

PROBLEMS OF
URBANIZATION

Volume II: Proceedings of a series of Seminars

GERALD BREESE

Institute for Social Research
University of Natal, Durban, 1964.

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Proceedings of a series of Lectures
and Seminars held in the
University of Natal
in August/September, 1963,
on the occasion of a visit by

GERALD BREESE

Director, Bureau of Urban Research
and Professor of Sociology,
Princeton University

V O L U M E II

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This represents one of two separate publications containing the essence of a series of lectures and seminars held in the University of Natal in August, 1963, on the occasion of a visit to the University by Dr. Gerald Breese, Professor of Sociology and Director of the Bureau of Urban Research at Princeton University.

Our first contact with Professor Breese was made by Professor Paul H. Connell, Head of the Department of Architecture, when visiting the United States in 1956; it was on his suggestion that the Students' Visiting Lecturers Trust Fund of the University of Natal invited Professor Breese to spend six weeks in South Africa, and to lead the discussions on problems of urbanization which form the substance of this publication.

The four lectures prepared by Professor Breese touch on important aspects of the modern city; in the first place he discusses the city as a way of life and the phenomena of suburbia; in the second place he deals with specific problems of cities in the economically underdeveloped countries, first in general terms and then in relation to data requirements for the comprehensive planning of such cities. No attempt is made to set out a systematic presentation of theory relating to urbanization, but the points emphasized in the lectures touch on some of the most crucial problems and significant trends encountered in contemporary cities in many parts of the world.

The material of the lectures is amplified and developed in the seminars, which were interdisciplinary in character, the participants being drawn from the different departments of study concerned with the subject - in particular the departments of Sociology, Economics, Commerce, Urban Geography, City Government, African Studies, Town Planning and Architecture, and the Institute for Social Research. The Provincial and local authorities were represented and participated freely in the discussions; members of the public attended the seminars by invitation and the lectures were announced as public lectures.

The chief value in the series, apart from the intrinsic interest of the subject, lies in the stimulus it gave to interdisciplinary discussion and research. In an age of specialization there is far too little opportunity, especially in the universities, for experience of this type of teamwork; yet it is only by the employment of such methods that the complex problems of the modern world can be solved. If the experience of this particular series of studies is any guide, the vital and creative effect of bringing the relevant disciplines together in a mutual study of a common problem augurs well for the future employment of the method for the solution of actual problems in the context of practical affairs. It is the hope of the organizers that the University of Natal will continue to develop the techniques of interdisciplinary research, in association with the public authorities, for the solution of concrete problems within the region which it serves, and that in so doing it will contribute to the elucidation of the theoretical problems which underlie the practical difficulties of urban growth and development.

The lectures and seminars were supplemented by intensive field studies in the cities of Durban and Pietermaritzburg in Natal. Whilst in the Republic of South Africa, Professor Breese paid short visits to the cities of Pretoria, Johannesburg and the Witwatersrand metropolitan region, Cape Town and Port Elizabeth. On his way to South Africa, he was able to visit a number of African cities, including Dakar, Abidjan, Accra, Lagos, Kano, Ibadan, Leopoldville, and on his return he called at Nairobi, Addis Ababa and Khartoum. Though these visits lie outside the scope of this series of studies, they represent an additional increment to the value of Professor Breese's African tour, adding to the total store of working knowledge now in the possession of Princeton University. The University of Natal is happy to have been able to provide the occasion for this opportunity.

Two publications place on record the series of lectures and seminars associated with Professor Breese's stimulating visit; they have been issued under the titles:-

Vol. 1: "Urbanization in Old and New Countries".

Vol. II: "Problems of Urbanization" (in mimeograph).

Acknowledgements are due to the Fund's Committee and to the Chairman, Professor O. P. F. Horwood, for making the project possible, and to the Institute for Social Research for organizing the Seminars and undertaking the publication of the proceedings.

The thanks of the organizers are also due to the following persons who undertook to prepare material for and to lead discussion in the seminars:-

Mr. Eric Thorrington-Smith, Natal Provincial Town and Regional Planner;

Dr. D. M. Calderwood, Chief Research Scientist, National Building Research Institute, Council for Scientific and Industrial Research, and

Professor O. P. F. Horwood, Professor Hansi Pollak, Professor Eileen Krige, Dr. R. Davies, Mr. L. T. Croft and Mr. I. K. Allan, of the University of Natal.



L. T. Badenhorst,
Director, Institute for Social
Research.



Paul H. Connell,
Dean of the Faculty of Engineering,
University of Natal.

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SEMINAR 1 : RECENT TRENDS IN URBANIZATION

METROPOLITANISM

Professor Breese stated that he would discuss the aspects of urbanization most familiar to him and would use the United States data as a point of reference for consideration of the general trends.

The Growth of "Strip Cities" (Conurbation)¹⁾:

This had been one of the major developments in the United States and would be illustrated by the growth of the 13 largest strip cities. Each represents a continuous complex of metropolitan cities, their immediate suburbs, smaller cities and satellites (urban continuum). A South African illustration of this was the Witwatersrand.

13 "strip cities"	% of U.S. Population	Population (million)	% increase since 1950
Boston/Washington	17.5	31.5	15.7
San Francisco/San Diego	7.6	13.6	51.2
Chicago/Milwaukee	4.8	8.7	22.9
Cleveland/Pittsburgh	3.7	6.6	14.6
Detroit/Muskegon	3.2	5.7	25.7
Fort Worth/San Antonio/Houston	2.5	4.5	43.1
Albany/Erie	2.1	3.7	17.9
Miami/Jacksonville	1.7	3.0	96.5
Toledo/Cincinnati	1.5	2.7	22.7
St. Louis/Peoria	1.5	2.7	19.1
Seattle/Eugene	1.3	2.4	23.7
Atlanta/Raleigh	1.2	2.2	32.9
Kansas City/Sioux Falls	1.2	2.1	23.9
Total	49.8	89.4	25.7

1) Data from "Sprawling 'Strip Cities' - They are all over U.S.", U.S. News and World Report, September 18, 1961, pp. 73-75, 77-78.

The Boston/Washington D.C. "strip" spreads in an almost uninterrupted strip of 450 miles, and comprising a population of 31.5 million (17.5% of the United States total). The most rapidly growing strip in the past decade was Miami/Jacksonville (96.5%) followed by San Francisco/San Diego (51.2%).

Jean Gottmann¹⁾ had recently devised a new concept and definition "Megalopolis". An illustration of this was the eastern seaboard continuum from Portland (Maine) to Norfolk (Virginia). This had a population of 35 million, 20% of the total United States population, yet occupying only 5% of the land area of the United States.

Almost one half of the total United States population was now concentrated in the 13 strip cities. There appeared no reason to believe that this concentrated growth pattern would be arrested and this distressing picture caused considerable concern to the urban specialists. They do not know where it will end.

2. Metropolitan Areas:

United States census definition of Standard Metropolitan Statistical Area S.M.S.A. (in simplified definition, a central city of 50,000 together with all surrounding related urban area).

The accelerated growth of the S.M.S.A. was another characteristic of urban development and was particularly significant during the past 30 years.

STANDARD METROPOLITAN STATISTICAL AREA

<u>Year</u>	<u>Number</u>
1900	52
1910	71
1920	94
1930	115
1940	125
1950	168
1960	215

These 215 S.M.S.A. areas now held 62.5% of the United States population (some 124 million).

1) Jean Gottmann, Megalopolis: The Urbanized North-Eastern Seaboard of the United States, New York, Twentieth Century Fund, 1961. The term megalopolis was used extensively by Lewis Mumford, in The Culture of Cities (1938), and other works.

3. An indication of urban concentration was afforded by the following table:-

City Size	1910	1960
Population of 100,000 +	50	131
Population of 25,000 +	228	761
Population of 10,000 +	597	1,907

4. The following table illustrates the different rates of growth of the City Centre (administrative unit) and the surrounding outlying areas of the Standard Metropolitan Statistical Areas:-

Year	Percentage Rate of Growth			
	S.M.S.A.	Centre	Outlying Areas	
			Urban	Rural
1900-1910	32.6	36.6	50.7	9.9
1920-1930	27.1	23.8	48.2	18.8
1940-1950	21.8	13.9	29.2	40.8
1950-1960	26.4	10.7	48.6	

The significant trend was that the population increase in the centre was steadily declining in each decade, while it was the outlying areas registering the ever-growing increase.

In the United States the original administrative division (incorporation) of a city was relatively (to the total metropolitan area) small and thus the surrounding areas absorbed the population increase.

This slower growth (and in recent years some centres had actually declined) resulted in many difficulties. The central city bears the capital costs, supports the many varied city facilities, provides the focus of commerce and with its decreasing population bears a disproportionate burden of taxation.

Professor Breese was of the opinion that this particular problem was not nearly as serious in South Africa, partly because our local government areas of the central city embrace a much larger part of the metropolitan area than in the United States.

5. Another of the characteristics of United States urbanization was evidenced in the residential distribution of Metropolitan city dwellers. From 1900 to 1950 there had been an uninterrupted increase in the proportion of the population living at greater distances from the centre. This progressive movement to the outer areas is well illu-

strated in the case of Chicago and Philadelphia. If the Metropolitan Area were considered, rather than the city itself, the change would be even more dramatic (commuting up to 30 miles).

PERCENTAGE DISTRIBUTION RESIDENT POPULATION CITY OF CHICAGO
- BY DISTANCE (Miles) ZONE FROM THE CENTRE OF THE CITY*

Year	0 - 2	2 - 4	4 - 6	6 - 8	8+
1900	21.5	43.2	16.6	12.9	5.8
1910	16.5	32.6	28.4	13.3	9.2
1920	10.2	26.5	31.5	18.5	13.3
1930	6.6	19.6	28.4	24.4	21.0
1940	5.9	18.6	28.5	25.1	21.9
1950	6.1	18.5	27.2	23.9	24.3

* Prepared by Chicago Community Inventory and reproduced in Wilfred Owen, The Metropolitan Transportation Problem, 1956, p. 271. Boxes have been added by Breese to show where 50 per cent of the population live.

PERCENTAGE DISTRIBUTION OF THE POPULATION OF PHILADELPHIA
- BY DISTANCE FROM THE CENTRE OF THE CITY, 1900-1950**

Miles from centre of city	1900	1920	1940	1950
0 - 1	9.3	5.5	3.2	3.1
0 - 2	24.0	17.8	12.3	11.0
0 - 5	72.6	68.9	55.3	50.1
5 - 10	11.2	15.5	26.6	29.9
10 - 18	9.9	10.4	12.4	13.9
18 - 25	6.3	5.2	5.7	6.2

** Data from Hans Blumenfeld, "The Tidal Wave of Metropolitan Expansion", Journal of the American Institute of Planners, Winter 1954, p. 13, adapted for use here.

6. This residential dispersion of the city population signifies an immense daily ebb and flow, with a very substantial accretion during the day. (Boston is 34%, Pittsburgh approximately 50%, Newark 102%). There is consequently a considerable difference between the daytime and the nighttime population.

7. Some United States cities show special characteristics. Los Angeles claims to be approaching the population size of New York. Its area is great, its suburbs numerous and increasing. Its Central Business District is relatively unimportant; suburban shopping centres (originated in Los Angeles) are very important. 66% of the Central Business District land area is taken up by streets and parking ("100 suburbs in search of a city"). It is dependent almost exclusively on automobile, bus and truck transport, with extensive freeways. There are other unusual cases affected by the topography (San Francisco, etc.).

DISCUSSION

The following (summarized) information was given by Professor Breese in reply to questions raised by various members of the panel:-

Population Growth Distribution:

The rate of rural growth has declined in successive censuses and there is a marked population shift from rural to urban areas. There is also a considerable difference in the growth rate of the different regions, most marked in the south west (San Francisco, San Diego) and south east.

Formerly 9 rural families were necessary to support one urban family. The present position is reversed.

There is no indication of the lessening trend of Megalopolis-style urbanization.

Strip Towns:

These are partially developed in this fashion because of geography, access to raw materials and transportation (both east and west coast oriented strips)

Chicago Transport Node (25 railways)

Cleveland-Pittsburg (Lake Erie)

Miami-Jacksonville (Winter resort, retirement, etc)

Horizontal/Vertical Development:

Development has been predominantly horizontal. The suburban (our equivalent of peri-urban and adjoining small local authority areas) development is mainly single family homes. But in the cities there has been much multi-storey Government housing. New industrial development is almost completely one-storey. No multi-storey factory erected in the past 30 years. Central Business District is multi-storey with current and unexpected boom in office accommodation construction.

Socio-Economic Residential Patterns and Projected Trend:

There is a distribution pattern - tendency for lower income groups to be in areas close to Central Business District, the wealthier living at greater distances from the Centre. In migration to central cities is predominantly of the lower income and status groups. Some slight tendency for older persons to return to the city (flats) from the suburbs (homes). Consequently anticipate that in the foreseeable future there will be an increase in these living 0-2 and 2-4 miles from the city.

(It was pointed out in the discussion that in South Africa the lowest income groups virtually have no choice of residence, they live where the authorities decree, always at a very considerable distance from the centre. Furthermore, South African conditions impose great artificial rigidities, since Group Areas proclamations preclude free movements based on socio-economic factors. Low income earners cannot move into areas adjoining the Central Business District as these are always zoned as White Group Areas).

Central Business District:

It was pointed out that the Johannesburg Central Business District had been twice rebuilt since 1933. Professor Breese indicated that there was nothing comparable to this in large cities in the United States, but very considerable vertical developments had taken place. Philadelphia had shown considerable rebuilding - Los Angeles had no real Central Business District. Land values in the Central Business District have not fallen, still many competing bidders - possibility that overbuilding of office space; some misgivings if there be an economic recession.

It is in the land surrounding the Central Business District that land values have depreciated. Owners previously hung on to it speculating that commerce would extend, but instead commerce has expanded by new units in suburban shopping centres at the periphery. It has given rise to blighted Central Business District areas (now low income occupancy).

