

AN INVESTIGATION INTO THE PLANNING OF
URBAN NATIVE HOUSING IN SOUTH
AFRICA.

by

D.M. CALDERWOOD.

THESIS SUBMITTED FOR THE DEGREE OF DOCTOR
OF ARCHITECTURE.

THE UNIVERSITY OF THE WITWATERSRAND,
JOHANNESBURG, 1953.



AN INVESTIGATION INTO THE PLANNING OF URBAN NATIVE
HOUSING IN SOUTH AFRICA.

C O N T E N T S.

INTRODUCTION.	Trends of urbanisation and industrialisation in South Africa. The history of urban Native housing. Present shortage of Native housing. Discussions in respect of legislation and financing of Native housing. The importance of good housing.	Pages ... 1 to 16.
CHAPTER I.	The development of urban Native house plans prior to 1947. The establishment of minimum standards of accommodation. Standard type plans and planning of present day houses. Factors influencing design- social aspects, space organisation, protection against the elements, materials, constructional methods, psychological influences, economies, landscape and aesthetics, and the family.	Pages ... 17 to 38.
CHAPTER II.	The importance of density in costs of development. The importance of site selection for low cost housing estates. The provision of sufficient residential land and space for communal facilities results in a good environment being established. Tables of land areas for various purposes are given. These result in gross densities for neighbourhoods of different sizes. Economies are studied in respect of gross density, land cost, dwelling cost and service costs.	Pages ... 39 to 84.
CHAPTER III.	Social surveys and housing. Variety of housing types and a range of rentals. Home ownership, amenities, communal facilities, safe and easy access within townships, headmen system, housing managers, self-help building, aesthetics and landscaping. Future improvements in housing urban Natives.	Pages ... 85 to 99.

CHAPTER IV	Witbank's new Native township. Final costs. Development of a team approach. Density research and its practical application. Success and failure of the scheme.	Pages ... 100 to 110.
CHAPTER V	Planning, organisation and team work in Native housing. The social survey of Payneville. The application of the information obtained from the social survey. Planning and development of row houses. Relation between the planning team and the Native inhabitants. Organisation on the site, Native building operators. Final costs. Stage development of communal buildings. Landscaping and aesthetics. Special buildings. Successful and unsuccessful items of the work.	Pages ... 111 to 146.
CHAPTER VI.	Conclusions broken down into - i. social aspects, ii. technical conclusions, iii. a future plan for housing.	Pages ... 147 to 164.

---oOo---

AN INVESTIGATION INTO THE PLANNING OF URBAN NATIVE
HOUSING IN SOUTH AFRICA.

LIST OF TABLES.

I.	Monies allocated to housing in South Africa 1947/52	9
II.	Monies actually spent on Native housing, 1948/52	9
III.	Number of Native houses constructed, 1948/52	9
IV.	Number of Native houses involved in approved schemes but not commenced	10
V.	Labour turnover of Natives housed and not housed, Vanderbijl Park.	12
VI.	Crime on the Witwatersrand, 1942/51 ...	13
VII.	Serious crime, Union of South Africa, 1942/51	14
VIII.	Areas of rooms in Native housing for Johannesburg prior to 1947	20
IX.	Areas of rooms found in one bedroomed houses prior to 1947	20
X.	Areas of rooms found in two bedroomed houses prior to 1947	21
XI.	Areas of rooms found in three bedroomed houses prior to 1947	21
XII.	Survey of minimum standards of accommodation for non-Europeans, 1947	24
XIII.	The recommended minimum standards of accommodation, 1949	25
XIV.	Minimum standards of accommodation for non-Europeans, 1951.	26
XV.	Standard type plans compared with average areas of Native housing built prior to 1947	28
XVI.	Areas of plots for single storey development	59
XVII.	Net areas in acres for houses only	61

XVIII.	Variations of plot sizes for different house types	62
XIX.	Collection of areas in communal garden layout (Native housing layout).....	65
XX.	Allocation of areas in multi-storey dwellings	66
XXI.	Net area in acres required for multi-family multi-storey dwellings	66
XXII.	Area required for schools in acres	68
XXIII.	Area required for outdoor recreation in acres	69
XXIV.	Area of indoor social and cultural amenities in acres	69
XXV.	Table of shopping and commercial areas in acres	70
XXVI.	Area for health requirements in acres .	71
XXVII.	Collection of all areas to be provided for in neighbourhoods except housing ..	73
XXVIII.	Resultant areas and density tables for single storey development	74
XXIX.	Resultant areas and densities for multi-family, multi-storey development	75
XXX.	Effect of reducing road widths in relation to gross density	76
XXXI.	Table of average percentages in land uses	77
XXXII.	Relation of area of waste land to gross density	78
XXXIII.	Extractions from the social survey Springs (Payneville)	117
XXXIV.	Housing and service costs for Kwa-Thema, Springs	133

LIST OF FIGURES.

Introduction.

1. Urbanisation in different countries of the world.
2. Urbanisation in South Africa.
3. Natives employed in secondary industries.
4. Shortage of urban Native housing in South Africa.

Chapter I.

5. Orlando, Johannesburg. House type prior to 1947.
6. Orlando, Johannesburg. House type prior to 1947.
7. Atteridgeville, Pretoria. House type prior to 1947.
8. McNamee, Port Elizabeth. House type prior to 1947.
9. Layout of houses in McNamee, Port Elizabeth.
10. Sharpe Township, Vereeniging. House type prior to 1947.
11. Native house built by Pietermaritzburg Municipality prior to 1947.
12. Stirtonville, Boksburg. House type prior to 1947.
13. Plan analysis of standard type plan.
14. Standard type plan NE51/6.
15. Standard type plan NE51/8.
16. Standard type plan NE51/9.
17. Standard type plan NE51/10.
18. Standard type plan NE51/11.
19. Standard type plan NE51/12A.
20. Standard type plan NE51/13.
21. Standard type plan NE51/20A.

Chapter II.

22. Layout of plot showing useful spaces.
23. BRA/K/23. Control of coverage of house size in relation to area of plot.
24. Minimum depth of plot.
25. Arrangement of plots for row houses.
26. Service and access to row houses.
27. Plot sizes related to net density.
28. Economic lengths of street blocks.
29. Reduced road widths 1.
30. Reduced road widths 2.
31. Space requirements and percentage allocated to land use within a Neighbourhood.
32. Density and area graph for row houses.
33. Density and area graph for semi-detached houses.
34. Density and area graph for detached houses.
35. Relationship of gross density, dwelling types and building costs.
36. Relationship of gross density to cost of dwelling and land cost.
37. Relationship of gross density to dwelling, land and service costs.

Chapter III.

38. The street scene 1
39. The street scene 2.
40. The street scene 3.
41. Analysis of 50'x70' plot and the resulting garden layouts.

Chapter IV.

42. Zoning diagram - Witbank.
43. Two-roomed house Witbank.
44. Three-roomed house Witbank.

45. Four-roomed house Witbank.
46. Four-roomed house alternative, Witbank.
47. Three-roomed row house Witbank.
48. Constructional detail of Witbank house.
49. Ablution block, Witbank.
50. Shops, Witbank.
51. School, Witbank.
52. Administration block, Witbank.
53. Post Office, Witbank.
54. Shops and flats, Witbank.
55. Market stalls, Witbank.
56. Clinic, Witbank.
57. Police station, Witbank.

Chapter V.

58. Flow diagram of team approach to Native housing at Springs.
59. Place of work and demography charts.
60. Family relationships and improvements to houses.
61. Histogram showing distribution of family incomes in Payneville Native Township, Springs.
62. Detailed section of a sub-sub-economic house Springs.
63. Sub-sub-economic one-roomed row house, Springs.
64. Sub-sub-economic two & four-roomed row house, Springs.
65. Sub-sub-economic three-roomed row house, Springs.
66. Sub-sub-economic five-roomed row house, Springs.
67. Sub-sub-economic two-roomed row house, Springs.
68. Layout of gardens and access to row houses.

