

The Planning of Johannesburg by G. S. Burt Andrews. M.I.C.E., M.S.A., M.I.M.E.

BUILDING

A JOURNAL OF ARCHITECTURE, VALUATION AND SANITATION.



THIRD QUARTERLY PART.

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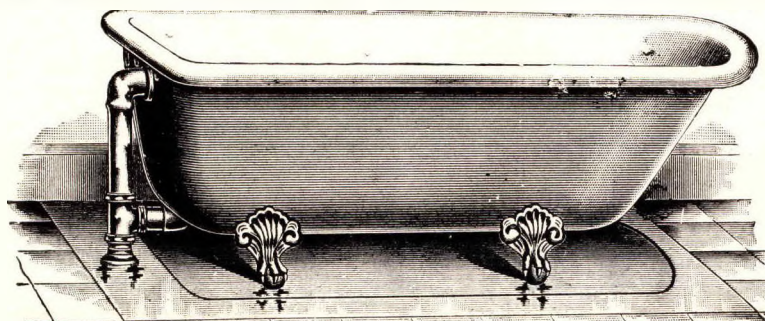
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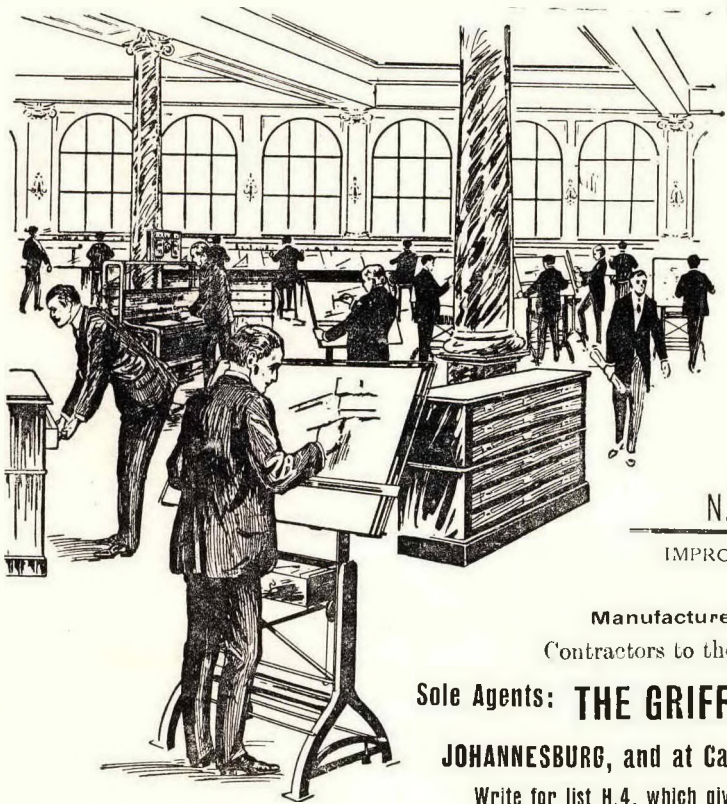
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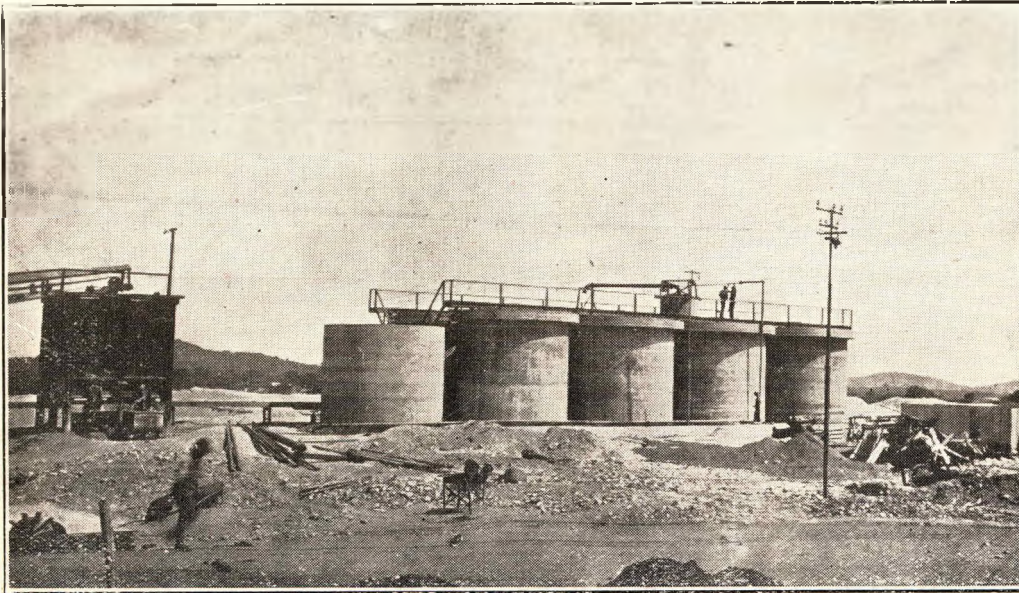
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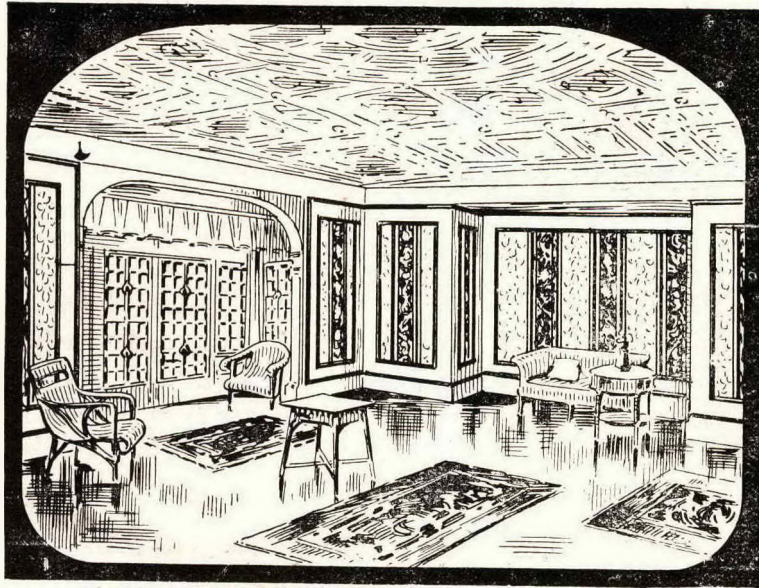
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A RETROSPECT.

This month of September, 1919, marks the 10th Anniversary of the promulgation by the Supreme Legislature of "The Architects' Act," providing for the statutory qualifications of architects and the registration of those persons qualified to practice as architects in the Transvaal.

Looking back and passing in review the work of

"The Association of Transvaal Architects" during the past ten years, we are now able to see events in something like their true perspective, and to prepare by the experience thus gained for the problems and altered conditions which will obtain in the future.

Since the inception of the Act, the world has passed through a period which has practically dislocated its whole social system; every industry, profession and commerce, and on the restoration of Peace our profession is confronted with altered conditions in

the trades and industries with which it is closely associated.

We have to decide for ourselves whether the Association has faithfully carried out the great responsibilities imposed upon it by the Act of 1909, and if that Act has been justified by its working since it was promulgated.

It cannot be denied that experience has shown many flaws in the Act, and it has not been free from some severe criticism in certain quarters; but in the main it must be acknowledged to be satisfactory, and although not realizing probably all that its promoters wished for it, the Association has been able by the Act to achieve other results for the benefit of the profession not even anticipated by them.

Not the least important of recent events, has been the holding of Conferences of Architects in Cape Town and Durban, for the purposes of extending the Statutory Registration of Architects throughout the Union of South Africa. The result of these conferences leaves no uncertainty as to the unanimity of the architectural profession in this respect, and it is here pleasing to note that the architects of the United Kingdom are pressing for registration, and Professor Simpson strongly urges a press campaign to educate the community to the necessities of architectural registration in the Old Country.

In his presidential address to the Royal Institute of British architects Mr. Hare said, "Is there any means by which the building public may be enabled to distinguish between the qualified and unqualified architect"? There is no doubt that a large amount of building is carried on either without an architect or under an entirely unqualified person, which brings the profession into disrepute and leading to many abuses.

In this respect the public must be protected against itself, and it should be made impossible for an unqualified person to submit building plans for approval to municipalities.

