

SOUTH AFRICAN ARCHITECTURAL RECORD

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

PHONE 34-2921 VOLUME TWENTY NINE NUMBER TWELVE
411, KELVIN HOUSE, 75, MARSHALL STREET, JOHANNESBURG.

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ARCHITECTURAL EDUCATION

A SYMPOSIUM ON ARCHITECTURAL EDUCATION HELD UNDER THE AUSPICES OF THE ARCHITECTURAL STUDENTS' SOCIETY, UNIVERSITY OF THE WITWATERSRAND, DECEMBER, 1944

ARCHITECTURAL EDUCATION

By A. S. Furner, F.R.I.B.A., M.I.A.

Architectural education must be more than an advanced form of vocational training. If the architect is to regain the status in society that he used to enjoy, he must be adequately trained to appreciate the many complex problems which demand solution. These problems are yearly growing more complex, and now cover such a wide field that it has outgrown any curriculum which could be compressed into the few years of training economically available to the average student. Furthermore, any undue compression of too many subjects in an educational course must lead to serious inefficiency. It would appear, therefore, that while the vocational training aspect of the teaching of architecture is important, the major object of architectural education must be the development of the student's mind in such a way that he will be able to meet each problem as it arises. He must have an adequate basis of knowledge and experience which will enable him either to arrive at a correct solution, or, alternatively, to place it clearly before a specialist, appreciate his difficulties and assess the value of his solution.

All educational systems appear to be based upon one of two fundamental principles, which may be called, respectively, the academic and the scientific. The academic (as in a classical education at school) relies largely upon teaching the student to study and appreciate what the teacher considers to be the finest achievements of the past—a mental standard of excellence which will serve as a basis for future work. This system naturally tends to develop a deep appreciation for scholarship, fine craftsmanship and a rather conservative outlook on modern development.

A scientific training, on the other hand, tends to develop, by means of experiment and observation, the student's own powers of judgment and reasoning, his analytical powers of selection and a full appreciation for modern scientific and cultural development.

It would be obviously impossible, and indeed undesirable, to exclude entirely either of these two approaches from any full course of studies. Tradition, whether we like it or not, is part of our very being, and in the correct use of scientific development we find one of our greatest hopes for the future.

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It is not necessary for me to outline this evening the history of architectural thought. You will realise that during the past three hundred years, since the dawn of the Renaissance, the architect has been taught to look to a Palladio or a Corbusier as a model on which to base his work, rather than to find a solution based upon a wide knowledge of all the factors which make up the modern building problem and upon his own artistic inspiration. The academic path is the easier one and we are all seriously tempted to follow it. In a steadily mounting crescendo the student has been confused by revivals of Greek, Roman, Byzantine and Mediaeval architecture, not to mention the various schools of contemporary architectural thought, and has been in turn told to find a solution to his problems in the work of a Gabriel, a Garnier or a Gropius. He has been overwhelmed by torrents of books, engravings, photographs and technical magazines. A thesis, indeed, might well be written upon the influence of printing and photography on architecture—it has not by any means been all to its benefit.

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The young student, fresh from school and eager to learn the rudiments of his profession, is very impressionable, and must, therefore, be taught to think before his judgment is swamped by this undigested mass of information. It is surely worse than a waste of time to lecture on the subtleties of Greek architecture to a boy straight from school. He cannot possibly appreciate the delicate detail of a Greek temple at this stage of his mental development, but often tends to

assume that all good elevations must have columns, preferably of the Doric order.

It would appear, therefore, that an architectural curriculum should commence with the fundamental elements of the design of buildings—the materials employed: their physical and æsthetic qualities; the way in which they are used and the calculation required; the simple elements of sound, light, hydraulics, mechanics, heat and electricity in relation to buildings and building materials; the use of pencil, brush and pen, the study of light and shade and the use of colour. A short course in social history might also be included as an introduction to the later studies in the history of architecture. The student, during the first two years of his course, should work in a workshop and handle the materials and tools of his future profession; attend demonstrations by competent tradesmen; make shop drawings; carry out simple tests in the laboratory, develop his artistic perception and his ability to express his designs on paper by drawing from the nude, from sketching out of doors and from studies of still life in water colour.

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After this preliminary period the student should understand the materials he is to use in his designs; should be able to present his designs clearly and attractively and should have an appreciation of beauty sufficiently developed to enable him to learn to design competently and quickly.

During the following period of study the student must be continually exercised in planning in its widest sense. It is the raison d'être of his whole training and of his professional existence. He must be taught that he must become, above all, a co-ordinator of the warring elements of a building project—that the requirements of the ventilating engineer, the electrician, the plumber, the decorator, the local authority, not to mention the client, must be made to fit into and become an organic part of the final product, and that everyone connected with the work must become part of one team.

At this stage he should be taught the historical aspects of architecture, as he will be fully capable, by now, of appreciating the work of previous generations and understanding the difficulties under which earlier work was done. He can also be given the free use of the library and the contemporary Press for the first time, as he should now be able to use the information thus gained to develop his own taste. This later academic stage of study is essential, for it is only by the appreciation of historical art and architecture that quality and character in design can be fully achieved—for architecture is more than a science; the architect himself must always be very closely associated with the building industry and with everyone connected with it, therefore the danger of too much theoretical education must be carefully considered in all architectural studies. Architecture is probably more closely related to economic and social life than any of the other arts, and this relationship should be stressed from

the inception of any course. A very close liaison with the profession should be maintained by frequent periods of work in an architect's office, and, if possible, as a clerk of works on a building in the course of construction.

Various attempts have been made to meet this requirement, but the only method which, apparently, has been really successful is the Atelier system evolved by the Ecole des Beaux Arts in Paris, and which might well be adopted. Here the more advanced students were expected to join one of the several ateliers recognised by the Ecole. These ateliers were formed by groups of students who chose their own master from among the leading practitioners—generally past students of the school—to assist them by criticism in preparing the designs required by the programme set, from time to time, by the Ecole. The works of the various ateliers were collected on the date of the completion of each subject, marked and criticised. A certain number of "mentions" had to be obtained before the student could qualify. The students were not expected to work continuously at the atelier, but to work for some time in an office, then in the atelier for one or two projects. This system brings the advanced student into the closest possible association with the real problems of his future profession, without having recourse to that most unsatisfactory method of architectural education by night classes. It also tends to create a fine spirit of comradeship in the profession itself.

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I was asked to give this evening my views on architectural education, and I have given very shortly and only in broad outline what I consider should be the general lines of an ideal curriculum. I have omitted many details which might well have been included, such as elementary lectures on the law of contracts, correct business methods, professional practice and office administration; as well as such subjects as will enable the student to understand the real problems involved in producing a satisfactory building.

I do, however, appreciate the difficulties of changing over to a system such as I suggest. It would be difficult, I know, to fit such a scheme into the present organisation of a University and to find suitable staff with the necessary training and mental approach. The Atelier system, moreover, depends upon the very sympathetic liaison with the profession. But as time goes on, practitioners who have passed through the school, and who have gained several years' experience as principals, could be encouraged to organise ateliers and return as part-time instructors at the school itself. Under this system it would probably take longer to qualify than the present five years, but as the student would have ample opportunity of earning a considerable amount of salary during the latter part of his course under the Atelier system, this would cause no hardship. In fact, the student, the profession and the public would gain considerably as graduates with a bare year's experience in an office would not be able to start in practice before they are really qualified to do so.

Many architects are to-day considerably perturbed by the fact that the profession is losing the confidence of the public. There are undoubtedly many reasons for this, but one is without question, that the architect is not adequately equipped for modern conditions in the building industry. He is not sufficiently master of his profession, nor does his training appear to give him the necessary attitude of mind to adapt himself to certain phases of his work and to meet members of the other professions on a common ground.

Whether or not the future for the architectural profession lies in the idea of groups of specialists combined into one

designing unit (on the assumption that no man can master all phases of architectural knowledge) it is quite certain that no designer can produce efficient work without an intimate knowledge of the materials he is using, an analytical and scientific background in his education which will enable him to co-operate with specialists and a wide appreciation of all the requirements of architectural design and planning.

Finally, I want to emphasise again that the student should be taught to think for himself and not be taught what to think, and to learn how to base his decisions and form his taste on his own observations and his own choice.

THE FUTURE OF ARCHITECTURAL EDUCATION

By N. L. Hanson, B. Arch., A. R. I. B. A., M. I. A.

My intention this evening is to deal with architectural education in general terms. I believe that the most important single factor affecting architecture at the moment is the crisis in the social fabric brought about or heightened by the war. The major problems facing us therefore are those directly arising from the crisis, and it is because education must be linked to practice that I propose to give a great deal of attention to the place of architecture in the emergent post-war world. I do not propose to deal with the actual teaching structure because, firstly, this will not bring us to the fundamentals, and, secondly, because it is in any case a highly efficient structure in this school.

The ground I wish to cover briefly may be summarised as:

1. The Social Foundations of Architecture.
2. Education in the Immediate Past.
3. The War and National Development.
4. Architecture in the New Society.
5. Architectural Training in Functional Terms.

1. THE SOCIAL FOUNDATIONS OF ARCHITECTURE.

The provision of shelter in all societies constitutes a social service. Primitive society is served by its huts and kraals; advanced society by its houses, villages and cities. The material resources needed to provide this primary service are extracted from the earth. It remains to put them to efficient use in order to satisfy not only the elementary requirement of shelter but also to meet the psychic, spiritual and intellectual cognitions peculiar to man. In short, a functional demand becomes architecture. Architecture, however, expresses particular forms of society, and therefore itself takes on different

forms. The social and economic relations at the base of each form of society are dynamic, although the tempo of change is not constant. To-day we are, it seems, living in one of those moments when history takes a long leap forward. If we accept that premise, we are justified in seeking the emergent social and economic trends, and in amending or enlarging our educational system accordingly.