69. Sub-economic two-roomed house, Springs.
70. Sub-economic four-roomed house, Springs.
71. Sub-economic five-roomed house, Springs.
72. Sub-economic five-roomed house alternative design, Springs.
73. Elevational treatment of NB51/9 type house for Springs.
74. Detail section of an economic house, Springs.
75. Economic one-bedroomed house, type 1B/457S.
76. Economic one-bedroomed house, type 1B/476.
77. Economic two-bedroomed house, type 2B/680.
78. Economic two-bedroomed house, type 2B/685.
79. Economic two-bedroomed house, type 2B/760.
80. Economic two-bedroomed house, type 2B/765S.
81. Economic two-bedroomed house, type 2B/765.
82. Economic three-bedroomed house, type 3B/776.
83. Economic three-bedroomed house, type 3B/787.
84. Stage built church, Springs.
85. Stage built community hall, Springs.
86. Shops and flats, Springs.
87. Primary school, Springs.

LIST OF DIAGRAMS.

1. Preliminary layout of Witbank.
2. Layout of experimental row houses.
3. Final layout of Witbank's new Native Township.
4. Zoning diagram of Kwa-Thema.
5. Preliminary layout of the first section of Kwa-Thema.
6. Northern neighbourhood, Kwa-Thema.
7. Row house layout of Kwa-Thema.
8. Civic centre, Kwa-Thema.
9. Western neighbourhood, Kwa-Thema.
10. Eastern neighbourhood, Kwa-Thema.

I N T R O D U C T I O N .

INVESTIGATION INTO THE PLANNING OF URBAN NATIVE HOUSING IN SOUTH AFRICA.INTRODUCTION.ABSTRACT:

Urbanisation and industrialisation are seen as factors leading to housing shortages in many countries. In South Africa these developments commenced in 1870 and by 1920 legislation had already been introduced to cover the growing problem of urban Native housing. The present shortage of urban Native housing is discussed in relation to legislation and financing of housing schemes. The provision of good housing is shown as an important factor in the formation of a stable and efficient labour force and the creation of a community capable of shouldering their own responsibilities.

---oOo---

Two developments 'Industrialisation' and 'Urbanisation' have caused great housing problems throughout the world. The present-day housing problem in Europe arose during the phenomenal increase of population at the time of the Industrial Revolution of the nineteenth century, and an inspection of Figure 1 will show how, from 1830 until 1952, populations, both urban and rural, have developed in some of the countries in Europe. In the case of America, Canada and South Africa this development is delayed but the same dynamic trend is seen.

During this period the growth of great urban centres is very marked and large population concentrations developed in a few industrial and commercial areas. These concentrations brought about a great demand for housing and caused overcrowding and rapid growth of slum areas. The growth of large urban population groups can be seen from the following:

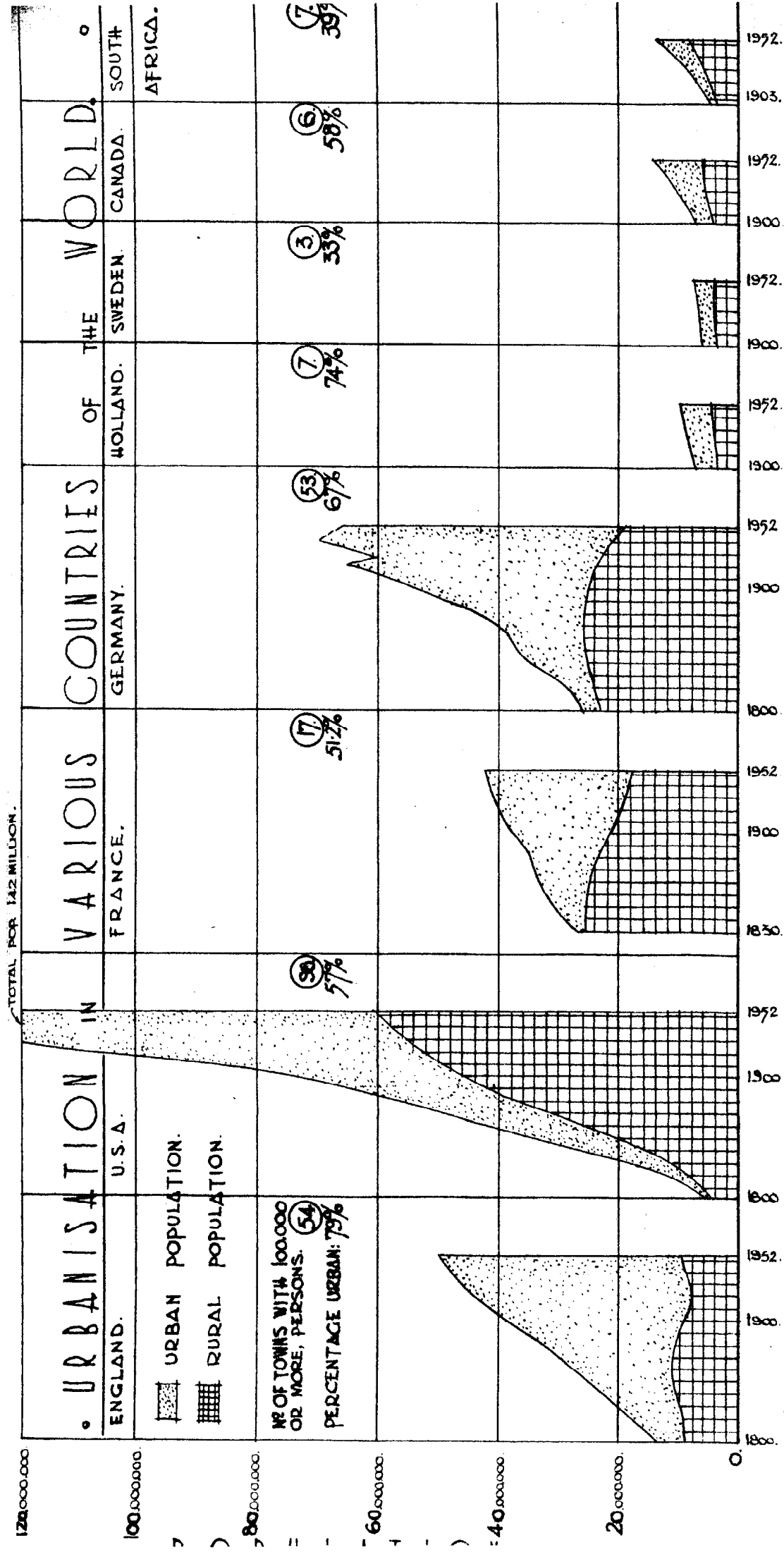
Number of towns with a population of 100,000 or more.

Country.	Date.		
	Beginning of 19th century	Beginning of 20th century	1940 to 1946
Europe	22	160	160 ⁺
United States of America.	Nil	38	92
South Africa.	Nil	Nil	7

Figure 2 shows the urbanisation trends of South Africa, and the upward trends of the curves of the graphs indicate the rate and proportion of the townward drift.

URBAN NATIVE HOUSING PROBLEM IN SOUTH AFRICA.

The real story of urban Native housing commences round about 1870, and today, eighty years later, it has developed into a major problem in



Y E A R .

SOUTH AFRICAN FIGURE INCLUDES ALL RACES .

South Africa. Before the discovery of 'The Star of South Africa' in 1869, South Africa was a farming country depending upon wool and wine as her chief exports. Her development was slow but with the discovery and confirmation of the deposits of diamonds the wheels of development began to turn and the first industrial community was established in Kimberley. As the demand for Native labour at the diamond diggings grew, a new problem was created - urban and industrial workers gathering at Kimberley changed the rural people into an urbanised community - the urban Native. In 1884 the Struben brothers located the gold deposits of the Witwatersrand which, from certain reports, were already known to the inhabitants of the Transvaal. This find was different from discoveries of gold elsewhere, as it was buried deep in the ground and a high degree of mining technique was needed to recover it. Although plentiful, as has been seen from the production, the gold was scarce when considered in terms of tons of rock removed to produce a fine oz. of gold. It was a 'low grade' find of (terrific magnitude) but to be converted into an asset it required two important contributions - capital and cheap labour. From the diamond mines came the necessary capital and mining organisation demanded by the goldfields, and cheap labour, in the form of Native workers, drifted into the new settlements on the Witwatersrand.

