

THE SOUTH AFRICAN ARCHITECTURAL JOURNAL



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and the South African Institute of Quantity Surveyors.*

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EDITORIAL NOTE.

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The Association does not hold itself responsible for the opinions expressed by individual contributors.

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EDITORIAL.

In this issue of *Building* we commence a new series of Illustrations, viz, the reproduction of Architects working details of Buildings in course of erection or recently erected.

It is proposed to devote a separate issue of *Building* to illustrating details of Business Premises, Monumental and Domestic Architecture. The Journal

Committee consider that illustrations of this character will be of immense value to our students and the younger members of the profession; it is also their earnest desire to make *Building* of real interest and education value to all our readers and for this purpose we require the support and co-operation of all members of the A.T.A.

The Editor will welcome the views and critiques on this policy and trust that members will submit such of their work for publication, as may be of general interest and value.

THE NATAL INSTITUTE OF ARCHITECTS.

The Annual General Meeting of the members of the above Institute was held in the Secretary's office, 18, Field Street Buildings, Field Street, Durban, at 3 p.m. on Friday, 14th March, 1924.

The President (Mr. F. J. Ing) in the chair.

Before vacating the Presidential chair, Mr. F. J. Ing welcomed those members present, and said:—

Gentlemen,—Upon the close of my term of office as President of the Natal Institute of Architects, to which honour I was elected last year, I have pleasure in presenting the annual report upon the work and activities of the Institute during the last twelve months.

There have been nine Council meetings during the year at which various matters affecting the profession have been under discussion.

It is to be recorded with satisfaction that the Institute has been consulted, and its advice sought, by various local bodies during the year.

Every endeavour has been made by your Council to justify this confidence either by co-operation, assistance, and in appointing one or more members of the Council to act on committees.

The Vice-President, Mr. W. S. Payne, and Mr. Wallace Paton represented the Institute at the Architectural Education Conference held in the Technical College, Durban, and to which I had the honour of presiding. All the architectural and educational bodies throughout the Union were represented at the Conference, and a good deal of very useful work was dealt with and accomplished during the three days' deliberations. Amongst other things a Federal Council on Architectural Education was formed, which will no doubt materially assist the question of registration, which has been aimed at for some time past.

Your Vice-President, Mr. W. S. Payne, was this Institute's representative on the Federal Council's inaugural meeting held at Capetown last January.

In connection with this matter the Natal Technical College has undertaken to form classes, in the School of Art, in connection with the diploma course in architecture, as proposed by the Federal Council on Architectural Education at the Capetown meeting, the condition being that the Natal Institute of Architects are sympathetic to the scheme and will support the classes by guaranteeing the attendance of pupils. As you are aware, gentlemen, there are Schools of Architecture in Johannesburg and Capetown, and classes for the diploma course in Pretoria; it is to the utmost advantage to the architectural students in Durban that they should have the same facilities as these other centres, and it is up to all of us to do what we can to encourage attendance and proper support. At a

Council meeting held lately this matter was discussed, and it was proposed to recommend to our members that in admitting boys into their offices under articles in future they make it a condition that they attend these classes.

Colonel Hurst was appointed by this Institute to act on the new Council of the Natal Technical College.

Amongst other matters dealt with during the year the Strand competition as advertised was banned by your Council, not being in accordance with the recognised rules governing competitions of this kind.

During the year we have enrolled three new members; our total membership to-day is twenty, and three associates.

The finances of the Institute are reflected in the Secretary's balance sheet, a copy of which you have already received.

In conclusion, I wish to record my great appreciation of the support and assistance of our Secretary (Mr. Chaplin) and members of the Council.

The President received the scrutineers' report of the votes cast for the members of the Council for the ensuing year, and declared the following members duly elected:—

Messrs. F. J. Ing, W. S. Payne, H. E. Chick, G. T. Hurst, B. V. Bartholomew, Wallace Paton, and R. N. Jackson.

Mr. W. S. Payne was elected President, and Mr. H. E. Chick, Vice-President for the ensuing year.

A hearty vote of thanks was accorded Mr. Ing for his year of presidentship.

Two full page plates in this issue shew half inch details of portions of new premises now in course of erection, President and Sinal Streets, Johannesburg, to the design of Messrs. Stucke and Harrison, Architects, Johannesburg.

The inset is a reproduction of a perspective drawing by Mr. W. H. Stucke of the completed building which is a re-inforced concrete frame structure, with the panel walls filled in with brickwork.

The drawings illustrated are some of the principal features of the main facade and shew the Architectural treatment with the constructional details.

The height of the building is 100 feet from pavement level and is a fully equipped modern warehouse with Lifts by the Waygood Otis Co., and Sprinkler Installation by the Associated Engineers Co. of Johannesburg.

Steel windows by Messrs. Henry Hope & Sons will be fitted throughout. The re-inforced concrete construction is being carried out by the Re-inforcing Steel Co., Ltd.

The building is being erected at a cost of £25,000 by Messrs. A. J. White & Co., Contractors, Johannesburg.



The University of the Witwatersrand, Johannesburg.
View Facing the City.

Frank Emley, F.R.I.B.A.,
Cowan & Powers, F.R.I.B.A.,
Associated Architects.

ARCHITECTURAL EDUCATION IN SOUTH AFRICA.

History.—The first attempt in Architectural Education in South Africa was made in Cape Town about 1902, at the School of Art. This effort consisted of classes in building construction and drawing on the lines of technical education in England.

Immediately after the Boer War a building boom, which continued for a few years, attracted a number of young architects from England and Australia, and in addition the Public Works Department and the few older established architects' offices were staffed with lines of technical education in England.

During the years that followed, development took place throughout the coast and larger towns in Cape Colony, also in Durban and Johannesburg, and consequently a number of pupils were attracted to the architectural profession.

Cape Town.—About 1912, architectural classes were conducted at the School of Art at Cape Town by the Principal, Mr. C. S. Groves, A.R.C.A., assisted by Mr. F. K. Kendall, F.R.I.B.A., Lecturer on Architectural History and Design, and Mr. James Morris, who conducted classes in all other subjects, including building construction. At the outbreak of the Great War the art students volunteered almost to a man for service overseas or in East and West Africa, and thus work became suspended.

In 1919 an attempt was made to revive the classes, and under the auspices of Mr. Groves, supported by the Cape Institute of Architects, a series of lectures were delivered by Messrs. Kendall and Delbridge, F. and A.R.I.B.A.

In August, 1921, Mr. H. J. Brownlee, A.R.I.B.A., arrived at Cape Town and took up the work of professional coach for the R.I.B.A. examinations. He

became closely associated with these classes, and it is mainly due to his enthusiasm and experience in this connection at Sydney, Australia, that the Cape School of Architecture was established in 1922.

Cape School of Architecture.

PATRON.

Major-General His Excellency The Earl of Athlone.

PRINCIPAL.

H. J. Brownlee, A.R.I.B.A.

HOUSE MASTER.

L. McConnell, A.R.I.B.A.

HONORARY LECTURERS.

W. A. Ritchie Fallon, A.R.I.B.A.; F. K. Kendall, F.R.I.B.A.; C. P. Walgate, A.R.I.B.A., A.R.C.A.; James Morris, Lic.R.I.B.A.; C. H. Smith, A.R.I.B.A.

The course of study is a diploma course, approved by the newly-formed Federal Council on Architectural Education and direct training for the R.I.B.A. examinations.

Each student entering the Cape School of Architecture is required to pass a preliminary test qualifying for entrance as Probationer R.I.B.A., and candidates are required to pass the matriculation examination or submit a certificate of exemption by the Joint Matriculation Board.

Future.—In the near future it is anticipated that Cape Town University will take over the school and incorporate it in the new Chair of Fine Arts recently established. Negotiations to this end are now progressing.

The Cape School of Architecture is strongly supported by the Cape Institute of Architects, which has organised a series of professional talks more particularly as instructive to the student members of the Institute.



Chemistry and Physics Block. University of the Witwatersrand.
North Front to Campus.

Durban.—Until this year there has been no definite course in architecture; previously, a class in the history of architecture, not restricted to architectural pupils, held at the Durban School of Art. The number of architectural pupils in Durban is small compared with Cape Town and Johannesburg, but with the rapid growth of the town there is every reason to presume that in a short time the numbers will be such that the classes will be filled with keen and enthusiastic students.

The Durban School of Art forms part of the Natal Technical College, and consequently comes under the University and Higher Education Act of the Union whereby it receives educational grants from the Government.

In the past the definite aim of the school has been to train students in design, craftwork, painting and modelling, but this year a definite course in architecture has been instituted.

The architectural course syllabus, as approved by the Federal Council on Architectural Education, is under the direction of Professor O. J. P. Oxley,

A.R.C.A., Principal of the School, and the architectural classes are in charge of a practising architect, who is a member of the Royal Institute of British Architects.

A special room has been equipped with casts and photographs connected with the study of architecture.

The Natal Institute of Architects have generously given financial aid towards the equipment.

The College Council has expended a great deal of money in the establishment and encouragement of the craft of pottery from local clays. The climate of South Africa is very suitable for the introduction of coloured faience in architecture. In countries of bright sunshine this form of decoration has been used to great advantage and with considerable success in South Africa. It is hoped, therefore, that this branch of art craftsmanship will be developed and encouraged.

The School of Art being connected with the University of South Africa, has a degree course in design, painting and sculpture. The history of architecture is taken as part of the degree course B.A. (Fine Arts).

ARCHITECTURAL EDUCATION IN JOHANNESBURG.

Historical Sketch.

The history of architectural education in Johannesburg can be traced back to the year 1905.

In 1904 the Transvaal Technical Institute was established, and in the following year classes in architectural history and design and building construction were commenced by Mr. H. Seon Morris, ably supported by the practising architects of the town.

Adequate facilities were lacking, and many of the students proceeded to Europe to complete their studies.

The classes, however, continued, and in 1909 the Architects' Registration Act (Transvaal) came into force.

In 1910 the registered body, the Association of Transvaal Architects, made arrangements with the South African School of Mines and Technology (successors to the Technical Institute) to establish a course in architecture, enabling students to qualify for registration as architects in the Transvaal. This was ably carried on by Messrs. R. Howden, A.R.V.I.A., F.S. Arc., E. H. Waugh, A.R.I.B.A., S. C. Dowsett, M.S.A., and later by Messrs. A. J. Marshall, Lic. R.I.B.A., Gordon Leith, M.C., A.R.I.B.A., and M. J. Heir, Lic. R.I.B.A.

The course embraced architectural history and design, building construction, sanitation, professional practice, etc.

During the War the attendance diminished, and the course was suspended. A revival was made in 1919 by Messrs. Gordon Ellis, A.R.I.B.A., and H. W. Spicer, who succeeded in carrying on for a considerable period.

In 1921 the University College, Johannesburg, with the assistance of the Association of Transvaal Architects, established a Chair of Architecture and instituted a course for a degree of Bachelor of Architecture. Mr. G. E. Pearse, A.R.I.B.A., was appointed the first Professor.

The degree course commenced in 1922 with three students increasing to seven in 1923 and eight in 1924.