2. EDUCATION IN THE IMMEDIATE PAST.

Before dealing with a rather uncertain future, it is fitting to pay a tribute to this School of Architecture, which has now been operating for well over twenty years. Its establishment was a turning point in the cultural history of South Africa. For the first time in the modern era, the task of extending the admirable work of the architectural pioneers—who could, in the nature of things, satisfy the needs of only small and privileged groups of the population—could be embarked upon. The results have, I think, amply fulfilled early expectations, and the School to-day is a powerful factor in the growth of a worthy national cultural and social environment. I would support, too, the decision made when the School was founded to seek incorporation within the University. As long as one considers architecture as one of the humanities, the alternative—an independent School of Technology and the visual arts—cannot appeal.

In general, the work of the School has been and is being retarded by at least three factors. The first is the stage of development at which students enter the Faculty—that is, without the preparatory post-matriculation training commonly found in other countries; the second is the limited time available for direct academic and technical study; the third is

inadequacy in staffing (numerically speaking, of course) and equipment. Nevertheless, good results have been achieved within these limitations. Partly indeed, because of them, for a necessarily circumscribed course has meant simplification, with a consequent increase in average student efficiency, and no loss among the more talented.

Schools and teaching methods and the very objectives of teaching, however, are not static. They exist within a given framework of social relations and reflect these relations in an exact degree. Pre-war society in South Africa brought architectural education up to a certain level. We may even say that, as a school takes on a life and character of its own, the architectural achievement went beyond the rather backward economy prevailing in the pre-war period. That is a sign of healthy vigour, but a possible danger lies in a lack of realism and historical perspective. For this reason, I contend that the time for a social reevaluation is due.

3. THE WAR AND NATIONAL DEVELOPMENT.

Now the war has smashed many former values. The consequences of the break-up are not yet known and cannot therefore be measured or exactly planned for. In that sense this discussion, though useful, is perhaps premature. Nevertheless, an indication of certain main trends of change may be attempted. Tentatively, four fundamentals suggest themselves. These are:—

- (a) The social conditions of the people have become a matter of wide concern, symptomatic of a rising social consciousness.
- (b) The potentialities and limitations of this country are emerging by scientific analysis, or at least the need for such analysis is gaining general acceptance.
- (c) An embracing national view of our economic and social problems is growing.
- (d) International relationships are being clarified, leading not to the elimination of the national structure, but to its proper and full democratic development.

Architecture, in education and practice, must, if it is to remain a vital force, reflect these basic changes, and even take the lead in some directions. What is the architectural interpretation of the four fundamentals?

- (a) The social conditions are closely concerned with physical environment, very much within the purview of the architect. To build an adequate environment the architect must understand his human material. At every stage of his training the strong relationship between the human factor and technique should be apparent and underlined.
- (b) The technological foundation of building must be re-

examined. Our material resources, their extraction and working and their potential development should decisively influence architectural theory and form. The scientific approach to building will entail extensive research and experiment, which should be closely linked to both training and practice. Moreover, the profession is an integral part of the building industry; therefore, the latter's organisation, methods and costs of production and labour relationships should be intimately studied. To achieve leadership and authority in the building industry, a most thorough and practical understanding of building technique and practice is necessary. In addition, the growing complexity of building operations, site and factory production methods, and accelerated industrial progress require a far greater degree of co-ordination than at any previous stage in the history of building.

- (c) The tendency to look at problems nationally is gaining ground, though by no means universally accepted as yet. Development, however, on an equitable basis is inconceivable unless a true balance in distribution is achieved. We may say, therefore, that technical services, apart from a build-up in quantity and quality, should be partly decentralised. Our rather lopsided urban-rural economy should give way to a balanced regional economy. Further, the equipment of the technician should be equal to the new regional tasks, which in essence are merely parts, almost the executive weapon, of national development. The broader understanding of national resources and problems in itself has the effect of focusing attention, firstly, on background; secondly, on the immediate issues; and thirdly, on likely or desirable courses of action. That means that South Africa's historical development would receive the attention it merits, while present limitations and future potentialities would be revealed.
- (d) If the measures for national construction and reconstruction are undertaken, the possibilities of an integrated post-war international pattern emerge. The regional structure has not only a national basis, but also derives its strength from the international roots through which it is fed. Industrially and economically the interdependence of nations is nowhere more apparent than in South Africa (a theme which cannot be examined here). In our own development we inevitably link up with the advancing technology of the leading industrial countries; moreover, the historic links between this country and the older countries of western civilisation demand an informed international outlook.

4. ARCHITECTURE IN THE NEW SOCIETY.

These general conclusions may be briefly re-stated in terms of the practice of architecture. In this way a direct guide to the educational system may be indicated.

Firstly, the social element assumes a new importance in architectural planning. The liaison between client and architect, where the client is, above all, the "common man," is established, but, in the process, the architect's technique will be extended to cover environment in general, the house, the village, the neighbourhood, city and region.

Secondly, architectural output finds practical expression within a complex and changing industry of vast dimensions. The expertness of the architect in directing, co-ordinating and developing the industry will in large measure determine his rôle and status in this period of reconstruction.

Thirdly, a technical grid should service the whole country if and when regional development takes place. To participate effectively in such a service the architect must grasp the regional basis by acquiring a sound knowledge of our human and material resources, their limitations, potentialities and proper use, and a deep consciousness of the historical and cultural roots, as expressed locally, regionally and nationally.

And fourthly, contemporary developments, theories, trends and achievements in all countries of similar and dissimilar problems and economies, of greater and lesser industrial output, should be continuously examined and related to our own situation.

* * *

The multiple functions which the architect is called upon to perform are here outlined. To these must be added existing duties and methods of work. There is, of course, some overlap, as many of the tasks enumerated fall within the architect's present responsibilities. What does emerge from this canvas of frightening dimensions is a new list of categories, within which the trained architect must find a place. A continuation and a growth in some directions of the pre-war and present set-up is really the basis upon which change will occur. If that is so, we get, firstly, the private practitioner, who, in most cases, answers the requirements of individual enterprise, expressed in relatively small units of building. To date, a great deal of semi-public and, occasionally, public works comes his way. I anticipate an increase of work done departmentally or by other group methods after the war. Secondly, there is the official architect, in Government and Provincial public works and municipalities, the scope of whose activities will be greatly extended. Thirdly, the physical planner, who will perform a much broader function than the single architect in either of the above categories. His field is housing, city and regional planning, and generally he will co-ordinate on the architectural side. This is a new category. Fourthly, the technical administrator, who will find his place in the building industry, and whose training will fit him to organise and co-ordinate the multitudinous functions of the industry on the technical side, including building research. This again is a new category. (And, of course, there is the teaching of architecture, within which sphere

trained personnel covering the whole field indicated above must participate.) If we keep in mind the changing structure of society, we are now in a position to deal directly with architectural education.

5. ARCHITECTURAL TRAINING IN FUNCTIONAL TERMS.

Enough has been said about what architects should do, to indicate that no architect could do it all. The new element of specialisation is what I wish to emphasise. Now the present system of education attempts to take in a very wide range of architectural activity, and is, in this sense, an excellent general training for subsequent specialisation in any one field. But the tendency is undoubtedly to concentrate on one field only—namely, private practice. If we are to take seriously the new range of experience which the architect may be expected to acquire, it is necessary to re-examine the period of full-time study.

Can a measure of specialisation be achieved during this period? I think it can, but only under certain conditions. These are, briefly, greater concentration in the use of the five-year period, and, secondly, better technical and staffing facilities. The latter needs no elaboration. As for greater concentration, this can be made possible only by extracting at least one term more for full-time attendance. At present eight of the ten terms of the five-year course are thus available. The condition of 12 months' practical experience embodied in the Architects' Act and Regulations may be fulfilled satisfactorily by allocating two months after the second year, two months after the third year and eight or nine months after the first term of the fourth year, which is possible by working through the university long vacations. By this method a new fourth-year term is introduced.

The first 3½ years may be just sufficient to gain a basic training in architectural history, theory and technique. Specialisation, which should embrace practical experience, may possibly start at this point. The training of architects for specific functions is the principle upon which this thesis is founded. The functions are those already indicated—private practice, public service, physical planning and technical administration, although a certain amount of overlapping must be considered inevitable. But the basic training, itself, should reflect the subsequent specialisation, and every student should gain some general knowledge of the full range of functions. I do not think this an impossibility—on the contrary, it would lead to a simplification and a new unity in many courses.

A few words about "practical experience." My view here is that, at the present, this experience has no scientific base. It is gained by haphazard method, and depends largely on the prosperity, nature of work and conscientiousness of the private practitioner. Its functional value is limited at best, and non-existent at worst. If we are to turn this period into one of positive, practical value, responsibility for its organisation must be shared by the University with the profession,

architectural and town planning departments and the building industry. The stabilisation of building output by the economic use of public works will go a long way to meet the real difficulties that exist, but, beyond this, a considerable modification in attitude is required on the part of practising architects, so that they, as with all other employers, should conform to a general pattern of practical training for the student.

Specialisation, however, may not be feasible after the rather short period of preparation. If it is not, an extension of the course into a sixth year of training should be considered. In any case, post-graduate study leading to further qualifications (such as the new Diploma in Town Planning) and preferably under conditions of full-time attendance, is the only satisfactory method of completing the process of specialised training.

Functional training may be considered as the actual motif of architectural education under modern conditions. Differences and preferences among students could find an outlet under such a system, which aims to make the most of the human material available. It would give the opportunity, present now almost exclusively in the thesis work of the senior years, to develop along very definite, though not mutually exclusive channels. The student, interested essentially in strictly architectural theory and technique, would specialise in practice. His course would accent South Africa's historical background and development, its architectural tradition, its natural resources and technical potentialities, as well as contemporary advances in other countries. Under public service, there is

the rôle of the State in national development, public administration, official standards of architectural design and construction, experiment in methods and materials, professional group collaboration and detailed technical studies. Physical planning, as stated, covers housing, city and regional planning, and ties in architectural practice in all spheres. Technical administration entails the full study of the building industry in ways already given, and seems to me to bring to the fore the new and very real relationship between the operative and professional spheres. The concentration of these various studies in one place and under unifying control is likely to encourage group work of defined character, both here and in practice. Such collaboration is the necessary technical basis of regional reconstruction and holds the possibility of creating the technical grid which I have previously advocated.

