(a) NATIONAL UNIVERSITY OF LESOTHO

(b) FACULTY OF SOCIAL SCIENCES

STAFF SEMINAR PAPER

NO. 2

POPULATION CHANGES IN LESOTHO 1966 TO 1976:
SOME IMPLICATIONS FOR NATIONAL PLANNING.

John Gilbert

Department of Geography

February 1978

(Forthcoming in Habitat, Vol. 2)

..s preliminary results from the 1976 population census become available, i...

..s possible to derive indications of numerical and spatial trends in
..opulation change in Lesotho over the period 1966 to 1976. This is the
..irst time that a direct comparison of census results for two censal years
..s been possible: prior to 1966 there was no standardized enumeration
..nit. In the 1966 census constituencies and enumeration areas were defined
..nly minor corrections to this enumeration base were made for the 1976
..ensus.

Summaries of population change trends can be presented at three levels:
national, regional, and urban.

A comparison of the national figures for 1966 and 1976 reveals an increase
in total population of 246 767. This represents a 25.39% increase from
the 1966 total of 972 025.[1] From these figures an average annual growth
rate of 2.3% can be derived for the period 1966 to 1976. This raises
important considerations for the future: if such an annual growth rate
were to be maintained, and there is every indication that this will be the
minimum case, then the total population of Lesotho will double in
approximately 29 years.[2]

An examination of national population trends during the post-war period
confirms the expected exponential growth pattern typical of nations passing
through phase two of the so-called 'demographic transition '; basically
the demographic transition model postulates three phases of demographic
evolution thus:[3]
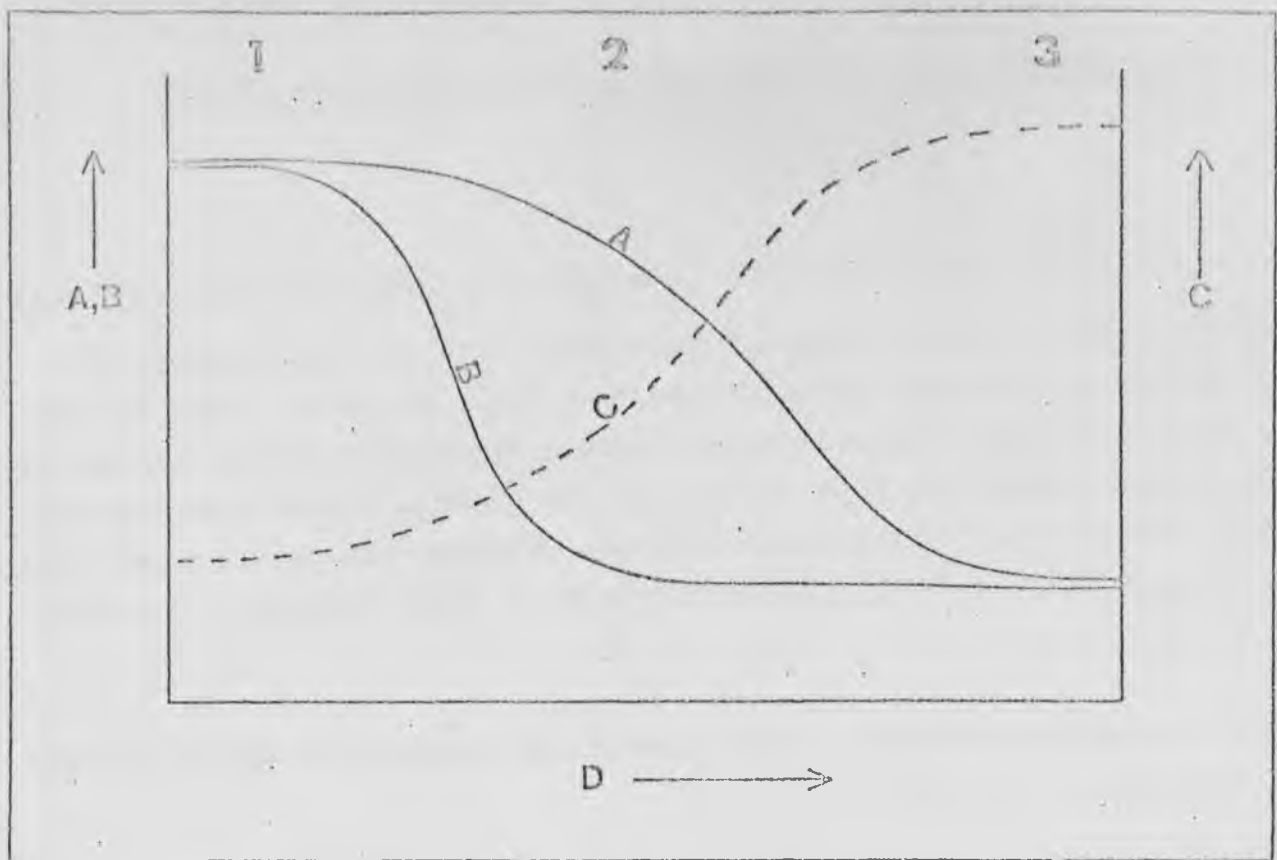
A   BIRTH RATE (per 1000)
B   DEATH RATE (per 1000).
C   TOTAL POPULATION
D   TIME (years)

