

**THE ROLE OF TRANSPORT IN ECONOMIC
DEVELOPMENT**

**ECOLOGIC RELATIONSHIPS AND
DEVELOPMENTAL PROBLEMS IN LESOTHO,
SOUTHERN AFRICA**

**THE GROWTH POLE CONCEPT: A REVIEW,
ANALYSIS AND EVALUATION**

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THE GROWTH POLE CONCEPT: A REVIEW,
ANALYSIS AND EVALUATION

by

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ABSTRACT: The Role of Transport in Economic Development

Attempts to determine the amounts of capital to invest in transportation infrastructure have produced little in the way of agreement. This is due as much to the failure to identify the role of transport in contemporary economic development as it is to basic disparities in views. This paper attempts to identify this role, and in so doing, offers three hypotheses, based on the assumption that transport infrastructure is in some form and in some quantity requisite for economic development.

- 1) Transport infrastructure is a neutral phenomenon which cannot call forth new economic activity in its own right.
- 2) Transport infrastructure develops concomitantly with economic development.
- 3) In certain circumstances transport may be the catalyst which permits economic growth.

By identifying the component parts of transport's role in the developmental process, it is feasible to construct a possibility matrix. The rows and columns represent temporal and causal precedence respectively. Subsequently, the above hypotheses are illustrated by a review of relevant aspects of economic history.

ABSTRACT: Ecologic Relationships and Development
Problems in Lesotho, Southern Africa

In recent years there has been increasing interest in the problems facing "underdeveloped" areas. Accordingly a wealth of published material has appeared along with a number of programmes designed to understand and find solutions for these problems. To date there has been relatively

little success in finding solutions, one reason for this being the concentration on "single-disciplinary solutions." The aim of this paper is to develop a pluralistic or "multi-disciplinary" framework of analysis which will provide a more realistic approach.

The model developed here utilises the concept of human ecology which is defined in terms of sustenance organisation. After identifying the principle characteristics of sustenance organisation and the goals of national policy, it may be shown that certain consequences of these characteristics are not compatible with policy goals for a given country. Such consequences may be described as "dysfunctional forces." By viewing developmental problems as a series of dysfunctional forces such problems may be seen in the very broad context to which they belong, and potential solutions will be more realistic and relevant.

In order to illustrate this framework empirical evidence has been drawn from the newly independent African nation, Lesotho. Here sustenance organisation takes two forms, agriculture and animal husbandry, and employment in mining activity in the South African Republic. This paper concentrates on the agrarian activities which are characterised by the traditional system of land tenure. Following a description of this system, the third section of the paper illustrates the dysfunctional consequences of this aspect of organisation and the deep-rooted relationships between it and other forms of organisation.

The conclusions to the paper show that if Lesotho is to achieve the desired goal of economic independence her problems must be attacked on a broad front. In order to accomplish this, developmental problems must be approached in a multidisciplinary fashion as in the framework suggested.

ABSTRACT: The Growth Pole Concept: A Review, Analysis
and Evaluation

With increased control over aggregate economic variables considerable attention has turned to problems faced by regional economies. Much of the policy designed to encourage economic development in sub-national units has been based on a group of ideas associated with the notion of "growth poles." The growth pole concept purports to be a conditional theory of growth, indicating the conditions under which such growth occurs.

At present both the theoretical and empirical foundations of the concept remain very weak and much ambiguity and inconsistency exists in discussion of growth poles. Through a review of pertinent literature, an analysis of assumptions made and operant growth mechanisms it is hoped to eliminate some of the shortcomings of the concept.

The paper covers four major areas. Initially the growth pole concept is placed within the context of sectoral growth theory. Within this general framework a definition of growth poles in terms of their functional characteristics is then attempted and distinctions are drawn between growth poles and associated ideas such as the "growth centre" concept. The third section of the paper utilises this definition and analyses the processes and mechanisms whereby such poles develop and initiate and transmit economic growth. Finally a general evaluation of the concept is made suggesting some of the more positive contributions offered by the concept and indicating those areas representing major deficiencies.

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PAPER I.--THE ROLE OF TRANSPORT
IN ECONOMIC DEVELOPMENT

INTRODUCTION

The realisation that most men subsist at levels of material comfort far below those of others has posed the problem of economic underdevelopment. In recognition of the problem the United Nations, for example, designated the 1960's as the Decade of Development during which considerable efforts have been made to help nations willing to help themselves.

Of the many possible channels for investment in such countries much foreign aid and domestic capital has found its way to the transportation sector of the respective economies as shown in Table 1.

TABLE 1.--TRANSPORT INVESTMENT IN RELATION TO GROSS FIXED INVESTMENT AND GROSS NATIONAL PRODUCT

Country	Gross Fixed Investment as a Percentage of G.N.P.	Transport Investment as a Percentage of G.N.P.	Transport Investment as a Percentage of Gross Fixed Investment
Colombia	19.6	5.3	26.9
India	11.5	2.1	18.7
Israel	26.5	4.5	17.3
Japan	42.6	4.9	11.4
Mexico	13.8	2.4	17.2
Nigeria	13.8	4.9	49.0
Pakistan	11.9	1.8	15.4
Sudan	13.3	2.0	15.6
Thailand	16.6	2.8	16.5

Source: Statistical Office of the United Nations, Department of Economic and Social Affairs, Yearbook of National Accounts Statistics, New York, United Nations, 1962.

Cited by: G. Fromm (ed.), Transport Investment & Economic Development, (Washington, D.C.: Brookings Institution, 1965), p. 226.

Further, as Lansing notes, investment in the transportation sector is often by rule of thumb measure, 20-25 per cent of all public and private investment being typical.¹

That economic development requires adequate, effective transportation services is axiomatic. That there exists, for given countries at specific points along the developmental continuum, a theoretically optimum amount of transport capacity is generally accepted.² Nonetheless determination of these amounts and related investment patterns has produced little in the way of agreement. This appears due as much to the failure of economists and others to study the role of transportation in contemporary economic development as it is to basic disparities in views. It is the purpose of this paper to identify the role of transport in the developmental context, and by doing so a movement may be made towards an optimal allocation of all too scarce resources through possible subsequent changes in investment patterns.

At first sight the problem posed appears simple and straightforward. The answers normally offered are equally simple--but often incorrect, which may provide difficulties in formulating adequate growth policies and plans. In many volumes concerned with economic development, social overhead capital, in particular transport facilities, are described as "prerequisite" for development, as "catalytic" or "neutral" phenomena, or as occurring "concomitantly" with development, to name but the most frequently used terms.

Part of the problem in conceptualising the role of transport in economic development may be semantic difficulties, in part it may result from the imprecise use of various descriptive terms. To overcome these

difficulties and to provide a standpoint from which the role of transport in economic development can be viewed, the following hypotheses are offered.

It is assumed throughout that transportation infrastructure is in some form and some quantity requisite for economic development and hypothesised that:

- 1) Transportation infrastructure is a passive or neutral phenomenon which cannot call forth or create new economic activities in its own right.
- 2) Transportation infrastructure develops concomitantly with economic development.
- 3) In certain circumstances transportation infrastructure may be the catalyst which permits economic growth.

These hypotheses will be illustrated by means of a retrospective view of certain relevant aspects of economic history.

Economic Development: Definitive Problems

In that this paper in part revolves around terminology, it is relevant at this point to digress slightly in order to attempt a definition of a term which has been, and will often be used, that of "economic development".

Economic development is a relative term and is "commonly defined as a long period increase in a country's national income in real terms".³ A "long period increase" distinguishes economic development or growth from purely temporal variations in national income associated, for example, with good or bad harvests or fluctuations in the trade cycle. Rather than changes in the degree of utilisation of existing productive capacity,

economic growth involves an expansion of productive capacity. "In real terms" serves to distinguish economic growth from the situation in which an increase in the monetary value of the national income is the result of a rise in the general level of prices.

The advantages of using this aggregative definition supposedly lie in the fact that it gives,

"... a much safer single measure for comparisons of economic growth--safer in that it precludes the danger of omitting from consideration of both causes and results of growth a basic element--human population itself."⁴

It has also been suggested that in developed areas where steady growth in National Income is desirable to avoid chronic inflation or deflation, the national aggregate provides the most satisfactory measure of economic growth.⁵

An alternative to this aggregative definition concerns increases in some per unit measure, such as real National Income per head of population or per head of labour force. The advantages of such restricted use of the term directs attention to changes in productivity and the ability of the economy to satisfy human needs. Also it is suggested that fundamental changes in economic structure, important in growth theory, are only likely to have taken place when there has been an increase in the per unit measures.

However, it has been pointed out that neither aggregate nor per unit increases in national income are totally adequate as indicators of growth since they say nothing about changes in absolute extent of poverty.⁶ Similarly, neither measure says anything about the distribution of income, the standard of living, nor about the "costs" of this

increased income, i.e. welfare considerations are omitted.

Thus there appears to be no totally satisfactory definition of the term "economic development," which this paper purports to analyze in part, in terms of one of the forces supposedly responsible for it. Given these limitations any such definition can only provide a second best solution.⁷

Rather than choosing either of these definitions and their inherent deficiencies, it is sufficient for the purposes of this paper to define economic development as an expansion in productive capacity over a long period and which may be measured in terms of value added.

The Role of Transport: A Possibility Matrix

In isolating one factor from the complex process of development there is the danger of oversimplification. In addition in attempting to assign a role in this process to one such factor there is the risk of tautologous argument.

Bearing these not inconsiderable difficulties in mind, a static, two dimensional model has been constructed which identifies the role of transport in the growth process, in which, it is hoped, complexity is not forsaken merely for the sake of clarity.

The components of the model relate to "causal" and "temporal" precedence.

By "causal" is meant the ability of the transportation infrastructure to call forth directly productive economic activity in its own right. As such it is possible to identify three "causal" possibilities.

- 1) positive effect (+)--wherein new, directly productive activities

- are the direct result of providing transportation facilities.
- 2) neutral effect (0)--transportation facilities do not themselves call forth directly productive activities and subsequent increases in the level of economic development.
 - 3) negative effect (-)--the presence of transportation facilities eliminates directly productive activity and effectively reduces the level of economic development.

The second component the temporal component relates to the period of provision of transport infrastructure in relation to the period of economic development.

This component also illustrates three possibilities.

- 1) pre-, the provision of transport infrastructure predates, in temporal terms, the phenomenon of economic development.
- 2) con-, transportation infrastructure develops concomitantly with the phenomenon of economic development.
- 3) post-, the provision of transportation infrastructure post-dates the phenomenon of economic development.

Figure 1 illustrates these possibilities in the form of a possibility matrix.

The first two hypotheses indicate that transport plays a neutral role, developing concomitantly with the expansion of productive activity and hence with economic development. These views are denoted in Fig. 2 by "x".

A common view of the role of transport in development is as a "precondition" or "prerequisite".⁸ This, as Hunter notes, implies

FIG. 1.
THE POSSIBILITY MATRIX
CAUSAL

	+	0	-
<u>pre</u>			
<u>con</u>			
<u>post</u>			

FIG. 2.
CAUSAL

	+	0	-
<u>pre</u>	P		
<u>con</u>		X	
<u>post</u>			

causal as well as temporal precedence,⁹ as such is represented by "P" in Fig. 2. To illustrate the fallacy of this view and to attempt to validate the hypotheses offered, the "causal" and temporal" components will be examined.

Causal Precedence

The following statement by the Argentinian historian Vera Y. Gonzales illustrates the concept that transport plays a "causal-positive" role in the developmental process.

The railways were advancing league after league into the desert and as fast as they advanced they made new settlements blossom forth as by magic on both sides of the right of way: and they were converting the barren fields into inexhaustible springs of wealth.¹⁰

Similarly, though less flamboyantly, Hawkins attributes the position of the Uganda economy today to the creation of transport facilities which linked it with the outside world.¹¹

More specifically Hunter illustrates the concept of causal precedence with respect to the role of transport in Development. He suggests that the economic history of Western Europe and North America has shown that the introduction of modern transport methods dramatically lowered shipping costs. In the eighteenth and nineteenth centuries the effect was to widen the market, permitting economics of large scale production in a wide range of activities. The causal link between low cost transport and economic development also seemed clearly evident over time. Shipping and especially rail transport opened the way for the subsequent spread of the Industrial Revolution.

Railroads in particular were seen to be symbolic of the movement of "pre-industrial" societies into the modern age. Furthermore, they themselves provided markets for coal, iron and steel, thus investment multipliers extended from the railways sector into all other sectors of the economy:

"In short, as the basis for external economies, a training ground for modern methods and a bell-weather leading the economy forward, railroads have been seen as a precondition for economic development."¹²

Other writers have reiterated this view or noted its acceptance by the public, planner, or politician. Owen, for example, suggested that

... a good case for transport as the 'key' to national development can be made on the grounds that widening domestic markets is essential to economic growth.¹³

Also, Heyman notes the widespread faith in the United States concerning the magic of transportation, that it not only permits but calls forth directly productive activity through its dynamic impact.¹⁴

That transportation facilities play a dynamic role is implied in such statements as "Transport ... plays the active role of marking new resources available."¹⁵ Sharp goes further than this and suggests that "In developing economies the provision of new transport services is itself an important factor in increasing demand"¹⁶ (thus presumably stimulating growth to meet this demand). He continues:

Transport is a key factor in the change-over from a subsistence economy to a market economy in which specialisation and exchange can take place ... The total effect of transport may be very far reaching ... it enables trade to take place with specialisation and greatly increased productivity (thus increasing aggregate national income) and to make possible the use of hitherto inaccessible raw

materials ... Among the economic and social effects of increased mobility are ... the effect on the employment situation ... on the ancillary transportation industries, ... on the development of tourism.

Brown and Harral further substantiate the effects of the externalities of transportation investments utilising a theoretical example to show how previously unproductive members of a community contribute to the village income after transportation facilities are provided.¹⁷ Thus it is implied that transport infrastructure is a dynamic force capable of creating in its own right new economic activities.

In addition to the economic arguments there may be psychological factors of significance which may point to the acceptance of the concept of causal precedence.

In describing "Railway Magic" in Argentina, J. M. Berry states that:

Railways cannot be hidden ... they continually preserve intimate human contact with the public at large. On flat terrain especially, the steam train is its own advertisement. Even at night its psychological impress is felt by all within sound of its whistle ... it remains ... perennially difficult for a human individual to look upon the panting 'iron horse' without some sort of emotional response.

... locomotives and trains are personified ... invested with personality ... of a rather pre-terhuman quality ... they have gained immortality in the song and story of folklore and even in the soberest pages of history.¹⁸

Assuming this Freudian interpretation of the impact of the railways to be correct, it is hardly surprising that the instrumentality of the railway has often been exaggerated not only in the "popular mind" but also in the minds of scholars and politicians.

In advocating the "causal-positive" role of transport, the tacit

assumption is that transportation infrastructure has a life of its own.

I suggest that this is not the case.