How often one hears the argument advanced by certain building owners, that any draughtsman capable of drawing a plan is good enough for him. Why go to an architect? It is this class of individual who in his ignorance cannot realise that the draught of a plan is not necessarily qualified as an architect to carry out his work.

An advance has been made in this direction by the Pretoria Municipality in passing a bye-law for the acceptance of building plans prepared and signed by

qualified architects only. Surely this is a vindication of the Act, and the Association is making strong recommendations to other municipalities to follow the lead taken by Pretoria.

It is pleasing to note that among other recent activities of the Association, its endeavours to influence public opinion regarding the expenditure of public funds, to the best service of the community and in good architectural taste, have resulted in considerable success, also its activities with respect to the important subject of town planning, have been of great value to the newly formed Town Planning Association, which may justly be termed the daughter association of the A.T.A.

The value of the Association is exemplified in the increasing reference of matters of professional practice to the Council for advice and guidance, and the Council's policy of supporting members' claims in cases of litigation in the Courts have been fully justified.

The important question of "Competitions" is also one that has received a great deal of careful consideration, and it is undoubtedly due to the growing influence of our Association and the efforts that have been made to direct public bodies on the right lines in these matters that competitions are now better regulated and more keenly contested.

Then what of our *Journal*, "*Building*"? With all modesty one must refrain from laudation but could one contemplate its extinction now with equanimity?

So ten years of the Act has made for better conditions and improved status for the profession in the Transvaal, and our obvious duty is to support any extension of its scope to the Union generally.

The First Provisional Council of the Association have every reason to be proud of the work it embarked upon 10 years ago. The Association has now passed from tender youth to a virile maturity, and the profession owes a debt of gratitude to the members of that first Council for the spade work done by them in the early days. Two members of that first Council in the persons of Messrs. Robert Howden and H. G. Veale have served continuously on the Council and in the work of the Association, except for the period when the former was on active service in G.S.W. Africa, and the latter during two years' absence from the Transvaal. For their useful work and keen interest in the work of the Association, the profession in the Transvaal is deeply indebted, and we trust the Association will have the assistance of their councils for many years to come.

EDITOR.

R.I.B.A.—Presidential Address.

We take the following from an address by the President, Mr. J. W. Simpson, to the Council of the R.I.B.A.

July, 1919.

Because time presses, and because the traditional Address from the Chair may, I think, be more usefully devoted to matters which interest laymen than to our internal affairs, I venture to anticipate the formal Opening of our Session in November next, and to say a few words to my brother architects at this moment of National Triumph.

I want, first, to tell you with what diffident mis-giving of my own fitness—with what sincere humility—I have accepted your call to preside over this great and famous Institute. To carry on the tradition of the immortal chiefs—Cockerell, Tite, Scott, Street, and others—who have preceded me in this Chair, is a task far beyond my competence, unless the whole-hearted support of my fellows comes to my aid.

REFORM.

We of the new Council assume office at a culminating point in the world's history. Peace has just been signed; the older order changeth—nay! hath changed—and giveth place to the new. Our responsibility to our brethren, at this critical moment, is very great. There are urgent matters to decide; the profession, like the world outside it, is vocal with a vague discontent. Part of this is doubtless psychological, due to nervous impatience with the slow return to equilibrium of vast social forces displaced and shaken by the war; but there is also an instinctive, and, I believe, sound, perception of the fact that restoration to pre-war conditions will not satisfy our needs. There is a desire for closer internal union; we are asked to take steps for the consolidation of our interests, and for their effective protection; it is urged that we should secure a fuller measure of public confidence and esteem for our profession. To these demands I believe it our clear duty to give most sympathetic attention, bearing always in mind, that while our first duty is towards our own members, who have proved their quality in the ordeals of examination—and especially towards those who have served and fought for us—yet the best and highest interests of this Royal Institution are those of the State. No

selfish policy, seeking private advantage at the expense of the community, can either succeed or endure.

THE NEW CHARTER.

The moment is opportune for reform, since in the forefront of our programme for the Session is the procedure with regard to a new Charter, which was arrested by the outbreak of war. This Charter, I may remind you—whose outlines have already received the sanction of the general body of members—provides for the establishment of a Register of qualified architects administered by a Registration Board, and for a revised Constitution of the Council. I have refreshed my memory both as to the principles it embodies, and as to the debates which led to their settlement. It appears to me a wise and statesmanlike measure, and the Council will undertake it at once the duty of drafting it with a view to its submission to the Privy Council and its definite approval by the general body. They will also consider whether other reforms in our organisation might not be incorporated in this document; with the assent, of course, of the general body. Meanwhile, let me declare that we of the Royal Institute proffer goodwill and help to all architects, whether within or without incorporation. Already, as I have said, we have determined on a substantial measure of reform. To attempt to grasp at once all that some of us want, might mean the loss of much that we have; we must not divide this noble Institute by undue anxiety to satisfy a section. If we are to make of the profession a homogeneous structure, we must build from the base upward, from within outward; adding stone to stone with cautious care that each is rightly and soundly placed. The first step to unity is a Council solid as to its policy, and steadily pursuing it. I have confidence that the members will support the considered judgment of those whom they have elected to represent them; and there will be no loss of time in preparing it.

PUBLICITY.

An essential condition of unity is the interest of members in the work of their council and committees. We publish, it is true, a statutory annual report, a rather formidable document some of whose miscellaneous contents are necessarily out of date, others apt

to be overlooked in the crowd of items. But some better way is needed to keep members in constant touch with their affairs; Parliament itself would be forgotten if its proceedings were not promptly reported. The *Journal* is our permanent official record, and this, for many reasons—cost among them—can only appear at comparatively long intervals. I have received the most cordial and generous offers of help from the Press; and propose to furnish the editors with the fullest information available, as occasion arises. Some of the matters with which we have to deal are of a confidential and delicate nature, and we do not wish our members to withhold their difficulties from the Council for fear of publicity; but with the assistance of the vice-presidents and secretaries I shall hope to avoid indiscretion.

THE DINNER.

Not unconnected with the desire for closer internal contact, is the general feeling that we should return to our former practice of holding an annual public dinner. A festival of this kind is a most valuable means of bringing members of the Royal Institute into personal friendship one with another, and, incidentally an occasion for honouring distinguished public men to whom we are indebted for advice and support. In any event, whether we dine together, or prefer some other form of entertainment, we shall take the opportunity of making it our public acknowledgement and welcome to our members who have served in His Majesty's Forces.

COUNTRY MEMBERS.

This personal intercourse of members is of great importance. It is asserted that the public "knows the names of twenty painters where it knows the name of one architect"; the mere fact is that we do not know each other as we should, and part of the prevailing apathy with regard to our affairs is a consequence of it. In particular, the relations between London and country architects need strengthening: their conditions vary in many ways, and sympathetic understanding comes only from mutual knowledge. It will be, I consider, my duty, as well as a pleasure, to visit addresses, but to meet their members in friendly conversation, and learn their special difficulties and needs.

OFFICIAL ARCHITECTS.

The relation of those of our members who have accepted official positions to those in private practice, also claims our attention. For the moment I need only say that, whatever exception may be taken to

the system under which they work, they themselves enjoy equal consideration and honour with their brethren. They are with us and of us; it is for us to assist them in every possible way; for them to support the Royal Institute with all loyalty, and work for the common interest.

EDUCATION.

The Board of Architectural Education is now a powerful body, ranking as a cousin, almost as a sister, to the Council. This Board, under its gifted chairman, Mr. Waterhouse, will, no doubt, direct its mind to the suggestions which are being made for widening the education of architects on the financial and scientific side of the profession. The mind of the student is receptive, and his frame elastic; his position nowadays reminds me of those contumacious prisoners, on whom there was ordered to be laid "so great a weight as they could bear—and more."; but his indomitable spirit will doubtless sustain the added load, and his reward will come when he enters his kingdom of practice. . . .

PROFESSIONAL CONDUCT.

It has long been in my mind that a definite code of professional conduct would be very helpful to our younger, perhaps to all our members. Such a code, drawn up by Gaudet on behalf of the *Société Centrale des Architectes Français*, in 1895, has been adopted by every society of architects in France; and a draft on similar lines will be laid before you for approval in due course.

STREET ARCHITECTURE.