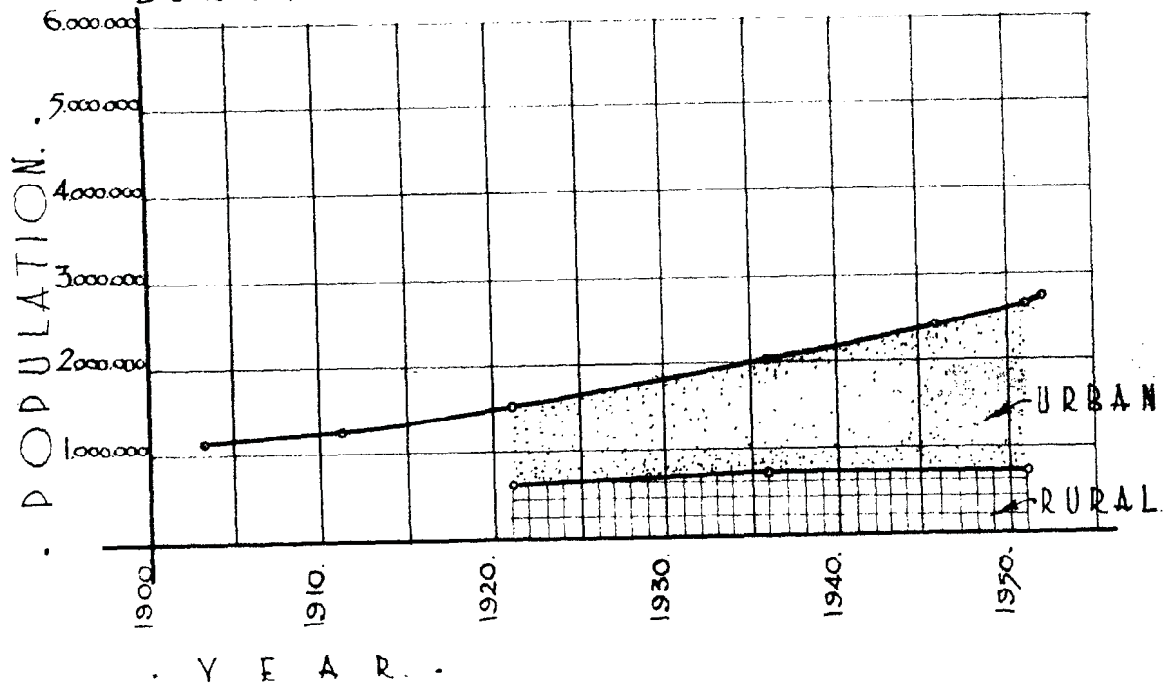
The development of the gold and diamond mines brought South Africa her first real prosperity. Fortunes began to change rapidly and urbanisation began to take place at a rate that made even American trends look small. Gradually the demands of the gold mines set the stage for the establishment of secondary industry and a rural community was being converted into an industrial society. The Native labour during this development was regarded as migratory and requiring only the temporary housing of a compound or a room in the backyard of a European home.

Rapid industrial development took place between 1904 and 1923 but during this time little attention was paid to the problem of Native urban housing. The Reserves were viewed as the permanent homes of the Natives who were encouraged to enter the European towns in order to work in industry, commerce or as domestic servants. Gradually, however, as the Reserves failed to support the Native population, a change took place - a permanent urban Native population was established.

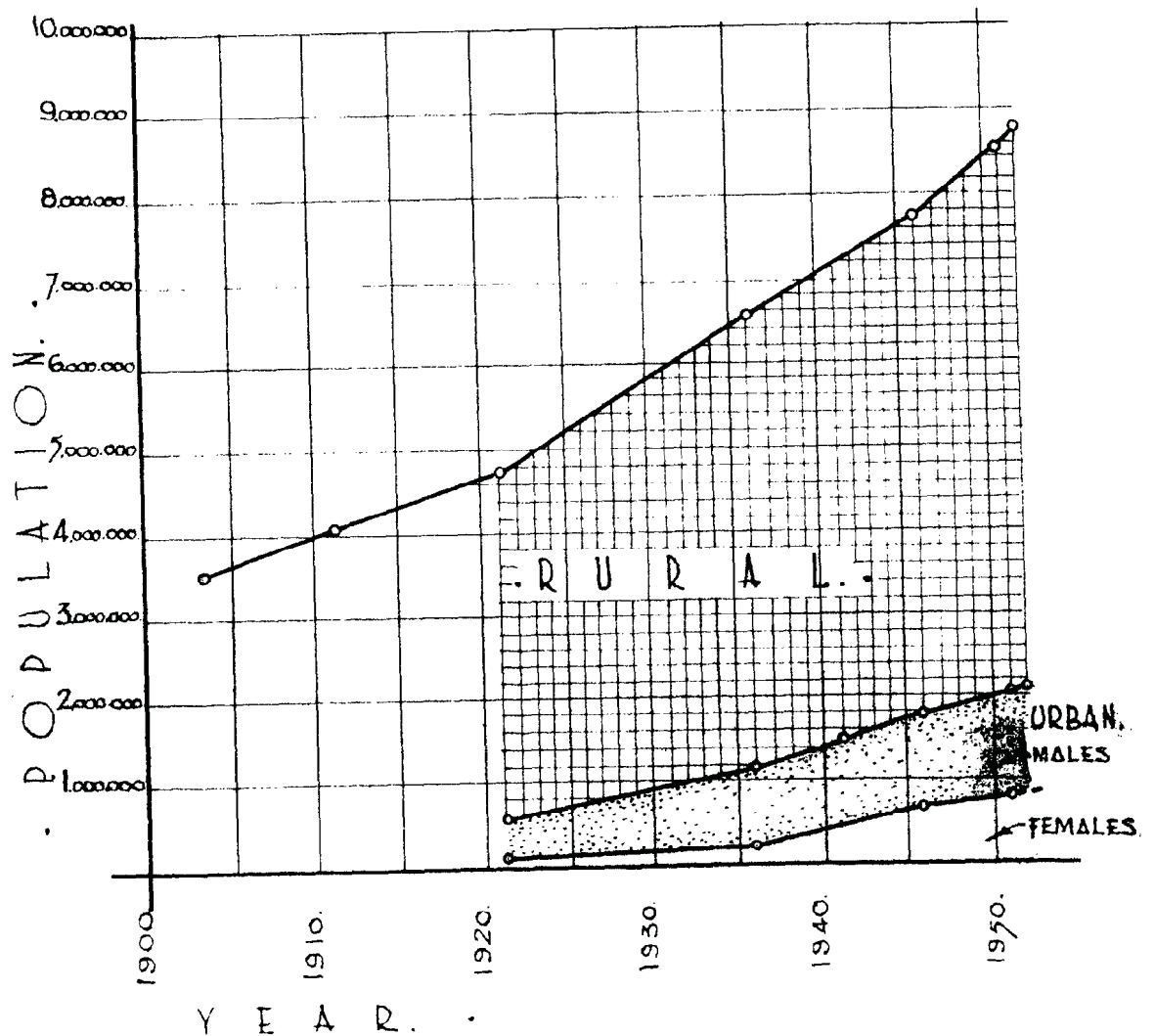
In 1918 the influenza epidemic brought about the Slums Act which laid down a certain standard for housing industrial labourers. The Act, however, did not affect Native compounds (erected in terms of the Native Labour Regulation Act) and locations (established in terms of the Native (Urban Areas) Act) which were expressly excluded from the purview of the Act. About 1920, little was done to improve the housing of Natives, firstly because World War I was just completed and, secondly, no one really knew who was responsible for housing urban Natives. Whereas in earlier times mine Natives were housed in compounds and domestic servants were housed by their employers, the new demands by secondary industry and commerce, which were either too poor or in no position to house their Native employees on the site, led to a new and vast problem.