"In fact it--transport--does not have a life of its own and is a part of something else. Without the resources that are going to be utilised access has no meaning."¹⁹

Hawkins for one adopts this view in qualifying a statement implying that transport is a dynamic factor:

Economic growth depends upon the growth of capital employed per capita; transportation improvements may release working capital which can then be used more productively as fixed capital elsewhere ... but before any of this may take place there must be suitable productive opportunities and potential markets.²⁰

The implication is that by itself transportation infrastructure is passive or as suggested, a "causal-neutral" phenomenon. In order that there may be expansion in directly productive activity and thus economic development there must be certain other passive factors available, i.e. human, physical and material resources; with investment in transportation infrastructure, the possibility for developing some of these resources becomes much greater.

Owen summarises this theoretical standpoint, stating that

... the fact remains that the provision of good transportation is not capable by itself of promoting economic growth. It is only where there are resources to be developed and people capable of developing them that transport becomes the catalyst that transforms land and other resources that people need.²¹

Empirical evidence to substantiate this view is largely provided by a number of works which attempt a re-examination of certain aspects of transport economic history. In particular, the role of the railway

in the North American developmental context has received considerable attention. Contrary to the view that the railroads led the economy forward in the early nineteenth century, Cootner has shown that railway growth following 1830 did not precede the growth of other sectors of the economy.²²

In addition two similar works by Fishlow and Fogel show, respectively, that the railway was not (and was nowhere near) indispensable to American growth²³ and that in fact, transportation capacity in the U.S. up to 1890 could have been provided by existing waterways and need not have been provided by the railroads.²⁴

In terms of causal precedence, Fishlow in particular sees the railroads as being built to demand and not as directly opening up new country; it was the anticipation of rail extension that led to migration, and the railroads responded to this demand. Fishlow further argues that few, if any, innovations are "indispensable" to economic growth and that the range of potential solutions to specific problems may be so large that no individual response is ever really essential and also that the process of economic development is too complex and too diversified to permit of unequivocal prime movers.

Heyman too develops this theme suggesting that transportation infrastructure followed the migration west across the United States. Migration resulted from a complex set of factors relating to opportunities, attractions elsewhere and dissatisfaction with areas from which the migrants came. Thus the transport suppliers responded to economic opportunity, and aimed not at developing the hinterlands of the East, but in making a fortune. The provision of such facilities may well have

helped to shape the regional distribution of activity but did not create the underlying motivations. Development was rooted in economic and social forces independent of and exogenous to the transportation industry.²⁵

A corollary of this is that with increases in productive activity and increases in the level of economic development the creation of social overhead capital is not a condition whose pre-existence explains the acceleration of growth; rather, it is part of the acceleration which needs to be explained.²⁶

Finally the "causal negative" component may be examined. There appears to be no empirical evidence to illustrate that the provision of transportation facilities may directly lead to a reduction in the overall level of productive activity and subsequently a reduction in the national level of economic development.

This may be qualified in a number of ways. In the case where there is a large capital input into projects intended as prestigious showpieces the decision may lead to an allocation of resources which, in relation to development potential, may be less efficient than some other more apparently mundane or less prestigious alternative. Effectively, this may retard economic growth relative to growth which might otherwise have occurred following alternative investment.

By the same token, however, investment in the prestigious project may subsequently provide a stimulus to other parts of the system possibly having some influence on other things, morale, attraction of foreign capital and tourism. In this event development might occur though the influence of the transport project may be hidden among the complexity of

other developmental factors.

A further qualification relates to the scale at which the notion of economic development is conceived. The provision of additional transport infrastructure may well help to change regional patterns of activity. In the event of the new road, rail or waterway encouraging the diversion of activity from one area to another, the former area may decline in terms of productive activity and consequently the level of economic development may decrease at the regional level. Hence in terms of the "negative" effects of transport the question of scale is extremely significant.²⁷ The identification of this problem area further serves to illustrate the unsatisfactory nature of the concept of development especially when related to increases in productive capacity. Within the terms of reference given, it may be noted that there appears to be no evidence to suggest that overall levels of national economic development decline following provision of transport infrastructure. However, as noted above, this statement is open to considerable qualification.

The "causal" component of the role of transport in economic development may thus be summarised:

- 1) "causal-positive" - transportation infrastructure is itself not capable of promoting economic growth. Other passive resources, human, physical and material resources must also be present. The presence of social overhead capital does not explain growth, rather it is part of the growth process which needs to be explained.
- 2) "causal-neutral" - transport infrastructure does not have a life of its own, it is a part of something else. Transportation infrastructure is indispensable to the economy but there is no evidence that providing facilities will ensure new agricultural or industrial activity.²⁸

In an area with "potential" resources the provision of transportation infrastructure and the resultant access

may activate their exploitation.²⁹ Under these conditions, transport infrastructure may be described as being a catalyst in the development process.

- 3) "causal-negative" - there is no empirical evidence to suggest that the overall level of national economic development declines following the provision of transport infrastructure. In certain cases, however, provision of such facilities may effectively retard development and/or may reduce productive activity in unit areas smaller than the national scale.

Of these three causal possibilities, only the second appears tenable as a view to be adopted when planning investment in transport facilities. Figure 3 illustrates the modified possibility matrix.

Temporal Precedence

A common view of the role of transport in economic development is that the provision of such facilities has to, and in future planning should, precede development in temporal terms. Popularisation of this concept is associated, for example, with W. W. Rostow who suggests that one of the necessary preconditions for "take-off" into sustained growth is the provision of a transport infrastructure.³⁰

An alternative hypothesis is offered here, suggesting that transport develops concomitantly with economic growth. Examination of the former view illustrates that

"... in England the principal changes in transport ... took place during rather than before the period of accelerated growth. In Russia the relevant transportation and agricultural developments occurred late in the decade after 'take-off' had got underway and in China they are occurring in the middle of the period to which Professor Rostow assigns her take-off."³¹

Hunter also notes the examples of Russia and China. Under difficult conditions both countries have found ways of increasing output

FIG. 3.

CAUSAL

	+	0	-
<u>pre-</u>	N.P.		N.P.
<u>con-</u>	N.P.		N.P.
<u>post-</u>	N.P.		N.P.

without proportionate increases in transport capital. Transport facilities here did not need to be and often were not built in advance of specific demand. Experience here thus suggests that massive expansion of transport capacity is not a prior condition for economic progress.³²

Finally, as Pegrum states in relation to transport technology,

... it is interesting to note that the most outstanding changes in transportation really followed those in manufacturing. That is, the revolution in transportation followed that which took place in industry. This may be ascribed in part to the fact that the major technological achievements in transport grew out of those of manufacturing, and in part to the fact that the improvements in transport grow out of pressure for wider markets. The forces are interacting, but the immediate sequence seems to be that transport follows rather than leads the course of events.³³

Evidence may thus be presented to illustrate that transportation infrastructure developed concomitantly with economic growth, not prior to such growth as has often been thought.

There is, however, evidence that many transport facilities, particularly in North America and Europe, were built ahead of demand and prior to any development. Subsequent failure and closure of many railroad lines in particular has since illustrated that whilst access is indispensable to growth, merely providing the facilities does not ensure new activity.

Thus it is suggested that whilst evidence exists to show that facilities were developed both prior to and concomitantly with development, the most effective way investment capital can be used, with respect to transport, is to develop such infrastructure as is required and as development proceeds.

Finally, with respect to the third temporal possibility, there is a great deal of difficulty in attributing development to the provision of transportation facilities which post-dated that development. It is possible in certain circumstances to have growth which occurs in anticipation of the development of transport facilities. In the case of migration in the United States, growth was probably affected in part by the anticipation of railroad expansion. Undoubtedly, timing plays a very critical role in this context.

Summary

In the field of transport investment the exercise of vision and wisdom has often been less than spectacular. In part this relates to the failure to identify the role of transport in the developmental process. This in itself reflects the very complexity of the concept of economic development and the present lack of understanding of the inter-related forces responsible for growth.

In that large volumes of capital are often allocated to the transport sector of many "underdeveloped" economies, there is a need for a general statement concerning the role of transport in economic development. It is hoped that such a statement has been provided through the framework of argument constructed in this paper.

Of the three hypotheses offered, the first--transport as a neutral phenomenon--relates to the "causal" role of transport. By avoiding the assumption that transport has a life of its own; by acknowledging the necessity for the presence of other passive resources; by noting that the presence of such facilities is a part of the growth process which needs to be explained,--rather than an explanation in itself, leads to

the conclusion that the "neutral" possibility is the only tenable "causal" role of transport.

The second hypothesis, suggesting that transport develops concomitantly with development, relates to the temporal component. Empirical evidence has been offered to illustrate that much of the transport infrastructure in North America, Britain, Russia and China did in fact develop concomitantly with, rather than prior to, economic growth. The possibility of development of such facilities ahead of demand is acknowledged and also that in part anticipation of future provision of facilities may be significant. However since neither ensure subsequent development, investment procedure along these lines may lead to a less efficient allocation of resources than investment which occurs concomitantly with development.

The third hypothesis, transport as a catalyst, is related to both the temporal and causal components. It is suggested that the provision of transportation infrastructure may activate the development process, assuming all other requisites for growth are present. Potential resources remain potential without some form of access to and from them, but also access has no meaning unless the potential resources are available. If potential resources are present and are commercially feasible the provision of access may thus be catalytic in the development process.

What must be remembered is that transportation is hardly ever desired for its own sake; it is merely a means to serve other objectives. If this is borne in mind, together with the concept that transport infrastructure is a neutral factor which should be allowed to develop concomitantly with economic growth, many investment decisions relating to the transport sector may require considerable revision.

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- 29 See for example A. D. Hill, The Changing Landscape of a Mexican Municipio, Villa Las Rosas, Chiapas (Chicago: University of Chicago Research Paper 91, NAS-NRC Foreign Field Research Programme Report No. 26, 1964).
- 30 W. W. Rostow, op.cit., p. 24.
- 31 J. H. Habakkuk, op.cit., p. 601.
- 32 H. Hunter, op.cit., p. 83.
- 33 D. F. Pegrum, Transportation, Economics and Policy (Illinois: R. D. Irwin Inc., Homewood, 1963), p. 11.

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PAPER II.--ECOLOGIC RELATIONSHIPS
AND DEVELOPMENTAL PROBLEMS
IN LESOTHO, SOUTHERN AFRICA

INTRODUCTION

Two aspects of the international scene which have characterised the period since World War II have been the increase in "Cold War" activities and increasing interest, on the part of the richer nations, in helping those less fortunate. Often it is difficult to separate these two activities as help which appears under the guise of "developmental aid" is often designed to promote political sympathies rather than economic development.

In its own right, however, the notion of economic development has led to interest in the "underdeveloped" areas and has resulted in a wealth of published material and programmes designed to understand, and find solutions for, the problems faced by these countries. The ironical paradox is that the poor appear to be increasing more rapidly in both relative and absolute terms. Not only does the secret of what makes rapid and sustained growth remain unrevealed, but also the facets of the question have become more numerous and the character of the problem infinitely more complex. In short, an even considerable knowledge has become a relatively inadequate thing. The problems under consideration have been growing faster than their understanding and to date, potential solutions have met with very little success.

It is perhaps not surprising that more questions than ever before need to be answered by the very nature of scientific inquiry, but it is postulated here that lack of understanding of the developmental process(es) is closely associated with the application of a "single disciplinary" approach to problems to which it may have only limited relevance and the ability to provide only partial explanations. The aim of this paper is

to develop a pluralistic or "multi-disciplinary" framework of analysis which, it is believed, will provide a more realistic approach to developmental problems.

Traditionally much of the research effort into problems of "underdevelopment" has come from economists who, despite their large contribution, have often viewed economic organisation as a separate entity from the rest of societal organisation. It is suggested here that this view somewhat misses the mark since economic organisation is part of a much larger system of social organisation which in turn may itself be viewed as part of a particular cultural system. Thus economic change may be seen as a particular facet of a larger cultural transformation, or as De Gregori and Pi-Sunyer suggest,

Economies do not change in isolation from other patterned activities characteristic of a particular people, and in the majority of cases significant shifts in other areas of belief behaviour or social organisation will find a reflection in changed economic patterns.¹

There has been a failure to view economic change in terms of the total social and cultural context, which may in part account for the failure of much development planning. At this point and in order to justify the approach adopted in this paper, it is useful to summarise some of the more significant factors which are relevant to underdeveloped economies but with which traditional, Western economic theory has difficulties in dealing.

"Underdeveloped" economies are not only different from industrial market economies in degree but also in kind. The absence, in many cases, of machine technology, pervasive market organisation, and all purpose money, plus the fact that economic transactions can often not be under-

stood apart from social obligation, create a set of conditions where economic theory may not be fruitfully applied. The attempt to translate "primitive" equivalents into functional equivalents of our own inevitably obscures just those features of underdeveloped economy which distinguish it from our own.

Secondly, it may be noted that economic mechanisms and practices are frequently found in historical and modern, developed and underdeveloped economies. But their presence is not prima facie evidence of organisational, operational or functional similarity. Division of labour, money uses, external trade and market places are best regarded as adaptable devices, capable of varied use in a variety of organisational contexts. Abstraction of certain phenomena from the specific context of real world structure to fit into our own specialised contextual categories only leads to distortion.

A related point is that the reification of economic categories tends to create ambiguity when the Western trained investigator of underdeveloped economies seeks to answer questions whose importance is derived from his own economy. It is not possible for the investigator to abstract himself from his cultural background; but it is surely necessary and possible to differentiate between non-Western values and our own.

Finally, the phrase "economic development" implies two different types of change which go on simultaneously in underdeveloped areas: institutional transformation from indigenous socio-economic forms such as reciprocity and redistribution, to market organised industrialism and secondly, additions to real output generated by the new economic

and technical apparatus. To date Western economic theory has proved a powerful tool for making industrialised market systems grow. As yet the underdeveloped economies are not industrialised and often the market system is underdeveloped. Thus what is required to begin the understanding of the development processes is a form of "ethno-economic" analysis which will enable the planner to choose those transformation paths to industrialism which entail only the unavoidable social costs.²

Accordingly this paper attempts to avoid the methodological problems posed by the assumption that traditional economic theory has universal relevance; this paper adopts a pluralistic approach employing an ecologic framework of analysis. By adopting this method the complexity of the interrelationships operating within the socio-cultural environment may be identified and analysed as a complex rather than as isolated phenomena.

Skilling suggests that a model can be a theory, a law, an hypothesis, or a structured idea.³ The model developed in the first section of this paper represents a structured idea for the identification and analysis of significant aspects of developmental problems. Specifically, the model utilises the concept of human ecology, defined in terms of sustenance organisation. The consequences of the characteristics of the latter are then compared with the desired developmental goals for a given country. By examining the human ecology of a particular group it may be shown that certain consequences of sustenance organisation are incompatible with the necessary structure required to achieve the desired developmental goals. Such consequences may be described as "dysfunctional forces." By viewing developmental problems in terms of these dysfunctional forces, such problems may be seen in the broad con-

text to which they belong, and potential solutions will thus be more realistic and relevant.