PHASE 1

High birth rate, high death rate, low total population.
Typical demographic conditions in pre-industrial economies.

PHASE 2

Falling death rate, relatively constant birth rate, rapidly growing
total population.
Typical of developing economies where improvements in hygiene,
medical facilities, communications, etc. have an immediate effect
on death rate.

PHASE 3

Gradually falling birth rate; eventually constant low birth and
death rate, stable high total population.
Typical of developed economies where predominantly urban life style
and reduction in social importance of the family lead to low birth
rate.

Phase two is inevitably one of considerable increase in total population,
as death rates fall sharply while birth rates remain relatively constant.
The following summary of population growth in Lesotho from 1946 onwards
indicates a phase two situation:

Lesotho total population.	Census date.	% change.
656 748	1946	
793 639	1956	+ 20.84
972 025	1966	+ 22.48
1 218 792	1976	+ 25.39

Sources: see footnote 4.
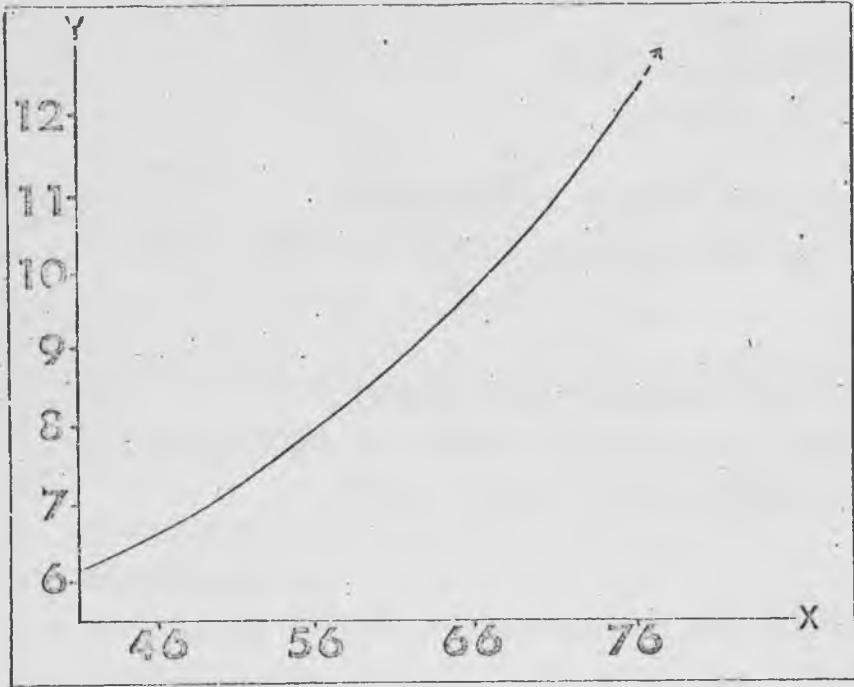
X   YEAR OF CENSUS

Y   TOTAL POPULATION
    (hundred thousand)

The national population growth situation summarized above should be
related to a series of problems facing the nation in its future
development:

a) Land shortage is already acute. In 1968 approximately 3% of the
   population calssified as 'dependent on agriculture' was without land.[5]
b) The cultivable area is already fully occupied[6] and land unsuitable
   for cultivation is consequently coming into use. The cultivable area
   is estimated at 405 000 hectares or only 13% of the total land area.[7]
c) The extension of cultivation into areas physically unsuitable for
   such activity, and the reduction in fallowing resulting from
   increased subsistence demands, have created a serious soil erosion
   problem.

d) Landlessness and insufficient alternative employment opportunities within Lesotho have resulted in labour migration (mainly to the Republic of South Africa) in the order of 12% of the total population. 83% of the migrants are male.