In 1923 the Native (Urban Areas) Act was passed and the responsibility for housing urban Natives was rather vaguely pushed upon the shoulders of the local authorities. The Act has been amended from time to time and was consolidated in 1945. The powers invested in the local authorities allowed for the establishment of locations, and laid down regulations for their control. Housing was to become the responsibility of local authorities. The result was the establishment of good and bad locations depending upon the

URBANISATION OF SOUTH AFRICA'S EUROPEAN POPULATION.



URBANISATION OF SOUTH AFRICAN NATIVE POPULATION.



NOTE: FEMALE NATIVES.

responsible authorities, who unfortunately had nothing to guide them. Springs commenced a model township, and this was soon copied by Benoni, but both failed owing to the lack of amenities, the rather sudden stoppage of work which was brought about by the losses incurred, and the limited land available at that time. Other local authorities learned much from these experiments and both Johannesburg and Krugersdorp established locations. Orlando, a rather monotonously laid out area, was begun in Johannesburg and by 1936 had a population of 10,000 persons: as the second world war commenced, Pretoria was completing a very good Native Township at Atteridgeville and Port Elizabeth was commencing a full scale programme of housing Natives, while both Bloemfontein and Maritzburg were embarking upon owner builder schemes. During the War, housing activities were stopped but the influx into the towns was accelerated owing to the rapid development of secondary industries which found attraction in a ready war market for their goods. This influx can be seen in Orlando alone which was 10,000 strong in 1936 and after the war housed 58,000 Natives.

In 1945, as World War II came to an end, the housing of urban Natives became a problem, which for the first time entered into the mind of the man in the street. The Native population about Johannesburg began illegal squatting and overnight a squatting camp was established bearing the name of 'MOROKO'. This move was only the first of such squatting areas and as each area grew it made public the shortage of housing for urban Natives.

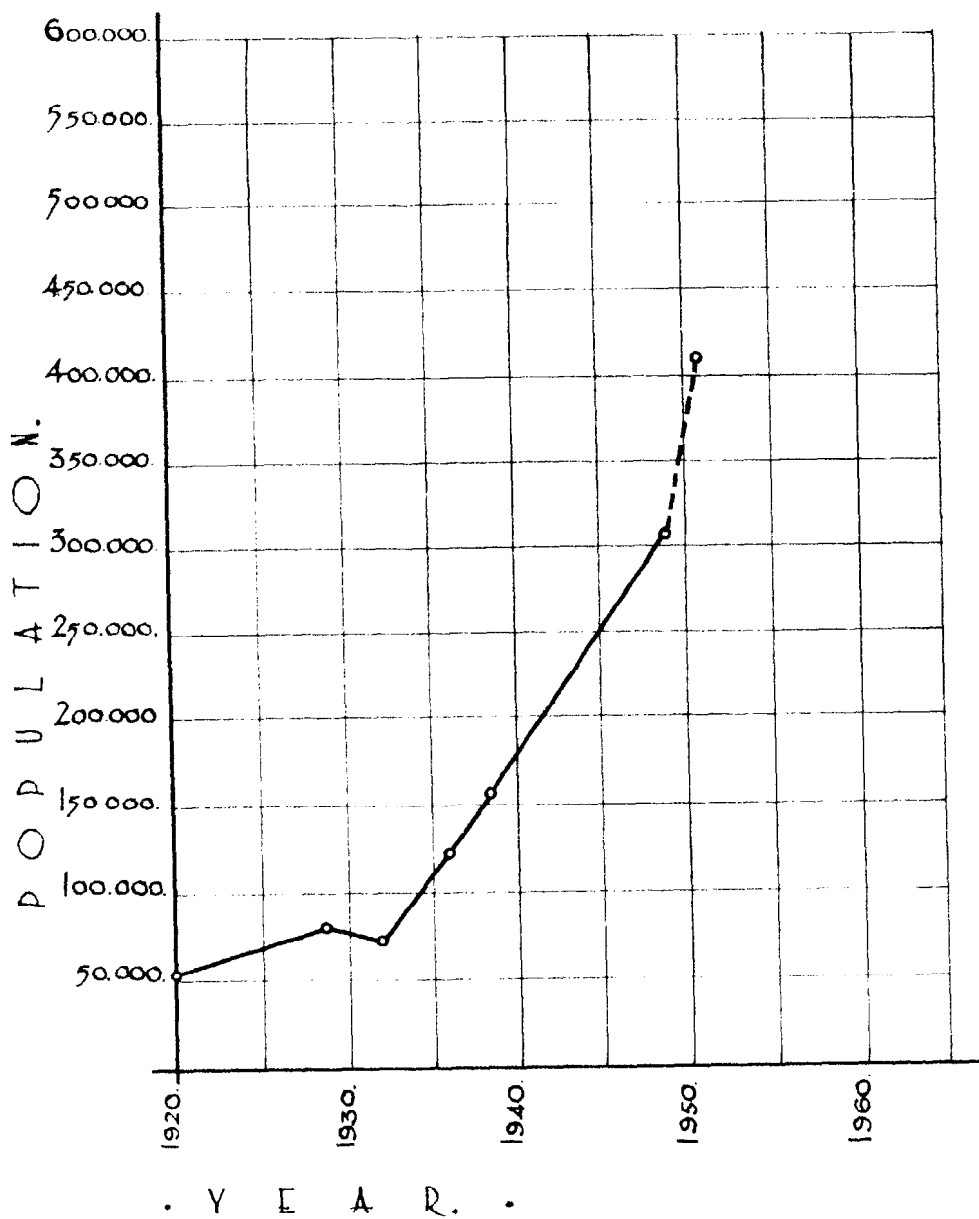
Figure 2 shows the urbanisation of Natives from 1921 to 1952, and what is of importance is the growth of the female population, indicating the permanent establishment of town families. Figure 3 indicates the rapid employment of Natives in secondary industry since the depression of 1933; in fact the number employed in secondary industry in 1952 exceeded those employed in all the mining activities of the country. These are the facts of urban Native housing - the story of Urbanisation and Industrialisation which is still moving at a very rapid pace.

The shortage of urban Native housing in 1947 was estimated at 154,000 dwelling units; by the beginning of 1952 an estimate placed the shortage at 167,328 units and by 1961 it is believed the figure will be an additional 185,813 making a total of about 353,000*. From these figures it does not require a great deal of calculation to work out what has to be built each year for the next ten years in order to solve the problem. When, however, a programme of 35,000 dwelling units per year is visualised, it must involve an immediate expenditure of about £10,000,000 per annum. Against this is the fact that only £2½ million are at present being voted for housing of all races in South Africa. The above allows a capital expenditure of £400 per dwelling unit including service costs. If this figure is reduced to £200, which is the aim of the cost studies of the National Building Research Institute, and an allowance is made for raising loans for economic housing beyond government resources, a figure of 30% being taken as economic, the loan would be reduced to about £4 million. It is the purpose of this report to show the technical approach to urban Native housing, but it must be borne in mind that the financial implications play an equally important

part. / ...

* Figure supplied by the Union Department of Native Affairs.

. NATIVES EMPLOYED IN
. SECONDARY INDUSTRIES.
(NOT INCLUDING MINING,
FARMING & TRANSPORTATION.)



part. The technical developments can reduce the costs of houses and services, thus reducing the financial burdens. In addition, the moneys voted for housing are not completely written off, as rentals are paid and constitute a source of revenue. After the period of amortisation, any rental paid is a source of revenue, and many local authorities who complain of housing losses today will in the years to come find their small losses turning into large gains. In addition the trend over the last twenty years has shown that the wages paid to Natives have continually risen, but, as the capital investment in housing was fixed at the time of building, the rentals, once difficult to pay, have now become very reasonable. (This only applies to schemes built in the Transvaal before 1939, but the trend is worth noting.)

