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CONTENTS FOR FEBRUARY 1947

SCIENCE IN THE SERVICE OF SOUTH AFRICA

A Congress held at the University of the Witwatersrand, Johannesburg, from July 8th to 10th., 1946, under the auspices of the University of the Witwatersrand, the South African Association for the Advancement of Science, the Institute of South African Architects, and the Association of Scientific Workers of Southern Africa.

PHYSICAL PLANNING AND HOUSING was the title of the sixth section of the congress and was organised by the Institute. The papers comprising this section are published in this issue.

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EDITOR, W. DUNCAN HOWIE

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THE CHARM OF THE SOUTH AFRICAN SCENE

The fertile landscape near Belville, Cape Province

SCIENCE IN THE SERVICE OF SOUTH AFRICA

"PHYSICAL PLANNING AND HOUSING"

The four papers which follow were delivered at a Congress held at the University of the Witwatersrand, Johannesburg, from July 8th to 10th, 1946, under the auspices of the University of the Witwatersrand, the South African Association for the Advancement of Science, the Institute of South African Architects, and the Association of Scientific Workers of Southern Africa. The section dealing with Physical Planning and Housing was organised by the Institute, and was presented under the chairmanship of Mr. C. Irene-Smith.

THE CHAIRMAN: Ladies and Gentlemen: This conference on Science in the Service of South Africa has clearly been called at a most opportune moment. We are to-day confronted with shortages, maldistribution of commodities and an ever increasing cost spiral, which are apparently an inevitable part of the aftermath of a world war.

The problems of Physical Planning and Housing to which our section of the conference is devoted are real indeed, and,

no doubt, the series of papers which have been prepared for you will provide much food for thought, and point the way to overcoming the difficulties which face us.

The first speaker to-night is Dr. H. Sonnabend, of the Department of Social Studies, University of the Witwatersrand, who will deal with the Sociological Approach to Housing. Dr Sonnabend is an authority on this subject, having conducted social researches in Italy and Southern Europe before the war.

SOCIOLOGICAL APPROACH TO HOUSING AND TOWN PLANNING

By Dr. H. Sonnabend

Like a good doctor the housing expert and town planner must know not only the ills and disabilities of his patient, but also his normal way of life, his mode of thinking, his fears and aspirations, his dreams and hopes. It is up to the sociologist to throw as much light as possible on those for whom the projected housing and the town plan are intended. Only so can the architect hope that the prescription will fit the patient and his illness.

Whilst in the past the good architect could have largely relied on his personal knowledge of man and on his own estimate of the social and economic structure, such reliance on commonsense psychology and personal observation has become utterly impossible and dangerous. We live in a very complex society burdened with grave social contradictions and beset with many doubts and perplexities. It is only natural that the architect should be faced with alternatives of an amazing variety. He is called upon to decide on the most intricate questions such as flat versus house, modern cities versus megapolis, sub-urba versus neither-town-nor-country plan. The architect is asked whether he agrees with Corbusier's alternative between a new architecture and social revolution. He will be called upon to make up his mind on Mumford's biotechnic community with the school as its

centre. Finally, what does the planner think of the decentralization idea and what is his attitude to the garden city?

Coming to specific problems affecting South Africa, the architect will have to deal with the perplexing difficulties besetting a mining camp town which has grown into a big industrial centre and a great commercial emporium. What does he propose to do with an essentially European town such as Johannesburg faced with a non-European majority? Is it possible to maintain a community spirit in the African population passing through a process of urbanisation at a speed almost unique in history?

These and many other not less baffling questions beset the housing expert and town planner in South Africa. The reply will be determined by personal bias, by objective economic and technical considerations, by the logic of material and by the prevailing aesthetic or unaesthetic trends. Yet, the architect will want to know how the proposed solutions will fit into the social pattern of the country and how the suggested remedies will tally with the outlook on life of the inhabitants. It is here that the sociologist may be able to provide the architect with a fairly serviceable compass required for a journey through the labyrinth of his problems and perplexities. Of

course, it will not be an instrument of precision such as the architect is accustomed to use in the technical field of his work. Still, it will be the only compass available and its degree of precision will increase with the size of the project under consideration. The sociologist can speak with greater authority when his conclusions are based on a larger field of observation and the margin of error decreases with the number of cases under study.

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In drawing up a housing programme the architect will have to start from the calculation of the number of *natural families*, i.e., the number of persons who, given a chance, would desire to live separately as family units. To obtain such an estimate we can take half of all married persons, add three-quarters of the widowed and divorced under the age of 70 and finally add 10 per cent. of all single persons between the ages of 20 and 65. The largest section will be the 50 per cent. of all married persons, two being required to make a married couple. As to widowed and divorced persons, observation has shown that about 75 per cent. of them continue to act as heads of separate households. The proportion of 10 per cent. of unmarried persons is much more arbitrary, since it will depend on the extent to which single women are gainfully occupied. The formula is, however, fairly reliable. It is on similar premises that the van Eek committee came to the conclusion that the total housing needs in urban areas of South Africa will amount to 450,000 units in the next 10 years.

Still remaining on the plain of quantitative research, one may ask what would be the desirable proportion of flats to houses given a certain age and sex composition of the population. Before answering this question we must decide what can be considered the social justification of the flat. Leaving out all other considerations, the flat should be made available only to unmarried people, young couples whose child has not reached the age of one year, older couples whose children have left their home. Here again we can work out a general formula. We can presume that there will be flat dwelling for about 10 years before marriage and in early marriage and 15-20 years after the age of 50 when it can be presumed that the children have left the parental home. To these must be added a number of persons never married. In a normal population this would mean a ratio of flats to houses of about 1 : 2.5 or to 3. Architects who plan cities on the basis of the proportion of one flat unit to one house are condemning a number of people to sterility.

On applying these criteria to Johannesburg, it would appear that the Golden City requires another 20,000 residential units for Europeans only. Maintaining the above-mentioned proportion it would mean a demand of approximately 15,000 houses and 170 blocks of flats of 30 units each. This proportion is, of course, only a desideratum. The

fact is that the municipal area of Johannesburg has only another 3,500 plots of suitable unoccupied ground. The Craighall boundary is 8 miles from the City Hall and Bryans-ton not less than 14 miles away. In this connection it is relevant to mention that in such a metropolis as Amsterdam the distance from the centre of the city to the residential suburbs is seldom more than one mile.

To accommodate the surplus population of Johannesburg, there are only two alternatives open. One is to build flats and skyscrapers in spite of their undesirable effects on family planning, the other is to establish entirely new and self-sufficient townships adjacent to the metropolis.

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As far as Sweden is concerned, its most important contribution to the world-wide housing problem is the scheme of subsidising families instead of housing schemes. The traditional lines of a housing policy—slum clearance, control of rents, open spaces, have been linked in Sweden with the wider aim of family protection. The State undertook to compensate for an annual deduction of 30 per cent. from the family rent if there are three children, 40 per cent. if there are 4 children and 50 per cent. if there are 5 children or more. The new element in the Swedish scheme is that the subsidy does not go to the building but direct to the family. The total is thus shifting according to the number of children. Thanks to collaboration between state and municipality, rent in Sweden has acquired a new meaning, namely it is determined not by the size of the dwelling but by the number of inhabitants. Here is an example that has already been followed by Denmark and Finland and could well find application in South Africa.

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In the light of these figures the biological inadequacy of Johannesburg is only too obvious. The fact that Johannesburg has still a birth rate of 24 and a death rate of only 10 should not mislead anyone. The relatively high increase of 14 per 1,000 is due to the constant influx of persons of the central ages coming from the villages and the farms of South Africa. This influx has a double effect. It means a favourable age composition, i.e. a preponderance of women in the reproductive ages and a large proportion of men and women of the central ages with a low mortality. It means, moreover, that a large section of the population of Johannesburg is still steeped in the tradition of large families brought from the country side. Both these phenomena are obviously of a temporary nature.

But it is not only the problems of population quantity, but also those of population quality which form a sphere of common interest to both the sociologist and architect. The town planner and housing expert will want to know how does a given type of housing or a given lay-out of a town affect the physical health and mental well-being of the city dweller.

As to health, the effects of rapid urbanisation are either of a direct or an indirect nature. To the former class belong: low level of sanitation, insufficient ventilation, inadequate light and sunshine, congestion in home and streets with consequent spread of epidemics, larger number of accidents, dampness causing rheumatism and influenza. This list is by no means complete. We know little of the effects of atmospheric pollution characteristic of the big town with its factories and motor traffic, though it has been calculated that a town with $2\frac{1}{2}$ miles in diameter pollutes the air in a radius of 60 miles. We are only beginning to know something about the effects of noise and din caused by traffic and industry. In certain streets of New York this noise reaches 90 phones which is not much below the din produced by the Victoria Falls. A tram car in the congested streets of Johannesburg produces noises ranging from 50-60 phones: at certain hours of the day the roar of a lion would hardly be audible in Commissioner Street. The New York Noise Abatement Commission has produced studies which show the extent to which noise raises brain pressure, impairs the hearing, lessens the capacity of concentration and causes general nervous strain.

Quite beyond the possibility of measurement is the strain imposed by general overcrowding. One need hardly stress the way in which members of a family get on each other's nerves when they are compelled constantly to share a restricted area of living.

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Land values in Johannesburg are often higher than those of London. In the city of London £30 per square foot is considered a very good price. In Johannesburg some corner stands fetch a price of £50 per square foot. Exorbitant land values together with high cost of labour and material lead to rents which are out of all proportion to the wage and income levels of the majority of South Africans. The average European lives in a house costing more than £1,500; if we take $7\frac{1}{2}$ per cent. of this amount as rent, we get not less than £112. 10s. per annum. This means almost 30 per cent. of a total annual income of £350. It has become very important to make careful studies of family budgets and pay particular attention to families living below the poverty datum line.

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What is the main characteristic of the average man in contemporary society? I would say it is the feeling of insecurity. The engineer and the worker, the small employer and the clerk, the little shopkeeper and the salesman are all haunted by a sense of isolation and economic insecurity. The average man is afraid of the prospects of illness, invalidity, old age and unemployment. The town faces him with overwhelming forces which he is unable to grasp and does not know how to master. Things seem to change so rapidly that he cannot find a safe place where to anchor the ship of his existence. The question constantly before him is "what is going to

happen to me?" Many a contemporary writer has grasped the sense of loneliness and insecurity characteristic of modern man. Let us remember the great shadow of the little man—Charlie Chaplin. Mumford has again and again stressed this aspect of life in the Megapolis. Already the ancients said "magna urbs magna solitudo"—a great town is a great desert. In the village the large family was a guarantee of security, an institution of solidarity and mutual aid. The small family of the modern city is an additional source of insecurity: the question before the married man is "what will happen to me, to my wife and to my children?"

Life in a big town means also that amusement and enjoyment have become substantial parts of the minimum family budget. In the village and in the small town there were many simple and inexpensive pleasures to add zest to life. In the big town the need for enjoyment is exploited by a big industry of amusement.

And what about women? As long as the family was an economic unit, it acted to some extent as a buffer between her and a society not of her making, not of her liking and often alien to her deeper aspirations and innermost desires. The home was the domain in which she could try to live her life as best as she could. The economic revolution is rapidly changing all this. Woman is made to face the same trials and stresses which characterise life in the metropolis. They hurry, snatch moments of fleeting happiness, rush on, stop at the red light and move on driven by the masses. Those who are more sensitive, more easily hurt, fall behind and are soon out of step. The city has thus rightly been called the place of lonely women. The restless, dissatisfied, uneasy, capricious, hysterical married woman is also a product of life in the megapolis.

