft. x 6 ft. 3 in.). Allow one W.C., urinal, and W.H.B. per 20 members; 2 W.C.'s for women.

Committee Rooms.—Smaller rooms should be en suite, with movable sound-proof partition. Chairman should have his back to the light. Tables (2 ft. 6 in. run per person) in sections for re-arrangement.

Mayor's Suite.—On a circulation dead-end if possible, for complete privacy if desired.

Grand Staircase.—Width from 6 ft. to 12 ft.

Banqueting Hall.—Area required is calculated on basis of 13 sq. ft. per seat. Kitchen and service require about 50% of dining area.

Seats.—Movable steel nesting-chairs; average 2 ft. 8 in. back-to-back, 1 ft. 8 in. cc. No seat to be more than 7 seats from a gangway (min. 4 ft. wide). Side-to-side gangways min. width 5 ft.

Entrances/Exits.—10 ft. width of exit for first 500; 5 ft. per further 250 persons. Where several exits or stairs debouch into a foyer, the latter must have 33% wider exits than their total. Street-foyer entrances should have two pairs of doors (for draught-exclusion), the inner swinging both ways, and the outer swinging outwards (or of the panic-collapsible revolving type).

Staircases.—Must be full width of corridors, with no winders. Sixteen is maximum number of steps per flight, 3 is minimum. Treads must be not less than 11 in., risers not more than 6 in. Continuous handrail is required on both sides, chased into newel walls at landings.

Ramps.—Gradient must not exceed 1 in 10.

Gallery.—Incline of between 20 and 35 degrees, with a minimum clear height of 10 ft. above and below gallery.

Corridor around Hall.—(Minimum width 6 ft.) allows freer circulation of audience, and also acts as sound and draught baffle.

Chair and Carpet Store.—Forty tubular steel chairs will form a stack 6 ft. x 2 ft. 8 in. x 4 ft. high.

Floor.—Allow 15 sq. ft. per couple dancing. Floor should be sprung, leaving 8 ft. solid around walls for tables.

Windows.—Should be high (preferably clerestory), should not allow direct rays of sunlight to enter hall.

Level Platform.—At least 15 ft. deep, with acoustic splaying, but no proscenium. Waiting rooms, lavatories, etc., for speakers should adjoin.

Cloakrooms.—Best shape is long and narrow, with separate "in" and "out" doors. If ground-floor space is scarce, cloakrooms may be extended to basement. Men's cloaks require 15 ft. cube hat-and-coat shelving; women's require hook-rack; at least 6 ft. is required between counter and shelving. Assuming equal numbers of men and women, allow:

Men: 3 W.C.'s per 1,000; 1 urinal per 100.

Women: 3 W.C.'s per 500, plus 1 for every further 400.

## SERVICES:

Generally.—All plumbing, sanitary and electric services should be in ducts where possible, with easy maintenance-access. Economy should be observed in lavatory-grouping, eliminating long runs of pipes, etc.

Air-conditioning.—Must be provided (approx. 4 air-changes per hour) to all rooms of very large volume, and wherever fixed double-glazing is used as an anti-noise measure. The ideal is a supply of clean air, of the correct humidity, warm in winter and cool in summer. Assembly Hall, for instance, could have inlets 10 to 15 feet above floor at platform and with warming and cooling chambers, and extraction outlets in ceiling at back of hall (propeller-type fans would be adequate if the outlet duct is short and direct).

Heating.—No open fireplaces or central heating required; individual electric radiators in all offices, etc., that are not air-conditioned.

Hot-water Supply.—Individual cylinders where required in kitchens, laboratories, bathrooms, etc.

## ACOUSTICS:

Planning.—In the placing of all elements their horizontal and vertical relation to other elements must be considered from the noise aspects; namely the grouping of quiet and of noisy elements, sandwiching of noisy elements between "neutral" elements such as store-room and lavatories, and so on.

Materials.—Anti-impact-noise floors to corridors, etc. Absorbent floors and ceilings to noisy typists' or machine rooms. Insulated cavity partitions. Machinery (e.g., ventilator fans) to be high-powered and low-revving for greater quiet where possible. Silent hardware (automatic closing-springs to doors which are in constant use, etc.). Lining of noisy ducts. Suppression of noise at the source generally.

Summary of Principles.—Echo results when the path of a reflected sound is more than 70 ft. (or a fifteenth of a second) longer than the path of the direct sound. Reverberation time (i.e., the time taken for a sound to die away to inaudibility after the source has stopped) increases in proportion to the volume of the room and the reflective power of its bounding surfaces. The desirable reverberation time increases in proportion of the volume of the source, but varies with its nature (speech, music, etc.). Hence if one is given the volume ( $v$ ) of a room, and the desirable reverberation time for the purpose for which it is to be chiefly used ( $t$ ); then one may find the required degree of absorption of its surfaces from Sabine's formula, which states that  $A = (.05 \times v) \div t$ .

Council Chamber.—Quiet (as opposed to stage or platform oratory) speech being the only source of sound, a short reverberation time is required. The fact that speech from any point on the floor must be heard at all points dictates the arrangement of reflecting and absorbent surfaces. Direct hearing (and view) is helped by a curved arrangement of seating. Unnecessary volume (excessive height, side-space, etc.) should



be avoided. The Chamber should not be of long narrow proportions—a fan-shape, or square with splayed angles (to reduce volume and throw sound to the centre) is probably the most satisfactory. The entire floor should be carpeted, and seats upholstered (to ensure a constant absorption, whether the Chamber is full or only partly full). The ceiling should be about 25 ft. (absolute maximum 35 ft.) in height and treated as a reflector (e.g., hard plaster, with lights sunk flush); the portion of a flat ceiling which is near the walls cannot act as a reflector, and should be either treated as an absorbent, or splayed so that it can reflect sound towards the centre of the Chamber. An excessive ceiling height results in excessive volume (and hence reverberation time), loss of sound energy, overlapping of syllables of speech, and (if over 35 ft.) a perceptible echo. Walls should be treated as reflectors (wood-panelling, etc.) up to a height of 7 ft., but if the Chamber is more than 35 ft. in any direction on plan echo must be avoided by tilting such reflectors or curving them towards the floor. The upper part of the walls should be absorbent (fibrous board, fabric or leather stretched over absorbent boards, etc.) and left natural or merely distempered (not made glossy by paint or varnish). The galleries should have a carpeted floor, fixed seats, absorbent walls, and a reflecting ceiling.

Committee Rooms.—Requirements are almost identical to those of the Council Chamber. Floor should be carpeted on a felt under-mat; walls reflecting up to 7 ft.; absorbent over. Ceiling should act as a reflector; if curved, it must have a radius more than twice the height of the room, or unpleasant distortions and concentration of sound may result at certain points.

Assembly Hall.—Speech (both quiet and oratory) and music (piano, dance-band, etc., only) being the only sources of sound, a fairly short<sup>2</sup> reverberation time is required. A reflecting back and splayed reflecting sides are desirable to the platform, which is the only position for the sources of sound. The central portion of the ceiling should act as a reflector, and should not be over 35 ft. high. The end wall, opposite the platform, and the upper part of the side walls should be absorbent. The ideal air volume per person is 180 cub. ft. for an audience of 1,000; 200 cub. ft. for 2,000. Care should be taken that by cutting down the reverberation time, sound is not rendered dead or toneless; certain surfaces (platform, wall-dado, etc.) should be resonant to give sparkle to speech and music; any panelling should be of varying thicknesses to cover a greater range of frequencies. It should be noted that movable seating has an impermanent and negligible value as an absorbent.

#### RELEVANT BUILDING REGULATIONS (Cape Town; Public Buildings):

Fire Precautions.—Facilities and appliances for prevention and extinction of fire must be approved by the Corporation. All staircases and floors of lobbies, corridors, passages,

landings, etc., to be of fire-resisting materials. Escape stairs to all buildings exceeding 60 ft. in height.

Doors to Halls, etc.—All street or outer doors to swing outwards; to be fitted with automatic fasteners to secure them when open; to be recessed where possible. Inner doors to swing both ways. Escape doors to be fitted with panic-type fastenings, opened by pressure; to be marked "EXIT" in 7 in. letters. Doors not being exits to be marked "NO EXIT." No door when open shall obstruct any passage, landing, or staircase. Doors to fire-proof staircases to be of fire-resisting material, opening outwards.

Corridors.—All aisles, corridors, vestibules, etc., to be free from any obstruction; arranged for easiest possible egress in case of fire or panic. No corridor to have a dead-end. No passage leading to any entrance or exit to be less than 5 ft. in width. Width of any main vestibule or foyer to be at least one-third greater than total widths of all doorways and passages leading thereto; street doors therefrom to be at least of same width. All means of egress to be lighted to approval of Corporation.

Aisles.—Aisles to be at least 3 ft. 6 in. wide, plus  $\frac{1}{2}$  in. for every 5 ft. of their length.

Exits.—To be as widely and evenly distributed as possible, to afford ready egress from all parts of the building, and to lead directly on to a street or open space. Buildings accommodating over 500 persons to have at least three exits, each of a width of at least 5 ft. plus 20 in. for every 100 persons accommodated.

Floor Space.—Minimum 400 ft. super (excluding gangways) for every 100 persons accommodated in any hall.

Stairs to Galleries.—All stairs to galleries, platforms or stages to be of fire-proof material. Four feet wide for up to 50 persons, plus 6 in. for every additional 50 persons. Two stairs at 5 ft. each for up to 250 persons. Three stairs at 5 ft. each for up to 600 persons.

Stairs Generally.—Stairs over 8 ft. in width to have continuous centre handrail (2 in. diam. metal, 3 ft. above centre of treads, on metal supports spaced between 4 ft. and 6 ft. apart). All stairs to be independent, with direct exits, and as far apart as possible. Passages communicating with stairs to be the full width of the stairs. Internal staircases to be enclosed with fire-resisting material walls on at least two sides. No staircase to have winders. Flights to be not more than 16, or less than 3 treads (each riser being not more than  $6\frac{1}{2}$  in. high; tread x riser approximating 66). All stairs, passages and corridors to have continuous handrails on both sides where possible. No door to open directly on a flight of steps. Stairs returning directly on themselves must have a landing the full width of both flights without steps. No two quarter-space landings may have less than three steps between them. Ramps shall not exceed a gradient of 1 in 8.

Seats.—No seat to have more than 8 seats between it and an aisle or gangway.

Fire Call Bell (or telephone) to be provided near platform, but out of sight of audience, in any assembly hall.

Note: The remaining building regulations which are applicable to the type of building in question are not worth listing here, being mostly self-evident, of minor importance, or designed purely to keep a check on the speculative jerry-builder who is not concerned with the safety or welfare of the occupants of his buildings.

#### TOWN-PLANNING REGULATIONS:

Coverage.—Coverage of a building exceeding 60 ft. in height on a site having over 25 ft. of frontage on more than three streets, may not exceed 97½% of the site. The minimum unoccupied area of the site must be 100 square feet.

Bulk.—The ground floor area, plus total area of all floors above the ground floor (i.e., basements are not included) is termed the bulk of the building; and this bulk may not exceed the permitted coverage area multiplied by the bulk-factor, the latter figure being determined by the Corporation according to the width of the adjacent streets. It is usually permitted to take as referring to the whole building the bulk-factor for the widest of the intersecting streets on which the building abuts.

Height.—The height of a building over the line of its street-frontage may not exceed ½ times the width of the street (i.e., a light-angle of approximately 56 degrees). Three feet of height may be added for every 1 ft. set back from the frontage line, but the total height may not exceed 2½ times the width of the street, or 120 ft. If the ground floor area of the building is more than 7,000 Cape square feet, then a superstructure may be permitted, provided it has a base not more than one third of the ground floor area, and a height not more than 200 ft. The height of the highest frontage may be carried round at the same level for a distance of 40 ft. only along a narrower adjacent side street. In all cases the height of the building shall be measured from the mean level of the surrounding ground to the top of the parapet, or half-way up the pitched roof, whichever is the higher.

Corners.—An isosceles triangle, with its base tangential to a circle (minimum radius 20 ft.), whose centre is not less than 20 ft. within the edge of the site, is to be left free for a height of 12 ft. at all street intersections, at the corners of the site.

Note (re Town-Planning Regulations): The above extracts are from the regulations of the City of Cape Town Provisional Town-Planning Scheme, Central City Area. It is probable, however, that the development of the foreshore area,<sup>3</sup> which is at present owned by the South African Railways & Harbours Department of the Union Government, will

#### ACKNOWLEDGEMENTS FOR ILLUSTRATIONS.

Plan and upper photograph on page 90 from "Moderne Bouten in Europa," Zurich, by F. R. Yerbury. Plan and photograph on page 91 from "Weldingen—Dudok, Raadhuis, Hilversum," 11 and 12. Photograph on page 92 from "The Architectural Review," January, 1940. Other plans and photographs by the author.

be controlled by specially promulgated town-planning regulations; for instance, the Report of the Town-Planning Advisers on the Cape Town Foreshore Scheme (1940) suggests that a definite percentage of each site should be reserved for the dual purpose of parking and light-wells, and that the maximum permitted sheer height for buildings fronting on the extension of Plein Street (and, presumably, Adderley Street) should be increased from 120 to 200 feet, provided only that in no case the approved light-angle of 1½ : 1 is exceeded. It is probable, also, that any design for civic buildings in the foreshore area (especially the City Hall, on an isolated site) would be considered purely on its individual merits, and that the town-planning authorities would give a free interpretation to any regulations they may have issued, in the case of such a building.

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#### NOTES ON CHAPTER 6.

<sup>1</sup> For acoustic calculations for Council Chamber, see later Report.

<sup>2</sup> The writer has had the unfortunate experience of acting in the present City Hall, to a half-filled auditorium. The reverberation time is not short. The audience (and for that matter the speaker) hears only a dull rumble for the duration of each sentence, followed after a short interval by a distinct repetition of the concluding phrase.

<sup>3</sup> See Part I of this Thesis, Page 19.

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Bibliography.—In addition to the books listed in Part I, the following were consulted for this portion of the Thesis: A. Calverley Cotton: "Town Halls." R.I.B.A. Periodicals Abstracts: Various articles. Müller-Wulckow: "Bauten der Gemeinschaft." Ludwig Hilbesheimer: "Groszstadt Architektur." J. M. Luthmann: "W. M. Dudok." Ragnar Östberg: "The Stockholm Town Hall." R.I.B.A. Catalogue: "International Architecture, 1924-1934." W. B. Munro: "Municipal Administration (U.S.A.)." E. & O.E.: "Planning, 1939." Burnet, Tait & Lorne: Information Book. National Council of Social Service: "Community Centres and Associations." Moderne Bouwkunst in Nederland: "Administratiegebouwen." In addition to those mentioned in Part I, the writer wishes to thank the following for their advice and information in connection with this thesis: His Worship the Mayor, Mr. W. James; Mr. Breek, of the City Hall Library; Mr. Holmes, of the Amenities Committee; Professor E. Batson, of the Social Science Department of the U.C.T.

# THE EXPERIMENTAL HOUSE - PIETERMARITZBURG

## REPORT

There were three primary factors involved in the preparation of the design, namely :

- (1) Speed of erection.
- (2) Elimination as far as possible of materials in short supply.
- (3) Low cost.

In tackling the first problem it soon became obvious that although prefabrication, in the American sense of the word, was not possible, the way to achieve speed would be to increase the size of the various components and decrease the number of small parts—such as bricks and timber. The second factor was responsible for the most unorthodox part of the whole design—the roof. The third factor, that of cost, was found to be largely bound up with speed of erection. In eliminating as much highly skilled labour as possible by utilising large components, the labour time cost was greatly reduced.

### THE CONSTRUCTION OF THE HOUSE IS AS FOLLOWS :

Footings of cinder concrete mixed 6 to 1, size 18" x 9", laid on ground under main bearing walls only, i.e., outside walls and two continuous inner walls parallel with front and back. Broken brick filling under cinder concrete floor slab cast over whole area within course of bricks laid on outer footings. Sheet asphalt dampcourse under all walls. All brickwork to internal and external walls  $4\frac{1}{2}$ " thick. Reinforced pre-cast concrete window unit surrounds built in as work proceeds and eliminating lintols. Top of walls finished with reinforced pre-cast inverted U section concrete slabs to give extra seating for roofing and on external walls to act further as hold for top of asbestos sheeting. Roof composed of twelve foot sheets of same heavy corrugated asbestos spanning across main bearing walls, acting both as permanent

shuttering and ceilings and carry cinder concrete 5 : 1 mix reinforced with strand of heavy galvanised barbed wire at 7" centres in each corrugation. Concrete graded to falls of from 5" along centre of roof to 3" at front and back of house—finished with 5 : 1 cement rendering, bituminous membrane and painted one coat aluminium paint as heat reflector.

Floors finished  $\frac{1}{4}$ " grano., coat of P84 to eliminate dampness and covered with sheet asphalt. Walls bagged and distempered. Batten doors,  $1\frac{1}{2}$ " x  $4\frac{1}{2}$ " frames and casement windows all of South African pine and painted. External walls and concrete surrounds to windows painted two coats oil bound distemper. Exposed surfaces of footings rendered 5 : 1 cement and graded to throw water off top surface.

Cost £700 complete with electrical work, fittings, coal stove, hot water and sewerage connected to Municipal main. Area of house : 1,060 square feet. Contractor's profit : 10%, on cost. Possible future improvements as follow :—

Wood block or strip flooring.

Change batten doors to flush panel.

Put doors to cupboards.

Electric instead of coal stove.