Two assumptions are basic to the model which may be identified at this point. The first is a biological assumption which suggests that man's existence requires continuous material sustenance, a universally applicable postulate. The second assumption is that the particular form of sustenance organisation utilised to fulfill these material needs is significantly controlled by the social-cultural environment within which the group or individual in question operates.

All models have a number of common characteristics; those emphasised in this particular case are the features of selectivity and structure. In the first case, through selective approximation, fundamental, relevant aspects of developmental problems appear in a generalised form, i.e., as dysfunctional forces; and secondly, structure is emphasised by viewing relevant phenomena in terms of a kind of organic relationship. Finally, the model is also intended to be suggestive in as much as it may suggest further questions and speculation regarding developmental problems.

One prerequisite for models in the empirical sciences is the necessity for their reapplication, it is here that the value of the model may be judged. Accordingly, this model has been applied to the small African enclave of Lesotho,⁴ (see map). As with the other emerging nations of the Third World,⁵ Lesotho faces enormous developmental problems but here they are compounded by several unique factors, particularly geographical position and the political hostility of South Africa.

The most significant characteristic of the human ecology of Lesotho is the traditional system of land tenure and the model developed here is applied to this system to examine its dysfunctional consequences. By this means it is hoped that the value of the model may be illustrated and the need to approach developmental problems in a multi-disciplinary manner emphasised.

This paper therefore subdivides into three sections; the first deals with the analytical framework, the second describes the characteristics of sustenance organisation, and the third examines the dysfunctional aspects of this form of organisation.

I.--ANALYTICAL FRAMEWORK

Ecologic and Spatial Analysis

Geography has long been the scene of internal dialogue concerning the nature of the discipline. The traditional position of Geography has been in terms of Hartshorne's areal differentiation. There are, however, a number of "deviations" from this view which broadly speaking may be identified as the regional school, the locational or spatial school and the ecologic school.⁶ In response to the need to establish a firm body of geographic theory, much of recent geographic enquiry has concerned itself with the two latter schools. To illustrate the framework within which this paper operates it is worthwhile to distinguish between these two schools.

The two may be broadly distinguished by the types of questions asked and the styles of scientific approach used in determining the answers. More specifically, if concern is with the location of particular activities and patterns of distribution the method of analysis is

spatial. Significant factors in such analysis are assigned weights and ranking in order of importance for a given activity at a given point in time. In agricultural location theory, for example, physical factors such as soils, temperature and precipitation may be of special significance in addition to and in combination with non-physical phenomena such as distance from market or transportation costs.

Ecologic analysis on the other hand is concerned with the interaction of the factors which define the activity itself, rather than with how the factors affect the location of the activity. Ecologic analysis concerns itself with the emergent system formed by the factors' interaction and with analysing how the system functions.⁷ Essentially ecologic analysis deals with "adaptive" research wherein research is designed toward problem orientation rather than strictly discipline oriented.

The distinctions between the two forms of analysis are not as clear cut as has been implied here, it must be realised that inasmuch as they both deal with the same set of phenomena they must have certain commonalities as well. The area of overlap is exhibited by the spatial analyst who examines the components of the ecologic system to determine the relative significance of individual factors, and by the ecologist who examines locational factors in order to examine the way in which they affect the functioning of the ecologic system.

Up to this point little distinction has been made between the different forms of ecologic analysis. Specifically this paper examines developmental problems in Lesotho by an examination of the Human Ecology of the area. In that there are several interpretations of the concept

of Human Ecology and a distinction between Human and Cultural Ecology it is necessary to further define the subject.

Human Ecology

The term "ecology" was originally used by Haeckel in 1869 to relate organisms or groups of organisms to their environment.⁸ In the social sciences the term has been restricted to human synecology, that is, the study of relations between human groups (or populations) and their respective environments, especially their physical environments. Human ecology, in the broadest sense, may be defined in this way and all definitions agree on this essential characteristic of the field. In addition, most definitions agree that human ecology includes the study of two aspects of group structure, both of which depend strongly on sustenance relations between man and the physical environment, namely spatial structure and the division of labour.⁹ Apart from these areas of general agreement, definitions vary widely particularly with respect to the degree of inclusiveness of the field and the chosen explanatory variables.

Examples of two differing views are seen in the works of Park and Hawley. R. E. Park emphasised a subsocial type of interaction among men as the distinguishing feature of human ecology which involved the study of impersonal, subsocial aspects of group structure arising out of ecological interaction. This type of study did not include the analysis of the political and moral parts of group structure that depend principally on social interaction.¹⁰ Amos Hawley on the other hand ignores the distinction between ecological and social interaction as conceived by Park concentrating on the study of the

... pattern of symbiotic and commensalistic relations that develops in a population, ... a collective response to the habitat; it constitutes the adjustment of organism to environment.¹¹

One area of common ground to these two views is the emphasis upon space distribution as a fundamental characteristic of the ecological approach, summarised by McKenzie:

Human ecology deals with the spatial aspects of the symbiotic relations of human beings and human institutions...¹²

In recent years this spatial conception has come to be labelled "classical" ecology¹³ and a number of harsh criticisms have been levelled against it. Not the least of these being the absence of an analytical framework encompassing this sector of collective human behavior.¹⁴ One attempt to formulate a general theory has been made by Gibbs and Martin and it is their conceptualisation of Human Ecology which is used in this paper.¹⁵

Viewing ecological theory as an analysis of man's organisation for sustenance this theoretical system bears some resemblance to Hawley's ideas,¹⁶ though one major difference is in the scale of observation units; the "community" unit being replaced by more macroscopic units such as the nation. The central theme of the system is that Man may only survive by collective organisation in the exploitation of natural resources. It is obvious, however, that not all populations organise themselves for the exploitation of natural resources in exactly the same manner. It is in this variability in the characteristics of sustenance organisation among populations that human ecology finds its fundamental problem.

Sustenance activities include only those activities directly related

to providing the population with a livelihood. These activities have one outstanding property--they are highly organised in the sense of being regular, repetitive and enduring; for this reason any pattern in the sustenance activities of a population constitutes an organisation. Given that sustenance organisation is central to the concept of human ecology, Gibbs and Martin identify two goals for their system:

First, it [human ecology] seeks to explain the presence and absence of particular characteristics of sustenance organisation among human populations, i.e. to state the conditions under which a given characteristic will or will not appear. Second, it seeks to establish the consequences of the presence or absence of particular characteristics of sustenance organisation in human populations. It is not concerned with origins, ultimate causes, or the association of motives and attitudes with the different characteristics of sustenance organisation.¹⁷

In seeking these goals, the ecologist goes beyond the purely descriptive studies of spatial distribution which have come to characterise much of human ecology, tending instead towards a branch of ecology known as cultural ecology. The above conceptualisation does not, however, constitute cultural ecology as conceived by Steward and the distinctions are worth mention at this point.¹⁸

Cultural ecology may be defined as:

... the adaptive processes by which the nature of society and an unpredictable number of features of culture are affected by the basic adjustment through which man utilises a given environment.¹⁹

As Mikesell views it, any analysis using this framework involves three stages. The first is an analysis of subsistence activities and exploitative technology. Such an examination provides examples of the interrelationships between environment and livelihood and the first step in a

logical chain. The second link in the chain is the analysis of behaviour involved in the exploitation of a particular habitat by a particular technology. The final task of cultural ecology is seen as the establishment of links between behaviour patterns involved in the exploitation of an environment and other aspects of culture, such as marriage preferences, the size of human groups and so on.²⁰ This type of analysis with the progression from environment through subsistence activities, exploitative technology to social organisation may clarify a substantial part of the configuration of a culture and may contribute to the understanding of such problems as a group's capacity for evolution.

There are obviously many parallels between this concept and the definition of human ecology used here. The essential difference appears to be that cultural ecology seeks to determine the extent to which environment is involved in the origin of a particular cultural feature or pattern of behaviour.²¹ Human ecology as defined here is both social and cultural in nature but this does not mean that it is concerned with values, attitudes, or other variables of a psychological nature as is cultural ecology. Furthermore, human ecology is concerned with the particular characteristics of sustenance organisation and the consequences of those characteristics, human ecology is not concerned with origins and ultimate causes.²²

This definition of human ecology is perhaps more narrowly conceived than that of cultural ecology but in dealing with developmental problems in Lesotho, it is more than adequate to illustrate relevant interrelationships. Of the two goals of human ecology identified, this paper concerns itself with the second, the consequences of particular characteristics of sustenance organisation. In Lesotho sustenance

activities may be divided into two major groups, domesticated agriculture and stock raising, and mining activity. The latter activity, however, forms a special case since the mines are in South Africa and there is a migration to and from the mines of Basotho²³ workers. Whilst this external activity is extremely important to the country, in order to illustrate relevant internal relationships this paper is restricted to discussion of agriculture and stock raising.

The single most significant characteristic of agriculture and pastoral farming in Lesotho is the system of land tenure. By focusing on this particular aspect, the consequences of the present form of this type of sustenance activity may be illustrated. Particular concern with these consequences is in respect to economic development. At present the principal goal of national policy in Lesotho is the achievement of economic independence, by utilising the human ecologic framework described above, it may be shown that the principal characteristics of agrarian sustenance activities are not compatible with the attainment of this goal, i.e. agrarian characteristics are dysfunctional to achieving economic independence in terms of their consequences. Furthermore, it may be shown that development problems such as those related to sustenance activities cannot be examined in isolation, nor can a single disciplinary approach provide adequate answers. These latter statements have long been recognised as valid in Lesotho. In reporting to Whitehall in 1935 the Pinn Commission, for example, stated one fundamental proposition, that it was impossible to separate out questions of economics and of politics; also, land and soil erosion were and still are too much interlocked with custom and judicial power to be dealt with independently, just as cattle breeding and education, leprosy and marriage customs are

all parts of a larger pattern.²⁴

Economic development may thus be seen in socio-cultural terms and analysed in terms of human ecology. The model developed in this paper examines the consequences of agrarian sustenance activity characteristics on economic development in terms of those characteristics which are dysfunctional to the achievement of given developmental goals. Prior to identifying these characteristics it is necessary to outline the nature of the land tenure system in Lesotho, the consequences of which are seen as one very significant group of dysfunctional forces; incompatible with achieving rapid economic development and effective economic independence.

II.--THE LAND TENURE SYSTEM

The economy of Lesotho is based on agriculture and animal husbandry. This is a paradoxical situation in view of the fact that the Basotho are not agriculturalists by tradition and tend to grudge the amount of time that they must spend on their lands.²⁵ Furthermore, the country does not exhibit any marked agricultural potential. The explanation for the significance of agriculture, in particular, to the economy, lies in the fact that there are few if any alternatives. The absence of industrial potential and the extremely limited prospects for mineral development give the Basotho little choice concerning the way in which they may make a living. The Geological Survey states the position quite bluntly:

Basutoland is purely an agricultural and pastoral country; the prospects of mineral development have been shown to be entirely limited to the remote possibility of discovering an abnormally rich diamond deposit. The future of Basutoland is then definitely wedded to agriculture and stock raising.²⁶

In that the economy is mainly concerned with agriculture and animal

husbandry, and in that both depend upon the use of the land, both are inextricably bound up with the laws of land tenure. In attempting to identify those forces or groups of forces which appear to be dysfunctional to the achievement of a given goal, the problems presented by the present system of land tenure offer an appropriate starting point. One problem entailed by commencing with the land tenure question is that discussion of the political system (of which the laws of land tenure are an integral part) is anticipated. However, this appears inevitable since, as was noted previously, questions such as land tenure are all part of a much larger pattern of which it is extremely difficult to effectively isolate the individual parts.

In considering the land tenure question, it is convenient to deal with it in two parts. In the first instance, land tenure may be regarded as comprising the rights of the users of the land to exploit the resources of their habitat. Secondly, land tenure may also be seen as a complex of rights of distribution and of administration as vested in the approved regulative institutions.²⁷

Rights of Exploitation

Among the Basotho land is not a commodity which can be bought, sold or used in the form of a negotiable chattel. All the land belongs to the Basotho nation²⁸ with the Paramount Chief²⁹ as trustee. The Paramount Chief is nominally responsible for its protection, its exploitation, and its distribution, although his authority may be delegated to subordinates.

Every member of the nation is entitled to a share of the land for building, pasture and cultivation, the last of these rights having been embodied in the Laws of Lerotholi No. 7 which states:

All chiefs and headmen must by law provide people living under them with lands to cultivate.³⁰

These rights normally begin to accrue with marriage but may be extended to unmarried adults of either sex. These extensions of the rights to exploit land may be related to the taxable status of the individual concerned, but this too may be further qualified to allow unmarried non-taxpaying adults such as the very poor, the old, widows, widowers, and spinsters to hold land. Other than these exceptions, private rights to hold land apply to every married adult. A married man has the right to hold for, and on behalf of, his family certain titles of use to residential land, arable land, and pasturage. The retention of these rights is dependent on continuous utilisation of the resources, the payment of taxes, and the demonstration of loyalty toward the chieftainship as the administrative authority.³¹

In addition to private rights of exploitation, certain public rights exist which relate to a number of natural products to which all people may be said to have equal rights. This group includes fuel, timber for building, grasses, clay, wild plants and wild animals. Public rights to these products may be restricted if they become either locally or seasonally scarce as a result of excessive demand. In this event, a conservation or regulatory system known as maboella operates.³² This system, one of the few of its kind in Lesotho, places certain of the above products (such as thatching reeds or weaving grass) under protection. The land on which they are supported is retained under strict control by the administrative authorities; public use of the products is permitted only under supervision and at specified times.

The acquisition of the previously mentioned exploitive titles may take considerable time. The first title acquired by a newly married man is that which gives him and his family residential rights. The normal procedure is for this male to approach through an intermediary (normally the next senior lineal relative) the administrator of the parish in which he wishes to reside.³³ Once residence titles have been acquired, the individual may seek additional titles. Customarily the family head may claim three fields for the maintenance of himself and his family. However, if the male has more than one wife, he may claim a further two fields for each additional wife. In addition to their fields, it is customary for each family to have a small plot or garden near to the household.

Pasturage, the third type of land for which the family may hold titles, presents a different picture.³⁴ Grazing on common land is a public right which may be enjoyed by all, but grazing in cattle-post country³⁵ may be given to certain individuals that they may build huts and byres in these areas, but at the same time grazing at the posts is available to all those who live in the province wherein the post is located.

In that these rights to exploitive titles may take a long time to be acquired, there are numbers of ways in which temporary access to land may be achieved. Homesteads may be obtained on loan from individual owners, or individuals may be temporarily granted the use of a field by a chief.

The general conditions necessary for security of tenure were noted above as being the continued utilisation of resources, payment of taxes, and the maintenance of amicable relationships with the land administrators. However, security of tenure is by no means as simple as this.

Any unit of land may be put to two or more exclusive uses during any one year. Thus a piece of land may warrant an arable title for part of the year and a grazing title for the remainder. Alternatively, both of these rights may be revoked and the land devoted to the maboella system with public titles of exploitation operating. Hence in Koena Law³⁶ land cannot be allocated exclusively to one individual or family, nor can it be allocated to one specific use.