Metropolitan Problems:

(a) Taxation:

No solution has yet been found to the inequitable burden of taxation caused by the Central City providing the basic services and facilities to surrounding areas. Sales tax does not help much as the bulk of standard retail purchasing is done in the suburban and peripheral regions.

(b) Community Leaders:

The United States faced the same problems as South Africa (probably even more marked), in that service and community leaders and business elite were often lost to the central city;

however, because their main interests were tied up with the central city and because of the time taken in commuting their services were also frequently lost to the outer areas. This also led to the serious problem of "Absentee Parenthood" - panel member suggested also of suburban matriarchy.

Recreational Space and Dependence on Central City:

In general the larger the total population, the less is its dependence on the Central City area for recreational space. In central city, commonly an inverse relationship between density of population and accessibility to play space. "Suburban" areas provide their own recreational space. But, in general, larger amounts of land, centrally situated, are required because of increased participation in sport (golf). The Central City, however, provides services of theatre, opera, symphony orchestra - but requiring minimum supporting population from the whole urban area.

Planning:

There has not been a similar development to that in England, where low density new towns had been planned and developed. No policy of "New Towns" in the United States as alternative form of settlement. A few "green belt towns" having no economic base, built at unpropitious time but were not successful. The trend has been increase in spread to the suburbs.

It is not yet the policy of most of the United States to control the development of land between the towns by rigid controls. Regional planning is in its initial stages, but as yet with little power to enforce the plans.

A panel member suggested that both the United States and South Africa probably had too much land to be rational. But this position was rapidly changing as agricultural land was being swallowed up by urbanization.

There is no systematic policy of any State activity for deliberately encouraging or enforcing decentralization. State Economic Commissions are, on the contrary, each endeavouring to attract and develop more industry, each competing with the other. Decentralization for defence purposes is no longer a necessity, because of fall-out over a wide area. The whole country is now highly vulnerable because of prevailing winds. Considers tendency is towards increasing centralization and megalopolis.

Professor Hansi P. Pollak
(Rapporteur)

SEMINAR 2 : RECENT TRENDS IN URBANIZATION

TRANSPORTATION

Professor Breese stated he would review the state of urban transport in general.

1. Transportation in Relation to Location of Cities:

Transport factors play a very considerable part in the location of cities, i.e. ports, river express, transport, modes and functions. Technological developments may bring about a change in mode of transportation and thus the initial advantage may become a disadvantage. Once established, however, the city remains (inertia effect of heavy investment in public services).

2. Transport Relative to Growth Patterns of Cities:

Growth patterns of towns are intimately associated with its transport developments. Each successive extension of transport has resulted in the extension of urban settlement and built-up areas.

Both Burgess Concentric Zone theory and Hoyt's Sector Theory of Growth are based on this - the former indicating its importance in early development of towns; in the latter it is the controlling consideration. In particular, the processes of centralization and decentralization are affected by transport.

In the United States we have almost made a fetish of the separation of residential, business, industrial and recreational areas. This has increased the importance of transport because of the necessity of travel from one specialized or functional area to the other.

3. Demands of Transportation on Land Use:

Formerly there was considerable criticism of the amount of urban land devoted to railway requirements (permanent way, marshalling yards, etc.). Yet contemporary dependence upon car and truck makes far greater demands upon land space. Because this is dispersed, it is less obvious and creates less reaction (e.g., Los Angeles Central Business District devotes 66% of the total land use to streets and parking).

The distribution of land use is highly sensitive to transportation services. Virtually no part of the urban areas is unaffected by transportation.

4. Effect of Transportation on Land Values:

Well-known phenomenon of land values directly influenced by accessibility to transport. Noise and "nuisance" may make some

minor modification, so that land two and three blocks away from the main artery may now be more valuable than land directly abutting the route.

5. Transportation is One of the Indispensables for the Continuing Existence of Cities:

Illustrative of this is that some 800,000 truck trips are required to supply the daily necessities of Chicago.

Any stoppages of transport by strikes virtually cripple a city - dramatic illustrations of this form cessation of services of tug boats, railroads and even of elevator (lift) services.

6. Circulatory Needs of Transportation are Very Strong:

Cities are served by infant-sized transport facilities, yet demands are giant-sized.

A city of 1,000,000 used to be considered "ripe" for mass-rapid transportation. But today a city of 1,000,000 may be so dependent upon the motor car that it may not be amenable to mass-rapid transportation (e.g. Los Angeles where so spread out, and density is too low).

DEPENDENCE UPON PRIVATE TRANSPORT

7. Attendant Problems:

a) Traffic Control:

With dependence upon private transport (car and truck) traffic control becomes a major problem. This has resulted in special research and specialized institutions (Institute of Traffic Engineers, Federal Bureau of Public Roads, new Departments of Engineering Schools devoted to engineering and traffic control).

b) Parking:

Currently considerable debate as to the value of a Super Highway coming directly into the Central Business District. It is probably generating more problems than it solves and is possibly dysfunctional. Attempted solutions of "down town" parking:-

- i) Subterranean parking garages under parks and replace park above;
- ii) Parking within buildings (on each floor) but point of diminishing return soon reached (compare "space" of man and his car). A solution has yet to be found.

c) Threatens Solvency of Public Transport:

Most rapid mass transportation systems are faced with the threat of bankruptcy, or have already gone into bankruptcy. All face critical period. Recent development in north-west Philadelphia of a spur of fast rail transportation subsidized by the public with extensive development of parking facilities in outlying shopping points (PARK and RIDE).

8. Encouraging Development of Port of New York Authority:

This has been one of the most successful endeavours to control the attendant problems. But the "Authority" device can easily get out of public control (it operates on its own budget, has powers of borrowing, expropriation, etc., is outside the debit limits imposed on municipalities by the State Governments and can thus become independent of the public interest).

9. The United States and South Africa:

Electricity and internal combustion engine are the roots of transportation. There are differences in the pattern of development in the two countries, but also many similarities.

- a) Widespread use of truck transportation in the United States is the most important single differentiating factor. Extensively used in the United States for long distance transportation as well as short haul. Standard advertising practice to guarantee overnight delivery per 500 mile radius from the factory. Industrialization is increasingly lessening its dependence upon rail and canal transport in favour of depending on truck transport - both for raw materials and finished products.
- b) The United States transport development has led to the creation of more large cities closer together than in South Africa (strip cities). The Witwatersrand complex is the only comparable illustration: Durban and Cape Town embryonic.
- c) United States cities, because of these transport ties, have become more interdependent - permits of development of ancillary industry and specialization in adjacent or neighbouring towns (Detroit/Michigan strip with specialization for automobile industry).

10. The Automobile-Multi-Purpose Vehicle:

The automobile is used extensively for all kinds of necessary personal conveyance. Not only highest ratio of cars to population but 2 cars per family becoming an increasing norm and even necessity.

- a) Journey to work in Central Business District (number of persons per vehicle entering the Central Business District is often as low as 1, 1.2 or 1.3).
- b) Daily journey to outlying industrial areas where public transport is unavailable.
- c) Shopping by the housewife - suburban shopping centre layout, absence of deliveries.
- d) Journey to school - automobile or bus in suburban areas - again a result of extensive "sprawl" and low density.

In general a far lower dependence upon rail than formerly. Areas surrounding the cities were formerly more heavily concentrated along and near to the main radial transportation leading out of the cities. Formerly with dependence on rail this left large interstitial areas. But with dependence on car, bus and truck, the interstitial spaces are more easily "filled up" and developed (compare "star fish" development pattern of mass transport based cities with the filled in pattern where the car permits free choice of routes.

FRINGE DEVELOPMENTS

Professor Breese drew attention to the following factors:-

- i) Decentralization of population (generally low density, single-family housing);
- ii) Industrial development (prevailing one-storey, assembly line style);
- iii) Provision of commercial facilities (especially extensive growth of suburban shopping centre).

Existing literature concentrated upon the use of car, bus and truck in governing fringe development in urban areas in the United States.

He believed an extremely important factor to be the post World War II and present mortgage policy of the United States Federal Government. From the developer's and individual's point of view, this policy was heavily weighted in favour of single-family homes in contrast to multi-family dwelling units. Had the Federal Government pursued a policy of providing more readily available funds for apartment development, the pattern of development might have been quite different. The majority of people in fringe areas live in one-family houses; some do so not because they prefer it, but because it is cheaper than apartment rental ("Home Owners are really only Mortgage Owners"). The single-family home, together with the use of car, have resulted in unbelievably widespread dispersal, especially since World War II.

ILLUSTRATIVE COMPARISON OF LAND USE AND REQUIREMENTS

(Gross figures only - not making provision for roads, open space, etc.)

	Size of "lot"	Dwelling units per acre	Acres per 100 families
(Common in close and in development)	1/8 acre	8	12½
)	1/4 "	4	25
Large increase at this level	1/2 acre	2	50
)	¾ "	1½	75
Current increase at this level	1 acre	1	100
)	2 "	½	200
Flats		1 acre 50 families	2

(In discussion it was pointed out that the gross figures were somewhat misleading, because imperative in considering development of 1/8 to 1/2 acre areas to consider the substantial loss of "living space" for streets, schools, parks, etc.).

(Family development - 1/4 acre with 50 ft. frontage - on small plots has distinct limitations (service costs, amenities, etc.). Suggestion that terraces development might be more suitable (costs connecting services, etc.). Primary requirement of close housing development is road access and these costs are vastly in excess of water, electricity, etc. Costs of electricity, water, can be recovered by differential rating but no such possibility exists in recovering initial road costs).

Considerations in Planning:

- (a) If suburban fringe areas are to be based on low density one-family housing, provision of ancillary facilities (shopping areas, parking space, industry, etc.) must be provided. These, in turn, create problems of their own.
- (b) Policy of housing finance.
- (c) Problems of provision of services in Metropolitan Areas of multiple local government jurisdiction.

American experience has indicated that agreement and co-operation may be attained on matters of water, sewerage and possibly on transportation but seldom in any other fields, to date.

DISCUSSION

Professor Badenhorst, on the analysis and growth of the 18 metropolitan cities (over 50,000) in 1950-1960 pointed out that many of the metropolitan growth characteristics of the United States were also found in South Africa, although on a smaller scale. (See Addendum)

South African peri-urban areas experienced a rapid growth of population, particularly in the largest towns (Johannesburg, Pretoria, Durban). This was very largely attributed to the increase in the non-white population and their residential locations well away from the central city. Although almost all metropolitan cities (municipal area) had registered population increases, the percentage gain was greatest in the smaller sized cities. One major difference in South Africa was that the influx of the lower economic strata of the population to the central city had not been marked (racial composition of South African population and Group Areas policies). He thought that factors - cheaper land, lower rates, prestige, and the ingrained South African tradition of the love of the land, would continue to exercise an influence on "fringe development". The Witwatersrand complex, with its concentration of over two million population (roughly one in eight of total population) conformed closely with what is known as a "strip city" in the United States.

Costs of Services in Relation to Urban Sprawl:

In reply to various questions, Professor Breese pointed out that in the initial stages (only) of "suburban" establishment some rates might even be lower than in the central city; to a great extent it depends if suburbs can connect services to the central city's or have to provide their own services. The central city may reach its service capacity and decline to take on additional servicing. But as the local authority grew, additional services had to be provided with the ultimate evening out of charges. In rapidly growing suburbs this may be a tremendous cost since schools, etc. (which are at local expense in the United States) must almost always be built all at once and several at a time.

There tends to be little difference in costs to the consumers of water, electricity, sewerage, etc. in the central city and surrounding fringe. One important characteristic of United States development is that the developers (private enterprise) of "suburban" areas are required to provide the services, which are consequently not charged to the local authority rates, but the costs are inevitably passed on to the purchasers of lots. One of the additional reasons for the outer area growth is the desire of parents to have a better schooling system than is often available in the central city. In some parts of South Africa (Durban, Johannesburg peri-urban areas) costs of water, electricity, sewerage connection are higher than in the city.

Optimum Size of City:

Despite considerable discussions and some research there was no clear answer on the optimum size of a town. Claims have been made regarding the optimum size (Frank Wright, Le Corbusier), but nobody has proved the hypothesis. Much is known about increasing costs in relation to increasing size but what has to be ascertained is whether the advantages of size are worth the additional costs. The research of regional scientists and economists in studies of Input and Output have made substantial contributions. Also known what size of population is required to support and sustain certain facilities, opera house, symphony orchestra, theatre, a suburban shopping centre.

Factors determining the size of towns are subject to change (technological, economic, cultural) so that theoretical "ideal size" inevitably has to be adapted.

Theory and practice do not necessarily coincide (e.g. Brazilia and Chandigarh, in Punjab). In the first case over 100,000 persons have concentrated outside planned city and in the latter case the area concentration outside the planned city is also marked.

South African Characteristics:

(from discussion) Urban development has been greatly influenced by racial and economic factors. An analysis of the 18 metropolitan cities shows that development is mainly due to geographical factors and availability of natural resources. Of the 18, twelve are due to mining (gold, diamonds, coal), three are ports and three administrative centres which have become multi-functional. These centres have grown and expanded and added other functions. With the exception of Cape Town and Kimberley, which are self-sufficient, there has been (possibly accidental) "twin city" of mutual interdependence with a neat division of labour, but they are not contiguous. Johannesburg/Pretoria, Durban/Pietermaritzburg, Bloemfontein/Orange Free State mining towns, East London/Grahamstown, Port Elizabeth/Grahamstown (one centre providing industrial and commercial finance, the other primarily administrative, professional, and educational services).

Transport has not been free to develop in South Africa. The S.A.R. & H. (South African Railways and Harbours) with its Road Motor Service is a monopoly and has legislated to preclude competition - consequently private road delivery service has been virtually eliminated. Very possibly South African urban development would have assumed a different character, had there been freedom of enterprise in transportation.