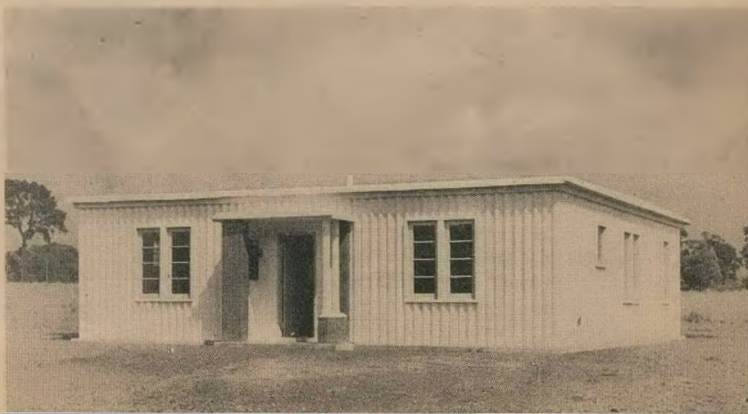
Add verandahs, gutters and down pipes.

Having given the bold outline of this experiment as complete so far, we make the following general comments.

The cost is a good deal above what it would have been had weather during construction been kinder. Apart from continuous days of heavy rain, a record windstorm removed and smashed beyond further use, half the asbestos sheets laid as permanent shuttering to roof during the night before concrete was to have been laid.

FRONT ELEVATION

FOR PLAN AND DETAILS  
SEE FOLLOWING PAGE





We are of the opinion that pre-cast reinforced concrete blocks to heads of walls could have been eliminated in favour of a brick on edge course 9" wide to outside walls and the two internal bearings walls. Asbestos eaves filler pieces to front and back edges of roof could also be omitted. Various methods were tried for firmly fixing vertical asbestos wall sheets, and the only satisfactory scheme was that of screwing into hardwood plugs at point where corrugation contacts brickwork. Generally two 2 1/2" galvanised screws and lead washers per sheet and used at top and bottom placed two corrugations from the side overlap.

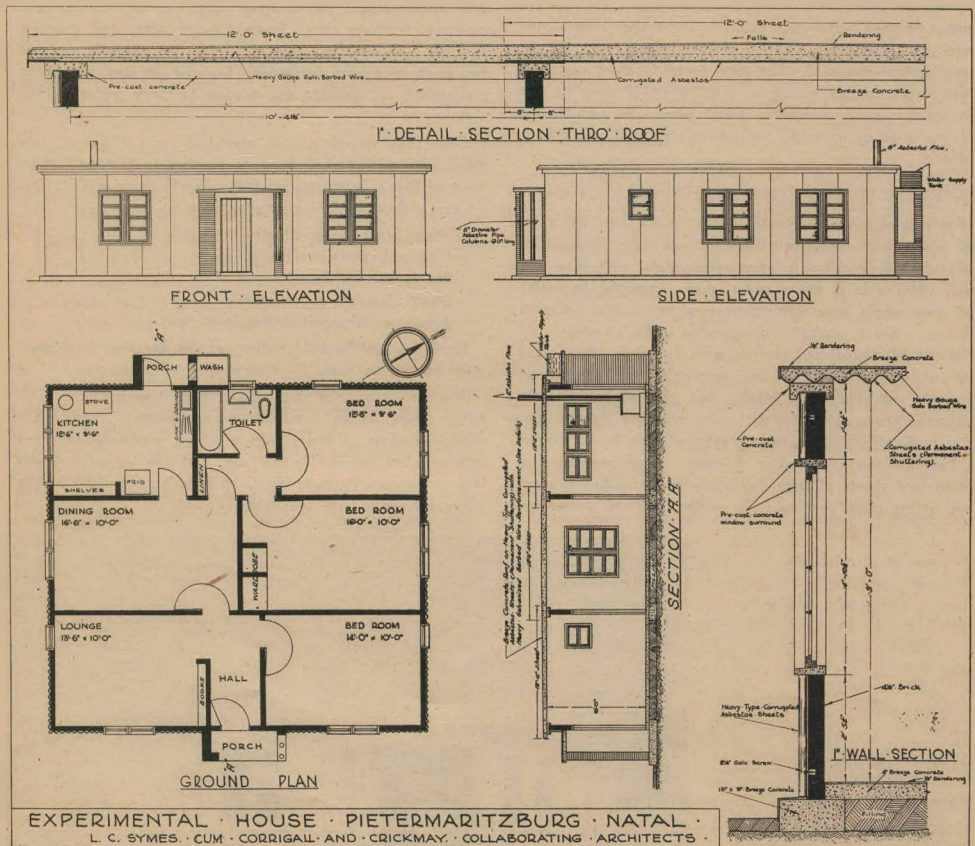
The roof construction was the result of observation on certain tests made by the Natal Provincial Works Department and our research into the effect of cinder concrete on galvanised barbed wire reinforcement over a period of 25 years. (We suggest that anyone interested in the study of materials

should visit certain cinder concrete buildings erected on the South Coast of Natal several years ago by Mr. Woods, Senr., of Woods' Garage, Isipingo. Mr. Woods' methods and results are worthy of full investigation.)

Our experimental structure is comparatively light. The roof gives only a vertical thrust, thus obviating heavy walls and foundations. It can be built, complete except for painting, in four weeks. The house has proved cool during the hottest part of a Maritzburg summer, due to hollows formed by the corrugated asbestos outer walls skin and the roofing materials.

In conclusion, tribute must be paid to the City Council of Pietermaritzburg for its sanction in sponsoring the experiment.

LEONARD C. SYMES,  
CORRIGAL & CRICKMAY,  
Collaborating Architects.



# TRANSVAAL PROVINCIAL INSTITUTE OF SOUTH AFRICAN ARCHITECTS

## COMMITTEE'S ANNUAL REPORT FOR 1943 - 1944

### TO THE MEMBERS OF THE TRANSVAAL PROVINCIAL INSTITUTE:

Your Committee has pleasure in submitting this, the Seventeenth Annual Report for the year ended 31st December, 1943.

The Provincial Committee wishes to draw the attention of members to the fact, that owing to the necessity of conserving paper supplies, the Annual Accounts have again not been sent to all members this year. These accounts, however, will be tabled at the Annual General Meeting, and may also be inspected at the Institute's Offices.

**MEMBERSHIP:** The Membership at the close of the year consisted of 186 members Practising, 139 Salaried, 7 Absentee, 36 Retired; total of 368 members.

During the year under review 14 new members were enrolled, 9 members died, 1 was transferred from the Natal Provincial Institute, the total increase in membership being 6 as compared with the previous year. One hundred and two members of the Institute were known to be on active service during 1943.

The new members enrolled during 1943 were:—R. Kantorowich, P. S. A. Hahn, H. U. Arndt, E. Londt, Miss N. Dalton, P. H. Connel, P. R. Nel, E. M. Pincus, W. J. Parker, R. W. Barlow, O. Hurwitz, Sgt. E. Meyersohn, F. J. Durr, H. P. Mathew.

**OBITUARY:** It is with deep regret that your Committee has to record the following deaths:—Sir E. Lutyens, Messrs. J. B. Ferguson, A. Forrest, W. Paynter, F. Drysdale, J. C. Kerr, A. C. Fraser, T. S. Fitzsimons, A. E. Till.

It is also with deep regret that your Committee has to record the death of the Acting Secretary, Miss B. Murray.

**COMMITTEES AND MEETINGS:** Following the election of the Committee at the Annual Meeting in March, 1943, Mr. N. L. Hanson was elected President, Mr. D. M. Cowin, Senior Vice-President, and Mr. S. C. Dowsett Junior Vice-President for the ensuing year.

During the year 12 ordinary and 6 special meetings of the Committee have been held, and the following is a record of members' attendance thereat:—

N. L. Hanson (President)	18
D. M. Cowin (Senior Vice-President)	16
S. C. Dowsett (Junior Vice-President)	8
D. S. Haddon	16
N. M. Eaton	8
W. G. McIntosh	11

C. W. Brown	17
W. A. MacDonald	12
W. D. Howie	16
J. Fassler	13
R. A. Bruce	4
Prof. A. L. Meiring (Co-opted)	5
Prof. G. E. Pearse (Resigned)	1

**LEAVE OF ABSENCE:** The following members were granted leave of absence for various periods during the year:—S. C. Dowsett, W. D. Howie, J. Fassler, D. S. Haddon, Prof. A. L. Meiring, N. M. Eaton.

The Committee reluctantly accepted the resignation during the year of Professor G. E. Pearse. The thanks of all members are due to Professor Pearse for many years of unstinting work within and on behalf of the Institute.

Your Committee wishes to record its appreciation of the assistance given by members of the sub-committees on Finance and Journal, Practice, Small House Bureau and the S.A. Academy, and to Professor Pearse and Mr. D. S. Haddon for acting as the Institute's representatives on the Executive Committee of the Associated Scientific and Technical Societies.

Messrs. A. C. Fair and H. G. Porter were appointed as additional Institute representatives on the Advisory Committee to the Controller of Man-Power. The heavy volume of work which Mr. F. L. H. Fleming had undertaken previously was taken over by Mr. Fair; members will be appreciative of the time and energy which he has devoted to this work.

**CENTRAL COUNCIL:** The 1943-44 Central Council met in Johannesburg on 13th and 14th April, 1943. At this meeting Mr. D. S. Haddon was elected President-in-Chief and chairman of the Executive Committee; Professor L. W. Thornton White was elected Vice-President-in-Chief.

Your Institute's representatives on the Central Council for the year were Messrs. N. L. Hanson, D. S. Haddon, D. M. Cowin, N. M. Eaton, and S. C. Dowsett.

The congratulations of this Institute are extended to Mr. Haddon on his well-merited election for a second term in the highest office of the profession.

Among the various matters dealt with by the Central Council and its Executive were the following:—

Welfare of members on Active Service; re-organisation and strengthening of the Institute; planning education; building control; provincial representation on the Executive; nomination of competitors for the Railway Hotel Competition; nomination of architects for the Ministry of Transport building, Pretoria; handling and distribution of a public works programme.

On the resignation of Mr. A. S. Furner, Mr. D. M. Cowin was appointed Hon. Liaison Officer. His hard work on behalf of members in the Forces has had most beneficial effects.

**FINANCE:** Copies of the audited Balance Sheets and Revenue and Expenditure Accounts as at 31st December, 1943, will be available to members at the Annual General Meeting and at the Institute's Offices.

**Institute Account:** At the present maximum revenue on this account, some loss over the year is inevitable. This is attributable mainly to the waiving of fees due by members on active service. The year's loss was £120 1s. 4d. With the anticipated increase in membership and the gradual return of members from active service, an improvement in financial position may be confidently expected.

**"S.A. Architectural Record":** The revenue of the "Record" has been maintained, and an increase is now possible. The Editors are to be congratulated on their success in keeping costs within the available funds, while producing a journal of the present standard. A small loss of £25 15s. was shown over the year.

**"S.A. Architectural Record":** The thanks of the Committee and all members are due to Professor Pearse and Mr. W. D. Howie, the Honorary Joint Editors of the Journal. In spite of war-time difficulties, the standard of the publication has been fully maintained, and a wide range of subjects covered during the year. Subject matter, illustration and typography have followed and broadened the tradition established by the late Dr. Rex Martienssen, and the "Record" continues to rank as a leading architectural journal.

The advertising manager, Mr. G. J. McHarry, has built up and consolidated the revenue of the "Record," and to him and his staff the Institute's appreciation is due.

**Catalogue Service Bureau:** The Bureau has temporarily suspended activities, and its assets have been transferred to the Institute Account.

**BENEVOLENT FUND:** During the past year the following members have made donations to this fund, for which the Institute is most grateful:—E. H. Waugh, F. A. O. Jaffray, S. B. Cunningham, J. E. Harrison, J. E. T. Day, Lieut.-Col. E. White.

The munificent gift from Mr. E. H. Waugh, which has substantially increased the resources of the fund, merits special notice from your Committee.

**S.A. ACADEMY:** The 24th Annual Exhibition, under the joint auspices of the Institute and the Transvaal Art Society, was held in the Duncan Hall from the 3rd to 14th August, 1943, inclusive, and was, in all respects, one of the most successful yet held. The thanks of the Committee are expressed to the Transvaal Art Society, the Judges, the Hanging Committee, Messrs. H. E. Perring, B. Valkenburg, Mr. King, Miss Price, Miss McDonagh, the Acting Secretary, and all others who helped to make the Exhibition a success.

From the profits derived from the Exhibition, the Academy Committee was pleased to donate £100 to the Navy War Fund, £25 and £15 to the Benevolent Funds of the Transvaal Art Society and Institute respectively.

**SMALL HOUSE BUREAU:** Following a request for assistance in the planning of houses for ex-soldiers (from the B.E.S.L., Johannesburg), your Committee decided to revive the Small House Bureau, inaugurated just before the outbreak of war. To this end, a sub-committee has been appointed, and is at present actively engaged in preliminary work. It is hoped that members will support the Bureau, particularly as it is now directly associated with the building of houses for returned soldiers.

#### GENERAL:

**A. "REBUILDING SOUTH AFRICA."** The Institute, in association with the Architectural Students' Society of the University of the Witwatersrand, held a symposium and exhibition at the University, on the subject "Rebuilding South Africa." Widespread public interest was aroused in both sections, and the undertaking which, in addition, brought together the professional and academic spheres, proved highly successful. The proceedings and drawings have been published in the journal; the exhibition is at present being shown at various other centres of the Union.

**B. MINISTRY OF TRANSPORT BUILDING, PRETORIA:** The Central Council received a request from the Railway Administration that the Institute nominate three architects or firms of architects for the Ministry of Transport Building, Pretoria. Accordingly a referendum was conducted amongst all Transvaal members, the results of which have been published. The Administration have subsequently appointed one of the nominees, the group consisting of Messrs. Eaton, Fair and Naude, Professor Meiring and Lieut. Cole-Bowen, as architects to the new building. The congratulations of the Committee are extended to these members.

**C. COMPETITION FOR NON-EUROPEAN HOUSES, ORLANDO:** The City Council of Johannesburg proposes to hold a Union-wide architectural competition for the design of houses for non-Europeans at Orlando. The Institute has been formally approached and is at present engaged in finalising the conditions of competition. Details will be made known to members as soon as possible. The action of the City Council in holding such a competition will no doubt be warmly approved.

**C. THE PROFESSION AND PROVINCIAL WORK:** The Committee is unable to report favourable progress in the Institute's negotiations with the Provincial Administration regarding work handled by private practitioners. No satisfactory response has been received to the Institute's request for the setting up of a Liaison Committee, an essential preliminary step in the view of your Committee.\*



D. ARCHITECTURAL EDUCATION: During the year 1943 there were 85 students taking Architecture at the Witwatersrand University, and 27 students at the Pretoria University. Your Committee donated £15 15s. towards prizes for Architecture at the Witwatersrand University in 1943, and hopes to extend its grant to the Pretoria University in the near future.

An event of great significance to the country as a whole and to architects in particular is the setting up of a post-graduate town-planning course at the University of the Witwatersrand. This course has been started this year, and merits the full support of the architectural profession.

OFFICE ADMINISTRATION: During the illness of Miss Murray, and since her death, Miss D. McDonagh has acted as Secretary of the Institute. The Committee thanks her for the efficient manner in which she has handled the affairs of the Institute under difficult circumstances.

By Order of the Committee.

D. McDONAGH,  
Acting Secretary.

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\*Since this Report was prepared, the Provincial Administration has responded to the Institute's request for the setting up of a Liaison Committee.

## ADDRESS OF THE PRESIDENT MR. N. L. HANSON

Gentlemen,

The administration of this Institute during four and half years of war has been a particularly difficult and onerous task. The successive committees to which this task has fallen have performed a service to the architectural profession. In maintaining a necessary administrative machinery, despite unfortunate set-backs, and in advancing the collective status of architects, a contribution of permanent value has been made. Not least, the Committee over which I had the honour to preside fulfilled its allotted task. In the many matters requiring consideration, I have enjoyed the active support of my Committee. My thanks are due to its members; and I would enlarge my tribute to include all those of members of the Institute who, in the darker days of the war, carried out the obligations that membership entails.

The Committee's Report, which you have already heard, gives a factual account of the year's activities. In particular, three aspects have appeared worthy of close attention at the present juncture. Firstly, the place and purpose of architecture in our national life; secondly, the equipment of architects to meet the new and multiple demands of a changing society; and, thirdly, the position of our soldier members and of those who have returned from active service, which must be a matter of the deepest concern to the Institute. In the latter respect, the Central Council has constantly been conscious of its duties, and has not failed, when occasion offered, to act primarily in the interests of those at present in uniform. The first two aspects, function and education, actually determine the rôle and scope of the architect's work in the coming periods of reconstruction and development, and thus inevitably colour the future of returning soldiers as well. It is clear that education and practice are intimately and equally bound up with all aspects of the architectural future.

For this reason the Committee supported the suggestion of a joint undertaking with the Architectural Students' Society of the Witwatersrand University. With the collaboration of the members of the University staff, the Symposium and Exhibition on "Rebuilding South Africa" was organised; its purpose was to give a clear picture of an important phase of architectural development possible within an evolving social and economic framework. In the process, the function of the architect inevitably came up for consideration, and it was this aspect, too, which raised the educational issue.