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More in keeping with contemporary evolution is Howard's "Garden City", i.e. a central town with 58,000 inhabitants surrounded by six satellites of 30,000 each. Of course, this scheme too has its disadvantages, mainly transport difficulties and the fact that not everybody is attracted by the hobby of gardening, a hobby particularly expensive in a country such as South Africa with its need for much artificial watering. Still, with due modifications, particularly as far as size is concerned, it could be adapted to South African conditions. Given such institutions as schools, creches and community centres it could lead to a revival of community spirit. In the case of Johannesburg, further expansion could take the form of satellite centres with 10,000—20,000 people each.

It is good to know that some of our city fathers begin to realise that civic pride can find an outlet in other directions than the greed for a mammoth population. Even from the purely economic point of view, we seem to have reached the maximum. Ogburn calculated that in the U.S.A. the most

economically run cities have a population of between 300,000—500,000 people.

A powerful incentive to decentralisation is contained in the facts revealed by the census of 1946. If reason is still a factor in shaping the views of the majority, then one may hope, perhaps, that the increase of the African population in the urban areas especially Johannesburg will eventually lead to a re-alignment of public opinion. Johannesburg has now a total of 415,391 non-Europeans whilst in 1936 their number was only 275,000; this gives a net increase of 51 per cent. in 10 years. The European population stands now at 328,473 as against 262,000 in 1936: this means a net increase of 25 per cent. only. In other words, the population increase of the non-Europeans was double that of the Europeans. Should present trends continue we shall have, in 10 years time, in Johannesburg 400,000 Europeans as against 600,000 non-Europeans.

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If this social lag occurs in normal times how much greater must it be in periods of industrial revolution and rapid urbanisation. What we are witnessing in the case of the non-European in South Africa is something surpassing in speed and intensity the English industrial revolution of more than 100 years ago. In fact, one could say that the speed of Bantu urbanisation is paralleled in history only by the drift to towns and the industrialisation of Soviet Russia, particularly in its Asiatic territories. In this latter connection, it is interesting to see how the 5 year plan of the U.S.S.R. for 1946-50 emphasises the home as a family centre. The plan lays down that organisations must undertake the building of one family and two family houses provided with garden and vegetable plots and sell them (on the instalment plan) to workers, clerks, technicians and others. The plan for state-owned houses is based on a total building programme of 72,400,000 square metres. In addition, provision is made for the rebuilding and further construction of privately-owned houses at the expense of individual owners and erected with the aid of government loans: the total is 12 million square metres of living space. The proportion of capital investment is fixed at 42,300 million rubles, i.e. 14.5 per cent of the entire national income. On such a basis South Africa would have to spend on housing in the next 5 years not less than £250,000,000! One can easily admit that conditions in the two countries are utterly different, but one lesson can be drawn from the above comparison, namely that, during a period of rapid urbanisation, a very large proportion of the

national income must be invested in housing if a country wants to avoid complete disorganisation of the family structure.

Without plans on a substantial scheme, the urbanisation of the Bantu will lead not only to the breaking up of their tribal units but also to their complete social and moral disintegration. The phenomena which we are observing at present such as the increase in child delinquency and general crime, are only indications of much more violent convulsions which must accompany painless breaking up of Bantu society.

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Only in the modern townships provided with all the facilities making for a new community spirit, Bantu society may find some defense against the forces of disintegration. Only if Africans or at least a large section of them will be able to bypass the dangerous path of slum living, may there be hope of preserving the minimum of civic responsibility necessary to assure healthy and steady progress.

It is obvious that only a substantial increase in the national income from its low level of about £40 per head per annum can enable the Union to carry out a substantial housing programme. In other words, we require a full utilisation of our material and human resources. It is also obvious that such a building programme can be carried out only if we go far beyond our present labour resources. It is fantastic to hope that our small European labour force should be able to cope not only with the specific problems of our overcrowded towns but also with a housing programme of 10 million non-Europeans. The Smit Report has recommended that Native tradesmen, whether masons, bricklayers, craftsmen or plumbers should be employed to do all the work of which they are capable as far as Bantu housing is concerned. Is it too much to hope that public opinion will recognise this need?

In the plan of satellite towns round Johannesburg and in the vicinity of other big centres of South Africa, the Bantu township must find its rightful place. Such townships must possess all the facilities of community living and all that is required for the healthy use of leisure. In spite of their obvious short-comings, isolated experiments such as that of Port Elizabeth, give a clear indication of what can be achieved.

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In this paper I have attempted to indicate some of the sociological aspects of South Africa's housing problems and town planning needs. The elaboration of detailed schemes remains the legitimate sphere of the architect, the housing expert and town planner.

THE CHAIRMAN: As we have a large field to cover to-night, I feel we should proceed with all the papers without interruption. I hope, however, that there will be both the time and the inclination for discussion at the end. I will,

therefor, call on Mr. U. Tomaselli to read the paper on Planning and Design of Layouts which has been prepared by two Architects, Messrs. R. L. Niebuhr and R. Pistorius.

PLANNING AND THE DESIGN OF LAYOUTS

By R. L. Niebuhr and R. Pistorius

It has become a generally accepted maxim by now that planning of our environment is a necessity. Dr. Sonnabend has pointed out the social ills which result from an unplanned society, and the basic human needs upon which the structure of a healthy society can be built. We are all aware of this need for change in our way of life and in our towns and countryside, if only from a negative viewpoint, from a view of the ills which we now see around us. Yet there is a positive picture too, and the opportunities for happy living which can be brought to each one of us by such an integrated society are difficult to imagine by people brought up in our narrow circumscribed world. Yet they are latent within us and only a change of approach to our problems can bring them to fruition. We must become aware of the full promise of these opportunities and of the only way of realising them. Planning is the prerogative and duty of each one of us, but for convenience in integrating our various requirements we have to delegate our powers to certain specialist individuals known as "PLANNERS".

What then are the duties of these "planners"? First and foremost they must possess the power of seeing in its entirety the structure of the life form for which they are to construct a physical body. They must be able to get at the essential flow of life; its direction and its needs.

All nature is built up according to a pattern, a biological organisation. We can see that natural integration in all natural things around us. The atom and the molecule have their chemical laws; the cell, the body, the stars in heaven—all obey set laws of birth, of growth, of decay. All must obey the laws of healthy organic growth or decay sets in. All must live according to their laws of organisation or cancerous growth deforms and destroys them.

The human community is no exception to this rule of obedience to natural laws. All that applies to the cell applies to man and to that greater man, society.

The city is the physical cell structure of the life form of social man, made up of the units which are individual families. "Show me your city," says Saarinen, "and I will tell you what are the cultural aims of its population." We would go further. "Show me your city and I will tell you how sick is your society." Just like any other biological structure the city can show the health or sickness, growth or decay of the life form which constitutes its motive force.

It must be quite obvious that where, owing to various factors, no organisation exists in the physical city, that is a state of un-health. Disintegration is decay. Nor can one

arbitrarily set a pattern of growth. You cannot say to the sweetpeas in your garden: "You must grow in the fish pond, and have big flowers like a dahlia." That would be contrary to the growth pattern of the sweetpea. The layout planner's task is to discover the underlying basic pattern of healthy human community living—our organic growth pattern—and to build a physical body around that pattern. He cannot dictate growth as was attempted by some planners in the 18th and 19th centuries, and by the Nazis in our own century. Such methods are pre-ordained to failure. The planner can only prepare the ground and build the trellis for the sweetpeas, and for the rest water them and watch over their well-being.

This attitude must be ever in the planner's mind. Research is his greatest responsibility. Without research he can achieve nothing and by ignoring the conclusions of his research he is sinning as surely. In South Africa our haphazard patchwork methods can lead nowhere. The greatest plea that can be made on behalf of the planner is for more and better organised research. Social Surveys, Regional Surveys, Agricultural Surveys—we MUST have more knowledge on which to base our planning.

THE REGION

Just as one cannot consider the human cell structure without reference to the larger organisation, the body, so any attempted study of communities of families divorced from the larger body, the region, must lead to false conclusions. No town planner, caught up in the labyrinth of his sewers and his aqueducts can plan for the needs of the community he is serving unless he is tied into a larger organisation—the organisation of the region. Yet we expect him to do so. We can illustrate this isolationist concept, unfortunately so common, even amongst planners, by reference to an experiment in the physiological field. In this brilliant experiment, the heart of a chicken was kept beating in a bottle some 25 years after the death of the chicken. Here, by fixing the environment of the heart and supplying it with the food it needed for its survival, it was kept beating—but not "living" in the full meaning of the word. The chicken was dead. So any community may be kept in a state of survival in a static environment by the arduous task of supplying it with its minimum needs, even though it has long been severed from the body of its parent region. Yet it will not be living. It will be merely surviving. And as with the chicken heart, the time will come when for some reason its food is withheld. It will die. Most of our cities are like that chicken heart.

The region is an elusive concept to us in our day of disintegration and instability. Our mediæval ancestors lived a fuller life than we do, despite their backwardness in the scientific field, because they obeyed the laws of social organisation. Regions were well-defined in the Middle Ages. Yet, even to-day, and in South Africa, the seeds are here, latent it is true, but with some watering and good soil they are ready to blossom and bear fruit.

It is a natural tendency for the individual to identify himself with a place, with an area of ground. Our interest in Currie Cup Rugby fixtures is one illustration of this tendency. It is a healthy tendency. It is an indication of the natural integrating force within us. Perhaps we should here define what we understand by the organisation, the region.

The region is the larger "whole" into which a collection of adjacent communities naturally group themselves for the fuller and simpler realisation of their life needs.

It is a variable phenomenon, often, indeed usually in South Africa, ignoring political boundaries. It may be large or small, thickly or thinly populated, defined in area by geographic barriers or by historical or racialistic or social factors. It may have well-defined borders or flow into the next region. It is in every way "alive" for it grows and breathes and reacts with its neighbours. In South Africa already there are several embryonic "regions" which, despite the inorganic nature of our society, have managed to show a certain amount of cohesion. The Witwatersrand area, for instance, might well become an industrial region, and might later grow to include Vereeniging. In the Western Cape there is a well-defined sense of unity; cultural, economic and historical, which may develop into something even more pronounced. We must have regional surveys on a national scale to uncover the whole of this regional structure, so that our planners can help it to grow into a lusty, healthy organism.

You may be saying to yourself: "A very pretty theory, but where does it get us in practice?"—There are obvious and very immediate advantages in the regional organisation. Like health and sickness, perhaps it is easier to define the full life of the region by referring to the negative existence of our present chaos. Regionalism then, will ensure that we do not have:—

- (1) Irrational and sporadic food supply, with glut following shortage like the swing of a great inevitable pendulum. Planning of food supplies on a regional basis will bring security to workers and prevent anti-social speculation the present tremendous wastage.
- (2) Unbalanced supply of other consumer commodities. Planning of production according to needs will bring security to workers and prevent anti-social speculation which causes false price values and so keeps certain commodities from reaching large sections of the popula-

tion, to the detriment of the country as a whole because it prevents free circulation of money.

- (3) Misapplication of work. A planned economy will naturally ensure that labour is used where it is most needed.
- (4) Misuse of land. Regional surveys will determine to what use land can best be put to serve the needs of the COMMUNITY AS A WHOLE.
- (5) The cancerous growth of the city into the malignant tumour it has now become.

Our cities are malignant. You have only to look at them to realise that. Traffic problems, poverty, slums, ugliness, their lack of greenery, our estrangement from the country, the disintegration and un-neighbourliness of the ever-expanding suburb—all shout to heaven that something is amiss.

With regional identity and regional control this unhealthy growth can be prevented. The economic root of the problem can be adjusted to bring about more healthy and more equitable distribution of population densities. Placing of industry, siting of new towns, decentralisation of cities—all fall within the range of duties of the Regional Executive body. Regional Surveys—very wide, very thorough surveys—are the forerunners of such planning. It cannot be tackled blindly, without complete knowledge of the potentialities and requirements of the particular area.

- (6) Lastly we come to the present unequal distribution of our scientific resources between city and country. Our countryside is backward, almost primitive, technically and culturally. Integrated regional planning must bring about the extension of our scientific resources to rural areas—electricity, knowledge, the comforts and aids in the home which we in the city have come to take for granted, easy transport, extended cultural facilities.