There can be no doubt that annual population growth of well over two percent can only exacerbate these problems.

At the regional scale of analysis, five formal regions are generally recognized in Lesotho: the lowlands, foothills, mountains, mountain valleys and Senqu valley. The altitudinal definitions of these regions are as follows:

Region	Altitudinal limits
Lowland province:	
Lowlands	below 1828 meters (6000 feet)
Foothills	1828 to 2437 meters (6000 to 8000 feet)
Mountain Province:	
Mountains	over 2437 meters (8000 feet)
Mountain Valleys	1828 to 2437 meters (6000 to 8000 feet)
Senqu Valley	below 1828 meters (6000 feet)

Schematically, the regional system can be presented thus:
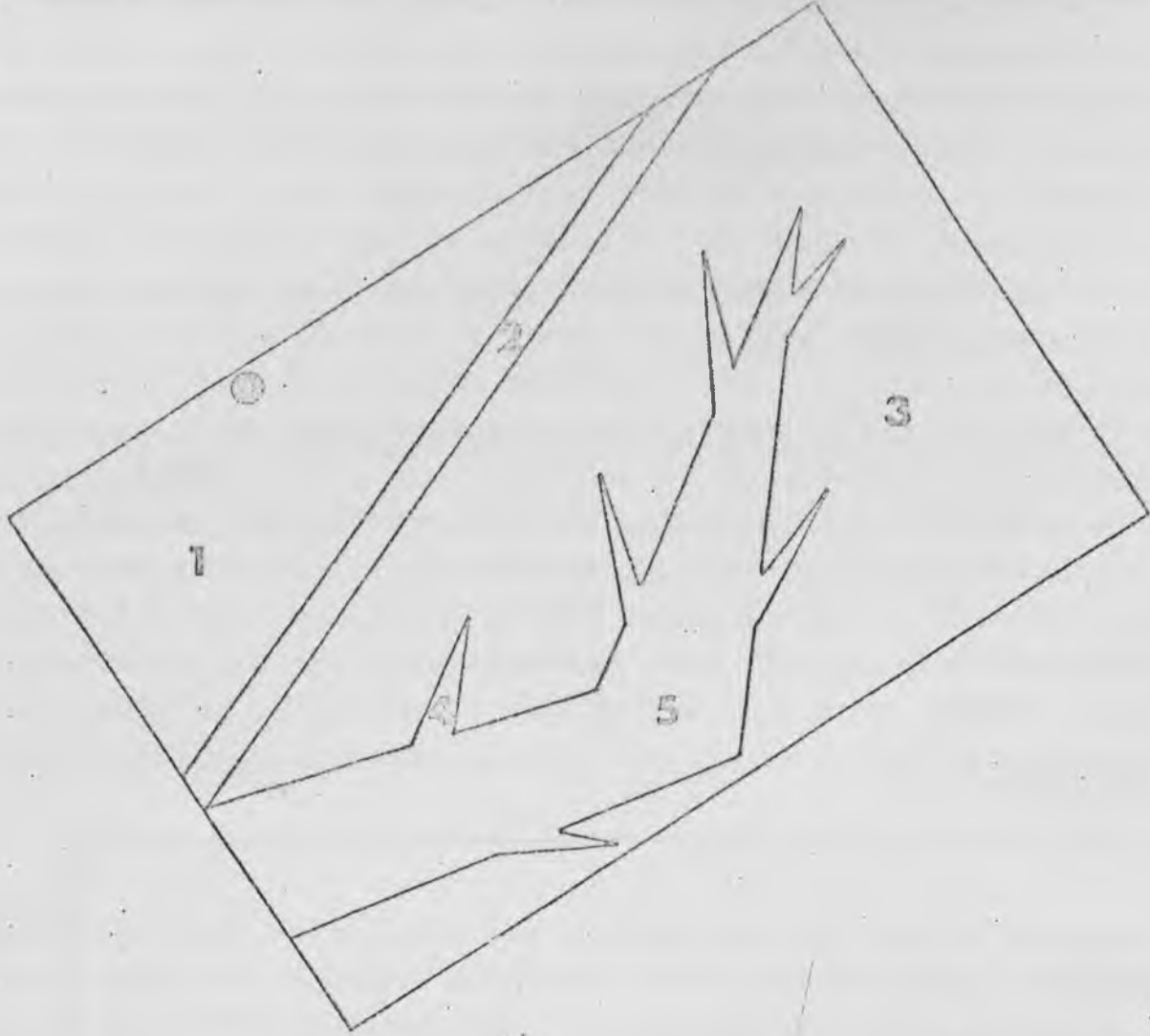
1   LOWLANDS
2   FOOTHILLS
3   MOUNTAINS
4   MOUNTAIN VALLEYS
5   SENQU VALLEY