It is true that there is little agreement in this matter of the architect's function in society. Under modern conditions, it is sometimes difficult to define the limits of that function or even to indicate likely tendencies. But I am certain that the architect should not lightly abandon his historical rôle of planner in a broad sense—the co-ordinator of divergent requirements and specialist needs, whether it be in the single building, in the more extensive field of housing, or in city planning itself. At the same time, there is no justification for assuming that the architect is automatically and exclusively qualified, on the grounds of his basic training alone, to undertake work other than the strictly architectural. Additional and specialised training is necessary. I would remind members that Herbert Baker, in 1911, pointed to the then recent foundation of chairs of Civic Design at London and Liverpool. He then expressed the hope that the example would be followed "some day" in Cape Town and Pretoria. Well, thirty-three years after, the first South African course in town planning has been instituted at the Witwatersrand University, an event, in my view, of the utmost significance. No doubt our other Universities will follow in the near future. As I have already indicated, town planning cannot, in any case, be considered the exclusive field of the architect.

Professor Pearse, who is mainly responsible for initiating the course, has, therefore, widely extended its scope to include the civil engineering and land surveying professions. In doing so, he has prepared the ground for future collaboration and a degree of mutual understanding between closely related professions not so far attainable either here or in our own architectural planning. There is every indication that the main objectives of the course will be achieved, with beneficial results to the technicians concerned, and to South Africa as a whole in its critical period of post-war development.

The growth of our towns is a matter of vital concern to architects. Far too little attention in latter years has been paid by our profession to the process of urbanisation, so apparent as a national trend. The initial spade-work was done by older members in the days of the Transvaal Town Planning Association, but after the passing of the Town Planning Ordinance in 1931, the Association itself withered away, and no active body of interested and informed opinion was left to keep a vigilant eye on the expansion of urban centres under rapidly changing circumstances. Under the Ordinance, several schemes were prepared in the Transvaal for the larger centres; the scheme for the Witwatersrand, in particular, was notable for its competent survey of existing physical conditions and the comprehensive zoning restrictions which followed. But deficiencies in the direction of social statistics and positive planning have revealed themselves unmistakably under the stress of war conditions. We have thus reached the present state of affairs, when a large-scale construction programme is being advocated (and partly fulfilled), while pre-determined lines of balance and co-ordinated development are entirely absent. Constructive criticism is not likely to come from any other organisation but this one, and I wish to suggest that some positive disinterested work should be collectively undertaken while modification and amendment are still possible. It is to be hoped that Johannesburg City Council will support such an undertaking, or, better still, sponsor it. I may cite the magnificent example of the London County Council in producing, in spite of over-riding war considerations, its bold and comprehensive plan for the reconstruction of the metropolis. The trouble here is that, while the problem is lesser, obstruction to progressive change is infinitely greater.

I have dwelt for some moments on the town planning issues not merely because they are the concern of a professionally conscientious body, but more especially because they help to clarify the position of the architect and his work both now and in the unpredictable future. What, in fact, is the present situation? Members are, of course, quite aware of the radical transformation in the building scene which has taken place in the past year. From the doldrums into which the profession was plunged during the central years of the war, we have now, still during the most bitter war in history, emerged into a veritable and, may I venture to suggest, somewhat spurious boom in building activity. I say spurious

because, although building is in many respects an essential requirement, I do not feel that we are directing our resources to proper, or, at least, intelligently anticipated ends. There is not that clarity of economic and social problems which should precede physical reconstruction; nor, in our own sphere, a defined policy concerning the building industry, its present tasks and its future adjustments. On the contrary, the threat to the very constitution of the industry, historically inevitable in a war of international dimensions, is not being faced on a basis of firm knowledge and experienced understanding. What is essential is scientific investigation covering ascertainable facts, likely programmes of building and necessary reorganisation to meet such programmes. It would be idle for the architect to imagine that these matters are no concern of his. Indeed, only the architect has the training and background to direct an inquiry of the nature suggested. The Institute, which has already made representations on this subject to the Social and Economic Council, must continue to press the Government to undertake the required survey of the building industry, a survey informed in approach and national in range. Only thus may our most pressing problems—such as low-cost housing, urban reconstruction and rural rehabilitation—be confidently attacked. Without a guiding policy, founded on incontrovertible facts, booms are likely to be followed, quite unexpectedly and inexplicably, by sudden depression, with disastrous results on the stability and efficiency of the building industry as a whole, and the architectural profession in particular.

The current "boom" represents a continuation in method and basis, of pre-war building. The one new element, control, is not directed towards a planned building programme, but acts rather as a brake of somewhat uneven and erratic operation. This situation may be immediately favourable to the private practitioner, but surely the long view is that the country's real needs—the building equivalent of social and economic betterment—are the first priority, and will, in any case, force their way to the front if only by the pressure of sheer necessity.

Whatever the merits of these latter observations, one thing is tolerably certain—the growth and spreading influence of public works as an integral part of post-war stabilisation and recovery. All levels of government, Central, Provincial and Local, are equally involved. The architectural profession's relationship with these authorities is a matter of vital importance, affecting as it does training, employment and practice. The place of the architect in public service and administration must be progressively strengthened through the support of the profession as a whole. In their education students must be equipped for the important public duties which will offer one of the main outlets for the exercise of architectural talent. If the conditions of service are reasonable, and this again is a matter of concern to the whole profession, many young architects will no doubt prefer to take this latter course.

As far as practising architects are concerned, the instability of private practice, most marked, of course, in times of economic crisis, can be largely offset by the judicious letting-out to architects of public works for which the various authorities are responsible. This procedure, with its difficulties in application, has been debated over many years. So far, the main experience, within this Institute, has centred round Provincial work, with not altogether happy results. The retiring Committee, as well as previous committees, repeatedly asked for fundamental changes in the relationship between Administration and practitioners. It has been contended that only by creating machinery, representative of both Administration and profession, through which commissions at all stages could pass, would real improvement materialise. Although, as I have already stated, no progress has been made provincially, it is gratifying to report greater success in negotiations with the Public Works Department. The Central Council, together with the Secretary of Public Works and his technical assistants, have set up a Liaison Committee, to arrange for the handling of such Government buildings as can be allocated to the practising architect. It is not out of place to say here that, in my view, this progressive step was possible largely because members of the Institute are responsible officers in the Public Works Department; to them the profession's tribute is due.

Local authorities tend to build up self-contained technical departments. Nevertheless, here as elsewhere, it is probable that the outside architect has, by tackling problems from a slightly different angle—less conventional, more experimental and personal—a distinctive contribution to make to civic development. Johannesburg's City Council has shown some awareness of this fact, but I suggest further consultation and co-operation are not only possible but would prove highly productive. The architect as citizen should actively interest himself and participate in civics, as it is local government which determines in a large measure the nature and quality of our urban environment.

I have deliberately stressed the relationship between architects who are public servants and those who are in private practice, because significant advances in architectural thought and endeavour is most likely in our present and in the emergent post-war society if real understanding and a sense of collective responsibility are established within our own ranks. But there is an important section of the profession which has not yet been mentioned. Salaried members outside public service are of equal importance in any re-adjustments either in attitude or organisation which may take place. There is a motion on the Agenda dealing with the position of salaried architects, and I do not wish to prejudice the discussion.

This much, however, I will say. I believe there is to-day no difference at all in status between the one class and the other. The sooner even the word "class" disappears, the better chance there will be to establish a monolithic membership, in fact as well as in name. No reference is intended to administrative procedures, as these in some cases operate in favour of a unified approach and sometimes against. We have not yet reached the stage when differences are merely nominal—a fact which must be borne in mind—but the strengthening of sectional interests is the negation of collective advancement.

It can be stated, however, that the salaried member in private employment has, generally speaking, been in the least fortunate position of all our members. We insist on equal qualifications for all who may register under the Act, and therefore logically grant equal professional status. This has not always been readily accepted. If architects consider, as some apparently do, that the present system of education eliminates a distinctive and necessary "draughtsman" class, then training outside the Universities must be instituted and lesser qualifications sought and accepted. Although the present building situation has immeasurably improved the economic position of the salaried member, a more lasting settlement of a perennial problem is needed in order to secure for him a proper place in the post-war world.

We are in a period of social transition. It is not to be expected that the instruments of professional organisation, as they are at present designed, will cope with the changes that will take place in the first instance outside the profession. But we cannot be unaware of the changing structure of society, the new social basis which strives for recognition against the older system of economic domination. The struggle is reflected in the architectural world. I ask for a re-orientation in architectural thought towards the social basis. We have an historical background which is well worth detailed study. Building tradition goes back to the first great days of European settlement, three centuries ago. There is much to learn and profit by in the study of the architectural achievement of this era. The sharp break in building caused by the war has created the opportunity to reevaluate the past, including the very recent past, and to extract from that reevaluation guiding precepts for future development. If we treat our own problems with the clarity of thought, vision and purpose inherent in South African building tradition; if we inform our architecture with the rising social consciousness, architects, too, will contribute to the rehabilitation of man, the most vital task of our time.



# NATAL PROVINCIAL INSTITUTE OF SOUTH AFRICAN ARCHITECTS

## ANNUAL REPORT, 1943 - 1944.

Your Committee has pleasure in submitting this, the Seventeenth Annual Report of the Natal Provincial Institute of Architects.

**MEMBERSHIP:** The membership at the close of the year consisted of 50 Practising, 21 Salaried, 1 Absentee and 6 Retired, a total of 78 members.

Five new members have been enrolled during the year; one member has transferred his membership to the Transvaal Provincial Institute of Architects.

**COMMITTEE:** At the last Annual General Meeting the following members were elected to the Provincial Committee: Messrs. B. V. Bartholomew, F. W. Powers, Col. G. T. Hurst, C. S. M. Taylor, D. C. McDonald, W. Hirst, W. S. Payne, S. N. Tomkin, and C. R. Fridjhon.

At the first meeting of the newly-elected Committee, Mr. F. W. Powers, the retiring President, was re-elected President, and Mr. B. V. Bartholomew, the retiring Vice-President, was re-elected Vice-President, for the ensuing year.

One Annual General Meeting and 18 ordinary and special Committee meetings, besides several Sub-Committee meetings, were held during the year. The following is a record of attendances at the Committee meetings:—

	No. of Meetings.	Leave Granted.	Attendances.
B. V. Bartholomew	18	2	16
C. R. Fridjhon	18	1	15
W. Hirst	18	4	9
Col. G. T. Hurst	18	7	8
D. C. McDonald	18	2	16
W. S. Payne	18	4	14
F. W. Powers	18	1	17
C. S. M. Taylor	18	2	12
S. N. Tomkin	18	3	13

Note: Col. G. T. Hurst was away on military duty.

**REPRESENTATIVES—1942-1943:** On Central Council: B. V. Bartholomew, A.R.I.B.A.; Alternate, D. Calvert McDonald, A.R.I.B.A. On Board of Education: B. V. Bartholomew, A.R.I.B.A.; Alternate, Robert Howden, F.R.I.B.A. (T.P.I.). On Natal Technical College Council: Col. G. T. Hurst, F.R.I.B.A. On the Greater Durban Development Committee: D. Calvert McDonald, A.R.I.B.A. Mr. B. V. Bartholomew is the Architect representative, and Mr. W. G. Thompson the Quantity Surveyor representative on the Local Advisory Committee of the Government Control of Building Industry.

**LOCAL EDUCATION COMMITTEE:** W. S. Payne, A.R.I.B.A. (Chairman); B. V. Bartholomew, A.R.I.B.A.; D. Calvert McDonald, A.R.I.B.A.; and F. W. Powers, A.R.I.B.A.

Members are reminded of the facilities afforded in courses of Architectural Education at the Natal University College. Full particulars of these courses may be obtained on application to the Secretary of the University, Commerce Building, Warwick Avenue, Durban.

The past session has been a strenuous one, as will be seen by the number of Committee meetings held.

Many matters of importance to the profession have engaged the attention of your Committee. Its advice has been sought by various bodies, and every endeavour has been exercised to justify this confidence, either by co-operation, assistance or advice, and in appointing one or more of its members to act on committees.

A deputation waited on the City Council, when the following matters were sympathetically discussed: Post-war planning policy; Appointment of Liaison Officer to collaborate with the City Engineer's Department in the prosecution of post-war development works; Plans submitted by non-Europeans; Corporation Housing Schemes; and the principle of major architectural work to be made the subject of competition by private practising architects.

It was recorded at this meeting that in the prosecution of post-war works due regard by the City Council would be paid to the claims of the architectural profession.

**NATAL PROVINCIAL POST-WAR WORKS AND RECONSTRUCTION COMMITTEE:** A comprehensive memorandum of this Provincial Committee's considered opinion on post-war planning and reconstruction works, covering the five points of the Commission's Terms of Reference, was submitted to the Commission.

Mr. F. W. Powers (President), Mr. B. V. Bartholomew (Vice-President) and Mr. S. N. Tomkin gave evidence before the Commission when it met in Durban.

Candidates for the Provincial Council elections and City Council elections were circularised with a view to focussing their attention upon the increasing growth of Government and Municipal Architectural Departments, respectively, to the detriment of the private practitioner; and with a view to establishing the principle of handing out work to the private practitioner.

**PROSECUTION:** During the year there was one prosecution under Section 3 of the Act, viz.: non-registered person holding himself out as an architect.

**FINANCIAL** : From the audited Statement of Accounts for the year under review, it will be seen that the Revenue and Expenditure Account shows a deficit of £57 ls. 11d. as compared with £141 6s. 5d. shown for the previous year.

This deficit is mainly due to the waiving of subscriptions of members on active service, waiving of the R.I.B.A. Moieties, and the heavy levy payable to the Central Council. Only essential expenditure has been incurred during the year, and economies effected wherever possible.

As foreshadowed in the Minutes of the last Annual Meeting, it has been found necessary to draw on the Investment Account to the extent of £100. The Investment Account now stands at £229 11s. 5d.

**CENTRAL COUNCIL** : The 1943 session of the Central Council took place at Johannesburg, in April last; Mr. Bartholomew (retiring President-in-Chief) occupied the Chair.

Mr. Jose Cortez, representative of the Brazilian Institute of Architects, conveyed the greetings of his Institute and presented to the President-in-Chief a diploma enrolling him a Corresponding Member of the Brazilian Institute of Architects, also a replica of the Brazilian insignia.

Many subjects of interest and importance were dealt with, among them being Control of Building in relation to the profession; Position of Members of the Institute in the Army; National Planning, etc., etc.

Mr. D. S. Haddon was elected President-in-Chief and Chairman of the Executive Committee; and Professor Thornton-White, Vice-President-in-Chief, for the ensuing year.

The Central Council of the Institute was invited by the Railway Administration to submit ten names of practising

architects to compete for the design of new Railway hotels at Pretoria and Cape Town. It is unfortunate that the competition was limited to the ten architects, thus depriving a large number of architects from competing.

The Central Council resolved: "That the remission of annual subscriptions be granted only to such members as were on full-time active service and applied for such remission."

Your Committee places on record its deep appreciation of the excellent work done by the members of the Central Council; and thanks are also due to those members of the various sub-committees for giving much of their valuable time to the various matters concerned during the year under review.

Your Committee desire to take this opportunity of wishing all those members serving with the Forces every success in their military undertakings and a safe return.

**EXHIBITION OF PHOTOGRAPHS AND DRAWINGS** : The Transvaal Provincial Institute, together with the Students' Architectural Society of the Witwatersrand University, have recently held an Exhibition and Symposium on "Rebuilding South Africa."

Your Committee has arranged with the T.P.I. to have the exhibits forwarded to Durban. The exhibition will be staged under the auspices of the Natal Provincial Institute of Architects, and a sub-committee has been appointed to make the necessary arrangements.

**LIBRARY** : Thanks are extended to the "S.A. Architectural Record" for its journal, which has been circulated to members during the year.

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## O. F. S. PROVINCIAL INSTITUTE OF ARCHITECTS

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### SECRETARY'S REPORT, for the year ending 31st December, 1943.

Gentlemen,

Owing to the lamented death of our President, Mr. W. W. Tonkin, F.R.I.B.A., M.I.A., and the fact that our Vice-President, Mr. C. Timlin, was at first on Active Service, and is now in hospital owing to an unfortunate accident, I have, in the absence of a President's Address, the honour to present to you the Secretary's Report.

Death has been busy in our Institute in recent months, we having lost two members last year and another in this new year :

Mr. W. W. Tonkin, F.R.I.B.A., M.I.A., our President, who, after working in England came to South Africa in 1898. He was in the Government Department of Public Works from 1902 to 1933, and since then has had his own private practice. He

possessed the respect of all with whom he came in contact; he was always pleased to work for the good of his professional fellows. He was for some years our member of Central Council and President-in-Chief for the term 1941-42.

Mr. W. M. Timlin, L.R.I.B.A., M.I.A., who with his brother were the partners of the firm Greatbach and Timlin, of Kimberley, where much of their work is to be seen, was our Provincial President, 1937-38. He constantly travelled 200 miles to be present at our Annual and General Meetings, and we shall be very conscious of his loss. With his name is always associated his widespread travels and the pictorial work in colour, ink and pencil which placed him in the forefront of South African artists.

Mr. J. P. Runham, M.I.A., had many years' service with the Government Department of Public Works, and on leaving the Department practised for a time with Mr. J. Willoughby-Williams in Bloemfontein; later he was in Kimberley, where he did a considerable amount of hospital and schools work. He was always a source of quiet strength to our Provincial Institute.

In another way we have to record transfer to the Cape Institute of Mr. H. C. Tully.

Mr. J. Willoughby-Williams now resides in Western Province, Cape, but I am glad to say he still continues membership with his original Institute.

You will, I know, on the credit side of our membership, welcome Mr. B. W. Frank, A.R.I.B.A., M.I.A., South African born and educated. He studied Architecture at the famous School in Liverpool, England, and qualified into the Royal Institute; back again in his homeland he has had various positions, and is now Chief Architectural Assistant in the Bloemfontein Municipality.