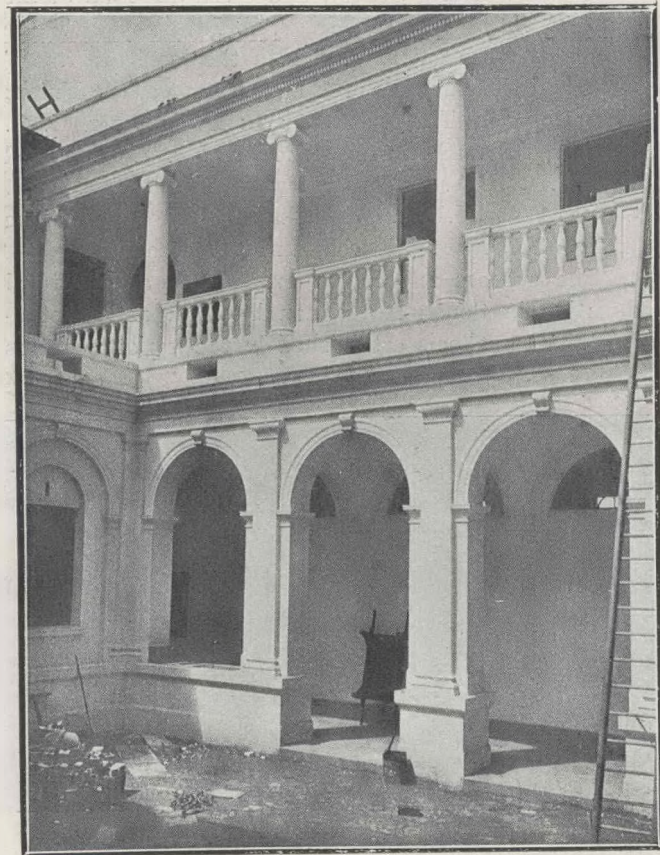
The course arranged for pupils in architects' offices was continued and amplified with a view to providing a diploma in architecture.

At the beginning of 1924 the University of the Witwatersrand, which had grown out of the Institutions mentioned, instituted a diploma course for part-time students who were pupils or assistants in architects' offices.

This course has been accepted by the Association of Transvaal Architects for registration. The courses are under the Department of Architecture at the

University, and Professor Pearse is ably assisted, in the degree course, by Mr. Gordon Leith, M.C., A.R.I.B.A., in history and design and in the diploma course by Messrs. F. Williamson, A.R.I.B.A., H. W. Spicer, Silver Medallist in Construction and Design, and Mr. M. J. Heir, Lic. R.I.B.A., with Mr. H. G. Tomkyns as Junior Assistant in Construction.

The more technical side of the course is conducted by the Departments of Mathematics and Civil Engineering in the University.



East Cortile. Chemistry and Physics Block.
University of the Witwatersrand.

Both the degree and diploma courses extend over five years, and are based on the courses laid down by the Royal Institute of British Architects and its recognised schools of architecture.

The number of students attending the architectural classes at the commencement of 1924 was 29.

The architectural classes at the University of the Witwatersrand are at present held in temporary buildings adjoining the School of Mines and Technology, and will be transferred to the new eastern block of the three main University buildings now in course of erection at Milner Park, Johannesburg.

The accompanying photographs illustrate the new University buildings. No. 1, architect's perspective, three main buildings, with administrative block, assembly hall, etc, in centre, with dome; No. 2, eastern block (chemistry and physics now practically completed and occupied); No. 3, a cortile in same. The western block now in course of erection is to be a replica of eastern block and will house the Faculty of Engineering and Architecture.

Pretoria.—Architectural classes, the syllabus which is similar to the Durban School, are held at the Government Trades School, under the direction of the Principal of the School, Mr. C. J. Reindorp. These classes are attended by pupils in the local architects' offices and the Public Works Department of the Union, numbering 14. The lecturers are: Design, Mr. C. C. Deuchar, A.R.I.B.A.; Construction, Mr. J. Lockwood Hall, F.R.I.B.A.; and History of Architecture, Mr. A. Pease, A.R.I.B.A. The local architects visit the classes at frequent intervals during the session.

The success and future progress of architectural education in South Africa can be confidently anticipated. The schools established in the various centres

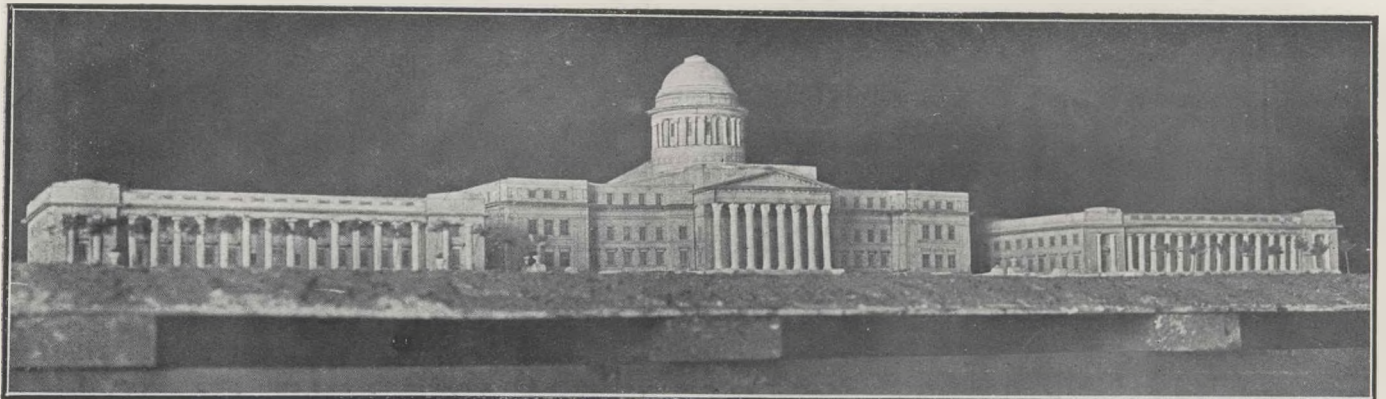
of the Union are each represented on the newly-formed Federal Council on Architectural Education, which controls and approves their respective syllabuses and policy. The constitution and minutes of proceedings of this Council have been submitted to and approved by the Royal Institute of British Architects, who are represented thereon by the Corresponding Secretary for South Africa.

The new Architectural School of the Witwatersrand University will be accommodated in the Western Block of the Main University Buildings now in course of erection at Milner Park, Johannesburg.

The illustrations shew the main buildings as they will appear from the Town side, and the Northern facades to the campus.

The Eastern Block (Chemistry and Physics) as the illustration shews is now completed and in occupation. The Western Block externally will be a replica of the Eastern Block and will contain the faculties of Architecture and Engineering. A further illustration of one of the Cortiles shews the internal detail treatment of these Blocks.

THE EDITOR.



The University of the Witwatersrand, Johannesburg.
North Front to Campus.

The practice in Johannesburg lately in regard to the loading on our soft red "daaga" soil appears to be undergoing some cautious revisions. Years ago even 2 tons (including live load) was regarded as within the limits, but more experience induced lower loads to $1\frac{1}{2}$ tons per sq. ft. The latest cautious line taken with this very peculiar earth is in the neighbourhood of 1 ton (for total load) or even a trifle less. A feature of daaga is that it will go back into an excavation in smaller volume than its virgin state. This indicates compressibility not associated generally with earths in other parts and dictates a cautious policy in loading. One building put up years ago is reported to have sunk evenly 6 inches without a

crack. An even settlement is desirable, but no settlement at all, still more so, especially when the settling building "settles" those on either side of it, probably by withdrawing support from under their foundations. "Daaga" is an essentially South African soil both in colour and appearance and texture. To most it gives the idea of being neither clay nor loam but a little of each and yet unlike both. It has a nasty habit of falling in and smothering people when they least expect it and as it will receive most of us when we are finished our mortal course it deserves a good deal of respect. The old couplet may have to be revised for some of us "lie heavy on him, daaga, for he laid many a weight on thee."

ART EDUCATION.

A paper read by Mr. F. L. H. Fleming, (Past President), before members at the Quarterly Meeting held in the Associated Scientific and Technical Societies' Premises, Johannesburg.

For subject I have chosen Art Education as going to the root of things. It will be my endeavour very briefly to define the outlines as I see them of Art as effecting human life and to appraise the present position with a view to inducing thought and discussion, and possibly an expression of opinion as to whether it is to be regarded as satisfying, and, if not, whether practical steps can be taken for improvement.

Looking backward, we see a humanity endowed in steadily increasing measure with knowledge.

Whether the Divine purpose may be thus with infinite graduation to reveal in minute degrees the eternal principles to humanity, two things appear fairly constantly. The most obvious result of perception or knowledge of the universal mechanism is its application to the protection and extension of human life. Even though the form of application be partly or mostly destructive as in warlike weapons, poisonous processes, hazardous and unhealthy enterprises, yet the motive remains, the protection and extension of human life. The motive may quite local, tribal, and even personal; it is indeed accepted for the moment, as a rule, subject to a few primitive humane and natural laws, that man is fair game to man, and that things organic and inorganic are at his disposal to use or abuse as he pleases. Around these few thoughts could be written I think most of human material development.

The second revelation is psychic: the perception is of beauty: and is expressed in religion philosophy philanthropy imaginative works, poetry, music, art in which human satisfaction is relatively subtle and elusive.

It is impossible to say that the application by humanity of this perception has been steadily progressive; it seems fairly clear that whatever may have been the relative degree of perception of beauty at certain well-known periods of history, the relative power of expression has differed very widely; and it is not possible to contemplate the evidence of Vision, remote one from another in space and time and medium, yet all obviously produced by one stimulus, without feeling that here is something that is not mechanical, not transmittable, not dependent upon knowledge. Yet it is evident that the stimulus has at times and places been more powerful than the instinct for the well-being and extension of human life.

Next to Nature the wonderful material things are still the Tombs, the Temples and the Churches, the architectural qualities, the proportions and the detail, the poems, the music, the literature, the paintings, the sculptures, the carvings and the crafts. Why were these gratuitous things done? It is impossible to think of them as a kind of overflow or froth on the top of the full measure of human safety and material satisfaction. They were the works of imaginative beings profoundly moved by the perception of the Spirit of Beauty.

The material outlook and the main obsession to-day at what had been thought to be a high point of civilization is still the protection and extension of human life; the late war the Russian cataclysm, the European chaos, unemployment, party government are all paradoxically consistent with the motive: that is with the local, tribal, individual motive.

The position of Art is in the circumstances necessarily secondary. I do not think that anyone will deny that in an environment to-day Art is secondary, or that the whole range of expression of the perception of Beauty is secondary.

What of the future? It lies in the lap of the Gods. But a few questions present themselves.

Is the perception of Beauty distributed among humanity upon a principle not understood?

Has it any near or remote relationship with conduct of life, meditation, prayer?

Is it worth while, the labours, the sacrifices, the rebuffs, the disappointments, the indifference, the exploitation, the cant, the failure?

Is there any benefit to be derived from the theorist, the critic, the crank, the historian, the lecturer, the idealist, the great expressionists and the thinkers, the giants who work and the giants who talk?

I think that we shall have to make up our own minds without waiting for the expert or the authority.

In our immediate application—Is Art Education possible? My personal view is that it is possible. And that out of the welter of thought suggested by the few questions I have raised there can be evolved something constructive.

What are our Ideals? What are we doing in the endeavour to attain them? What more can be done?

By some it is said that the natural spirit of appreciation exists strongly and widely among the children and people of this Country and that a steadily sustained effort should be begun and maintained to foster that spirit.

Who is to begin and maintain that effort?