Ownership of cars dependent upon economic status - relatively high among whites (11 cars to 5 white persons in Durban), but extremely low among non-whites. Except for minor densely occupied areas of the city, public transport for whites operates at a loss. For non-Europeans - even for the outer areas - public transport is profitable (consequently whites in peri-urban areas relatively poorly served with public transport and mainly dependent upon own cars).

Professor Hansi P. Pollak
(Rapporteur)

NOTES ON METROPOLITANISM IN SOUTH AFRICA

Since the turn of the century, our population has been steadily centralizing in metropolitan areas. South Africa, in 1960, had 18 Metropolitan Areas with a population of 50,000 or more in their central cities (212 in the United States). In the past decade these 18 Metropolitan Areas have increased their population by more than 1,000,000 inhabitants, from 3,527,000 to 4,533,000 (Table I). Together they now contain 29 per cent of our total population and no less than 54 per cent of the total White population (cf. 63 per cent in the United States).

As regards the definition of Metropolitan Areas our census definition is much the same as that used in the United States, except in regard to the lower limit set for the size of the central city (50,000 in the United States). The two definitions are as follows:-

United States Census: Each area is a county, or group of contiguous counties, which contained at least one city of 50,000 inhabitants or more.

South African Census: A Metropolitan Area comprises the parent municipality or municipalities in addition to the surrounding built-up area or areas, most of which are separately identified (a Metropolitan Area may extend over more than one magisterial district, e.g. Cape Town Metropolitan Area stretches over the magisterial districts Cape, Bellville, Wynberg and Simonstown).

Like in the United States, the peri-urban areas in the Republic have for many years, and especially during the most recent inter-censal period, experienced rapid growth of population. This trend can be shown by comparing census data for the Municipal Areas of the Metropolitan Areas with those of the remainder of such areas (the outlying or peri-urban areas, called suburban areas in the United States). Table I shows the population and percentage increase in population for (1) Metropolitan Areas with a population of more than 50,000 in 1960, (2) the central cities or municipalities in these Metropolitan Areas and (3) the Remaining Areas or outlying, mostly urban, areas.

During the 1950's the population increase in the outlying parts of the Metropolitan Areas amounted to more than half-a-million people, or 84 per cent (48.6 in the United States). In the central cities (or municipal portions) the rise was only 17 per cent (10.7 per cent in the United States). During the period 1951-60 the peri-urban population as a proportion of the total metropolitan population increased rapidly from 17 per cent in 1951 to 25 per cent in 1960. Thus one-quarter of the population of our Metropolitan Areas now live in the outlying areas of our urban complexes. This proportion (i.e.

the relationship of people in the ring to people in the municipal centre) varies considerably from city to city; in Johannesburg inhabitants of the outlying areas form nearly half of the total, whereas in Cape Town it is about one-third, in Durban less than one-sixth, in Pretoria more than a quarter, and so forth).

The nature of the shifts in population from the central cities to the outlying areas becomes evident when, as in Table I, the Metropolitan Areas are classified according to size in 1960. These shifts have been most pronounced in the Metropolitan Areas with the largest and most intensively developed cities. In our largest and only millionaire city, Johannesburg, there was a population loss of 8 per cent in the central city (or municipal area) during the 1950's, but a gain of as much as 106 per cent in the peri-urban ring (cf. Boston, St. Louis and Detroit in the United States with losses of 10-13 per cent during 1950-1960). In general, the smaller the size of the Metropolitan Area, the greater was the rate of growth of the central cities in relation to that of the outlying ring. So, for example, in Metropolitan Areas with between half-a-million and 1 million inhabitants in 1960 (Cape Town and Durban) the central cities grew at a rate of 20 per cent as against 72 per cent for the outer ring. In the group of Metropolitan Areas with a population of 100-500,000 population the corresponding figures are seen to be 29 per cent and 67 per cent respectively. There were, however, exceptions to this trend in individual cities, notably Port Elizabeth, Bloemfontein and Benoni. In the latter city, there was even a nett loss of population in the outlying areas and a substantial gain in the centre.

Table II gives the same information as Table I for the White population only. It is clear from comparing the two tables that a considerable part of the movement to the outlying parts of our larger Metropolitan Areas consists of non-Whites. These groups, and particularly the Bantu, are housed in the outlying areas of our cities in sub-economic and subsidized settlement schemes, and thus come about as a result of government policy rather than voluntary movement. This presents the main contrast between the position here and the United States situation, where the higher income groups tend to move to the periphery and there is an influx of lower income, often non-White, groups into the central cities (e.g. Washington D.C., which in the space of a relatively short period has become predominantly Negro inhabited with a large number of White inhabitants moving to the outlying areas).

The factors responsible for the shift of the White population to the urban ring is much the same here as in the United States. Bigger grounds and gardens, escape from the nuisances and congestion of central urban existence, the prestige of living in the "country", the rural background of many newcomers to the city, etc. In 1960, no fewer than 262,000 or 16 per cent of the White inhabitants of our major Metropolitan Areas was living in the outlying areas (outside municipal boundaries). This proportion rises quite considerably in the case of the larger urban areas (with exceptions, such as Johannesburg). In Cape Town and Germiston about one-third of the Whites lived in the outlying areas, while the proportion in Pretoria was nearly a quarter and in Durban 16 per cent. As our cities mature, this trend will no doubt continue and increase in intensity.

TABLE I - POPULATION AND POPULATION INCREASE IN METROPOLITAN AREAS, REPUBLIC OF SOUTH AFRICA, 1951-1960 ('000)

Size Class	Met. Area	POPULATION						% Increase/Decrease 1951-1960 in:		
		1951			1960			M.A.	Mun.	Remainder of M.A.
		M.A.	Mun.	Remainder of M.A.	M.A.	Mun.	Remainder of M.A.			
1,000,000 + 500,000 - 1,000,000	Johannesburg	884	632	252	1097	579	518	24	- 8	106
	(Cape Town	578	441	137	731	497	234	26	13	71
	(Durban	493	435	58	655	554	101	33	27	74
	TOTAL	1071	876	195	1386	1051	335	29	20	72
100,000 - 500,000	Pretoria	285	232	53	416	299	117	46	29	121
	Port Elizabeth	189	169	20	271	246	25	43	46	25
	Germiston	153	116	37	205	139	66	34	20	78
	Bloemfontein	109	81	28	141	109	32	29	35	14
	Benoni	109	94	15	135	122	13	24	30	-13
	Springs	119	119	0	135	135	0	13	13	-
	East London	91	91	0	115	113	2	26	24	-
	TOTAL	1055	902	153	1418	1163	255	34	29	67
50,000 - 100,000	Pietermaritzburg	76	73	3	95	90	5	25	23	67
	Roodeport	78	78	0	95	95	0	22	22	-
	Krugersdorp	76	76	0	89	89	0	17	17	-
	Brakpan	85	85	0	79	79	0	- 7	- 7	-
	Kimberley	62	59	3	77	74	3	24	25	0
	Vereeniging	60	60	0	75	75	0	25	25	-
	Boksburg	64	64	0	71	71	0	11	11	-
	Carletonville	16	16	0	51	51	0	219	219	-
	TOTAL	517	511	6	632	624	8	22	22	33
TOTAL		3527	2921	606	4533	3417	1116	29	17	84

TABLE 11 - INCREASE OF THE WHITE POPULATION IN METROPOLITAN AREAS, REPUBLIC OF SOUTH AFRICA, 1951-1960. ('000)

Size Class	Met. Area	POPULATION						% Increase/Decrease 1951-1960 in:		
		1951			1960			M.A.	Mun.	Remainder of M.A.
		M.A.	Mun.	Remainder of M.A.	M.A.	Mun.	Remainder of M.A.			
1,000,000 + 500,000 1,000,000	Johannesburg	359	341	18	390	360	30	9	6	67
	(Cape Town	247	187	60	279	189	90	13	1	50
	(Durban	153	133	20	194	162	32	27	22	60
	TOTAL	400	320	80	473	351	122	18	10	53
100,000 - 500,000	Pretoria	151	131	20	203	155	48	34	18	140
	Port Elizabeth	79	71	8	94	85	9	19	20	13
	Germiston	66	47	19	84	56	28	27	19	47
	Bloemfontein	49	35	14	61	47	14	24	34	-
	Benoni	37	28	9	41	33	8	11	18	- 11
	Springs	32	32	0	36	36	0	13	13	-
	East London	44	43	1	49	48	1	11	12	-
	TOTAL	458	387	71	568	460	108	24	19	52
50,000 - 100,000	Pietermaritzburg	32	31	1	39	38	1	22	23	-
	Roodepoort	29	29	0	41	41	0	41	41	-
	Krugersdorp	27	27	0	30	30	0	11	11	-
	Brakpan	30	30	0	29	29	0	- 3	- 3	-
	Kimberley	20	19	1	24	23	1	20	21	-
	Vereeniging	17	17	0	24	24	0	41	41	-
	Boksburg	25	25	0	28	28	0	12	12	-
	Carletonville	6	6	0	16	16	0	167	167	-
	TOTAL	186	184	2	231	229	2	24	24	-
	TOTAL		1403	1232	171	1662	1400	262	18	14

SEMINAR 3:

THE ESTABLISHMENT AND LOCATION OF NEW COMMUNITIES

THE PRESENT STATUS OF REGIONALISM -
THE LOCATION OF ECONOMIC ACTIVITIES -
THE PROBLEMS OF RESETTLEMENT

The Present Status of Regionalism:

Professor Breese opened the discussion with a brief survey of the present status of regionalism, referring principally to the United States experience. Going back to the 1930's, or in some cases even earlier, we find such classics in the field as Regional Factors in National Planning and Development and other pioneering studies published by the National Resources Planning Board; the Research into the Development of Puerto Rico; the Great TVA Experiment; and more recently, the New York Metropolitan Region Study sponsored by the Regional Plan Association of New York (of which nine volumes have been published), providing predictions of the directions of development, the Regional Plan of Philadelphia Tri-State District, and the Columbia River Basin Studies.

The development of this work has been characterized by the growth of organizations, of which the North-West Regional Council (Pacific N.W. Area) is an example, which have been created sometimes by governmental authority (e.g. the Port of New York Authority Studies) but often on a private basis.

Of recent importance, too, has been the creation of the Regional Science Association, a professional body which develops new research techniques and promotes interest and extends knowledge in the field by means, inter alia, of the publication of a journal and the holding of international conferences on the subject.

The regional approach to planning, however, was by no means confined to the United States, and Professor Breese mentioned similar work being done in the United Kingdom, Germany, France and the U.S.S.R., while there was emerging a deep and widespread interest in regional planning in the underdeveloped countries of the world.

In South Africa, too, there was at least a ten-year history of regional studies, of which examples are found in Natal's Tugela River Planning Commission and the Natal Regional Survey studies of the University of Natal.

A survey of all these endeavours in the field of regional studies shows that they are all involved in the same kind of questions: the difficulty of defining a region, and having defined it, of

delineating it (must, e.g. the borders of a region be contiguous?), the assembly of relevant data, the difficulty of projection. Whatever the difficulties, and however persistent they might be, the logic of regional planning still remained virtually unassailable.

The Location of Economic Activities:

In this area of analysis and planning we come across the same problems to which is added the particular difficulty of making projections for small areas. Nevertheless, in the United States there has been even more research in this area than in regional analysis.

One of the major issues is the process of decentralization. This process is particularly apparent in industrial activities, but it is matched by decentralization in commercial activities, and, though at a somewhat slower pace, by decentralization of service activities.

In industrial decentralization there is the tendency to use a large number of single-storey buildings with a consequent demand for more and more land. There is, therefore, a pressure towards moving to outlying areas. As these outer areas develop, commercial enterprise follow, the commercial houses generally seeking to retain their headquarters in the Central Business Districts while opening branches in the suburbs.

The government itself in the United States has not, however, been active in the location and development of new communities. These have grown under the aegis of private enterprise and generally in the neighbourhood of metropolitan areas. Exceptions to this were found, however, in certain war-time controls and in the case of TVA.

More typically we have private development corporations offering a number of inducements in the attempt to attract new industries, e.g. by offering free land, tax reductions, free water, etc. As against this, however, industry is now tending to hire its own experts to advise it and to discount these forms of inducement. There are signs that it prefers "to pay its own way" and thus be free of obligation in its relations with local authorities. More emphasis, therefore, tends to be placed on the amenities that the city offers which can considerably affect the kind of employee that the industry is able to attract. In the face of this trend more and more communities in New Jersey, e.g. are giving up the attempt to attract industry by means of inducements.

There is, however, one major exception to the absence of governmental intervention, and that is in the controlling power of zoning. There has been a great increase in the use of zoning at municipal, county, and state levels. By this means communities are able to control the location of industry and to determine their own community characteristics.

DISCUSSION

Discussion centred around two main topics: the general nature and problems of decentralization, and, more fully, the particular problem of the location of industry in the "border" areas of South Africa.

Under the former topic there was some discussion on the concept of optimum size. Some of the points made were: that there was a tendency for industry increasingly to choose sites in smaller towns in preference to the large metropolis - an example, perhaps, of "growing bigger" rather than of decentralizing population; that there was still a preference in favour of not being too far away from the metropolitan area; and that, apart from defence plants, there were few examples of new industrial centres in formerly wholly rural areas. Where this did happen it was usually for special reasons, e.g. the development of new sources of power, or the existence of an untapped labour market. Professor Breese in the end queried whether the optimum size concept was a workable one.

On the question of the location of "border industries" in South Africa, i.e. in white areas bordering "Native Reserves", there was considerable criticism of government policy, particularly in terms of its ability to achieve its objectives, but also with regard to the objectives themselves.