**COMMITTEE WORK:** This has been uneventful in the last twelve months, chiefly owing to our President's ill-health, the Vice-President's absence, the sickness of a third Committee member, and the transference of another to the coast: however, I think I may say that local conditions up to December, 1943, have had no serious matters calling for special attention, and all Central Council matters were immediately placed before the President.

**FINANCE:** The Revenue and Expenditure Account and Balance Sheet are before you, and, I trust, will be found satisfactory. It has been the careful work of years on the part of the Hon. Treasurer to present a credit balance, even if small, on every occasion. Our books are kept on the membership and sums accrued bookkeeping system; our account with Central Council is on a cash basis.

**WAR SERVICE.**—Three of the members are on Active Service and one in the N.V.B.

**HON. SECRETARY AND TREASURER:** There is a considerable amount of work annually in connection with Central Council, and this officer has to be intimately acquainted with all Central Council Minutes and Circulars, and there is the usual bookkeeping, accounts, and gathering in of fees. Some of this work requires attention when a Practising Architect may be experiencing an unexpected office rush. If a new Hon. Secretary can be obtained the present holder will be prepared to give such all necessary assistance.

**WAR AND POST-WAR EMPLOYMENT:** There is a widespread feeling that our profession might have received a large share of the designing and building under war construction, and we can thank our Central Council for the efforts it made in presenting this point to the authorities, even if the success was small. In regard to national post-war reconstruction it may be accepted that Central Council is fully awake.

**GOVERNMENT CONTROL OF BUILDING MATERIALS:** Messrs. Fredk. W. Masey and W. Rhodes-Harrison are on the local Advisory Board.

**CENTRAL COUNCIL:** This Provincial Institute desires to record its appreciation of the work Central Council as a body, and its Executive Committee, throughout the year, are carrying out in the interests of the two professions, some of the items being:—

Control of Building Policy.  
"Cost-Plus" Enquiry.

Cape Town and Port Elizabeth Railway Stations.

Government Work to be handed out to the Professions.  
Housing Schemes.

S.A.R. Hotels.

Civil Re-employment.

Town Planning Education in South Africa.

HON. SECRETARY AND TREASURER.

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## THE CHAPTER OF SOUTH AFRICAN QUANTITY SURVEYORS

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### BOARD'S REPORT FOR 1943-1944

#### TO THE MEMBERS OF THE CHAPTER:

Your Board submits hereunder its Report covering the session 1943-1944, during which your Board consisted of: Members practicing solely as Quantity Surveyors: Messrs. S. H. Bowyer, Dudley S. Mann, W. A. McKechnie, T. Moore, G. P. Quail, Lieut.-Col. W. E. Puntis, P. M. Roos, A. W. Springthorpe; Dual Member: R. Howden; Salaried Members: Leo C. Austin, Dr. E. J. Hamlin, R. J. C. Prentice.

The officers elected for the year were: President, P. M. Roos; Senior Vice-President, W. A. McKechnie; Junior Vice-President, G. P. Quail.

**BOARD MEETINGS:** During the year (up to and including March 7th, 1944) there were nine meetings of the Board, in respect of which the following is the attendance record: P. M. Roos, 9; T. Moore, 9; L. C. Austin, 8; G. P. Quail, 8; A. W. Springthorpe, 8; S. H. Bowyer, 6; R. Howden, 6; W. A. McKechnie, 6; R. J. C. Prentice, 6; W. E. Puntis, 6; Dudley S. Mann, 3; Dr. Hamlin, 1.

**THE CENTRAL COUNCIL:** The following members represented the Chapter on the Central Council of the Institute-and-Chapter during the year: P. M. Roos (Alternate, W. A. McKechnie); T. Moore (Alternate, A. W. Springthorpe).



Mr. Prentice, in his capacity as Union Government Quantity Surveyor Nominee, has a permanent seat on the Central Council. His Alternate for many years was Mr. C. H. Deighton; on the latter's retirement, he has been succeeded by Mr. Austin.

Your Board has pleasure in recording that Mr. Roos was appointed Vice-Chairman of the Executive Committee of the Central Council for the session 1943-1944.

**THE BOARD OF EDUCATION:** The Chapter has three representatives on the Institute's Board of Education, viz.: Dr. Hamlin (Alternate, Mr. G. P. Quail); Mr. Austin (Alternate, Mr. Dudley Mann); Mr. McKechnie (Alternate, Mr. Bowyer).

**THE FINANCE COMMITTEE:** The Finance Committee during the year consisted of Messrs. Roos, G. P. Quail, Austin and Bowyer. Your Board may be pardoned for suggesting that the Finance Committee appreciate, more than ever, Mr. Hofmeyr's task in raising revenue; but they envy him his wider powers.

**"STANDARD SYSTEM" SUB-COMMITTEE:** One of the Chapter's major post-war schemes is the revision of the Standard System, the sub-committee responsible for which is Messrs. Austin, Mann, Moore and Prentice.

**CHAPTER'S MEMBERSHIP:** The total membership of the Chapter, compiled as at March 7th, 1944, is 193, classified as follows:

Practising solely as Quantity Surveyors .....	65
Dual Practising Members .....	20
Salaried Members .....	69
Retired Members .....	29
Absentee Members .....	6
Honorary Members .....	4

**OBITUARY:** The Board regrets to record the death during the year of Mr. F. B. Holt, for many years with the P.W.D., and of one of the Chapter's younger members, Mr. H. W. Nottingham, on active service.

**NEW MEMBERS:** During the year there were 12 new enrolments, viz.: as Salaried Members, Messrs. P. B. Foley, Johannesburg; J. M. Walker, Pretoria; A. Sacks, Johannesburg; G. R. Lewis, Johannesburg; A. R. Swain, Lusaka; W. R. Hemson, Durban; R. C. Sims, Cape Town; H. W. Reid, Pretoria; J. T. B. Viljoen, Pretoria; E. Allen, Johannesburg; and as Practising Members: R. L. Lefeaux, Johannesburg; G. Davids, Johannesburg.

**MEMBERS AND STUDENTS ON ACTIVE SERVICE:** A list of Quantity Surveyors and Students on active service (as complete as the information furnished to the Chapter permitted) was published in the Board's last Annual Report. The Board's best wishes are once again extended to them.

The Board will welcome any additional information, in this important regard, that members can furnish.

**OFFICIAL REQUESTS FOR Q.S. SERVICES:** On pages 34-35 of Vol. XIII of the Board's Minutes (circulated to all members of the Chapter) is set out a request from the Union Quartermaster-General for the services of Quantity Surveyors. In this regard it is of interest to note that intimations in somewhat similar strain have been received from the Transvaal Provincial Administration, the Northern Rhodesian Government, and the Mauritius, East Indies and Cape Town Branches of the Admiralty.

**HOUSING SCHEMES:** In view of the increasing importance of housing schemes, and the growing tendency to engage Quantity Surveyors thereon, the Board has under consideration the general question of fees applicable to all housing schemes.

**ADMINISTRATIVE PROBLEMS:** Not unnaturally, in the fifth year of the most devastating war in history, the Board has been confronted with many difficult problems. Under this heading the Board has during the year, after careful consideration, decided:

(a) in regard to the practice known as "Plumping" at elections, not to recommend any amendment to the present Regulations, feeling that the electorate (i.e., the Chapter's membership) should be permitted the democratic right, in the wise exercise of its discretion, to vote for 12 candidates—the number required to form the Board—or a lesser number;

(b) in regard to the suggestion made at the last Annual General Meeting—to reduce the subscriptions of Salaried Members—NOT to adopt this suggestion.

Other administrative problems which have engaged the attention of the Board during the year have not yet been brought to finality.

**QUANTITY SURVEYING EDUCATION:** The following figures indicate the numbers of Quantity Surveying students who attended the Universities of Pretoria, the Witwatersrand, and Cape Town, during 1943:

Degree Course	Witwatersrand.	
	Pretoria.	rand. Cape Town.
Degree Course .....	4	3
Diploma Course .....	16	12

The Board has given its support to the endeavour to establish a part-time course in Quantity Surveying at the Natal University College, Durban, under the aegis of the University of the Witwatersrand.

There has been a noticeable decrease in the number of South African students entering for the Professional Examinations of the Chartered Surveyors' Institution.

During the year the following students completed the requirements of the University of Pretoria for its Diploma in Quantity Surveying, viz.: A. R. Hunt (with distinction) and I. I. Dean; and Witwatersrand University, Diploma Course in Quantity Surveying, J. P. Lowe.

**BELL-JOHN PRIZE FUND:** The Board gratefully acknowledges the following contributions to the Bell-John Prize Fund during the year: T. Moore, £4/4/-; N. N. Moore, £1/1/-; W. A. McKechnie, £2/12/6; D. M. Sinclair, Senr., £10/10/-; J. W. Cowling, £10/10/-; J. A. Cowling, £2/2/-; Roos & Roos, £4/4/-; E. B. Farrow, £5/5/-; A. W. Springthorpe, £10/10/-; Farrow, Laing & McKechnie, £5/5/-; Borckenhagen & Louw, £5/5/-; Selkirk & Lane, £5/5/-.

Those members of the Chapter who have not yet subscribed to this fund are invited to do so.

**GOVERNMENT WORK:** The Board has pleasure in recording that an appreciable volume of governmental quantity surveying work has during the year been allocated to practitioners.

**HON. LIAISON OFFICER:** Mr. P. M. Roos, as Hon. Quantity Surveying Liaison Officer, has had the onerous task of continuously interviewing the Defence authorities in the endeavour to improve the status of Quantity Surveyors in the Forces; and latterly in the endeavour to secure the release of personnel not engaged in combatant units.

**CHAPTER'S FINANCES:** Members have been furnished with a copy of the Chapter's audited Statements of Account for the calendar year 1943, which show a surplus of £3/11/-.

## ADDRESS OF THE PRESIDENT MR. P. M. ROOS

Once again it is my pleasure and privilege to address you. As your President, I do not lose sight of the fact that the war is the major issue, and my views constantly vacillate between these two important considerations: firstly, have we as a profession pulled our weight in contributing to the war effort? Collectively, I think the Chapter's record is no mean one. Secondly, have those of us who have not been able to serve the country in the Military Forces pulled our weight in looking after the interests of the profession we have striven for so many years to build up? Again, I think our collective effort has been no mean one.

This past year has been one of many difficulties. South Africa's fortunate geographical position, together with the turn that the war has taken, has brought about a "boom" in certain parts of our fair country that is comparable with some of the best pre-war years. This is all to the good, when one realises that the profession had to pass through a difficult time during 1941 and 1942. Nevertheless, I feel that we may be living in a "fool's paradise" and that we should stop, consider for a moment, and then perhaps ask ourselves one or two questions. How long can it last? How soon will the available imported materials be in "short supply," and will shipping space be made available for the importation of

This surplus has been made possible by the careful husbanding of the Chapter's administrative expenses and by the generous donations of individual members, totalling £20/19/-.

It will be observed from the accounts that the item "Remission of Subscriptions of Members on Active Service" accounts for the considerable sum of £129/3/-. "Subscriptions Unpaid," as at December 31st, 1943, amounted to £154/7/6. Fortunately a special campaign embarked upon by the Finance Committee—without recourse to legal process—has appreciably reduced this amount.

**DONATIONS TO BENEVOLENT FUND:** The capital of the Benevolent Fund has now reached the total of £530/16/5. The Board's appreciation is recorded to the following members for their contributions during the year: J. E. Harrison, £3/3/-; E. B. Farrow, £10/10/-; Thompson & Martin, £10/10/-; and refunds of meeting expenses by Board members, £2/2/-.

**APPRECIATION:** The Board is indebted to Mr. Roos for his untiring efforts both as President and as Hon. Liaison Officer: he has indeed given of his best to serve his profession; and to Mr. Moore for his kindness in placing his office at the disposal of the Board for its Pretoria meetings.

Once again the Board has pleasure in placing on record its appreciation of the invaluable services rendered during the year by your very able Secretary, Mr. J. S. Lewis.

essential imported materials not necessarily required for the furtherance of the war effort?

In answer to the first question, the boom will last whilst materials are available and whilst buildings of not really an essential nature are allowed to be built. The replies to the second and third questions must be in the hands of the competent governmental authorities, who should know what the position actually is, and who, I, personally, feel should be more definite and precise when making statements to the Press. We have heard many veiled remarks as to the amount of controlled materials that are available: these are not very encouraging, particularly as a number of our younger members have just commenced private practice. Their apparently secure position may later prove to be very insecure.

Nevertheless, it is very gratifying that the P.W.D. and Provincial authorities are proceeding with postponed and new building programmes and that the profession is being called upon to assist in this work.

We have heard much of late of a suggested method of "Group working." The Chartered Surveyors' Institution in Britain investigated a grouping of various professional and technical men into one firm. One of their findings was that,

in the interests of all parties, the Quantity Surveyor should remain independent. The Institute of S.A. Architects, for the purpose of a competition, have recently sanctioned a system of "Group working," but we have as yet not been able to judge whether it is a success or otherwise. Architects and surveyors, and architects and engineers, have repeatedly been associated successfully. We now come to a system which most of us in our practices observe, that is, an association with a firm or firms of architects for whom we, to the practical exclusion of any other quantity surveying firm, do the work. This understanding may not be classified a "Group," but it is very much the same. Social codes and professional ethics have a great bearing in preserving this system.

We now must ask ourselves, what is basically wrong with the "Group working"? Is a Quantity Surveyor likely to be influenced more in this system or in any of the others detailed above? My feeling is that if the profession of Quantity Surveying means anything at all, our members will always place the interests of their profession ahead of personal gain. This leads me to believe that a closer co-operation between all the interests associated with the design and completion of building must be to the benefit of all concerned.

I am entirely with those who urge a more businesslike scientific rationalisation of the whole of the great Building Industry. To this end I offer it as my considered opinion, even at the risk of incurring displeasure, that we should wel-

come as members of our Chapter those Quantity Surveyors, fully trained professionally, who have entered the Building Industry on the operative side. ("Hear, hear.")

You will no doubt remember that last year the Annual General Meeting expressed very strong views about the injustice meted out to our Quantity Surveying Officer-personnel in the S.A.E.C. I had hoped to be able to tell this meeting that this position had been altered. All I can say is that unofficially I have been informed that this injustice will be removed and that the recommendation has already been placed before the competent authorities. I would like to place on record my appreciation of the assistance that Col. Cotton, O.C. of the S.A.E.C., has given me, as Hon. Liaison Officer. Whenever it has been possible to grant professional pay to Officer-Quantity Surveyors, who are doing professional work, it has been done. My next step will be to try and get all Q.S. personnel who were seconded to the S.A.E.C. to do professional work transferred into the S.A.E.C. Only then will they be able to claim professional pay.

In conclusion, I once again wish to express my appreciation of the valued assistance that members of the Board have given me during my second year of office; and finally to your Secretary, Mr. Lewis, who, during the past year, despite his ever-increasing burden of professional cares and staff difficulties, still managed to keep a firm guiding hand on all matters of importance. His help and advice will always be a happy recollection.

## PROFESSIONAL NOTES AND NEWS

N. M. Eaton, A.R.I.B.A., M.I.A.  
Lt. R. E. Cole-Bowen, M.C., M.I.A.  
Prof. A. L. Meiring, A.R.I.B.A., M.I.A.  
A. C. Fair, M.I.A.  
Hugo Naude, A.R.I.B.A., M.I.A.

Valrhuis,  
Bureau Leno,  
Pretoria.  
And at Johannesburg.  
Telephone 2-0213.

The Editors,

April 3rd, 1944.

We would like our colleagues of the Transvaal Provincial Institute to know that we feel it an honour to have been placed by them, through referendum, among the three groups to be considered by the Government as architects for the new Ministry of Transport Building in Pretoria.

It is now our good fortune to have been selected by the Government to carry out the work, and we are therefore doubly conscious of the trust placed in us by our fellow architects.

Yours faithfully,

NORMAN EATON,

Norman Eaton & Partners.

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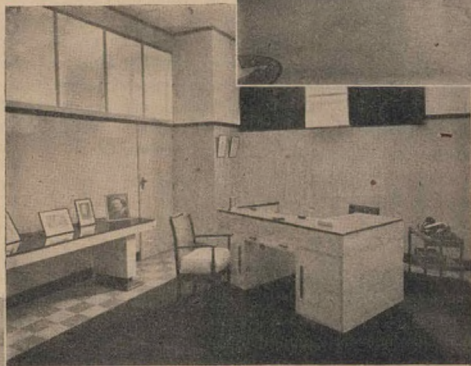
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# SOUTH AFRICAN ARCHITECTURAL RECORD

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THE JOURNAL OF THE CAPE, NATAL, ORANGE FREE STATE AND  
TRANSVAAL PROVINCIAL INSTITUTES OF SOUTH AFRICAN ARCHITECTS  
AND THE CHAPTER OF SOUTH AFRICAN QUANTITY SURVEYORS.