Attention has been given by many interested bodies to details of urbanisation of the Native people, viz. from 13.4% of the entire Native population in 1904 to 22.2% in 1936, and finally to 25% in 1951. Varied legislation has been passed and a review of this is of interest. In 1918 after an epidemic of influenza the Public Health Act (No. 36 of 1919), was passed in order to lay down certain space standards. These standards were later incorporated in the Slums Act (No. 53 of 1934), but did not, unfortunately, apply to Native locations. The provisions of the Slums Act were in practice observed by local authorities, but prior to standards being established a wide variety of interpretations could be found. The establishment of standards will be discussed in Chapter I.

In 1923 the Natives (Urban Areas) Act was passed and later consolidated in Natives (Urban Areas) Consolidation Act No. 25 of 1945 (as amended). As previously discussed, this Act fixed the responsibilities of urban Natives upon the local authorities and gave them the opportunity of controlling their areas and, it was hoped, of controlling the influx of Natives to their towns.

In respect of housing legislation the Government in 1920 passed an Act which established the Central Housing Board of the Department of Health. This body was to control the housing developments of local authorities and was viewed, at first, purely as an administrative organisation, which would supervise the lending of Government funds for the purpose of housing. At first no subsidies were contemplated as it was held that in effect this would mean an indirect subsidy to employers. In 1930, subsidised or sub-economic housing was introduced, but locations were excluded from the scheme. In 1934 an amendment permitted sub-economic housing in the locations and the Native urban population became fully controlled and financed in so far as their housing was considered. The Housing Act No. 35 of 1920 set up the Central Housing Board which, in terms of the Housing Amendment Act, No. 49 of 1944, was succeeded by a National Housing and Planning Commission, and local authorities were further assisted by technical advice from technical officers appointed in terms of this Act.

In recent months, two further acts have been passed which have a bearing upon the housing of urban Natives. The first is the Native Building Workers Act No. 27 of 1951, which allows Native building operators to build in areas determined by the Minister of Native Affairs and, the second the Native Services Levy Act No. 64 of 1952 which, in broad outline, will finance the service costs involved in bringing such services as water, electricity, sanitation and roads to the boundary of new Native residential areas. This levy, if imposed to its maximum figure of 2/6d per week per employee not housed by an employer, could realise over £2,000,000 per annum. It is unfortunate that this Act is not extended to cover housing

as well: a Native housing fund, established immediately once the annual revenue of the levy has been ascertained in practice, would do much to overcome the difficulties at present encountered in undertaking the large-scale contracts so urgently needed in all the larger urban centres of the Union. Once a local authority was voted a lump sum allocation from such a suggested Housing Fund, and was certain of its financial commitments, then large scale planning, purchasing of materials, employment of staff and organisation could be undertaken, bringing in its turn maximum efficiency and cost reductions. In the two schemes which will be discussed, a vote of £500,000 to Witbank and £2,500,000 to Springs would have seen 9,000 houses constructed and ready for occupation within a period of four years.

FINANCIAL ASSISTANCE TO NATIVE HOUSING BY THE GOVERNMENT.

Before suggesting financial ways and means, it is necessary to inspect the assistance offered by the Government today. Housing is the responsibility of the local authority and it has been the policy of the Government to make money available through the National Housing and Planning Commission at very advantageous rates of interest. These rates have been $\frac{3}{4}\%$ and $1\frac{1}{2}\%$ for assisted (sub-economic) schemes over 40 years, and for economic schemes at prevailing Treasury rates, i.e. $3\frac{1}{2}\%$ up to 31/12/51, 4% till 31/3/52 and the present rate of $4\frac{1}{2}\%$ repayable in 30 years.

In 1944, after a series of conferences between representatives of the United Municipal Executive and the newly appointed Housing Commission, a $3\frac{1}{4}\%$ formula for sub-economic housing was established. In addition, the losses incurred on any scheme were to be borne at the rate of 2:1, i.e. the Government to cover twice the losses incurred by the local authority. This scheme did not operate as smoothly as was first anticipated, and losses were established far in excess of those visualised during the discussions. The trends were generally towards expensive housing with lavish services and losses exceeding those associated with Native housing. In 1949 the formula was revised and a return to a $\frac{3}{4}\%$ formula was effected. In the Consolidated Circular No. 1 of 1952 issued by the National Housing Office, Private Bag 149, Pretoria, the cessation of the $3\frac{1}{4}\%$ scheme is discussed in detail. In order to allow housing to proceed, a $\frac{3}{4}\%$ system was installed pending the establishment of a new formula. In August, 1952, negotiations between the United Municipal Executive and the National Housing and Planning Commission were commenced, in order that a new formula could be established. It was decided to defer the decision for 12 months pending results of experiments on house costs by the National Building Research Institute.

The now operative $\frac{3}{4}\%$ formula is repayable over a period of 40 years and although the Government would bear a fixed loss of $2\frac{1}{2}\%$ on the capital cost of an approved scheme, in advancing money at $\frac{3}{4}\%$ there would be no stipulation in regard to the local authority having to suffer any losses. In addition, an income limit of £15 p.m. was imposed upon families eligible for assisted schemes. The method of determining this figure was to establish the average cost of house and services being financed by the National Housing and Planning Commission, and then determine the resulting economic rental (repayment based upon 30 year period) and allow this rental to be 20% of income. In terms of the Consolidated Circular para. 90., "On the internationally accepted basis that rental should, if possible, not exceed 20% of income, and further on the assumption that a rental equal to 10% of the overall capital cost of the dwellings

should /...

should cover all expenses over a thirty year period, the following table indicates the income group which can afford a fully economic rental:-

Overall cost of house including services.	Fully economic Rental p.m.	Economic income group. Income p.m.
£360	£ 3. 0. 0	Over £15. 0. 0
£300	£ 2.10. 0	Over £12.10. 0
£240	£ 2. 0. 0	Over £10. 0. 0
£180	£ 1.10. 0	Over £ 7.10. 0

para. 91. The above example, if financed from economic funds, shows clearly that provided such low-cost dwellings can be erected, a considerable portion of the Native population in urban centres could be housed on a fully economic basis."

In respect of the above statement only one small item is overlooked: apart from this, the system is realistic in endeavouring to provide a business approach to housing. The item omitted deals with the size of the family so housed. A family of 3 persons earning over £15 p.m. may be economic if paying £3.0.0 p.m. in rental but a family of 10 persons will definitely not, unless earning well over £15 p.m. If rentals are determined in terms of ability to pay, then it is essential to create a system which will be based upon family size. In addition it is necessary to create an incentive to families to move from assisted rental housing into economic housing. This approach will be discussed in the section dealing with the housing types designed to meet the three economic classes housed in the new Native township of Kwa-Thema, Springs.

Before leaving the subject of housing finance, it is interesting to note the assistance given by the Government in regard to a house costing £220, with service costs of £80 making a total capital cost of £300 per unit.

Interest @ $\frac{3}{4}\%$ on £300	=	£2. 5. 0 p.a.
Redemption at $3\frac{1}{4}\%$	=	£3.14. 6 p.a.
Total	=	£5.19. 6 p.a.

Therefore, over a 40 year period, repayments are £238. 2. 0 or approximately £80 for every £100 borrowed.

Maintenance is fixed at $2\frac{1}{3}\%$ or on £300 is £7.10. 0 p.a. or over 40 years is £300. This means that the Government loses £20 on every £100 borrowed plus the interest, whereas the local authority out of maintenance alone will realise a sum equal to the capital cost over the redemption period. The resultant rental of a house and services with a capital cost of £300 would be

Interest and Redemption	£0. 9.11 $\frac{1}{2}$ p.m.
Maintenance	£0.12. 6 p.m.
Minimum running costs	£0.15. 0 p.m. (according to N.H.P.C. formula)
Total	£1.17. 5 $\frac{1}{2}$ p.m.

Therefore / ...