"The Advancement of Civil Architecture" is the statutory duty of this Institute, and at the instance of our late President I drafted for consideration a proposal for its direct encouragement by offering a bronze medal every year for the best street façade. A similar award, as you are no doubt aware, is made by the Corporation of Paris, who recognise the owner of the property premiated, as well as its designer, by an abatement of one-half of his frontage dues; both the distinction and the concession are highly appreciated. Owing to the sub-division of our civic authority into corporations and boroughs, it may not be practicable to achieve this, but I am confident that both the City and the County Council of London, no less desirous than their sister Council on the Seine of improving the beauty of their city, will be willing to co-operate with us in some similar way. Although I have spoken of London only in connection with the

award, we may hope, with the aid of our allied societies, presently to extend the principle to the other chief cities and towns of the Empire. I commend the idea to their favourable consideration.

BUILDING CONDITIONS.

The condition of the building industry touches the profession closely. Hostilities were suspended eight months ago, Peace is now concluded, and the trade remains paralysed. It is imperative that life and motion be restored without delay, and it is for us to take a leading part in that restoration. We have already, as you know, set up a Building Industries Consultative Board, composed of builders, surveyors, operatives, and architects, of which your President is chairman, and Mr. Lloyd, of the National Federation of Building Operatives, vice-chairman. The single interest of architects and surveyors is to get the machinery of building into active operation; they are quite disinterested as regards the special views of either employers or employed. By bringing together all four classes of workers we hope to create a body—less formal and more elastic than the official Whitley Council, but in touch with it—where professional men who have the confidence of the two executive groups, might join hands with both. That this confidence exists was shown by the unanimous choice of the chairman; and the first meetings have produced wholesome and open discussions of great promise. I hope that your delegates may soon be able to report progress to the Council and have the benefit of their direction as to future initiative.

HOUSING.

As regards the special work of housing, the needs of the State will certainly be given precedence of all private demands; the latter will, therefore, be satisfied only at enormous cost, unless we can succeed in re-establishing a proper economic proportion between wages and production. The architect may be certain that the amount of work which lies before him, in connection with housing, is prodigious. We are as yet only on the fringe of the problem; and members of the profession owe more than they perhaps realise to my predecessor, Mr. Hare, for his persistent efforts to secure proper recognition for them by the Government. The policy of the Royal Institute is directed to procuring for the State Housing Scheme the maximum output of building in the shortest possible time; and to securing the employment of all qualified architects who have served in His Majesty's Forces, by a wide distribution of the work of design and superintendence. A Central Consultative Board has been

formed, and is already at work, with a view to assisting county and local authorities by their advice both in the selection of architects, and in the preparation and execution of their schemes. It is hoped that the Ministry of Health may officially endorse the Royal Institute scale of charges, and accept our proposals for carrying out the larger schemes by groups of executants, each group being under the general direction of a superintending architect. The Board is also considering the means of entrusting a limited amount of responsibility in connection with such groups to specially trained students.

INTERNATIONAL AMITY.

The great importance of preserving the friendly relations which exist between the Royal Institute and our brethren abroad has not been forgotten. We realise that we may possibly be called upon to combine in one of the greatest building schemes in history, and I have been authorised to send in your name a telegram of greeting and congratulation, on the occasion of our first Council meeting after Peace has been signed to the Societies of France, to the American Institute, and to our Branch Societies across the Seas.

The foregoing outline by no means exhausts the subjects which will, I hope, occupy our attention during the forthcoming Session. The formation of a parliamentary group, whose vigilance should guard our beloved art when legislative proposals might affect it, has already the sympathetic approval of Major Barnes, M.P. The Royal Institute may be privileged to take the initiative in an even wider-reaching scheme, for mutual assistance and protection in the uncertain times before us. But I have said enough to show that we have a session of full and strenuous work before us. You will supplement my modest and somewhat commonplace programme by your own suggestions.

PROCEDURE.

A word on procedure before I conclude. The Council has accepted a proposal to reduce its Committees to a minimum; we do not want to squander the time of busy men on any but strictly necessary meetings, and we have been too much in the habit of referring troublesome matters to special committees, instead of dealing with them directly, and at once. On the other hand, we propose to strengthen our great Standing Committees, and give them more real responsibility than heretofore. To this end we have, in exercising our power of appointing additional members to them, placed on each a Vice-President who will represent his own Standing Committee on the Council and support its proposals and reports. The position of Vice-

President is one of high distinction and should be fully recognised. The four gentlemen who hold that office take a leading part in the work of the Institute, and there is a corresponding call upon their time. I must rely much upon them for support; as Aaron and Hur held up the fainting hands of their chief, so it is for them to prevent the weakness of their President from becoming too apparent.

" R.I.B.A. "

This Royal Institute of British Architects to which we belong is a splendid and a famous organisation. It governs practically all properly qualified architects throughout the Empire; there is no other architectural society in the world which approaches it in scope and completeness; it is the envy and admiration of our foreign brethren. Every member may be proud of his allegiance to the Royal Institute; and the measure of his own enthusiasm will be found in the common animation it inspires. That there should be criticism of the Council is right and proper; " a reasonable amount of fleas," said the American humorist, " is good for a dog; keeps him from worrying 'bout being a dog!" But let lookers-on remember that they have freely elected the team which is playing for them; clap their hands for its successes, sympathise in its failures, and encourage it to try again.

For the Council itself stands the great device:
Fais que dois, advienne que pourra!

MESSRS. GEEN & RICHARDS' PREMISES,
JOHANNESBURG.

Alongside we give a reproduction of the new premises in Market Street, Johannesburg, for Messrs. Geen & Richards, House Furnishers. This structure adds a stately addition to the eastern portion of Market Street where so many fine buildings have been erected lately.

This building, which has cost £15,000 to erect, has reinforced concrete floors and pillars throughout.

The Market Street elevation is of Klompje brick. Mr. D. Macdonald Sinclair, of Johannesburg, was the architect, and Mr. R. W. Kelly, the contractor.

NOTES—

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The South African Academy.

The Council of the association realizing that public appreciation of Art and Architecture in South Africa has been neglected in the past, and too few facilities afforded to those interested in Art in all its branches, to view contemporary work and the need for stimulating public interest in these matters, has decided to hold an Art Exhibition in Johannesburg early in the new year. This exhibition which will be styled the "South African Academy," will be held under the aegis of the Association of Transvaal Architects, and it is intended it shall be an annual affair, which in subsequent years will be held in other centres throughout the Union. It is intended to exhibit the works executed by South African artists or with a South African interest, and already several noted artists have signified their intention to submit work to this exhibition.

A strong committee under the chairmanship of the President of the above Association is making all the preliminary arrangements.

In order that the standard of work aimed at may be obtained, it is intended to appoint a "Jury of Admission" composed of experts, who will approve of all the works submitted before being accepted for exhibition. In addition to architectural drawings and photographs of recently executed work, the following will be admissible to the exhibition.

Architectural Designs, Cartoons, Tapestry, Embroidery, Stone and Wood Carving, Metal Work, Enamels, Bookbinding, Modelling, Plaster work, Leather work, Art furniture, water colours and oil paintings (preferably those introducing architectural features).

It is proposed that the inaugural Exhibition shall synchronize with the Annual General Meeting of the Association to be held in February next and it has been decided to mark the opening of the Exhibition by a Social function at which, it is hoped, all members will be present.

Your Council feels that the success of the Exhibition largely depends upon the personal interest of its members and invites your active co-operation in submission of Exhibits and by interesting your Artistic friends in the project.

All communications on the matter should be addressed to the Registrar.

The Housing Question.

By E. H. WAUGH, A.R.I.B.A.

The insufficiency of dwellings at the present is almost world-wide. In nearly every country, of an industrial character, the same cry is heard.

England has been running back since about 1911. The shortage there is supposed to equal about 25,000 houses per year. Over 100,000 should have been built per year, but only about 80,000 have been erected, a number which keeps pace with the population but does not make up loss from destruction and decay, which is estimated to be about 25,000 per year. Consequently the shortage now amounts to about 200,000 houses. For the first time, the British Government intends to carry out a large housing programme, and has divided the country into territories with a well-known architect at the head of each.

South Africa suffers also. From every large town the same cry comes, and it is quite evident that some unusual steps are necessary. Hitherto nearly all housing has been the result of private effort, and the laws of the land—in the Transvaal at any rate—have not and do not always protect the house-owner properly. He has difficulty and expense in ejecting a tenant who is not up to date with his rent, and is too much at the mercy of the night flitters who depart and leave the landlord short. To a large extent owing to this laxity of the law, much energy has been diverted from investment in houses, and the general result punishes the public by higher rents.

The Union Government has appointed a Housing Commission who are touring the country—a slow process. This body should consult the civil magistrates and leading estate agents to see what legal hindrance exists to prevent private capital being more fully used for housing. House investments should be—and are in most countries—one of the best. In this town they are looked on as second rate for reasons peculiar to the country. The English shortage is largely put down to legal hindrances, *i.e.*, the 1911 Valuation Act.