100 KELVIN HOUSE, 75, MARSHALL STREET, JOHANNESBURG.  
PHONE 34-2921 VOLUME TWENTY NINE NUMBER EIGHT  
JOINT EDITORS: PROFESSOR G. E. PEARSE, W. D. HOWIE

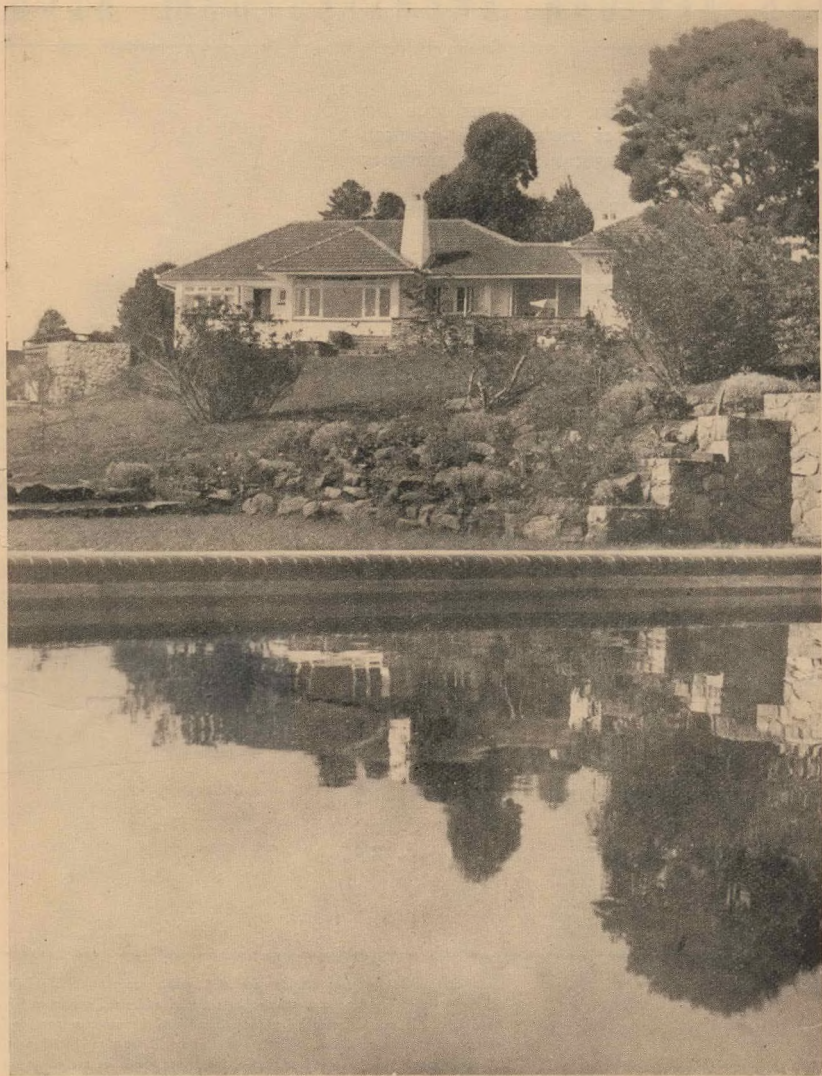
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The Editors will be glad to consider any MSS., photographs or sketches submitted to them, but they should be accompanied by stamped addressed envelopes for return if unsuitable. In case of loss or injury they cannot hold themselves responsible for loss of photographs or sketches, and publication in the Journal can alone be taken as evidence of acceptance. The name and address of the owner should be placed on the back of all pictures and MSS. The Institute does not hold itself responsible for the opinions expressed by contributors. Annual subscription £1 ls. direct from the Secretary.



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# A RESIDENCE NEAR DURBA

RICHARD OPPENHEIN, Dr. Ing., M.I.A., A.

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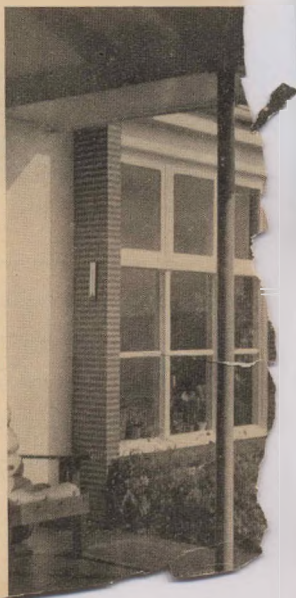
The country house stands in five acres on the fringe of the Valley of a Thousand Hills, about 20 miles from Durban. The ground is surrounded and protected on all sides by green clad hills. The south-east offers a magnificent view into a winding valley with gently rising slopes. It turns into a deep wild gorge, the "Kloof," which is dominated by beautiful hills and crowned on horizon by the Indian Ocean. This view is discernable from all living and bedrooms.

The house is divided into five units :

- (1) The Bedroom suite, comprising an oblong room 12 ft. 6 ins. x 22 ft. 10½ ins., a spacious built-in cupboard, open sun balcony and bathroom.
- (2) Lounge and Dining Recess as living rooms;
- (3) Kitchen, with pantry, wash-house, boiler room, store yard and service quarters.
- (4) Guest quarters with bed-sitting room, washroom, shower and conveniences.
- (5) Garage.

The link between all these units—with the exception of the owner's bedroom suite, which remains entirely separated—is a spacious porch 18 ft. wide and 15 ft. deep. This is entirely open on one side, but gives full protection from wind and rain. A big fireplace permits its use even in winter-time. Thus it constitutes an integral part of the living quarters.

Flower window near Guest Room from the Porch; the window is finished in white oil paint set in a surround of dark brown quarry tile with 1 in. wide horizontal joints.



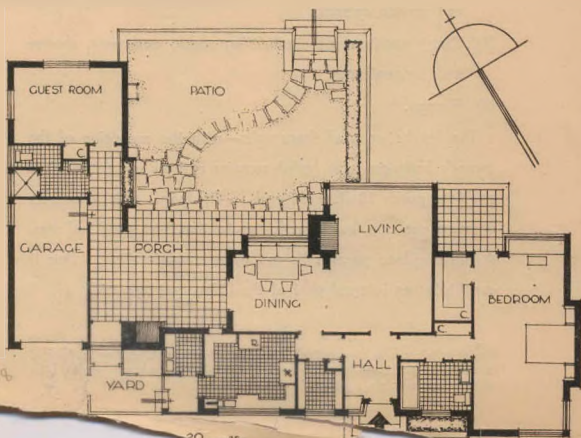


THE GARDEN FRONT: This view shows the rubble retaining wall surrounding the Patio, carried out in natural stone with some joints left dry for rock plants. Dark brown brick steps lead down to the spacious grounds, which, for the most part, have been left in their natural state. The house is plastered and whitewashed externally and all woodwork is painted white. The roof and eaves, gutters, down-pipes and steel columns are painted French grey.



THE LIVING ROOM: The walls are finished light cream with white ceiling and painted woodwork. The floor is covered with putty coloured close carpeting, over which are laid Persian rugs. The furniture is carried out in dark mahogany and figured satinwood, with turquoise duco; the upholstery of striped silk in pale yellow and gold combined with turquoise and rust respectively. Curtains are of oyster-colour silk brocade with a sparse floral design in gold. The light fittings comprise polished brasswork mounted on a turquoise ducced iron ring.

this unconventional house centres round a porch, which functions both as a link between the rooms and as an extension of the living space. This porch has been planned for protection from wind and rain, and, with its fireplace and comfortable seating, its use extends through summer and winter. The east side of the house contains the owner's bedroom, dressing room and bathroom, a separate and private suite on the east.

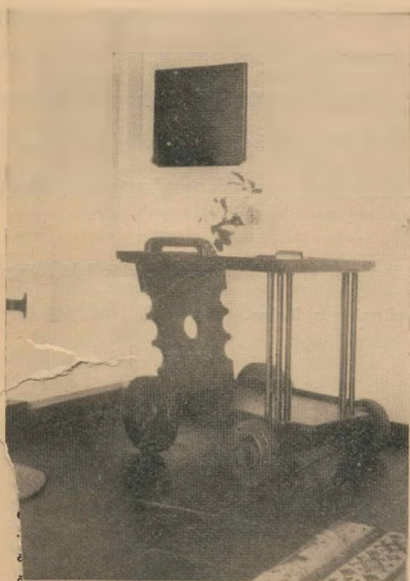






**THE PORCH:** The whitewashed walls are partly finished in plaster and partly with horizontal brick joints raked out. The stone fireplace has a hearth of dark brown tiles, which colour is repeated in the 12-inch quarry tiles of the floor. The light fitting consists of wrought iron supports fixed to a stinkwood beam and carrying clear glass shades. The flower bench on the right has a South African marble top carried on quarry tile supports. The furniture is in waxed stinkwood with white leather cushions.

**AT RIGHT:** A garden chair in imbuia with cushions in leaf green canvas and orange piping and vice versa.



**ABOVE:** The imbuia service table, under the service hatch between kitchen and porch. The top tray of the table is inlaid with 6-inch square white glazed tiles with blue floral designs.

**RIGHT:** The dining recess. Like the living room, the furniture mahogany with turquoise panels and striped silk upholstery. mahogany table was detailed to harmonise with the antique iron chair.







THE SWIMMING POOL AND GARDEN  
SHELTER: The L-shaped pool measures 40 feet by 15 feet, finished with a dark brown brick-on-edge surround. The pool is painted light blue. The shelter and change rooms below are built of 9-inch brick walls, plastered and whitewashed.

The main feature of the natural garden, with its rocky slopes and ubiquitous carpet of indigenous flowers and trees is the L-shaped swimming pool, with its changing rooms, shower, and W.C., and the garden shelter. Advantage has been taken of the natural setting, and this group has been sited on the edge of a steep hill slope which falls rapidly some 125 feet into the valley below, so that the shelter, built in the form of a partly enclosed "rondavel," commands magnificent views of the country beyond.

A feature of the residence is the fact that most of the furniture, all electric light fittings, fire grates, etc., were purpose-made locally, and mainly in Durban.

# THE PROBLEM OF HOUSING — NOW AND AFTER THE WAR

By Norman Hanson, B.Arch., A.R.I.B.A.

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AN ADDRESS, LIMITED IN TIME TO 20 MINUTES, GIVEN TO A NATIONAL CONFERENCE ON RECONSTRUCTION, ORGANISED BY THE CAMPAIGN FOR RIGHT AND JUSTICE.

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Housing is not a subject which can be isolated from the rest of man's economic and social activities and pursuits. It cannot be examined, as it were, "in vacuo." If it were merely a matter of using to the full the material resources with which nature has endowed us, and the skill which man has acquired in working them, the problem of providing adequate shelter for all would fall exclusively into the technical field. Unfortunately, the limiting factors in the production of houses are largely outside the technician's province. I must content myself here, however, by pointing out that, whatever the physical limitations may be, it is the social structure which far more strictly circumscribes the equitable spread of our material resources. It is thus that the progressive planner continuously finds himself running ahead of the social realities of present-day society. Nevertheless, new accents in planning—and these not strictly in the technical field—have gained wide recognition and are reflected in the modern technique.

These are:—

1. The family as the social unit; and
2. The community as the minimum social group.

[A community in the planning sense is composed of the minimum number of families required to support close-at-hand social amenities, necessities and services; these would include the nursery school, the elementary school, the local shopping centre, the health clinic, the neighbourhood market, the after-work recreation field, the suburban cinema and local assembly hall.]

In defining the community I have obviously taken the plunge into the technical field, and most of my subsequent remarks are essentially technical in nature.

Although we have now a wider conception of the function of housing, the ramifications of the problem are by no means exhausted. If we satisfied the immediate requirements of shelter, made provision for the housing of the family as a unit, and grouped the resultant houses in proper relationship to one another and to the community services, we might still fall far short of desired ends—in fact, we may have defeated the very objects for which we strive. For housing, to be effective, must be a functioning part of a greater organism—the city, while the city itself is a cog in the national life and economy. Towns follow industrial and commercial growth, and it is the task of planning to provide for anticipated urbanisation and for the movements of population which follow.

Only when a framework for industrial development, with its counterpart in agricultural expansion, has been laid down, can the building up, the reconstruction or the decentralisation of towns be confidently undertaken.

Furthermore, within the town, decisions on major questions must be made before large-scale programmes of house-building are put in hand. An analysis of the town and its population, a civic diagnosis, will establish the specific nature of the housing problem. The general zoning of industrial, commercial, residential and recreational areas, as well as arteries and means of communication and other services, will permit the physical requirements to be correlated with the social data. From this synthesis a plan of positive and creative character can be prepared.

To date, town planning in South Africa has rarely gone beyond the recording of physical data and the consequent general zoning in area and density of population of the constituent parts of the town. The vitality and the ever-changing structure of the town in accordance with over-riding social and economic changes are factors which have been seriously neglected. The result is no plan at all, but merely a sharp reflection of the schisms and class distinctions to which South African society is particularly susceptible. We have not solved or even attempted to solve the problems which our social habits and attitudes automatically raise for us.

\* \* \*

Emphasis is here placed on the general background of housing because it is just the background which has thus far been consistently overlooked. We may say, then, that the problem of housing does not concern alone the provision of houses; but equally where, how, when and at what cost adequate shelter for all may be built. It is national in some aspects and local in others. National in so far as housing is or should be subject to inevitable State interference in overall planning, financing and industrial organisation for building. Local in that detail planning, actual construction, management and administration are proper functions of decentralised control and government.

The housing problem has come to the fore primarily through the real shortage of shelter of any type. It is, in fact, the problem of the hour, not least because the cauldron spilled over at Orlando and because the return to normal civilian and family life of the ex-soldier has been made almost impossible. The urgency of the task, however, brings dangers.

The broad approach for a working solution of the housing question is by-passed and building becomes a matter of expediency unrelated to scientific standards of hygiene or space, to the sound development of the national economy, to the rapid growth of urban and metropolitan areas, or to the prospects of the social and economic betterment of the people as a whole. Instead a one-way mechanical solution of an immediate dilemma is likely to be attempted. Nevertheless, the shortage must be met. The main task of government is to cut down inefficiency and waste by the conscious integration of the short- with the long-term building programmes.

\* \* \*

What is the size of the task, and is an integrated programme likely to be adopted?

The recent Housing (Amendment) Bill gives a partial answer to both questions. The Bill is extensive in scope; the territory covered including town and regional planning, family statistics, building and social research, bulk buying of materials, the acquisition of land, home ownership and general financing. Control or direction will be vested in a Housing and Planning Commission and an Advisory Council, who have authority to equip themselves technically. The Bill indicates a grasp of the magnitude of the problem, and it is not my intention to offer premature criticism.

Certain dangers to the functioning of the Act, however, may with fairness be pointed out.

Firstly, there is the unusually wide gap in this country between legislation and action. Too often Acts serve as window dressing, covering a lack of goods on the shelves behind. Though doubtless there is no intention to deceive in the purpose of the Act, yet if the programme is beyond realisation, the charge would speedily be made.

Secondly, the division of function between Central, Provincial and Local Government is by no means clear. Planning and control of development come within the sphere of each, and it is the vague boundaries where one authority shades off into the next that "overlappings, duplications, conflicts and blank spaces" occur. These differences will be either hammered in or hammered out in the course of time. Our main concern is that construction is not interminably held up in the process.

Thirdly, there is a tendency in the amendments not to build vertically on existing conditions, but to meander on a horizontal plane, avoiding nothing—but the basic issues. I refer specifically to social and industrial questions. There is a random word put in for both, as there is for almost every aspect of physical planning. But planning for changes in social structure and for required changes in the organisation of the building industry is a subject which seems to be studiously avoided. The approach comes suspiciously close in its basis to "laissez faire." Generally, a more positive approach to the planning

and execution of a national programme of social and physical reconstruction would hold out better, if not the only real hopes of fulfilment.

The Minister, in moving the Second Reading of the Bill, gave an indication of the size of the problem—that is, in quantitative terms. He said that the Van Eck Committee had found that 150,000 dwellings were needed immediately, while a further 290,000 (140,000 for Europeans and 150,000 for non-Europeans) might be required by 1955. A total, therefore, of 440,000 houses over a 10- or 11-year period. There is no way of checking these figures, but it is probable that the factor of re-housing the rural population will add considerably to the already formidable total. But the target of 440,000 will serve as a useful guide in assessing our ability to meet the minimum demand.

A further difficulty lies in translating the demand into money terms. At present price levels, an average between costs for houses for non-Europeans and Europeans might well work out at £1,000 apiece. Certainly, the all-in capital cost will be no less than £1,000. The annual output must therefore be 40,000 houses, costing 35 to 40 million pounds. Such an output would have more than absorbed the entire building industry at a pre-war peak of building activity (at most, 25 million pounds, which included the cost of a total of 10,000 houses); and it is by no means certain that every section of the industry could be productively employed in a single function such as housing. And, in any case, diversified construction is needed to justify the extensive urbanisation which the programme implies. This means that, given no changes in the building industry, the prospects of realising the required output are slender indeed. And what worsens the situation is the inevitable disintegration of the industry during the war—a phenomenon to be seen in all belligerent countries, even in South Africa. It will be some years before the pre-war level may be reached, and, in the meantime, the shortfall in construction must rapidly pile up. We have thus reached an impasse, which no policy of "laissez faire" can circumvent.

But apart from output, other difficulties present themselves. The mounting costs of building—and it must be noted that cost is made up in great part of wages (some 50 to 60%)—must be set against the incomes of those sections of the population for whom mass housing plans are designed. There has been no comparable rise in income among these groups—indeed, the gap is widening rapidly. On the other hand, building costs are not likely to fall to any great extent for some years—quite the contrary—so that in effect the housing subsidy, with its general cost to the community, must grow to unique proportions. Of course, wages will rise and tend to offset the inevitable loss, but a more cogent method of attack lies in the direction of cost reductions on the industrial side. Cost reductions, however, immediately touch the labour question. Within the present framework of the building trades, dilution of skilled labour by the use within each trade



of lower-paid workers—European or non-European—doing the same work, is not likely to be accepted with equanimity by the trade unions—and rightly so. No device of partitioning the building programme into cost and use categories will succeed if high structural standards are to be maintained. For myself, I should prefer a homogeneous labour force in the industry, not segregated groups for special functions.