Therefore, we may assume the running and maintenance costs of a Native family are 11/15ths, or more, of the rental they are expected to pay. In respect of this position the Department of Native Affairs set up an inter-departmental committee to enquire into administrative costs of Native Housing in September 1952. It is hoped that from this enquiry the determination of rentals in Native Housing may assume more reasonable proportions. It is suggested that if rentals were broken down into the following headings a clearer picture of the existing position would be obtained:

(a) Interest and redemption of

- (i) House.
- (ii) Services.

(b) Maintenance and repairs on

- (i) House.
- (ii) Services.

(c) Running Costs.

Water, electric light, sanitation and refuse removal.

(d) Services.

Administrative, health, recreation, rent collection and irrecoverable rents.

A fallacy in rental determination can be seen where a housing scheme is extended to house the overcrowded families in an established location. The total number of families is not increased by the new houses, nor are the administrative or health services extended. The additional houses increase the capital costs for houses and services but only street lighting, a small water consumption and the slightly extended refuse removal are affected: yet the new rentals are determined upon the existing ones and, for some unknown reason, show the same losses. The case is quoted, as it must have an important bearing upon the economic size of Native urban residential areas. If 2000 families are housed in 1000 houses and pay a rental for such services as water, street lighting, sanitation (waterborne) and refuse removal, and, in addition, for administrative services such as police, rent collection, nursery school and sanitary inspection, and for health services such as dental, V.D. and T.B. clinics, maternity and child welfare services, sport and general welfare, then, if a further 1000 houses are constructed, surely the rentals ought to be reduced? It is now reasonable to assume that as the total population has not changed the contributions towards administration need not be increased. Obviously the water supply may increase, street lighting will increase, the quantity of refuse and the distance travelled by the refuse cart will increase, but sanitation will not and, as the population is constant, the administrative and health costs would be divided between 2000 families instead of 1000 families when the overcrowding took place. Overcrowding in any Native housing scheme, must result in the local authority financing families who in no way contribute to administrative costs as they do not pay rentals but become sub-tenants to the main tenant, who will only pay the legal rental for one family regardless of the number of sub-tenant families he houses.

FINANCING AND BUILDING OF NATIVE HOUSING UP TO APRIL, 1952.

The Government's contribution to losses under the various formulae amounted to £1,125,000 in the financial year 1950/51. This loss is not paid out of the National Housing and Planning Commission's allocations, but is never-the-less a great drain on Government resources.

The method of allocation is as follows:-

- (i) The Government at the beginning of each financial year allocates a lump sum of money to the National Housing and Planning Commission.
- (ii) The Commission allocates this money for economic and assisted schemes, or for its own schemes, no distinction between races being made. The greater portion of assisted moneys is spent on Native and Coloured housing, while most of the economic moneys are spent on European housing. In 1951/52 the allocation of the £8,500,000 was as follows:

Local Authority Economic Schemes	£2,275,000
Local Authority Assisted $3\frac{1}{4}\%$ and $\frac{3}{4}\%$	£3,000,000
Local Authority Assisted $1\frac{1}{2}\%$ (old-age schemes)	£ 200,000
Building Societies Joint Schemes	£ 200,000
Individual Loan Schemes	£1,325,000
Commission's Housing Schemes	<u>£1,500,000</u>
Total	<u>£8,500,000</u>

- (iii) The Commission allocates this money to the Provinces, who have already ascertained the requirements of their local authorities in proportion to their needs.
- (iv) The Provinces re-allocate the money amongst their local authorities.
- (v) All the above allocations are flexible and considerable virement (i.e. re-allocation under the different sub-headings) takes place throughout the year.

Independent of the allocation of funds, local authorities must have their schemes approved by the National Housing and Planning Commission and Department of Native Affairs. Approval is necessary with regard to costs, type of construction, plans, layouts, rentals, etc. Once approval has been obtained the local authority may proceed as soon as funds are made available.

At the end of the financial year 1950/51, the cumulative totals of moneys spent (all races) were Economic loans £17,942,000, and $\frac{3}{4}\%$ and $3\frac{1}{4}\%$ loans £28,094,000, whereas the cumulative total of approvals was Economic £20,800,000 and $\frac{3}{4}\%$ and $3\frac{1}{4}\%$ £37,000,000.

TABLE I.

Year (Financial)	Total monies allocated to N.H.P.C. by the Govern- ment.	Monies allo- cated to as- sisted hous- ing at the beginning of each finan- cial year.	Assisted monies ac- tually spent dur- ing the financial year.	Assisted monies spent specifi- cally on Native Housing.
	£	£	£	£
1947/48	11,500,000	4,000,000	3,494,155	1,490,208
1948/49	11,500,000	4,000,000	3,290,064	1,771,453
1949/50	8,500,000	1,960,000	2,028,642	1,080,324
1950/51	8,500,000	3,250,000	3,353,374	2,159,438
1951/52	8,500,000	3,000,000	2,343,255	1,395,863

Note - The amounts actually spent refer not only to houses but also to the purchase of land and the provision of some services.

TABLE II.

Year (Finan- cial)	Amounts actually spent on Native Housing.			
	Assisted monies.		Economic	Aged poor schemes 1/-%
	3¼%	¾%		
1948/49	£1,648,294	£ 123,159	£60,544	£6,595
1949/50	1,005,145	75,179	103,521	801
1950/51	1,635,546	523,892	740,867	3,405
1951/52	137,144	1,208,700	307,599	1,800

TABLE III.

Year (Calen- dar).	Assisted monies used for Native Housing.	No. of dwel- ling units built with assisted monies for Natives.	Economic monies used for Native Housing.	No. of dwel- ling units built with economic monies for Natives.
	£		£	
1948	1,140,969	3,821	20,690	-
1949	1,313,839	4,705	52,776	56
1950	1,305,609	3,054	228,508	423
1951	1,447,074	3,605	702,401	1,730

TABLE IV.

Year (Calendar).	No. of Native dwelling units involved in approved schemes, construction of which had not started in year as shown.	
	Assisted	Economic.
	£	£
1948	12,025	107
1949	8,729	678
1950	10,354	658
1951	9,138	836

From the above tables it may be seen that at the present moment about £1,500,000 in assisted monies and £500,000 in economic monies, is being spent yearly on Native Housing, resulting in the erection of some 6,000 dwelling units annually.

It is of interest to note that about 5,000 dwelling units are being erected annually by the Natives themselves.

Provision also exists in section 16 of Natives (Urban Areas) Consolidation Act of 1945, whereby local authorities can borrow other monies for Native Housing. Several local authorities, e.g. Bloemfontein where over 3,000 houses have been built, have availed themselves of this method of providing housing and have advanced materials to owner builders.

WHY HOUSING IS IMPORTANT.

There is a dictum that next to the provision of a sufficiency of proper food the most important necessity is shelter. Man, from an early age, has found these two requirements demanding his greatest attention and, eventually, neither could be detached from the social and economic background of society. In fact, any housing problem is actually a social crisis.

"Overcrowding and intermingling are grave problems in the houses. In frequent cases many persons of different ages and sexes must sleep in the same bed. One writer cited the case of six persons, mother and father both forty years old, one son of twenty, and three daughters, seventeen, fifteen and ten years of age, all of whom occupy the single bed which the family owns. It is not sheer coincidence that thirty per cent of all births are illegitimate and that out of every thousand children born alive, 284 die within the first year."

The above appears in Francis Violich's book 'Cities of Latin America,' written about Chile; it is quoted to show that other countries have a problem similar to South Africa - but what is more important is the publicity which bad housing can give. The slums of a city cannot be removed without the determination to do so, and to a visitor bad housing and beautiful monuments and historic buildings are remembered equally well. No part of a city or town forms the whole, each unit fits together to give the overall picture.

In South Africa, the proper housing of the urban Native will establish family groups, who will have to shoulder their responsibilities

and will create a better national economy. A properly housed community will cost the tax payer less; health, crime and productivity in industry will all be affected. In the 1950 report of the 'Institute of Family and Community Health' the following statement is found in relation to the section on social medicine.

"Health of the Worker in Industry.