A recent iniquitous mistake is the Property Increment Tax of the Transvaal and the raising of the Transfer Duty all burdens further restricting the holding of property. As a principle there should be no burden on transferring property. It should be made as easy and as cheap as possible. It would pay this country to import an eminent professor on taxation whose wide knowledge after study of local conditions

would lead to a more connected and reasoned method of taxation. This has been done in Canada with success.

As regards Johannesburg, the house shortage is fairly acute, but no local survey of the position has been made; that is, nobody knows how many houses we possess, nor how many are empty, or very clearly what districts are short of houses. It is fairly clear to the writer that some districts are not nearly as short as others.

The first step is to at once have a count made. The last was made by the M.O.H., Dr. Porter, in 1911. There were then 27,285 occupied houses, 1,074 unoccupied, and 412 being erected. This gave at that date about 4 per cent. unoccupied. This was a normal year, and is a fair index as housing experts in the Old Country reckon that about 5 per cent. should be unoccupied at any one particular time to keep things normal and allow for damaged houses, houses being repaired, alterations and houses perhaps being demolished, and also for people moving. Since 1911 probably 4,000 houses have been built, making the present total about 32,359. No one knows the present number of empties. They are not quite nil, but are near to it. Consequently we can assume safely that 4 per cent. of 32,000 would give an approximate indication of present shortage on a proper normal state. This means about 1,300 houses short in Johannesburg. The rate of house building is only the normal rate, about 50 per month, so the shortage is not being made up and is not likely to be unless something is done as the number per month will only about provide for growth of population without removing shortage or providing for an influx.

There is no present indication of a decrease of population, so the housing question must be tackled.

The most serious difficulties are lack of skilled trained tradesmen—common to the English world, and lack of materials—bricks and cement being particularly seriously wanted. It is easier to get men to make more bricks than to start new cement works, the latter consideration rather ruling out cement and sand blocks.

Now, who is to ease the shortage; private enter-

prise having been insufficient. There remain the Government, the Provincial Administration and the Municipality. (Note—The S.A. Railways are making tremendous efforts to the extent of 2,000 houses which will ease the position in some centres, but not wholly). The Head or Union Government cannot tackle local individualities with great success, and to a lesser extent the Provincial Administration is in the same place. To handle large house construction from one central office will not get over the local difficulties of supply of material and provision of suitable housing as well as can be done by the closer working knowledge of a Municipal Council, who would also be subject to the pressure of local wants better than a distant head or provincial government; in short, a town council is in much closer touch with its people than any other government in existence, and can work more quickly and more effectively. At present legislative neglect bars the councils from doing anything, and power is now being sought to enable councils to do anything needed in this direction and the Johannesburg Council has acted commendably in trying to get these powers immediately. It must also tackle the brick problem as it is becoming rather serious, and this is bound up to some extent with the want of coal problem. The labour problem must also be tackled and a stiff adherence to ordinary trade union rules will not meet an extraordinary difficulty.

BUILDING STATISTICS

FOR THE YEAR ENDED 31st DECEMBER, 1918.

Municipality.	No. of Plans Passed	Value £	No. of Plans submitted by Registered Architects	Value £
Boksburg ...	63	19,858	23	9,615
Pretoria ...	234	152,859	154	147,428
Benoni ...	465	275,469	119	126,054
Rooдеpoort ...	62	16 187	2	5,433
Standerton ...	21	7,765	—	—
Potchefstroom ..	66	34,985	1	12,560
Springs ...	90	145,897	64	136,222
Krugersdorp ...	108	23,923	9	6,183

The Johannesburg statistics are not yet available.

NOTES.

Mr. C. Adler having returned from active service resumed his duties with the Johannesburg Municipality last month.

In the recent competition for Lay-outs and Housing Schemes at Capetown, Messrs Lyon & Fallow, A.R.I.B.A., were awarded the three premiums for the lay-out schemes, and the housing premiums were awarded to Mr. J. Perry and Mr. F. M. Glennie respectively.

The limited competition for designs for new premises for the District Grand Lodge (E.C.), in Noord Street, Johannesburg, resulted in Messrs. Cowin and Powers, A.R.I.B.A., of Johannesburg and Pretoria, being awarded the first premium of £150; Messrs. A. and W. Reid and Delbridge, of Cape Town and Johannesburg, the second premium of £75, and Mr. J. L. Hall, of Cape Town, the third premium of £25. Mr. Chas. Aburrow was the assessor.

The following are the sending in dates for competitions now in progress:—

Louis Trichardt Town Hall, to the Registrar, The Association of Transvaal Architects, 67, Exploration Building, Johannesburg, 25th September, 1919.

New Medical School, Johannesburg, to The Secretary, School of Mines and Technology, Eloff Street, Johannesburg, 25th October, 1919.

New Hostels, Milner Park, Johannesburg, to The Secretary, School of Mines and Technology, Eloff Street, Johannesburg, 20th October, 1919.

Copies of No. 11 issue of this journal (September, 1918), are required for record purposes in the Association office. Any member prepared to give his copy for this purpose is asked to kindly forward same to the Registrar.

In order that the 1920 list of members may be up to date, it is requested that any changes in office addresses, P.O. Box or telephone numbers, be immediately communicated to the Registrar.

WITWATERSRAND UNIVERSITY COUNCIL.

Competitions have been promoted by the Witwatersrand University Committee for:—

- (1) The Buildings of the New Medical School on the site adjoining the S.A. Institute for Medical Research, Johannesburg.
- (2) Hostels and Principal's Residence on the site at Milner Park, Johannesburg.

The closing date for Competition No. 1 is the 25th October, and that of No. 2 the 20th October.

Copy of the conditions may be obtained on payment of £2 2s. each, and all designs must be forwarded to the Secretary, P.O. Box 1176, Johannesburg.

Methods.

By G. W. NICOLAY, M.S.A.

Beginnings—the things which appealed to the senses in the bright dawn of mental development have been shown to produce, often accidentally, not only the foundations of artistic expression, but even the forms most suitable to its application to building and modes of construction.

Equally interesting are the early developments of the means by which the aspirations of men from time to time were satisfied.

Who shall give a satisfactory reason for the first habitations being circular, supposing them to have been given that form? It is more natural. No! They had nothing straight about them to suggest another form. Then how did that form have the preference? The answer can only be partly given: because there are more ways than one, and the first hands in the doing of it left no record except their work and nothing has reached us but a—shall we say?—a tenth hand copy.

Again it is difficult to answer the question, who were they? But here it is sufficient to suggest that they were those who loved peace and industry though only possible for comparatively brief periods.

We may say that the foundation—the firm beginning that made progress possible, was geometry; and the beginnings of geometry are all about us now not less than in that distant past so dark and often impenetrable to us.

We cannot keep too clearly before us that the mind of man is as constant as his form. Both are subject to change, development and degradation. Both revert to type or have a tendency to do so, and in so far as they occur and recur are quite indestructable. The individual disappears, his successor appears and sustains his work, and in the recognition of this principle lies all possibility of continuous progress.

The aboriginal man worked in the "bright dawn," so dim and even dark to us. We may be said to be working in the bright day of which he could have no knowledge but our work is just the same. Our successors a thousand years hence will regard our work much as we regard that of our predecessors of a thousand years gone by.

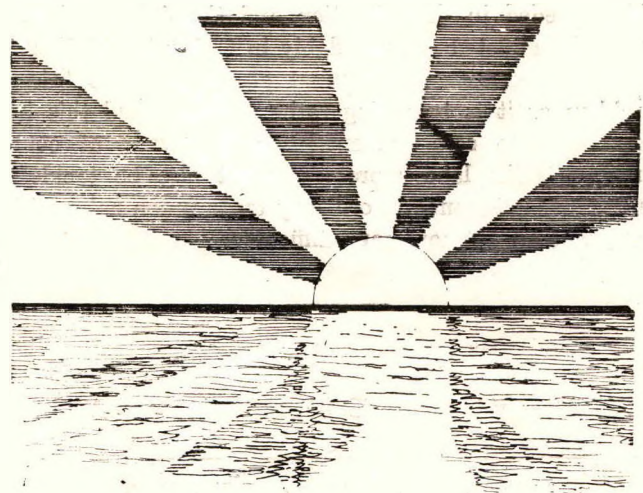
So now we may take a cursory glance at the in-

ception of the first method we employ in architecture—the setting out or geometry of it.