The Education Authorities when appealed to have shown sympathy: and there are hopeful signs of a movement of some promise in the Questionnaire just issued by the Joint Matriculation Board. The broader outlook evidenced by the circular referred to is most encouraging. It is at least a beginning.

It is said that one difficulty is the lack of teachers trained and competent and of the necessary sympathies to undertake the work of teaching about Art. It seems to be neither just nor useful to base upon this, if true, any reflection upon the teachers in general, who are trained and competent for the work hitherto required of them. I believe there will be found among the teachers, present and future, who have their work at heart, a keen desire to be able and permitted to teach about Art, when once the true and simple relationship between Art and life is fully realized. In the first stage there may be difficulty in obtaining exactly the personality required to direct the work of training teachers (for that appears to be the first step); and upon this selection an immense deal depends.

Others there are who say we must have more stimulus by works of Art, and similar sources of inspiration brought to our midst. For these are instanced Museums, travelling collections, exhibitions, permanent treasures, direct contact in an intelligible and appreciable form with the art of the past and present. Some look to Government, to Municipality, to the wealthy to provide these things. It is perhaps desirable to get a few points in this respect clearly in mind. A few bold statements will be thrown out to assist discussion:—

- (1) The exhibit or collection whatever it may be need not be large nor a great undertaking.
- (2) There is a vast store of material in England redundant or otherwise available for the purpose, and I believe those controlling these materials *e.g.* the British Government and others would be very willing to make these available.
- (3) The Exhibit must be made easy of access at the Centre of the town. To this great importance is attached. At the Palladium Theatre, Bishop Carey during his recent mission was heard by many hundreds during a few minutes snatched from the luncheon hour; at the Town Hall Mr. Connell obtained like results at Organ Recitals. In London a movement is on foot to preserve the threatened City Churches by diverting their use to "providing intellectual opportunities and particularly in the direction of instrumental music and literature for the vast crowds who daily pass their doors." The view is that busy

town life is a daily alternation of suburb and office, office and suburb; and no intermediate stay will be made. In vain is the Art Gallery placed in Joubert Park—whatever may be said about the possibilities of widening the use of the Gallery and attracting the public in greater numbers—the fact that the Gallery is neither here nor there remains its greatest disability.

- (4) The Government, the Municipality, the wealthy will only help when it is clear that the people earnestly desire amenity. I do not say that in any circumstances will such help be easily obtained. But the first *sine qua non* is convincing evidence of appreciation. Once this is clearly demonstrated, I have no fear about help. The experience elsewhere is that given the sincere effort and intention the help is forthcoming in surprising measure and from quite unexpected directions. To cry out for help with no evidence of intention to help on one's own part is to ignored.
- (5) It is conceivable that a Society might be formed with a view to presenting somewhere very centrally in the City a regular series of interests, in the first place for the lunch-hour people. At times music, at others a brief lecture, then a few—very few, good pictures, a lantern exhibit of a few master pieces, a small collection from British Museums, a reading aloud, photo exhibitions, some local crafts, a collection of Native's work, a little flower show, a sermon—Could it not be done? Is it not conceivable that Municipality would help; given the evidences of earnest intention?

I have said nothing about what might be other interests and activities of our Art Society; the Art School; art rooms in Schools; Street Architecture; Street advertising; the amenity of the Streets; the clothing of the Kaffir; order tidyness; tree planting; the acquisition and protection of beauty spots in Towns; Statues; Gardens and Fountains; Music breaking out surprisingly and with unmatched beauty, here and there, now and then; it is Labour's Right to Pleasure that we seek as labourers in a vineyard that has all the grace and order of Heaven, if we will but make it so.

But the concluding note that I would strike is not the heroic or the visionary; it is that of the individual, concerned to do the best with faculties and means however mediocre, humbly seeking the meaning of life; and living it.

HERE AND THERE.

Concrete road making is filling a large place to-day in the journals of the various constructive professions. The Pittsburg (California) tests on an oval track $\frac{1}{4}$ mile long and 18 feet wide laid with plain and re-inforced concrete in 13 sections or trial lengths, have produced some striking results. By continuous operations of a motor truck and a trailer 7,250,000 tons of road load were imposed equal at a rate of 1,000 trucks of traffic per day to 12 years traffic.

It was observed that the nature of the wheels may be much more destructive than the quantity of traffic. Ordinary pneumatic tyred touring cars have no effect on a concrete pavement.

* * * * *

Strangely, all the re-inforced sections of road gave the poorest results and the plain concrete (not re-inforced) gave the best. The percentage of failure was based on the cost of repairs resulting from the traffic. Where repairs cost as much or more than the original cost of laying, it was classed as 100 per cent. failure; thus a section costing 26,207 dollars on which repairs ran to 26,584 is classed as 100 per cent. failure. Of 9 re-inforced slabs, 4 were 100 per cent., one 53 per cent. and the other 4, 16.5 per cent. failures. The four concrete slabs *without* re-inforcing only gave 2.7 per cent failure. The only case for re-inforcing is where the soil bottom is bad. A wire mesh 2 inches from the top tends to prevent surface cracks, but in remote countries like this the extra interest and redemption costs of this steel will more than eat up the maintenance saved. The corners of slabs tend to turn up during the cool or cold hours of the day and to break the edges of the next slabs. It was found that the crown of a 7 inch slab rose 0.07 inches over an 18 feet width. These facts are of importance to architects in laying large surfaces of concrete exposed to external atmospheric temperatures.

* * * * *

Close attention is drawn to proportioning of concrete aggregates which throw the usual volumetric system adopted here into the shade of very adverse criticism. The *size* of the sand is demonstrated to be a prime factor. The *smaller* the sand the more the cement required for equal strength owing to larger total surface of sand particles per volume. Two cases will show this (1) Sand screen openings up to 28 per inch, give 0.37 cubic yards of sand and take 0.3 cubic yards of cement. (2) Sand Screen openings up to $\frac{3}{8}$ inch give 0.59 cubic yards of sand, and take only 0.22 cubic yards of cement. So it will be seen

that it is easy to save half a barrel of cement in a cubic yard of concrete. The mixtures in the above cases are as follows: in (1) 1 : 1.3 : 2.4 and in (2) 1 : 2.7 : 3.3 viz. cement, sand and coarse aggregate. Same compression strength in each case.

* * * * *

A further point brought out is that in each kind of sand the amount of water necessary should be studied. The less water used to produce plasticity the greater the strength of the concrete. Faber suggests the following rule—weight of water=28 per cent. by weight of cement+4 per cent. by weight of aggregates (fine and coarse, sand and stone). The "inundation" method of trying the sand is being investigated, that is, the water is first put in a vessel and partly fills it. Then the sand is added till the water is up to the top when the exact amount of voids in the sand can be ascertained by the water absorbed. This method is better than the old style as the sand, before the test, may possess moisture of a considerable amount even to 50 per cent. For large works, these tests should be applied as saving possible much expense and getting a more evenly strong concrete. In short, rule of thumb methods with concrete are right out of date and should be scrapped.

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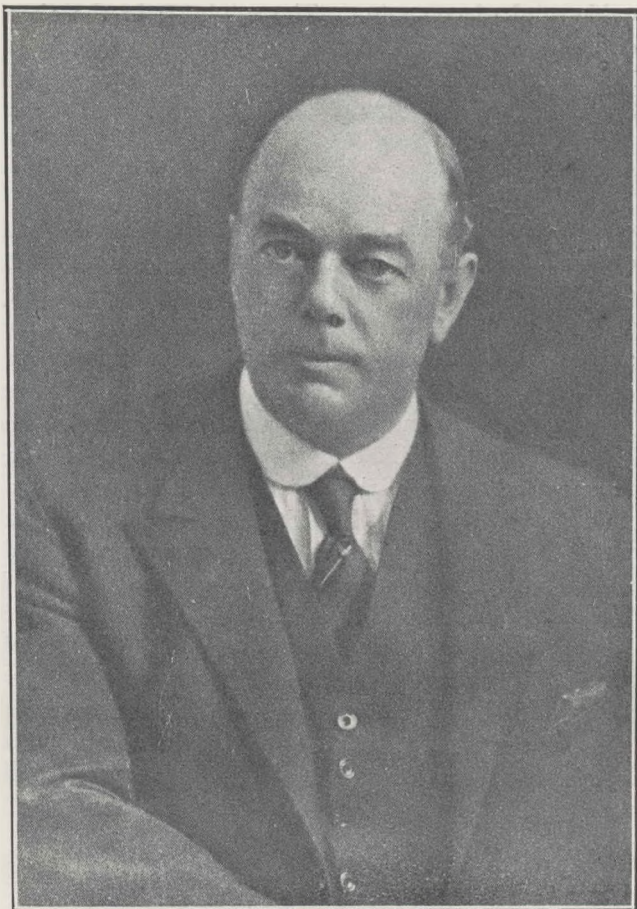
The Panama Canal cost the U.S.A. £114,000,000 and is now not only paying all expenses but giving £20,000 a month profit which is growing monthly as the number of vessels passing through increases. Last year nearly 4,000 vessels passed paying an average of nearly £1,000 each in tolls.

* * * * *

It is pathetic to record that Joseph Tall, who took out the first patent for re-inforcing concrete nearly 60 years ago and rose to fame, is now drawing the old age pension. *Sic transit gloria mundi.*

* * * * *

The *Australian Engineer's* records that the Government of New South Wales has accepted the price of Dorman, Long & Co., for the construction of the vast North Shore bridge at a cost of £4,217,721 11s. 10d. The great masonry towers in the selected design are designed by Sir John Burnet and Partners, Architects of London. With resumptions and other expenses the total cost will be in the neighbourhood of £6,000,000. The deflection is expected to be not more than 4 inches under live load on a span of 1,600 feet.



Mr. F. D. Hickman.

Mr. Frank Davis Hickman, the newly elected President of the South African Institute of Quantity Surveyors was born in London in 1882. Following his education in the City Mr. Hickman received his early training in the offices of Messrs. Wm. Shurmen & Sons and Alexander Kender. In the latter office was the late Mr. H. A. Adams, P.W.D. and this early association resulted in a life-long friendship.

Mr. Hickman first came to South Africa with the City Imperial Volunteers during the Boer War, afterwards returning to London to enter the office of Mr. T. M. Rickman.

After passing the City and Guilds Examination for Quantities in 1904, by obtaining first place and becoming the Silver medalist of that year, and subsequently passing the Examination for Associateship of the Surveyors Institute, London, in 1905, Mr. Hickman commenced practice in London and there continued until 1910, when he again came to South Africa to join the staff of the Public Works Department.

This was followed by an engagement as Quantity Surveyor for the Union Buildings, Pretoria, and the Town Hall, Johannesburg, and in 1915 he commenced practice in Johannesburg in partnership with the late Francis Black.

Mr. Hickman early joined the S. A. Institute of Quantity Surveyors and was elected a member of Council in 1911.

OBITUARY.

Herbert James Elliott.