The planning complexities of large-scale house building have already been touched upon. Powers to tackle these wide problems, which involve nothing less than the physical re-planning of this country, are laid down in the new Housing Bill. To be rendered effective a fully-trained and wholly adequate technical personnel is required. There is certainly no surplus of planners in the field at the moment, no glut of qualified regional or town planners, housing experts, social scientists, technical administrators or research workers. The dearth of technicians may prove to be a serious bottleneck.

In addition to labour relations, there is the overall organisation of the building industry to be considered. Normally, general production is almost exclusively in the hands of private enterprise—house building itself is a profit-making activity in private hands and an outlet for capital investment. The only agency which may direct building resources into pre-determined channels, such as housing, is the State; and in a crisis direction is necessary, if more lucrative outlets present themselves at the same time to building entrepreneurs and contractors. It is hardly necessary to add that the State in a capitalist economy is reluctant to apply such pressure. Nevertheless, war-time building control, such as we have in South Africa to-day, represents precisely State interference, and is being exercised, though very late in the day, to stifle speculative and to encourage low-cost housing construction. There is a price to be paid for a canalised output, however, in the growth of local monopolies and strengthened employers' groups, which may operate to the exclusion of the competitive, if speculative, elements in the industry.

A further aspect of the organisation of building is the production of materials—cement, steel, lime, etc.—and prefabricated parts—bricks, wooden and steel windows, asbestos and iron sheets, plumbing fixtures and the like—which is undertaken within well-entrenched industries. A conservative outlook is the natural concomitant of flourishing trade, and, as a result, departures from the conventional receive little encouragement or active support. Certainly large-scale experiments, embracing the combined use of numbers of materials from different sources, are not undertaken by the individual industrialist.

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Certain general conclusions have now emerged from the forbidding accumulation of problems centred on housing. While the nature of these are being summarised, it may be possible to suggest briefly some ways out, and the direction which planning should take.

1. There is a recognition of the social aspects of planning. The place, for instance, of the non-European as part of our urban population must be determined, and his physical environment planned accordingly. The total urban community from its natural larger and smaller groupings, down to the individual, must be considered as a living organism.
2. Adjustment in the national economy, and in the relative economic status of the various groups within the population, is a continuing process. Such adjustment must be anticipated and reflected in plans for regional development and in town and rural expansion.
3. Rapid urbanisation will radically affect the structure of existing towns. The magnitude of the expected increase is such that the areas or densities of the principle towns will be almost doubled. (There were not even 400,000 dwellings of comparatively substantial nature in all urban areas in the Union in 1936.) The defects of planning to date and the chaos where there has been no planning, will be intensified many times in the new sprawl. (Johannesburg has acquired 54 new townships since 1931.) Only positive planning of new, and drastic re-planning of existing urban areas can avoid an insensate growth. The definition of organic communities (as described earlier) will be the starting point of development or re-development. Within each community, the family will be the basic social unit, while the composition of the family will dictate the type and diversity of the housing accommodation needed.
4. The thorny question of State interference must be faced. The function of the sturdy independent building contractor, though far from exhausted, will certainly be strictly circumscribed in the future. Planned national physical and social development is possible only under centralised direction, though it is made human and popular and kept within progressive bounds by the full use of the democratic instrument. Many spots where direct State intervention is necessary have been indicated; prodding, too, could be usefully employed here and there. Intervention, which is already visible in many spheres—in building control, in State subsidies, even in building research—must, in some directions, be extended or made more effective. In land use and acquisition, to select one all-important activity, far stronger measures are called for than have thus far been applied. Expropriation in the public benefit and insistence upon more efficient working of land represent the urban and rural facets of the same problem. Anything less than State interference here will nullify every attempt to bring about beneficial and productive land use. Unfortunately, departmental control has not made itself popular in recent months, but let us be charitable and optimistic by saying that we are still in an experimental stage.

5. Emergency construction, though necessary, has its drawbacks and dangers. Centralised planning and control alone can ensure a sound national policy, while decentralised authority is best able to prepare detail planning, to put plans into execution and to administrate after completion. The new Housing Bill may be said, with some reservation, to lay the foundations for effective planning.
6. The size and nature of the Government's building programme, although it probably excludes rural areas, appears to be beyond the capacity of the building industry as it is at present organised. The capacity of the industry does not measure up to the required output, or, alternatively, the time table is incapable of fulfilment. If the 11-year period set is reasonable, basic changes in production and methods of construction (still essentially linked to age-old crafts) must be undertaken.

A necessary postulate must be stated—namely, an initial full utilisation of the existing trades and locally manufactured products. These, brought to capacity production, can achieve an output of good quality housing for high or medium wage-earners. At the same time, some of the existing manpower and material resources can be diverted into new channels, for the provision of low-cost housing of high structural standard. Only scientific research and experiment can establish the most economical and efficient methods to be adopted, but certain aspects are already known. Primarily, a greater utilisation of unskilled and semi-skilled, with a consequent release of skilled labour, must be envisaged. In my opinion rationalised building operations on the site—site fabrication,

in fact—would meet short-term requirements. Experiments in the appropriate and simplified use of easily produced materials—cellular or light-weight concrete, sheet metal, asbestos and vermiculite products and steel—should yield interesting results. For a long-term programme, however, methods more in keeping with modern developments must inevitably be attempted. Expanding steel production will find a ready market in the housing field. Provided light-weight, impervious and insulating facing materials can be evolved, a South African version of the Churchill house (all-steel structure of first-rate engineering quality) would answer the demand for low-cost, high-speed and durable construction, of great flexibility in use. Factory fabrication tends under such a system to predominate. New skills needed in production would greatly increase the demand for trained operatives, both in the factory and on the site, and the required diversity in skill opens up further avenues for employment among all groups of the population. In brief, only by the full utilisation of the present resources harnessed to planned short- and long-term programmes of construction can we hope to fulfil a demand of unprecedented dimensions and pressing urgency.

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It is perhaps fitting to close on this note, for only measures of an all-embracing type seem appropriate to a problem of such complexity. Co-ordinated action on all fronts, a combined strategy, in fact, can be brilliantly effective, given goodwill and determination. So it has been proved in other spheres, and it may prove no less so in housing all our people.

# PRE-EUROPEAN STONE STRUCTURES IN SOUTH AFRICA

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A LECTURE DELIVERED TO THE ARCHITECTURAL STUDENTS' SOCIETY, UNIVERSITY OF THE WITWATERSRAND, MARCH 31st 1944

## INTRODUCTION

Apart from two very interesting and separate occurrences, there is little of architectural interest in pre-European South Africa. The exceptions are the remains of massive decorated dry-stone walling in Southern Rhodesia and the Transvaal, and clusters of beehive stone huts and enclosures in the Transvaal and north-eastern Free State, the approximate known distributions of which are shown on the accompanying map. The latter have been the subject of little research and therefore enjoy a limited literature,\* but the former have been fairly thoroughly explored and have provided matter for considerable excavation and a more considerable list of publications—the more important of which are given at the end of this essay.

In addressing the Architectural Society of the University of the Witwatersrand, I propose to confine my remarks mainly to a description of the architectural forms and building methods and materials employed by those responsible for these peculiarly interesting structures. I shall deal with the massive decorated dry-stone walled structures first, the most outstanding and the best known example of which is Great Zimbabwe.

## ZIMBABWE

### (A) DISCOVERY AND HISTORICAL OUTLINE:

Zimbabwe was first made known to the European world soon after its discovery by Karl Mauch in 1871. It was then in ruins and largely overgrown by a rich vegetation. In announcing his discovery, Mauch said that the ruins on the hill, now known as the Acropolis, were a copy of King Solomon's Temple on Mount Moriah, and that those in the valley below, i.e., Zimbabwe proper, were a copy of the palace in which the Queen of Sheba lived during her stay in Jerusalem—and he added that the trees which he found in the principal building at Zimbabwe, the so-called "Temple," were almug trees.

Although these claims were without substance and extravagant in the extreme, the publication of Mauch's views undoubtedly excited the imaginations of all who read the description. In the course of time it became known that Zimbabwe was merely one of many similar ruins, and that gold was to be found in all of them—the gold occurring in the form of beads, wire bangles, bracelets and other ornaments which had been buried with the dead. When the British Chartered Company took possession of the country some 20 years after Mauch's discovery, man's avarice gave rise to treasure-hunts on a considerable scale and in an utterly ruthless and unscientific manner. With the consent of Rhodes and Jameson, the "Ancient Ruins Company" was floated with a capital of £25,000 and a concession over all the ruins between the Zambesi and the Limpopo. The object of the company was the complete exploitation of the ruins for gold and other treasure. R. N. Hall, who later wrote "The Ancient Ruins of Rhodesia," was a director of this ill-founded company. The excavations undertaken during the years it flourished—~~it~~ was only wound up in 1901—were entirely unsystematic, and the results obtained can only be described as disastrous. Men frequently boasted that they had unearthed a skeleton with 70 or more fine ounces of gold ornaments, and having recovered and melted the gold into a shape convenient for horse transport, scattered the bones and other objects found in the grave to the winds. In the course of time, however, men arose who tried to carry out more serious investigations, and their efforts ultimately led to the suppression of the ruthless exploitation that had previously gone on—nevertheless the King Solomon-Queen of Sheba legend had come to stay—and stayed it has to this very day. The discovery of Arabian wares, beads of Venetian glass, faience from Persia, Celadon ware of the Sung Dynasty, Nankin china, phallic objects and much gold (over 1,000 ozs. were recovered from Zimbabwe alone) gave rise to the use of extravagant adjectives to describe "The Elliptical Temple," "The Acropolis," the Conical Tower and the great enclosing walls with their architectural features and effects. In their ardour, Bent, Hall

\*See References, page 207.



and Neal wrote large and very well illustrated books in which they stressed the ancient nature of the ruins and the important part played in the erection of the oldest buildings by the Arabian Himyarites, who, they said, were followed, not before the time of Solomon, by the Phoenicians and so on. Much play was made of the "gold of Ophir," Solomon, the Queen of Sheba and the Phoenicians. "The builders of the first Zimbabwe," concluded Hall and Neal, "apparently were marvellously well versed in geometry and, as is exemplified by the system of courses of walls and the elliptical form of buildings and their orientation, must have possessed a magnificent knowledge of astronomy, especially of that of the northern hemisphere and also of the zodiacal science. The solstitial orientations of several ruins . . . have already been ascertained by Messrs. Bent, Swan and Schlichter, and these show their ages to have been from 1,100 to 2,000 years before Christ." These and similar phrases had a telling effect, and even where a few doubted their correctness, they held almost complete sway in most quarters until, with the support of the British Association for the Advancement of Science and the Rhodes Trustees, Randall-Maciver arrived to conduct systematic excavations in 1905. After very thorough investigation on seven sites, Maciver reached the then-staggering conclusion that "from not one of them has any object been obtained by myself or by others before me which can be shown to be more ancient than the XIVth or XVth century A.D. . . . In the architecture, whether military or domestic, there is not a trace of Oriental or European style of any period whatever. Not a single inscription has been found in the country." These were negative findings. On the positive side he concluded by saying:—

"(i) That imported articles, of which the date is well known in the country of their origin, are contemporary with the Rhodesian buildings in which they are found, and that these buildings are therefore mediaeval and post-mediaeval.

"(ii) That the character of the dwellings contained within the stone ruins, and forming an integral part of them, is unmistakably African, and

"(iii) That the arts and manufactures exemplified by objects found within the dwellings are typically African, except when the objects themselves imports of well-known mediaeval or post-mediaeval date."

His conclusions and assertion that these stone structures "are unquestionably African in every detail and belong to a period which is fixed by foreign imports as in general mediaeval" thoroughly upset the apple-cart driven by the romantic protagonists of the King Solomon-Queen of Sheba theory—as indeed it upset most Rhodesians. "We cannot afford," they mused and argued in their clubs, "we cannot afford to lose this romantic contact; such iconoclasm, such heresy, cannot be tolerated"—and so the romanticists married on, encouraged by the visions of spiritualistic media who, on moonlit nights, held seances in the "Temple" and

conversed with the Queen of Sheba and her eunuchs! Phoenicians and Egyptians floated lightly over the stage and, odd as it may seem, impressed even university professors.

In an attempt once and for all to oust the romanticists, the British Association for the Advancement of Science sent another archaeologist out to investigate in 1929. This was Miss Gertrude Caton-Thompson, who, with a most competent staff, carried out a series of systematic and quite independent excavations during that year. After months of very painstaking and often tedious and difficult work, she corroborated Maciver in almost every detail, but in her endeavour to establish a terminus a quo she pushed back the probable date of the building period several centuries. For reasons which I need not analyse here—reasons which are accessible to all—she said "the foundations of Zimbabwe belong to some period between about the IXth century and some time during or after the XIIIth, when our terminus ad quem, the porcelain, shows the place to have been in full occupation." For the rest she agreed that the whole character of the buildings, as well as the arts and manufactures of the people who erected them, are unmistakably "Bantu." Still Rhodesia was not satisfied—and the romantic school and the media continued on their airy ways—so much so that opinion not only in South Africa, but far beyond our shores, still remains divided.

Exactly ten years after Caton-Thompson's excavations, a well-known traveller, antiquarian and lecturer on certain aspects of the archaeology of Central and South America wrote to me and drew my attention to the fact that the "Elliptical Temple" clearly depicts a human foetus. "To my wife and myself," reads his letter, "was given an apparent revelation while in the Zimbabwe Temple. We interpret the Conical Tower to be symbolical of "The One," and the elliptical enclosing walls as representing the universe; thus the main significance of Zimbabwe Temple is Macrocosm. But it becomes still more wonderful if you study the complete ground plan, for you will then perceive that the outline of the inner walls clearly depicts the form of the human foetus—the Minor Cone being a replica of the Great Cone, it was evidently intended to symbolise 'Man as the Image of God'; and thus the interior represents the Microcosm."

Stressing the purely religious aspects of his interpretations, "the Mystery Teachings of all the Old Religions," he came to the conclusion that Zimbabwe was originally constructed "not only as a sacred place of devotion and worship of the creative Deity, but also as a Temple of Initiation into the Mystery of the Second Birth." "It is," he concludes, "a unique example in which archaeological diggings are useless and a snare, because the beads, bones and bits of pottery, etc., that are thus unearthed could only relate to subsequent occupants of the buildings, as such things would never be found in a true temple while it is used for sacred purposes. The formation of the structure of Zimbabwe Temple reveals its own



Fig. 1. Air view of so-called Elliptical Temple, Zimbabwe, Southern Rhodesia.

Fig. 2. The "Elliptical Temple" from the Acropolis, Zimbabwe.





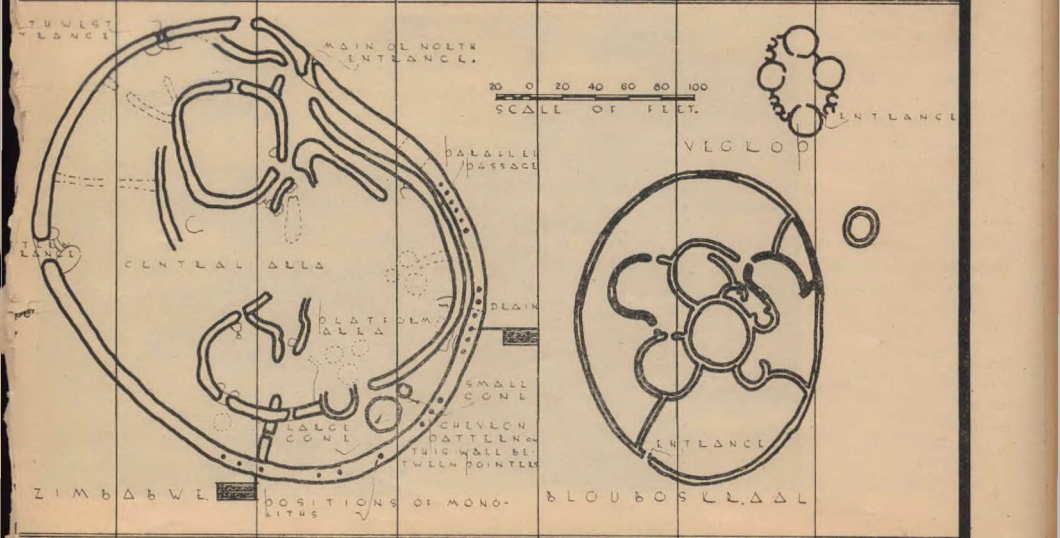
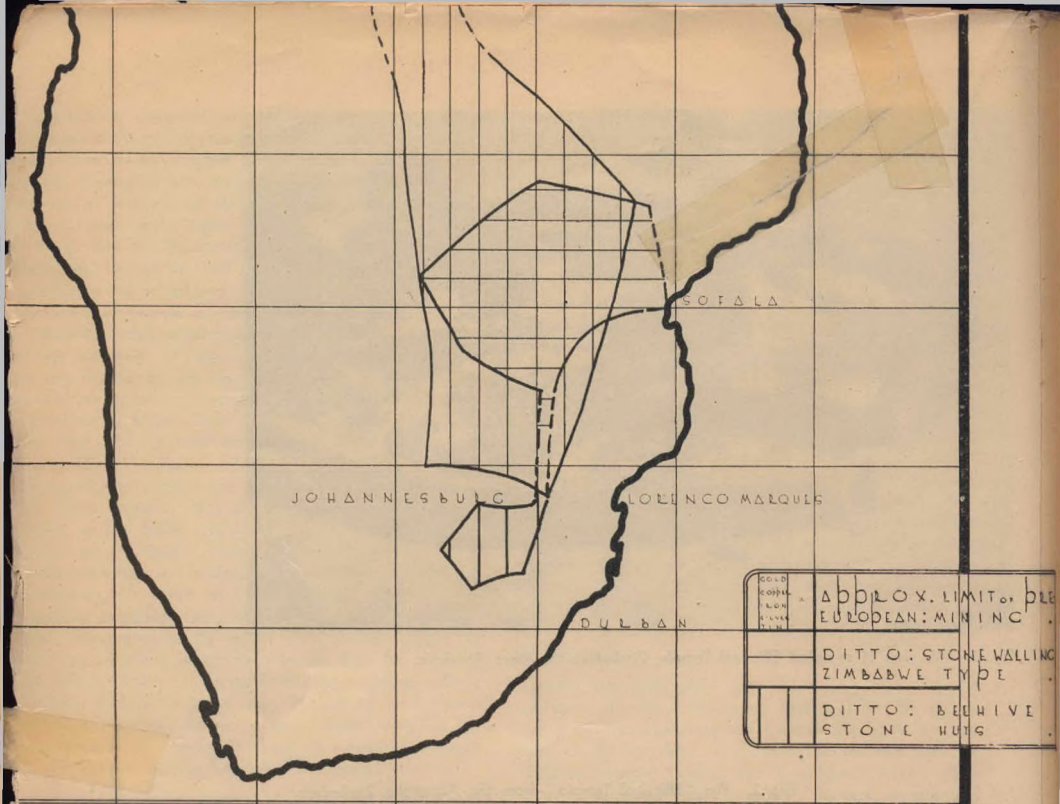


Figure 3



secret, its purpose, and also its probable builders and date of construction, which was evidently long before the birth of Christ."