Euclid begins, if memory serves rightly, with the line. It is unnecessary to do more than suggest how multitudinous they are about us! And he next goes to the straight line—a very different thing. Not so easy to show, but far from impossible.

The difficulty is not in finding straight lines in nature, but finding them in such places and positions which shall force their claim to attention on men's senses.

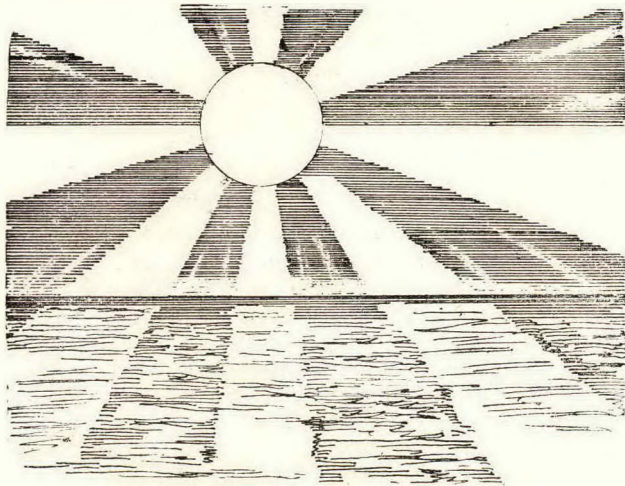
What an inspiration it must have been when in search of knowledge to watch the sun rise from the



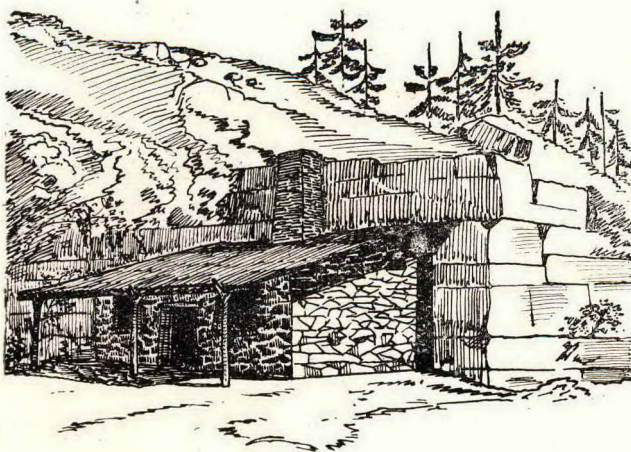
waters of some inland or outland sea.* First the bright yellow arc growing wider every minute until the centre of the disc is reached; the half disc standing on a level line. Surely enough to make a man think straight! The gaze is fixed, and as the great orb rises clear of the water the level base remains, a line straight in appearance though without any extreme points right and left as far as his keen sight reaches. He thinks—quite straight again!!

But all inhabited places have not great waters about them, and yet the straight line very soon appears. In the high lands were the Aryan people are first identified living in an age many thousands of years gone by, the ancestors as they may be called, of the progressive peoples of the world; had in the vast rocky precipices familiar to them, the long level

lines of the exposed strata constantly in view, and when they built for convenience or economy against a vertical face of rock not only straight in the line



of its base, but showing a plane face, had one straight wall† of their proposed habitation ready built; and they naturally followed with the other three or perhaps other two only on the same plan, though very differently built. They were later to learn other things from their rocky surroundings—building stone walls in place of the log walls with the fragments lying in heaps here and there. But at present we are concerned with geometry.



Two more instances of the straight line may be given. Although the long flat plain through which the Nile completes its course to the sea is fertile and guarded on each side with a range of hills, and beyond these hills on each side also lies an extensive desert.

Tractless sand through which people travelled speedily from point to point as through a hostile country.

We may imagine enforced idleness at the oases where water was to be found and a halt was made; men indulging their curiosity by noting the things seen about them. A little grass and a few palms on stony ground.* The most noticeable are the palm trees; their long stems and slender foliage standing out clear against the grey sky; and, in the distance the level horizon as of the sea, but all round him. They do not reason that it cannot be straight because it surrounds them, but notices its straightness and perhaps also that the shadows of the palms, as the sun goes down, show long, straight, dark marks on the level sand stretching so far in the clear atmosphere, that they seem to touch the level horizon: and that the shadow of the heads which seem so important, and



when the sun is overhead give all the shade which makes the place so pleasant, are lost in the distance.

But there is another primitive straight line which man very early made for himself and much humbler but on account of its being a result of his own work likely to hold his interest. From the first he used hides of animals for clothes and shelter, and soon found out that their sinews were tough and serviceable for sewing them together. As soon as he could cut the hides sufficiently evenly discovered that he had the means of making a strong and useful line for any purposes, and as he prepared it, stretching it from point to point it became rigid—straight.

The straight line would therefore be familiar at a very early time and everywhere. If men lived in closed country the making of the things with which they could satisfy their desire of bettering the conditions under which they lived made the straight line

familiar: among the hills, the precipices and escarpment of the rocks; at the seaside and the desert the seemingly limitless horizon with the unknown beyond. Now, if we add the circle, the elements of such geometry as applies to buildings are before us, and only the uses of them remains.

The circle is seen in the heavens now by us just as it was by the first of our race; and we notice with greater knowledge and added interest the changes of the moon which has never failed to excite the interest of the beholder.

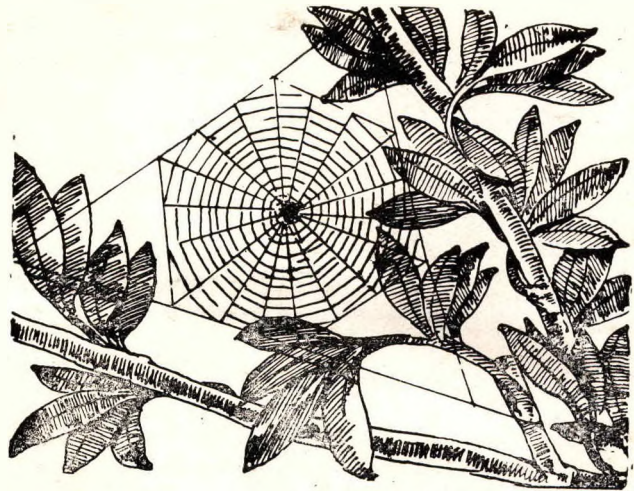
But circles were actually traced for them on the ground* and in a manner which showed them how to trace circles for themselves; at least it may be supposed that what happens to-day certainly happened as long ago as coarse vegetation sandy ground and wind happened together. The long sharp pointed



leaves swinging to and fro in the wind mark a semi-circle first on one side and then on the other (the blade-like shape of the leaf preventing it working only on the side opposite the windy quarter) and it returns backwards and forwards on one side until being blown out like a flag it falls over to the side opposite where it traces the other semi-circle.

But besides all this the inferior creatures, particularly insects, instinctively make use of geometrical forms. One of the most interesting is the spider web.† It is to be seen starting from a triangle which three additional threads bring to a hexagon, these threads attached to the angles mark the centre and further threads parallel to the sides at proper distances and more radiating lines until a perfect net is formed in perfect geometric order. It may well be supposed that by the time men had acquired the means of

handling building materials well enough to make a design necessary for building, human intelligence would be prepared for the setting out of it. And although a



process requiring much time was necessary in order to learn the uses of all these things for the first time—and we cannot tell how long—yet when that knowledge was acquired, building became important and quickly developed a monumental character, and geometry was at that time an advanced science, as will be seen further on.

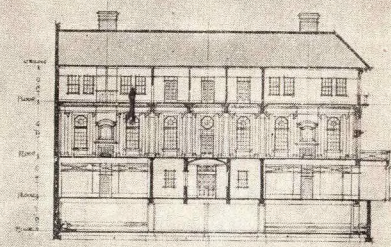
The elements discovered so simply are sufficient to enable us to make the principal geometric figures—all the figures composed of straight lines and circles.

At a remote and distant age in that pleasant land of the Pharaohs, from whence we have the first records of geometry, then an affair of religion and only understood by the ruling classes, buildings were set out by proportions arrived at geometrically. All work seems to have been directed by those well informed as to it, and erected by those having only sufficient intelligence to obey orders; and we may reflect that all the ages passed by since that time have changed us only in names and methods.