Many Natalians, particularly those who follow architecture, quantity surveying and building, will feel the passing, in the prime of life, of this member of an old family of settlers. Born 39 years ago in England, Mr. Elliott came to Natal with his parents when only a child, and practically all his interests have been with us since. A man of sterling quality and active brain, he rose high in his profession, gaining in England a first-class diploma in lectureship on building construction, and ably acquitted himself in all its branches in business life here. His high ability was well known amongst the officers of the Public Works Department, Pretoria, and he was a valued member of the staff of Messrs. Hunt, Leuchars & Hepburn, of Durban, until the ill-health that harassed him for a couple of years, compelled him to relinquish temporarily that post in order to gain the benefit of the bracing altitudes of the Transvaal. Notwithstanding all the skill and attention ably given, a return to Maritzburg was found preferable, and the municipal service there availed themselves of his wide experience in building surveying. Active of brain, ambitious and optimistic to the last, his bodily ill-health failed him, and he passed away peacefully at his brother-in-law's farm, "Carlton," at Greytown, on the 27th ultimo. He was a Freemason. Knowing my professional colleague as I do, I am sure the unanimous feeling is being voiced when it is stated that the loss of an upright and highly qualified gentleman is deplored and his shortness of life is regrettable, and much sympathy is felt for Mrs. Elliott and the son in their great loss. A large number of friends followed to his last resting place in Maritzburg, and numerous floral tributes were laid on the grave, thus bearing testimony to the respect in which he was held.

Q.S.



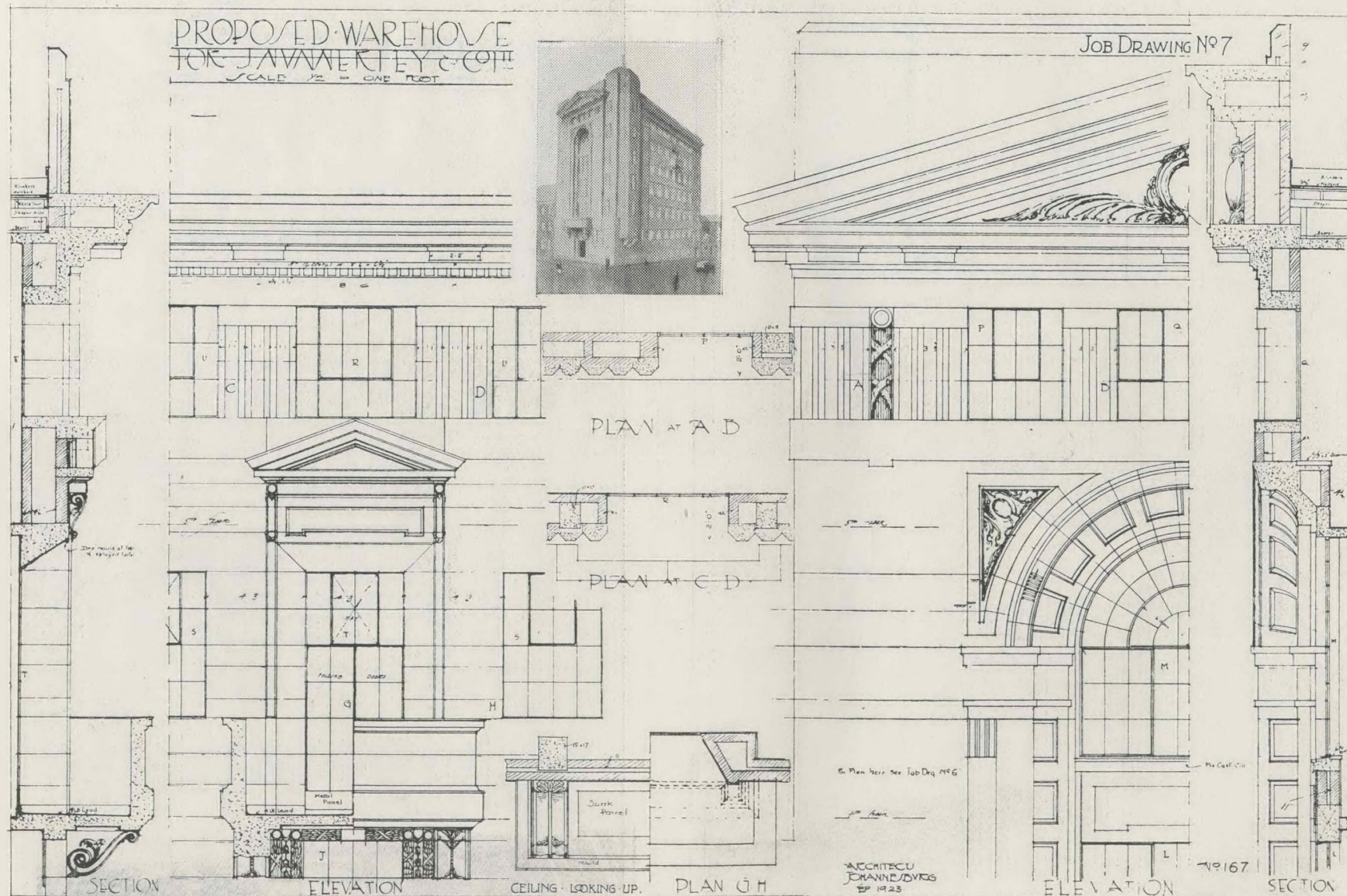
Breakfast Room.



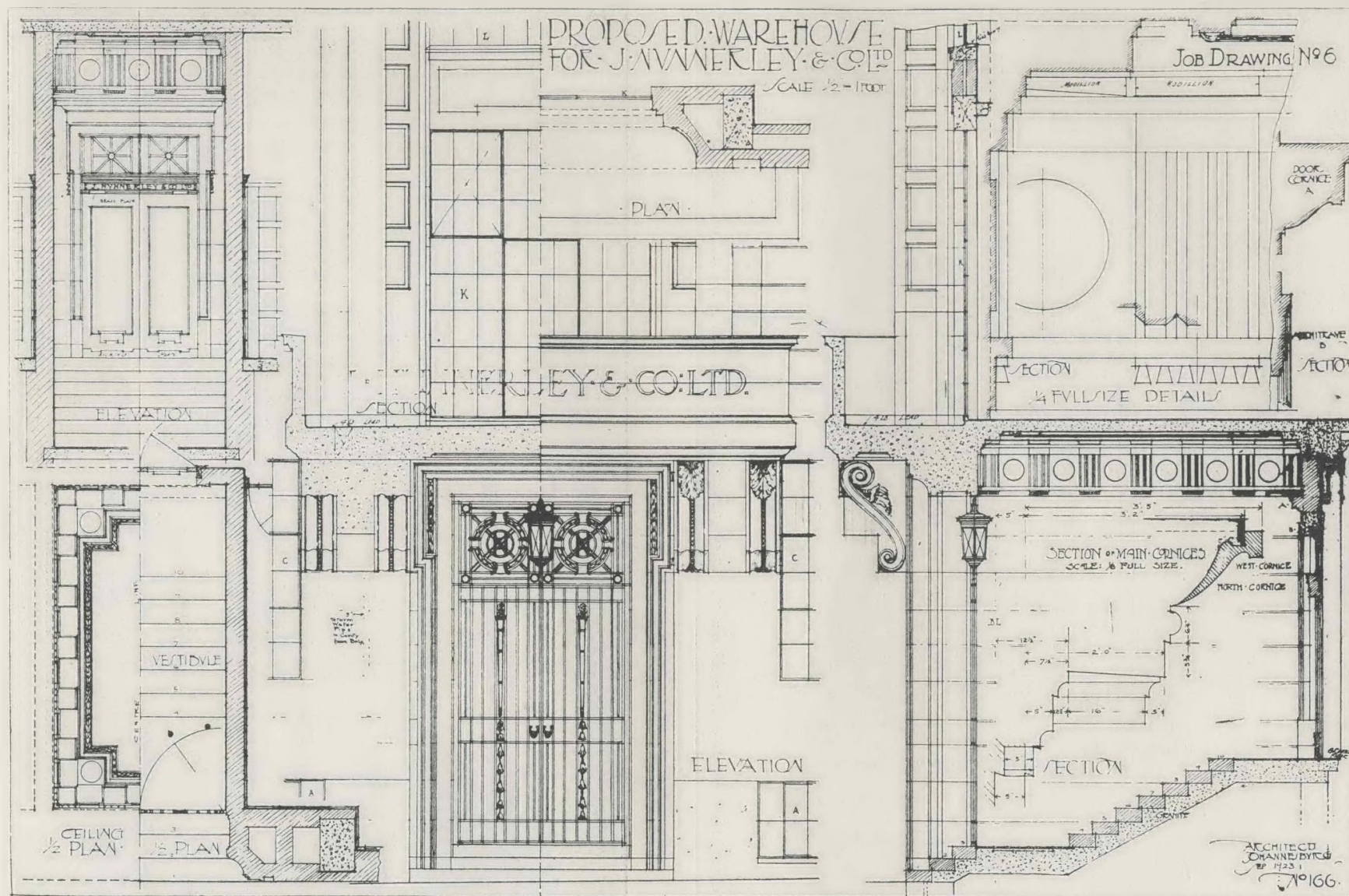
Palm Court.

Interiors of Mr. I. W. Schlesinger's Flat, Killarney, Johannesburg.

J. A. Moffat, F.S.Arc., Architect.



DETAILS OF A WAREHOUSE.—Messrs. Stucke & Harrison, Architects,



DETAILS OF A WAREHOUSE.—Messrs. Stucke & Harrison, Architects.



Nursery.



Dining Room.

Interiors of Mr. I. W. Schlesinger's Flat, Killarney, Johannesburg.

J. A. Moffat, F.S.Arc., Architect.

HIGHER BUILDING IN RELATION TO TOWN PLANNING.

By RAYMOND UNWIN.

[Read before the Royal Institute of British Architects.]

CONTINUED FROM MARCH ISSUE.

The difficulty of dealing with the foot passengers is no less than that of the road traffic. It is estimated that the subways could deal, as a maximum, with 60,000 people per hour, if they could get that number to the trains. But we have already seen that the 14,000 people from the Woolworth Building would themselves occupy over a mile and a quarter of one of New York's main footways, and it would take them half an hour to enter the station. The congestion at the entrances to the tube stations under these circumstances can hardly be surprising, but this is not the worst. The condition has been reached when it is doubtful whether any relief can be secured by constructing new tube railways. Even with the present limits of height allowed under the recent zoning laws, I was informed by the engineer in charge of these railways, and the figures we have looked at confirm this, that buildings may and probably would be erected on two or three blocks adjacent to any new tube station, the population of which would fill the railway for the best part of an hour at the busiest time of the day. The total congestion, in fact, might easily be increased instead of being relieved by the new facilities. The advocates of higher buildings seem to take the view that it is the business of the public authorities who are responsible for the streets to find accommodation for any amount of traffic which their buildings may originate. Some of them, it is true, suggest that the owners might agree to a strictly moderate set-back of their building for every increased storey in height. What general benefit this would afford beyond a little local relief in front of the building itself is not very clear, particularly in view of the length of footway, far exceeding the length of the building, which we have seen is required to provide bare standing space for the occupants of the high buildings. Many times even that length must be congested by those occupants before the volume of traffic is dissipated. But it will be well to prove the futility of such suggestions by showing what extra space would actually be involved. For this purpose I cannot do better than take the conditions in the central area of Chicago, which is locally known as the Loop because it is roughly contained within the loop lines of the overhead railways. Full particulars

are available in regard to this area, and being regularly planned on the chequer-board system it is easy to reduce conditions to diagrammatic form. This area is one of the most congested in the world; although many of the buildings—those coloured red on the plan—exceed twelve, and some of them—coloured blue—exceed seventeen storeys in height, there are no skyscrapers rivalling the Woolworth and the Equitable of New York; the average height for the whole area has been estimated as equal to seven storeys.