* * *

It is my view that only by specialisation will the architect be able to maintain his status in society, and be productively employed in a rôle of primary value. I do not mean that the architect will be painlessly (or painfully) eliminated. His work will always have to be done. But in an age where technics have such a preponderating influence, and where, at the same time, social adjustment to the machine is a conscious objective of progressive mankind, the arts and sciences must inevitably submit to a functional re-orientation. Architecture, so curiously compounded of art and science, can not only submit, but, as before in history, actually takes the lead in the process of adjustment.

TEACHING ARCHITECTURE

By S. Ahrends, *Dipl. Arch. M.I.A.*

As a past pupil of the Bauhaus, my contribution to the symposium this evening will take the form of a short paper on the Bauhaus and my experiences there, with some reference to the Bauhaus system, rather than a dissertation on the teaching of architecture.

Furthermore, I should like to mention, in advance, that I did not go to Dessau, where Gropius was, but to Weimar, where the Bauhaus was actually founded in 1919. It was later re-opened by a group of master pupils at Dessau, as a sort of second edition—not so much an improved, but rather a simplified version of the first.

Why was the Bauhaus so important that it actually created a Bauhaus style, although Gropius repeatedly insisted that it

should only have to deal with the development and education of the younger generation and not with a fixed or permanent dogma?

You will remember that life in the old academies on the Continent had ceased, that the artist had lost contact with the crafts, with materials and trades; that they were professionals who thought of form in terms of formalism only, and who imagined that art was a profession which could be learnt. Protest started at the end of the last century; Ruskin and Morris in England; van der Velde and the Werkbund on the Continent; and those first art and craft schools were founded where, unfortunately, practical training remained dilettantism, with design still in the foreground.

Then came the war and revolutions, and with them the new approach to life. Time was ready for Gropius and his Bauhaus. He tried to unify the training of hand and brain; he sought to bring together all crafts into close collaboration with art and architecture for the benefit of building.

* * *

Every new student started with a preliminary course, when, for six months, he played about with materials and colours, he heard about space and proportion—all in an experimental manner. He had to learn to form his own opinion about the problems arising and to experiment with them. We took all this to be very important.

The real work started in the workshops, where joinery, weaving, metalwork, glasswork, pottery and painting were undertaken; and on the other side of the building, in the Architectural Department. As a result the student was educated by at least two teachers concurrently, the one an advanced craftsman or master in his trade, the other the purely creative artist. Again and again this close collective collaboration was stressed, and, actually, it worked rather automatically. For example, if the joinery workshop, after a hard struggle, had designed a new chair, we all went over and argued at length about the pros and cons of the particular design. Another point: everyone was allowed to have his own opinion, and how seriously we fought for it! I remember one instance when a student coming from a modern school had, by chance, to design a modern college. Naturally he knew more about the ideas and life in a modern school than anybody else, including the lecturers, and he refused to accept corrections made by the professor. This precipitated a heated argument concerning discipline, rights of opinion, modern school systems, etc., in which we all joined; but, in the end, the student got his way.

The education in crafts was not designed to develop specialised craftsmen, but rather to give the student a sufficient understanding of the essential co-ordination of materials, technique and design, so that his work could be used for industrial purposes. This was another of Gropius' ideas—that only a close contact with the manufacturing industries would prevent us from slipping back into the old "arty-crafty" isolation. For only if a man knows how to handle the tools and materials will he be able to design for mass production. Actually, our furniture, lamps, posters and wallpaper designs were bought to a great extent by industries as samples, because they were created out of a feeling for what the machine was capable of producing.

In the Architectural Department we were fortunate in that, parallel with the theoretical studies, we were allowed to work in the drawing office on real jobs. Again, there was close collaboration with the workshops—we had to follow their advice regarding colours, light fittings, furnishing, etc., and always had to respect the well-founded opinion of each craftsman, if he really knew his job. In this the theory of Gropius

has proved to be right. The fact that these men of the workshops were trained, as mentioned before, in both theory and practice gave them a progressive outlook and the right to collaboration.

* * *

The additional courses on engineering, history and town planning, provided in the Architectural Department, were rather free in their approach. I remember that, before going to Weimar I tried twice, at the Berlin University, to pump into my head sufficient knowledge of the formulae of Theory of Structures, to pass the examinations, only to forget them a day or so later. In Weimar and Dessau, however, it was more a question of understanding the principles and inner meaning of a thing than a dilettantish knowledge. We thought it better, more difficult and more useful to design and make a first-class chair or carpet than to be a second-class artist or even a decorator. While on the subject of examinations, I might mention that there was only a final examination, which we took as a matter of course without attaching much importance to it. We did not care too much about presentation—we called it bluff—as we were more interested in the problem than the so-called sales talk.

So much for the Bauhaus. Before ending, will you permit me to mention a few more points? You may be surprised why I, after having enjoyed every day at the Bauhaus, have deserted, as you may think, their modern approach and produced here sentimental thatched cottages. I may tell you that I am already sick and tired of the thatched cottage. But a house is not a machine, and has, in my opinion, very little to do with collective life for which modern architecture is the only right expression. Furthermore, I think that we over-value the machine at the moment, that the machine masters us instead of our using it for our own purposes. We over-value the technical. A window which is air- and water-tight is not necessarily beautiful; actually it can spoil the whole building if wrongly proportioned. We have neglected nature and we are not at all functional as we transplant the cold and brutal city into the country. Architecture should not be done for the sake of architecture, but for the sake of living. As Poelzig once said: "Rather let us not be too practical, if our creation should succeed in touching the human soul."

In the same way young students should feel to-day. They should mistrust fashions and slogans; they should be trained to be unpretentious, but at the same time to respect crafts and materials. Modern materials are alright if they are better in every sense, but they should not be used just because they are modern. There are values in a simple crazy-paved floor, a well-built stone wall, which we should not underestimate. Take, for example, an old Gothic hand-carved door. Although, most likely, it is not very well constructed, yet we are still deeply impressed with its beauty. Now take a motor car of 1920, which was then thought beautiful—barely 25 years ago. We laugh at it to-day.

It is easy for a lecturer to become a little dictator, and to enforce his or somebody else's style. The young student will follow wherever he leads, if he talks their language. The other way, however, is usually much more difficult, that of helping each individual student to find himself, of creating characters which will be ready, should the new times really come.

One last word about history and tradition. One day a professor from a neighbouring university came to the Bauhaus to discuss the history of art and architecture. We would not listen to him, for, to us the history of architecture started with the revolution of 1918, or, more correctly, with the beginning

of the Bauhaus in 1919. A month later he came back, and gradually, in trying to understand our problems, he taught us to respect the old craftsmen, their clear and honest way of doing things, and how they liked it; and he spoke to us about the old artists who really knew their trade and who were more interested in doing their job properly than in making a material success of their profession.

While this paper has been short and, perhaps, not very constructive, I hope it will serve to raise a number of points of interest in the discussion which is to follow.

The discussion was not recorded.—Editor.

A STUDY OF TOWNSHIP LAYOUT

WITH PARTICULAR REFERENCE TO COSTS OF SERVICES

By T. B. Floyd, M.T.P.I., M.I.M. & C.Y.E.

Often has the writer heard it claimed for certain forms of layout that they are economical. Such claims are frequently based on nothing more than a notion, whilst in other cases they are founded on the fact that the percentage of road area is low.

As the road area percentage may be lowered by reducing the number of erven, it follows that a low road area percentage is not an infallible basis on which to found a claim for economy.

The writer was sceptical of the many claims made for certain forms of layout, and it was considered desirable, therefore, to make a study of various layouts.

When the opportunity presented itself, seven different layouts were prepared for the same super-block. In the case of six of these layouts, one form or type of development was repeated, en masse, over the whole super-block.

The studies are as follows:—

- SCHEME No. 1.—With long blocks and continuous local roads.
- „ No. 2. With internally developed blocks.
- „ No. 3. With cul-de-sac roads.

- SCHEME No. 4. With U-loops having their ends on open space.
- „ No. 5. With U-loops having ends sub-divided into erven.
- „ No. 6. With all forms of layout and various types of housing.
- „ No. 7. With a grid-iron layout.

THE SITE:

The site chosen is a super-block in a proposed town. It is approximately half-a-mile by half-a-mile in size and is surrounded by main roads of 150 feet width, which form part of the main road system of the town.

These main roads are designed to have a fast through roadway and service roadways on either side of this. As these main roads are common to all the layouts they do not affect the comparison.

The site itself is featureless, with a gentle slope. The south-east corner is very flat and difficult to drain. To obtain sites facing north and yet to enable easy road drainage to be

effected is difficult owing to the run of the contours.

Drainage is, on the other hand, easier if east and west frontage erven are planned.

DATA FOR DESIGN :

In order that difficulties in making a comparison of the various studies may be avoided, each study adhered rigidly to the following :—

Main local feeder roads	.....	.....	60 feet wide.
Local roads	.....	.....	50 " "
Size of erven	.....	.....	70 ft. x 100 ft.
Area of school site	.....	.....	7 acres.

The provision of a local shopping and community centre.

In addition, an attempt was made, in each study, to provide a total open space of 10% which was to include about 11 acres for park and 7 acres for a school site.

Some of the studies exceeded this amount, whilst others were just on or under it.

THE STUDY LAYOUTS

SCHEME No. 1.

This is a form of layout commonly used at present. It can be adapted to suit any topography and, as used in this study, suits the site very well as regards the engineering work of road-making, drainage and sewerage.

The aspect of the erven is predominantly east and west. If used for small cottage development on small erven, the long straight rows produce a somewhat monotonous result.

Local traffic can flow freely through most of the streets. This is both an advantage and a disadvantage.

Through traffic is discouraged except for the one road which proceeds from the circle through the layout and past the shopping centre. This is certainly a weak feature, but one which could easily be rectified by slight re-planning.

No special provision is made for the pedestrians other than the orthodox one of sidewalks.

The parks are in large areas and thus have a wide range of use and are economic in upkeep.

SCHEME No. 2.

Layout No. 2 may be considered a modification of Layout No. 1 by the introduction of the internal development of blocks. By developing internally, the flow of local traffic is to some extent hindered and this creates quiet residential groups or precincts.