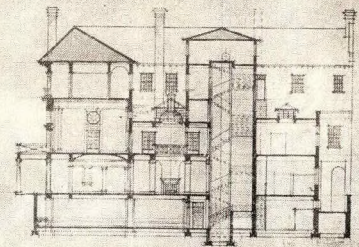
The architect designed the building, the builder and his foreman and staff (to put it in modern language) with the labour at their disposal, erected it. The noise of the hammer, the music of the trowel, and the singing of the men were heard as at present; and except that forms were different, and that the official and private buildings were more sharply distinguished both in form and construction than now, all in the building world is much the same as it was among the people of that intensely interesting place and period.

PROPOSED S.A. PARTY CLUB JOHANNESBURG

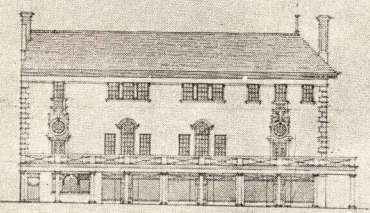
SCALE 16 FEET TO AN INCH



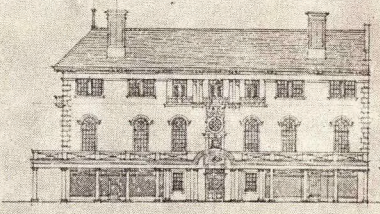
SECTION ON LINE C-D.



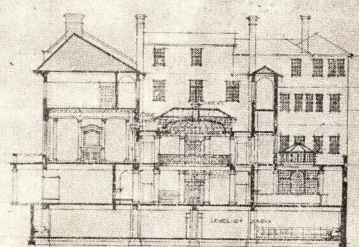
SECTION ON LINE E-F.



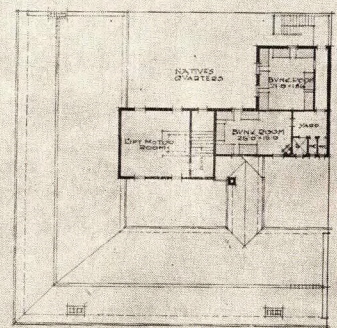
ELEVATION TO DEVILLIERS ST



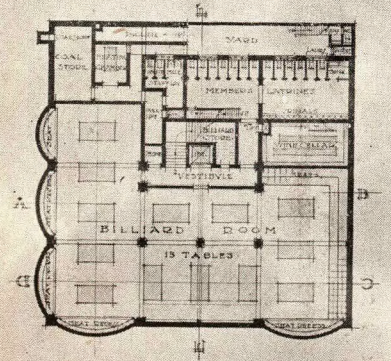
ELEVATION TO BLOOF ST



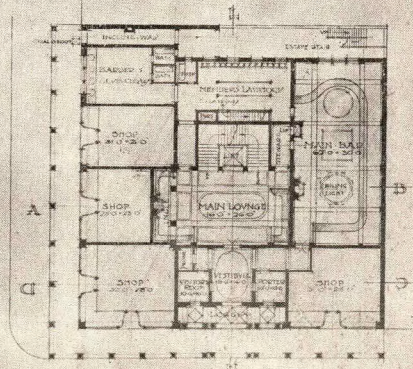
SECTION ON LINE A-B.



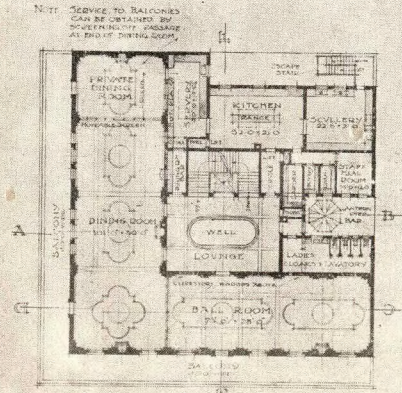
ROOF PLAN



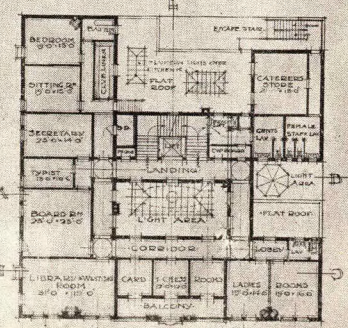
BASEMENT PLAN



GROUND FLOOR PLAN



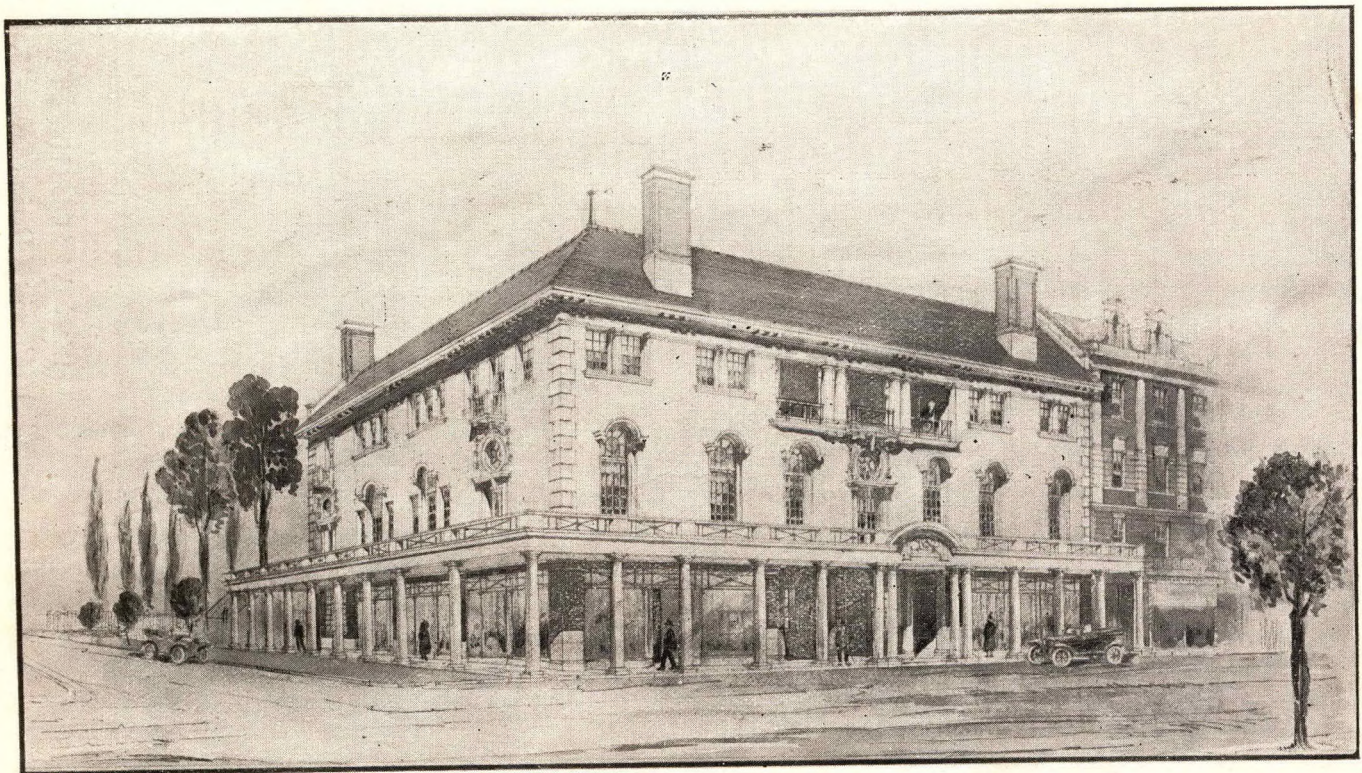
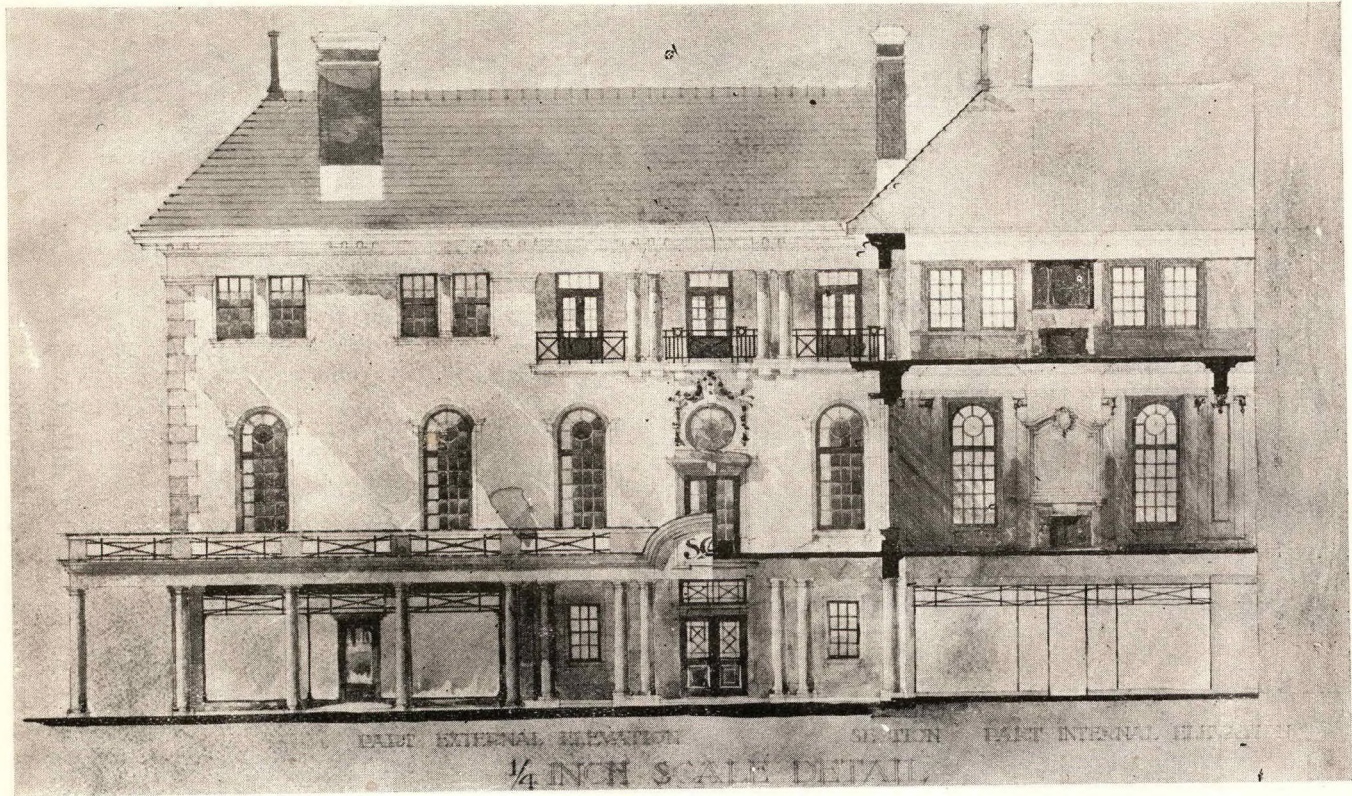
FIRST FLOOR PLAN