I have had some recent experience of the conditions of traffic in this district, and there can be no question that the streets, although they represent about 40 per cent. of the total area of the ground, are quite inadequate to carry the present traffic with reasonable despatch, let alone comfort. I am satisfied that they would be taxed to the limit of comfortable conditions if the average were five storeys instead of seven. Neglecting the cumulative increase in traffic which universal experience shows to arise from increased population, and assuming that full value is obtained by increasing the area of roads *pro rata* with the increase of the density of population, I have calculated the roads that would be required to give the same relative accommodation if the average height of the buildings were increased from the assumed five to ten and to twenty storeys. In the first instance, keeping the average size of the building block the same, I find that for ten-storey buildings to give the same ratio of street area to net floor accommodation as at present, the widths of the road would have to be increased from their present average of 86 feet to an average of 144 feet; and if the storeys were increased to twenty, the width of the streets would require to be 241 feet. Diagram 5 shows a few of these blocks to illustrate this point. If the increased intensity of traffic were assumed to balance the loss of floor space, and its volume were taken to expand *pro rata* with the increased number of floors, which is probably nearer to the actual truth, a still greater increase of road areas would be required (see Diagram 6). It will be noticed that if such an expansion of road space had to be applied to the whole Loop area, in order to accommodate traffic resulting from the increased height of buildings, it would be necessary to pull down a considerable part of the town surrounding this area to provide the additional land required. It is obvious, however, that any such increase in the width of the roads, even on the more modest scale first shown, would be impracticable, and that if it were attempted the traffic would not in fact be relieved to a degree anything approaching the extent of the increase. The delay at every crossing for vehicles, and still more for foot passengers, owing to

BUILDING BLOCKS OF THE SAME AVERAGE SIZE AS THOSE IN THE LOOP CHICAGO.

DIAGRAM SHOWING ROAD SPACE REQUIRED TO GIVE EQUAL ACCOMMODATION
IN PROPORTION TO FLOOR AREA
BUILDING BLOCK REMAINING THE SAME SIZE

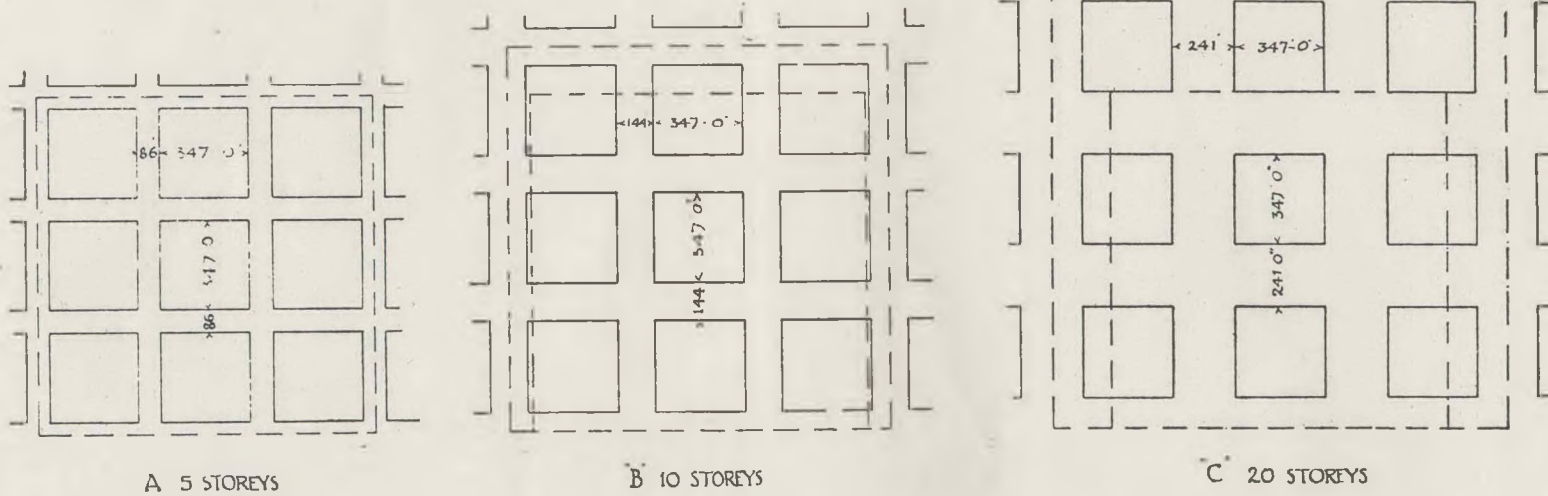


DIAGRAM 5

DIAGRAM SHOWING ROAD SPACE REQUIRED TO GIVE EQUAL ACCOMMODATION
IN PROPORTION TO THE NUMBER OF STOREYS
BUILDING BLOCK REMAINING THE SAME SIZE

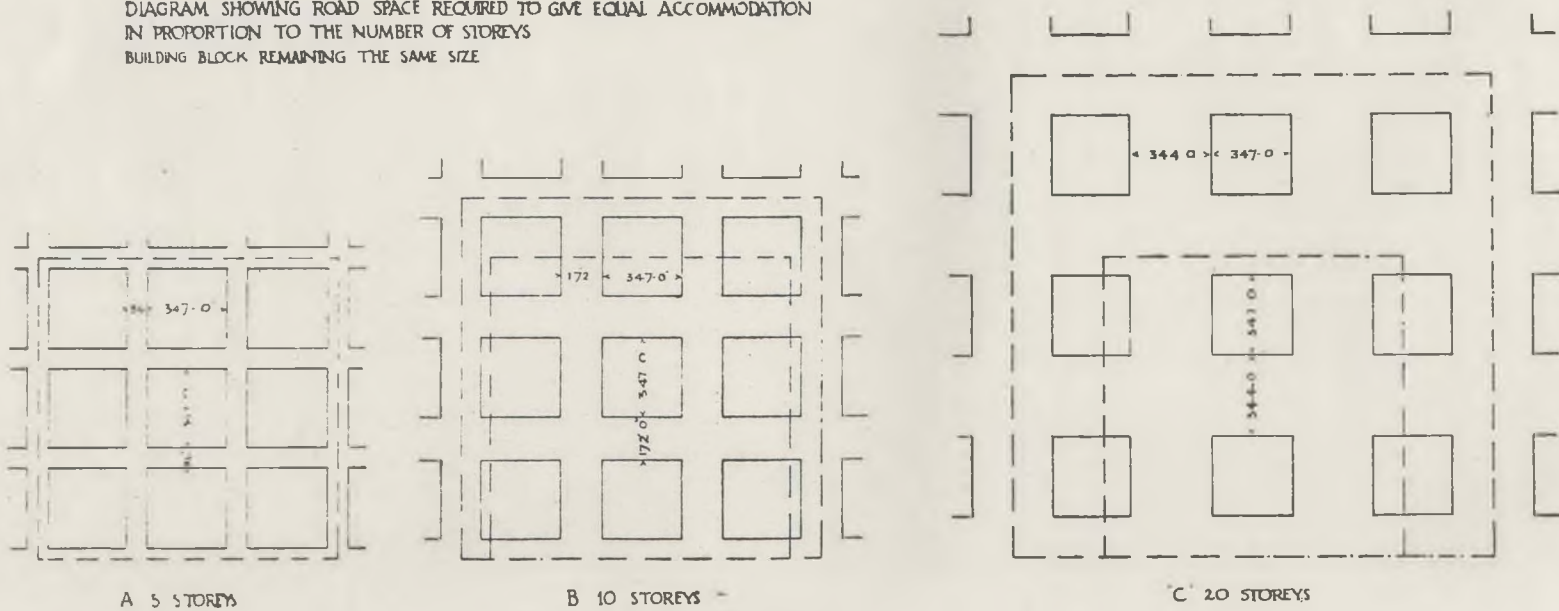


DIAGRAM 6.

the increased width of the streets, would be very great. This is already noticeable to an Englishman in New York, where most of the north and south avenues are 100 feet, and the cross streets 64 feet, wide. The time occupied in crossing these many streets, and the extra delay to traffic in consequence, is obviously a serious factor, as compared with the conditions in the City of London, for example.

But suppose, instead of keeping the building block the same size, we try to follow literally the suggestion of some of the advocates of high buildings in this country, and provide sufficient additional road space by means of a set-back, thus reducing the size of the building block. How, then, should we fare? This also has been tested, and is shown on Diagram 7. Taking the same bases of calculation as before, and assuming that the additional accommodation required is equal to the increase of the total available building area from five to ten storeys, I find, in order to provide the necessary set-back around one of the average blocks in the Loop, that the reduction in the size of the building to allow for extra width of road enough to maintain a constant relation between floor space and road area would just about represent the area provided in an additional five storeys; so that instead of increasing the building from five to ten storeys, the building would be required to be increased to fifteen storeys to provide the required accommodation. In other words, if the owner of the aspiring building is to provide adjacent only to his own frontage an addition to the existing road space *pro rata* to the increase of net available floor area, his loss of land will be so great that he will have to add double the number of floors that would have been required on his original area. Even then only the roads adjacent to the Building block would have been widened.

If the difficulty of accommodating the pedestrian and the moving traffic is great, the case of the standing motor car is even worse. Of the 60,000 motor cars which the present occupants of the Loop own among them, only 3,500 can find places where standing is permitted within the Loop area. If the whole of the road space were packed solid with cars, there would still be only standing room for 11,000 cars, or something like one-fifth of those owned. As a matter of fact, the car owners of the Loop area have appropriated the large open space between Michigan Avenue and the Lake, set aside for Grant Park, and it is no uncommon thing to see 25,000 motor cars, or more than twice the number that would fill the streets of the Loop, parked at one time on this gigantic motor garage. Indeed, the promoters of the great town-planning scheme designed by Daniel Burnham, of which this park is a conspicuous feature, are not free

from anxiety as to how they are to recover this area from the motor owners to lay it out and plant it.

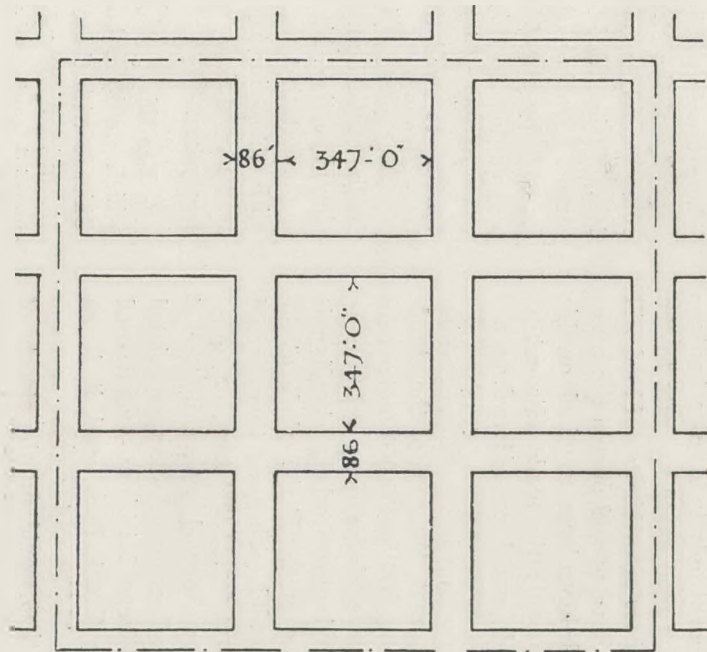
Owing to the fact that the motor car is mainly used in America by people who do not employ a chauffeur, the question of parking the cars already presents an unsolved problem. The difficulty is felt especially in the more congested areas, where it has had to be solved by forbidding cars to stand for more than a few minutes, and then only in the less frequented streets, which means that the majority of car owners can no longer use them for going to and from their work. Even in small cities, however, it is becoming a serious problem; and plans of city improvements now indicate not only the lines of traffic provided for, but also the amount of space left over for parking cars against the sidewalk. It is common in cities of quite moderate size to have to drive round several blocks, or along several streets, before a space can be found in which to park the car. Anybody going from business to his club to lunch may frequently find that in walking to the car and back again, and walking from the nearest parking space to the club and back again, he has travelled a greater distance than if he had walked in the first instance from his business to the club!