In the case of a piece of arable land, all arable rights cease the moment the harvest has been reaped and removed from the field; all such arable rights remain dormant until the new planting season (spring) commences. Should an individual commence ploughing before the arable rights are returned, he may be charged with depriving the community of common grazing rights; at the same time he would have no cause to complain or to claim compensation resulting from any damage caused by stock.³⁷

In terms of the rights to exploit the habitat, it is obvious that the chiefs through their control of usufructuary rights exercise considerable control over the chronological sequence of agricultural activities and also over the nature of the activities themselves.

Rights of Administration

The administration of the exploitive titles associated with land is itself dependent upon the possession of certain rights, especially the right to exercise sovereignty or delegated sovereignty over the land and its users.³⁸

Among the Basotho, administrative titles may only be held by chiefs and an individual may only become a chief by right of birth. Thus all

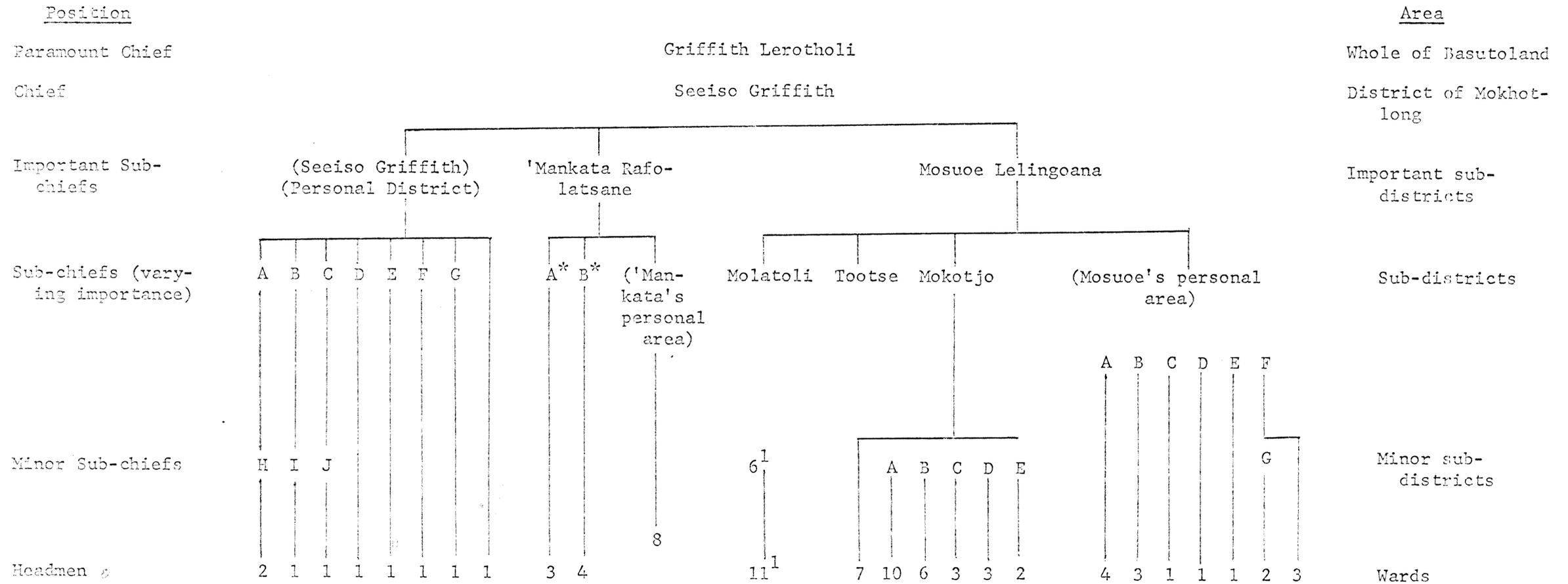
administrative titles are held by the chief and subsequently delegated to lesser authorities. It is with relation to these rights of administration that there is a great deal of overlap between the system of land tenure and political organisation. The power hierarchy (which closely resembles the pattern of diffusion of administrative rights) is illustrated in Fig. 2. The example used is that of the district of Mokhotlong which is located in the mountainous eastern part of the country (see Map). Mokhotlong, one of nine districts, is sparsely populated compared with the western lowlands. In the latter area are far more individuals with varying degrees of political power; in fact, in 1939 there was a total of 1340 recognised chiefs and headmen.³⁹ This diffusion of power and its associated disadvantages will be dealt with in the following section.

The system whereby power is delegated to individuals is known locally as the "placing" system.⁴⁰ The system is based on the concept that national cohesion and stability will only be maintained if political authority remains concentrated in the hands of the Paramount Chief. The placing system, though modified in recent years (particularly since independence and the reduction of the powers of the Paramount Chief to those of a Constitutional Monarch) still operates in basically the same traditional ways. The system enables junior members of the royal lineage to be appointed as administrators over the heads of existing tribal leaders. Sheddick notes that this procedure follows four well-defined stages.⁴¹

The first is that the chief cannot consider making a placing without first consulting the people over whom the new chief will have control. If acceptable, the placee will then be publicly appointed. The new chief is now allowed to assume rights of land administration; he may establish his

FIG. 2

POLITICAL STRUCTURE: MOKHOTLONG DISTRICT



Summary

Population (1936)	9,000	7,000	22,000
Sub-chiefs	10	3	22
Headmen	9	15	68

A*--Letsoile Rafoletsane

B*--Sejakhosi Rafoletsane

1

Both Molatoli's and Tootse's areas are subdivided similarly to those of Mosuoë and of other sub-chiefs. Together they have under them 6 minor sub-chiefs and 11 headmen.

own courts and appoint his own officials. Following this and at a later date, the new chief may be given permission to set up residence in the village of the old leader, or if this is not possible he may be allowed to build his own village. The final stage involves the grant to the chief of an area within his domain (demesne) where he may rule directly: there he may grant residential titles to his followers, set aside enclosures, and dispense exploitive titles.

Once established, however, the chief may in fact play little part in the actual distribution of exploitive titles. These tasks will be delegated to a larger body of officials (see Fig. 2), though delegated rights vary with the nature of the titles which are to be distributed. For example, residential rights are decentralised to the lowest levels, those of village or rural area headmen. Alternatively, arable titles are often only allocated by a sub-area chief and enclosures of all lands are supervised by local and regional chiefs.

One of the advantages of the office of chief in the context of land tenure is that although work may be delegated to lesser authorities, each chief has the rights to special fields known as lira. Until 1950 the labour required for the cultivation of these fields was provided by the community⁴² and the produce was designated for public purposes, feeding the armies or the poor and the sick. During the present century this system has changed significantly. The worst change is that where originally these rights were for higher chiefs only, of late every petty authority could usurp the rights for himself; at the same time, the system whereby the produce was used for the public good fell into partial disuse.

The disreputable aspect of this system has been modified to limit the numbers of individuals entitled to exact tribute labour. Furthermore, this idea of "working for the chiefs" (and many other such requirements) has, since 1950, been replaced by a form of local taxation, part of the proceeds of which go to the chiefs as compensation for their loss of labour.⁴³

These are the general characteristics of the land tenure system which still operates in Lesotho today despite changes in many other facets of economic, social, and cultural life. The traditional system of land tenure described above is no longer adequate if the desired goal of economic independence is to be achieved; the inadequacy of this system is radically emphasized by the supreme importance of agriculture and animal husbandry to the Basotho economy. There appear to be no alternatives to these agrarian activities.

III.--LAND TENURE: DYSFUNCTIONAL ASPECTS

The traditional system of land tenure in Lesotho probably does not pre-date the beginning of the nineteenth century. Fleeing from the oppressive forces of Chaka and his Zulu Impis, the Basotho were dispersed and it was only through the influence of Moshoeshe, a minor Koena chief, that they established themselves in Lesotho during the Lifagane.⁴⁴ Not traditionally an agricultural people, the laws of land tenure therefore evolved only relatively recently, and largely in response to the need to bind a large number of diffuse demographic groups together for the purpose of protection from exogenous forces and the maintenance of internal stability. Possibly the single most distinctive feature of the Basotho at the present is their strong sense of corporate identity, which illu-

strates the success achieved in meeting the previously mentioned goals. In the rapidly changing environment of the twentieth century, with economic development the target of national policy, the system of land tenure has outlived its usefulness; presently, in conjunction with related factors, it may be seen as a barrier to development, or in terms of the framework developed, a "dysfunctional force".

Land Tenure and Population Pressure

One way in which the system may be viewed as being dysfunctional to the developmental process relates to population increases and actual decreases in the physical area of arable and pastoral land. As will be seen, the land tenure system can no longer serve the purposes for which it was originally designed and in fact inhibits development.

The following table illustrates the rapid increase in population in Lesotho; of particular significance are the increases over the last few decades. The figures from the 1966 census illustrate a very rapid increase, nearly one third over the 1956 census figures. Growth rates serve to illustrate recent rapid increases (between 1946 and 1960 the rate increased from 0.03 to 1.6⁴⁵). Furthermore, despite widely fluctuating birth rates, there has been a fourfold increase in the African population since the beginning of the century.⁴⁶ The corresponding increase in population density has had serious effects on the patterns of landholding. Between 1950 and 1960 population density increased from an average of fifty-six to seventy-five persons per square mile.⁴⁷

The effect has been to reduce the average amount of land allocated to the individual Mosotho and to increase the number of Basotho who are without land. The 1960 Agricultural Census documents the position in

TABLE I
POPULATION DATA FOR LESOTHO 1868-1966

Year	Basotho Population	Total Population	Absentees
1868	130,000		
1875	127,523		
1891	218,324	219,082	30,000
1904	347,731	348,848	
1911	401,807	404,507	
1921	495,937	498,781	
1936	559,223	562,311	101,273
1946	561,209	563,854	70,778
1956	638,857	641,674	154,782
1960	681,834		205,424
1966		858,000	117,000

Source: H. Ashton, Introduction to The Basuto (2nd ed.), p. xxx.

detail; 24% of the families have no land at all.⁴⁸ This represents an increase of 17% over figures for 1949-50 when only 7% of families were registered as being without land.⁴⁹

Furthermore, it may be noted that each family is theoretically entitled to three separate arable holdings; one for wheat, one for maize, and one for Kaffir corn.⁵⁰ In total this has been traditionally five to ten acres dispersed in such a way that the best and worst land is fairly divided between land-holders. In practice, increasing population pressure has had the effect of cutting this to two and sometimes only one lot. A survey in 1949-50 demonstrated that the average holding of arable land by a household (average four persons) was 5.8 acres [sic].⁵¹ By the time the Agricultural Census Report for 1960 had been compiled, this had been reduced to 5.4 acres.

These average figures illustrate the general trend toward smaller holdings and larger numbers of people without land, but they also hide certain significant characteristics of land distribution. Of the 149,300 families who held land in 1949-50, one-third held less than four acres and only twenty percent held land between eight and fifteen acres.⁵² A further aspect of the same problem is that with increasing population pressure, actual loss of cultivable and pastoral land and the resultant decrease in size and number of holdings, there has also been increasing fragmentation of holdings. It is now no longer possible for the farmer to choose the area which he would like to cultivate since he is often lucky to be given tenure over any land at all. Fragmentation of this nature is not conducive to agricultural efficiency and the problem is further compounded by the fact that in the process of land re-allocation, fields have often been reduced to shapes in which it is difficult to use

a plough, let alone a tractor.⁵³ In the event that a Mosotho farmer is willing to innovate, these aspects of the related problems of land tenure and population increase place additional difficulties in his way.

The major advantage of the present system of land tenure in Lesotho, other than to encourage national cohesion, has been to prevent the accumulation of large tracts of land in the hands of a few (usually white) individuals. Thus, many of the problems associated with this aspect, experienced for example in Swaziland, have been avoided in Lesotho. However, with the rapid increase in population, population density and demand for land, the system can neither satisfy the demand for land nor can it allow an economically sound system of agriculture to develop. As a result, over some considerable period of time there has been increasing criticism of the traditional system. Hailey flatly considered the system to be:

... no longer suited to conditions in which the increase in population has created competition for the possession of arable holdings while the rise in the cost of living has made cultivation uneconomic except with the application of capital and intensive labour.⁵⁴

Land Tenure and Agricultural Malpractices

In the previous section a statement was made to the effect that in Lesotho, the actual physical area of land suitable for either arable or pastoral farming has decreased. The overall effect has yet to be documented thoroughly, but it may be shown that both arable and pastoral land has been lost, or the resource drastically depleted in potential, as a result of malpractices which have been directly or indirectly encouraged by the traditional, but now dysfunctional, land tenure system.

In the upland areas of the Maluti mountains and the Drakensberg (see Map and Appendix) considerable areas have been brought under cultivation for arable purposes. The 1938 Ecological Survey estimated that 300,000 acres were under cultivation in the Malutis and their foothills, representing about 5% of the total area. (This compares with 30% in the Lowland area, the western third of the country.)⁵⁵ Originally this cultivated area constituted only the more gentle slopes of the valley bottoms, but with increasing population pressure, arable rights had to be, and were, extended to hill slopes often ridiculously steep for ploughing. Rosenthal notes that at the time of his writing (1948), little unbroken land still remained for ploughing.⁵⁶

Numerous abandoned fields now testify to attempts to grow arable crops beyond the limits of cultivation, and more seriously, the practice of ploughing up and down slopes rather than along the contours has led to one of Lesotho's most serious problems, that of soil erosion. This is not a new problem; Rosenthal cites the example of Canon Widdicombe who, in 1891, noted the dangers and magnitude of soil erosion in Lesotho.⁵⁷

The problem is by no means confined to the upland areas, erosion is in fact most evident between 6,000' and 7,000' (approximately). Vast bare tracts of sandstone bear witness to the extent of sheet erosion, whereas deep, chasm-like dongas⁵⁸ represent the ravages of gully erosion. One of the contributory factors to soil erosion in the upland areas is pastoral "improvement"; attempts at improvement have often been quite disastrous. In the upland areas an indigenous grass known as letsiri grows at an altitude of up to 10,000'. This grass grows in matted masses or tussocks and by virtue of its coarseness and tendency to degenerate,

soon becomes unpalatable to grazing animals. Burning has been found to be necessary to get the best results from this type of pasture but haphazard and too-frequent burning by the Basotho have led to accelerated erosion, particularly on the steeper slopes.⁵⁹

More directly related to the land tenure system is a second pastoral malpractice, that of overgrazing, which in many upland areas has resulted in the spread of the Sehalahala or Basotho "small-bush". Overgrazing in cattle post country has come about with increasing population pressure, re-allocation, and redistribution of land as required under the existing system of tenure. Useless as pasturage, the Sehalahala has spread at the expense of indigenous vegetation following overgrazing of the latter. In some areas, the indigenous vegetation has been effectively eliminated; unknown before 1920, the Sehalahala by 1938 had infested an estimated 750,000 acres, or 13% of the mountain zone. Further, Staples and Hudson considered that

... a reduction of 50 per cent in the carrying capacity is considered a conservative estimate of the loss so far incurred, an equivalent of the loss of 375,000 acres of the finest natural pasture in South Africa.⁶⁰

Only by controlling stock and eliminating overgrazing can an effective remedy be secured. Unfortunately, this requires sweeping changes in the traditional customs and beliefs. One such belief is that traditionally the Basotho regard cattle as the only real form of wealth, and since quantity is preferable to quality, overgrazing is further encouraged.