Each of these has its own small park and playground for children where they can play in safety and within sight of home.

This breaking up of the open space area has its advantages in that it spreads the open spaces, and brings them nearer to the home of the child. It opens up the layout by interspersing open spaces among the houses. The smaller the

erven in a layout the more beneficial such a spreading of the open spaces will prove to be.

A large number of small spaces instead of two large ones does, however, increase the maintenance costs, and it also limits the variety of uses to which the spaces may be put.

One large space is provided for organised games.

As regards aspect of the erven and the weak feature of the through road, this layout is the same as Layout No. 1.

SCHEME No. 3.

In this layout the cul-de-sac system is used. It is a method which is very inconvenient when used on a large scale as in this study. Delivery vehicles, especially, must return on their own tracks when on their rounds and thus double up their running miles.

The cul-de-sac system certainly provides quiet residential corners, but at the expense of an easy flow of local traffic. The through road across the super-block is eliminated in this layout.

Stormwater difficulties occur frequently at the ends of the cul-de-sac roads, and these necessitate stormwater servitudes or lanes.

The bulk of the open space is consolidated into two large areas. There are a number of small open spaces, too small to be of any value except ornamentally or as a space for nursemaids and toddlers to play. In this sense this layout is inferior to Study No. 2.

When built up, the appearance of this layout will probably not be in any way superior to that of Nos. 1 and 2.

The approach to the school is more direct and along routes freer from vehicles than in the case of Studies 1 and 2. Layout No. 2 is in this respect better than No. 1.

SCHEME No. 4.

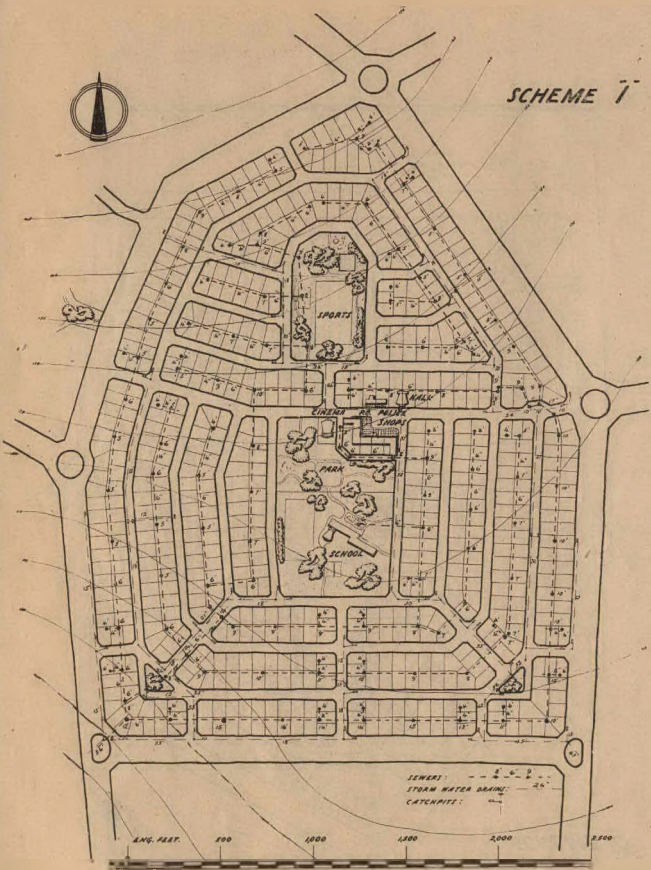
The U-loop method as used in Layout No. 4 creates quiet residential precincts without the inconvenience caused by the cul-de-sac system. Traffic flow is, however, not as free as in Nos. 1 and 2, but through traffic is discouraged from passing through the super-block.

Open space is consolidated and arranged in a system so as to provide pedestrian access through open space to the school and shopping centre.

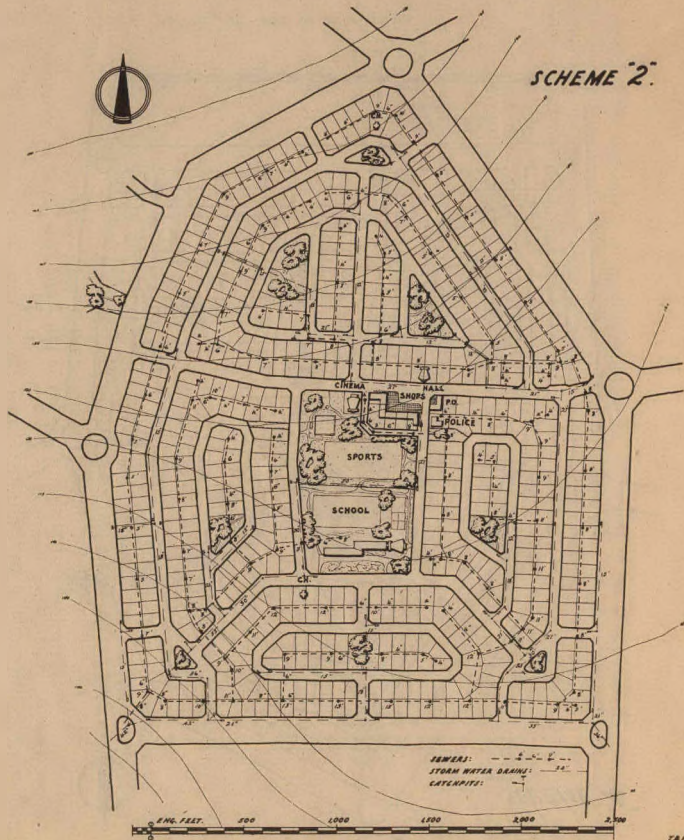
Access to these local centres is along quiet roads and through open space, and is direct and safe. This is the main feature in favour of this plan.

The ends of the U-loops open on to open spaces and this, although pleasant, makes the layout more costly of development. By linking up the ends of the U-loops, the inconvenience caused to vehicular traffic by this system is removed, but the cost of roads is increased by this addition to road length.

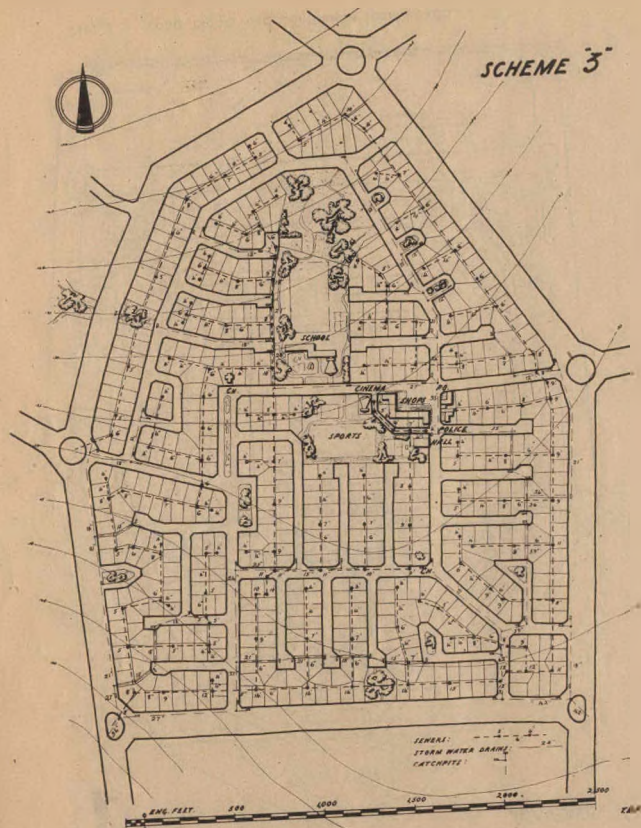
The costs of other services would not be increased if this were done.



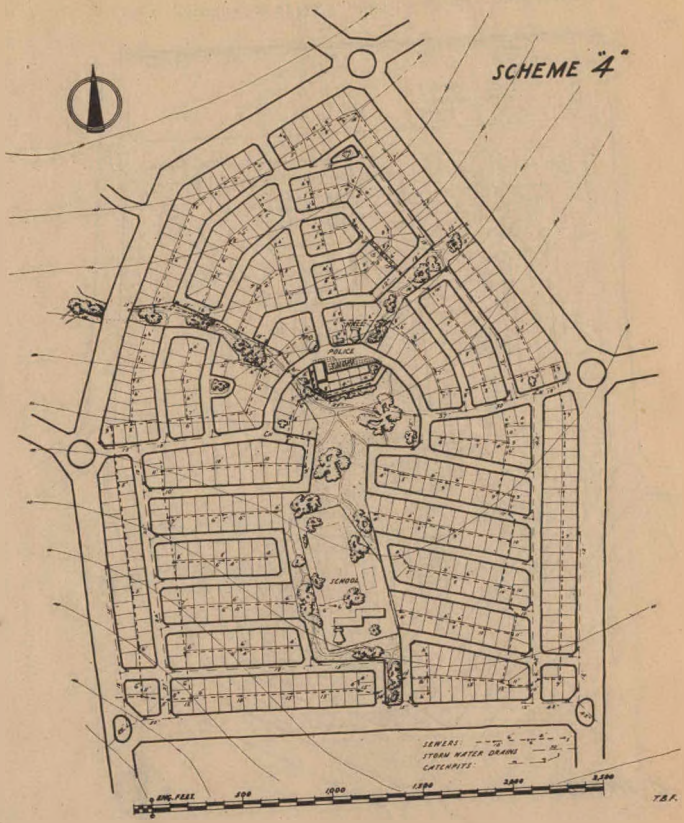
No. 1. Long blocks and continuous local roads.



No. 2. Modification of No. 1, with internally developed blocks.



No. 3. Cul-de-sac roads.



No. 4. U-loops with ends on open spaces.

A majority of the roads end in a vista of open space, and in this respect the scheme is superior to Nos. 1, 2 and 3. There are, however, some streets which are similar to those in the other layouts and just as likely to be monotonous in an estate of small cottages.

The percentage of park is much better than in Schemes 1, 2, 3, 5 or 7, and the layout has generally a more open appearance than any of these others.