Continuing his way overland to Egypt, he ignored the fundamental fact that if a datable object is recovered from below an undisturbed foundation, i.e., it is known that the object was not introduced into the position in which it was found after the building had been erected, that foundation must have been erected after the date assigned to the object. And our dating evidence rests on the very glass beads which he dismisses, the origin and approximate dates of which are known. These beads were found sealed under undisturbed pavements which pass under foundations, thus enabling us to attach an age-limit to the superincumbent walls.

The foetal idea took root and gave rise in 1941 to one of the most remarkable and unusual contributions to the problem. I refer to the publication entitled "Psychic Episodes of Great Zimbabwe." It includes a photograph of the author's mother's favourite flowers—Canterbury Bells—and the following statement: "The Temple of Zimbabwe is built in the form of a foetus in the womb, and its phallic towers are but reminders of the organs of sex which to-day are covered and repressed, but which in the days gone by were worshipped as gifts from an all-creative God."

"The Temple," says the author, "reached the peak of its perfection . . . 3,000 years ago," and the "time spent at Zimbabwe by the monstros race who left Egyptian shores in those ancient times . . . was a period of 1,500 years."

The modern archaeologist therefore finds himself opposed by two schools of thought: the Romantic and the Foetal, both of which lightly ignore the dating value of the imported glass beads dropped by the workers during building operations and subsequently sealed under improvised pavements on which the walls often rest.

## (B) ARCHITECTURE :

I propose this evening to approach the problem from a purely architectural point of view and to leave you to form your own opinions, knowing, as you do, the building methods and decorative features in vogue in the Old World during the millennia that preceded the Christian era, as well as during those that followed.

Let us first examine the general lay-out of the most imposing and important building—the so-called "Elliptical Temple" of Great Zimbabwe. The plan reproduced in Figure 3 reveals an irregular, more or less circular enclosure, within which are lesser enclosures, dividing walls and spaces for the erection of huts—the foundations of which can still be traced where they have not been upset and obliterated by early seekers after gold. What does this plan recall? You may, of course, see a foetus, but whatever you see, the

figure is merely a plan of the main enclosure, known generally as the Elliptical Temple. Does it remind you of the works of Phoenicians, Egyptians, Babylonians or Arabs, or of any other people who have ever lived along the fringe of the Mediterranean, the Red or the Arabian Sea—or even beyond in India? So far as I am aware, there is only one part of the world to which we may look for such a ground plan—and that is the Ethiopian region of Africa. The Bantu-speaking peoples of East, South-East and South-Central Africa live in small, more or less circular villages which are often enclosed by high palisades of various materials and of different shapes—some more or less circular, others more or less elliptical. To me, the plan of the Zimbabwe-type of ruin represents nothing more or less than such a village enclosed by a stone wall instead of by a palisade of wood. No single layout reveals any architectural trait that is characteristic of anything other than a Bantu-speaking settlement.

When we examine the walls themselves and the designs embodied in them, we find, as I shall attempt to show, we are still in an essentially African ethos.

(i) THE WALLS: These are often decidedly impressive. The wall that surrounds the "Elliptical Temple," shown in plan in Figure 3, is as much as 16 feet wide at the base, over 30 feet high in places, and tapers to a width that fluctuates about 10 feet at the crest. The length of the major axis of the space enclosed by this wall is just under 100 yards; the minor is about 70 yards; the perimeter about 300 yards (Figures 1 and 4). It is of dry-stone construction and is faced by courses of stones that vary from above 10 ins. to about 6 ins. in thickness. The stone is granite. Where a wall has collapsed we find that the space between the outside and the inside faces is merely a loose, lightly packed rubble fill, and that the faces are skins

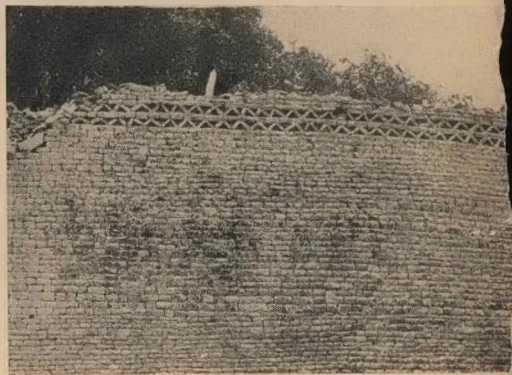


Fig. 4. Chevron Pattern and Monoliths on Girdle Wall, Zimbabwe.



Fig. 5. View of collapsed wall at Zimbabwe, showing external "skin" and in-filling.



Fig. 6. View showing lack of bonding and imminent collapse of wall, the West Entrance of the "Elliptical Temple," Zimbabwe.



Fig. 7. Conical Tower, banded decoration in wall in left foreground, and general lack of bonding, Zimbabwe.

with nothing except the batter to keep them in place (Figure 5). When we examine these massive walls more closely we find that the courses are markedly irregular and that little if any attention has been paid to bonding. Note the vertical joints in Figure 6. In the great wall I have counted as many as nine; seven are not uncommon. It is no wonder, then, that these mortar-less walls have collapsed.

No attempt was made to build on a stable foundation; as often as not the walls of the ruins merely rest on the surface of the ground and not infrequently on dumps of rubbish or ash-laden "middens." It is also worthy of note that the encircling wall of the Elliptical Temple, possibly the last feature to be built, was never completed.

While the stones often appear to have been dressed, close examination reveals that where dressing or trimming as a stone-worker understands and uses the terms, has been undertaken, it is of the slightest and applicable only to those stones employed in ornamentation. The exposed faces of the stones are rectangular, but when viewed in plan, the shapes

vary enormously—from a triangle to a polygon; hidden edges are irregular and curved as often as they are straight—as a rule, only the specially selected faces are rectangular. A superficial examination of the wall certainly suggests that all the stones in it were roughly dressed into rectangular faced "bricks," but this is very far from the case.

(ii) SOURCE OF STONE: Here the architect very naturally wonders where the stones came from—where they were quarried. The answer is that vast natural quarries occur throughout the area of the ruins, and these quarries explain both the size and approximate uniformity of the stones selected. This is an excellent instance of the influence of geology on architecture. The area covered by the ruins is primarily granitic—from Rhodesia to the Transvaal in the south and eastwards into Portuguese East Africa. There are, of course, also other rocks such as dolerite and what is known as "Rhodesian schist," but the area covered by the ruins is the largest single region of exposed granite outcrops in Southern Africa. As a result, the Rhodesian topography is most characteristic, especially in the Matoppo and Fort



Victoria areas, where the landscape is dominated by huge rounded boulders often heaped one atop the other or scattered over extensive sheets of granite—sheets that resemble huge whale-backs—the characteristic natural weathering of which is a process of exfoliation that always tends to reduce any loose mass to a spheroid (Figure 9). This exfoliation of extensive outcrops gives rise to a crust that is easily broken and reduced to rock waste, the individual fragments of which often reveal at least one rectangular face. Nowhere in Southern Africa do we find a similar quantity of natural rock material lying loose or all but loose on the surface of the ground—material which is immediately suitable both in size and weight. All the would-be builder had to do was to collect this waste or to detach fragments from the exposed crust of a "whale-back" outcrop by dropping a rock near the edge of the crust or by wedges or fire and water. Depending on the size and shape of the outcrop, these crusts vary from a few to well over twelve inches in thickness, and they can easily be traced by sounding the rock under a blow. Where the sound from the blow is "hollow," there you may be sure you have a crust. As a matter of fact, I have detected "hollowness" under a metalled heel. Nowhere in the sub-continent does the natural environment offer such an abundance of ready-made building material as does the area of the ruins.

Wieschoff draws attention to the fact that many of the older investigators—the Romanticists, as I call them—were under the impression that, as Hall puts it, "many thousands of tons of granite blocks" had to be transported from a

considerable distance, for examination of the rocks in the neighbourhood "proves" (says Hall on Zimbabwe) "that the greater quantity of stone used in the walls was not quarried on the kopje itself." The fact of the matter is that the Natives had already removed the crusts in the neighbourhood and had therefore left no signs of a quarry—the granite that remained being solid. No building is known to have been erected where a ready supply of material was not available. Statements such as those made by Hall and other Romanticists may therefore be disregarded.

We thus have walls without mortar and only the slightest trace of stone cutting. It must, however, be emphasised that the stones used on exposed surfaces were carefully selected and within the ability of the builders carefully laid, but through stones were never used to bind the outside skins either to each other or to the "body" of the wall (Figure 5).

The most important external features in the ruins are the entrances and the wall decorations. I shall deal with the decorations later. While the majority of the entrances have rounded jambs and the steps that give access to them are curved, many are square and have straight steps. In many cases grooves about 9 ins. wide have been formed in the centre of the wall on each side of the opening. Up to about the end of last century a number of these retained their original posts still intact. These are the only architectural differences worthy of note.

In passing, I must draw attention to two important facts: (1) Except for the approach steps, no entrance to the so-called



Fig. 8. Covered entrance, showing lintel and lack of bonding, Acropolis, Zimbabwe.





Fig. 9. Typical ruins-area landscape, showing characteristic spheroidal and whale-back weathering of granite.



Fig. 10. Khami Ruins, Rhodesia, showing check pattern and defective bonding.



Fig. 11. Khami Ruins, Rhodesia, showing herring-bone and check pattern. Note defective bonding.

"Temple" at Zimbabwe is original. The great rounded walls flanking the entrances and portions of other spectacular features, both in the Temple and on the Acropolis, were reconstructed by the present Curator of Zimbabwe, and (2) no single step in the ruins shows any signs of wear. You all know that in the ancient temples of Egypt, Greece, or Rome for example, the steps and other confined features over which men walk show signs of wear. Depending on the age of the structure and the nature of the rock used in the steps, the wear is either marked or slight, but where structures are two or more thousand years old, these signs of wear are never absent—even where men trod them with unshod feet.

(iii) WALL DECORATION: There are six principal types of wall decoration. These are known as the dentelle, chevron, herring-bone, sloping tile, banded and check—five of which are shown in Figure 12. To achieve these effects the stones used were as a rule carefully selected and on occasions, I suspect, even slightly trimmed before they were laid. The amount of labour devoted to this ornamentation seems to have depended on the importance attached to the building of which the wall formed a part; in many of the less spectacular buildings, the ornamentation was decidedly inferior. It is only in the more spectacular walls that the ornamentation was carefully executed. In addition, occasionally courses of darker-coloured stones were introduced with a very pleasing effect.

**Check:** This is the most common ornamentation. It is simply formed by isolating independent stones in a single course or in a succession of courses as shown in the illustration.

**Dentelle:** This pattern is formed by placing small brick-like blocks at an angle so as to create a saw-tooth effect—the leading edges of the blocks being coplanar with the outer face of the wall as shown in the illustration.

**Herring-bone:** This is achieved by placing small tile-like stones obliquely in two rows, as shown in the illustration. It is not uncommon, and while the "tiles" were often of granite, certain slaty rocks were also used when they could be found.

In the sloping-tile ornamentation, a single row of sloping tiles were used—i.e., it is a herring-bone cut in two longitudinally. Where the dentelle and chevron patterns are usually high up in the walls, the herring-bone and sloping-tile patterns are usually low down.

**Chevron:** This is formed by placing small tile-like slabs chevronwise, making a double row of more or less equilateral triangles with apices up and down alternately, the spaces within the triangles being occasionally neatly filled in with smaller stones. The chevron is not uncommon.

These various patterns are occasionally combined or repeated in a single wall, as shown in Figures 10, 11 and 12.

At Zimbabwe a 120 ft. length of the large encircling wall is decorated with a very neat double chevron shown in Figure 4. The top of the Conical Tower, unfortunately destroyed, is said to have had a dentelle course.

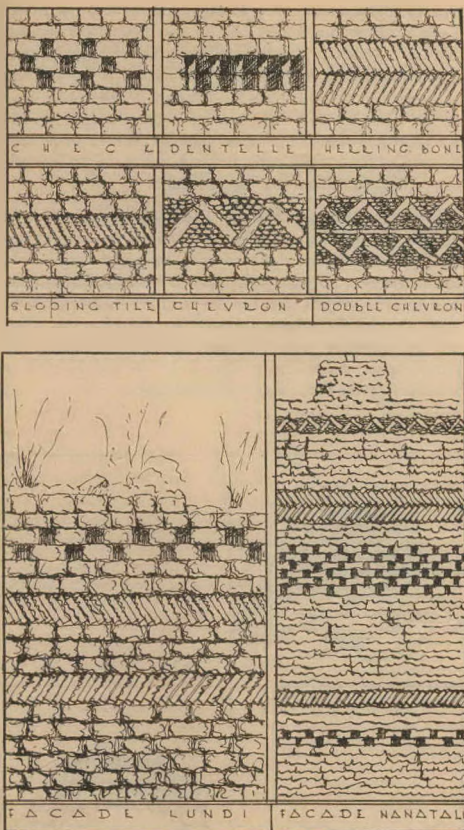


Fig. 12. Wall decorations.

**THE CONICAL TOWER:** At this point I must say a few words about the Conical Tower. When first measured by Bent, the height of the tower, which is a truncated cone, was about 32 feet, the diameter at the base about 17 feet, and at the summit about 9 feet. The construction is exactly similar to that employed in the grille and other walls. Nearby stands a smaller truncated cone, less than six feet in diameter at the base and correspondingly high. Describing the larger cone, even Bent, who is decidedly romanticist, says that "it was built on nothing but the soil of the place and was erected over nothing; . . . it has been preserved to us simply by its solidity. . . ." Swan, who recorded the measurements and

described the orientation of the buildings for Bent, records the diameter of the larger cone as 17.17 feet, and draws attention to the fact that this is equal to the circumference of the small cone—and then, like those British Israelites who juggle with multitudinous measurements made in the Pyramids of Egypt, proceeds to stagger one with historical and other data extracted from his arithmetic.

Like its Egyptian prototype, the obelisk, and certain old towers in the Persian Gulf, the cone is possibly a vestigial remnant of phallic worship which persisted in the fertility and possibly also the initiation rites of the Natives. Schofield believes that these towers were originally outside the main entrance to the enclosure, and that the existing outer girde wall was a later addition. He compares the towers or cones with the "Phiri" and "Pishana" which are erected outside the men's entrance to the enclosure used in the Pedi initiation school. Whatever the explanation may be, it is obvious that they served no practical purpose, and must therefore have had a ceremonial significance. We have a parallel in our May-pole which we deck with gay ribbons as a prelude to ceremonious dancing in Spring. I leave you to feel the discomfiture of Mother Grundy when she discovers the essentially phallic significance of this picturesque ceremony!

**Monoliths:** The crest of the main wall at Zimbabwe once included a number of large upright monoliths, while on the major (western) wall of the Acropolis, which incidentally appears to have had a covering of daga, are four small truncated cones, three of which were recently reconstructed.

This wall also once had large monoliths of soapstone carved to resemble birds. The positions once occupied by monoliths on the encircling wall at Zimbabwe are marked by dots on the plan reproduced in Figure 3.

(iv) GENERAL:

There are no indications that any of these large enclosures were ever provided with a roof.

Openings through walls were occasionally covered; the lintels used being of stone or of wood, as shown in Figure 8.

Drain holes were also occasionally provided through the walls.

The interiors of some of the large walls are suspected to have had daga dados.

All I need say in concluding my remarks on Zimbabwe is that the early Bavenda also built in stone when they first occupied the Northern Transvaal some centuries ago. Their well-known ruins at Dzata, in the Zoutpansberg, are of very inferior construction, but have the same general circular layout, and in one wall a built-in seat, which is an almost exact replica of a seat built into the typical Zimbabwe-type ruins of Verdun—a slender, but definitely architectural link between the older and newer dry-stone walled structures.