At present the best pasture country is to be found between 6500' and 8500' and has a carrying capacity of approximately 500 sheep/square mile. Above this zone (approximately half the mountain zone), carrying

capacity is in the region of 400 sheep/square mile.⁶¹ No figures are available, but it would appear that numbers of grazing animals are often considerably in excess of these given capacities.

Land Tenure and Water Problems

It has been implied that the traditional system of land tenure in Lesotho, coupled with the problem of increasing population, creates an agricultural environment which is not conducive to economic development. It may also be shown that these two dysfunctional factors, land tenure and population growth, by inherently encouraging injudicious forms of cultivation, affect the water supply of Lesotho and, by extension, the water supply of much of Southern Africa.

In nothing the presence of "numerous perennial streams" in Lesotho, Ashton illustrates his anthropological rather than geographical background.⁶² In fact, although the eastern mountains rise to a height of almost 12000', they are below the permanent snow level. As a result, the formation of glaciers is prevented; by virtue of this geological accident, the whole of South Africa has no permanent rivers and suffers from the external menace of drought. Lesotho is the most important watershed and source area in South Africa. The Senquanyane River, and hence the Orange, the Tugela, and numerous other streams on which depends the welfare of Southern Africa rise in Lesotho.

The Malutis and the Drakensberg, where these rivers rise, may be likened to a sponge. The water lies in the marshy uplands and feeds the springs and rivers of the sub-continent. However, this "sponge" is rapidly being dried out, by excessive upland cultivation, poor methods of cultivation, and overgrazing.

Agrarian reform (particularly in the system of land tenure) would lead to a redistribution of land and a reduction of the number of land holders. Changes with respect to tenure and changes in agricultural techniques may be very necessary if Lesotho is to maintain one of her few resources, water. It has been estimated that the Orange River alone carries 100,000,000 tons of silt to the sea every year. Not all of this comes from Lesotho, but it is true to say that nowhere in Africa is soil erosion as marked as in Lesotho, and it is no exaggeration to say that the country is rapidly being washed away.

Land Tenure and Arboriculture

Most of the relationships so far described have been concerned with land tenure and population increases. It is also possible to illustrate relationships between the land tenure system and political organisation in Lesotho, relationships which together constitute forces again dysfunctional to the achievement of the goal of economic independence.

The problem of fuel provides a starting point in this context, which in turn raises problems associated with arboriculture; these are related to the land tenure system and the political structure of Lesotho.

The traditional fuel of Lesotho is animal dung or khapane, and it is the task of the women to collect and dry it. The result of using dung as fuel is one of the main causes of the impoverishment of the soil, nutrients being removed and not subsequently being replaced through natural fertilisation. Impoverished soil obviously has serious effects on the productive capacity of the soil and hence the national economy. Dung is used as the principal source of fuel as there are few alternatives. Some coal outcrops are to be found in the Lowlands, as for example around

Mohale's Hoek⁶³ but as Ashton notes, "some years ago [the people] were ordered by the chiefs to cease using it."⁶⁴ As with coal, wood is extremely scarce. In that it is scarce, theoretically all natural bush or forest is a form of leboella and is placed under the protection of the local chief and the resource kept as a provision against the cold winter periods. Practically speaking, however, these laws vary from place to place in the country and do not appear to be rigorously enforced. As a result, there are very few natural woods remaining.

At the present time, the only trees to be found in any numbers are those around the mission stations and their schools since under the present system of land tenure the Basotho themselves are actively discouraged from practicing arboriculture.

In the event that a Mosotho should cultivate trees on arable land, the local chief has the right to remove private rights of exploitation and redesignate the area as leboella with its associated public rights. Thus the Mosotho runs the risk of losing his land, without which he has little opportunity of sustaining himself without migrating to the South African labour market. Secondly, with increasing population pressure and demand for land, every available unit is devoted to crops or pasture which will give the "greatest" economic or social return. Arboreal crops take a long time to mature and a long period has to be endured before there is any return. In that returns may only be obtained after a long period, it requires the the individual cultivator has tenancy of the land for the entire maturation period. This implies a degree of permanence which the chiefs are unwilling to accept. It is a crucial matter as far as the chiefs are concerned, for the right to allocate, withhold or take

away land is an effective method of controlling their subjects; any event which appears to threaten this control is resisted very strongly. In that control of the land is one of the few remaining director controls that the chiefs and headmen have, it has assumed even greater importance and resistance to any change has correspondingly increased.

Land Tenure and Stock Control

Relationships between land tenure and political organisation are further manifested in terms of stock control, of which the most significant factor is that of fencing. Very few fences exist in Lesotho, instead grass strips are substituted for more formidable barriers to demarcate individual holdings. The nature of the seasonal limitation of arable and pastoral titles make it impossible for the Basotho to consider protecting his fields with permanent fences. In fact, except for a few highly privileged persons, fences are not allowed. This rule is maintained for at least two reasons. The first is that fencing might restrict the winter grazing of crop stalks, or lead to complicated claims, if damaged by animals grazing the stalks. Secondly, possibly a more significant factor, is that the chiefs fear that fences symbolise permanence and will foster demands for complete individual ownership. In this event, alienation of the land and the effective political independence of the land holder would occur. Since this is not conducive to the maintenance of power in the hands of the chiefs, fences are, generally speaking, not allowed.

The lack of fencing in Lesotho has a number of effects which may be seen to be dysfunctional to the achievement of the goal of economic independence. In the Lowland areas, arable crops may often be destroyed

or damaged by wandering animals, yet whilst the Koena law of trespass awards compensation for the act of trespass itself, the compensation is often totally unrelated to the amount of damage done.⁶⁵

In cattle-post country, where land controls are less stringently enforced, the lack of fencing provides another set of problems. The cattle posts, located as they are in the mountains, are away from permanent settlements and are subject to rather different controls compared with land in the Lowlands. Normally cattle posts fall under the jurisdiction of higher authorities (chiefs or sub-chiefs) rather than local ward authorities. Rigorous controls are thus not enforced because of the physical distance from the controlling power to the pastoral area and secondly, because of the concentration of power in the upper ranks of the political hierarchy the result is that little attention is paid to the "insignificant" problems of the pastoral areas.

As a result of lack of control in pastoral areas, there are no restrictions (other than previous occupancy of a given site) as to where the individual may place his cattle post once the title has been granted. Neither are there any restrictions to any specific areas of grazing, nor any exclusive rights to a given area. In practice the stock tends to be moved in a rough circle round the posts, returning each night to the rough shelters or kraals at the post itself. With increasing pressure on pastoral areas, posts are often placed too close together so that the circular territory utilised by one post may overlap with many others; this tends to compound the dangers of overgrazing.

Lack of fencing and minimal supervision by the herd boys does not permit any adequate form of stock control. Accordingly, the quality of

Basotho cattle is poor. Hides are often damaged by warble fly, the ability of the cattle to resist disease is very low, and the meat is of a low grade. As a result of disease, lack of good grazing land, and inadequate stock care, the numbers of livestock have decreased. Between 1938 and 1966 cattle were reduced from 450,000 to 360,000; sheep from 1,600,000 to 1,230,000; and goats from 570,000 to 505,000.⁶⁶

These reductions in quantity of livestock have only been offset in a minimal way by quality improvements implemented by the Department of Agriculture, and the overall effect has been to change the position of Lesotho from a net exporter of livestock to a net importer. This situation is not conducive to the attainment of economic independence since following grants-in-aid and taxes, livestock produce is one of the few sources of national revenue.

Land Tenure and Education

Direct relationships between the traditional system of land tenure and political organisation may be shown to be of great significance; another significant, though less direct, relationship is that between land tenure and education. Here too the consequences of the relationships may be viewed as dysfunctional.

The aforementioned lack of fences in Lesotho accounts for its proliferation of herd boys. Originally, boys between the ages of five and eighteen were divided into two groups, the younger ones designated to look after the calves and donkeys and the older to herd the cattle. As a result, the first third of the average male Mosotho's life was often spent in looking after the stock. The traditional pattern is now, in many cases, in direct conflict with the educational system. Having been

in direct contact with Europeans for over a century, the desire to receive an education has been instilled into the Basotho and the effects are manifested in the fact that Lesotho exhibits one of the highest literacy rates in sub-Saharan Africa.⁶⁷ The desire to attend school is often thwarted by the necessity to herd the family's cattle, but as education becomes available to greater numbers of children, the ages of school entry becomes progressively lower; by the same token, so does the ages of the herd boys. The younger herd boys tend to be much more tolerant in the supervision of the stock than are their older counterparts. Stock control thus becomes even more difficult to enforce and is a further detriment to improvements in animal husbandry.

In addition to this, there is still the problem of school entry age. Secondary education in particular is still only available to the children of richer families, even though fees are only in the region of \$70 per annum. As a result of the late age of school entry imposed by the necessity to perform herding tasks, the average age of entry into secondary school is in the region of 17-18 years (for boys). The precise effects of this loss of early formative years are difficult to estimate; at the very least, by devoting the early years to herding, there is a tremendous loss of effective man hours, a situation which may well need to be rectified if the goal of economic independence is to be achieved.

Land Tenure and Industry

One final problem area which needs to be identified concerns the relationships between the land tenure system and the manufacturing industry. One of Lesotho's few resources is its large and valuable reservoir of manpower. Experience in South Africa has shown that whereas the Bantu (which

includes the Basotho) make indifferent farmers, they do have the capacity to do well as industrial employees. Given an industrial base, there is no reason to believe that this would not hold good in Lesotho.

A number of very significant difficulties confront prospective industrial entrepreneurs who may wish to locate in Lesotho. Local resources other than unskilled labour are extremely scarce; local markets are very small as local purchasing power is extremely low. Great distances from traditional markets coupled with poor transportation lines mean that only highly efficient industries may survive. Notwithstanding these difficulties (which have been overcome in the past in South Africa), attraction of external capital and industrial development is hindered by the fact that the owners have no security of tenure over their industrial sites. In that the most likely source of external capital is South Africa, the Basotho unwillingness to allow any form of permanent tenure is further compounded. They still remember the way in which the Boers took away a large portion of their territory west of the Caledon in the 1850's, an area which now forms some of the best wheatland in Southern Africa.

It is not suggested that the solution of the land tenure problem and other aspects of agrarian reform would be a sufficient condition for future industrial development. Change would, however, appear to be a necessary condition and until this comes about and some of the other pertinent problems are solved, industrial development in Lesotho remains an unlikely possibility.⁶⁸

Conclusions

One of the unfortunate characteristics of traditional economic theory is that it tends to isolate itself from other aspects of institutional behaviour. Designed to cope with a new form of order which evolved with factory industrialism and a sophisticated form of market exchange, in nineteenth century Europe, there appear to be two main areas of criticism concerning the use of formal economic theory in the analysis of developmental problems. One area of criticism suggests that economic theory designed to cope with special organisational forms in Western Europe, does not have universal relevance and can only have limited applicability to many of the problems faced by developing nations. Secondly, it must be realised that economic change is but part, albeit a very significant part, of social change which in turn may be viewed in the wider context of cultural transformation. To attempt an understanding of many development problems without placing the economy and the specific economic mechanisms operating in particular circumstances seems likely to yield only a partial explanation.

The first conclusion which may be drawn is that whilst economic theory, and aid and expertise based on such theory, may be of significant value in the understanding of the problems faced by the developing nations, it is felt that insufficient attention is paid to the specific context of particular problems; and that traditional economic theory does not have adequate tools to deal with economic mechanisms operant in many of the underdeveloped societies but not in Western economies.

Accordingly this paper has avoided using economic theory as a universally applicable concept and instead adopted an ecological approach

for the analysis of development problems. Based essentially on the biological postulate that all individuals or groups require continuous material sustenance the model developed in the paper has dealt with "sustenance organisation". This term formally identifies the particular system by which individuals or groups secure a livelihood, the particular form of which is determined by the social postulate which suggests that the socio-cultural milieu in which the individual or group operates is a significant controlling factor.

Sustenance organisation is for many the single most important activity in which they are engaged. In the developmental context, the particular characteristics of the form of sustenance organisation may have consequences incompatible with the achievement of certain goals of national policy. In this event, though such consequences may not be barriers to development, they may be described as being "dysfunctional forces". The second conclusion which may be drawn from this paper is that the identification of such forces and their interrelationships with other socio-cultural, economic, or political phenomena provides a more realistic appraisal and understanding of developmental problems than is provided by single disciplinary approaches.

The model described in the early part of the paper and subsequently applied to a study of Lesotho, has no predictive capabilities in the sense that a solution to the country's problems may be offered. However, what is provided are some of the more significant interrelationships which both affect, and are affected by the pattern of sustenance organisation in Lesotho.

Analysis has shown for example that significant relationships

operate in a manner dysfunctional to the achievement of economic development. By using the land tenure system as the most significant characteristic of sustenance organisation dysfunctional relationships have been shown to exist between land tenure and increasing population pressure; industrial development; water supply and education. Furthermore, it has been shown that the land tenure system directly encourages agricultural malpractices and consequently has detrimental effects to the physical environment manifested for example in widespread soil erosion.

In addition, analysis has shown that problems associated with the land tenure system cannot be divorced or isolated from other phenomena present in the "effective environment". The concept of the "economy" is as yet quite poorly developed in Lesotho being inextricably bound up with kinship associations and the tribal political structure, among other things. Consequently, to isolate "economic" phenomena from the total complexity which constitutes the life of the Basotho, is to substitute a simplicity which obscures rather than clarifies the nature of the problems faced by this group.

These findings reinforce the second conclusion which calls for a pluralistic approach and also illustrates the partial nature of any explanation derived from a single disciplinary orientation.

A third conclusion which may be drawn with specific reference to Lesotho is that analysis of this type serves to illustrate the extremely difficult position in which Lesotho finds herself.