Without pursuing this matter further, enough has, I hope, been said to prove the main contention which I put forward—that increase in height of buildings necessarily involves augmented street traffic; that where the traffic has already reached the comfortable capacity of the streets, any further increase in height must cause or increase congestion, with consequent loss of time and efficiency for all the users of the street. Further, that this increase cannot in practice be met by street widening, because the utmost that can be done in this direction can barely cope with the other causes which in all growing modern towns are tending to swell the volume of street traffic.

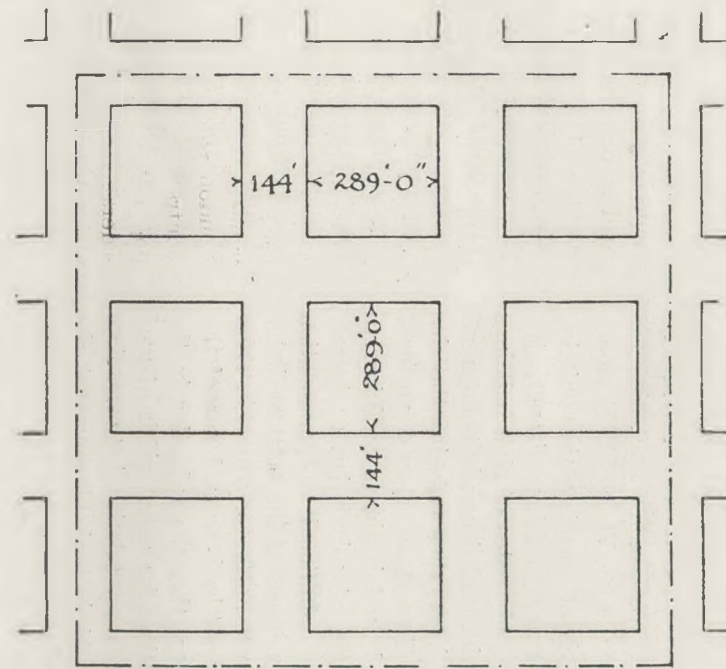
Increased height, therefore, means increased traffic congestion. It is urgent that we in London should realise this while there is yet time, and most important that we should compare our circumstances with those in America, where we may observe the traffic conditions which are likely to arise here in a few years.

For this purpose we may compare the conditions which we have been examining in the Loop area at Chicago with those in the City of London. The areas are in many ways comparable; each is the main commercial centre of a great city; the City of London, which has an area of about a square mile, is the heart of a town and urbanised region the total population of which approaches nine millions; the Loop area in Chicago, about one-third of a square mile, is equally the

DIAGRAM SHOWING WITH SAME ROAD SYSTEM THE WIDENING OF ROAD
& CONSEQUENT REDUCTION OF BUILDING BLOCK TO GIVE SAME
ROAD ACCOMMODATION IN PROPORTION TO FLOOR AREA.



5 STOREYS.



15 STOREYS SAME FLOOR AREA AS
10 STOREYS IN ORIGINAL PLOT

DIAGRAM 7.

centre of a total population well over three millions; both areas are served by numerous railways, street cars, etc., and contain a large number of official and commercial buildings, retail stores, and warehouses; one is bounded on the south side by the River Thames, the other on the east side by Lake Michigan. The City of London contains about 638 acres, the Loop in Chicago only about 212 acres; the day population of the City of London is about 416,000, or 614 persons to the acre; the day population of the Loop is about 600,000, or 2,830 persons to the acre; in Chicago the total streets represent about 40 per cent. of the area; in London, including private back streets, only about 28 per cent.; in Chicago few of the streets are less than 46 feet wide, some of them are over 100 feet, and the average width is 86 feet; in the City of London the average width of the streets, including some which are footways only, is about 28 feet. In spite of the relatively liberal provision of sidewalks on these wide streets in Chicago, it is quite common at busy times to see the foot passengers swarming off the footway until they occupy the whole of the street area from side to side, and completely stop for the time being all vehicular traffic. At other times, the queues of vehicles waiting to pass some of the important crossings accumulate to such an extent that the rearmost vehicles in the queue may have to wait three times before they are able to pass one of these crossings. In other words, the queue becomes more than twice as long as can be allowed to pass during the few minutes' interval that it is practicable to hold up the opposite stream of traffic.

These conditions have arisen from the intensive use of a limited number of tall buildings from ten to twenty storeys high, sufficient only to raise the average height over the whole area available for building to seven storeys. If the land in the City of London should ever be used to the same degree of intensity, and sufficient high buildings were allowed to give an average of seven storeys as in the Loop, I estimate that the day population would be 1,845,000, instead of the present 416,150. In that case the narrow streets of the City would have to carry four or five times the present volume of traffic, which is already far in excess of their comfortable capacity. We must realise that if not one single storey is added to any building in the City of London, the increased use of the private motor car and other causes will increase the traffic in the area to a very serious extent.

Unfortunately, I have come across no evidence that the increasing use of the private motor car causes a diminution in the patronage of public means of conveyance. On the contrary, experience shows that this demand for public transportation facilities is still rapidly growing. The increasing extent to which the

streets of London are now being occupied by the motor omnibus must be apparent to everybody, and the lengthening queues of these 'buses which accumulate on important road crossings already present a formidable appearance. It is clear, therefore, that, quite apart from any increase in the height or volume of buildings within the central area of London, we are likely to have to face a steadily increasing volume of private and public transportation on the streets. It will tax all our powers to provide adequate road space to deal with this traffic, without permitting any increase in the height of buildings, with the consequent further congestion of people and business in the centre.

The advocates of high buildings suggest that their policy would at any rate reduce the general traffic problem. I find no evidence to support this, and much that tends the other way. If the concentration of people in high business and residence buildings tended to reduce traffic, a comparison of the traffic conditions in New York with those in decentralised London should give some indication of this. On the contrary, the number of journeys per head of the population in New York exceeds 500 per annum, considerably more than in London, where last year they numbered 390.

It is true that Mr. Frank Pick, from whose recent Paper read at the London School of Economics I am quoting these and some of the following figures, estimated that the journeys per head this year will reach 414. This will indeed be a striking testimony to his genius for stimulating traffic by fascinating pictorial advertisements, aided a little perhaps by the abnormal shortage of houses, which obliges a larger proportion of the population than usual to live in the wrong place. But even that figure, if reached, is well below the New York number; and I have no doubt there are counterparts to Mr. Pick at work boosting up the number in that enterprising city also.

The amount of cross traffic in London is enormous; it is estimated that 60 per cent. of the whole population engaged in business or labour in the area live in one place and work in another; while for all purposes something like three million people converge on the central areas daily.

Last year I spent some time consulting with the committee who are preparing a new plan for Greater New York on this and similar problems, and was impressed by the fact that the multiplication of dwellings and of business premises, in the centre, due to high buildings, so far from relieving the strain upon traffic, tends considerably to increase that strain. Moreover, there was no evidence that any economy in the space covered by the town or the distances which had to be travelled, was secured as a result of the concentration

in high buildings; and certainly no reduction was apparent in the time occupied in travelling about the town or to outlying suburbs. This came somewhat as a surprise. Like most casual visitors, I had not realised how small a proportion of New York is represented by Manhattan Island, nor had I previously experienced the very long railway journeys necessary to reach some of the New York suburbs. If circles having a radius of 5 and 10 miles respectively are drawn on the maps of London and New York the result is somewhat surprising. Undoubtedly a considerable proportion of the area which falls within the circles as applied to New York is occupied by water; but on the other hand a very large area of the town falls outside the outer circle; whereas the bulk of the built up area of London is included within the inner circle; and most of the further suburbs, such as Ealing, Hendon, Woodford, Ilford, Woolwich, Bromley, with the larger part of Croydon, Merton and Richmond, fall well within the outer circle. Chicago also occupies a remarkably large area. The territory of the town itself extends for a length of 26 miles, with a width varying from 6 to 9 miles. Outside that area there are considerable suburbs, such as Evanston and Winnetka in the north, and the important industrial area known as Gary to the south-east. It is not easy altogether to explain the large areas covered. A much greater street width is provided in American cities, and this has a cumulative effect on the expansion of the town, as is apparent in Diagram 5. Moreover, owing to the fact that the area of a town varies not in proportion to the diameter but in proportion to the square of the diameter, a difference of density of dwellings, or of occupancy generally, has less effect on the distance travelled from the suburbs to the centre than would be expected (Diagram 8.)

These considerations go some way to explain why the more general use of high buildings leads to little, if any, reduction in the size of American towns. A consideration of our own habits will suggest why they lead to an increase rather than a reduction in the demand on traffic facilities. About 13,455 people who work in London are brought in every day from Southend, 35 miles out. Let us examine the relative transport facilities which these people require, as compared with those which they would need if they were added to the population adjacent to the central area by increasing the height of the buildings there situated. Instead of 13,000 odd people taking one journey to and from their work in the day, and an occasional extra journey connected with their business, is it not clear that if they were living in the centre, they and their families would be on and off the various means of transport all through the day; that the extra tradesmen with their delivery vans; the postmen, milkmen, doctors, and all the other people attending to their

daily wants, would enormously swell the volume of traffic in the central streets? Instead of 13,000 odd persons being carried twice or three times in a day, a population of four or five times that number would be utilising the streets and all the various means of public transport the whole day through. I venture to suggest that, contrary to the view of the advocates of high buildings, it is approximately true to say that in regard to a large town, the nearer people live to the centre, the greater is the demand which is made on the street and the various public transport conveniences, and the farther they live from the centre, the less is that demand. Anyone who will consider the ways of his own family and those who serve them, will confirm this.

The real transport difficulty in connection with the residents in Southend and similar places is of quite a different nature. It is not so much a question of congesting the traffic in the centre, as one of the cost of providing adequate transport facilities at the two busy times, when folk are going to or from their work in cases where the demand for transport during the remaining hours of the day falls far below the peak load. This problem is by no means insoluble. The chief difficulty springs from the capital cost of the permanent way, which may have to be spread over a short daily use of the line. Apart from this, the running of a full train from start to finish of the journey is more economical than the condition of most suburban traffic, in which the load begins to diminish at the first stop, and most of the trains have one-third or two-thirds of their seats empty for a considerable part of the journey. The rolling stock can easily be diverted to the lines where midday traffic is most intense. The capital cost of the permanent way itself would be immensely reduced if the routes were reserved in the regional town plan. Moreover, the means of transport are now so varied that one suitable to most kinds of load could be provided if there were effective co-operation between the town planning and the transport authorities; while the efficiency of the transport itself could be increased and the strain on the roads greatly reduced if all the various means now available were co-ordinated under one general direction.