Stormwater drainage is very simple, but sewerage is more difficult than in Schemes 1, 2 and 3.

The U-loop is very suitable when used in such a way that it ends either on a ridge or in a valley where these are left in open space.

SCHEME No. 5.

In this layout the U-loop system is used as in No. 4, but the land at the ends of the loops is sub-divided into erven.

The long rows of erven found in greater or less quantity in the other layouts are here entirely eliminated.

In this layout the open spaces are broken up into many fragments, but the pedestrian approaches are designed in a system which is a combination of open space, paths and quiet streets, and is free from much vehicular traffic as is the case in Scheme No. 4.

The U-loops are so designed that they do not lend themselves to the linking up of the ends. The traffic flow in this layout will be similar to that in Layout No. 4.

Both Schemes Nos. 4 and 5 are superior, on paper, to Nos. 1 and 2, but this may not be the case to any great extent on the land. When actually developed Scheme No. 2 is likely to prove just as attractive as either Nos. 4 or 5.

The small open spaces at the ends of the U-loops assist with the drainage of stormwater. Sewerage is somewhat difficult and results in a maximum depth of 15 feet. This is the same as in Scheme Nos. 1 and 4, but more than in Nos. 2 and 3, in which the maximum depths are 13 and 14 feet respectively.

SCHEME No. 6.

All the various forms of layout are used in this study advantageously, although it is largely made up of the U-loop with closed or developed ends.

As in Layout No. 4, these ends may be joined, and large quiet precincts created with a resultant improvement in traffic circulation.

The sports grounds, school and community centre, as well as the flat sites, are all included in a great open-space core to the super-block. A number of small open spaces are scattered about. The open space percentage is very high, being 16.29—by far the highest in all the layouts.

This layout is attractive on plan and should prove so on the ground when developed. The effect will be very open.

Nearly all the U-loop roads have a vista on to the great open space centre, with its greenery and variety of buildings and building heights.

This layout is not easy to compare with the others as it uses a proportion of erven which are in some cases smaller and in others larger than the standard laid down. It also uses a variety of forms of residence and provides far more open space than requested.

SCHEME No. 7.

This layout is on the old grid-iron pattern. It is, however, a well-designed grid-iron, and has been adapted to the shape of the super-block.

The topography, on the whole, is such that few difficulties are created. Some of the roads are on the contour, thus being too flat, with the result that drainage and road obstruction difficulties are created and extra road excavation is necessitated.

The maximum depth of the sewers is 16 feet, which is more than in any other scheme.

As in all grid-iron layouts, the construction of water and electricity supply pipes and lines will be easy and simple.

In this layout the grid-iron may be seen at its best. It is the least attractive of all the layouts, on paper, and will also prove so on the ground when developed.

On broken sites, layouts on this pattern get into real difficulties such as steep roads, sometimes too steep to construct; the trapping of stormwater; sewerage difficulties and bad grading of roads.

Should the site be very flat it will be difficult to obtain a fall on the roads for surface stormwater, and this will result in increased road excavations.

Traffic flows freely through all the streets in a grid-iron layout and there is little canalisation of traffic and therefore no quiet streets.

In Scheme No. 7 numerous short cuts are created across the super-block for through traffic, and these largely nullify the purpose of a super-block design.

The business and community centre in the layout is not at all interesting.

ECONOMIC COMPARISON

The first step in the comparison of the layouts was to work out the percentage of road area, the area devoted to open space, number of erven and road length. These figures are given in Table No. 1.

Examining this table, it will be seen that Study Layout No. 3 gives the greatest percentage of land devoted to erven. It gives the lowest percentage area of road except Layout No. 6, and yet it gives the least number of erven. This is due to the loss of land in the irregular fan-shaped erven at the ends of the culs-de-sac.

TABLE 1.

STUDY	No. OF ERVEN	ROADS			AREA FOR SCHOOLS AND PARKS		AREA DEVOTED TO ERVEN	
		Length in feet	Area in Acres	%	Area	%	Area	%
1	677	34,215	51.9	28.1	18.1	9.8	114.7	62.10
2	675	33,515	51.6	27.94	18.5	10.01	114.6	62.05
3	637	30,255	49.25	26.66	18.0	9.75	117.45	63.59
4	639	31,995	50.25	27.21	23	12.45	111.45	60.34
5	650	30,175	49.32	26.63	21.75	11.79	113.63	61.58
6*	676	27,675	46.33	25.09	30.20	16.29	108.17	58.56
7	673	34,765	53.66	29.05	18.04	9.77	113.0	61.18

*This is an equivalent, as flats were converted to dwellings by formula flat x 2½ = dwelling.

NOTE: Total area of layouts 184.7 acres. Seven acres provided for school.

TABLE 2.

	DEVELOPMENT COSTS PER ERF.									
	STUDY		LAYOUT				NUMBER			
	1	2	3	4	5	6	7			
Land*	£27 6 0	£27 6 7	£29 0 3	£28 18 5	£28 8 7	£27 6 9	£27 8 11			
Roads	92 15 0	92 10 0	93 10 0	95 10 0	91 15 0	83 0 0	96 10 0			
Sewers	16 13 6	15 16 1	17 7 2	17 0 10	16 1 7	13 17 8	19 6 7			
Stormwater Drainage	16 2 3	17 19 1	17 19 3	15 4 2	15 2 1	14 8 0	15 6 11			
Water Reticulation	8 14 8	9 11 7	8 18 0	8 16 0	8 19 0	8 6 5	8 8 0			
Electricity Reticulation	7 5 2	7 16 4	7 18 4	7 0 4	7 4 4	6 14 10	6 16 10			
Totals	£168 16 7	£170 19 8	£174 13 0	£172 9 9	£167 10 7	£153 13 8	£173 17 3			

*Price of undeveloped land taken as £100 per acre.

Study No. 1 gives the greatest number of erven, with Layouts Nos. 2, 6 and 7 close behind.

Study No. 4 gives a low number of erven and a high road area, but it also gives a high open space area. If this is taken into consideration it does not differ greatly from Study No. 5, and is not far behind Nos. 1, 2, 6 and 7, as at first appears to be the case.

The low percentage of road area in Study No. 6 is largely due to the greater open space area and its consolidation, as well as to a lower proportion of building sites.

As this does not as yet give sufficient data on which to base an opinion, the study was carried a step further and Table No. 2 prepared.

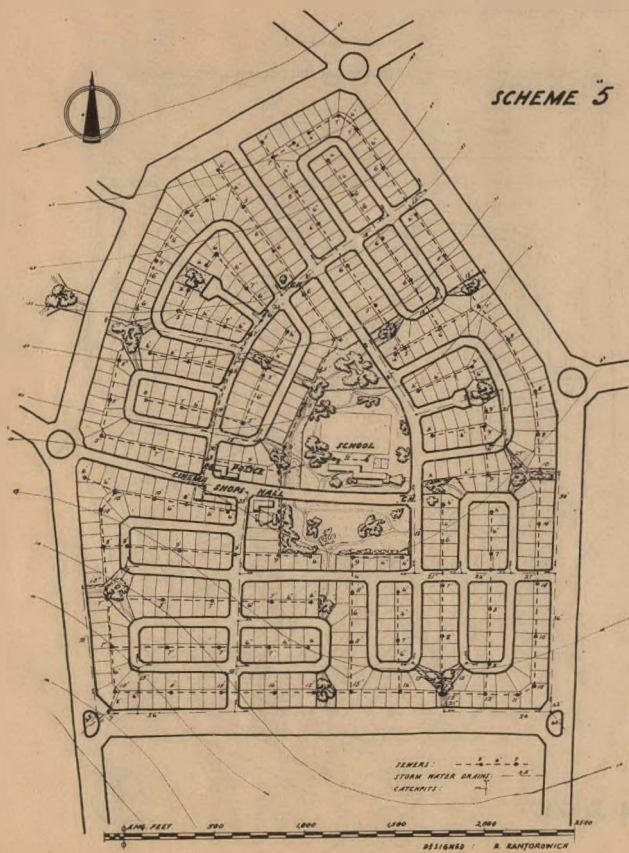
The costs of the services were all worked out in detail for each study layout. Table No. 3 gives an example of these detailed costs.

In Table No. 2 the development costs per erf are worked out. Of these costs, the cost of the land is the most variable. £100 per acre was used, as it is an easy sum to use as a basis from which any figure depending on the cost of the land may be easily assessed.

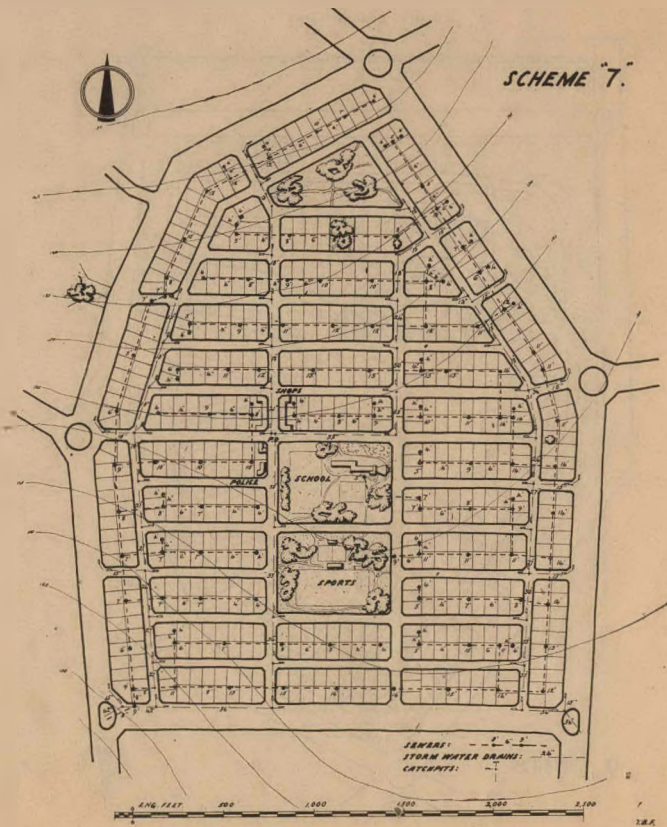
Table No. 1 inclines one to eliminate Studies 3 and 7, but leaves a doubt as to Studies 1, 2, 4 and 5.