There must be no sharp division between town and country. In discussing the community we are purposely omitting this distinction and naming the unit the community, whether it be tightly packed as in the city or more thinly stretched as in the country. It is better to refer to "Rural Communities" and "Urban Communities." That helps one to retain always the idea of their inseparability. Their needs for living are basically the same and each must receive equal attention from the planner. "Town Planning" is too limited a term. It implies segregation and conflict rather than a unity, a flowing from the one to the other. Let us rather call our planners of the future "COMMUNITY PLANNERS."

THE COMMUNITY

The community is perhaps easier for us to visualise than the region is, though hardly any better defined in our present society. A community is a group of families, variable in size though less variable than is the region, of families which are drawn together in order to live a full social life and lighten their daily tasks by pooling their personal responsibilities and chores.

It is centered on some factor of common interest—it may have, indeed will usually have, composite nuclei: the school, the cultural center, the recreation centre, the shopping centre, the places of work. In the U.S.S.R. the practice has been to make the factory the focal centre of the community; in America the school; in Britain the social centre. All are valid since all will contribute towards that community of interest or loyalty upon which the cohesion of the community depends. Their relative importance in this function will depend on local circumstances.

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As we have already said, the size of the community is variable, yet there are limiting factors both on the maximum and minimum sides. The community must be large enough to provide the mutual aid for which it is constituted, and to provide for its members sufficient diversity of opportunity to mix socially with their neighbours. On the other hand it must not be so large that the individual loses the sense of his own place in the community. We may note that the Peckham Health Centre, after much research and study, has decided on a minimum of 2,000 families or about 10,000 people for the adequate fulfilment of this social function, and that Professor Abercrombie in his plans for London also works on this figure of 10,000 persons for his "Residential Neighbourhoods". Using the school as the size-determining factor in a cross-section of the South African population according to the 1936 census, the "Rebuilding South Africa" congress at this University in 1943 also arrived at the figure of 10,000 individuals. We may then assume that this is an approximate average figure for the urban community. Rural communities will of course be smaller since the population is more thinly distributed.

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In order to live "the good life" for which purpose people group themselves into communities, there are certain factors for which provision must be made. Firstly there are those factors which are common to rural and urban communities alike.

There must be facilities to enable all members of the community to live a healthy social life to the maximum of their capabilities. Such facilities as schools, community meeting places, shopping centres, recreational facilities, playgrounds for young and old, cultural centres—these are the

framework for healthy living within society, and their provision in adequate quantity is presupposed in any discussion on planning. They are the bricks without which the planner cannot build his house. With their full use will grow neighbourliness, social consciousness and civic responsibility. They make opportunities for experience and expand the horizons of the individual families making up the community. There must be a continuous and wide contact with many people. Man has always felt the need for this contact. It stimulates him to achieve the full realisation of his greater self. We must assume and plan for a classless society, however distant that concept may seem. The snobbery and aloofness of Parktown and Lower Houghton are a tremendous inhibiting force in the psychology of society—and they rebound strongest on the snobs themselves. The Greek Agora, the Roman Forum, the Mediaeval Market Square were common meeting places where the citizen might rub shoulders with his fellows. We must provide similar meeting places for our expanded citizenry.

We must have adequate houses—adequate in size and design and numbers, and adequate services to these houses. There must be places of work, clean healthy places where a man can make his contribution to the common production machine in an atmosphere which will stimulate and give pleasure to the user.

These then are the rough blocks with which the community planner must build his city—or his village or his farm group as the case may be. The efficient grouping of all these commodities and their efficient inter-connection is his function.

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The particular problems of planning facing the rural community are perhaps simpler than purely urban ones, though they call for as large a programme for their solution. We are all familiar with the questions of land use and soil conservation which are getting so much belated publicity at the present time. In addition there are other problems however, which if less pressing are as necessary of solution if rural communities are to draw their full value from life.

We will not deal with these rural problems at length for they are more generally realised and on the whole better understood than are those of the city. Let us not, however, forget the country in our concept of planned communities. Briefly, rural needs may be summarised as:—

- (1) Better communications, especially roads, both within the communities and as access to urban centres.
- (2) Better housing.
- (3) More facilities for social living in local centres.
- (4) Improved health services.

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Our cities contain the most urgent need for planning. We have said that man tends to group himself into communities,

and it is on the basis of these communities that we must work. Firstly let us consider the ideal arrangement of communities in relation to one another and within themselves.

Once established around a flourishing basic industry the city tends to accumulate around itself many secondary and minor industries, and at the same time, of course, the people to run those industries. The housing of all these people then becomes a major planning enterprise. It is natural and right that a region should have a centre and that many people should dwell together near that centre. Such concentration is stimulating to culture and to technical achievement. It is not inevitable, however, that such concentration should result in the unlivable conglomeration of brick and concrete and asphalt paving which we know to-day as the city. According to the potentialities of our technical knowledge it should be far otherwise.

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Let us then visualise a healthy, organic city pattern. Such a city we see grouped around a centre of highly active, highly stimulating public, cultural and commercial buildings. This is the heart of the city. From it flow arteries of transport, outward to the extremities of the region and beyond to link up with other centres. These are railways and arterial roads designed for speed and efficiency. Major industries are zoned between belts of green, and within easy reach of these industries are the communities of workers serving them. There is no unending mass of built-up area. Instead we see well-defined groups of communities separated by belts of green—agricultural holdings and park playgrounds. This is the decentralised pattern which brings the city and the country within reach of one another.

If we look closer at one of these urban units we will see that it in turn consists of several smaller units grouped around a nucleus of local administrative buildings, shops and offices. Light industries of a non-noxious nature are zoned close by. Each smaller unit or community in turn has a nucleus consisting of its own local shopping centre, community centre, sports fields, high school and clinic. In further detail we see that the community is broken up into super-blocks or precincts each housing some 400 families with a junior school.

This cellular structure is the essence of healthy planning. It enables the citizen to retain the sense of his own position in an environment sealed to his size. He has a strong identity with his surroundings and feels a personal responsibility towards them for he can see that he contributes towards the communal well-being. He has wide opportunities for contact with many people. His children meet and mix with children of their own age and older in conditions rich with experience as they feel their way towards adult social living.

Dangerous and distracting arterial roads do not cut like knives through the tissue of the community. Railways do not constrict circulation like a giant tourniquet as they do in

Johannesburg. Carefully planned, the railways and roads have become healthy lifebearing arteries. No steam-engine is allowed within the radius of the civic group. Major roads planned for speed skirt residential communities and traffic within the community is confined to that traffic serving the community itself. Children can go alone to school or to the park or to the shopping centre to buy the family's weekly grocery supply without coming anywhere near a dangerous main road.

Within our communities we will have no interference from outside traffic. They will become quiet residential areas with all facilities for living. They will become personal, personally scaled groups of some five or so neighbourhood units, self-contained as far as daily requirements are concerned, but within easy reach of larger centres and above all, of the work places of their citizens. No man need expend more than half an hour daily in travelling to and from work if his community is properly planned in relation to his work.

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We have mentioned the super-block or precinct housing some 400 families around a junior school. The precinct is not a modern invention. We might mention the Inns of old London as ancestors of the precinct idea. It has only recently emerged again from the chaos of suburban straggle which has threatened during the last century to smother our cities. The precinct or super-block is what its name implies—a large block of ground designed for the use of the families who occupy it. The only traffic which will enter it is that connected with its residents. Its roads will be narrow and quiet. Its residents will feel a very strong loyalty to this area which is so very specifically theirs and theirs alone, and with the precinct emerges the possibility of knocking down the garden fence; that bulwark of suburban isolationism.

This suburban isolationism is so strongly ingrained in us that perhaps we had better amplify so revolutionary an intention as the sweeping away of the split-pole fence. Otherwise we will probably be tracked down after this lecture and shot for anarchists. By knocking down the garden wall we do not mean to rip away the privacy of the individual. Far from it. We believe in the right of the individual, and particularly in the right of the individual family, to privacy and personal identity. We believe that there is not enough privacy and personal identity in the society we know.

It is a notorious fact that in our sprawling suburban layouts designed for privacy and retirement, we do not get any privacy unless our financial position enables us to buy an enormous stand in some posh suburb. They even make jokes about it in "Punch". If anything gets between the pages of that stately volume you can be sure it is not merely a fantasy in the mind of some planner—it is very solid fact. The average city dweller does not know the meaning of the word "privacy". Added to that the fact that even if we do save

up enough for our large stand, the upkeep of the garden is a costly and laborious business which entails the keeping on of a virtually unobtainable garden-boy, and a workable alternative will perhaps not be so distasteful after all, especially if it offers us more than we had before.

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The alternative is that most of the area of the super-block should be publicly owned and publicly maintained. This will relieve the individual of the problem of upkeep of a large garden area, while at the same time ensuring professional and efficient attention to the whole of the gardens at a smaller overall cost to the community. It will not throw the home open to the public gaze. With proper planning the family can be given greater privacy than it now has in a small garden attached to the house and designed as an extra out-door room. This private garden may be publicly maintained if the householder so desires or if he is a keen gardener he may work it himself. There will now be a continuous park-like area enveloping the whole neighbourhood with playing lawns within call of each back door where a housewife can safely leave her children to play with other children. They cannot come to harm for the nearest dangerous road is half a mile away. The psychological value of this green calmness flowing through the neighbourhood cannot be overestimated. Home will truly be a place for relaxation.

Dr. Sonnabend has analysed the housing needs of various population groups. Some families need accommodation on ground level adjacent to quiet play areas. For them the single or semi-detached house is most suitable. We might mention here that the semi-detached house against which there seems to be such a tremendous prejudice in South Africa, can be designed to be a very pleasant place in which to live. In Europe there are some delightful examples. Where space is at a premium it is the obvious solution. It gives one the minimum of space wastage and the maximum of privacy on a given group of houses, and is cheaper to construct than the single house. The single house, indeed, is a very wasteful proposition, both in construction costs and services and is particularly wasteful in land use. Nevertheless there will still be people who prefer to live in a single house. Others can be better housed in flats with or without communal facilities for meals, etc. Provision must be made in the precinct for all these types of dwelling, and indeed it is essential for variety in the life of the community.

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One important fact has emerged from our discussion. All this planning cannot take place without the closest co-operation of the whole precinct. This fact is true of the region and of the city, but where we are inclined to accept the need for regional and city planning, we refuse to accept the fact that we must give and take and adjust ourselves in our relations with our immediate neighbours. We are inclined to be over-selfish, thereby harming ourselves in the long run,

Before any precinct is planned there must be complete co-operation between layout designer, engineer, landscaper and architect. Without such close co-operation nothing constructive can be achieved. If we wish to reap the fruits of social living we must live and build in a social way. It is interesting to compare the tremendous opportunity which presented itself in National Housing with the results achieved. Here was a chance to plan organically. How was it seized? We see the results scattered around all our major centres. Houses—yes, there are houses, and they are a brave effort to plan for new needs in the old, old way. But they fall very far short of social requirements. What integrating factors have they? What social facilities?—None. How do they compare with up-to-date standards of housing design?—They don't. They are patchwork to say the least. We must have PLANNED COMMUNITIES. At Parkhurst and Whytelwood some 200 families were accommodated without any social amenities where 500 families could have been housed in a co-ordinated layout, with complete facilities for social living.

There is a tremendous difference between proper high density planning and overcrowding. The community we have described would be very densely populated by comparison with one of our medium income suburbs, but instead of a feeling of crowding one experience in such a suburb, it would be spacious. This is an apparent paradox, but so was Galileo's experiment on the tower of Pisa. On study, the truth of this statement is obvious. Firstly, there is not so much wasted street and pavement area in our planned community. Streets are planned for use and are not a grid-iron of equally valued strips of asphalt. Main roads are wide, secondary roads narrower and tertiary and access roads in the precinct are narrow. They are placed where they are needed and not arbitrarily ruled across a sheet of paper on a drawing board. The saving is large. Secondly, the constricting garden fence has gone. Privacy is achieved by judicious tree and shrub planting, and the space flows unrestricted around buildings and through the length of the neighbourhood. Thirdly, a certain concentration is obtained in the flats which provide part of the housing.