It was pointed out that in South Africa the main factor in the location of industry is "the pull of the market", and that since none of our cities, relative to other parts of the world, is over-large, there is no intrinsic pull to move industry away from the urban and into the rural areas. On the other hand, as an incident of South Africa's "dual economy", there is the problem of subsistence standards of living in the Bantu Areas. If agricultural productivity is to improve in these areas, it is necessary to displace population. The Government, however, is opposed to the drift of population to the existing "white" towns, and is equally opposed to the intrusion of industry into the Reserves themselves. Its problem, therefore, is to attract the industries to the "border" areas, i.e. borders of nature reserves.

These border areas may, indeed, be suitable for the location of industry, and the example was given of Hammarsdale, which is near enough to Durban to be virtually part of the greater area. It is also in close proximity to Cato Ridge to which industry had moved on its own initiative. The real problem, however, is how to encourage industrial development in areas remote from the metropolises. And in this respect there is evidence (vide the Report of the Permanent Location of Industries Commission, and the reports of Professor D. Hobart Houghton on the Ciskei) that there is little prospect of immediate relief.

In general it was felt that if border industries were to develop on a scale necessary to make any real impact on the problem of rural over-population, it would require something really big (e.g. a steel mill) which would provide a source of wealth. Unless the industrial area creates wealth, it will have to depend on governmental subsidies for its survival, and in that case can hardly reach the requisite scale.

It was not felt that the border industries could become a significant means of diversifying South Africa's economy in that the Bantu Areas have no special commodity that is "exportable" to the rest of South Africa, for even in food the rest of South Africa is independent of them. It would therefore appear that the creation of such border industries was the product of ideological rather than of economic considerations.

From the sociological point of view, however, the criticism of the concept of border industries was more fundamental. This concept is rationalized on the ground that it is necessary in order to promote the well-being and economic advancement of the African population. But the objections to this were: that in so far as the industries would be situated in white areas, the African workers would still be subject to their prevailing disabilities, e.g. under job reservation, and the inability to form trade unions; and likewise, the maintenance of a sound family life would still be denied them in that their families would still have to reside in the Reserves, probably beyond the range of daily travel.

Mr. A.K. Heard
(Rapporteur)

SEMINAR 4:

THE PRACTICAL APPLICATION OF REGIONALISM IN NATAL

Mr. E. Thorrington-Smith described the move towards regionalism as representative of the comprehensive, as opposed to the fragmented, approach to planning. Neither geographic nor functional fragmentation was able to provide a satisfactory basis for planning, and these two methods, therefore, stood in need of resolution. Nevertheless, in determining on the regional approach, one still had to face the difficulty of defining the relevant region, for a region is likely to have different boundaries according to the criteria employed.

For planning purposes it is useful to distinguish between two broad types of region:-

- (a) developed regions, i.e. urban areas such as the Durban/Pietermaritzburg region, and
- (b) underdeveloped regions for which regional plans can be profitably made and applied ab initio.

The Durban/Pietermaritzburg Region:

Initially attention was concentrated on the Greater Durban Region, comprising the Umkomaas/Botha's Hill/Verulam area, but this was found to be inadequate, and, for reasons stated later, the region was extended, its terminal points now being considered as Umkomaas, Howick, and the Tugela Mouth.

As an essential preliminary to planning, one must have as wide a knowledge as possible of the existing forces and factors operating in the region concerned. For this reason the Town and Regional Planning Commission (TRPC) have drawn extensively on the resources of the University of Natal for the collection of data. Among the reports issued by the University which have been particularly useful are the two reports on the growth, structure and location of industry in Durban by Mr. McWhirter and Mrs. Katzen respectively; a report on the population and labour resources by Mr. John Burrows, and a report on the land use, slopes, and geological formations of the region by Mr. Jones.

Other important investigations that have been sponsored by the TRPC have included:-

- 1) The Umgeni Catchment Areas Water Resources Report: this report, in the compilation of which the local authorities in the region co-operated, was instrumental in determining the siting of the Midmar Dam; and as a consequence of that decision it was found necessary to extend the Durban/Pietermaritzburg region up to Howick;

- 2) A Chemical and Biological Survey of the Umgeni River: A survey essential for the future detection and control of future possible pollution;
- 3) A Survey of the North Coast (a sub-region of the Durban Metropolitan Area), with particular reference to the employment of Indians and the creation of work opportunities: It was on the basis of this study that the need to extend the concept of the Durban/Pietermaritzburg region northwards to the Tugela Mouth became apparent.

In order to extend the knowledge of, and planning for, the region the Durban/Pietermaritzburg Regional Planning Committee was set up some eight years ago under the chairmanship of Mr. Thorrington-Smith, the Provincial Town and Regional Planner. This is a broadly based committee with representatives acting on it from government and provincial departments, local authorities, and, in the person of Professor Horwood of the University of Natal.

Planning of underdeveloped regions centred on the Tugela River basin and the "Three Rivers" region (Umvoti, Umgeni and Illovo rivers).

The Tugela Basin:

In area this region comprises an area of approximately 11,200 square miles or one-third of the Province of Natal. Its water resources are vast, being sufficient to support six cities the size of Johannesburg, six cities the size of Cape Town, four the size of Durban, four the size of Pretoria, and still leave enough to support a city the size of Greater London.

The original intention had been to make a survey of the industrial potential of the region, but it soon became apparent that a more comprehensive approach, to include the study of agricultural practice, was necessary. The study of the region has therefore involved the following:-

(a) Water Resources:

- i) a quantitative estimate of the total water resources available;
- ii) a quantitative assessment of the water, involving chemical and biological techniques, as a means of determining continuous pollution.

(a similar survey is now being made of the "Three Rivers" region).

(b) Agricultural Potential:

- i) a survey of the plant ecology of the region;
- ii) a survey of the soils of the region, assisted by the Division of Soil Survey at Delft (Holland)

which has devised a technique involving the use of aerial photography that greatly speeds up the study.

Professor Phillips has now been appointed Senior Research Fellow at the University in order to interpret these two surveys in terms of the agricultural potential of the region.

(c) Industrial Location:

On the basis of surveys made the twenty-two most suitable sites for industrial development have now been selected, and these sites can now be protected.

(d) Irrigation:

Similarly, the areas most suitable for irrigation have been plotted.

(e) The Practicability of Industrial Development:

- i) A study of the type of industry which might be developed successfully in the region;
- ii) A study of the effect of railway rating on the location of industry in the region.

(f) Marine Disposal of Effluents:

Five or six institutes of the C.S.I.R. are combining in a large and comprehensive study in this field, much of it involving basic research.

The Mechanics of Planning:

Two broad principles apply:-

- (a) The location of industry must, in broad terms, be determined by economic factors, but within narrower limits, zoning must be controlled by the appropriate public authority;
- (b) But more fundamentally, the community itself should determine the degree of planning desired, for this is a matter of public policy. It is for this reason that the TRPC has been so composed as to make it broadly representative of "public life" in Natal, its members being: Dr. G.C. Scully (Chairman, a prominent industrialist), Mr. Carte (a former Mayor of Durban, and industrialist), Mr. Winter (farmer), Mr. Bowles (chairman of Umfolozi Sugar Co-operative), Mr. Bennett (architect), Mr. Paul (land surveyor, former president of the Town Planning Institute), Mr. McLennon (former Natal Provincial Chief Roads Engineer), and Mr. Ingle (former Mayor of Greytown).

DISCUSSION

Reserve Areas:

Of the approximately 11,200 square miles of the Tugela Basin region, some 2,600 square miles form "Native Territories" of various kinds, much of it remote. But the surveys that have been undertaken have indicated areas physically suitable for development over the whole area. As it happens, some of these locations are near Reserves and would therefore be appropriate for "border industries".

Practice Elsewhere in South Africa:

Natal had given an early start in the regional approach through the interest of Mr. Douglas Mitchell, M.P. when he was Administrator of Natal. It was under him that the office of Director of Town and Regional Planning was created, and the basis laid for the drafting of the 1949 Ordinance under which regional planning in Natal has since been conducted.

In other areas governmental initiative in planning was not so advanced. The Administrator of the Orange Free State had discussed the matter with Mr. Thorrington-Smith, and had announced his intention to set up something comparable to the TRPC and had made some appointments, but to date the matter has not gone much further. The Cape Province has also shown interest and announced its intention of doing certain regional planning work. In the Transvaal, however, the attitude has been that the creation of the necessary statutory powers must precede regional planning. Natal's attitude here is that the plan should be good enough to be able to proceed by persuasion without the need for compulsion; although in the urban areas the Province does have certain statutory powers.

Non-Governmental Planning Associations:

There are, further, certain private bodies interested in the concept of regional planning. Those mentioned at the seminar were:-

- i) The Natural Resources Development Council. This body, limited as it is in its staff resources, has not gone much beyond the preparation of an "incipient" plan for the Southern Transvaal Region;
- ii) The Southern Transvaal Regional Development Association has been set up with a full-time director. It holds conferences and has a particular concern over the possible decline of the Witwatersrand Area; but it is really in the nature of a pressure group as it is not equipped to undertake planning on its own;

- iii) The Umgeni Catchment Association, representative of the farming community, local chambers of commerce and industries, and local authorities, seeks to stimulate development in that area;
- iv) The Umvoti Catchment Association is a similar body with similar purposes;
- v) The National Development Council, the Zululand Public Bodies Association, and the Federation of Municipal Associations were also suggested as bodies falling into this category;
- vi) In the Border, the Buffalo River Catchment Association promoted the Border Survey undertaken by the Institute of Economic and Social Research of Rhodes University.

The Scope of Natal Regional Planning:

In reply to a question that raised the problem of the interdependence of the various regions and the consequent need for planning in a particular region to take cognisance of planning in other regions, Mr. Thorrington-Smith gave the assurance that the TRPC was trying to keep the total picture in mind; for example, a knowledge of the structure of industry in Durban gave a clearer picture of the industrial potential of the Tugela Basin. Owing to the limited nature of the TRPC's resources, however, little had so far been done in Zululand and South Natal.

Practical Considerations:

- (a) With regard to the kind of industry that might provide the impetus for large-scale development, Mr. Thorrington-Smith indicated that the erection of a steel-mill in the region was not unlikely. ISCOR stood in need for a third steel-mill, and the TRPC was presenting a case stressing the advantages of the area. Alternatively SASOL might be interested in establishing a fuel-from-coal industry, which would also encourage further industrial enterprise in chemical processing, the manufacture of by-products, etc.
- (b) With regard to the kind of planning being undertaken, Mr. Thorrington-Smith stated that the TRPC was primarily concerned to demonstrate the potential of the region and that therefore no detailed plans had yet been drawn up.
- (c) With regard to the railway rating policy of the Government, it was pointed out that while the Government offered favourable terms to border industries and had set up a commission to enquire more fully into the effect of rates on the development of these industries, it also had to take into consideration the interests of existing industries whose present location might well have been determined by the rating system now in operation.

It was agreed that the third topic down for discussion by this group, viz. the Problems of Resettlement, could be raised at the next meeting which was due to discuss Rehousing Schemes.

Mr. K.A. Heard
(Rapporteur)

SEMINAR 5 : REHOUSING SCHEMES

Dr. D.M. Calderwood, Chief Research Scientist, Head of the Architectural Division, National Building Research Institute, Council for Scientific and Industrial Research, Pretoria, led the discussion.

History of Housing Research in South Africa:

Professor Connell outlined the early developments in Housing Research, beginning with the original group study of African Housing published by the Witwatersrand University Press in 1939. Research was resumed after the war, when a Survey of Sub-Economic Housing Practice in South Africa was published by the C.S.I.R. in 1947. This study focussed attention on (1) the diversity of existing practice in the local authorities, (2) the desirability of common standards, (3) the need for rationalization in the design and construction of low-cost dwellings, and (4) the urgent need to reduce real costs.

This study was followed by the development by the N.B.R.I. of a research programme, the funds being provided by the National Housing and Planning Commission, then a recently-constituted Central Government body responsible for the formulation and implementation of State housing policies and for the provision of housing loans to local authorities and to individuals.

Minimum Standards of Accommodation:

The first task of the research programme was to define the minimum standard of accommodation, to apply to all housing and to be framed with due regard to (1) functional living patterns, (2) acceptable international standards, and (3) the economics of housing.

In all, ten committees, representative of the professional disciplines concerned, the various levels of government, housing management experts, social workers and members of the public - 150 persons in all - were set up to report on the manifold aspects of research into accommodation standards. Under heading (1), the committees dealt with such factors as the design of the dwelling, the number and size of rooms, their functions, health and comfort factors, occupancy rates, user preference studies, background studies of population trends; under (2), existing international standards, a review of existing legislation governing the construction and occupancy of dwellings and general trends in low-cost housing developments, including the provision of ancillary buildings and services, were studied. Studies of housing costs were deferred to the next phase of development, but under (3) such factors as basic principles of structural economy, the dangers of premature obsolescence and the provision to be made for later improvements on the basic housing unit, fell within the scope of the work of the committees.

Reports on these groundwork studies were published by the C.S.I.R. in 1949; the recommendations aimed to provide for:-

- i) the minimum conditions of decency and functional adequacy considered necessary for successful urban living under conditions of normal family life, i.e. to provide sufficient space for health, reasonable comfort and functional convenience, with separation of parents' and children's sleeping quarters and separation of the sexes in children of 12 and over, with a safe water supply, individual sanitation and minimal facilities for cooking and washing;
- ii) a policy of building dwellings large enough to meet these essentials, but initially in "carcase" form only (for the lowest income groups) but designed so as to be capable of improvement without major structural alterations as general economic standards improve, thus securing socially-acceptable space and utility standards and structural standards which would not be likely to become obsolete during the 40-year economic life of the buildings;
- iii) certain minimum standards of amenity in the layout of housing estates including provision for schools, shopping centres and social amenity buildings in appropriate numbers and positions in the estate.

Development of Low-Cost Housing Policy:

Dr. Calderwood outlined the subsequent phases of research which together contributed to the development of national policy in low-cost housing.