The costs of services in Table No. 2 confirm the opinion formed of Studies 3 and 7, as these are the highest in cost per erf. The higher the land cost the worse will No. 3 prove to be. Ignoring the special case of No. 6, it is found that Study No. 5 is the lowest. No. 1 is not far behind, with No. 2 third. Should land costs be doubled, No. 1 will prove the lowest, with No. 5 second and No. 2 third.

Study No. 4, however, offers more park area than these three. Study No. 6 proves to be the lowest in development

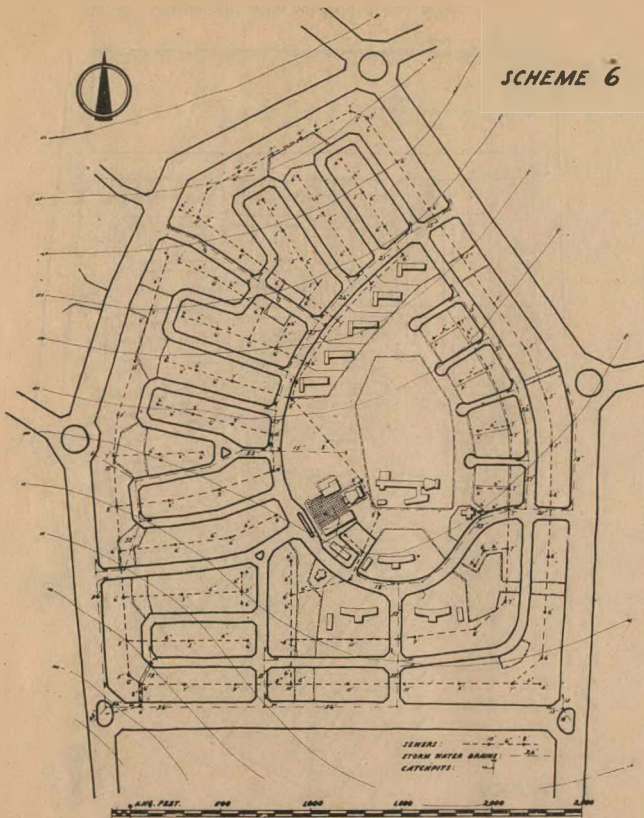


No. 5. U-loops with ends subdivided into erven.



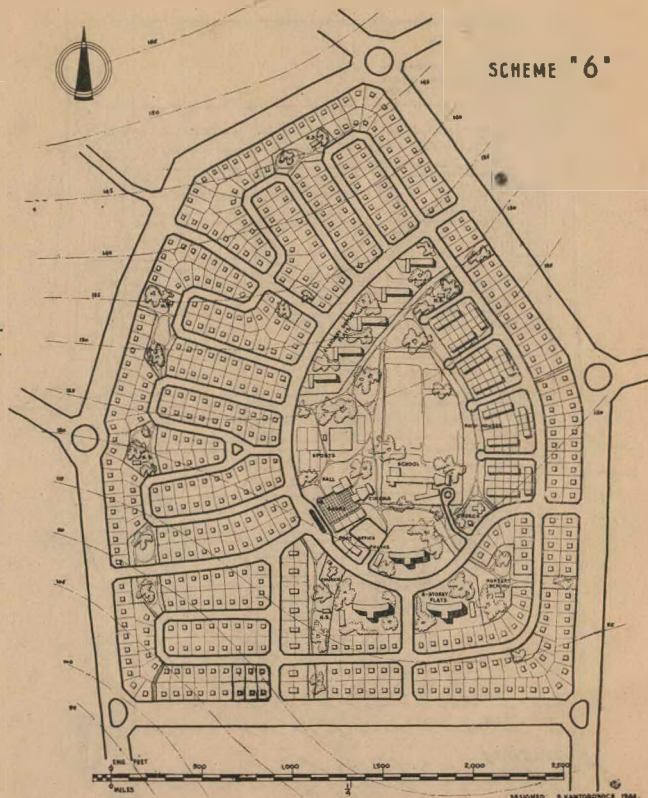
No. 7. Grid-iron layout.

SCHEME 6



Layout showing services.

SCHEME "6"



Layout showing housing.

No. 6. Combining all forms of layout and comprising various types of housing.

TABLE No. 3.

STUDY LAYOUT (I) DETAILS OF SERVICES.

	Amount per Erf	Cost per Unit	Cost per Erf	
ROADS :				
251,200 sq yds.	371 sq. yds.	5/- per sq. yd.	924	£22, 15 0
SEWERS :				
4 in. Pipes 5,810 ft.	8.6 ft.	2/- per ft.		17 2
6 " " 22,690 "	33.5 "	3/3 " "	£5	8 11
8 " " 760 "	1.1 "	5/6 " "		6 0
EXCAVATION :				
0 ft.—6 ft. = 11,470 ft.	16.9 "	2/6 " "	£2	2 3
6 "—10 " = 15,300 "	22.6 "	3/6 " "	3 18 9	£16 3 6
10 "—15 " = 2,490 "	3.9 "	7/6 " "	1 9 4	
MANHOLES :				
1,044 ft.	1.5 "	£1 " "	£1	10 0
MANHOLE COVERS :				
151 ....	.22	£2 10 each	11	1
STORMWATER DRAINS :				
12 in. 2,370 ft.	3.5 ft.	6/- per ft.		15 0
15 " 3,560 "	5.3 "	7/- " "	£1	17 2
18 " 3,670 "	5.4 "	9/- " "		2 8 7
21 " 1,190 "	1.75 "	10/- " "		17 6
24 " 1,520 "	2.2 "	12/- " "	1 6 5	£16 2 3
27 " 950 "	1.4 "	14/- " "		19 7
30 " 1,550 "	2.3 "	16/- " "	1 16 10	
33 " 1,550 "	2.3 "	18/- " "	2 1 5	
36 " 280 " ....	.4 "	20/- " "		8 0
42 " 420 " ....	.6 "	25/- " "		15 0
45 " 630 " ....	.9 "	27/6 " "	1 4 9	
CATCHPITS AND MANHOLES :				
110 ....	.16	£10 each	£1	12 0
				£125 0 9
WATER RETICULATION :				
4 in. Pipes 23,130 ft.	34.2 ft. @ 4/-		£6	16 10
2 " " 10,990 "	16.2 " @ 2/4			1 17 10
				£8 14 8
ELECTRICITY RETICULATION :				
246 Spans ....	.363 @ £20		£7	5 2

costs and gives the greatest area of park as well. Its low costs are due, firstly, to the consolidation of the large open space area, which reduces costs of roads and services.

Secondly, the costs are low because of the use of residences in block form, such as flats, which give a higher local density.

The lead now seems to lie between Studies Nos. 6, 5 and 1.

The investigation is now taken a step further, as, not only must expenditure be considered, but the return must not be forgotten.

Table No. 4 gives the total expenditure on land and services and the total return based on a value of £100 per erf.

If the total expenditure is examined, Studies 5 and 6 are the lowest, whilst No. 3 does not seem out of place. The return or value column shows up Nos. 1 and 2 as the best.

If the expenditure is divided into the value or return, a comparative index figure is obtained which will remain comparable no matter what value per erf is assumed.

The index figure throws Study No. 6, which appeared the best up to now, out of the running. The best results are obtained by Studies Nos. 5, 1 and 2, in the order named. No. 4 is not too far behind.

A factor that must be taken into consideration with return or income is the speed with which the erven in a township sell. A good layout will sell quicker than a bad one. Taking this into consideration, Study Layout No. 5 will probably be the most economical of all.

The U-loop with built-up end can only compete with the long block, as in Study No. 1, if the U-loops are over 500 feet deep. If they exceed 700-800 feet they become far too inconvenient. The open-end U-loop, used in Study No. 4, can never compete with the long block in low road percentage.

If the ends of the loops in this type of layout are connected, the increase amounts to £1,389, which will bring the total expenditure on this layout up to £111,609. In such cases the length of the loops may be increased to over 800 feet and this increased cost neutralised.

DEEP ROAD BAYS :

This method of layout results in large blocks too rigid to use in quantity to produce a layout for comparison with the other studies. The system may, however, be studied by comparing it with a long rectangular block and an approximate result obtained.

If the 70 ft. x 100 ft. erf is used and road bays of 170 ft. depth on two sides of a block are adopted, it results in a block size of 580 ft. x 560 ft., and 32 erven [see Fig. 1]. This gives a road length of 1,140 ft. or 35.6 ft. per erf.

A rectangular block of 1,260 feet long will give a road length per erf of 40.6 ft. A saving of 5 ft. per erf is thus achieved by using the deep road bay.

Against this it is found that the road bay system requires an extra 25 ft. per erf of footpath around the bay, and the cost of this offsets the saving made in road length.

It costs more for water reticulation and about the same for other services. In fact, there will be little difference in the total cost of services if taken over a large area.

The small open spaces of the deep road bays are made up partly of road area saved and partly of loss of erven. The loss in the block under consideration amounts to 2 x 160 x 130 ft., or an equivalent of 6 erven. These small open spaces are too small and are unsuitably situated to displace the need of parks. The area of the larger parks may, however, be reduced because of these small open spaces.

An increase in the cost of park maintenance will result from a breaking-up of the open space into a multiplicity of small units.

These small open spaces allow of a grouping of buildings which is pleasing and brings variety into a layout, but if largely used they will lower the return from an estate considerably. They are certainly not, as a rule, economical, although fantastic claims are often made for them and attempts made to use them on a large scale suggested in the interests of economy.

TABLE No. 4.