FOOTNOTES--Ecologic Relationships
and Developmental Problems in Lesotho, Southern Africa

- 1 T. R. DeGregori and O. Pi-Sunyer, Economic Development: The Cultural Context (New York: Wiley & Sons, 1969), p. 23.
- 2 For a fuller discussion, see for example G. Dalton, "Economic Theory and Primitive Society," American Anthropologist, Vol. 63 (1961) pp. 1-25; M. D. Sahlins, "On the Sociology of Primitive Exchange," in M. Banton, ed., The Relevance of Models for Social Anthropology (London, 1965); D. B. Fusfield, "Economic Theory Misplaced" in Polyani et al, Trade & Market in the Early Empires (Glencoe: Free Press, 1957); F. Knight, "Anthropology and Economics," Journal of Political Economy Vol. 49 (1941) pp. 247-268; and M. Nash, "The Organisation of Economic Life," in S. Tax ed., Horizons of Anthropology (Chicago: Aldine, 1964).
- 3 Cited by P. Haggett and R. J. Chorley, "Models, Paradigms and the New Geography," in R. J. Chorley and P. Haggett, Socio-Economic Models in Geography (London: Methuen, 1967), p. 21.
- 4 Lesotho shares with the Republic of San Marino the distinction of being one of the only two countries in the world to be entirely enveloped by another country. See A. Coates, Basutoland (London: HMSO, 1966), p. 1.
- 5 For explication of this term, see P. Worsley, The Third World (Chicago: University of Chicago Press, 1964).
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- 15 J. P. Gibbs and W. T. Martin, "Toward a Theoretical System of Human Ecology," Pacific Sociology Review Vol. II (1959), p. 29-36.
- 16 A. Hawley, op.cit.
- 17 Gibbs and Martin, op.cit., p. 33.
- 18 J. H. Steward, "The Concept and Method of Cultural Ecology," published as Chapter 2 of Theory of Culture Change (Urbana: University of Illinois Press, 1955), pp. 30-42.
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- 20 M. W. Mikesell, "Geographic Perspectives in Anthropology," Association of American Geographers: Annals, Vol. 57, No. 3 (September 1967), pp. 628-629.
- 21 Mikesell, op.cit., p. 628.
- 22 Gibbs and Martin, op.cit., pp. 33, 35.
- 23 See Appendix.
- 24 Cited by E. Rosenthal, African Switzerland: Basutoland of Today (Capetown: Juta, 1948), p. 241.
- 25 "The tribes of South Africa are essentially pastoral. The flocks and herds they possess have hitherto constituted their chief wealth ... whoever possesses no cattle has no means of existence. For this reason the Bantu call the bovine species the hairy pearl."
- E. Casalis, The Basuto or Twenty-three Years in South Africa (London: Nisbet, 1861), reprinted C. Struik (Capetown, 1965), p. 153. See also H. Ashton, The Basuto: A Social Study of Traditional and Modern Lesotho (London: Oxford University Press, 1967), 2nd ed., p. 120.
- 26 G. M. Stockley, Geological Survey of Basutoland (London: HMSO, 1949), p. 90.
- 27 V. G. J. Sheddick, The Southern Sotho, Ethnographic Survey of Africa, ed. Daryll Forde, Southern Africa Part II (London: International African Institute, 1953), p. 57.
- 28 "Nation is an unsatisfactory term since many Basotho are not nationals

and many nationals are not Basotho. Nationality ultimately depends on willingness to pay allegiance to the Paramount Chief and payment of Basotho taxes."

29 See Appendix.

30 P. Duncan, Sotho Laws and Customs (Capetown: Oxford University Press, 1960), p. 116.

31 See Ashton, op.cit., pp. 249-281 and Sheddick, op.cit., pp. 52-54.

32 See Appendix.

33 See Ashton, op.cit., pp. 144-145; also Sheddick, op.cit., p. 57.

34 See Ashton, op.cit., pp. 150-152; also Sheddick, op.cit., p. 58.

35 See Appendix.

36 See Appendix.

37 It should also be noted that rights to exploit a given piece of land for arable purposes only apply to a certain group of crops. Traditionally, maize, sorghum and wheat would qualify, but if the land is devoted to grasses or tree crops, the land holder may forfeit his arable titles.

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- 45 Coates, op.cit., p. 67.
- 46 Spence, op.cit., p. 7.
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- 48 Annual Report Agriculture and Veterinary Department, Agricultural Census, (Basutoland, 1960).
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- 53 Coates, op.cit., pp. 67-68.
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- 59 Staples and Hudson, op.cit., p. 31, also Rosenthal, op.cit., p. 129.
- 60 Staples and Hudson, op.cit., p. 32.
- 61 Rosenthal, op.cit., p. 133.
- 62 Ashton, op.cit., p. 1.
- 63 Stockley, op.cit., pp. 80-81.
- 64 Ashton, op.cit., p. 153.
- 65 Sheddick, op.cit., p. 60.
- 66 Spence, op.cit., p. 56.
- 67 Spence, op.cit., p. 67.
- 68 Coates, op.cit., p. 69, see also "The Unprotected Protectorates,"
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- 69 Duncan, op.cit., pp. 116-161.
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APPENDIX

GLOSSARY

- Basotho The peoples of Africa south of the Zambezi and east of the Kalahari fall into four groups; the Venda, Tsonga, Nguni and the Sotho. The term Sotho is now generally used to indicate the peoples of the Central High Grasslands of Southern Africa. In terms of language there are three main Sotho groups, Southern Sotho, Tswana, and Northern Sotho. The Basotho are for the most part Southern-Sotho-speaking and claim an association immediate or remote with the "Basotho Nation" of Moshoeshoe. The singular form of Basotho is Mosotho, the English forms Basuto and Mosuto respectively.
- Basutoland Originally a compact British Territory located between the Orange Free State, Natal and the Cape Colony in South Africa. The name "Basutoland" first gained recognition in a treaty between Moshoeshoe and Governor Sir George Napier of the Cape in 1843. The Territory was under the control of the Colonial Office until October 4th, 1966, when it became the independent State of Lesotho.
- Cattle-posts The mountain area proper is that area of Lesotho that is purely pastoral. The posts represent part of the seasonal pattern of transhumance, being utilised during the spring and summer months. There are two types of posts, motebo a temporary post and motebo-ntloana a semi-permanent mountain village. At the posts grazing rights are common and the stock kept there is usually mixed and the property of several owners.
- Donga Colloquial term describing a steep sided gully or ravine eroded by running water. Contributory factors are the distribution of rainfall, soft friable sandy soils, over-grazing and agricultural malpractices.
- Drakensberg The Drakensberg Mountains bound Lesotho on the east and south-east, reaching a height of nearly 1200' in the north-east. Consisting of horizontal volcanic rocks which disintegrate into fertile black soils the area is used for summer grazing as altitudes are too great for agriculture or permanent settlement.
- Koena Law The dominant tribes which founded Lesotho were not only Sotho in origin but within that category were predominately of the Koena Tribe. This group has always succeeded in remaining numerically and politically dominant and insofar

as any socio-cultural features can be said to be common to most Basotho, these features are of Koena origin. Koena Law where it has not been superseded by European Law, represents traditional Basotho Law with additions to cover contingencies of recent development. The laws were originally formalised by the Basutoland National Council in 1903 at the instigation of Paramount Chief Lerotholi. These Laws have subsequently been revised periodically and an excellent account appears in Duncan's Sotho Laws and Customs. *70

- Leboella Alternatively letobo is spare veld to which is given public rights of administration, subject to the jurisdiction of the local authorities. Employed as a means of conservation leboella is primarily used to protect materials such as grasses used in thatching or weaving, or to protect overgrazed areas. The singular form of leboella is maboella.
- Lesotho Originally the name given to the Western Lowlands and what is now known as the "conquered territory", part of the eastern Orange Free State. Here the people of Moshoeshoe settled at the beginning of the 19th Century. The word has now been adopted as the name for this newly independent African state.
- Lifagane The African Wars, or the "Wars of Calamity" 1818-1830. Sparked by the desires of Chaka Zulu to extend his influence through Natal, further wars were started by the conflict between tribes fleeing from the Zulu impis and indigenous tribes. At this time a small group of Koena under Moshoeshoe were located at Butha-Buthe in the northern part of the country. Suffering defeat from refugees fleeing from Chaka, he and his followers moved south to Thaba Bosiu (The Mountain of Night). Here a camp was established, fields cultivated and with the fealty of other tribes the group expanded to form the core of the "Basotho Nation".
- Malutis Formed from a large mass of basaltic lava the Malutis represent a central upland area, modified to give a maturely dissected plateau. An area of conflict between arable farming and pastoralism, the former becoming increasingly dominant. Mainly cash crops are grown--peas and wheat--such that staple cereals must be imported.
- Paramount Chief The political unity of the Basotho Nation is expressed in a centralised organisation under the Paramount Chief. He is its representative, the head of the local judicial and political systems, and the trustee for the land and other natural resources of the country. The present Paramount

Chief, Constantine Bereng Seiso took office in 1960. In 1966 when Lesotho became independent, he became Head of State with the powers of a Constitutional Monarch, his title being that of, Motlottlehi Moshoeshoe II, King of Lesotho.

PAPER III.--THE GROWTH POLE CONCEPT:
A REVIEW, ANALYSIS AND EVALUATION

INTRODUCTION

Since the 1930's there have been many changes in the degree of control which governments have been able to exert over aggregate economic variables. The successful application of what is essentially Keynesian theory has all but removed lengthy periods of high unemployment and generally depressed economic activity. At the national level therefore, a high and rising level of production, productivity and prosperity has become the norm. However these aggregate improvements require qualification. In the industrialised countries of the Western world poverty continues to exist at the regional level, concentrated particularly in the hearts of the bigger cities and in rural areas.¹

In response to this situation there has been an increase in interest in the problems confronting regional economies. At the governmental level policies have been adopted to aid lagging areas or to curb growth in those areas where there are problems arising from overconcentration of population and economic activity. In the United States, for example, legislation has included the 1961 Area Redevelopment Act, the Appalachian Regional Development Act and the Public Works and Economic Development Acts of 1965. In Europe efforts to encourage development of the Mezzogiorno in Southern Italy and regional planning activity in France represent two of the more significant changes.

In many countries much of this territorial policy has been based, either explicitly or implicitly, on a group of ideas which have come to be associated with the notions of "growth poles" and "growth centres." Though a great deal of literature concerning these concepts has accumulated over the last twenty years both the theoretical and empirical

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foundations of both concepts have remained very weak. Confusion still exists over the precise nature of the concepts and over the manner in which they are supposed to initiate and perpetuate economic growth.

It is the purpose of this paper to attempt to disentangle some of the confusion surrounding these ideas. The terms "growth pole" and "growth centre" are often used interchangeably; it will be shown that such use is invalid. They are in fact two very different concepts, utilising different sets of variables which intersect only marginally with each other. Inasmuch as the concepts are at present substantially different it is possible to concentrate on the analysis of one to the exclusion of the other. This paper concentrates on the "growth pole" concept which purports to be a conditional theory of growth, indicating the conditions under which accelerated regional development may occur and the processes by which such growth occurs.

Concentration on one of these concepts represents both a strength and a weakness. Its strength lies in the fact that the concentration on the growth pole concept enables a detailed examination of growth pole "theory" without resorting to the purely superficial examination in which a study of the growth pole and the growth centre concepts and the inter-relationships between them would probably result.

The weakness of limiting discussion to the growth pole concept is that from the planning viewpoint and "real-world" analysis these two concepts cannot be effectively separated. However as it would take a book to do justice to both concepts and their ramifications for regional planning, this paper is restricted to an analysis of growth pole "theory", referring only to the concept of growth centres when necessary to distinguish

between the two.

In many respects growth pole theory evolved in response to the inadequacies of traditional regional theory, location theory and oversimplified growth models. However, it has itself been characterised by a number of shortcomings and difficulties, including ambiguities and inconsistencies in the definition and usage of terminology. By limiting the scope of this paper to a review and analysis of this concept, its basic assumptions and the processes whereby regional growth is initiated and transmitted from the poles, any inconsistencies may be identified and rectified and any valuable aspects illustrated.

The paper is divided into four sections, the first of which attempts to place the growth pole concept in the context of the traditional approaches to regional development. Secondly an attempt is made to define the pole concept and to illustrate its distinctive nature and differences from the growth centre concept. The third section of the paper utilises the definition of a growth pole and analyses the processes and mechanisms whereby such a pole develops and initiates the process of economic growth. Finally an evaluation of the concept and its operant mechanisms is offered which suggests some of the more positive contributions offered through these ideas and those areas representing major deficiencies.

Economic Growth Theory and the Growth Pole Concept

Ideas relating to growth poles are neither new nor do they stand in isolation from other notions concerning regional economic growth. In order to establish a point of reference illustrating the status of the growth pole concept with respect to economic growth theories it is useful to identify the major approaches to the explanation of growth phenomena.

Two major approaches to the organisation of aggregate data helping to explain these phenomena have been identified by Perloff, Dunn, Lampard and Muth.² These are the "export-base" concept and the "sector" concept.

The export base theory, whether used to explain growth or regions or cities, hypothesises that the factor initiating growth and determining its extent is the "export-base".³ It is suggested that growth is initiated by the response of industries in the area under consideration to an increase in demand arising outside the area itself. The result is an expansion of economic activities, especially local trade and service activities, through the typical Keynesian multiplier.⁴

Innis and Meier in their studies of Canadian growth and North's work in the United States have all presented evidence emphasising the role of export commodities and services in analysing regional economic growth.⁵ North suggests that capital investment tends to flow into a region to develop the export industries, including the improvement of production processes and further development of specialised services to the exports. The resulting increase in income tends to augment demand for secondary products and to induce investment in a variety of other industries. The rate at which the region grows ultimately depends on the rate at which the export base expands in line with the increase in demand for the region's exports.

With the stimulus for growth due to factors exogenous to the regional economy, the implication is that growth is dependent on a high overall level of economic development within the nation and continued demand for the products of the region's export sector. The concept has been of particular value in bringing about the realisation that regional development is directly related to the national economy but because attention is focussed mainly on the relationship between a single sub-national unit

and the remainder of the economy treated as a whole, the functional ties between regions are hidden from view.

The second organising concept is the economic sector theory; it is derived from empirical observations made by Clark and Fisher which suggested that increases in per capita incomes are generally accompanied by changes in the occupational structure.⁶ Particularly significant changes were the decline in the proportion of the labour force employed in agriculture, increases in the proportion of labour in manufacturing and subsequently, in tertiary activities. These shifts in the relative importance of the different sectors are attributable to different income elasticities of demand for their products and differential rates of change in labour productivity.

This concept therefore focuses on internal rather than external development. Economic growth is seen as primarily an internal evolution of specialisation and division of labour although external shifts in demand are considered significant. Applied to regional growth, sectoral shifts are seen as providing the main dynamic of economic advance both in terms of growth in the volume of economic activities and in terms of improvements in per capita income.⁷

From these general ideas of sectoral growth have evolved two rather different extensions. One, involving concepts from classical location theory, purports to recognise a series of "stages" through which regions experience economic growth. Recognisable stages appear to be very similar to those proposed by Rostow to illustrate national economic development⁸ -- many of the inherent faults of the Rostowian model appear to be derived from this extension of the sector theory.⁹

Another extension of the sector theory (which in many ways represents a reaction to the purely deductive models of classical location theory¹⁰) concerns the relationship between regional economic growth and the existence of "growth industries" within a region, i.e. industrial sectors which have experienced a greater than (national) average increase in employment, value of product or earnings per worker over a given period of time. These ideas, stemming from the sector theory represent nascent growth pole theory.

Neither of the two approaches briefly outlined here are particularly satisfactory in explaining regional growth. In general they are both partial in scope and tend to overlook other equally significant aspects of regional growth. Secondly they tend to deal with classifications which, whilst satisfactory in the aggregate, are of limited value for detailed analysis. More specifically the export-base theory does not provide adequate scope for consideration of internal growth sequences, thus erring in the opposite direction from the sector theory which does not provide sufficient scope for external relationships. Many other problems and limitations of these two general concepts become apparent on closer examination¹¹, some of which apply to the growth pole concept and which will be dealt with subsequently.