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How is all this to be achieved? In new centres like the Free State Gold Fields the physical obstacles are obviously absent. There we can start with a clean sheet. There are certain necessary revisions to our Town Planning Ordinance, which leaves far too much to the magnanimity of the speculator. It must be made compulsory in the layout of new centres to provide, before a single house is built or a stand sold, complete social amenities and schools or skeleton provision for them, services, open areas, playing fields and roads. The community must be sufficiently developed to allow social life on a full scale to start as soon as the new residents move in.

There is also the Regional Council which must be set up with wide powers. This council must determine the densities of population in a given area, and town planning councils

must distribute these densities in more detail. There must be fixed greenbelts maintained by law.

In existing centres the problem is more complex, but not insoluble. The cellular structure of society gives us a clue. Following thorough regional and local surveys, master plans must be prepared on a long term basis similar to Prof. Abercrombie's plans for London. These plans will provide for:—

- (1) Combing out and proper joining of industry.
- (2) Sub-division of the population into communities.
- (3) Planning within these communities to make them healthy biological units. Concentration in straggling suburbs and complete replanning of slums and blighted areas.
- (4) Re-placing of transport. Re-routing of arterial roads to avoid cutting through communities.
- (5) De-centralisation of secondary industries and establishment of perimeter towns. Freezing of greenbelts between these towns.
- (6) Opening up of the city and proper provision for open spaces.

If this programme is tackled on the organic cellular system, it will not bring about dis-organisation while it is being carried out.

We have made no mention in this paper of racial factors. We are conscious of the tremendous planning problem set by the colour bar, but since it is felt to be mainly a political problem with an economic basis we, as physical planners can do little towards its solution. The planning needs of the Native differ in no way from our own needs and this paper could be read as a paper on layouts in African housing. The urban Native has been influenced by and has absorbed our civilisation to such an extent that his culture is virtually a western culture, and western needs are his needs.

In conclusion let us again emphasize the organic structure of social man, and the need for everybody to understand the implications of that structure. It means that we have a tremendous opportunity for better living, but it also means that if we continue to flout the laws of our existence we are doomed and pre-ordained to unhappiness, insecurity and decay. Nature holds at once a promise and a threat. We must either live and thrive according to the laws of life or pine and die according to those selfsame laws.

THE CHAIRMAN: The next paper deals with Planning and Design Within the Home, and is given by Mr. Henri Joubert, an Architect who has had opportunities of studying housing in both Europe and America.

PLANNING AND DESIGN WITHIN THE HOME

By Henri Joubert

It is difficult to say when the artificial shelters which constituted the first "homes" were built, but to-day in Wales, France, Sicily, Sardinia and the Aegean Islands there are remains of single cell Stone Age dwellings still to be found, a few of them still inhabited.

The "house" as we understand it to-day, a multi-cell unit with rooms dedicated to specific functions, was known in Egypt about 5,000 B.C. This was a house in the modern sense and it would have been thought that in the intervening 7,000 years we would at least have established the basic requirements of a dwelling.

But this is far from the case. A dwelling is essentially a functional creation designed to shelter and protect its inhabitants and their belongings from the weather, enemies, footpads and robbers, wild animals and itinerant salesmen. While affording this protection, it must allow for and even be adapted for, the pursuit of sophisticated activities with which civilised man beguiles his time and recuperates his forces during those

temporary periods of truce—which we call his leisure—which are declared in the now legally systematised Battle for Existence, rather like the rounds in a boxing contest.

The secondary function, that of catering for activities, and the technical methods of erecting the primary shelter have varied enormously since the early Egyptian period. What was good enough for them is certainly no longer good enough for us. Once the primary function of shelter has been accepted—and it always is even if tacitly, the other functional requirements and the aesthetic requirements really become the generators of the design of a dwelling unit.

Now it may be argued that it should only be necessary to go back to recently recorded history to find a period in which social activities and technical methods are sufficiently similar to ours to enable us to find the prototype of the modern dwelling. Assuming that this were the case, we should then expect to find an increase in functional efficiency with the

building of each new house, this development proceeding *pari passu* with the increase in our technical knowledge and with the change in the social habits catered for. That is to say, the faults and shortcomings in one house would be corrected in the next, until, with the passage of time, the essential planning requirements should emerge very clearly and something like the perfect dwelling should be achieved.

This type of directional development towards perfection is not new, not even in architecture. It was seen in the development of the Greek Temple, can be seen in its final stage in the single and two cell houses in fishing villages in the Aegean Islands, and we are familiar with it in the development of modern engineering products like the motor-car and the aeroplane.

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Why do we not find ourselves in the very happy circumstances I have mentioned above? In the first place, people who have houses built, and very often the architects who design them are very sentimental people and very timid people, and they prefer to go forward looking backwards, because what they see that way is old and familiar and secure and homely and there are no horrible new prospects to frighten even if only with their unfamiliarity.

And so the demand has been for Cape Dutch, Tudor Cottage, Colonial or what have you, depending upon the country, and the main preoccupation has been with style and not with the meeting of essential requirements.

Furthermore, at the beginning of the Industrial Revolution when the foundations of a new architecture should have been laid, house-building was largely in the hands of the newly rich industrialists because the cultured landed gentry were, by definition almost, well catered for in this respect. And what this new house-building public wanted from a house was prestige-value and an appearance of solidity and security and a long gallery of freshly painted ancestors. This attitude resulted in the copying of the Tudor Manse or some other of the stately homes of old England and no progress in the design for living was made.

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Finally, grave deficiencies in planning were largely compensated for by providing lots of space in which family activities could develop without undue inconvenience. But space costs money, and to-day costs more than ever. If two houses of different sizes have the same materials and standard of finish, the larger will cost more simply because there is more material in it. And so the volume of a house is an indication of its cost. Since the beginning of the century, and especially during the last five years, the cost of building has gone up far more rapidly than the income of the salaried class and most wage-earners, and so the volume of houses has tended to shrink to keep the cost within the means of the majority of

the people. Also with this shrinkage, certain elements have been eliminated with the tacit agreement of both house owner and designer, but their loss has been felt nevertheless.

And so to-day we are faced with the problem of stating something like minimum requirements of the normal dwelling. This is not very simple when the various types of family unit to be catered for are considered. We can arrive at empirical conclusions as to the type and broad requirements of the accommodation for various family units, but what minimum or desirable areas are, it is impossible to say without systematic and scientific field work, work which I regret to say, has never been done.

At the end of 1942 a very thorough survey was undertaken in Great Britain of what they call "working class homes" to find out what sort of homes the working classes in Great Britain want. The terms of reference were to arrive at empirical conclusions, and this was done very successfully although the conclusions would not have much validity in this country. But here are some of the points made:—

"Generally, single people, young married couples and middle-aged couples whose children have grown up and left home prefer to live in flats, especially if communal services like hot water and rubbish disposal are offered.

"Families with young children and old people prefer houses, especially single storied houses because they dislike stairs, but neither of these parties likes large gardens because they cannot adequately look after them, either through lack of time or through infirmity."

These results were obtained by an organisation known as Mass Observation in a survey of opinion and confirm the conclusions arrived at by reasoning in the first paper read here to-day. Now it is my task to examine what housing schemes require as minima to offer their inhabitants some approach to the environment of a full life.

The broad qualitative requirements, i.e. how many rooms and of what type can be arrived at by a process of analysis and reasoning, but quantitative requirements, i.e. what sizes or areas they should be, is not so easy. One could assume a certain minimum volume or area per person and multiply it by the relative number of persons concerned. This has been done but the figures taken are "a priori" and arbitrary, and I have found them unsatisfactory when applied to small or large numbers of persons. Here the need for scientific research is urgent.

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Now let us examine the needs first of all of the family in which there are two small children. On September 9th, 1942, the Standing Joint Committee of Working Women's Organisations put forward to the Board of Health in Great Britain as minimum demands three bedrooms and two living rooms in every family dwelling.

Of the two living rooms, one is the traditional parlour or sitting room and the other a kitchen dining room. This latter has not found favour in this country because of the prevalent use of the Native servant, which cancels out the advantage to the housewife of having that work which occupies most of her time concentrated in one room. Furthermore the presence of the scullery, usually outside in England, in the same room as the dining space, is not agreeable. And so we tend to adopt the kitchen-scullery and the living-dining room arrangement.

There has been a tendency towards the minimum kitchen in recent years with the laudable object of giving the space gained to the living quarters of the house. This tendency has been inspired by the example of the train kitchen where, in the narrow confines of a railway carriage, a staff is able to cater for several hundreds of persons at a time. Therefore why should not a housewife be able to cater for only four or five persons in only slightly less space? Now the housewife's duties are far more diverse than those of a train chef and less amenable to routine organization.

The train chef does not have to cook the family meal, keep an eye on the baby, mend clothes, answer the front-door bell, supervise the week's washing, put flowers in vases, polish the cutlery, feed the dog and argue with the green-grocer all in the same room; but the housewife does and she needs room to do it. Also she spends most of her day there, her children may do homework there and her husband probably mends broken toys there, and so it should have the same attention to comfort and pleasing appearance as any room in the house.

As the separate scullery and pantry can be eliminated with advantage, this should be done but adequate storage for dry foods, perishable foods, kitchen utensils, crockery and cleaning materials should be provided. To do all this and provide adequate light and ventilation, the normal family kitchen should be not less than 120 sq. ft. including scullery and pantry space with no dimension less than eight feet. This is somewhat at variance with that of Lihotzky who demonstrated a kitchen of 68 sq. ft. at Frankfurt, with one dimension of six feet. While dealing with the kitchen, I should like to quote from the survey I have mentioned earlier: "There is a very strong positive correlation between liking the house and liking the kitchen; if the kitchen is considered satisfactory the home too is liked."

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The greatest casualty in the shrinking dwelling of the last half century has been storage space. Architects perhaps inspired by the Spartan interiors of Meis van der Rohe, have never put up anything like a struggle against the disappearance of the attic, the basement, the junk room, the spare room, the toolshed, etc. In spite of the cluttered and admonishing examples of their own homes they have refused to believe that families collect an enormous amount of hockey sticks, old suitcases, christmas tree decorations, scooters, inefficient

ice cream freezers, boy scout tents, prints of the "Stag at Bay," brass bedsteads, bird cages, magic lanterns, Meccano sets, board games and the like which are not put to daily use but which their owners are loth to throw away. These or similar articles are part of the normal family's chattels and must be stored.

In the neglected question of storage space, there is one item for which provision is very rarely made but which is a great encumbrance in the minimum house. The perambulator, later the tricycle and finally the bicycle are the constant companions and sources of annoyance to the average family over a period of about 15 years. The problem of their storage when not in use need not necessarily be solved by providing more space but perhaps by organising the space to accommodate them. Under the same heading of storage comes the linen cupboard. There is an idea prevalent among the public that this should be part of the bathroom. On the contrary, it should never open into the bathroom if possible.

For the family unit we are considering, storage for the unclassifiable articles mentioned above, should be about 200 cu. ft. and the linen press about 60 cu. ft. Other storage I will come to when I deal with the rooms which they serve.

The idea of the living-dining room is familiar enough to need no introduction, as it is accepted even in large houses. But a grave common error is to provide a room without thought of the placing of furniture in it. The general result is that family activities are interrupted while the dining-table is being set, and cannot be resumed until it has been cleared. Rather the dining should be zoned for easy access from the kitchen, and, while forming part of the volume of the living area, does not encroach upon it. That is to say, the living-room should not become the dining-room during meals and then reassume its normal character in between. Apart from this zoning it is better not to try and plan in any more detail for the activities which are followed in the living room. These activities vary so greatly with different families that it is better to provide a room rather neutral than otherwise in which people can have the kind of furniture and fabrics that they like. This generally means "no built in furniture in the living-room."