⊙   MASERU

Schematic diagram of the regions
of Lesotho. Not to scale.

... . gr..
through a transitional foothill zone, into a western lowland. The
mountain massif comprises well over 75% of the national area. The
Senqu valley represents an extension of the lowlands into the mountain
province; the mountain valleys are the equivalent of the foothill
region.

An examination of population change per region over the period 1966 to
1976 yields the following pattern:

Region	Total population 1966	Total population 1976	% change 1966 to 1976
Lowlands	488188	651402	+ 33.5
Foothills	126518	149987	+ 18.5
Mountains	66175	76564	+ 15.7
Mountain Valleys	195783	237563	+ 21.3
Senqu Valley	76092	91537	+ 20.3

Sources: see footnote 9.
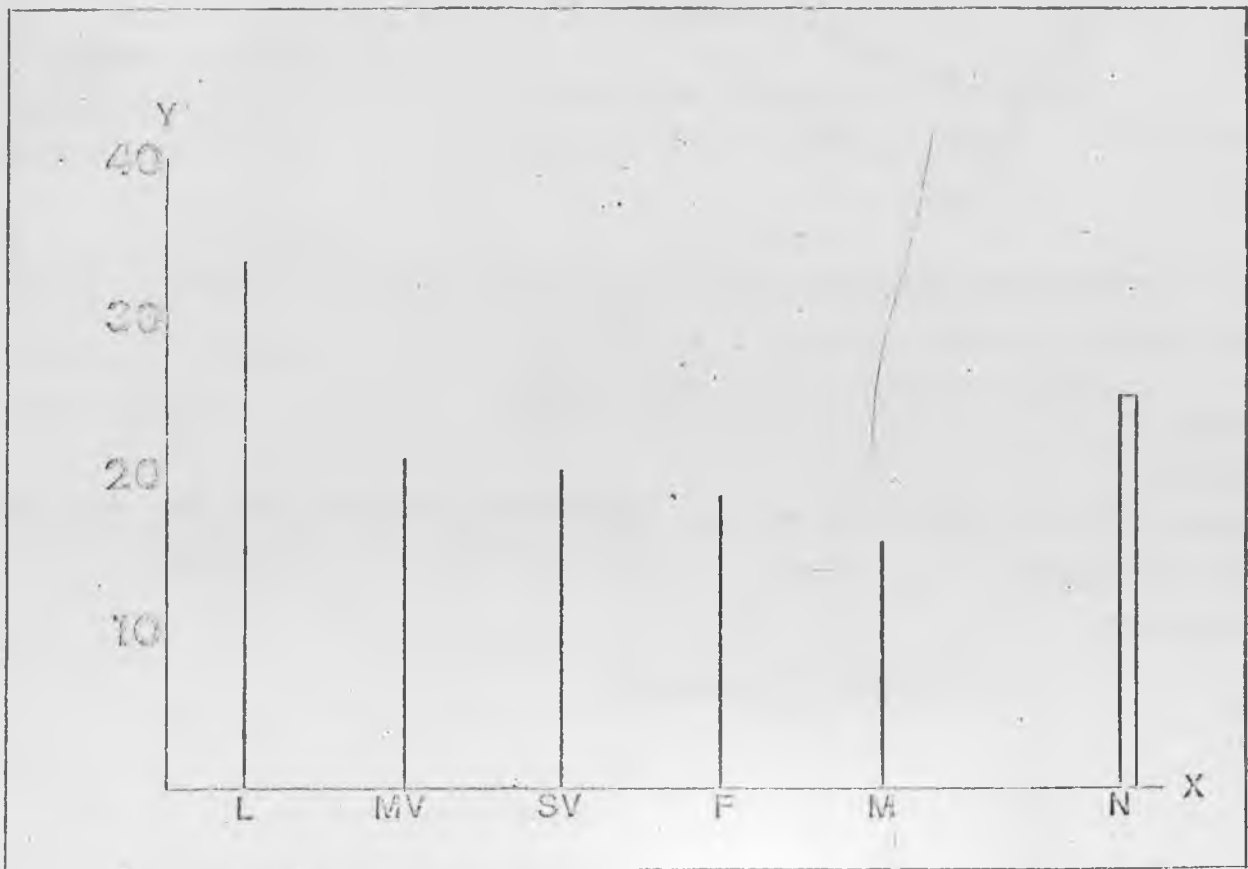
Y   PERCENTAGE CHANGE IN TOTAL POPULATION