The haphazard growth of our towns has encouraged haphazard thinking about them. The owner of a building site is naturally obsessed by the importance of securing the most intensive utilisation of it. When he has fully occupied existing buildings he will want to crowd it with others, and when these in turn are occupied he will seek to pile more storeys on the top. The town planner, surveying the territory as a whole, may take a very different view: he sees that it is often less costly to acquire a second site than to overcrowd the first; he realises that midst the scarcity of many

things there is no want of space, and that whatever the cause of congestion it is not due to lack of land.

Some truths seem too obvious to be readily credited; men are prone to try clever and complicated devices to attain the same end by a more devious route. Perhaps the nation is feeling specially poor, but, to produce more wealth or to waste less, seem too simple methods of enrichment to be popular. Oppressed as we are, too, with the miseries of overcrowding and housing shortage, how hesitatingly does the simple remedy of building plenty of good houses secure full recognition! Similarly, the towns being

To the town planner this looks like sheer madness: but perhaps there is something unusual in his make-up which predisposes him, with childlike innocence, to put more faith than some of his neighbours in the simple and the obvious. Or perchance, if an architect, there is something in his training or his practice which encourages this tendency. At least it is a fact that the Art of Design which it should be the purpose of his training to develop and his life work to practise consists largely in finding simple solutions for seemingly complex problems. When the designer cannot see the forest for the trees he is a lost soul! He must

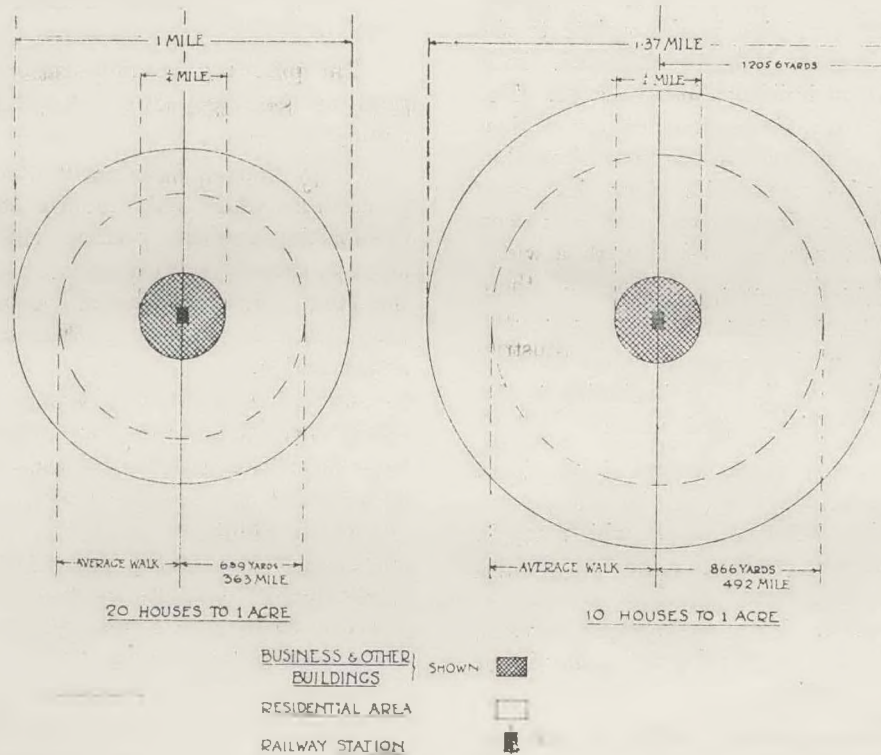


DIAGRAM 8.

Showing the average length of walk to a railway station as affected by the density of dwellings.

Density. i.e., No. of houses to the acre.	Average Size of Plot.	Average Walk to Station.
10	420 sq. yds.	866 yds.
20	185 sq. yds.	639 yds.

Density doubled; length of walk reduced 26 per cent.

already unbearably congested, and the traffic in their streets in danger of being reduced to crawling pace by its excessive volume, the idea that congestion would best be relieved if we desisted from crowding or traffic most effectually be reduced by better distribution of people and buildings, is much too simple to be readily accepted. Indeed, many seem bent on piling more building on the top of that we have, and boring more subways or erecting more elevated tracks to pour their additional multitudes into the already swollen torrent in the streets.

depend on his trained imagination to keep the forest as a whole ever clearly in his view while his mind is occupied threading its way through the obstructing trees and their distracting shadows. If he misses the one simple and direct path to unity, which when found will appear to all to have been quite obvious, he will usually have produced not a design at all, but a mere compilation.

I have ventured to draw from American cities a warning as to some things which we should avoid, and to use their experience as a guide for our future

steps. Lest I should be thought to undervalue the marvellous civilising achievement which those cities represent, or to be lacking in appreciation for the genius which their architects have shown in handling the novel and complex problems in design which have been presented to them, I propose to show you a few examples of their recent buildings to illustrate the difference between a design and a compilation. Some of their lofty buildings soaring up many hundred feet into the air are as beautiful as they are impressive. And the same sense of unity and simple rightness is as evident in many of the buildings which do not derive impressiveness from their height. The Lincoln Memorial is a temple as worthy of the commemorating nation as the statue it contains is appropriate to the men whose memory is there lovingly enshrined. It is one of the most moving buildings I have seen. The architect, in spite of the distractions of log cabins, freed slaves, and the hundred other accessoires that crowd around that picturesque life story, has gone straight for the main simple purpose; a great nation remembers its greatest son.

Men who have achieved within a few decades such culture, such a high level of design as these buildings display, when they turn that capacity upon the problems of town planning, as they are beginning to do, will, I am convinced, achieve equal success.

Beautiful as are many of the towers of New York when considered singly, there is yet lacking to me the sense of grouping between them which would spring from their forming parts of a greater design. Fine as individuals, they bear yet little relation or proportion to each other. I am inclined to compare a cluster of them with the three related towers of that older Lincoln which we prize.

However that may be; as architects we are trained to rely on orderly planning and proportional relation; and we naturally believe that they can be applied to towns; that the application of foresight and planning would result in the better distribution and relation to each other of industrial, commercial and residential areas, and could secure the more generous reservation of belts of open space to protect and define the different parts of the town, the wards, the suburbs, the dormitories or the satellite towns; that cities should extend not by fortuitous accretions around the circumference, but by the addition of definitely planned and defined suburbs or satellite towns, each made as self-contained as possible, depending on the main centre only for those functions which are by their nature centralised; that the position of suitable rapid transit lines to connect these parts to the centre and to each other could be laid down and reserved, and that congestion of street traffic could be prevented not only by the provision of adequate roads, but mainly by the

proper localisation of the life of each district, and the saving of a large part of the useless carting and rushing about which now springs from so many people, buildings, and parts of the town being in the wrong places. We are convinced that congestion will be cured not by increasing the density of the crowd, but by transforming the crowd into an orderly queue. This at least is the alternative we offer to the policy of expansion upwards, being convinced that nothing can be gained by crowding.

FEDERAL COUNCIL ON ARCHITECTURAL EDUCATION.

The following communication has been received from the Secretary of the Royal Institute of British Architects:—

"My Council have noted with much interest the proceedings which some months ago led to the formation of the Federal Council and they desire me to express the unqualified pleasure which they feel at the efforts that the Federal Council are making to promote and improve Architectural Education in South Africa.

To my Council's best wishes for the future prosperity of the Federal Council I am desired to add their hope that the enclosed cheque for twenty guineas may be accepted as a contribution by the Royal Institute of British Architects to the Federal Council's funds, and as a token of the appreciation with which the establishment and the consequent activities of the Federal Council have been received by architects in Great Britain."

Forms for Enrollment as Students in architecture are now ready and may be obtained on application to the Secretary to the Council, 67, Exploration Buildings, Johannesburg. Practitioners throughout the Union are particularly requested to see that juniors undergoing training, make immediate application for Enrollment. It is pointed out that to obtain the hall mark of qualification in South Africa, viz, the diploma issued by the Council it is necessary for each student to immediately enroll and arrange to undergo the course of training laid down by the Council. Particulars of this course are contained in an official pamphlet which may be obtained from the Secretary.

It is proposed to make the succeeding issue of this Journal a Domestic number and members are requested kindly to furnish photographs and particulars of such work designed by them, they would wish to submit for inclusion in the September issue.

THE SOUTH AFRICAN INSTITUTE OF QUANTITY SURVEYORS.

Second Quarterly Report of the Council.

Since the last report was published the Institute has lost an old and valued member in Mr. H. J. Elliot, who passed away at Greytown after a long illness. The Council at their second meeting passed a vote of condolence with Mrs. Elliot in her sad loss. An account of Mr. Elliot's career and a tribute to his sterling qualities will be found elsewhere in this issue.

Two Council meetings have been held in Johannesburg since March, and were both well attended. It is with great satisfaction that the Council are able to inform members that an Education Fund Account has been opened at the Standard Bank and the sum of £25 deposited. This sum was withdrawn last year to meet the current expenses of the Institute.

It is hoped this year to be able to leave the fund intact. In order to achieve this it may be necessary, later, to ask members to assist the Institute finances.

In this respect the Council were very pleased to receive and acknowledge a donation of £5 from Mr. J. W. Cowling.

The Sub-committee responsible for compiling the method of measurement for coast concrete work report that the various examples received from members have been tabulated, and the work will be completed before the next Council meeting.

At the two last Council meetings considerable time was spent in discussing the possibility of affiliation to the Surveyors' Institute, Great Britain. The Council feel that it will add considerable prestige and dignity to the Institute by becoming affiliated to the Home body. Further, that examinations should be held in this country for admission to the English Institute, under the auspices of examiners appointed from the South African Institute.

To this end a letter has been sent to the Council of the Surveyors' Institute, London, requesting them to advise us whether they are in favour of the suggestion.

In the event of their being so, the Council have nominated Mr. A. T. Babbs and Mr. N. T. Cowin, both of whom will be in England during the coming months to act as delegates for the Institute.

The Council have also given considerable time to the advisability of starting classes in Quantity Surveying at the Witwatersrand University.

In view, however, of the fact that the session of 1924 has already started, it was decided to leave this matter in abeyance.

The very vexed question of P. C. Items and Provisional Sums was raised in the Council. At present each individual surveyor adopts his own methods. In some cases P.C. Items are strictly nett, in others a discount is allowed, while a further method is a combination of both the foregoing.

A long discussion took place at the last Council meeting as to whether it would not be possible to arrive at a definite agreement with the architects and builders whereby a sliding scale of profit according to the amount involved would be included in the P.C. Items and stated in the Bills of Quantities together with the proviso that this profit could be discounted by the contractor as he thought fit.

Owing to the very divergent views expressed and the difficulty of arriving at a unanimous conclusion, it was resolved to leave the matter as it stood.

The Council would, however, welcome expressions of opinion on this very vexatious question from members of the Institute.

The President while recently in Durban had the pleasure of meeting each of our members. It was hoped to arrange a meeting, but owing to his short stay this was not possible.

The "Farington Diary" the first volume of which was published in 1922, and the second in August, 1923, will probably set Joseph Farington, R.A., alongside Pepys as a chronicler of contemporary life.

The second volume which dates from 1802 to 1804 contains the following entry of interest to Architects and Quantity Surveyors.