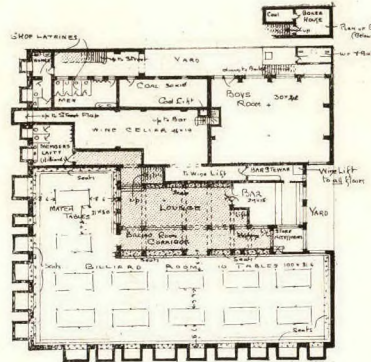
SECOND FLOOR PLAN

NOTE: SERVICE TO BALCONIES CAN BE OBTAINED BY DESCENDING PASSAGE AT END OF DINING ROOM.

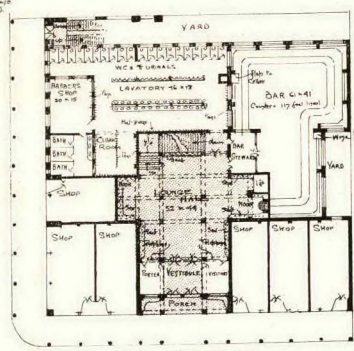
THE NEW SOUTH AFRICAN PARTY CLUB, JOHANNESBURG
1st Premiated Design. £100—Messrs. Cowin & Powers, A.R.I.B.A. Johannesburg.



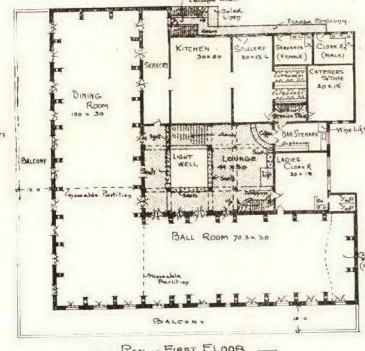
THE NEW SOUTH AFRICAN PARTY CLUB, JOHANNESBURG.
1st Premiated Design, £100—Messrs. Cowin & Powers, A.R.I.B.A. Johannesburg,



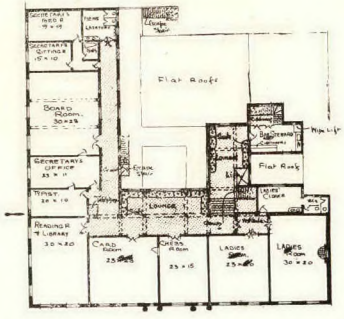
PLAN OF BASEMENT



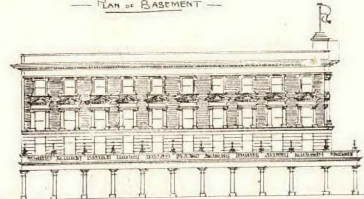
PLAN OF GROUND FLOOR



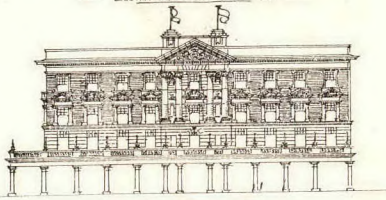
PLAN OF FIRST FLOOR



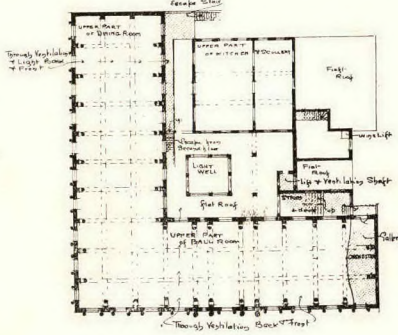
PLAN OF SECOND FLOOR



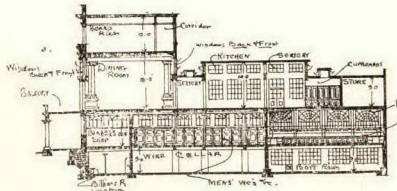
ELEVATION TO DEVILLIERS ST.



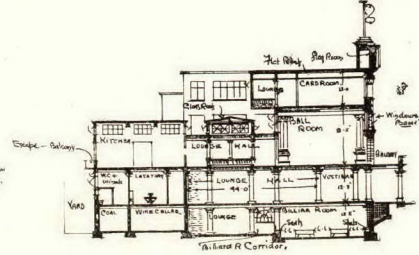
ELEVATION TO ELOFF ST.



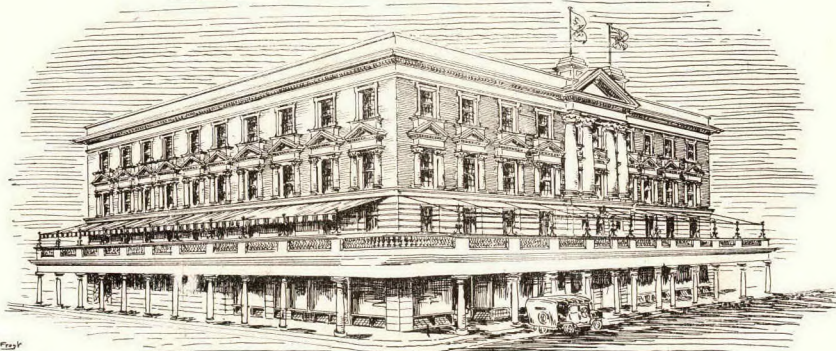
MEZZANINE FLOOR



SECTION ON LINE 'A-R'



SECTION ON LINE 'C-D'



PERSPECTIVE SKETCH

THE NEW SOUTH AFRICAN PARTY CLUB, JOHANNESBURG.
2nd Premiated Design, £50—Messrs. Aburrow & Treeby, Johannesburg.

Students' Prize Essay on Open Timber Roofs.

By JULIUS LONSTEIN.

The following Essay has been awarded the President's Prize of Five Guineas:—

It has been said that of all the artistic achievements of the English race, two make unchallenged claim to pre-eminence: their literature and their mediaeval architecture; and one of the chief contributions to the beauty of the latter, is due to the manner in which these early builders constructed their open timber roofs.