The establishment of an Industrial health centre as part of the Institute has focussed attention on the health needs of this important, but neglected, section of the population. The industrial section has initiated several studies as part of its service programme. These include the periodic health examination of workers in four industrial plants of the Moberi area, the dietary habits of these workers, and a study of absenteeism and labour turnover. The various causes of absenteeism are being analysed and the possible effects of a health service are being measured. Preliminary figures indicate that such a service, if comprehensive, results in a marked reduction of absenteeism through illness. As illness is the largest single stated cause of absenteeism, total absenteeism is markedly affected by the introduction of a service based on a careful periodic health examination. This study has also shown that absenteeism is related to the distance of the worker's home from his place of work as well as to his family life. Among Natives the lowest incidence is found in men who live with their wives and families in town, whereas the highest absenteeism occurs in married men living away from their rural homes in migrant labourers' hostels".

The report goes on to state that if a stable labour force is established then personal health services can play a major role in South African industry. Treatment has cut Native sick absenteeism to 30.4% below the European rate in the factories under experimentation. The final recommendation is that industrial development and housing estates should be planned and grow pari passu, and for the maximum efficiency in industrial workers the housing provided should be married family quarters.

Another report by E.R. Burnett in a paper delivered to the Town Planning Institute in November, 1951, bears out the same trends. He points out that the efficiency of a worker properly housed is always greater than those not housed but, what is more important, the reduction in labour turnover is vitally affected. Labour turnover in secondary industry is playing a more important role today, and no industry can overlook this vital aspect. Secondary industry, employing great numbers of unskilled Native workers do demand a certain skill from each employee. In many cases a limited amount of training is necessary before the employee is of use to the employer. If a labour turnover is such that the training period is no sooner completed than the employee changes his job, then the industry concerned will show little if any profits. Burnett while working at Vanderbijl Park examined three large industries employing a great number of Natives and compared the labour turnover of those housed against those employees not housed. His findings are listed as follows:

TABLE V.

Labour Turnover of Native Employees, Housed and not Housed.

	(1) Average Native Labour Force.	(2) Turnover Period of Labour <u>Not</u> living in Location (in months)	(3) Turnover Period of Labour living in Location (in months)	(4) Ratio of (2) to (3)
Employer A: 1949/50	1566	11.66	21.82	1 : 1.871
1950/51	3146	9.47	18.03	1 : 1.904
Employer B: 1949/50	462	9.93	28.48	1 : 2.868
1950/51	486	9.99	22.05	1 : 2.207
Employer C: 1949/50	528	8.54	21.10	1 : 2.471
1950/51	566	7.82	20.77	1 : 2.657
<u>Weighted Average Turnover</u>				
Employers A, B and C		9.84	20.38	1 : 2.092
Employer A		10.20	19.29	1 : 1.893
Employer B		9.96	25.18	1 : 2.529
Employer C		8.17	20.93	1 : 2.567

It will be observed that the labour force of Employers B and C was relatively stable and that the labour turnover period of those of their employees who lived in the location was $2\frac{1}{2}$ times as long as those employees who did not live in the location; in the case of Employer A, the fact that the labour turnover period of location residents was a little less than twice as long as non-residents of the location is probably not unconnected with the tremendous increase in his labour force in the period under review (from 1250 in July, 1950 to 3700 in June, 1951).

These figures need no explanation to the employer of industrial labour and must be well considered when planning an efficient industry.

Another aspect of planned Native labour in industry is being investigated by Mr. F. Buitendag, Manager of Non-European Affairs Department, Municipality of Germiston. By the simple application of aptitude tests he is able to investigate the potentials of an unemployed Native and then by classification the man is graded as suitable for engineering work, parceling, delivery work etc. When an industry then telephones the Municipal labour bureau and requires Native labourers, the job must be stated and the labour is selected in accordance with the men's ability to perform the task. This system of aptitude testing and classification is gaining much praise from industrialists, who find their classified labourers able and efficient at their work from the day they are employed.

The above investigations show the importance of housing and planning in respect of industrial workers. Beyond these aspects are the moral implications of housing and family life. The proper housing of a family will allow that family to live a good life. The children will be

brought up in the environment of a united family and will accept their responsibilities in the future. Overcrowded slum areas cannot produce responsible persons, it is through good family living that responsible persons will grow. A family housed in the confines of an iron and mud shack, in which all the activities of the family such as cooking, eating, dressing, undressing and sleeping occur in one room, are not housed in an environment conducive to living a good family life. This is a family which will tend to disintegrate; the children will, as they grow older, run away even if they are to become vagrants, prostitutes, criminals or shebeen kings or queens through lack of employment or parental control. Looking upon their childhood and the conditions that their parents were forced to accept will not encourage these young people to face life in a realistic manner. Responsibilities of family life are not associated with poverty, overcrowded slum areas, and family argument - the life of easy come easy go has a glitter of something more appealing and more adventurous. The road to crime is being built upon a foundation of bad housing and broken family life.

The crime statistics of the Native population are startling in so far as the increases are concerned.

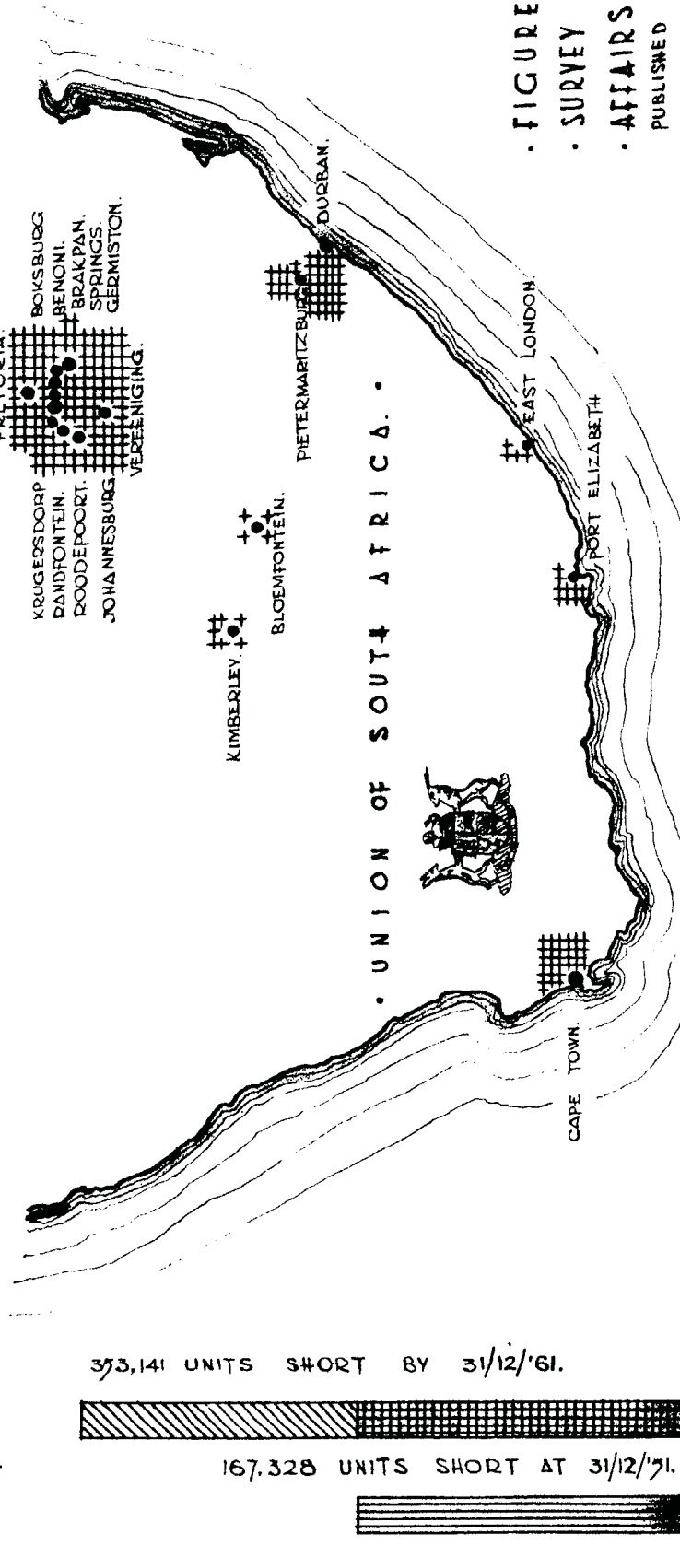
TABLE VI.