Now assuming a figure of 850 cu. ft. per adult and 350 cu. ft. per child and a ceiling height of 10 ft., the room I have described would have an area of 240 sq. ft. The minimum dimension should be not less than 12 ft. or more than 13 ft. 6 in.

This living-room should open conveniently on to a terrace or stoep of some sort for outdoor living. This should have an area of about one quarter of that of the living-room, should be used for circulation to the rest of the house. Where this is impossible, at least the terrace should be kept private. Speculative builders have set such a strong precedent by having a small stoep in front of the main door, flanked by two

respectable bay-windows, that it has assumed the character of inevitability. This steep is definitely and incontrovertibly a part of the living room, and considering the ease with which it can be kept separate from the entrance, I can see no reason why it should be a landing for a disproportionately monumental flight of granolithic steps and a housing for a mat-sinking.

Circulation area is one part of a house which should be kept to a minimum if it cannot be eliminated altogether, in spite of the reputation for respectability which "a nice long corridor" has. If the entrance hall can be reduced to the size necessary to take off and hang up a coat, and the corridor eliminated, so much the better, because any economies effected here can be used to greater advantage elsewhere.

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There is a tendency to reduce bedrooms in size and number. Bedrooms can be reduced to minima dictated by sizes of furniture and an allowance of something like 850 cu. ft. per adult and 350 per child, provided that activities like studying, sewing and playing are taken care of elsewhere. If this is the case and the principal use of the bedroom is for sleeping only, greater exactness can be used in its planning and determining furniture positions, and the room can be planned around the furniture. The built-in wardrobe is imperative, not only because it is cheaper than the movable commercial article but also because it can be designed to encumber less space, even though it is no smaller.

It is desirable that children of different sexes over the ages of nine or ten should have separate bedrooms. For this reason 3 bedrooms are adequate for families with up to 3 or 4 children.

Using the cu. ft. figure quoted above, we get 170 sq. ft. for a double bedroom for adults, and about 85 for a double bedroom for children. The former figure can be substantially reduced to 125 sq. ft. and the latter should be increased to about 100. These sizes are determined roughly by furniture sizes.

The bathroom is generally of the minimum size which will accommodate the fittings and still allow a person to use them. The vexed question of having the WC. separate from the bathroom is difficult to solve in low-cost housing. In spite of the obvious convenience of having separate rooms, the structural and space-saving advantages of the combined WC-bathroom generally outweigh those of convenience. Nevertheless, where the family consists of four or more persons, they should be separate.

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It is a peculiar fact that in this country even persons housed in sub-economic housing schemes, have motor-cars and the garage has become indispensable. If it is incorporated within the house structure it saves at least one external wall and reduces the number of elements to be placed on the site.

On the other hand they can form part of the outbuildings which contain quarters for Native servants. Here I think that I ought to mention that there are no humane or biological reasons why Natives should have a very much lower set of standards applied to them when considering the minimum to assure them of health and comfort.

How and where the weekly washing is done is studiously ignored in most modern schemes. A drying yard could be formed by enclosing a kitchen yard with screen walls running from outbuildings to the main house. Care should be taken that traffic from the kitchen to fuel hoppers is clear of the clothes lines. A laundry tub in a roofed area enclosed on three sides, if not a proper room, is desirable, but the movable galvanised iron bath is sufficient provided that there is a convenient water point and drainage point.

These general considerations apply, *mutatis mutandis*, to the requirements of all family units, but I should like to mention a few special points.

Old people who prefer to live in maisonettes or ground-floor flats, like the kitchen-dining room with the kitchen a minimum because it is easy to keep clean and they generally do not have a full-time servant. Also they like a small spick and span separate living-room.

Single people who prefer flats, do not mind the combined kitchen-dining-living room where the kitchen is virtually an alcove with cupboards and a hot-plate, but the preference is for a minimum detached kitchen.

In flat buildings generally, the same considerations as before apply, with the exception that garages and servant's quarters are taken care of in separate buildings. In flats storage accommodation shrinks generally to a cupboard in each bedroom, a linen press and the bare minimum of larder space in the kitchen. This lack of general storage has become one of the chief criticisms of flats.

The advantages of grouping of services has not always been exploited to the fullest advantage in flat buildings. We are familiar with hot and cold water services, with electricity, and gas and sometimes with garbage chutes, but the possibilities of having a central vacuum plant with points in flats for vacuum cleaning, and a central radio receiver with points with 4-way switches for programme selection have not been properly tested. The Garchey system of refuse disposal by means of ducts to a central incinerator which is used to heat water has captured the imagination of architects. But it is questionable from the point of view of national economy if it is a good idea to burn away refuse rather than try and return it to the land in the form of fertiliser. Also green vegetables have proved difficult to burn without the addition of some highly inflammable substance. The whole question of refuse disposal is one which should be studied *ab initio*, because at the moment no satisfactory solution exists.

Now that I have mentioned some of the ideal minimum standards—if you can imagine such a thing—I should like to turn to some of the standards actually obtaining in various countries. The areas and minimum single dimensions that I have proposed have been determined largely by the dictates of volume for comfortable physical movement, a desirable volume of air per person and sometimes by the wall area desirable to take furniture and at the same time allow sufficient area for windows for lighting and ventilation. But at the moment these are imponderables and scientific research is required to establish a set of standards with allowable divergence for special cases. These special cases will probably become the rule, because we would be fortunate if these standards were our only problem.

At the moment we have to balance maximum cost with minimum requirements, and in cases of doubt, cost has the say.

Now here are some comparative figures, the “ideal” being that which I have proposed.

3-Bedroomed House.

	<i>Ideal</i> <i>Sq. Ft.</i>	<i>Nat. Hous.</i> <i>Sq. Ft.</i>	<i>Austral.</i> <i>Sq. Ft.</i>	<i>Gr. Brit.</i> <i>Sq. Ft.</i>
Kitchen	120	120*	128	100*
Living-dining Room ...	240	200	200	210
Main Bedroom	125	150†	150	150†
Second Bedroom	100	130†	120	110†
General Storeroom ...	20‡	20	—	70‡

* Including laundry tub.

† Including cupboard.

‡ Including workshop and fuel store.

Total areas: Ideal, 1,200 sq. ft.

National Housing, 1,100 sq. ft.

Australian, 1,100 sq. ft.

Great Britain, 900 sq. ft.

All these figures seem to suggest that the Australian recommended standards are higher than the others, but they make what seem to me serious omissions which reduces the overall figure to much the same as the National Housing figures.

The total figure of 900 sq. ft. in Great Britain which is taken from the Dudley report of 1944, does not include 70 sq. ft. for storage and workshop. Another figure that reduces the total is that of 70 sq. ft. for the third bedroom as compared to 100 in the other schemes.

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While it is extremely important that the volumes and areas provided should be adequate for the physical requirements of the inhabitants of the house, it is equally important that these volumes are adequately lit, heated and ventilated, and that the design of one space in relation to another be such as to allow the full use of each, and also that the designer make

the whole as beautiful as it is in his power to do.

The questions of natural and artificial lighting could each occupy a separate lecture, and so I must be excused if I can only state conclusions without any of the reasons which led to them.

The question of lighting the home has been grossly neglected in spite of the advances made by illumination engineering. The reason is that research in this field has been sponsored by industrialists who have wished to find out what level of illumination would give optimum production results by the workers. How important this has become can be judged from the fact that in one factory alone, the Dodge Corporation of America, spent 2½ million dollars on the lighting plant.

The average home, including those in the luxury class, has only about a half of adequate illumination, both natural and artificial. This is a generous estimate for low-cost housing and especially so in the kitchen. Attempts to rectify the position by formulating by-laws stipulating a minimum window area in proportion to floor area are not very effective, because a small window well placed may give a better light where it is needed than a large window badly placed.

During the war in Britain a system of measuring satisfactorily natural lighting has been developed and it may well form a scientific basis for determining adequate window areas for various rooms. This consists of a table of “daylight factor protractors” developed by the Building Research Station. The protractor makes it possible to analyse the lighting condition of any window very rapidly; and so, is it too much to hope that one day our by-laws will demand a minimum of 2.5 per cent. daylight factor in the kitchen with 5 per cent. at the stove and work table?

In a survey before the war it was found that the average level of artificial illumination in the home was 5 foot-candles. It is impossible to state generally what is desirable, because that will vary with different occupations. But to give an idea of what modern standards are, I should mention that desirable illumination for a tailor working with dark cloth is 3,000 foot-candles, i.e. 600 times average domestic illumination. For reading and writing about 25 foot-candles are required at the working plane with about 5 foot-candles as background lighting. In a kitchen 25 foot-candles are required at the working plane, care being taken that no shadows fall across ovens and stove or table tops. In a room with white walls and a ceiling of about 9 feet, this will mean the provision of about two to three watts per square foot.

Before leaving the question of lighting, I should like to mention that economy in initial cost by providing inadequate window area will increase the financial burden of the occupier. Artificial lighting will have to be resorted to earlier in the day than is necessary, and if the rather ambitious standards are even remotely approached, it may mean the expenditure

of a pound or more over the winter months, without counting the cost of earlier replacement of lamps.

Heating and ventilation are cognate subjects and should be treated together. Due to the tenacious myth that this is a warm country, no provision is normally made in housing schemes for heating apart from a fire-place in the living-room. This is probably the most inefficient system of heating that has been devised, but it has real psychological and social advantages. The high initial cost, the high cost of running, the dirt and work it entails and its extravagant consumption of a commodity becoming increasingly scarce make it undesirable as a heating unit. Electrical heating has obvious advantages apart from lower initial and running costs. Generally speaking electric radiators are inadequate because a small 800 watt radiator is supposed to do the work of a large coal fire. Actually about 10 or 12 watts per square foot are required for adequate heating and even though this is very much more than most people provide for themselves, it is still more economical than a coal fire. There is a common complaint that an electrical heating unit causes a "dry heat."

This really means that the ventilation is inadequate because the coal fire is also an inefficient but effective ventilator. The question of ventilation presents apparently insurmountable problems. The idea of fixed ventilators like airbricks has been abandoned except in building by-laws. They either admit draughts when a wind is blowing, or else serve no purpose at all when the air is still and when some current of air is most required. At least half of all window area should be able to open, preferably using side-hung casements and fans over them, but providing all this does not mean that the occupants of houses will use them properly.

* * * * *

Now once all the statistical requirements of which I have given an outline have been met it is of even greater importance that they all be composed into a "good design." Everybody has a rough conception of what he considers good design but there are a few points that I should like to cover.

To make use of solar heating, that is, to heat rooms through their windows during the day and then to draw curtains to contain that heat at night, demands that all living and bed-rooms should face north, even though the approach and street are on the south. In fact this is considered by architects the ideal approach because none of the valuable northern frontage is wasted on pure circulation. In spite of the logic of this and of the desirability of having the habitable rooms facing onto a private garden unencumbered by path and driveways and away from a public roadway, nevertheless it is anathema to town engineers who have stopped the building of National Houses incorporating this delightful layout. They and members of the public think of the "front" of a house and the "back" of a house, and the appalling, Einstein-like paradox of the "front" being at the back is too much to try and work out.

In the layout within the home, the kitchen should have a separate entrance, but this is impossible to provide in flats without grossly increasing the cost. Here the kitchen should be easily accessible from the entrance and should not be reached through the living room as is the case in some English practice. Also the kitchen should communicate conveniently with that portion of the living-room zoned for dining.

Bedrooms should not open off living-rooms, but should open off a small lobby which could serve as a small entrance hall if the planning will permit. Bedrooms should be grouped as a night zone, as it were, and the rest as a day zone with no overlapping between the two, but rather, connected by a circulation link.