To be examined comprehensively, economic growth in any region must be viewed in terms of the total complex of trade and other relations, including inter-regional relationships and nodal-centre to hinterland relationships as well as in terms of ties to the national economy as a whole. The growth pole concept which assumes a closed economy and does not consider external relationships is far from being the comprehensive theory that is necessary to explain regional growth. Nonetheless it does

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attempt to single out crucial variables in the development of variation in economic prosperity between sectors of the economy and attempts to specify how these variables operate. To reiterate, part of the purpose of this paper is to evaluate how successful this attempt has been. Unfortunately at present these ideas evolved from sector theory are little more than descriptive devices, the underlying concepts lacking the necessary theoretical rigour and extensive empirical testing.

Having indentified the basic source of origin of the growth pole concept within the broad sectoral approach, it is now possible to turn to the second section of this paper and the attempt to adequately define the growth pole concept and to distinguish it from notions associated with growth centres.

Growth Poles and Economic Space

The theory of growth poles or as they are sometimes called, "development poles", was first introduced by Francois Perroux in 1949,¹² but is now prominent in the writings of most French regional economists. Unfortunately it has since become associated with an enormous variety of ill-defined and indistinct concepts and notions which have arisen partly due to the ambiguity of Perroux's initial formulations and partly to mistranslations from French to English and vice-versa. The result of these factors has been that to date no definitive theory of growth poles exists even though the subject has been widely discussed. The following material represents a synthesis of what appear to be the more significant contributions which will perhaps bring closer an adequate definition.

Perroux's approach is based on two basic assumptions. The first, already noted, is the assumption of a closed economy. The second is that

maximum acceleration of regional growth, and in fact the normal pattern of economic growth, follows an unbalanced pattern. Within these constraints Perroux maintains that analysis of growth should concentrate on the process whereby various activities appear, grow in importance, and in some cases disappear, and as previously noted, it emphasises that growth rates vary considerably from sector to sector.

The initial observation which Perroux made about economic growth and from which much confusion has sprung is as follows:

Le fait grossier mais solide est celui-ci: la croissance n'apparent pas partout à la fois: elle se manifeste en des points ou des pôles de croissance avec des intensités variables; elle se réprend par divers canaux et avec des effets terminaux variables pour l'ensemble de l'économie. 13

This does not mean, as has often been suggested, that a development pole is equivalent to a key industry, an economic base, an industrial zone or even some geographically concentrated phenomenon. Instead it must be made clear at the outset that Perroux defines his growth poles only and specifically in relation to abstract economic space and not in relation to geographic space; i.e. any interpretation must be in economic and functional terms.

This premise indicates the major distinction between growth poles and growth centres. The former being defined in terms of economic space and the latter are seen as locations defined in terms of geographic space. Accordingly statements as:

... terms such as growth area, growth pole, core region, growth centre and growth point refer to different levels in the hierarchy of nodal regions... 14

and,

The former, growth pole ... refers to national polarisation reflecting the location and expansion of national growth poles¹⁵

are incorrect and misleading; removed from its original context the growth pole concept appears ambiguous and misleading.

Perroux's notions concerning space are extremely important to the understanding of the growth pole concept, his notions of economic space not being limited to simple location as defined by geographic limits, as he suggests:

A banal sense of space location creates the illusion of the coincidence of political space with economic and human space.¹⁶

For Perroux there exist three types of economic space:

- (1) economic space as defined by a plan i.e. ... the set of relations which exist between the firm and, on the one hand, the supplies of input (raw materials, labour, power and capital) and, on the other hand, the buyers of the output (both intermediate and final).
- (2) economic space as a field of forces, i.e. "economic spaces consist of centres (or poles or focii) from which centrifugal forces emanate and to which centripetal forces are attracted."
- (3) economic space as a homogenous aggregate, i.e. "the firm has or has not a structure more or less homogenous with those of other firms which are its neighbours topographically or economically--it belongs to a space where roughly speaking, one price reigns."¹⁷

Growth poles are thus conceived as existing in relation to the second type of abstract space and that they are centred on complex economic relations rather than on specifically geographical considerations. As Darwent notes:

... poles are likely to be firms, industries, or groups of firms or industries. It is in these poles that growth and change is initiated while the connections between the poles, in terms of the flows of inputs and outputs, transmit the forces generated. The poles are therefore best regarded simply as sectors of an economy represented by an input output matrix in which growth effects can be transmitted across the row and columns.¹⁸

Unfortunately a certain element of confusion entered the problem with the publication of work by Boudeville emphasising the regional character of economic space. Following Perroux, Boudeville identifies three types of economic space:

- (1) homogenous space, i.e. a continuous space wherein each of the constituent parts or zones have relevant characteristics as close as possible to those of the others.
- (2) polarised space, i.e. heterogenous space whose different parts complement and support one and other, and where these parts have more exchanges of goods and services with a dominant intraregional urban centre or pole than with neighbouring regions. (This notion of polarised space is obviously closely related to that of a hierarchy of urban centres ranked according to the functions they perform.)
- (3) programming or planning space, i.e. "a space whose various parts depend on the same decision." In addition it is "an instrument placed in the hands of an authority, whether or not localised in the region, to obtain a given economic goal."¹⁹

The fact that the twenty-one geographic units, which have been created for regional planning purposes in France, are generally termed "programme regions" is no mere coincidence since a deliberate effort has been made to identify the government's relevant institutional and policy measures with the corresponding theoretical concept.²⁰

The obvious differences between Perroux's conceptions of economic space and those of Boudeville lead to the confusion mentioned earlier. Perroux's notions of economic space are explicitly non-geographical; Boudeville, on the other hand, though he borrows Perroux's terminology in toto, maintains that the theory of economic space

... is the application of a mathematical space on or in a geographic space.²¹

Insofar as there is no consistent concept of economic space it appears difficult to develop a consistent theory of growth poles. The problem again appears to be the confusion between "growth poles" defined in economic space and "growth centres" located in geographic space. The distinctions go beyond this in that the underlying mechanisms of the two concepts are very different. Inconsistencies of this nature occur frequently throughout the literature on growth poles and it cannot be emphasised enough that the two are not the same thing and are defined according to very different criteria.

The first characteristic of a growth pole is that it is defined in relation to economic space. A second characteristic of the concept suggests that growth in the regional economic matrix is directly related to the activity of the poles themselves, and also to the degree of inter-connection between them. These ideas have given rise to the concept of "dominance", yet another somewhat ambiguous though ubiquitous notion in

French economic literature which again owes its inception to Perroux.

"Dominance" is said to occur when the flows of goods and services from industry J to industry I is a greater proportion of J's output than flows from I to J are of I's output. In such a case firm I is said to be "dominant" and firm J "dependent". For Perroux the effect of domination

... consists of an irreversible or partially irreversible influence exercised by one unit on another. An economic unit exercises this effect by reason of its dimension, its negotiating strength, the nature of its activity, or because it belongs to a zone of dominant activity."²²

The effect of domination has both a purely economic dimension (abstracted from any consideration of geographic space) and a spatial dimension. Again the distinction between these two should be noted, especially with respect to this concept of dominance.

Perroux's treatment of the dominance concept is consistent with his theory of economic space, and while he sometimes seems to study the localisation of the growth process, in fact the localisation is of secondary importance, the primary phenomenon being the appearance and disappearance of industries. Unfortunately it is ambiguities of this nature which have been partially responsible for the widely varying views and interpretations of the growth pole concept.

A third characteristic of a growth pole which requires analysis is the emphasis placed on the size of the pole (industry). The importance of bigness, again initially emphasised by Perroux, suggests that the rate of growth or change is supposedly directly related to the size of the industry; the bigger it is, the larger will be its field of dominance over other industries which sell to it or buy from it. Davin too maintains

that:

... the principle poles are found in heavy, highly capitalised, industry and are the domain of large firms.²³

However, it does not necessarily follow that large industry will by its presence initiate economic growth, and the implantation of one or a number of large firms associated with a fast growth industry into a region is not necessarily sufficient to solve regional problems. In addition it should be noted that the growth pole concept says nothing about where growth associated with the large firm will subsequently be generated. There is nothing in the growth pole notion to suggest that the presence of a large dominant firm should attract growth at its own location; the growth pole notion claims only that the large firm will induce growth in the economy. It may well be that greater economies exist in other locations than that of the site of the large firm, growth will take place but not necessarily at its point of origin.

With these basic characteristics of growth poles in mind it is possible to offer a tentative definition of the growth pole concept. It is suggested that when, and only when a firm or industry is characterised by:

- 1) high interaction with many other firms,
- 2) high degree of dominance,
- 3) great size,
- 4) part of a rapidly expanding sector of the economy,

will it be a "propulsive unit" acting as an initiator and transmitter of growth in the economy.

Inasmuch as these characteristics constitute a "definition" of

growth poles they also constitute a further source of ambiguity and inaccuracy. Given that these characteristics describe a "propulsive" sector it is necessary to expand the definition by identifying the manner by which such sectors initiate and transmit economic growth. The general name given to this process is that of "polarisation". Polarisation represents the mechanisms of growth but it is questionable whether this process is sufficient to account for the phenomenon of growth, if it is not it follows that growth poles cannot be defined only in terms of the above characteristics. In the following section the concept of polarisation is examined to identify how it operates and to inquire as to its adequacy to explain the process of growth.

Polarisation: Mechanics and Relation to Economic Growth

The process of polarisation has been dealt with in theory by a number of writers notably, Perroux, Paelinck and Boudeville.²⁴ However theory to date has not been particularly rigorous nor has there been very much empirical evidence obtained to throw further light on it.²⁵

Reiterating the definition offered in the preceding section, a growth pole may be seen as a "propulsive" unit which initiates and transmits development (measured for example in terms of productivity or income increases) through the process of "polarisation". A propulsive firm has already been defined in terms of its growth, size and interaction characteristics and polarisation may in turn be defined as:

... the process by which the growth of an economic activity termed propulsive sets in motion that of other economic activities by the channel of external economies.²⁶

From these definitions it may be seen that the central theme of

growth associated with development poles relates to the exploitation of external economies by the propulsive unit.

External economies are usually the result of internal growth which characterises the propulsive industry. With internal growth of the firm or industry in question it may be expected that changes will occur in other parts of the economic activity system; these changes should be particularly well reflected in the industrial and occupational distribution of the labour force (c.f. the "sector" theory).

Any increase in the activity of the "pole" will have first of all an initial multiplier effect; that is, new local demands created by the pole itself and by the purchasing power of its labour force will call into being new business, service, trade, construction, transportation, government and other additional activities.

Associated with activity within the pole will be amplifications of the initial multiplier through the development of linked industries which either provide inputs for the "propulsive" firm or industry (backward linkages) or utilise the outputs of these same "growth leaders" (forward linkages). Hirschman's formulation of these linkage effects expresses at a simplified level many of the confused ideas prevalent in the growth pole notions.²⁷

Backward linkages may be developed by all non-primary activities and forward linkages can be developed in all sectors other than that supplying final demand. In an attempt to develop a system by which it is possible to weight particular types of backward linkages Hirschman speaks of the "strength" and "importance" of the link. The total linkage effect may be measured by summing the products of these two, "importance" being

the potential net output of industries which might be induced, and the "strength" the probability of them coming into existence. The latter is measured through the quantities of different inputs required by the propulsive industry multiplied by the minimum economic size of a firm producing each input. Minimum economic size in this case is a concept measured in relation to the local economy taking into account possible foreign competition to supply inputs to the propulsive industry.

In the case of forward linkage, because "the size of the markets that might be brought into being through forward linkages does not depend on their suppliers,"²⁸ minimum economic size is not a useful concept. In this case the concept of dominance previously discussed can be utilised, taking the proportion of the total input to an industry which would come from the master firm.

If this proportion is high there is a high probability that a small dependent firm will be induced; if the proportion is small the probability is low, but the firm if it does appear will likely be a large one. The words "strength" and "importance" are therefore inversely correlated and the various relationships give rise to different types of linked industries. Where "importance" is small and "strength" large the situation is one where there is a high probability that a highly dependent "satellite" firm or "derived pole" will come into being. An example given by Hirschman is the inducement of a multi-walled paper bag producer, induced by a large cement producing unit. In the opposite case where "importance" is large and "strength" small there is only a low probability that a large, quite independent "non-satellite" firm or "lateral pole" will come into production. Thus it is unlikely that the multi-walled paper bag producer would in its turn induce a pulp and paper mill to supply it with paper.

As Darwent²⁹ notes the aforementioned model has considerable heuristic value--as do many of the concepts in growth pole literature. Unfortunately whilst linkage effects associated with the multiplier effects of the propulsive sector form a common theme in the analysis of the polarisation process, models such as Hirschman's are yet too underdeveloped and oversimplified to be of great explanatory value. Economic reality is of a higher complexity than the model is capable of dealing with. In addition the model remains true to the Perroux traditions in that it says nothing of location confining itself to considerations within economic space. As will be suggested the criteria which govern the choice of location of a propulsive industry may be of greater significance than the inherent ability of the pole to promote regional growth.

The combined effect of new industrial employment resulting from forward and backward linkages (termed a "Perroux effect" in growth pole literature) and an initial multiplier effect (the so-called "Keynes effect") will result in changes in the occupational structure of the regional economy. Along with this the probability of the attainment of new industrial thresholds increases. These higher thresholds (larger markets) will support new manufacturing functions as well as additional plants or capacity in existing industrial categories. Once production facilities have been constructed in accordance with the new thresholds, a second round of growth is initiated, and eventually still higher thresholds are achieved.