X   REGIONS

L   LOWLANDS
MV   MOUNTAIN VALLEYS
SV   SENQU VALLEY
F   FOOTHILLS
M   MOUNTAINS

...wland region is clearly the exception in the above pattern; it is only region with a percentage change value exceeding that for the ...tion as a whole. If it is assumed that natural increase is roughly constant throughout the nation, then the percentage change figure for the lowland region would suggest that this is a region of considerable in-migration. The major source areas for this migration appear to be the mountain and foothill regions; however, more sophisticated analysis of the 1976 census data will be necessary before such hypotheses can be tested: as yet there is no data available for net increase/decrease or in/out migration per enumeration area. Despite the grossness of the currently available data, the magnitude of the lowlands percentage change figure may almost certainly be interpreted as evidence of in-migration. The emphasis of increasing demands for land, settlement, and employment will thus be placed on the lowland region; here the highest population densities are recorded (eg. over 2500 persons per square kilometer in parts of Maseru[10]), and consequently it is here that the worst manifestations of overcrowding, landlessness and unemployment will occur.

The third, and most detailed scale of analysis may now be applied: withi... the nation there is regional differentiation in population change; withi... the region there is local varaition in population change. At the level o... the individual urban place important population trends, with significant implications for national planning, may be identified.

Given the hypothesis that migration into the lowland region is taking place, it would be logical to assume that the relationship between population density of a given enumeration area and its distance from a selected point in the lowlands would be inverse. Specifically, population density per enumeration area will decrease with increasing distance from major urban places, the latter being located in the lowlands. As migration into the lowlands continues, the strength of this inverse relationship will increase. Such reasoning is confirmed by a simple regression analysis of

$$y = ae^{bx}$$

where y = population density
       x = distance from nearest lowland urban place   } for each enumeration area
       e = base of natural logarithm
       a,b, = regression coefficients derived by computation.