Now if all that I have suggested is physically achieved and the result is drab and seely and monotonous and gloomy and inhospitable, the whole thing might as well not have been done at all. Aesthetic values in good design are imponderables, and so are avoided by material analyses, but they are very real and very high values all the same. Human beings have shown what is to material philosophers an inexplicable tenacity and endurance in the creation of works of art, and it must be concluded that in spite of Plato's proposal that artists would be excluded from the ideal republic, man has spiritual and aesthetic needs which must be satisfied in some individuals before material needs.

* * * * *

All people are agreed that it would be pleasant to have our environment as beautiful as possible, but the question of how much we should spend in cash to achieve it immediately causes a wide schism in the ranks of those who control the purse strings and those who do not. I do not think it is an exaggeration to say that to-day the most important thing is to invest money to bring the highest possible return. This generally means that if it is possible to reduce initial cost of a project without affecting the final returns it should be done.

Occasionally I have commented on the fine and expensive finish employed on certain large buildings, but have been told that that was only done to avoid paying super tax. And so it come back to the same thing. Generally, money spent on fine finishes, on larger than really necessary windows, on adequate lighting and on parks which are not hired out to show a monetary profit, is considered money wasted.

This is regrettable, but it does not mean that good design is thereby impossible, but rather, more difficult and therefore requires the services of an expert. He must carefully regard the proportion between the dimensions of a room: the relation between wall and window area; the play of light and shade; textures and light-absorbing and light-reflecting surfaces. Proportion, colour, texture, equipment, finishes and lighting all play their parts in creating the illusion of spaciousness within the hard reality of the minimum volume.

Good design in all objects in the home, the avoidance of the flashy and meretricious, must contribute by simple example

to the education of our society to something like Athenian standards of civilisation where "good taste" and the appreciation of the overtones of life where the rule rather than the exception.

There is a popular fallacy that an appreciation of beauty is miraculously acquired at birth. Nothing could be further from the truth. If this were so, there would appear to have been an extraordinary genetic hiatus during the last century in this class of person, but I don't think that this could be substantiated by scientific investigation.

People have to be taught appreciation, and if we think that it is important, it can best be done by example. Therefore

let us assure our population of adequate requirements for their health, comfort and convenience but let us assure them also of the highest aesthetic standards possible in the design. These two broad aspects are fundamentally inseparable.

THE CHAIRMAN: The concluding paper of this series is presented by Mr. Reynders, who is the Loans and Securities Accountant of the Johannesburg City Treasurer's Department. He is, therefore, well qualified to deal with the financial aspects of and the problems associated with housing.

THE ADMINISTRATION OF HOUSING—CONTROL AND FINANCE

by Mr. M. J. Reynders

Prior to the 1914-1918 War, when the general view was that housing was a matter for private enterprise, the public on the whole was not aware of the problem that existed. Private enterprise provided housing for the upper and middle classes, and for some of the lower classes among the European community. Consequently the European population in the urban areas was more or less satisfactorily housed and was not aware that the less privileged classes of Europeans and the non-European community were living under such bad housing conditions. The non-Europeans, for their part, had no voice in the matter and no voting power, and as there was no strongly developed communal social sense, the position was allowed to continue.

Some half-hearted attempts were made by certain local authorities to alleviate the position, but, after the influenza epidemic of 1918, pressure was brought to bear on the Government, which was forced to take action, both as regards health and housing. A housing committee was appointed to consider and report whether it was advisable for the Government to give financial or other assistance to local authorities and others in providing housing accommodation in urban areas for persons of limited means, including coloured persons and natives, and, if so, the best method of doing so.

The report of the Government's Housing Committee led to the promulgation of the Housing Act, No. 35 of 1920. This Act provides for loans of public moneys for the construction of dwellings, for increasing the powers of local authorities in respect of the construction of dwellings, and in other directions facilitates such construction.

Local authorities re-acted well to the facilities provided and set about the completion of proposed schemes as rapidly as possible but, during the period 1920 to 1930, such schemes as were attempted were mostly of the economic type.

The next decade, i.e. from 1930 to 1940, marked a period during which local authorities were constantly making representations to the Government to reduce its interest rate on housing loans which had remained at 5 per cent. since 1922. The Government complied by reducing the rate of interest for new economic housing schemes to 4 per cent. in 1933 and further in 1937 to 3½ per cent. This reduction was the principal incentive for applications from 1937 to 1940, but after the outbreak of war, when conditions were uncertain, the Government altered the rate once again and increased it to 4 per cent. from 1st April, 1940.

Building proceeded after 1940 to complete schemes authorised to that date and a limited number of applications received during the war period, whereafter the position has been practically stationary in view of war-time difficulties, the higher interest rate, increasing costs and the shortage of labour.

THE FORMULATION OF POLICY

Before proceeding further I would like to indicate the desiderata to be borne in mind when formulating housing financial policy.

The experience of local authorities has shown that it is futile to build isolated houses on widely separated sites in different parts of a town. Any serious attempt to build

houses must provide for the erection of a large number of houses in the form of a scheme or township. The construction of new townships requires careful planning and provision must be made for parks, open spaces, hospital facilities, recreation facilities, libraries, communal centres, etc., and funds must be available to pay for these amenities.

It is also desirable, from a health point of view, to provide lighting, water and sewerage services in addition to constructing roads, stormwater drains and pavements. Here again the cost must be counted.

In the past housing has been very closely associated with slum clearance and the rehabilitation of the poor. While the housing problem, as we know it to-day, is no longer so closely linked up with the needs of the slum dweller, no scheme would be complete which did not provide for houses of different sizes and types to suit various family groups. Changing family circumstances often require the removal of the family from a small house to a larger or vice versa, and facilities should exist to move slum dwellers to larger and better houses as their rehabilitation progresses.

The housing problem is for the most part a matter of providing accommodation for those who are unable to provide suitable homes for themselves, i.e. for persons who are in the lower income groups. It is considered in many quarters that the amount payable as rent should not exceed one fifth to one fourth of income, which means that rents must be maintained at the lowest possible figure. In order to keep rents down the capital cost of housing projects must be reduced to a minimum.

THE FINANCING OF HOUSING SCHEMES UNDER THE HOUSING ACT, No. 35 of 1920, AS AMENDED.

Under the Housing Act of 1920 provision has been made for loans of several kinds. These are as follows:—

(a) *Economic Loans.*

Economic loans as the name implies are advances made to finance schemes which are run at cost and in respect of which no losses are incurred. The rate of interest charged by the Government on these loans was 1 per cent, per annum until the 1st July, 1946, when the rate was changed to 3½ per cent, per annum.

(b) *Sub-Economic Loans.*

Sub-economic loans can be obtained from the Government by local authorities to make advances to utility companies and associations not for profit. The rate of interest charged on these loans is 3 per cent, per annum.

(c) *National Housing Loans.*

The loans are made to local authorities to finance their own schemes and the terms and conditions of these advances are set out in what is known as the National Housing Formula. The rate of interest payable on these loans is 5½ per cent, per annum.

(d) *Housing for the Aged Poor.*

Local authorities may borrow from the National Housing and Planning Commission for the purpose of housing the aged and indigent poor. Interest is payable on these loans at the rate of one shilling per cent, per annum.

In 1945 a Housing (Emergency Powers) Act was passed which provided *inter alia* for a new procedure on expropriation and a new basis for the computation of compensation on expropriation. The Housing (Emergency Powers) Act also confers very extensive powers on the Governor-General who may by proclamation make regulations covering a very wide field of activity. The regulations which have since been promulgated clearly indicate that advantage has been taken of the very wide powers conferred to make regulations dealing with a great diversity of subjects.

A circular issued by the National Housing and Planning Commission in September, 1945, lays down that for subsidised National Housing the class of person to be catered for should fall within the income group not exceeding £25 per month, and that the cost of a national house should be limited to £1,400 (inclusive of everything) for scheduled areas and £1,200 (inclusive of everything) for non-scheduled areas. This limitation has been most unpopular with local authorities and has been the subject of representations made to the Minister ever since it came into force.

BUILDING BY LOCAL AUTHORITIES

Advances made to local authorities may be either economic or national. The aim of economic housing schemes is to run at cost and the conditions prescribed by the Government are that the term of the loan shall not exceed 30 years and that the interest rate shall be 1 per cent, per annum. Local authorities may either use these advances for letting or selling schemes of their own or for the purpose of making advances to individuals to enable them to build their own homes.

National Housing loans may only be obtained for schemes to be built and run by local authorities. The terms on which these loans are made are as set out in the National Housing Formula. The National Housing Formula is a basis which was formulated after protracted negotiations between the United Municipal Executive and the Government and its main features are as follows:—

- (1) A capital cost of the scheme is complied in which provision is made for the cost of land, houses, development works, supply services, communal services and the layout of parks and open spaces.
- (2) A loan equal to the capital cost is obtained from the National Housing and Planning Commission.
- (3) Annual maintenance expenditure may not exceed 10 per cent. of the capital cost and is complied along the following lines:—

	Per cent.
1. Repairs and maintenance charges ...	2.50
2. Interest	3.25
3. Redemption	1.25
4. Sundries	3.00
	10.00

- (4) Under the heading of "Sundries" such items as light, water and sewerage charges; insurance and administration; rent collections and provision for irrecoverable rents; cost of maintaining clinics and library services, etc., may be included.
- (5) Loans are made for a period of 40 years and the houses and other civic amenities which are constructed remain the property of the local authority.
- (6) Such losses as occur are borne by the Government and the local authorities in certain given ratios.

BUILDING BY UTILITY COMPANIES

Under the provisions of the Housing Act, No. 35 of 1920, local authorities may obtain sub-economic loans from the National Housing and Planning Commission for the purpose of making advances to utility companies or associations not for gain. These latter companies must submit their applications to the local authority in the first instance and this latter body then proceeds to raise a loan from the Housing Commission for these companies. The National Housing and Planning Commission will not consider applications which are not sponsored by a local authority.

The scope for this type of building is not very great as the activities of utility companies and associations not for gain are, for all practical purposes, limited to charitable and philanthropic work. There are, however, some shining examples of successful endeavour in this field.

D.S.D.C. LOANS

Since the cessation of hostilities the Government has introduced a scheme for the benefit of ex-servicemen. Applications are submitted by ex-servicemen through the military authorities and loans are then made direct to ex-volunteers by the National Housing and Planning Commission on the following terms:—

Rate of interest: $\frac{1}{2}$ per cent. per annum.
Period of loan: 30 years.

Amount of loan: 90 per cent. of the total cost of the building. Treasury authority will be necessary for loans exceeding £2,000.

These conditions were varied as recently as last week when it was announced that as from 1st July the interest rate would be $3\frac{1}{2}$ per cent. and that the limit of £2,000 would be extended to £2,400 in special circumstances.

BUILDING BY THE STATE

The National Housing and Planning Commission has recently elected to build houses on its own account in various centres in all parts of the country. Some houses have already been completed but no information of the operation of any of these schemes is yet available and it is not possible, therefore, to assess the success of the scheme from a financial point of view.

ADDITIONAL HOUSING ACT

In 1937 the Additional Housing Act was placed on the Statute Book. This Act provided the machinery to assist building societies to advance up to 90 per cent. of the valuation of the property. The terms and conditions were as follows:—

- (1) Loans were not to be for more than 90 per cent or less than 60 per cent. of the total valuation of the property.
- (2) The building society would lend the maximum amount that it was prepared to lend at the ruling rate of interest from its own funds.
- (3) The Government would make an advance of an amount sufficient to provide, together with the building society's advance, the full 90 per cent. of the total valuation if required.
- (4) Interest on the Government's advance would be payable at the rate of $3\frac{1}{2}$ per cent. per annum.
- (5) The maximum period for these loans was 20 years but building societies usually preferred to reduce the term to 15 years.
- (6) Individual advances were limited to a maximum of £1,350.