Just as France is the home of the stone mason's art, so is England the treasury of the carpenter's skill. Mediaeval England abounded in dense oak forests, and this explains the generous use of timber for roofs and also houses, examples of which can be found all over the country. The consummate skill with which these roofs were erected, and their highly scientific principles underlying their construction, have left records as glorious as any to be found in the French Gothic vaulted architecture.

Hardly any examples exist of the roofs erected during the 12th and 13th centuries. These were probably of tie beam construction, with either king or queen posts. Their pitch was steep, about 60 degrees. This can be seen (in those churches with roofs of a later date) from the weathering on the church tower.

Mediaeval roofs may be divided into two classes:

- (1) Single framed roofs (without principals).
- (2) Double framed roofs (where the purlins and common rafters rest on principals).

The early tie beam roofs were undoubtedly heavy, and the necessary length for the tie beam was not always obtainable. What was required therefore was a light roof, of such scantling as could be easily procured. This problem was solved by constructing a roof of common rafters, and to prevent them spreading, diagonal ties were added. The feet of the rafters often projected beyond the outer face of the wall, and

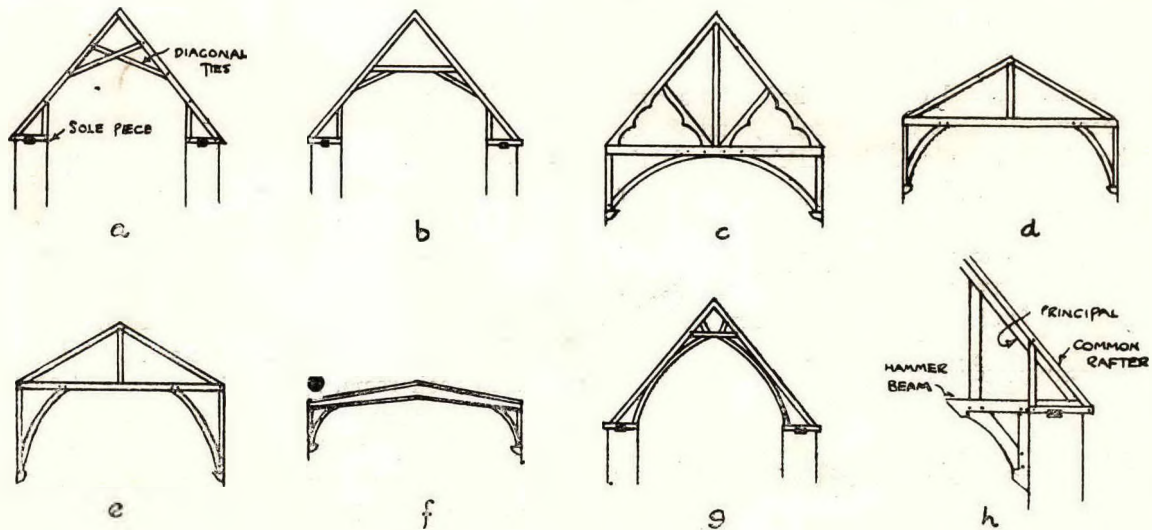


FIGURE 1.

The early Romanesque and Gothic builders, found that their heavy barrel vaults exerted a great thrust on the walls of their buildings. Most of the churches in England, therefore, and many in France were not vaulted at all, but had timber roofs. The French roofs show little ingenuity, they were generally composed of common rafters; and it is to England that we must turn, in order to study the finest examples in open timber roof construction.

could not therefore be pinned to a central wall plate. Sole pieces were thus introduced, into which the ends of the rafters were pinned and further strengthened by a strut from the end of the sole piece (Figure 1a).

The advantages over the tie beam, in additional head room and lightness of construction, was apparent; but this type could not be used over large spans. A collar was therefore introduced and strutted from the rafters (Figure 1b.). This form of roof was often

boarded over, the ceiling being divided into equal panels.

The main problem which presented itself to the mediaeval builders, was the weight of their roofs. The tie beam invariably tended to sag, and to get over this difficulty, they resorted to a number of methods. A popular one was to camber the tie beam; another method was to construct arched braces to support the tie beam. These either met in the centre of the beam, as at Adderby (Figure 1c), or the beam was supported at its extremities only, as at Melbourne (Figure 1d.).

In the later churches, with clerestories perforated with windows, it would have been bad construction to have allowed the heavy tie beams to rest on thin piers. The mediaeval builders realised this, and overcame the difficulty by building corbels lower down the walls, and on these they placed wall posts, and from the corbels struts were fixed to the tie beam, thus bringing the weight of the roof much lower down. A fine example can be seen at Louth (Figure 1e.).

Such roofs still proved to be heavy, and the next step was to combine the principal rafter with the tie beam. The result was economy in material and lightness of the roof, but the pitch became almost flat, as at Gresford (Figure 1f.).

In some cases instead of the arched braces supporting the beam, they act on the collar, and so we get the arched braced roof. This principle is clearly recognised at Patrington (Figure 1g.), where the collar is small and high up.

The most ingenious roof used by the mediaeval builders, was the hammer beam or cantilevered type. It was a favourite form in the 15th century for both

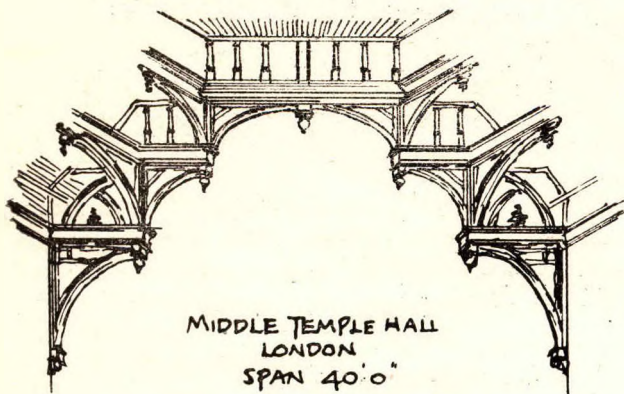
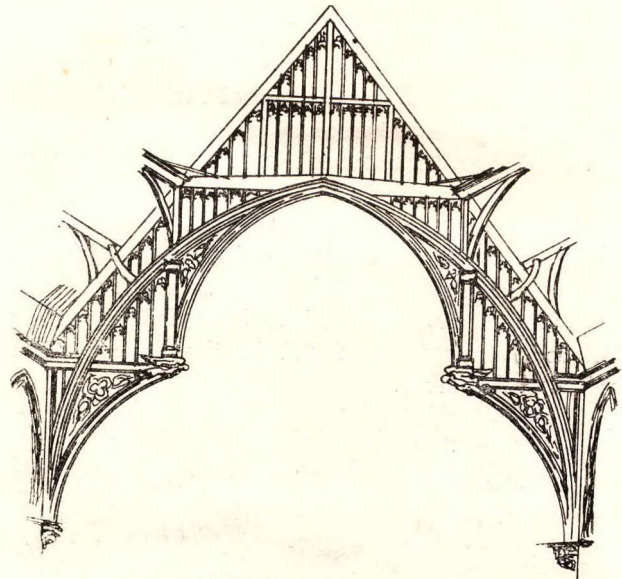


FIGURE 2

large and small spans. Its construction is merely the elongation of the sole piece; the weight of the roof being carried lower down the wall by means of a curved brace tenoned into the hammer beam and wall

piece, another vertical strut from the end of the hammer beam adds enormously to the strength of the truss piece another vertical steel from the end of the pressure (Figure 1h.). A number of types are found based on the same principle; such as double hammer beam roofs, as in the Middle Temple Hall, London (Figure 2).

and hammer beam roofs with rigid timber arches, as in the most celebrated of all open timber roofs, that over the Westminster Hall (Figure 3).



WESTMINSTER HALL
SPAN 68'0"

FIGURE 3

This famous roof was built by William of Wykeham, in 1399, and shows the courage and faith these builders had in their roofs, by bridging a span of 68 feet.

Mention must be made of the aisle roofs. In the hands of the mediaeval carpenter, even this simple roof (usually a lean-to) acquired distinction. They generally have braced principals of heavier scantling than the ordinary rafters, and moulded purlins.

There is a real English solidity and honesty in the mediaeval open timber roof construction. The timber used was oak of large scantling, and beautifully carved; 6 in. x 4 in. was the usual size for the common rafters. The members were either halved or tenoned, and pinned together with wooden pins, iron straps were unknown. Colour played almost as important a part as carving. The roofs were richly painted and gilded, the cornice was splendidly carved and crowned with cresting, the spaces in each principal filled with tracery, and at the ends of the hammer beams were angels with folded or outspread wings. White was a predominant colour, it was used

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