"FEBRUARY 11.—Wm. Daniell (R.A.) called. The Wapping Dock Committee have a wish that He shd. give them another print of those buildings, &c. shewing more particulars.—Has cleared 200 guineas already by his print of the Isle of Dogs—Docks—.

ARCHITECTS' FEES:

"Much talk at the Club abt. the percentage allowed to architects.—Soane in the Court of King's Bench gave his opinion that 5 per cent. was sufficient. It was in a Cause in which F. Brettingham was endeavouring to obtain 5 per cent. for Surveying &c. & 2 & $\frac{1}{2}$ for measuring. Brettingham lost it.—The Duke of Leed's House in St. Jame's Square cost, with the ground on which it stands, being a Freehold, abt. £38,000. It was lately sold for £11,500."

Regulations Governing the Promotion and Conduct of Architectural Competitions.

The following regulations approved by the Royal Institute of British Architects and by its Allied Societies, also approved and adopted by the Society of Architects (London), are published for the information of members with a view to obtaining thereon a general expression of opinion.

Attention is drawn to the article dealing with Architectural Competitions which appeared in the issue of September 1923 (pp. 112/3) and the Council of the Association are desirous that members should refresh their memories by again reading that article in conjunction with the following regulations and thereafter make any suggestions they think fit, in writing, to the Registrar for consideration by Council.

It is earnestly hoped that members will interest themselves in these regulations and submit, for the guidance of Council, any points which may appear to need further consideration.

All correspondence on this matter should reach the Registrar not later than the 30th June, 1924.

It is assumed that the object of the Promoters is to obtain the best design for the purpose in view. Where the Promoters desire to achieve this end by means of a Competition experience shows that this object may best be secured by conducting all Competitions upon the lines laid down in the following Regulations, which have been framed with a view to securing the best results to the Promoters with scrupulous fairness to the competitors.

Members and Licentiates of the Royal Institute of British Architects, Members of its Allied Societies and Members and Licentiates of the Society of Architects do not compete excepting under conditions based on these Regulations.

The Conditions of a Competition shall contain the following Regulations (A) to (F) as essential:—

- (A) The nomination for every Competition of an Assessor or Assessors who shall be Architects of acknowledged standing to whom the whole of the designs shall be submitted.
- (B) Each design shall be accompanied by a declaration, signed by the competitor, or joint competitors, stating that the design is his or their own personal work, and that the drawings have been prepared under his or their own supervision. A successful competitor must be prepared to satisfy the Assessor that he is the *bona-fide* author of the design he has submitted.

- (C) No Promoter of a Competition, and no Assessor engaged upon it, nor any employee of either, shall compete or ASSIST A COMPETITOR, or act as Architect, or joint Architect, for the proposed work.
- (D) The premiums shall be paid in accordance with the Assessor's award, and the author of the design placed first by the Assessor shall be employed to carry out the work, unless the Assessor shall be satisfied that there is some valid objection to such employment, in which case the author of the design placed next in order of merit shall be employed, subject to a similar condition. The award of the Assessor shall not be varied for any other reason.
- (E) If no instructions are given to the author of the design selected by the Assessor to proceed within twelve months from the date of the award, then he shall receive payment for his services in connection with the preparation of the Competition drawings of a sum equal to $1\frac{1}{2}$ per cent. on the amount of the estimated cost stated in the conditions up to £50,000, but if the estimated cost of the work exceeds £50,000 he shall be paid a sum equal to $1\frac{1}{2}$ per cent. upon the first £50,000 plus $\frac{1}{2}$ per cent. upon any sum in excess of that amount. The first premium shall be deducted from the sum so paid. If the work is subsequently proceeded with, this sum shall form part of his ultimate commission.
- (F) The selected Architect having been appointed to carry out the work shall be paid in accordance with the Schedule of Charges sanctioned and published by the Royal Institute of British Architects, and the premium already paid shall be deemed to be a payment on account.

1.—The Promoters of an intended Competition should, AS THEIR FIRST STEP, appoint one or more professional Assessors, Architects of acknowledged standing, whose appointment should be published in the original advertisements and instructions. The selection of an Assessor or of two or more Assessors to act as a Jury should be made with the greatest

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possible care, as the successful result of the Competition will depend very largely upon their experience and ability. The name or names of the Assessor or Assessors should always appear in the conditions governing a Competition or in any advertisement or other announcement relating thereto.

The usual R.I.B.A. Scale of Charges for Assessing Competitions is the sum of Fifty Guineas plus one-fifth per cent. upon the estimated cost of the proposed building.

In the event of more than ONE ASSESSOR being appointed, the remuneration shall be decided by mutual arrangement between the Assessors and the Promoters.

The President of the Royal Institute of British Architects is always prepared to act as honorary adviser to Promoters in their appointment of Assessors.

2.—The duties of Assessors are as follows:—

- (a) To confer with and advise the Promoters on their requirements and on questions of cost and premiums to be offered.
- (b) To draw up instructions for the guidance of competitors and for the conduct of the Competition, incorporating the whole of the clauses of these Regulations which are applicable to the particular Competition.

Note.—It is essential in drawing up the Instructions to state definitely which of the conditions must be strictly adhered to, under penalty of disqualification from the Competition, and which of them are optional.

- (c) To answer queries raised by competitors within a limited time during the preparation of the designs, such answers to be sent to all competitors.
- (d) To examine all the designs submitted by competitors and to determine whether they conform to the Conditions and to exclude any which do not.
- (e) To report to the Promoters on the designs not so excluded and to award the premiums in strict accordance with the Conditions.
- (f) To inform the Promoters if necessary that modifications may be made in the winning design by the successful Architect, if so desired by the Promoters.

3.—Competitions may be conducted in one of the following ways:—

- (a) By advertisement, inviting Architects willing to compete for the intended work to send in

designs. FOR COMPETITIONS FOR PUBLIC WORKS THIS METHOD IS RECOMMENDED.

- (b) By advertisement, inviting Architects willing to compete for the intended work to send in their names by a given day, with such other information as they may think likely to advance their claims to be admitted to the Competition. From these names the Promoters, with the advice of the Assessors, shall select a limited number to compete, and each competitor thus selected shall receive a specified sum for the preparation of his design.
- (c) By personal invitation to a limited number of selected Architects to join in a competition for the intended work. Each competitor shall receive a specified sum for the preparation of his design.

Note.—Where a deposit is required for supplying the instructions it shall be returned on the receipt of a *bona-fide* design, or if the applicant declines to compete and returns the said instructions within four weeks of the date for submitting designs.

4.—The number, scale, and method of finishing of the required drawings shall be distinctly set forth.

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The drawings shall not be more in number or to a larger scale than necessary clearly to explain the designs, and such drawings shall be uniform in size, number, mode of colouring and mounting. As a general rule a scale of 16 feet to 1 inch will be found sufficient for plans, sections, and elevations, or, in the case of very large buildings, a smaller scale might suffice.

Unless the Assessors advise that perspective drawings are desirable, they shall not be admitted.

5.—No design shall bear any motto or distinguishing mark; but all designs shall be numbered by the Promoters in order of receipt.

6.—A design shall be excluded from a Competition—

- (a) If sent in after the period named (accidents in transit excepted);
- (b) If it does not give substantially the accommodation asked for;
- (c) If it exceeds the limits of site as shown on the plan issued by the Promoters, the figured dimensions on which shall be adhered to;
- (d) If the Assessors shall determine that its probable cost will exceed by 10 per cent. the outlay stated in the instructions, or the estimate of the competitor should no outlay be stated;

(e) If any of the conditions or instructions other than those of a suggestive character are disregarded;

(f) If a competitor shall disclose his identity or attempt to influence the decision.

7.—All designs and reports submitted in a Competition, except any excluded under Clause 6, together with a copy of the Assessors' Award, should be publicly exhibited for at least six days. Due notice shall be given to all competitors of the date and place of such exhibition. It is desirable that competitors should be furnished with a copy of the Assessors' Award.

8.—All drawings submitted in a Competition, except those of the design selected to be carried out, shall be returned carriage paid to the competitors, within fourteen days of the closing of the Exhibition.

9.—The Conditions of a Competition issued by a Corporate Body should have the Common Seal of that Body affixed thereto.

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The Trustees of the Benevolent Fund of the Architects of the Transvaal, gratefully acknowledge the receipt of a donation of Ten Pounds, from Mr. Edward H. Waugh, of Johannesburg.

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FIRE PROOF DOORS.

The following communication has been received from the Secretary of the Fire Insurance Association of the Transvaal and is published for general information:—

Several cases have recently come to the notice of the Association where fireproof doors not conforming to the specification of the Associated Fire Offices have been erected in Johannesburg buildings, the work, it is understood, having been performed under the direction of Architects.

When fireproof doors are intended to cut off the risk from one building to another it is essential that they be constructed and fixed in accordance with the Insurance Companies' rules and to avoid unnecessary expense to property owners it is most desirable that Architects should work in co-operation with the Insurance Companies.

May we request your help in bringing the above information to the notice of your members and also the fact that the Associated Offices publish a printed booklet providing complete specifications for the construction and fitting of the various types of fireproof doors and shutters acceptable to them. The necessary details may be secured from the Insurance Offices as

and when required. This course is suggested for the reason that alterations in the specifications occur from time to time dictated by experience gained of the behaviour of the various types of doors in actual fires.

We are bringing this subject before you in the interests of your members and the public whom they serve.

Regulations for the admission of candidates to examination leading to a Diploma in Town Planning, have been issued by the Royal Institute of British Architects. Candidates must be either Fellows, Associates or Licentiates of the Institute.

The examination will be held annually in October and application to sit must be made before May 31st in any year. In the first instance, candidates are asked to submit evidence of studies in Town Planning and within two months of the date of examination, prepare a thesis and scheme on a specially set subject. Following which papers will be set in the following subjects:—Town Development, Law and Practice of Town Planning, History of Town Planning, Civic Design.

A copy of the syllabus of subjects of examination, under these four heads, is in the office of the Association and may be inspected by members at any time.

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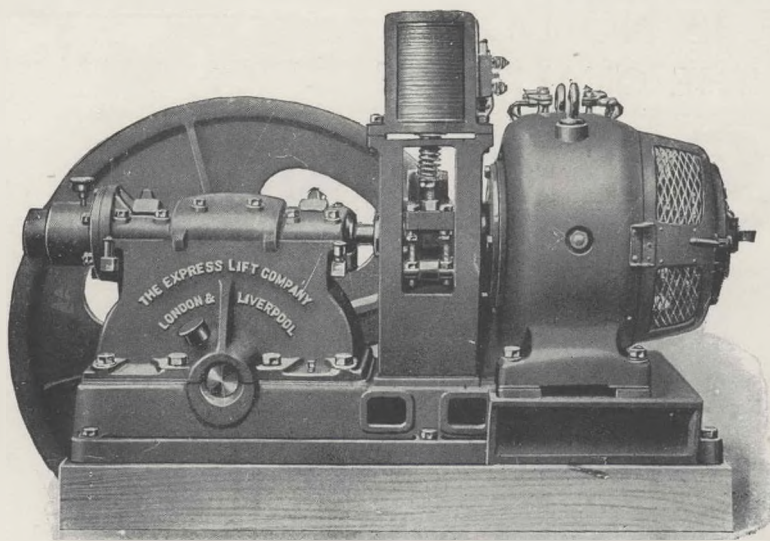
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