The recommendations of the Committees on Standards of Accommodation at first met with obstruction, mainly on the score of cost. This problem was met by the setting up of an interdepartmental committee to review the recommendations; the then Director of Building Research, Mr. J.E.B. Jennings (now Professor of Civil Engineering at Witwatersrand University) played an important part in obtaining recognition of the recommended standards, which were accepted by the Government except for one point of some importance, viz.: that the living room should be required to do double duty as a sleeping place for two members of a family. (This had the effect of increasing the permissible occupancy rate by 2 persons per dwelling).

Survey of Housing Shortage:

The Director then sought to "buy time" by arranging with the Government for a survey of urban housing needs. This survey was conducted under the direction of the C.S.I.R. and under pressure of the urgency caused by the rapid post-war growth of squatters' camps on the periphery of every large city. Though this survey later proved to be short in its estimates, the preliminary figures served to shock the nation into a realization of the vast dimensions of the housing shortage.

Technical Development of Minimum Standard Dwelling Types:

Whilst the survey was going on, the N.B.R.I. continued studies on the development of prototype dwellings based on the now approved standards. This was, essentially, a feasibility study and led to the development of standard plans. This was unavoidable, since a high degree of rationalization was in any case inevitable, and the standard type plan became a great factor in achieving the necessary rationalization, and hence reducing costs. The disadvantages of standardization were offset to some extent by rigorous analysis of functional patterns of living, resulting in a high degree of planning efficiency, making the most of the necessarily limited floor-space. This planning study was paralleled by a series of studies which aimed at the discovery of how to achieve the maximum area and volume of living-space with the least possible expenditure in materials, again a contributory factor to the all-important objective of cost-reduction.

At this stage, the prototype designs were subjected to a series of field and laboratory tests ranging from studies of performance standards of the structural components, and weather-resistance capabilities, structural soundness and analysis of physical comfort characteristics of dwellings constructed of various materials tested in relation to the main climate zones of the country. Cost research studies were conducted on each element and component of the dwelling, so as to arrive at the most efficient and the most economical details. The cost of each element was broken down under the headings of capital cost, labour cost, transportation cost, and these were studied against the effects of purchasing methods. Private enterprise was encouraged to come forward with ideas both of traditional and non-traditional building methods and many proprietary methods (mostly proposed by large contractors) were examined and some were subsequently used in new housing developments. The whole of this investigation bore in mind the requirement that any dwelling should be capable of lasting out its 40-year economic life-span, with a decade or so in hand.

During the period 1949-1951 the local authorities built very little; although R6,000,000 per year had been set aside for low-cost housing. The local authorities were, at that stage, still doubtful about the new housing standards, either on the grounds that the country could not afford such standards or, in some cases, on the grounds that the official standards were below those desired by a particular local authority. A deliberate effort had to be made to achieve a breakthrough here, and this was done by a team of three: Messrs. D.M. Calderwood, L.J. Vincent and W.C. Mocke. These gentlemen argued with the local authorities on the viability of their investment in low-cost housing, the key-phrase being "Gentleman, if there's a better investment opportunity in this town, show it to us!"

The First Test: Witbank.

Gradually, interest began to be generated and when the C.S.I.R. team offered to prove their point by designing a demonstra-

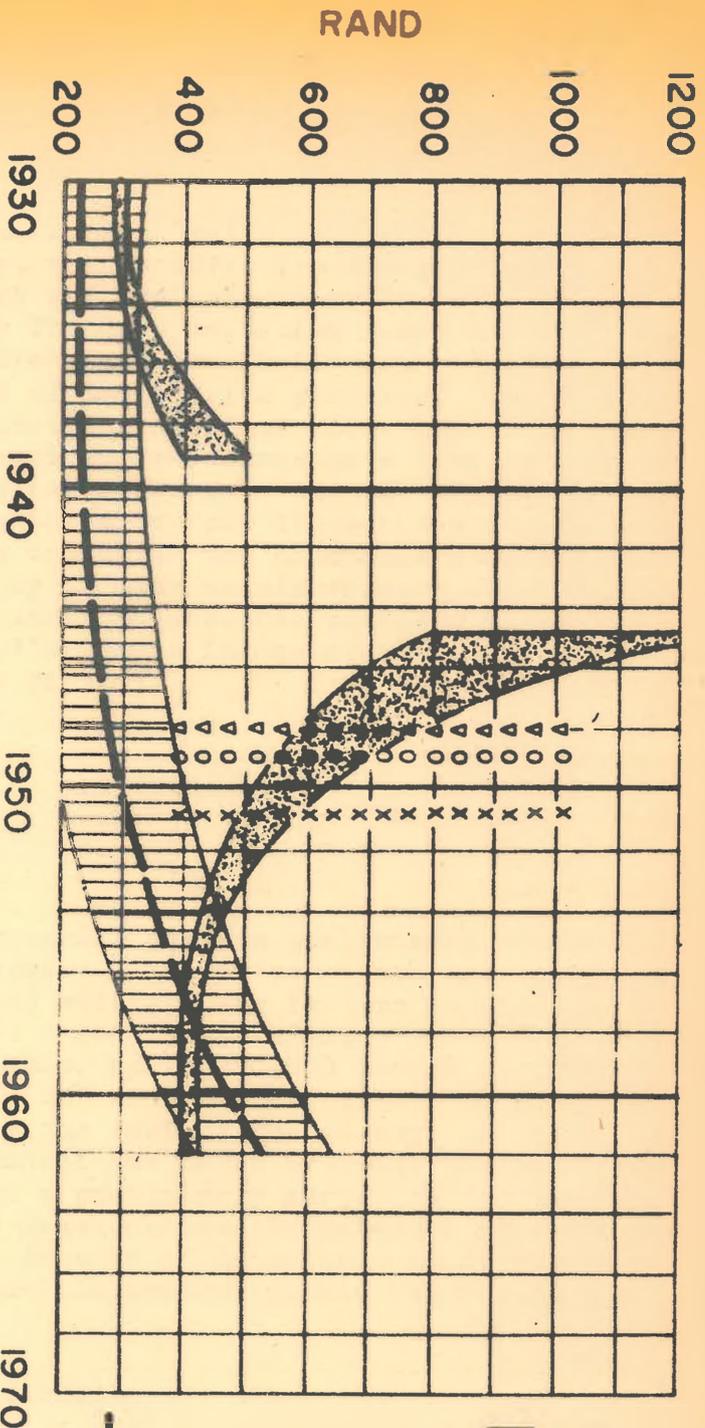
tion township, the town of Witbank in the Transvaal decided to accept the offer.

The scheme had to be built quickly and was not preceded by the social survey usually regarded as a prerequisite; in some respects, therefore, the authorities were working in the dark. Nevertheless, the scheme represents the first full-scale test of the new standards. The local authority loaned the services of an engineer and a third-year architectural student working as a daughtsman; Dr. Calderwood served as consultant and principal designer. The township was built by white building workers who completed it with commendable efficiency; the labour cost-structure was, however, high. When the first African leaseholders were due to move in, they sent a deputation to the local authority complaining that they could not afford to live in the new houses. The information they supplied was checked and found correct: average family incomes ranged from one-half to two-thirds of the income-level prescribed by the municipality as the basis of rentals in the new township. This discovery indicated the urgent need for facts and statistics; the lesson learnt from this being that in planning you cannot avoid starting with reliable statistics. On the technical side, by contrast, the experience of the Witbank test was wholly successful.

The Second Test: Kwa-Thema Township, Springs.

In the case of the second local authority to take up the C.S.I.R.'s offer to develop a prototype low-cost housing development, the Town Council of Springs, Transvaal, agreed to support Dr. Calderwood's "density research" concept in the development of its new township of Kwa-Thema (Kwa means of Thema is Mr. Thema). This scheme was preceded by a complete social survey conducted by Mr. van Beinum, who was assisted by the University of the Witwatersrand and the National Institute for Personnel Research; van Beinum's method was to enter an area and find out first who were the important people; it was found that these included such persons as the local "Skokiaan Queens" whose support and confidence had to be won before the co-operation of the people could be relied on. Van Beinum also had a successful technique of "vetting" the police officers in the area under survey, thereby gaining their collaboration. It was noteworthy that wherever he went and during his long patient sessions with the people, he always took a planner with him.

The survey revealed the poverty of the people but at the same time it showed that if the cost of the house was reduced that few families would benefit. This was caused by the large proportion of the family budget devoted to food purchases. This fact prompted by the Director of the N.B.R.I. to approach the President of the C.S.I.R. in order that a Nutritional Research Laboratory could be established. The proposal was accepted by the government and the laboratory was established. The survey figures also suggested that opportunities to earn money should be encouraged, and the Town Engineer, Mr. A.J. Archibald, decided to utilise the people themselves to build the houses.



HOUSING COSTS NOW BELOW ANNUAL INCOME OF FAMILY

SOUTH AFRICA'S LOW - INCOME HOUSING, A REVOLUTION CAUSED BY THE BUILDING ORGANIZATION.

- v v v RESEARCH STARTS AND STANDARDS APPLIED.
- o o o COST OF HOUSE AND DEVELOPMENT OF SERVICES COST INVESTIGATIONS APPLIED.
- x x x BUILDING OPERATORS INTRODUCED.
- MEAN ANNUAL INCOME OF UNSKILLED LABOURER'S FAMILY.

The Kwa-Thema scheme, built following the information obtained from the survey, was an effective demonstration of the validity of the research work and indicated a method of undertaking large mass housing schemes. The only criticism which can be levelled at some of the schemes which have been built since the Kwa-Thema experiment is that of lack of imaginative planning. The greatest gain that has resulted is that the dwelling costs have been lowered and maintained at a low level while incomes have been increasing. This has meant that whereas the workers in the western cities may live in houses costing between three to four times their annual family income and in developing countries the household's annual income may have to be multiplied by as many as six or more times to equal the capital investment in their houses, the position in South Africa is such that the household's annual income equals the capital investment in the house (see figure).

DISCUSSION

Need for Surveys:

The need for social surveys preliminary to housing construction had been stressed. It was essential that planners should be thoroughly acquainted with all the factors affecting the contemplated housing. In the case of Chatworth, a new suburb of Durban which will ultimately house up to 200,000 people of Indian origin, this need was realized, but when the University of Natal applied for a mere R10,000 to cover the cost of the survey, the application was turned down and the project had to be dropped; planning of the area was put in hand without a preliminary survey of the population to be housed. Yet there are great changes in internal mobility among the Indian community - two factors of importance being the relatively high incidence of automobile ownership, and the custom of the extended family.

The Extended Family Problem:

It was pointed out that the extended family problem affects Africans also, but that it had been discovered that only about 10 per cent of urban African families were practising the custom. A proper survey would reveal the real extent of the prevalence of the custom of extended families among the urbanized Indian community. Evidence published by the Institute of Race Relations to the effect that it would be essential to study the extended family pattern of Indians was quoted; one benefit of the custom was that it provided much greater security for the payment of rents.

The question was asked whether, at Chatsworth for instance, houses could not be provided in the form of semi-detached pairs, capable of being adapted to the needs of extended families; terrace housing would provide even greater flexibility. It was realized that official policy, throughout the country, tended to encourage the single-family house, usually in detached form, but these other forms, besides offering possible economies in basic costs, were better suited to the special needs of the extended family.

The total ultimate investment of the Indian community in Chatsworth could probably be estimated at R100,000,000. The cost of the township, originally estimated at R3,000,000, would be about two-and-a-half times that figure. At Wentworth, a middle-class suburb for Indian occupation houses, funded from Government economic funds, were built to white middle-class standards at a cost of R3500 - R4000. The plots could be hypothecated to the local authority as security for ready-available loans. Sub-economic (Government subsidized) semi-detached type housing was built for occupation by lower-income families, on a rental basis. In view of the "Industrial Revolution" pattern, historically being re-enacted today in the Republic, should we not develop a policy of building one-family houses on industrial lots, capable of improvement? If subsidies are necessary in the early part of the initial 40-year period, could they not be financed in part out of international funds, so as to permit the policy of one-family houses to be pursued?

It was mentioned that in the Merebank-Clairwood area of Durban not more than about 15-20% of the Indian families in a recent sample were found to be living as extended families.

Forms of Dwelling:

Professor Breese mentioned that in the new urban housing in India the decision was taken to go in for multiple houses, i.e. walk-up flats or apartments. He asked whether South Africa had done any research at all into the alternate attractions (from the cost point of view) of multiple-family units. Dr. Calderwood stated that when research into African housing was in progress they found that there existed an attitude to the effect that the detached one-family house was all the people would accept. This attitude may have changed and does not cover Indian families.

It was stated that lodgers (i.e. non-relatives) were only taken into the family if the rents charged were too high.

At Kwa-Thema, where terrace houses were first introduced, they were resisted at first, but by putting the facts to the people and letting them decide, they accepted this form of housing. A demonstration, with exhibition materials, was run for five weeks, with five people speaking five languages constantly on duty. There was no difficulty after that. In this demonstration, self-help techniques were used, municipal buses ran to the site on Sundays and people picnicked there and saw the demonstration houses. Social workers were "planted" to gauge the people's reactions. At Umlazi Mission, Durban, there was resistance to the terrace houses, also a novelty; despite their lower rents they were the last to be filled. No special effort was made, however, to put the choice to the people. Once occupied, the terraces do not seem to have given rise to any problems.

Professor Breese asked whether the question had ever been put to the people: If you have a choice at rent R"x", to gain access to 4 rooms in a single-family house or 6 rooms in a multiple unit,

which would you choose? World experience indicates that there is a trend towards the breaking down of the extended family with the increase or urbanization, but the rate of breakdown and its incidence are unknown. There is a case for funds for further research into this problem.