Soon after the outbreak of war in 1939 the building societies found it to their advantage to take over advances which had been made by the Government and the latter, in turn, required all available funds for the prosecution of the war and refused to make further advances. For these reasons operation of the Additional Housing Act was suspended. Advances made under this Act did not at any time represent a large proportion of the building loans authorised by build-

ing societies and very few are still unredeemed at the present time.

I understand on good authority that proposals to revive the Additional Housing Act in a modified form have already been approved by the Association of Building Societies and the National Housing and Planning Commission and await promulgation by the provincial authorities.

BUILDING BY LOCAL AUTHORITIES FINANCED FROM SOURCES OTHER THAN THE HOUSING COMMISSION

There have been instances of local authorities preferring to finance housing projects, especially economic housing schemes, by raising public loans in the market rather than borrow from the National Housing and Planning Commission. The reason for this is that while the Government was demanding interest at the rate of 4 per cent. per annum on advances for economic housing some of the larger local authorities were able to raise money at $3\frac{1}{4}$ per cent. and lower, which meant that additional benefits could be passed on to borrowers for housing purposes. The decision of the Government to reduce its rate to $3\frac{1}{2}$ per cent. per annum as from 1st July, 1946, will considerably reduce the benefits to be derived from financing housing schemes from ordinary borrowing.

At a conference of the Institute of Municipal Treasurers and Accountants, South Africa, Incorporated, held in Cape Town in March of this year, Mr. F. E. Jenvey, City Treasurer of Port Elizabeth, delivered a paper on "The Financial Aspect of Housing by South African Local Authorities in Retrospect and Prospect." Dealing with the question of "Prospects for the Future", Mr. Jenvey said:—

PROSPECTS FOR THE FUTURE

(a) General

191. Housing at the present time is a political issue of major importance. The Government can very easily lose public support, and the new Minister of Health (Dr. H. Gluckman), who has taken over housing matters from the Minister of Welfare and Demobilisation (Mr. Lawrence) since the 9th November, 1945, is therefore required to do his utmost and must be successful in his efforts to provide housing. The National Housing and Planning Commission appointed by his predecessor is also directly concerned. Public opinion is very strong and a very large number of votes can be lost, unless the urgent demand for housing is met and houses are provided practically at pre-war rents. So long as the great shortage continues, the pressure from the public will continue, and the Government, and in turn local authorities, will be impelled to do their utmost in solving the problem. Let the pressure ease and efforts will weaken. The position is little different to-day from what it was in 1919-20 when the Housing Act was originally placed on the Statute Book.

192. Attention for the present is directed for the most part to the position of Europeans, and the comment of the housing committee appointed by the Minister of Public Works in 1919 is therefore of considerable interest:—

"101. We earnestly hope that interest in the housing problem which has awakened in South Africa may not exhaust itself in efforts for the housing of the white people only.

There is only too much reason to fear that much of the feeling has been awakened by the personal inconvenience which those who are able to make themselves heard are at present suffering, and that when that personal inconvenience disappears the interest in the problem will subside.

The interest in the problem must be extended to its existence amongst and its effect upon the Coloured, Native and Asiatic people who form so large a proportion of the population of our towns, and if the white section of the public is indifferent to the needs of the other section the other authorities have a greater responsibility in the matter.

Apart altogether from consideration of public health in the towns which demand drastic action in the present urban locations, there is an undeniable duty upon the State to ensure that all members of the community are healthy and useful citizens, and that no section of the community is allowed to sink to such depths of discontent, depravity or disease, as to become a menace to the well-being of the rest.

It would be folly to disregard the fact that life in the towns and contact with white civilisation does breed in the Coloured, Native and Asiatic people a desire for something better than they may have been accustomed to in the past or than they are permitted to enjoy at present, and if that desire cannot be reasonably gratified it will give way to a sullen enviousness of the white man's habitations and ways of life and a bitterness towards the white race which will lead to trouble."

193. On this occasion the Government, with its greater experience, and duly advised by local authorities and others as a result of twenty-five years of experience, has taken steps to control building and the use of materials, and has suggested controlling labour in addition, although no regulations to this end have been promulgated. The position is therefore far more favourable than at the end of the last war, and for the time being the Government has the whip-hand. So long as its determination lasts, what building there is should be of the type desired, and the Government and the commission have indicated that national housing holds a very high place in the building programme. The only other building construction to obtain priority is that for industries and certain business premises and important national, provincial and local government structures. As permits can be limited to the capacity of the building industry from time to time, any

inflationary pressure on building costs will also be controlled.

194. The power of the Government is generally recognised, and most of the interests connected with building, such as the Federation of Master Builders, the Institute of Architects, the Chapter of Quantity Surveyors, Local Authorities, Building Societies, etc., are co-operating to provide housing at the lowest possible cost. This has involved concessions on the part of certain private interests—architects and quantity surveyors by way of reduction of fees, and master builders by way of limitation of profits. The alliance is therefore a somewhat uneasy one. It is the kind of alliance which may hold together in an emergency, but once the compelling force of restricted building is overcome, it may break apart.

195. When materials become easier, and that time should not be unduly delayed, the Government will be called upon to relax its control of building considerably, and it may be forced to accede to this request. In turn, this will lead to the diversion of the building interests, including architects, surveyors, master builders and labour, from national and local government housing schemes to other building, as these interests will naturally desire to profit by the eased conditions, and to earn higher remuneration than is possible with national and other housing. The incentive to all sections to provide housing will consequently tend to decline, and only the energy of the National Housing and Planning Commission and the local authorities will provide the housing, possibly with the aid of subsidies, until more normal conditions return.

(b) *Economic Housing*

196. Although economic housing, as such, is still covered under the various housing provisions, the rate of interest of 4 per cent. is unattractive. Major local authorities can provide the necessary funds at less than 3½ per cent. on a long-term basis, but they are in a difficult position, especially in respect of housing schemes for sale, or loans to individuals. The National Housing and Planning Commission is building 6,000 houses in the Union and may extend its programme, and proposes letting these houses at rentals which local authorities can only equal at considerable loss to the ratepayers. In addition, the Commission is providing at a later date for the sale of these houses after revaluation, and the capital loss will be borne by the Government. In the case of any new selling schemes provided by local authorities, there will accordingly be considerable pressure by purchasers for a similar concession when revaluation of national houses takes place, and local authorities may be forced to give way, again at the expense of the ratepayers. There can be only one consequence—local authorities will be unwilling to build economic houses for selling or letting under present conditions, unless the Government is prepared to guarantee them against loss, and the Government's economic provisions will languish until more favourable conditions return.

197. Some local authorities, which have attempted to provide economic schemes—not with Government 4 per cent. money, but with other funds at 8½ and 3½ per cent.—have already experienced difficulties as a result of the National Housing and Planning Commission's action in building houses for letting and subsequent selling to the middle-class income groups (£25 to £45 per month). In Port Elizabeth, for instance, a selling scheme was commenced in September, 1945. There were to be 126 houses costing, with ground, £1,221 each. A 10 per cent. cash deposit was required. The monthly instalment to provide for purchase over twenty-five years with interest at 3½ per cent. per annum, and to cover municipal and divisional council rates, worked out at £8. 14s. 3d. The houses were restricted in size (875 square feet) on a plot of approximately 6,000 square feet, and comprised a living-room, two bedrooms, kitchen, pantry and bathroom, but no outhouse or garage. Finish was not as good as most modern houses in order to limit costs. When applications were invited, only four were received. Most persons requiring houses of this type could not afford the deposit and instalment. Those that could afford it wanted better houses in a first-class residential area at much the same monthly instalment.

(c) *Sub-Economic (National) Housing*

202. The greatest pressure on local authorities is for houses for the sub-economic group, which is largely non-European, where the loss will be apportioned on the Government's new formula, unless local authorities wish to extend existing sub-economic schemes and to utilise 4 per cent. loans for the purpose (see Union Health Circular No. 25 of 1945). Some local authorities may have to go ahead with subsidised housing because the housing needs of the sub-economic group have become most urgent, not solely due to the war and the lack of building during this period, but to the lack of building before the war.

203. The City Council of Johannesburg has indicated that it proposes to build subsidised houses and already has one large scheme in hand. The City Council of Cape Town has also stated its intention to build and to provide for differential rates in its schemes.

204. In other cases, where very large sub-economic programmes were commenced before the war and have since been completed, there is unlikely to be much subsidised housing undertaken at present costs. The City Council of Port Elizabeth provides one example where the new formula will probably not lead to additional sub-economic houses at the present time. Progress in many cases is likely to be delayed until building costs fall, or alternatively until the formula is revised and the immediate requirement of local authorities is met, namely, that their losses be limited to 1½ per cent. per annum on the capital cost. This would lead to further subsidised housing, but, even so, many minor local authorities

could not provide housing at a loss of $1\frac{1}{4}$ per cent., which is beyond their means, and eventually the Government will find that the only way that these houses will be provided will be when the National Housing and Planning Commission builds the houses itself."

In conclusion I quote again from Mr. Jenvey:—

"220. There has not been a clearcut line between immediate and long-term needs in South Africa. The various housing programmes prepared by local authorities deal with the general position, and a permanent solution has been sought. The present urgent position arises out of many factors, including the lack of building during the war period, which has led to considerable overcrowding, but in addition there has been the long-term slum clearance requirements, overcrowding existing before the war, and the need to improve old buildings, which are not slums, but which are not considered by modern standards to be suitable for housing.

221. If the best use is to be made of the available labour, materials and finance, some order will have to be maintained in the provision of houses. The most urgent need must come first, namely, the relief of overcrowding, particularly in the European groups, brought about by the war period, and thereafter general overcrowding must be reduced. Slum clearance, for the time being, takes a back seat and can be delayed until conditions ease considerably. Modern standards for housing should be relaxed, and the construction of houses solely to meet modern requirements should receive no priority whatsoever. Such improvements can come when labour and

material are no longer required for the very large programme of more urgent character that has to be carried out.

222. The long discussions during 1944 on the basic formula for the national housing schemes delayed building of sub-economic houses, for more than a year. Local authorities are involved, and the question still arises whether the compromise formula is going to meet the position, particularly as the capital cost of housing is so high to-day compared with pre-war, and losses must therefore also be greater. Local authorities have persisted in the request that their loss be limited to $1\frac{1}{4}$ per cent. on the capital cost, and the new formula in its compromise form is unlikely to achieve this result.

223. By its action in undertaking national housing for the income group £20 to £45 per month, the Government has departed from the stand, which it has always taken up, that housing is a matter for local authorities, and, as it has now commenced building for this income group and is going to face the additional losses involved, which may prove to be heavy, local authorities will inevitably argue that it should meet the full loss for the lower income groups. This view will probably not find favour with the Government, because the lower income groups are largely non-European, and for the most part they have not voting power, so that they exercise little pressure on the Government. On the other hand, many urban ratepayers are also most reluctant to see their councils involve them in additional rating for subsidised housing, and with all governmental bodies taking a stand on this issue, the prospects for a complete solution of the housing problem of the poorer classes are not bright.

After inviting discussion on the papers presented, the Chairman summarised the proceedings as follows:—

THE CHAIRMAN: As the hour is late and since a great deal of ground has been covered to-night, I do not wish to detain you much longer. Nevertheless, I feel a short summary of the proceedings is necessary.

Dr. Sonnabend indicated in his paper the necessity for the sociological approach to planning and housing, and demonstrated with admirable clarity the immense value to the planner, of the data which the sociologist can provide. It is clearly impossible for any one to attempt to undertake large-scale planning or housing without being in possession of the fundamental information about the people for whom one is to plan and for whom houses are to be provided.

Yet such a course is being adopted to-day and national housing is being provided quite arbitrarily in different areas

without the certainty that houses are, in fact, needed in these particular areas, and without the inclusion of the social amenities which must be provided if we are to avoid the unbalanced and haphazard development, with all the accompanying social ills to which both the first and second speakers have referred.