## BEEHIVE STONE HUTS

Many eminences and hills in the basin of the upper Vaal are characterised by ruins of dry-stone walling that frequently are spread over many acres. These dry-stone walls include typical Native circular kraals and huts that once housed communities of pastoralists who enjoyed a limited knowledge of agriculture and a still more limited metallurgical skill. A very slender tradition and remains recovered from the now completely deserted settlements show that the occupants of the huts were in all probability an early Bantu-speaking people who lived only a few centuries ago much as their more isolated descendants live to-day. They existed on their cattle, the fruits of a simple hoe-culture of millet and melons, and made their own pottery as well as the tools and weapons they needed of iron, stone and wood. The iron they extracted from the ore themselves, and they made their own hoes, assegai- and arrow-heads. When compared with the Bantu-speaking people of to-day, there is literally nothing exceptional about their material culture as far as we know it, except the art of corbelling. We see this in their huts.

In Figure 3 we have a ground plan of a typical cluster of kraals and huts—one of the many "units" that occur with slight variations in every settlement. In some places a settlement may include less than half a dozen units or clusters; in others there may have been a few dozen. The numbers of occupants of these settlements may therefore be assumed to have varied from a few dozen or score in the case of a single isolated cluster, to several hundreds in the case of the multi-cluster settlements. The characteristically circular kraal walls and links between them, as well as the huts, are of uncoursed, undressed, rough-rubble (dry-stone) masonry simply built up of rough rocks collected in the neighbourhood. Where the available material is dolerite (as is so often the case in the valleys of the Wilge, Rhenoster and Valsch rivers), the boulders and stones used are characteristically rounded or spheroidal; where the exposed rocks are of columnar basalt, as at Harrismith, or of sandstone, as is more usually the case in the Eastern Free State, more angular blocks were used, but nowhere have we any signs that the stones collected were in any way artificially shaped or trimmed. It is therefore all the more remarkable that the builders of these huts were masters of the art of corbelling, for where a hut has not collapsed it invariably has externally battered walls that support a domed roof of large rocks covered with small stones and pebbles in an attempt apparently to make it more waterproof than it would otherwise be. In external appearance it is therefore hemispherical. There is a total absence of corners; everything is on a curve.

In Figure 13 we have details of two typical huts. Average dimensions are: External diameter, 9-10 feet; internal diameter, 5-6 feet; height (floor to ceiling), 4 feet. The floor of the hut is coplanar with the outer natural ground level,

and no attempt was made to dig a foundation; the bottom circle of stones was simply laid on the ground and the walls erected on these. At ground level, the thickness of walls approximates to 2 feet, but this gets thinner as the walls rise, until toward and at the roof the thickness is perhaps 12 inches or so. The interstices between the larger stones of the roof are filled with smaller stones and pebbles until the whole forms a compact mass sufficiently stable to bear the weight of a man. The illustrations are diagrammatic.

Entrances average about 18 inches wide and 16 inches high, so that it is impossible to crawl in in an ordinary manner; one must literally get down on one's belly and slide in. The lintel over this very uncomfortable and undignified entrance is among the largest stones in the structure—individual specimens occasionally weighing about a quarter of a ton. There are no key-stones and no other designed openings. The photographic illustrations in Figures 14, 15 and 16 give one a better idea of size, shape and construction.

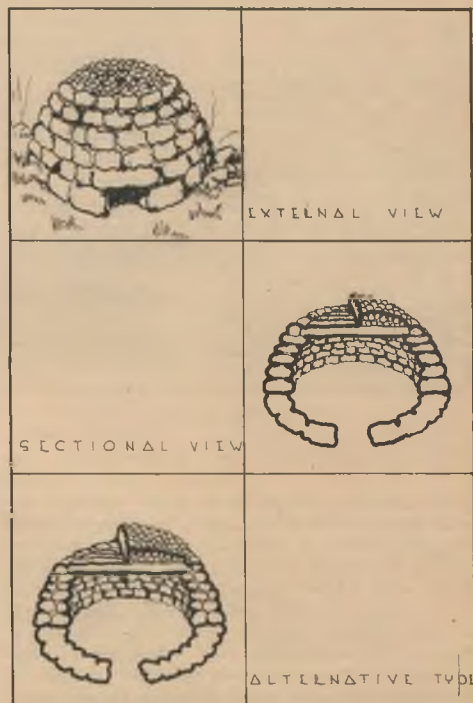


Fig. 13. Beehive Stone Huts (diagrammatic).



The huts are not always as hemispherical as is that on the left in the illustration in Figure 13; occasionally a builder appears to have lacked the confidence or the skill to cantilever successive layers inwards and simply built a more or less vertical cylindrical wall which he covered at the appropriate height with long slabs, on the top of which he placed smaller stones to create a domed effect, as shown in the figure on the right. Where walls are double, the spaces between the large stones are filled in with lesser stones and rubble.

As the area covered by these beehive huts is a very limited one, and as they are not known to occur elsewhere in Africa, one may well ask how it came about that a people not given to the use of stone in their buildings came to use it in this area. We know that the geographical conditions of every country have a profound effect in determining the extent and often the direction of the material culture and comfort enjoyed by those who inhabit that country. We also know that the characteristic features of the land control the mode of life, and thus often shape the intellectual development of a people. The classic architectures of ancient Egypt, Greece and Rome provide perhaps the most striking examples of such influences. In primitive society these influences are even more profound, and my own view is that the early Bantu-speaking people who first moved into this area only a few centuries ago (? c. 1750) turned to stone for their huts because of the absence of trees, to which they normally looked for a supply of branches and sticks for the timber-framed huts to which they were—and still are—



Fig. 14. Beehive Stone Huts, Vechtop, O.F.S.



Fig. 15. Beehive Stone Huts, Steynsrust, O.F.S.



Fig. 16. Collapsed hut, showing corbelling, Steynsrust, O.F.S.

accustomed. Suitable thatching was also not available, and so they decked their huts with small stones. But this does not explain the origin of the art of corbelling in this area. It rather suggests a prior knowledge of stone-building and the arising in their midst of an early experimenter to whose peculiar genius we must attribute an independent and original discovery.

A glance at the accompanying map on which are marked the known limits of distribution of the Zimbabwe culture and of the beehive stone huts is interesting. While the Zimbabwe culture is largely confined to Southern Rhodesia and the Northern Transvaal, we have a group of outlying Zimbabwe-like structures in the districts of Lydenburg, Belfast and Carolina. These have been fully described,<sup>4</sup> and I have no doubt that they represent the most southerly outliers of the main culture complex. They are very inferior to the Rhodesian structures, but this inferiority can be attributed to the type of stone available. The general lay-out is the same. Unfortunately, they contain no ornamentation—but of great interest is the presence of a beehive stone hut, partially included in a wall, within the Blouboskuil enclosure shown in Figure 3.

This hut seems to suggest an early experiment by men accustomed to build in stone. Perhaps the paucity of suitable timber and thatch provoked the experiment. Whatever the underlying cause, the hut itself is an integral part of the most southerly Zimbabwe-type of enclosure, and at the same time the most northerly occurrence of the beehive stone hut, for south and south-west of Belfast we find these huts in greater and greater abundance, until we reach their most southerly limits in the district of Senekal. It is therefore possible that among those who had mastered the art of dry-stone waling in Rhodesia and the Northern Transvaal were some who trekked south, and practising their art as they went, had degeneration thrust upon them by the poverty of materials, but at the same time mastered the art of corbelling, and so gave rise to the later beehive stone hut culture.

Except for the continued use of untrimmed stones in their cattle-kraals and occasional walling, these walled ruins represent the end of the art of stone building in pre-European South Africa.

## CONCLUSIONS

Having described the main architectural and structural features of the pre-European stone buildings in South Africa, it is only fair that I should make some attempt to answer your most natural enquiry into the influences that gave rise to such unusual attainments among a primitive Bantu-speaking people.

We usually look to the Atlantic Ocean as the avenue down which the first civilising influences reached Southern Africa. We incline to regard this southern extremity of the continent

as having been essentially "dark" until it was discovered by the early Portuguese navigators who established their first outposts of empire along the south-east and east coasts during the XVIth century. Actually this is remote from the truth, for during the centuries that preceded the Portuguese settlements, enterprising Arab merchants had already established trading centres as far south as Sofala. They gave such wares as cloth, coloured glass beads and other trinkets in exchange for gold, ivory, rhinoceros horn and other goods the Natives had to offer. Gold, it must be remembered, is all but useless to primitive man. It is too soft to be used in the manufacture of tools and weapons. The Natives therefore gave it away willingly in exchange for what the modern merchant in Native territory calls "keffir truck." This exploitation of the sub-continent went on for centuries before Europeans appeared on the scene, and the Natives were inevitably affected by contact with the higher types which were responsible for the east coast trade.

The Natives who carried goods to the coast or who otherwise made contact with the Arabs during the centuries that preceded the Portuguese occupation, saw Arab buildings and ornamentation—and, with their great flair for imitation, returned to the interior with ideas which in time they attempted to incorporate in their own material culture. For example, although the architecture of Zimbabwe is essentially on the lines of a palisade and daub prototype and equally essentially is the product of a primitive or pre-logical mind, as Caton-Thompson puts it, the buildings that belong to the Zimbabwe culture include features and decorative motifs that are essentially Arabic. I have seen a mosque at Zanzibar with a minaret decorated with a double chevron which is an exact counterpart of the ornamentation on the outer face of the main wall of the Zimbabwe "Elliptical Temple." Although this minaret is barely a century old, the pattern perpetuates an old-established Arab design. But equally striking is the fact that the minaret is conical. It is therefore not outside the range of possibility that a minaret in one of the old coastal settlements gave the Natives the idea of the Conical Tower—especially when one recalls the fact that when Mauch first saw it, it had a circle of dentelle design near its summit. In this connection I must also draw your attention to the fact that the mural decoration of alternative horizontal courses of different colours is characteristic of Saracenic architecture, and I cannot escape the strong suspicion that some such fount of inspiration accounts for the appearance of this form of ornamentation at Zimbabwe.

With Caton-Thompson, "I am definitely unable to fall in with the oft-repeated and compromising suggestion that Zimbabwe and its allied structures were built by Native workmen under the direction of a superior alien race or supervisor. Taking the historical possibilities into account, that alien race would have to have been Arab, Persian or Indian. Chinese can, I think, be dismissed as altogether improbable." We know enough about the architecture and structural skill of all

<sup>4</sup> Van Hoepen, loc. cit.

these peoples to be able to assert that nothing essentially similar to Zimbabwe was constructed by them, and that they would not have countenanced such slovenly methods as characterise Zimbabwe if they had themselves been in charge of the work. From pre-Christian times their stone and brickwork showed a fine appreciation of bonding—apart altogether from the fact that they were masters of the principle of the arch, the cantilever and corbelling in ancient times. Where Zimbabwe or its related structures have or had covered doorways, these were seldom more than a few feet in width, and always covered by very clumsy lintels of natural stone slabs or rough wooden posts. The rounded jamb to their doorways or openings is a fairly fixed Native characteristic, and I cannot conceive it as even remotely possible that Arabs, Persians or Indians had anything whatever to do with the planning and erection of any of the pre-European stone structures we have considered.

There can, I think, be little doubt that the inspiration behind the beginnings of the Zimbabwe culture was due to some autocratic master-mind who forced his individuality and will on the herd, just as did Moshesh or Mshwashe, the administrative and diplomatic genius who founded the Basuto nation, or Shaka, the military genius of the Zulus, and others for different purposes some centuries later. These latter-day dictators were not the first of their kind, and the founder and subsequent ruler of the so-called "Monomotapan Empire," which includes the Zimbabwe culture, may equally well not have been the first among the older Bantu-speaking people.

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## C O R R E S P O N D E N C E

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Medical School,  
Hospital Street,  
Johannesburg.

The Editor.

Sir,—I write to bring to your notice an aspect of town planning which I feel may not have been sufficiently stressed. It is a medical aspect and it concerns the feeding of the people.

One of the major revolutions in the last hundred years has taken place quietly and almost unnoticed. It is the revolution in feeding. Whereas a hundred years or more ago almost everybody ate food which had been neither heavily processed nor subjected to long storage, now almost the entire urban population and a large part of the rural population depend very largely upon foods which have been either stored or subjected to strenuous processing.

Our development in the art of processing and preserving food has one very great advantage, namely, we can now eat foods out of season. We can, by taking advantage of dehydration, for instance, have green vegetables at a cheap price all through the year, and we should exploit to the full these modern methods, for by exploiting them we can raise the level of nutrition well above anything which we know to-day. But there is a danger which is not sufficiently realised. No matter how skilled we become in this processing and storing, it is almost certain that food loses some of its value from the medical point of view and much of its value from the gourmet's point of view by being processed. We do not know sufficient about vitamins and other nutritional essentials to be able to assess exactly what this loss is—there are still many "unknowns" among the nutritional essentials—but we are fairly sure that foods, in being processed, lose more than our present laboratory examinations indicate.

This being the case, it is important that all food processing and preserving should be carried out in as scientific a manner as possible, but it is also important that a part at least of the foods which people eat should come to them as directly from the producer as possible.

This is an ideal which few students of nutrition are prepared to give up. It follows, therefore, that the ideal from the town planning point of view—as it affects this question—should be to allow enough arable land among the houses in the cities to have fruit and vegetables grown on the spot. The ideal is to have, for part of the year at least, tomatoes for breakfast picked off the tomato bush half-an-hour before breakfast.

War-time Britain has been an eye-opener in showing the extent to which individual householders can, if they wish, grow their own perishable foodstuffs. It is unlikely that in time of peace any large proportion of householders would go to the trouble of running their own vegetable gardens, but it should be possible to have, say, two or three acres of common land available for every thirty or forty houses, this common land to be available to any amateur vegetable gardener among the householders, but also to be worked by a professional smallholder farmer, who would serve the thirty or forty households concerned. (I have not calculated the areas necessary—it is surprising how small a space will grow a relatively large quantity of vegetables.)

In this way it may be possible to have urban populations fed with perishable foods grown in the city for at least part of the year. This, in terms of money, may be a little extravagant, but in terms of nutrition it is likely to be well worth the additional cost.

This plan for growing perishable foodstuffs within the cities would carry still further your conception of breaking down the distinction between the towns and the country.

If these acres of arable land were in the form of strips, and if the strips were placed end to end, and if the arable land was generously diluted with parklands, it would then be possible to have green "veins" permeating the whole residential area of the city, and this would naturally give a much more "country feeling" to the suburban area than simply to have green "belts" surrounding us. With these green "veins" it should be possible to walk miles without being overwhelmingly conscious of tarred roads and motor cars and noise.

Yours faithfully,

T. W. B. OSBORN (DR.).

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## AMERICAN BUILDING METHODS

On behalf of the London Master Builders' Association, Major Leslie Shingleton and Mr. B. T. Rice-Pyle have considered the report of Lord Portal's Mission to America with a view to finding to what extent, and how, American building methods could be applied to building practice in Great Britain. The following statement has now been issued :

[1] The architect should impress on the client the vital necessity of making up his mind with regard to the proposed structure in all its details before tenders are invited. He should be told that alterations in the drawings or work not only cause extra expense or inefficiency, but delay completion of the work. The builder cannot be adequately recompensed for the loss entailed by alterations and variations from contract.

[2] The architect should insist on adequate time for the preparation of all drawings, details and specifications necessary for the contract, and the client should be told that time expended on these at the start is well spent and enable the work to be organised from the start, and ultimately leads to completion and economy.

the pulling down of old buildings and new construction should be let as one complete contract to one and if the existing buildings are gainfully occupied, should not be vacated until the architect, in consultation with the builder, is satisfied that all the essentials for the new work have been organised and prepared.

The position and duties of the quantity surveyor should be explained to the client at an early date, and he should be kept informed by and paid direct by the building owner for the preparation of preliminary estimates and bills of quantities, for valuations and adjusting the account at completion.

The architect should be paid by the client a fee to cover the preliminary work necessary to design the job from start to finish, and the quantity surveyor has full information, including plans, specifications, and drawings of steel work, reinforced concrete, masonry, and ventilating, electrical work and lifts, to enable him to take out all the quantities needed to enable the builder to estimate the cost and visualise the complete structure.

[6] The quantity surveyor should insist on fully detailed drawings being supplied by the architect so that detailed bills of quantities in accordance with the standard method of measurement can be taken out and the quantity surveyor should certify all drawings supplied to him and such certificates should be on all contract drawings.

[7] The growing custom of taking off "guessed" or provisional quantities for work anticipated for which proper drawings have not been supplied should cease.

[8] All work should be in the hands or under the control of the builder and detailed drawings of all services with full specifications should be furnished to enable him to obtain estimates for all the work at competitive prices, and the builder should obtain all the estimates.

[9] The client should make up his mind what he wants at the beginning, and once the job has started structural alterations should not be permitted. The client should be made to appreciate that he has to pay for the loss and disorganisation consequent on alterations.

[10] The quantity surveyor's fees for all alterations should be paid for by the client direct and not included in the variations account. The client should be made aware of the effect of alterations by the contract providing for an increasing percentage to be added to the cost of alterations—this to pay for the disorganisation caused, and to discourage him from changing his mind.

[11] Steps should be taken to encourage a keener interest by the operatives in their work so as to give greater output.

[12] More use should be made of progress schedules by exhibiting them on the works in prominent positions, so that the interest of the operatives may be aroused as to the progress of the works. Also copies should be furnished so far as applies to their particular work to all sub-contractors, and conferences of all parties concerned should be held on the job at frequent intervals.



*Journal of the SA Architectural Institute*

**PUBLISHER:**

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