Social Surveys, and the Cost of Social Research:

Social surveys, whether of the last-mentioned or any other sort, were often unpopular with governments, as was well-known. Acceptability of such surveys may have been affected by the poor record of social surveys. This is a very real problem. Another problem is the high cost of social surveys. Costs of surveys as estimated by the C.S.I.R., N.S.C.R. and the Universities envisage a good standard of work which may, however, be handicapped by the lack of available consultants in South Africa. In a rapidly-changing situation, however, and one in which for various reasons it was hard to predict the magnitude and direction of social change, even over the 40-year span of the economic life of a single housing project, there is a very good case for continuing social research. The cost of the technical side of such research can be very high - drawings and models may have to be prepared. There is available at present about R30,000 per year for social research; it was suggested that the National Council for Social Research should be given a special Housing Research allocation to cover the cost of research into the social aspects of housing.

One factor of importance is that of continuity - gaining an understanding of what happens or is likely to happen during the continuous lifetime of a housing estate or township. One index is the incidence of ownership of motor vehicles. In Kwa-Thema it has been found that 20 per cent of the African families housed in the township contain one car-owner.

Professor Breese asked whether we could not tap some of the country's wealth to subvent social research and housing research? Could not some of the country's wealth be bypassed into Foundations, perhaps as a tax-relief measure? (He pointed out that most American housing research is paid for out of housing money). In South Africa the members of the National Federation of Building Trade Employers had agreed to a small levy on every employee's weekly pay envelope; this levy was paid into a National Fund which was being expanded to promote research of direct interest to the industry. At the present time the Fund's interest centred upon the Employment Pattern in the Industry, Management Training, and the Future of Building.

It was suggested that in studying change in housing and building, two types of change should be borne in mind: change due to trends, and arbitrary changes. The use of research funds other than government funds, e.g. funds from the Building Societies and other financial sources such as Insurance Companies, etc. were also advocated; some portion of these resources which derived from investment in buildings should be utilized for repayment in human benefits relating to building processes. A comparison could be drawn in the field of Agriculture, where the Land Bank could supply such functions. Could

there not be instituted a Public Housing Bank having a similar constitution? The recent appointment of Professor T.H. Louw to the National Housing and Planning Commission was mentioned in this respect. Mr. Louw, a quantity surveyor, was an economist who had long advocated the establishment of a Housing Bank.

The Context of Housing:

Professor Breese regretted there had not been time for discussion on this aspect. He mentioned two local opportunities which presented a challenge in the field of urban research and planning, viz.:-

- i) the Cato Manor area, now largely emptied of its squatter population; the resettlement of this large cleared area unusually close to the Central Business District presented an opportunity for research into optimal development patterns;
- ii) the recently-announced electrification of the South Coast railway line presented the possibility of fast, easy accessibility to areas hitherto cut off by inadequate transport facilities. Development of such areas for housing, recreation and holiday purposes by the private sector represents a potential field of research which would be of great value to the region.

Mr. E. Tollman
(Rapporteur)

SEMINAR 6:

THEORIES OF URBAN GROWTH -
THEORY OF ECOLOGICAL RESEARCH

Professor Breese introduced his dual subject by saying that he found theories of urban growth fascinating but frustrating because there seemed to be as many exceptions as there were examples of each theory. Since he did not know how much knowledge on the part of the audience to take for granted, he proposed to give not the details but merely the highlights of the theories and then look at South African cities to judge the theories' applicability to them. Thereafter he would discuss the ecological processes.

He began by distinguishing between Site and Situation. The first could be thought of as referring to the characteristics of the land itself, and the second as referring to the land's relationship to other parts of the surrounding country and the rest of the world. As examples of extremes in siting, Professor Breese gave the instances of the atomic research centre at Los Alamos in New Mexico whose position on a mesa with canyons on all sides, was ideal for security, and of Sao Paulo in Brazil whose seemingly unsuitable site on the edge of a 2,500 ft. cliff had not prevented it from being a fast-growing city because of the use of the fall distance over the cliff for hydro-electric purposes.

Two general principles of growth: that it will follow the lines of least resistance whether the barriers are natural or man-made, and the tendency for high-income housing to seek the higher and more pleasant ground, formed the basis on which theories had been expounded despite the fact that there were many exceptions to these tendencies. Of the many theories, only a few had survived.

Of these more durable theories, Professor Breese dealt with the work of Richard M. Hurd, Ernest Burgess, Homer Hoyt and Harris & Ullman. Hurd, an estate agent, had supplemented his studies of cities in the United States with the study of European cities (especially of Paris) at the beginning of the century. In 1923 his "Principles of City Land Values" set out his findings that cities tended to grow in concentric circles and along the axes of the main transportation routes.

In 1923, Burgess put forward his "Concentric Zone Hypothesis" for the city of Chicago with the often overlooked reservation that "in the absence of any counter-acting factors" cities grew in that fashion.

In the late 30's, Hoyt, one of Burgess's students who unlike most social scientists made a great deal of money out of his findings, produced his first study, "A 100 Years of Land Values in Chicago". He went on to analyse housing and land use in about 28 other large cities. His "Sector Theory" of urban growth reaffirms

Hurd's hypothesis that cities grew along transportation routes and added that the established type of land use will tend to persist and extend itself.

More recent strip development and the proliferation of urban agglomerations are not adequately explained by Hoyt's theory. In 1945 Harris & Ullman propounded the so-called "Multiple Nuclei" theory which covers the development of overlapping nuclei strung out in a line or clustered around the original metropolitan nucleus.

The present position in theories of urban growth, said Professor Breese, was that all these theories have a certain validity and application to different phases of urban growth. There is a partial tie-up with means of transport. Thus the concentric zone type of growth was prominent in the horse and cart era, but gave way before railways which encouraged sector development and in turn the motor car has made easier the development of multiple nuclei patterns.

At this point in the seminar, Dr. Davies took over and with the aid of a series of maps gave a fascinating and excellent illustration of the extent and manner in which these theories applied to the growth of the city of Durban.

Briefly, it would seem that elements of the 3 main theories do apply in combination and at various historical stages, but that social and political conditions along with the actual site of the city, rather upset the concentric zones and the sectors. Mainly, the development at first was in accordance with the concentric, then later with the sector theory, and more recently multiple nuclei have appeared. However, within each sector separately, the growth has often been in concentric zones. Thus, for example, the Umbilo, Umgeni and Point areas of the town grew in the manner suggested by Hoyt, while the Berea and Florida Road areas developed more along the lines suggested by Burgess.

The more recent and rigorous racial segregation is contrary to all existing theory in that the lower income housing is located on the periphery and that there is no family housing for Africans in the central area of the city. Dr. Davies cited the Mobeni/Jacobs industrial area as the only "rational case" of the new transplantation of racial groups, in that the housing for the racial groups did in fact lie within relatively easy access to the work area.

After complimenting Dr. Davies very highly on his work and on this exposition of the applicabilities of the theories, Professor Breese went on to discuss the ecological process. He felt that although there was disagreement about the value of these concepts as tools, he himself finds them very useful when properly used.

He defined human ecology as focussing on the study of the distributive aspects of human population and included not only the physical but also the functional relationships among them. Behind all the ecological process were the two background factors of competition - mainly among different types of land use - and of mobility.

After listing the major processes as Concentration, Centralization, Decentralization, Segregation and Invasion (in which he included Succession), Professor Breese suggested the further ecological concept of Routinization. This was the daily movement of goods as well as people which in large cities had come to possess great regularity. "You can set your clock by the milkman". Furthermore, most people tend to follow the same route to work and back every day and few can tell a stranger how to get to any place off their regular route.

In ending, Professor Breese said he hoped that there would be some discussion of the following points:- Dr. Davies's concept of the "economic slope", the influence of the use of cars and buses in the growth of Durban, the impact of the location of border industries, Cato Manor and its future, and the possibilities of electrification on the South Coast.

DISCUSSION

Questions were asked about the concept of Routinization and its relation to urban growth and land use. It appeared that changes in the patterns of routinization would make new areas accessible and consequently growth would be affected.

From Dr. Davies's answer to a question about legal (non-social) restrictions on land use, it seemed that in Durban it was not until 1926 that really effective control by local authorities was introduced. As a result, a good deal of land was developed in an unplanned way, e.g. the area behind the Berea Ridge.

Another questioner suggested that climate should be included among the ecological processes especially since technological advances had both made the control of the climate possible and also had actually created climate in the form of smog and overheating of the central areas of cities. Professor Breese replied that climate is of vital importance but that the whole explanation of growth is not contained in the ecological processes.

On the question of the allocation of the "desirable areas" of Durban to members of certain income and race groups, Dr. Davies pointed out that before the implementation of the Group Areas Act, the desirable areas were overwhelmingly white and that the Act has tended to entrench this selectivity. On the fate of Cato Manor, Dr. Davies considered it hot and undesirable and hence likely to attract only lower-income housing.

The last speaker insisted that town planning in Durban was more difficult here than in most other places because the city was not developing naturally and that what was taking place cut clean across all town-planning conventions.

Mr. H.F. Dickie-Clark
(Rapporteur)

SEMINAR 7:

OBSERVATIONS ON THE NATURE AND DEVELOPMENT OF CITIES
IN EMERGENT COUNTRIES

THE DELHI/NEW DELHI PLAN

The Delhi/New Delhi Plan had been originally programmed to be a Regional Plan, but the volume of research necessary for this was so great that it became necessary to reduce the scope to that of a Metropolitan Area Plan.

The Context:

The first thing to get hold of is the CONTEXT: The scale of operations. India is a country of 1 $\frac{1}{4}$ million square miles - roughly half the area of the United States. (By comparison, South Africa's land area is 472,000 square miles). It is 2000 miles from south to north; in 1961 its population was 438,000,000. During the decade 1951-1961, there were 21,000 new births per day, a figure equal to a rate of population growth of 21.5%.

Population distribution is as follows:-

Age Group	Percentage of Total	Number of Persons
5 - 14	25%	88 $\frac{1}{2}$ million
1 - 4	10%	36 $\frac{1}{2}$ million
Below 1	3%	11 $\frac{1}{2}$ million

The country is experiencing a rapid increase in population due to the three factors: a decline in the death rate, an early marriage rate and a high birth rate. Infant mortality (deaths before the age of 1 year) is roughly four times the rate in the United States. The literacy rate (all age groups) is 23.7%. The average per capita income is \$61 per annum.

The second important factor is the distribution of urban and rural populations. Only 17.8% of the population is urbanized, 82.2% rural. India has 558,089 villages (places of under 5,000 population). India's biggest problem is rural, not urban.

India's Cities:

The problems of the Delhi region are common to all India: Indian cities are swelling in size. In one decade the number of cities of 100,000 and over increased from 11.4% to 17.3% of the total, representing a 125% increase in population in that period. The number of cities of 100,000 and over was 24 in 1901; during the period 1901-1931 this had increased to 31; during 1931-1951 to 71 and the figure is now 90-100.

Cities of less than 100,000 population are growing at a slower rate.

SIZE OF SOME LARGER CITIES IN INDIA

(round figures)

	1901	1951	1961
Delhi	200,000	1,840,000	2,250,000 (est.)
Calcutta	1,475,000	4,578,000	5,550,000
Bombay	847,000	2,839,000	4,150,000
Madras	509,000	1,416,000	1,725,000
Hyderabad	448,000	1,086,000	1,252,000
Ahmedabad	186,000	794,000	1,150,000
Bangalore	161,000	779,000	1,200,000 (est.)

Population Projections (Kingsley Davis)*

The greatest period of urban migration is still to come; lowest and highest estimates for some big cities for 2000 A.D. being:-

	<u>Lowest</u>	<u>Highest</u>
Calcutta	35,600,000	66,000,000
Delhi	17,800,000	33,000,000
Bombay	11,900,000	22,000,000
Madras	8,900,000	16,500,000

* These projections were made by Kingsley Davis. The various assumptions and other considerations should be studied in the published "Urbanization in India: Past and Future", chapter in Roy Turner (Editor), India's Urban Future, Berkeley and Los Angeles, University of California Press, 1962, pp. 3-26.

The 1961 Census data indicated a small amount of fall-off in the rate of urbanization in India, which would perhaps require some downward revision of these projections; this may, however, prove to be only a temporary shift.

Characteristics of Indian Cities:

Indian cities display a combination of a very high population density over small areas and relatively low-density settlement over large areas. They are also characterized by areas of temporary residence (Bustees, or Tin Towns) generally both around the Old City centres and at the urban periphery. There is a contrasting road and circulation pattern comprised of the main circulation routes extending in an approximately radial position from the Old City centre towards the gates, the sectors between the main routes (known as the "interstitial zones") being characterized by a highly convoluted and apparently random pattern of narrow streets, lanes and alleys.

Transportation Patterns:

Upon this pattern, a second pattern is imposed by the Railways, which entered the cities at a late stage. Generally they do not penetrate the old cities but nevertheless pushed their way inward as far as possible; often they made use of available government-owned land in or near to the established city - areas such as cantonments, military and civil lines, etc.

A study of the transportation nets in Indian cities is very revealing; they are composed of walkers (the great majority), bicycles, tongas, pedicabs, cars, buses, trucks and ox-carts, etc. All these come together in a mixed, congested flow-pattern resulting in fantastic chaos in the main radial routes of the old cities.

In New Delhi in 1957 the following daily intra-urban passenger movements were measured:- by bicycle: 400,000; by bus: 240,000; by tonga: 136,000; by car and truck: 110,000 (10% of total). There were only 10,000 registered automobiles in the 20,000 motorized vehicles of all types, including trucks. The railways accounted for not more than 0.4% of passenger movements in Delhi.

In the old city areas, where distances are short and streets are convoluted, there is some efficiency in slow, short-haul, small-scale transport of goods, readily adaptable to the mixed circulation pattern, but when longer distances and bigger loads are involved these tend to be concentrated on the few main routes (still mixed), with appalling confusion and delay.