This equation may be applied to the 1966 and 1976 data for population density per enumeration area, with the following results:
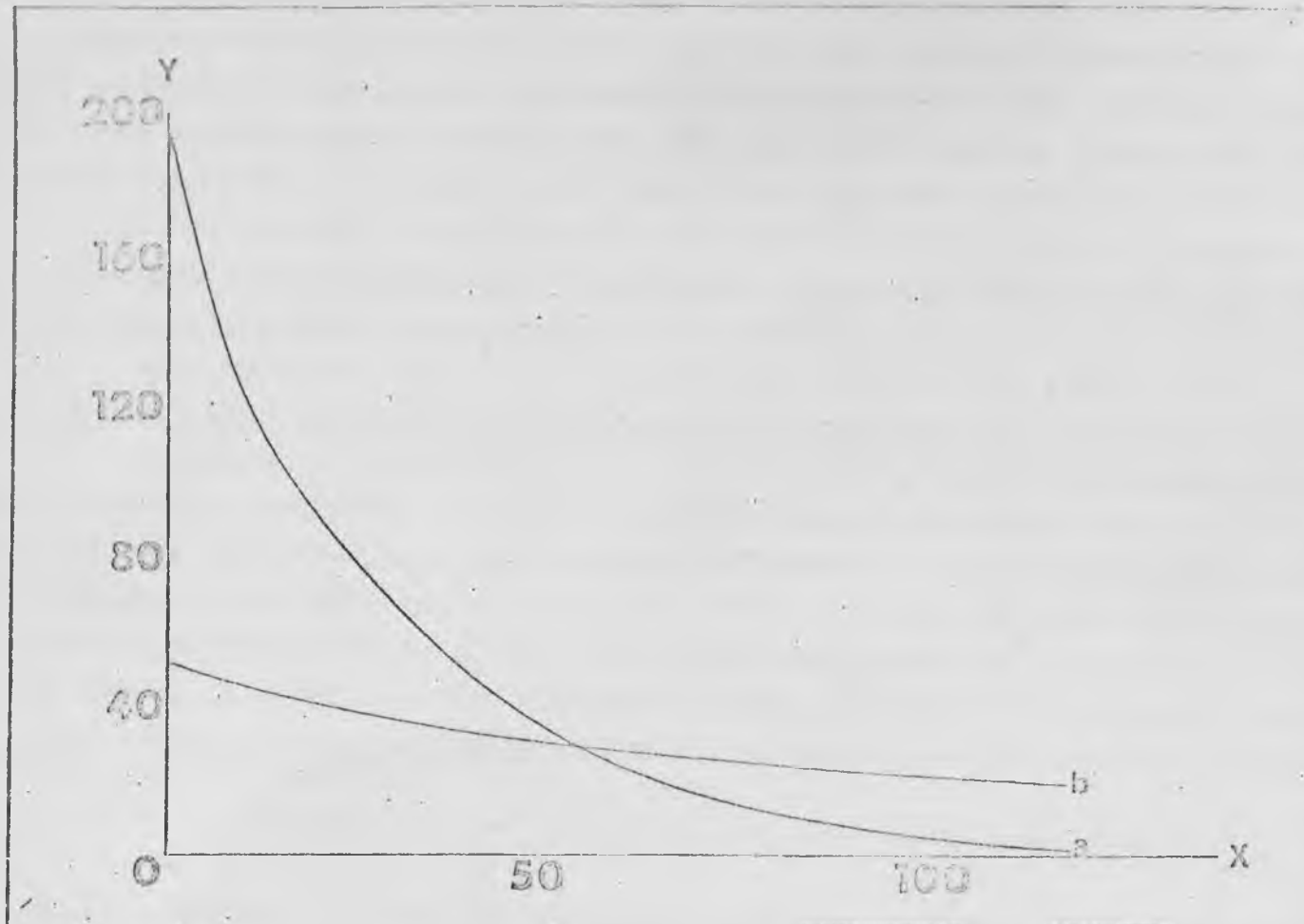
Y   POPULATION DENSITY: PERSONS PER SQUARE KILOMETER } per e.a.
X   DISTANCE FROM NEAREST LOWLAND URBAN PLACE (км)

b   regression curve 1966
     $y = 50.75e^{-0.01x}$
     $r^2 = .14$

a.   regression curve 1976
     $y = 195.50e^{-0.04x}$
     $r^2 = .66$

r^2 value, the coefficient of determination, expresses the degree of explanation of y achieved by x. In 1966, distance from nearest lowland urban place explained 14% of the variation in population density per enumeration area in Lesotho. In 1976, distance explained 66% of the variation. The shapes of the regression curves show how these results may be interpreted: in 1976 the relationship between population density and distance from nearest lowland urban place was much stronger (steeper curve) than in 1966; i.e. there has been a relatively greater increase in population density nearer to urban places than at greater distance.[11]

In fact the majority of the strengthening of the density/distance relationship is probably accounted for by population increase in one urban place: Maseru. The population of Maseru increased by 82% between 1966 and 1976, while the populations of the other lowland district headquarters increased by between 3% and 44% only. Clearly migration to the national capital is the dominant trend in internal population movement in Lesotho; the source of this migration may be from within the lowlands themselves as well as from other regions of the country.