The paper on Planning and Design of Layouts makes a strong plea for the regional approach to our problems. The validity of this doctrine is, I think, difficult to question. One can only ensure the rational and harmonious development of the parts if one has first visualised and planned the whole. It is our failure to see development on a regional scale that gives rise to the present discordant urban scene.

Mr. Joubert gave an outline of the internal planning requirements of the dwelling unit, together with some interesting comparative figures showing the size of rooms adopted as

minima in various countries. By comparison, South African standards seem to be adequate in the face of the present emergency.

Mr. Reynders in his review of the financial arrangements which have been made to encourage housing since the war of 1914-1918, showed the difficult position in which local authorities find themselves, financially, to-day, due to the high cost of building.

Reviewing the papers as a whole, one is struck by the urgent need for research—scientific research into all aspects of physical planning and housing. Without the factual knowledge and information which would flow from such research, it is

impossible to formulate any plans which will stand the test of being put into practice.

South Africa is a comparatively small country and the technical resources are certainly limited. It is essential, therefore, to ensure that they are put to the best use—that is, the men with the best qualifications must be employed in appropriate positions if we are to have any hope of overcoming our problems.

Finally, Ladies and Gentlemen, it only remains for me to thank, on your behalf, the speakers for their very interesting and informative addresses, and to hope that their efforts will achieve some progress.

THE STUDENTS' FORUM

THE HISTORIC BUILDINGS OF JOHANNESBURG - 8

THE RAND CLUB

The precise facts concerning the origin of the Rand Club are even to this day somewhat obscure, as its history dates back to 1887. Even the slight documentary evidence is conflicting. There is, for instance, the advertisement in the first issue of the "Diggers' News" of February 24th, 1887, which contained the prospectus of the "Witwatersrand Club & Exchange Co., Ltd.", whose declared purpose was to establish at Johannesburg "a residential club and exchange, both of which are much needed, as at present there is no central place or resort, and visitors to the town come and go before their presence becomes known." Among the directors of the company was Mr. Cecil Rhodes. Other information indicates, however, that the idea of forming a club arose spontaneously among a group of men who frequented "Hocking's Dining Rooms"; Mr. Hocking actually became the first caterer of the Club.

Nevertheless, the fact remains that the first Rand Club came into existence in 1887, in a single-storey, wood and iron shanty, with a pillared stoep leading directly on to the dusty road. There was a bar at the corner with a zinc-topped counter, and this became a venue for the thirsty and dusty men of the mining camp.

There have been three Rand Club buildings, and it is interesting to note that they have all been on the same site,

THE FIRST RAND CLUB, 1887-1889

By Cyril A. Stoloff, Dip. Arch. IV

fronting onto Loveday, Commissioner and Fox Streets. The second building was opened in February, 1890, and the following is a contemporary description of the building: "The Club buildings are without doubt the finest and most substantial in Johannesburg. Standing in the centre of Commissioner Street, they form the chief ornamental feature of that important thoroughfare. The area covered by the buildings is 4,108 square feet, and extends along Loveday into Fox Street. The style of architecture is Renaissance; but the architects, Messrs. Reid and McCowat, have relieved what would otherwise be a massive aspect by turrets and light wood and iron work. Passing through a fine vestibule, the visitor finds on his left an immense dining room, 54 feet by 30 feet. On the left of the hall is the principal bar, 30 feet by 25 feet, arranged, like the dining room, with a panel and cone ceiling. The billiard room is located in the upper floor and is 13 feet square. Special attention has been paid to the sanitary arrangements, and an excellent system of drainage has been provided." There were also a reading room, two card rooms, a sitting room and three bedrooms. The building incorporated premises for shops on the ground floor. One of the most popular features of this building was a first floor verandah overlooking Commissioner Street.





THE SECOND RAND CLUB, 1890-1903



THE THIRD RAND CLUB, 1904

The Club's third building, the one existing to-day, was erected at considerable financial risk, owing to the depression in Johannesburg, subsequent to the South African War. During building operations the Club was housed in the North-Western Hotel, and it was not until the end of 1904, that the building was sufficiently advanced to admit of occupation. A contemporary report records: "The premises form a fine, substantial square block, the solidity of which is relieved by the treatment of its frontages, which are broken up by plaster pediments with modelled capitals, arches and other decorative details. A very fine colonnade runs along the front of the building. Inside, a beautiful staircase, starting from an equally fine hall, is lighted by a dome of leaded glass. The walls, supported on open columns below, are ornamented with

artistic modelling in plaster. The space behind these columns is used as a lounge, and leads to the library, reading, dining and grill rooms. The dining room is a handsome and spacious hall, being nearly 100 feet in length and together with those enumerated, occupies the first floor."

Originally, the ground floor consisted of shops, extending from Commissioner into Loveday Street, but most of these have now been removed. On the second floor are card, writing and private billiard rooms. The third and fourth floors are taken up by bedrooms and bathrooms. The bar is in the ground floor, while the whole length of the basement, which is 140 feet, is used as a billiard room. The cost of the building was £112,000.

CONTEMPORARY JOURNALS

"THE ARCHITECTURAL REVIEW," November, 1946.

This is a special number devoted to the *Plan for St. Paul's Area*. The symbolic importance of this area, which "is due most particularly to the fact that it is the centre of the City of London itself" is stressed. "For here is distilled the essence of the English city which, in the informality of its public spaces, sometimes planned and sometimes accidental, and in the grandeur of its public monuments, carefully but so differently planned from the monuments of the European and New World city, mirrors the very character of our society and its history."

Structural Trends in City Planning, by G. M. Kallmann, surveys the cellular concept and urges the development of precinct planning. N. G. Brett-James and Marjorie Honeybourne present an historical survey of the use-zones of the City of London.

The main study surveys the site itself and the plan prepared by Hugh Gordon-Peter is presented, together with a delightful range of sketches in colour by Hugh Casson who sees the precinct through the eyes of the man in the street.

As an appendix the reports of the Improvements and Town Planning Committee and of the Consultants for the City of London planning are compared.

"THE ARCHITECTURAL FORUM," November, 1946.

Four examples of contemporary houses, each with interesting variations of site start the issue. The first is worthy of study by reason of the very complete integration between house and landscape design.

The project for a 50 million dollar shopping and amusement centre for suburban New York is comprehensively illustrated.

A survey of contemporary architecture in South America is initiated in this issue and includes scenes from Colombia and Venezuela.

Concluding the issue is an analysis of large warehouse planning which arrives at a circular solution, for the most efficient building.

"ARCHITECTURAL RECORD," November, 1946.

This issue continues the study of Audio-Visual installations for schools commenced in the February number. Buildings illustrated include a branch bank in Rockefeller Centre and four houses.

BUILDING TYPES STUDY 119 is on *University Libraries* and various schemes designed for maximum flexibility to provide for "unforeseen change" are illustrated.

ARCHITECTURAL ENGINEERING is devoted to library technicalities and includes *Library Construction for Interchangeable Uses*; *Air Conditioning for Books and People* by Harold L. Alt; *What about Microfilm and Such? Lighting of Libraries*; and *Sound Control in Libraries* by Edward J. Content.

"PROGRESSIVE ARCHITECTURE — PENCIL POINTS," November, 1946.

This issue adopts the unusual procedure of publishing an objective Architectural Critique on five hospitals. These include projects for a 480 bed veterans hospital, a 20 bed county hospital, a 100 bed tuberculosis hospital, a psychiatric hospital and Mendelssohn's General Hospital at Haifa.

METHODS AND MATERIALS includes an article on *Residential Water Supply Piping Design* by Lewis H. Kessler, Professor of Sanitary Engineering, Northwestern University, and *Zoning—An Impediment to Good Design?* by Arthur C. Holden, F.A.I.A., in which the effectiveness of zoning laws in relation to housing is investigated and suggested amendments given.

NOTES AND NEWS

BRITISH ARCHITECTS' CONFERENCE, DUBLIN, 1947.

The Annual Conference of British Architects will take place in Dublin, from 11th to 14th June, when the Royal Institute of the Architects of Ireland will be the hosts.

The Conference will be largely of a social character, and if any members happen to be in Britain they will be heartily welcome. Copies of the programme with full particulars will be sent to members on making application to the Secretary, R.I.B.A., London.

SOUTH AFRICAN BUREAU OF STANDARDS

At the meeting in November, 1946, the Standards Council appointed a committee to investigate the preparation of Safety Codes for Electrical Equipment, and at the meeting in January, 1947, a committee was appointed to prepare a Code for Testing Roof Ventilators.

CONSULTING STRUCTURAL ENGINEERS

At the January meeting of the Union of South Africa Branch of the Institution of Structural Engineers the Committee decided to seek the co-operation of the Institute to enforce the following resolution:—

"When a member of the Institution is appointed in his personal capacity as a consultant and he is, at the same time, connected with a firm supplying material for the work for which he is a consultant, then:—

- (a) Such firm should refrain from tendering for any work in connection with which their employee is a consultant unless the firm is requested by the client, in writing, to tender.
- (b) The member, who is appointed as consultant, must make known, preferably in writing, his connection with the firm."

DISSOLUTION OF PARTNERSHIP

The partnership existing between the firm of Messrs. J. E. Ferguson and Stakesley Lewis and Mr. A. Axelrod has been dissolved as from 31st January, 1947. Mr. Axelrod has opened his own practice at 54, Washington House, Commissioner Street, Johannesburg.

APPOINTMENTS SOUGHT AND OFFERED

APPOINTMENT OF ARCHITECTS' ASSISTANT IN UGANDA

Messrs. Cobb, Archer and Scammell, Architects, of Nairobi, seek the services of an assistant to act as their Representative in Uganda.

They offer a contract for four years (subject to renewal by agreement) with a salary commencing at £750 (seven hundred and fifty pounds) per annum, with annual increments of £50, rising to £900 (nine hundred pounds) per annum, for a Senior Assistant, and £600 (six hundred pounds) per annum, with annual increments rising to £750 (seven hundred and fifty pounds) for a Junior. All applicants should have R.I.B.A. qualifications. Income Tax in Uganda is at present Sh. 2s. in the £.

The appointment offers excellent prospects for a man who will work hard and can accept responsibility.

The principal work which the Assistant will be required to supervise in the first instance will be the new buildings which are to be built at Kampala, for the Empire Cotton Growing Association and he will be required to take charge of our practice in Kampala, where our office has been closed during the War years.

The climate of Uganda is healthy, although somewhat humid, and there are adequate facilities for sport and recreation.

Applications should be addressed in the first instance to Mr. G. H. Crickmay, of Corrigan, Crickmay & Partners, Architects, Cornwall House, 176 Pretorius Street, Pretoria.

PARTNERSHIP WANTED

Architect with outstanding designing ability and initiative seeks partnership with firm possessing good clientele. Reply to Editor marked "Partnership."

EMPLOYMENT WANTED

Mr. Robert Blain, of Glasgow, Scotland, seeks employment as an Architect in South Africa. Age 49, married, without family. Studied at Glasgow School of Architecture and has been A.R.I.B.A. for over 20 years. Was in private practice as partner in firm of architects in Glasgow from 1923 to 1940. Since 1940 employed by Scottish Command and for last 3 years has held the rank of Captain as A/War Dept. Valued with present salary of £625 p.a. Further information available. Reply to Editor.

EMPLOYMENT WANTED

Mr. Ysbrand Dirk Groot seeks employment as draughtsman-clerk of works in South Africa. Age 25, married, without family. Studied at Amsterdam Technical College from 1939-1943 in architecture; served as draughtsman and clerk of works on country residence and factory building with firm of Amsterdam architects from 1941-1942. During 1945-1946 was employed by the Ministry of Public Works on reconstruction work, and since 1946 has been with firm of architects in Amsterdam as draughtsman and clerk of works. Desires to complete studies in architecture at Witwatersrand University. Reply to Editor.

Journal of the SA Architectural Institute

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