Land Use:

The highly-mixed land-use in the old cities stands in contrast to modern Anglo-U.S. patterns of segregated land-use. The "Old City" areas have a characteristic pattern of commercial use in which there is some concentration in the old city area, but much more diffusion than in a European or American city. There is less

focal development of commercial use and therefore less inducement for site-piling. In the so-called "chauk" areas there is substantial sub-specialization, i.e. corn exchange, cloth exchange zones, etc. The scale of commercial operations is that of small-inventory (small stock) businesses, the main stocks being kept in the warehouses or "godowns". This results in high incidence of functional interrelationship among numerous independent businesses and a large number of movements between godown and shops. Often an Anglo-U.S. style Central Business District will be built alongside the "chauk" area, but sometimes separately from it, resulting in a bifocal organization of Central Business District functions in the present-day city.

Special features of the Indian city may include the covered shopping complex, consisting of shop-lined streets with a higher roof over the public way, providing clerestory ventilation at the sides, comparable in some ways to western "arcade" development, and the practice of conducting "no-overhead" businesses on the sidewalk, e.g. bicycle mending on the sidewalk at street corners, the latter practice being almost universal.

The Industrial Pattern:

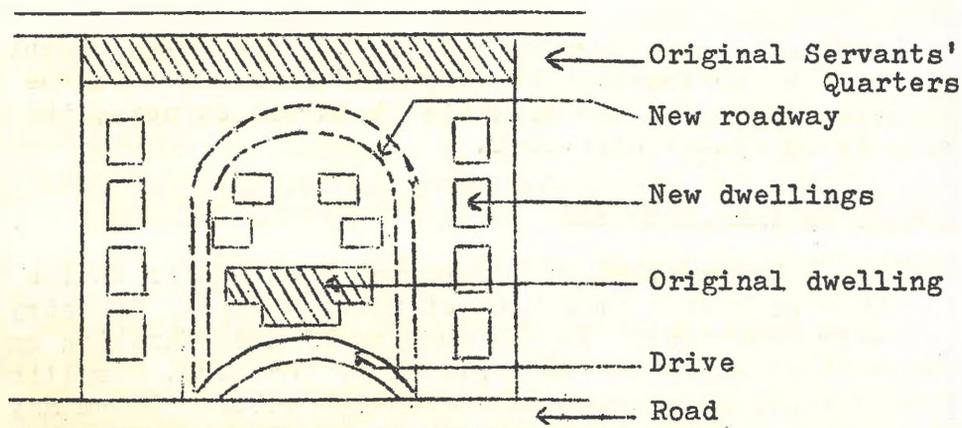
The pattern of industrial location in Indian cities is altogether different from that of South Africa. Industry may occur literally anywhere. In the process of modernization small handicrafts businesses may be replaced by industry, resulting in a haphazard location pattern of industrial units. These may frequently be extensions of existing facilities. In the result, a very inefficient system emerges - a system which would not work too well in a more highly-organized economy, but which can be made to work within the Indian industrial pattern with its high degree of decentralization and practice of extensive subcontracting. The inefficiencies referred to above derive from limitations of equipment (often severe), the haphazard location of the multiple work-places in which components are manufactured, and the cost of constant transportation movements from one place to another. The urban planner can only suggest progress by a series of steps leading gradually to more efficient distribution of land use. One means of achieving a measure of rationalization within such a system is to utilize the concept of "Flatted Factories" as developed successfully in Hong Kong. This system has been strongly recommended for application in New Delhi (see page 7).

Residential Patterns:

In New Delhi, the residential areas of the modern city, laid out originally for European and Europeanized Indian Civil Servants, etc., were designed to very low densities - 10-15 persons per acre. In Old Delhi the population density was 1,000,000 per square mile, or up to 600-1100 persons per acre, mostly housed in 1 or 2 storeyed dwellings. In fact, the average density in Old Delhi is 213 persons per acre, and in New Delhi, 11.2 persons per acre. (Note that in Old Delhi, a high percentage of the total area is taken up in streets, whilst in New Delhi streets occupy a relatively low percentage due to the large lot sizes).

In the Kashmiri Gate sector of Old Delhi, for example, the gross density was 74 persons per acre as against a nett density of 299. Note the wide difference between the gross and nett density figures, both of which occur in the same metropolitan area. The difference emphasizes the need for careful definition of density figures and, where necessary, the application of corrections where comparisons are involved.

Intensified development is now going on in the residential areas of New Delhi, to increase their carrying capacity to 75-95 persons per acre (gross). The diagram shows a proposed type of development to increase the density of existing residential sites.



DIFFERENCES IN PERSONS PER SQUARE MILE*

"British" era			"Pre-British" era		
City	Peri- pheral	Cent- ral	Peri- pheral	Cent- ral	City
Bangalore)			1	8	Benares
Bombay)	1	3			
Calcutta)			1	6	Allahabad
and)	1	5			
Madras)			1	13	Delhi

* These statistics are from R. Ellefson, of the University of California's International Urban Research Organization, and were discussed at a 1960 Seminar on Urbanization in India, held at Berkeley, California.

the problem confronting the planner in developing countries is the effects of unexpected events. During the partition of India, $\frac{1}{2}$ million people descended on Delhi within a few months. The city had to absorb them into its fabric. Such events impose great strains upon the city and its utilities and have unpredictable effects upon its growth. Another typical feature of former administrative cities in India is the so-called "Civil lines" (the term contrasting with the "Military Lines"), built to house the officials of the foreign (British) administration; these were built entirely outside the old city, with a buffer-zone between the two; since Independence these buffer-zones are tending to disappear under the pressure of overflow of urban population. In Delhi the buffer strip is still mainly open land.

The "Civil Lines" should not be confused with the so-called "Western Addition", which are recent western-type suburban developments having features similar to such developments in European and American cities, and serve to house the middle class (Westernised) business and official classes.

Finally, there are the (at present) inevitable shantytowns, known as "Bustee" (or Busti) development - typical tin towns like the Cato Manor camp or worse, which have grown around the old cities or on the urban periphery under pressure of population influx. Such development is typically largely unplanned, lacking most essential services or, at best, very meagrely supplied with essential services.

THE DELHI/NEW DELHI PLAN:

In Delhi, a series of projections was prepared, over a two-year period, which attempted to predict the kind of future growth likely to take place, in terms of the circumstances. The Government of India and the Ford Foundation agreed that a "prototype Master-Plan" be prepared for Delhi. It was to be a prototype more in the sense of the development of an approach and method of tackling problems than in the sense of the usual physical outline master-plan; it was also to be regarded as a training ground for personnel. Roughly 7 persons from the U.S.A. were appointed to work in the Town Planning Organization (? of India) (TPO). The scheme fell under the jurisdiction of the Ministry of Health and local Self-Government, which at that time was not a Cabinet Department.

Very little information about the city was available; no up-to-date or suitable maps were obtainable and very few trained staff. The lack of information introduced difficulties from the start: the planners had to guess the population of the city - estimated at 2,000,000; projected on maximum basis; 6,000,000. Responsible city and government officials would not believe (a) that there were so many people already there and (b) that there could ever be as many as $5\frac{1}{2}$ million in the city. It was, in fact, extremely difficult to establish a base-line for planning purposes. Nevertheless, basic recommendations on communications, land-use, administrative patterns, finance and taxation etc., were made.

Out of this project there emerged in 1959 a 2 volume (350 pp) draft Master Plan with maps, statistical tables, graphs, etc. The Master Plan was submitted for comment to all concerned and, as was to be expected, evoked strong objections. Hearings took place at which objectors were invited to state their case; finally, revisions were incorporated and a Final Master Plan (the equivalent of 50 pages) was published in 1962.

DISCUSSION.

1. Recommendations of the Master Plan.

Replying to the question "What were some of the major recommendations regarding e.g. the "Old City"? Professor Breese replied as follows:-

It was quite out of the question to attempt a western-type comprehensive master plan, partly due to the circumstances and partly to the serious lack of resources. For example, the housing shortage in the city is of the order of 400,000 dwelling units and increasing daily. In such circumstances there can be no tearing down of existing buildings; planning recommendations are affected by such considerations. Overall resources are pitifully low; every rupee is needed for a thousand things. The only possible approach to improvements is the practical one; every year the City Council adds a few roads, a few miles of sewers, a school or two; therefore all recommended new works are made additive - you try to get two miles of paved road in the right place rather than $4\frac{1}{2}$ miles in odd spots.

Recommendations made just had to be "realistic", e.g. recommended densities of up to 200 persons per acre, "practical" density reductions in the most highly-populated areas of the city, "practical" density increases in the suburban areas, and recommendations for the siting of new dwelling units in relation to the circulation routes.

As regards industry, it was government policy (as far as Delhi was concerned) to encourage small industries rather than large-scale industries; in pursuance of this the type of industrial development generally recommended took the form of 4 - 5 storey walk-up flatted factories, municipally-built and rented to tenants, in which the "incubator" type of industrial development structure originating in Hong Kong was encouraged i.e. space could be rented in proportion to the needs and state of development of a particular small business, reducing overheads and permitting a wide degree of flexibility to accommodate growth. The system has proved both popular and effective in Hong Kong. Its applicability to Bantu industries in new towns in the Bantu territories of South Africa might well be looked into. Such flatted factory blocks can be widely scattered, with residential areas nearby, in order to encourage the development of industry.

Recommendations were made for the siting of recreation spaces; these, however had to be considered as reserved for later development as recreation space since open spaces were practically non-existent and existing buildings could not be demolished because of the housing shortage. The plan envisaged that in such reserved areas no redevelopment would be allowed.

Recommendations were also made for the rationalisation of the revenue-collection system - and accordingly the city's expenditure patterns. It was these administrative recommendations which proved to be the source of most of the objections; the government itself was behind many of the objections.

2. Reaction to the Plan:

Although it did not win wide popular acclaim, it could not be said that the plan was rejected by the government and people, in that it was of no effect; on the contrary, it has proved to be of the greatest value to local officials, who both helped in its production and subse-

quently supported it. An important fact relative to this matter was that the plan was presented neither as an American nor as a T P O Plan, but as indigenous arrangement having a high rate of participation by local authority officials. Thus the plan became firmly fixed in the minds of those officials, whose duty it was to run the city and whose commitment was towards the city and its people.

Most of the objections centred around the concept of "my property" and there was the inevitable risk - and reality - of "slippage" in the administration, e.g. of government-owned land; some areas on the periphery had been handed over for exploitation by private township developers and in some cases the densities recommended in the Plan were only about one-half those intended by these private developers. Objections were to be expected in such cases; it should be remembered that the tradition of planning on this level was very weak, if it existed at all, and that, in the circumstances, those appointed to hear objections more often than not would go out of their way to avoid upsetting the apple-cart. Some modifications to the original recommendations were difficult to avoid in the face of such circumstances.

3. Social Pathology:

In reply to a question regarding the incidence of social disorganization in Delhi under the circumstances as described, Professor Breese intimated that no reliable data exists on this subject. There are some generalized statistics in Old Delhi and these seem to indicate a low rate of delinquency. Research desperately needed.

4. Training in Planning Skills:

Replying to a question on the availability of skilled planning staff and the possibilities of in-service training, it was stated that at the time of the preparation of the Delhi Plan there were only 24 professionally-trained planners in all India; today the number stands at 100 - 120, mostly trained in the United Kingdom or the United States, in a context vastly different from that of India.

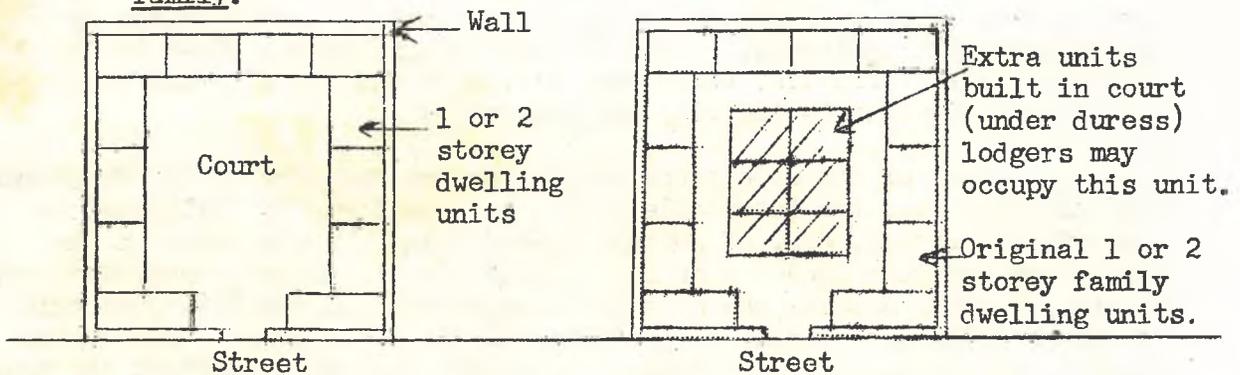
There were only 8 - 10 professionally trained Indian planners on the staff of the Delhi Plan, all with very limited experience. This gives a measure of the very real difficulties with which India has to contend. No effort has yet been made on a national scale to organize professional training, although two Schools have been established recently, one at Karagpur and one other. In an attempt to help out, a "consortium" of several American universities (including Princeton) has arranged to send 2 - 3 qualified persons to India for 2 - 3 year tours of service in the establishment of an engineering college. The Russians are doing a similar programme. Training in the college will eventually include the training of planners. India needs professional teachers, doctors, engineers, etc., on all fronts; the attitude of the government towards planning is improving, Mr. Nehru having become personally involved in it. There is an Indian Institute of Town Planners. One aspect of the policy of overcoming the shortage of trained staff is the increasing use of partly-trained personnel in all professions - draughtsmen, pupil-teachers, nurse-aides, community development workers, etc.

5. Joint Families and Traditional Forms of Dwelling:

In reply to a question regarding the type of land use made by joint families, e.g. in Old Delhi, and what cognizance of the joint family problem is made in new sub-economic housing development, Professor Breese made the following observations:-

A. Type of dwelling unit "Katra" occupied by a single extended family.

B. Further development of the same site.



Notes: the bigger the "Katra", the less it will in modern times, approximate to an extended family unit. Living in the street has become common practice in Indian cities today, but this is due to overcrowding and is not in accordance with traditional patterns.