The case of migration towards a sigle urban destination within a nation has been described as the 'primate city phenomenon.'[12] It has been suggested by Friedmann[13] that this is one of several stages in the evolution of the spatial structure of the development process:
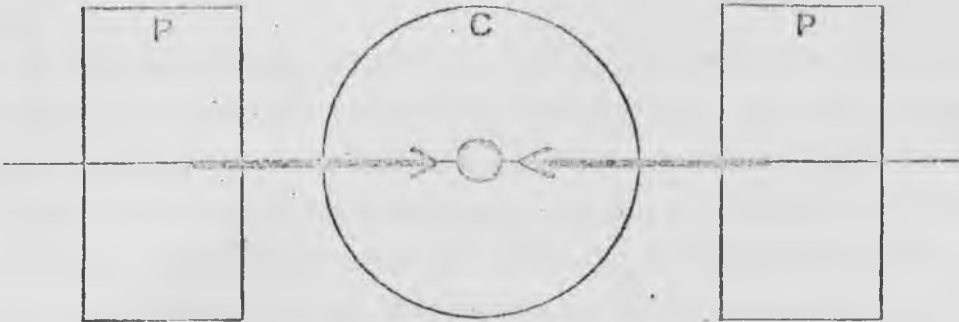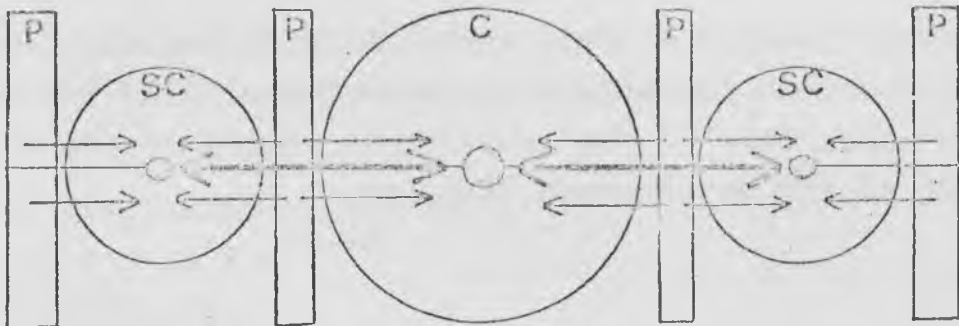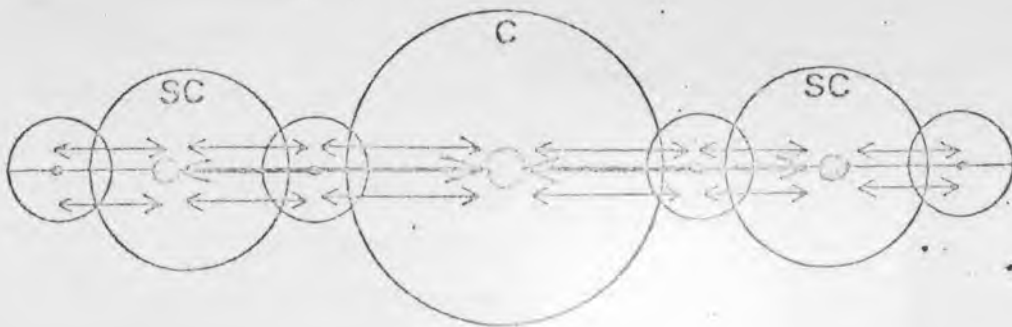
○   Urban place

◯   Urban sphere of influence

⟶   Interactions: flows of people and resources

STAGE 1   Independent local centres with no evidence of
                 hierarchical settlement organization. Typical pre-
                 industrial structure.

STAGE 2   Single growth point: the primate city; a focus for
                 migration of labour, skill, capital. Typical of early
                 phases of industrialization. Source areas of migration
                 are starved of labour and peripheries result. The whole
                 is referred to as a core(C)-periphery(P) situation.

STAGE 3   Regional sub-cores emerge as industrial maturity is
                 reached and as development impulses diffuse through
                 the nation. Peripheries are reduced to small inter-
                 metropolitan areas.