	Study Layout Scheme Numbers :			
	1	2	3	4
A. Total Expenditure on Land and Services	£114,297	£115,414	£111,252	£110,220
B. Value of Layout if value of erven £100 per erf	£67,700	£67,500	£63,700	£63,900
Index Figure : B ÷ A	.593	.585	.573	.580

	Study Layout Scheme Numbers :		
	5	6	7
A. Total Expenditure on Land and Services	.597	.583	.578
B. Value of Layout if value of erven £100 per erf	£108,894	£103,920	£116,487
Index Figure : B ÷ A	£65,000	£60,600	£67,300

CONCLUSIONS

Generally the problem of a layout becomes predominantly an engineering one if the site is a rough, broken and steep one. Only a person with a sound engineering knowledge of roads, sewerage and drainage can possibly succeed with such a layout.

Unbroken sites with fair slopes are much easier to plan; very flat sites, on the other hand, again present engineering difficulties.

Roads and services become very costly in the case of rough steep sites. On easy sites road costs amounts to about half the total costs, and on rough broken sites this will of course be much more.

In hilly country it is suggested that economy of roads and services may be achieved by adopting a system such as is illustrated in Figs. 2 and 3. The method in Fig. 2 is one suitable to sites which may be described as at least moderately large. That in Fig. 3 is more suitable for all small sites such as are used in housing schemes.

This form may only be used satisfactorily where the land slopes so steeply that the back houses are not hidden and without an outlook. By using this method where there is a good outlook, such as over the sea or along a pleasant valley, more persons are able to benefit from the outlook than is the case in the normal form of development.

Obsessions in site planning must be avoided as, proverbially, the devil avoids holy water. Engineers, architects and surveyors, if given to obsessions, usually have different weaknesses.

A plan must not be strained to give a certain geometrical pattern; to merely be perfect as regards sewerage or drainage;

to provide grand approaches and vistas which remain paper dreams; to give the greatest number of erven; or to be exceptionally easy to calculate and peg out the erven.

A new obsession is to try and completely eliminate traffic. By eliminating traffic such designs make access very difficult. Many such designs show that the designer does not understand traffic problems. In his attempt to keep traffic out he causes much doubling back on their tracks of delivery vehicles. Thus he merely achieves inconvenience and actually increases the traffic.

Traffic must be thought of in terms of vehicle-miles and not in terms of the number of vehicles.

A design of the sort is shown in Fig. 4. This layout certainly has good features, but it will be a terribly inconvenient place to live in, for the reason that the residents are forced to travel unnecessary long distances to reach their place of work or the local shops. There is a short cut to the shops through open space for pedestrians. Everything is sacrificed to the pedestrian.

Such a layout cannot be considered as otherwise than bad.

In conclusion, the writer wishes to draw attention to the fact that there is no standard method or type of layout which can be repeated for all sites. Each site must be studied in itself as a separate problem and a solution found. The solution may be a combination of some or all of the methods used in this study, e.g., U-loops, long rectangular blocks, internal development, culs-de-sac and road bays.

The author was assisted by Messrs. I. Aronson and R. Kantorowich in this study, and he would like to take this opportunity to express his thanks to them.

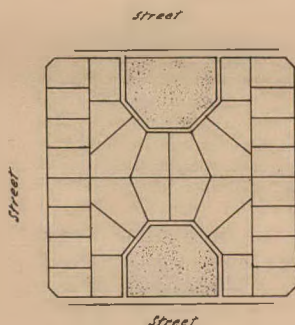


FIG. 1.
ROAD BAYS



FIG. 2



FIG. 3

A REPORT ON BUILDING CONTROL

PREPARED BY MESSRS. A. C. FAIR AND M. D. RINGROSE, INSTITUTE REPRESENTATIVES
ON THE LOCAL BUILDING ADVISORY COMMITTEE

The President,
Transvaal Provincial Institute of Architects,
Kelvin House,
Johannesburg.

REPORT ON BUILDING CONTROL.

I. APPLICATIONS FOR PERMITS :

At the last Advisory Committee Meeting it was reported that approximately 5,000 applications for building permits for houses are on the waiting list. This position is not due to the inability of the Building Control to handle the work, but rather that the number of permits issued is regulated by the quota for the particular district.

The quotas for districts have been determined by careful consideration of all factors affecting building activity. These quotas are amended from time to time according to prevailing conditions.

The procedure in applying for permits is briefly the following :—

(a) Applications in writing should be forwarded to the "Local Building Advisory Committee" in whose controlled area the proposed project is to be erected. The addresses of these respective Committees are :—

Johannesburg	.....	P.O. Box 7796
Pretoria	.....	P.O. Box 1171
Bloemfontein	.....	P.O. Box 266
Cape Town	.....	P.O. Box 3210
Port Elizabeth	.....	P.O. Box 343
East London	.....	P.O. Box 702
Durban	.....	P.O. Box 1050

The exception to this rule is that, in the case of applications by soldiers, ex-soldiers or their dependents or projects for their benefit, these should be forwarded direct to the Director-General of Demobilisation, Building Section, Sanlam Buildings, St. Andries Street, Pretoria.

(b) Applications should be in writing and in the name of the owner of the ground, who must sign Form B.C. 5, and must include Forms B.C. 5 and 10 together with duplicate copies of $\frac{1}{4}$ in. scale sketch plans.

(c) When the Deputy Building Controller has decided to issue a permit the applicant will receive Form B.C. 100, which is a carbon copy of the intended permit. This form B.C. 100 has the words "This is not a Permit" printed clearly across the top of the page. The possession of this form entitles the applicant to deposit plans with the local Municipal Authorities

for their consideration and provisional approval, and it is not necessary to produce the stamped approved plan at this stage. Ninety days is the time limit given in which to take up the stamped permit. During this period the plans have time to circulate within the Municipal departments, and when provisionally approved by the Municipal Authorities the stamped plan must be produced before final approval can be obtained.

During the preparation of working drawings, and in order to meet the requirements of various Local Authorities it is often necessary to deviate from the approved sketch plan. This is particularly the case with projects considered by the Factory Inspector. In order to avoid any possible contravention of the regulations we recommend the following procedure in such cases :—After the working drawings have been brought up to date with all requirements and are suitable for contract purposes, duplicate copies with revised Form B.C. 10 (if necessary) should be submitted to the Deputy Building Controller for re-approval. An extension of time will, if necessary, be granted by the Deputy Building Controller to facilitate this procedure. Here the Deputy Building Controller has undertaken to treat such matters as urgent.

On receipt of the stamped and approved revised plan it will be necessary to hand it to the local Municipal Authorities for examination before they will pass the plans. It has been suggested that this stamped and approved copy of the working drawing be used as a contract document in order to establish beyond all doubt that all parties to the building contract are aware of the limitations of the permit.

Subsequent alterations to the approved working drawings would require approval by the Deputy Building Controller, and here the architect would be responsible for making the application and the builder would be responsible for demanding evidence of the approval of the alterations before proceeding with the work.

2. APPLICATIONS WITHOUT PLANS :

Dealing with the matter of provisional written applications to Building Control, that is, applications without sketch plans, we have been informed several times that this is being favourably considered in relation to industrial projects, but no definite reply has yet been received.

3. REPAIRS AND RENOVATIONS :

Applications for essential repairs and renovations which do not involve any alterations or additions, may be made direct to the District Controller of Building Materials without plans,

but a brief report on the work to be executed must be furnished, together with a list of any controlled materials required.

4. DEMOLITION PERMITS :

It has been ascertained that it is possible that a building permit may be issued, but the demolition of a building on the site concerned refused. In order to avoid this position, application for demolition should be made simultaneously with the application for a building permit.

5. SOLDIERS' APPLICATIONS :

Applications by soldiers or ex-soldiers or their dependants, or for their benefit, are now being dealt with in the first instance by the Directorate of Demobilisation, before being considered by Building Control. Immediately prior to this arrangement being brought into force, delays occurred while final details were being discussed. It is hoped that a repetition of the delays will not occur.

6. PERMITS INVOLVING TIMBER :

We have been assured by the Chairman of the Advisory Committee that it is no longer necessary to obtain permits for timber required on projects for which permits have already been issued nor for new projects. It is now possible to use additional timber in existing jobs in progress and in the erection of any new work contemplated. A Press statement will be published by Building Control.

All the above, however, is subject to the following, and here we quote from a printed instruction received from the District Controller of Building Materials :—

"TIMBER AND JOINERY requirements may be obtained without permit from your stockist subject to the provisions of Government Notice 1970 of 24th November, 1944 (Government Gazette Extraordinary, No. 3417). Your attention is drawn to the following restrictions :—

- (a) Asiatic Teak, Clear Pine of Marula shall not be used unless specifically authorised on this permit.
- (b) Architraves, skirtings and cornices may not exceed 4in. x $\frac{7}{8}$ in., picture rails and chair rails 2in. x $\frac{7}{8}$ in., and cover fillets $\frac{3}{4}$ in. x $\frac{3}{4}$ in.
- (c) The use of plywood for hollow flush doors and wainscotting is prohibited. Plywood for door panels shall not be less than 3/16in. thick.
- (d) No sawn timber shall be used in the construction of any roof truss in farm outbuildings or sheds where the span is less than 30 feet."

It should be noted, however, that the relaxation of timber restrictions does not entitle anyone to enlarge any approved plan without prior written authority.

7. APPROVAL OF AMENDED PLANS :

This matter has been fully discussed with the Chairman of the Committee, who feels that it is not possible to elect any one official to handle the examination and approval of amended plans. It is essential, he states, that the official who is dealing with that particular section should handle any

question of alterations. When asked whether it was possible to have immediate interviews by arrangement, in order to expedite such re-approvals, the Chairman stated that this would not be possible as it was often necessary to make further investigations and inspections of sites. It was pointed out that considerable inconvenience and loss is involved in the delays in re-approval of plans, and we were assured that all sub-controllers have received instructions to treat such matters as urgent.

8. WALLS, TERRACES, ETC. :

It should be noted that Building Control is now taking a more serious view of the amount of sundry building work being carried out, such as flower-boxes and wing walls, open paved terraces and boundary garden walls, when such items are not shown on the stamped approved plans. It should be emphasised that although this work does not necessarily increase the actual roofed area of the building for which a permit is granted, it is nevertheless building work requiring labour and materials, and should not be proceeded with unless authorised in the permit. Architects are advised to show all contemplated building work on the sketch plans submitted or else adopt the method, previously suggested, of submitting the working drawings for re-approval.