In the newer areas the small-scale family unit is paramount. Practically all new urban Government housing construction is in the form of 3 - 4 storey walk-up flats; this form appears to be popular and accepted, even preferred, by the people.

Traditional dwellings are all of adobe construction; the monsoon erodes the mud walls but constant repairs keep the buildings intact. Much living takes place out of doors and on the rooftops, but in the monsoon the interior of the dwelling has to accommodate all functions of living.

The plan envisages the retention of Old Delhi on the basis of reduced density and the redistribution of location of workplaces. (The people would like to have a less-concentrated mixture of industry, commerce and housing). The process will take a very long time and the prospects of reduction of density seem to be remote.

6. Cultural Diffusion:

In reply to a question of a general nature on the lasting effects of the British occupation, the following points were noted: it would have been inevitable in almost any other circumstances that such facilities as canals, a railway system, industrial plants and harbours would have come into being. Beneficial features deriving from the British occupation are to be seen in less material areas such as the development of efficient administrative prototypes such as the Indian Civil Service, an uncorrupt judiciary, powerful military forces and an Indian officer cadre. The weakest link lies in the neglect of the development of middle-range administrative personnel, of which there is a great shortage. The problem is now arising as to how to replace the retiring heads of departments and chief professional officers inherited from the old regime, indicating that things may become more difficult before they get better.

India's needs are indeed tremendous; the people are doing what they can to cope with the situation but resources are the key and in so many cases the resources are not there - or in such small measure as to be ineffective. The government has committed itself to a policy of basic resource development through a series of five-year plans, but the fundamental resource of food production, for example, lags continually behind the increase of population.

Decentralization of Cities:

Replying to a question as to whether there is a "new towns" policy - i.e. the creation of planned cities, planned decentralization of industry and the like, Professor Breese stated that new towns like Chandigarh in the Punjab had been laid out as a result of new circumstances such as the effects of partition or the development of a large new industrial complex. Government policy was generally to effect some decentralization, preferably in smaller cities of $\pm 500,000$. The aim is to get the size of the majority of the new cities of the future down to quite small dimensions: 10,000 to 100,000 population. Whether or not this will be achieved is for the future to show: there are many problems associated with such a policy, especially the provision of ancillary services to industry, which are characteristically more readily developed in larger cities.

L. T. Croft.

P. H. Connell
Rapporteur.

SEMINAR 8 : AFRICAN CITIES - WEST AFRICA

The Seminar was opened by Professor E. J. Krige, who expressed the honour she felt in being in the Chair on the occasion of Professor Breese's last Seminar. Professor Breese replied by expressing his thanks for being invited to Durban as Visiting Lecturer, and by thanking everyone for his continued interest, co-operation and help.

Professor Breese's paper was divided under the following headings:-

1. A short Introduction.
2. The showing of slides taken from the work of Green and Fair, W. Steel and N. C. Mitchel.
3. Population statistics and observations.
4. Findings in "Introduction" to special issue of Sociological Review, edited by Kenneth Little.
5. Professor Breese's observations.

(1) Professor Breese introduced the subject by drawing attention to the extensive bibliography on West African cities available and relevant to the Seminar. He referred in particular to "Introduction" in the special issue edited by Kenneth Little: "Urbanization in West Africa", in Sociological Review, Vol. 7, No. 1, (July 1959).

(2) Slides: These presented the towns of Dakar, Freetown, Abidjan, Nairobi, Lagos, Leopoldville, and Accra.

GENERAL COMMENTS:

(a) On the whole, these towns are set in either one or the other following economies: first predominantly agricultural areas, and secondly, mining areas, mainly located along the coast-line (except Leopoldville and Nairobi, East Africa), these countries have long ago been arbitrarily divided in that economic and tribal areas have even been cut in half, or separately delineated, with the result that many of the new countries are not economically viable (Green and Fair, p.22);

(b) There is insufficient information on population distribution. In Nigeria, especially in old Yoruba areas, there is a geographic concentration of cities with heavy population, the latter pattern to be found all along the western coast to Accra. (Green and Fair, p. 14);

(c) There are major environmental handicaps to economic development, e.g. tsetse fly regions, tropical rain forest, and extreme aridity (Green and Fair, p. 15);

(d) In tropical Africa, a town is defined in terms of population, i.e. having 5,000 or more inhabitants (R.W.Steel). 12% of the total population of half a million is urban (R. W. Steel).

Professor Breese pointed out the limitations to using population figures as the defining criterion for a city. The most highly urbanized country is Nigeria - in terms of population (N.C. Mitchel) with Lagos, Ibadan and Kano.

SPECIFIC COMMENTS - (SELECTED):

(a) Dakar -

Here some of the shore area was used for defence purposes and for public recreational facilities. There were 400 yard buffer zones (the supposed limit of the mosquito's flight) between Native and European areas, now often used for public buildings. The main ecological areas are divided into African business, Syrian business, European business, African residential, European residential.

The African residential area has grid-iron pattern, but internal to the grid the uses are quite unorganized. The European residential area also has a grid-iron pattern, but with a more rationalized internal development. The central market is mostly open-air on sidewalk; there are 8 - 10 skyscrapers (useful also as prestige symbols). Dakar has very modern port facilities.

(b) Abidjan -

The main characteristic is the Vridi Canal which now avoids the sandbank and directly connects the sea to the port. Population is growing rapidly, but with some inconvenience because of settlement on water - separated islands and peninsula.

(c) Accra -

Here the early town pattern was determined by the location of streams in the area. The originally developed area along the coast is now being superceded by inland development and development to the east, i.e. towards the University College, the Airport, and the new port of Tema, 17 miles away.

(d) Lagos -

The peculiar feature of Lagos is that it is composed of

- (i) a number of islands, the chief ones being Lagos, Ikoyi, and Iddo, and
- (ii) the mainland.

As a result there is tremendous fragmentation of communication. There are large numbers of squatters and an extremely high density with practically 100% site coverage. There is a mixture of high-rise building (up to 10 - 12 storeys, and one 25 storey Government building) and single-storey accommodation. Parts of Lagos tend to be more westernized than many other emergent west African cities.

(e) Ibadan -

Was a former walled city, with very mixed land-use. It is situated astride a ridge, which has had interesting ecological effects. Has a strong individuality, site-wise.

(3) Statistics (best available estimates):

<u>Dakar</u>	1910 : 26,000	1962 : 400,000
<u>Abidjan</u>	1955 : 135,000	1963 : 200,000 +?
<u>Accra</u>	1960 : 388,000	1963 : 400,000 (rate of increase per year since 1948 is 9%)
<u>Lagos</u>	1950 : 230,000	1960 : 364,000
<u>Ibadan</u>	1960 : 600,000	- 1,000,000 (there is a substantial seasonal variation, with a probable regular population of 600,000)
<u>Kano</u>	1952 : 127,000	1962 : 250,000 (estimate for 1982 : 1,000,000)
<u>Leopoldville</u>	1958 : 400,000	(including 20,000 Europeans)
<u>Freetown</u>		1960 : 90,000
<u>Nairobi</u>		1961 : 53,000

(4) Kenneth Little's Findings (in "Introduction" to special issue of Sociological Review)

(a) The West African town is a product of external forces: on the one hand it is a response to Colonial (presumably British and French) economy; on the other hand its socio-cultural life has been influenced by the peoples of the hinterland. Thus the social processes involved are complex.

(b) There is intense congestion of people, houses, traffic.

(c) Ethnic Features:

- (i) Ethnic diversity;
- (ii) Ecological separation of ethnic groups in living and occupation;
- (iii) Traditional ethnic occupations which are still adhered to.

(d) Population Structure:

- (i) Preponderance of younger age-groups;
- (ii) Preponderance of males;
- (iii) A multitude of strangers;
- (iv) Late marriages by males;
- (v) Women in a position to re-organize their status in society, (except for those of the Muslim group) e.g. women taking over the side-walk trading and other small trading.

(e) There are a large number of organizations geared to special-interest development.

(f) Status is determined by combination of ethnic group, tribal affiliation, and occupation.

(5) Professor Breese's Observations:

(a) Topography:

The physical area devoted to urbanization is relatively small with a very high density, which is concentrated in

- (i) the centre of the original town, now spilling over;
- (ii) on the periphery in the form of shack-towns.

In the new western development there is utilization of larger areas of land with lower population density. Development of land is discontinuous, with very little control in evidence. The Municipal Central City limits are well within the built-up area, which factor is an important obstacle to control over much of the development.

Dakar is situated on a peninsula (originally even on an island.)

Abidjan is made accessible by the Vridi Canal.

Lagos is spread over islands to the mainland.

Leopoldville is situated next to the Stanley Pool (15 x 17.5 miles); now in a state of stagnation due to political situation.

Freetown stretches over and sometimes up the side of a long distance at the base of hills. The river is 3 miles wide and the distance to the airport is 40 miles across the river by a pokey ferry too small for the demands placed on it.

(b) Land Use:

There is rarely any sorting out of land use in the indigenous town area. The central business districts tend not to be in the same place as the centre of the old town. The central business districts and port areas are less chaotic but are not clearly formulated.

Central Business District:

There are prestige-types of building (not economically justified) contrasting sharply with 1-2 storey development. Site selection for these buildings is usually haphazard, with the retention of the old unrationalized street patterns. One result is that there is no provision for parking; and in the old town the highest population density is in the centre. Properties are developed over 100% of the sites, leading to congestion.

Residential Areas:

Also had a high density at old centre and peripheral squatting. New housing is now being introduced, planned according to different income categories.

Markets:

Due to lack of general refrigeration and storage facilities, the market caters for daily buying. There is an overspill of economic activities into the streets. A shortage or absence of refuse disposal and sanitary service prevails. On the whole, facilities are underprovided to cope with population increase. (The exception is Abidjan, with the 2 storey courtyard type of markets which work well). Extensive use is made of sidewalks for commercial operations.

(c) Transport:

The old town cannot cater for modern traffic. This has resulted in resorting to the one-way street pattern which, however, does not provide a satisfactory solution. There is an under-supply of vehicles for the bus system, with a high incidence of repairs involved. Because there is a large volume of movement of goods and people to and from the city daily, all types of vehicles are resorted to.

(d) Public Utilities:

There is a shortage in sanitation and water supply services, even in the most congested areas. The water supply often consists of the tap (standpipe) only.

(e) Work Pattern:

The work patterns of women are related to their religious background. New migrants are often absorbed through temporary employment on public works, (e.g. in Accra.)

(f) Site Problems:

These towns are generally port towns situated on different sites which result in innumerable bottlenecks. Separated areas tend to focus on one type of development (due to inadequacies and excessive costs in transportation). The rate of development is in excess of the town's capacities - available employment, money, planning, etc. - to cope with urban problems.

(g) Planning:

There is mostly no planning at all; or planning with ineffective enforcement. The tendency is for the central Government or Government Agencies to act as a law to themselves - this is particularly bad in capital cities. Even Government departments ride roughshod over the Government's own planning recommendations.

DISCUSSION.

- (A) The social and cultural pattern of the life of ethnic groups was introduced in relation to urban planning, particularly in Lagos, where some such groups were moved to new residential areas. The particular problem involved is that the new areas are too far from the centre of the city for the traders, who are mainly women, to commute daily. This must bring about a change in the traditional way of life which might be dysfunctional with regard to social and economic patterns. It was suggested that there was not sufficient research undertaken in this field.
- (B) The existing housing level of Africans is so low that there must be housing replacement even if it disturbs traditional modes of living. It was claimed that in Abidjan, Africans have accepted European single storey type housing.
- (C) The question of high population increases in the cities was discussed. It was pointed out that this was not due to an urban demand for labour; there was always an under-supply of jobs, a great deal of unemployment and under-employment. Population increases then were the result of both economic and non-economic factors. One example was given, viz., that spacing between children had been reduced since powdered milk for infant-feeding tends to replace breast feeding.

Another relevant consideration was that there was no trickling back to rural areas no matter how bad urban conditions were found to be. Attention was also drawn to the fact of population increase and the problem of unemployed youths; there was a highly gross disproportion in African cities - also in Rio de Janeiro. The problem, however, appears to be greater in Africa than in South America.

- (D) Possible solutions to the preceding problems were examined. At the Addis Ababa Conference much interest had been shown in South Africa's system of influx control into the towns (though due regard for the negative aspects of such a system were not to be forgotten). Mention was also made of the South African pattern of temporary migration of Africans to the cities, with retention of rights in the Reserves. (However, this process is now dying out). Also mentioned was Kaunda's "Back to the Land movement" in Northern Rhodesia where influx control obtained.

With high density urban areas, the advantage and disadvantages of high-rise building were discussed. Singapore and Hong Kong (2,000 persons per acre in H-blocks) were cited as examples where high-rise building was proving to be economically and socially efficient. Professor Breese claimed that there are advantages in high-density living in the city. In Hong Kong laundry difficulties had been resolved by the use of clever architectural designing of recessed balconies. In high-rise building play space could be provided for children by low site coverage.

From the point of view of housing costs, the question had to be weighed as an overall costing plan, i.e. utility lines, e.g. sewage, fire coverage, etc. had to be taken into account. Professor Breese expressed a faith in people's ability to adapt to new types of living accommodation.

- (E) In South Africa, the double-storey housing units were proving more economical. In the United States, single accommodation housing was a waste, in that $\frac{3}{4}$ acre plots were not fully used; e.g. they were too small for children to play proper games like baseball.
- (F) Finally, the housing deficit in West African towns was mentioned, and connected with the problem of utilizing labour. It was questioned whether, even if all the labour available were used they would ever catch up with the housing deficit.

Mrs. T. E. Currin



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