STAGE 4   The fulfillment of the development process is spatially
                 represented by a totally integrated system of urban places
                 peripheries are eliminated as small service centres
                 bring development benefits to the most remote areas.

Source: see footnote 13

Current population trends in Lesotho indicate a stage two situation whereby a single core acts as the destination of the vast majority of migrants from rural areas. Maseru is the core; the mountain massif may be regarded as the periphery in this context.

National and regional planning is thus faced with two alternative starategies in terms of the main thrust of development investment: either a) to invest in the incipient core to consolidate its position as the economic focus of the nation, or b) to direct investment towards the peripheral areas in order to stimulate the emergence of regional sub-cores, which would ease the pressure of migration on Maseru, and which would create regional foci from which development impulses and benefits might spread. The Growth Centre Plan[14] would suggest that the government has opted for the second alternative. The problem here is whether such a strategy can be successful unless it is related to a well-developed and established national core. Given that the phenomenon of large-scale migration to the national core is a recent one (the last decade), it may be questioned whether a national core of such a status has yet been consolidated.[15] Under such conditions, it can be argued that strategy a) would be more appropriate at the present time. As Friedmann points out:

> "...the objectives of spatial organization will differ in the early stages of the growth process from those which may be appropriate at a later time. During the initial stages it might be argued that all efforts should be turned toward the creation of a dynamic economic centre through the promotion of a maximum concentration of investment of people and activities at one or two growth poles in the nation without regard for the effects of this policy on locationally obsolescent areas." [16]

Historically, the evolution of a fully integrated system of regional sub-cores and local service centres has been shown, invariably, to be subsequent to the consolidation of the national core, which in turn is subsequent to a wave of large-scale migration into a primate urban place. There is certainly evidence that the latter process is currently dominant in Lesotho: this should be a major guideline in the formulation of priorities for contemporary national development planning.

Notes and References.

1. For 1966 population figures see
   LESOTHO, BUREAU OF STATISTICS 1966 Population Census Report
   2 volumes; vol.1 1969 vol.2 1971. Maseru.
   For 1976 population figures, the author is grateful to the staff
   of the Bureau of Statistics for allowing access to as yet
   unpublished 1976 population census material.

2. Derived from tabulations in SIMMONS, I.G. The Ecology of
   Natural Resources (Edward Arnold, London 1974.)

3. For further exposition of the demographic transition model see,
   for example, CLARKE, J.I. Population Geography (Pergamon Press,
   Oxford 2nd. edition 1972.)

4. See note 1) plus: BASUTOLAND GOVERNMENT Basutoland 1956 Population
   Census. (Maseru, 1958.) BASUTOLAND GOVERNMENT Basutoland Census
   1946. (Maseru, 1951.)

5. Estimates in BAWDEN,M.G. and CARROLL, D.M. The Land Resources of
   Lesotho. (Directorate of Overseas Surveys, Tolworth, England
   1968.)

6. SMITS, L.G.A. The Distribution of the Population in Lesotho and
   some Implications for Economic Development. (Basutoland Notes
   and Records No. 7 1968.)

7. Source: see note 5).

8. 1966 figures.

9. Calculations based on data from 1) above.

10. Results of current research by John Jilbert and Lucas Smits,
    Department of Geography, National University of Lesotho.

11. Such a result may be intuitively expected simply because
    population totals per enumeration area were already relatively
    higher nearer to lowland urban places in 1966. However, the
    'expected' strenghtening of the relationship had population
    growth been perfectly uniform per enumeration area is insignificant
    relative to the observed 1976 regression curve.

12. For a discussion of the primate city phenomenon see, for example,
    HAGGETT, P. Locational Analysis in Human Geography. (Edward
    Arnold, London 1965)

13. FRIEDMANN, J. Regional Development Policy: a Case Study of
    Venezuela. (Cambridge Massachusetts M.I.T. Press 1966)

14. LESOTHO, DEPARTMENT OF COMMUNITY DEVELOPMENT Development of
    Growth Centres in Lesotho (Maseru, 1972)

15. See discussion in MOODY, E. Growth Centres in Lesotho. (Africa
    Institute, Pretoria 1975.)

16. Regional Development Policy, op.cit.