PROSECUTIONS :

Prosecutions against owners, builders and architects are proceeding, but although strong representation has been made we have not received any satisfactory assurance that in cases where an architect is involved an opportunity will be given to such architect to furnish an explanation or statement before the matter is handed to the Public Prosecutor. This we consider to be a most unsatisfactory state of affairs.

In this connection we recommend that in all cases of "Provisional agreements" by phone with Sub-Controllers the "agreement" should be confirmed by letter immediately as the Deputy Building Controller will only recognise facts recorded on the files. "Provisional agreements" in any case do not entitle anyone to proceed with building work until confirmation is received in writing by Building Control.

10. HOUSING SCHEMES FOR EX-SOLDIERS :

We wish to draw the attention of members to the fact that mass housing projects for ex-soldiers will be considered by the Building Controller. Full information should be given with regard to the proposals for the financing of these schemes which should be of such a nature as to assist the ex-soldier in re-establishing himself on an easy long-term payment basis.

11. BUILDING CONTROL INFORMATION :

We have endeavoured in all cases to furnish information which is up to date and accurate, but in view of the changing conditions in Building Control we recommend that members contact the Deputy Building Controller before acting on information given in these reports.
21st December, 1944.

A. C. FAIR.
M. D. RINGROSE.

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

The Editors.

No. 208508 V,

Lieut. E. F. Vos,

c/o D.A." Q."S. (Works),

Air Force House,

Pretoria.

31st October, 1944.

Dear Sirs,

SOUTH AFRICA'S POST-WAR AIRPORTS.

Amongst the various great post-war schemes in South Africa, those of our national and international airports figure prominently.

These airports, as envisaged, are schemes without precedent in South Africa, and represent a unique opportunity for the exercise of architectural talent, unrestricted by unfortunate precedent in design, of previous development, and almost, of cost. They will be the gateways to South Africa for air travel and will provide air visitors with one of their first and strongest impressions of South Africa.

Quite apart from the sound design and construction of the landing ground, therefore, the importance of sound and dignified architecture in the design of the buildings, and of an efficient planning of their layout, is a matter of great importance, and should be of vital interest to the architectural profession. It is noted, however, that the party which visited America to study international airports did not include a qualified architect. Is it to be assumed, therefore, that the architectural aspect of the schemes will be confined to "putting pretty fronts on the buildings," as taken off the roll from stock?

So often, in the past, the contribution the architectural profession has made to national projects has suffered the criticism of being "too little and too late," and monuments of lack of planning and of architectural monstrosities have been allowed "to happen."

It would therefore be reassuring to know that the efficient layout and architectural merit of these airports and buildings will receive the attention deserved, and that such a unique opportunity for creating really good South African architecture is not to be lost through apathy and inertia on the part of the architectural profession.

Yours faithfully,

E. F. VOS.

Dominion House,

141, Longmarket Street,

Cape Town.

21st October, 1944.

CAPE TOWN.

It is perhaps insufficiently realised that a unique and splendid opportunity now presents itself to plan and build the heart of a great city at the southern tip of the African Continent.

The true significance of this opportunity can be fully appreciated only if a realistic view is taken of the

extent and nature of the development that is to take place in Africa during the next thirty or forty years, and the position that Cape Town is to assume in relation to the rest of this continent, and of the world. If not as the capital of the United States of Africa, then certainly as one of the principal cities serving all the States of Southern Africa and beyond, Cape Town will undergo tremendous growth. As a terminal air station, and perhaps a centre for air-lines radiating to all parts of the globe, as a supply base for mercantile shipping feeding East and West, and as a cultural link between the Occident and the Orient, Cape Town will assume an international rôle of immeasurable magnitude. The planning of such a city is a challenge to the farsightedness of our legislators, and to the imagination and skill of the town planners and architects concerned. It is a challenge also to all the technical, professional and cultural bodies whose activities or interests are in any way related to the project. It is an opportunity that will not recur, and if a successful outcome is to be assured, it should become the immediate concern of every town planner and architect in this country.

I do not wish in this letter to discuss at any length the technical advantages or disadvantages of the various plans already prepared. They offer ample scope for constructive criticisms, which it is hoped will emanate from interested parties and receive wide publicity. It is not inappropriate to add, however, that what has been inadequately termed the "Foreshore Scheme" should not be allowed to degenerate into a subject of petty squabbling. It should not matter, and does not matter who the author of the finally accepted plan may be. What does matter is that the final plan should provide a solution to all present, and, as far as possible, future town planning problems. It should be both functional and imaginative, and should possess those qualities that are compatible with, and conducive to, the social and cultural development of the people. That in brief outline summarises some of the rudimentary principles which together constitute an essential prerequisite to any successful city plan, and as such must remain inviolate. On no account, therefore, should any sectional or vested interests, likely to conflict with basic principles, be permitted to restrict the efforts of our city planners. Restrictions imposed by undue consideration of cost should be similarly avoided. Rather should the project be regarded as a long-term people's investment, the value of which cannot be assessed in terms of present-day economics.

Whereas our present economic and administrative machinery does not permit of the complete replanning of the old portion of Cape Town, it does permit of reasonably adequate intercommunication between the old portion and the new. If further traffic congestion is to be avoided, the possibility of any obstruction likely to impede the flow of traffic in the heart of the city must at all costs be eliminated. It is clear, therefore, that if it is considered necessary to bring the railway traffic from the southern suburbs into Adderley Street, that all rail traffic should terminate underground. The centre of the city would thus be spared the unedifying spectacle of a network of overhead wires, rail lines and goods sheds, and would be relatively free to cope with the ever-increasing traffic without the need of dangerous crossings, subways or viaducts.

The siting of railway stations is only one of the many aspects of city planning. The new Cape Town station should quite naturally constitute an integral part of the plan. It should not dominate it. It is on this theme that every impartial architect and town planner would criticise the Administration's plan. At the present time railway property, which extends from Castle Street to the Monument Station, has a frontage on Adderley Street of approximately a quarter of a mile, or half the total length of Adderley Street. As a result virtually no building development has taken place in that part of Adderley Street which adjoins the railway goods yards.

The Administration's plan envisages not only a considerable widening of the Station on Adderley Street, but the extension of railway property from Strand Street (extension) at the one end, to the Duncan Basin at the other—approximately three-quarters of a mile in length. Admittedly, the Railway proposals provide for the setting back of the goodyards to the east, but if the Administration's plan is adopted, Adderley Street, the new Civic Centre, the entire reclaimed area and beyond will be hemmed-in by the docks on the one side and Railway property on the other. Such a tragedy must be averted.

Would any person think seriously of building his wash-house and coal shed on the garden path leading up to his front door?

Woodstock beach became a slum area because its development was restricted by Railway property. A modern pavilion, a beautiful marine approach and bridges across the railroad could not redeem it.

Let the discussions and conferences that are to take place on the foreshore plan be elevated to a plane worthy of their lofty purpose.

Cape Town's beautiful waterfront has gone. It is too late to retrieve it, but it is not too late to build a Southern Gateway to Africa that will do justice to such a title, and to those countless generations, the planning of whose city is allotted to our care.

A. H. HONIKMAN.

OBITUARY

JOHN WILLOUGHBY-WILLIAMS, F.I.A.A., M.I.A.

The death of Mr. John Willoughby-Williams, who was for many years well-known as a practising member of the Orange Free State Institute in Bloemfontein, occurred suddenly on 30th September of this year in Somerset West.

Mr. Willoughby-Williams was born in Bangor, North Wales, where he served his Articles with the firm of Grievson and Bellis. After working for a time with Roger Oldham, of Manchester, he renounced the profession temporarily to serve with the Life Guards in the South African War.

After the war he remained in South Africa and spent some time with the firm of Fuller and Waters, of Cape Town, from where he went to the Public Works Department of the Orange River Colony in Bloemfontein.

tein. Leaving the Free State, he spent some years in Rhodesia, and then returned to Cape Town, where he was employed as chief architectural assistant to the firm of Black and Fagg. He was back in Bloemfontein in 1921 as Chief Architectural Assistant to the Municipality, which he left in 1922 to commence practice on his own.

During his period of private practice he was Free State architect for Atkinson-Oates Motors, for whom he designed and erected several buildings. Other buildings designed by him are the Bloemfontein Club and the New Capitol Hotel in Bloemfontein, and the Voortrekker Hospital in Kroonstad.

Parallel to his practice of the profession he was an enthusiastic sportsman, excelling in swimming and billiards in his younger years, while later he became a well-known bowler. He was a foundation member of the Orangia Bowling Club of Bloemfontein and won the O.F.S. Pairs Championship in 1936.

He is survived by his widow, son and daughter.

O.J.G.W.

THE JOURNAL

The Editors wish to convey their apologies to both Institute and Chapter members and to the advertisers for the late appearance of the "Record" over the past half-year.

Considerable difficulties have been experienced during this period with the production of the journal owing to the shortage of personnel for its printing, and to the present day shortages and difficulties affecting paper supplies.

In spite of these factors, however, assurance can now be given that a concerted effort is to be made by the printers and others concerned to ensure that the "Record" shall again appear on time.

ERRATA :

The Editors regret that in the publication of Marchie Mansions, Pretoria, in the November, 1944, issue of this journal, the name of H. W. E. Stauch appeared as collaborator, whereas Mr. Stauch was Mr. Nunn's assistant when this work was executed.

Craftsmanship in War-Time

IT is at once a reflection of this country's fortunate situation and a tribute to the resources of its industry that, after five years of war, it is yet able to enjoy many of the services for which it normally depended upon imported materials and the conditions of peace.

DESPITE the preoccupation of the greater part of our organisation with essential services, the skilled craftsmanship and distinctive design associated with our name are still available for civilian work, albeit local and substitute materials must be employed together with the limited imported stocks remaining at our disposal.

THERE is no class of work for which the architectural and building work has been accustomed to look to us, which, consistent with the controllers' releases, we are not able and prepared to undertake to-day.

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Journal of the SA Architectural Institute

PUBLISHER:

University of the Witwatersrand, Johannesburg

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