Crime on the Witwatersrand (Native Figures Only).

Year.	Murder and Culpable Homicide Cases.		Cases of Assault with Intent to do Grievous Bodily Harm.	
	No. of Cases.	% increase in year.	No. of Cases.	% increase in year.
1942	136	-	1,635	-
1943	199	+ 31.6	1,984	+ 18.0
1944	216	+ 7.8	2,070	+ 4.1
1945	186	- 16.1	2,475	+ 16.3
1946	159	- 17.0	2,181	- 13.5
1947	225	+ 29.4	2,922	+ 25.3
1948	231	+ 2.6	3,381	+ 13.6
1949	337	+ 31.5	3,681	+ 8.1
1950	385	+ 12.5	4,336	+ 15.1
1951	472	+ 18.4	4,776	+ 9.2

The figures for the Union in respect of theft increased by 1,582 for the first half of 1952 as compared to the same period in 1951; the total convictions for theft in the first five months of 1952 was 36,936 cases. For serious crime - murders, rapes, robberies and housebreaking - there has not been a year since 1942 without a substantial increase as is disclosed in Table VII.

• 167,328. HOUSES SHORT AS AT 31/12/51. & 185,813 IN ADDITION AS AT
 • 31/12/61. • TOTAL SHORTAGE BY 1961- 353,141. HOUSES.



• SHORTAGE OF URBAN NATIVE HOUSING IN SOUTH AFRICA.
 • NOTE CONCENTRATION IN PRETORIA-VEREENIGING AREA.

TABLE VII.Serious Crime, Union of South Africa; All Races.

Year.	Cases reported.	Increase over previous year.	
		Number	Percentage.
1942	56,756	3,669	6.91
1943	59,326	2,570	4.53
1944	60,687	1,541	2.60
1945	69,036	8,169	13.42
1946	75,316	6,280	9.50
1947	84,651	9,335	11.02
1948	89,130	4,479	5.29
1949	138,272	49,142	55.14
1950	148,786	10,514	7.60
1951	158,513	9,727	6.54

These figures give some indication of the trend in crime statistics, but owing to the system of recording the figures, detailed conclusions cannot be drawn. In the case of theft the indications are that the Europeans are responsible for thefts by embezzlement, conversion, fraud and false pretences, especially where large sums are involved, while the Natives and Coloureds are guilty of the bulk of petty thefts.

If the urban Native were housed in an environment in which he could be educated, enjoy his free time and develop an individual personality and a good family life, the incidence of crimes of violence and of other serious nature would be greatly reduced. The children in the urban Native residential areas must be afforded the opportunities of some schooling and the chance to play games and attend boys' and girls clubs where scouts and guides or similar activities can be organised. If the children are given the chance of a full life now, then tomorrow they will accept their responsibilities and become contented and well behaved inhabitants of the urban areas.

CONCLUSIONS.

"First we must erect a standard of living. In terms of housing, the minimum standards are set by objective criteria of air, water, sunlight, heat, privacy, and so forth, and further modified by those social provisions which tradition and current investigation prove to be necessary for the nature of children and the education of responsible citizens. At any given period, in any given region, these standards set a minimum level for wages: industries that cannot meet such a level must be looked upon as economically inefficient and socially defective."

Lewis Mumford in 'The Culture of Cities'.

The townward drift of the Native population has been noted; the forming of permanent urban Native communities is in the process. The pull has been industrialisation and urbanisation of the European population. It is now the purpose of this thesis to study the technical approach to the problem of housing urban Native families. The technical approach can only

indicate / ...

indicate the way; it remains for housing policies to be framed in terms of scientific findings to pave the way to a solution. The work which follows will discuss the theoretical aspects of housing standards and neighbourhood planning, then the practical application of these findings to the design and construction of two experimental Native townships.

It is important that the home or house be well planned in terms of family living so that the early life of the Native child is moulded in an environment of contentment, happiness and rest. Improved conditions of living will allow the people to rise out of slum conditions and ways of living, to a responsible group of persons. Planning cannot end at the house, as the lives of the families are affected by more than housing alone; the planned neighbourhood with its schools, shops, sports fields, community centre and parks, is just as important as the home and must demand the same careful investigation. The object of this housing must be to provide houses which allow proper family living within the means of the people who need them most and to arrange the houses so that amenities beyond them are easily accessible and fully provided for.

In respect of home ownership it must be immediately appreciated how desirable this is in fostering pride and responsibility in the inhabitants. In the National Housing and Planning Commission's consolidated circular of 1952, stress is laid upon this aspect of housing. "Finally, the Commission wishes to urge local authorities to sponsor home-ownership schemes for all races as far as possible. From an administrative point of view, ownership schemes are easier to administer and less costly than letting schemes. And from the national point of view, home-ownership is a stabilising influence and one of the main bastions against Communism and other social ills".

Assuming this statement to be the general outline of a housing policy for South Africa, it is essential to extend it so that it embraces a workable approach. I would say then that the objects which must be given our attention immediately in terms of the above statement and for our approach to the housing problem of urban Native families, must lie in the following:-

- (a) Every family should be housed in a dwelling of their own.
- (b) Each dwelling must be a fit unit for family living.
- (c) The rents must be such that they can be afforded by the families housed.
- (d) The financial burden must be cut to a minimum.
- (e) Finally, this state of affairs must be brought about as quickly as possible.

The shortage of urban Native Housing is so serious and our problem of providing 35,000 dwelling units per year for the next ten years so great that no one system is going to solve the whole complexity of housing. Private enterprise, housing utility companies, local authorities and the Government are all needed to meet the shortage of housing; every system of building from large contract work, departmental work either by European or Native owner builder systems, self-help schemes or stage housing to serviced plots will play their part. No system can provide the only solution at this stage, but in order to achieve efficiency and the best use of materials, labour and monies available, detailed planning is essential. No system is going to be successful unless it is well organised and planned in every detail and then is supervised by enthusiastic officials.

It will be shown that co-operation and team work are vital to the task that lies ahead and it is from these aspects that a technical solution can be found.

In addition a great deal must be known about the urban Natives and this calls for scientific investigations and studies. The need for having full and reliable figures and statistics of urban Natives cannot be overstressed. This is not just a scientist's wish but a realistic approach to the problem; in the shadows of misunderstanding and ignorance, fear can easily develop, and it is our task to sweep away these shadows and let the light of understanding shine upon our land. No planning can hope to achieve success unless an insight into existing conditions is obtained, and for this reason socio-economic surveys of the urban Natives are essential.

In his report 'Sub-economic Housing Practice in South Africa' published in 1947, Professor P.M. Connell concluded with a statement which is even more apt today than in the year of writing.

"The task involved in finding a solution to these problems is enormous. Measured against the number of sub-economic houses constructed in the period 1936 - 1946, the estimated number of houses required indicates that a colossal and sustained effort will have to be made on a scale hitherto unknown in this country. The social and economic problems which form part of the general problem necessarily touch the very roots of the country's social structure. Nor are the technical aspects the least of the difficulties to be overcome. The most prescient foresight, and forethought, will be needed to steer housing development along the right channels, for it must be remembered that building will be carried on not only to meet present needs, but to create the physical framework within which the lives of thousands will be spent a generation hence. It is clear, therefore, that the task goes beyond the purely technical level; it is a social responsibility of the first consequence, not only in relation to present conditions, but of no less importance for the future of South Africa".

This statement is very true, especially in regard to Native Housing, and it is hoped that this record of the technical approach may stimulate interest and action in providing houses of good design, set in neighbourhoods which create an environment for living a full and happy life.