Furthermore the movement generated by this first cycle of events will also be propelled by the secondary multiplier effects deriving from the non-industrial jobs brought into existence by new or enlarged manufacturing. At the same time that these effects of polarisation are taking

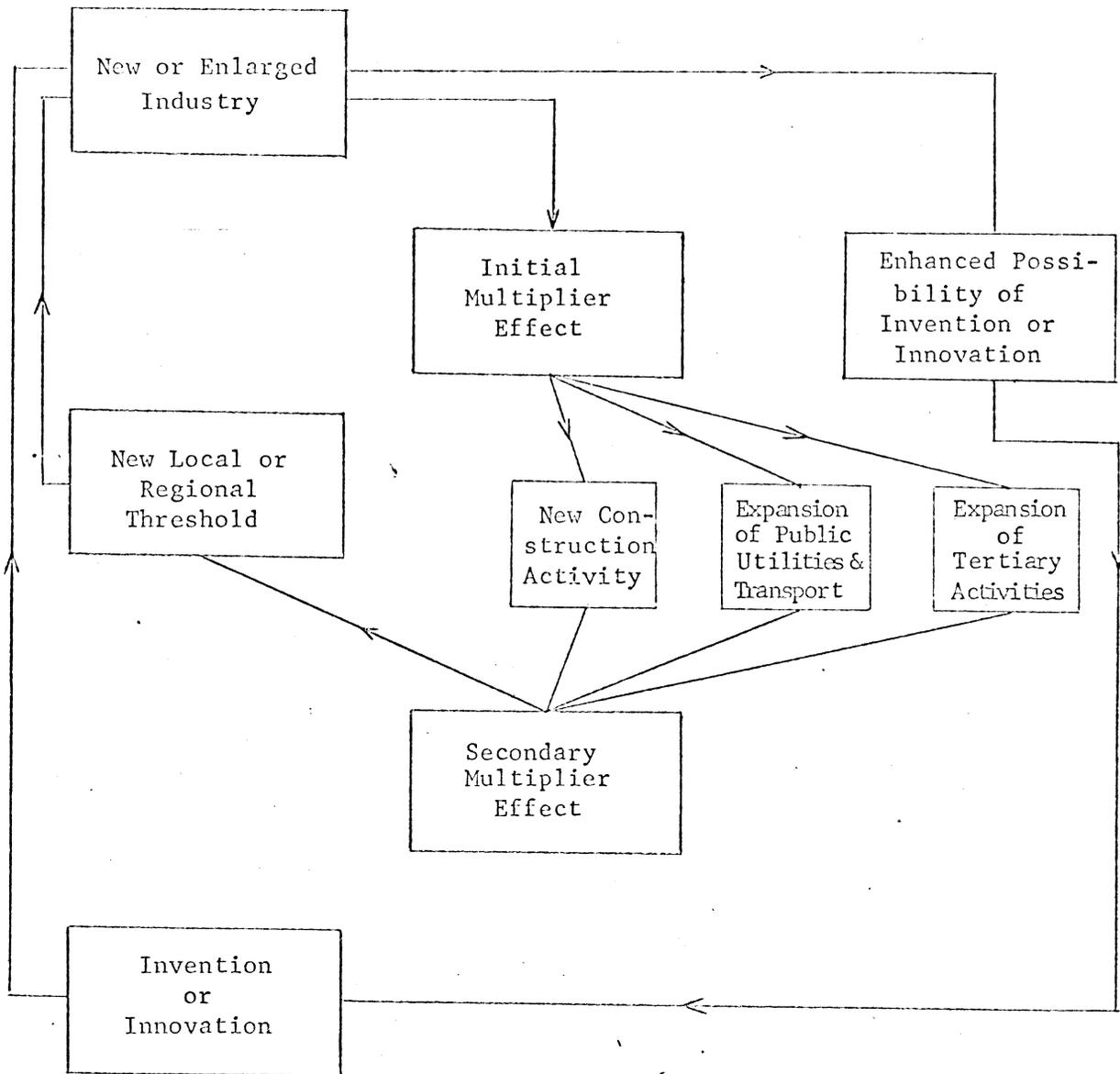


FIG. 1--THE CUMULATIVE PROCESS OF INDUSTRIALISATION AND ECONOMIC GROWTH

Based on Diagrams from A. R. Pred Spatial Dynamics of U. S. Urban-Industrial Growth 1800-1914. (Cambridge, Mass: M. I. T. Press, 1966), pp. 25 & 27.

place a second circular sequence of reactions may occur to compound and reinforce the first. With a change in occupational structure it is likely that there will be a multiplication of interactions among growing numbers of individuals engaged in the manufacturing and tertiary sectors. This is likely to enhance the possibilities of technical improvements and inventions; enlarges the likelihood of more efficient managerial and financial institutions; and increases the speed with which originating ideas are disseminated.³⁰ It must be remembered of course that we are still considering only economic space and that the probability of these changes taking place is only increased because of the increased numbers of employees in manufacturing and tertiary industries associated with growth. Increased communication and dissemination of ideas because of agglomeration in urban areas is irrelevant to the growth pole concept.

This process too tends to be cumulative and the circular process continues until diverted or hindered in some way; representation of the circular and cumulative process associated with polarisation is given in Fig. 1. However these mechanisms of polarisation are by no means the only ones, there is for example another effect relating to the interplay of prices among related sectors and enterprises. These "pecuniary external economies" are generally called the "Scitovsky effect".³¹

Furthermore Hansen³² identifies three other effects which a propulsive unit may have. The "Aftalion" effect, involving increased investment resulting from the operation of the accelerator in connection with increases in final demand, is related to the effects already mentioned. "Polarisation psychologique" which refers to the impacts on investment decisions of small and medium-sized firms, results from the creative activities of dominant propulsive sectors.³³ Here the degree of availa-

bility of technical information is important. The latter has a special designation namely the "publication effect".

The process of polarisation operating through the above mentioned factors has been considered within the context of economic space. As Darwent notes:

The distinction which it is necessary to preserve in the growth pole notion between economic space in which poles are defined and geographic space in which they happen to have a location, is a basic and important one which has all too often been neglected by the authors writing on the growth pole concept. The semantic confusion of attributing to a location the growth characteristics of the pole (industry) which happens to be located there has been made repeatedly.

One paper which seeks to make this distinction more explicit is by Paelinck who suggests that a pole is (A) IN a region when it extends its influence over that regions and (B) ON a region when it is physically somewhere in it.³⁵ Thus it is possible for the industry or firm to be;

- A, B (influencing and located in the region)
- \bar{A} , B (not influencing and located in the region)
- \bar{A} , \bar{B} (not influencing nor located in the region)
- A, \bar{B} (influencing but not located in the region)

It thus becomes apparent that the growth pole concept, as defined by Perroux in terms of economic space tells us nothing about the location of a propulsive industry in geographic space, nor of the consequences of a pole having a particular location in geographic space. As such, whilst the concept may have theoretical value, without inquiry into the criteria which govern the choice of location of a propulsive industry, only a partial understanding of regional growth may be achieved.

Hansen develops this point using as an example the French automobile industry (the propulsive industry), in particular the Renault firm is an example of a propulsive firm. The notion of polarisation may help one to understand why Renault is a pole but it says nothing about Paris which happens to be its location.³⁶ To suggest that the geographic location of the pole (in this case Paris) is a pole owing to the agglomerating power of its propulsive industries is to move away from the original definition of poles expressed by Perroux and also begs the question, as it remains to be explained why the propulsive industries are agglomerated in Paris.

The obvious conclusion which may be drawn is that the location itself possesses specific characteristics which have a causal role in the implantation of propulsive industries.

A corollary of this is that it may well be that the propulsive industry itself is only one of a number of phenomena associated with the process of polarisation and not necessarily the primary one. The propulsive industry may well induce other activities, the possibilities of which have already been illustrated; however the propulsive industry itself may have been induced and thus may only be an effect of polarisation and not a cause of it.

Growth poles in economic space cannot be realistically isolated from their locations in geographic space in attempting to understand the regional growth process. Such factors (as urban agglomeration economies) which appear very relevant to the growth process have not been covered adequately. The following section attempts to identify both the areas which are not adequately covered by the growth pole concept and those

aspects which are a valuable contribution to regional growth theory.

The Growth Pole Concept: An Evaluation

The preceding sections of this paper have shown the origins of the growth pole concept, its characteristics, and finally the manner in which poles initiate and transmit growth throughout the economy. The purpose of this section is to attempt to evaluate this concept as a model which identifies the conditions under which accelerated regional development can occur and the processes by which it occurs.

Growth pole notions stress the thesis of unbalanced growth developed by Hirschman.³⁷ This raises the question of balanced versus unbalanced growth. There is no clearcut answer as to which of these methods when applied to a regional economy will maximise economic growth but there are a number of considerations which make the unbalanced growth thesis a realistic and pertinent premise of the growth pole concept. A formal definition of balanced growth is offered by Streeten who suggests that:

Whenever several non-infinitesimal investment decisions (or decisions generally) depend for their success upon each other, simultaneous investment (action) in a series of industries (or firms or plants) in conformity with pattern of consumers' demand and of different industries' (firms', plants') demand for each other's products is required.³⁸

Justification for initiating a large number of interdependent projects simultaneously is based on the phenomenon of external economies. In many cases the development of only one of a number of complementary activities may not result in regional development, often instead it may result in losses and waste.

Alternatively too great an emphasis on balance may cause rather than

prevent stagnation and limit development. Instead of balanced growth Hirschman advocates concentration on a few key sectors of the economy: the key sectors being determined by the measurement of backward and forward linkages in terms of input-output maxima as previously discussed. The justifications for unbalanced growth is derived largely from empirical evidence which illustrates that inter-regional and intraregional growth is unbalanced in geographic space³⁹ and in economic space.

Examining the unbalanced growth argument in economic space from the consumption point of view three factors are significant. The first is that many consumption units are indivisible which makes it difficult to equate marginal utility with price. It is however suggested that the consumer who equates marginal rates of substitution with price ratios will be worse off than the one who tolerates some imbalance arising from the purchase of excess consumption units. The choice here is between higher real income (and opportunities for faster growth) at the cost of imbalance and lower real income (and risk of slower growth) with the advantage of balance.

Secondly there is the concept of anabolism or the notion that new wants are often created in the process of satisfying existing ones; often the result is that simple innovations lead to the development of complex consumption patterns. These two factors, indivisibilities and anabolism are both static notions which tend to produce conditions of imbalance. In a developing economy complementarities in consumption budgets provide a strong incentive for investment and further production, which would have been absent had there been fully balanced growth. Complementarities, whether the result of indivisibilities or anabolism create pressures which tend to stimulate and guide investment into areas in which "con-

sumer deprivation" is felt. Investment opportunities may thus be seen as being created from new consumption requirements which themselves result from conditions of imbalance.

Turning to the production side of the economic system the problem of indivisibilities again presents itself. In the regional economy market size is often small and investment that meets such criteria may often be below the size that will allow optimum use of equipment. If economies of scale are important the choice whether or not to invest in new production units resolves itself into a choice between balanced growth in the short term sense or whether greater economies of scale are desired. Any plan directed at the full exploitation of economies of scale is a plan for unbalanced growth.

In addition to the question of indivisibilities a number of other forces are at work the precise nature of which determine the merits and disadvantages of excess capacity. Costs are incurred in expanding production which might have been avoided by building ahead of demand. (The risk of obsolescence in the face of new innovations must also be considered however.) Secondly, added demand may arise not only to lower costs due to the benefits from scale economies but also may be stimulated beyond this by "unbalanced" investment (c.f. the anabolism concept). The significant point is that eventual demand increases, the result of initially unbalanced investment are substantially greater than increases due to cost reductions from indivisibility.

Finally there are repercussions on inventions and innovations. It has been noted that in consumption new voids develop as the consumer moves toward the satisfaction of existing wants. In addition investment

that is intended to fill existing gaps may lead to innovations that open up new gaps and so on. Historically there can be little doubt that progress has been irregular and has generated imbalance of this type.⁴⁰

The case for unbalanced development may thus be made if certain conditions are fulfilled; i.e. that indivisibilities are important and expansion costs are important. Higher incomes are created than would be by balanced growth and incentives to invent and innovate are strengthened. The argument for unbalanced growth briefly presented here suggests that unbalance may be both a stimulus to and a product of economic growth. In so far as these two factors interact the result is a cumulative process of advance, progress generating its own stimulus.

It should, however, be emphasised that though it has been noted that although historical evidence illustrates that progress is irregular it does not follow that irregularity causes growth. It is instead preferable to suggest that to get rapid growth it may be necessary to give up the insistence on balance. Unbalance may thus be viewed as a necessary evil. However unbalance may be a source of strength; if unbalanced conditions are favourable to growth and growth in itself results in unbalance, far from being evil, unbalance becomes a powerful twist in a virtuous spiral.

The argument pro or con imbalanced growth is by no means resolved by the preceding discussion. Unbalanced growth does, however, appear to be the characteristic pattern of development followed by mature economies and further it appears to be the most rational approach from both an institutional and purely economic point of view. Bearing in mind the conditions upon which the unbalanced growth argument is based which are

further emphasised in the growth pole concept, the notion of unbalanced growth appears to represent a relevant and realistic premise of the growth pole concept in attempting to indicate those conditions which accelerate regional development to the maximum.

Turning next to the characteristics of growth poles, most authors appear to agree that in order to act as a pole the industry under consideration must satisfy the criteria of a rapid growth rate vis a vis the economy in which it exists, a high degree of interlinkage with other sectors of the economy and, be of large size and exhibit a high degree of dominance. Units which satisfy these criteria may be termed "propulsive".

Supposedly these conditions are sufficient to distinguish between those sectors that will transmit growth from those that will not; this appears to be doubtful at best. Furthermore these conditions say little about the manner in which growth is initiated and as such beg an important question. The process of polarisation discussed earlier purports to "explain" the transmission of growth via interlinkages external economies and multiplier effects between one sector and all others, and if the propulsive sector happens to be a fast growing one the process of polarisation would suggest that growth should take place elsewhere in the economy. The ideas proposed by Hirschman concerning linkages supposedly demonstrate this. Unfortunately, however, there does not appear to be any empirical evidence which purports to demonstrate the effects of polarisation and which has been able to distinguish between polarisation and other growth effects such as agglomeration economies. Boudeville's examination of the impact of the steel smelting industry on the economy of Minas Gerais, Brazil and the measurement of this "forward linkage" is a case in point.⁴¹

The failure to separate polarisation effects from other effects which may be claimed to be "growth inducing", such as the influence of the market, is a serious omission from the concept. In addition the study of sectoral growth in economic space omits significant factors associated with the geographic concentration of activity. The localisation economies that might result from the agglomeration of some of the production processes at one point (offset by transport considerations) are not covered by the growth pole concept, and in particular urbanisation economies derived from the agglomeration of firms in different industries are not considered.⁴² The conclusions which may be drawn from this are that the concept of growth poles does not adequately indicate the conditions under which accelerated regional development may occur. It does provide a set of conditions under which transmission of growth can be optimised but these are by no means exhaustive nor are they indisputable.

One area open to question concerns the size of propulsive units. The notion that initial and continuing growth is in part associated with large industrial undertakings is a naive view. First it does not necessarily follow that the presence of a large industry is sufficient to stimulate growth. Hansen notes the example of the steel industry in Lorraine in France the development of which was not accompanied by a corresponding accelerated development of steel consuming industries.⁴³ Secondly it may be said that growth can take place without the presence of a large propulsive industry. Denmark represents a case in point here where prosperity was neither initiated nor sustained by a big propulsive industry, but rather by scattered, relatively small agricultural units. In this case close co-operation between the units partially accounts for success.

Another problem associated with size and particularly the notion of dominance has been pointed out by Chinitz who has shown that the presence of a large propulsive industry may in the long run inhibit industrial and economic development by preventing the ingress of firms in other industries. The example given in this case is the dominance of the primary metals industry over local capital and labour markets in Pittsburgh, which, acting as a barrier to new firms have undoubtedly hurt continued growth in this area.⁴⁴

Finally it may also be disputed that "dominance" is a necessary condition for accelerated growth; other factors may be of greater significance. Accelerated growth in the case of Mexico City appears to be a function of the concentration of manufacturing and particularly tertiary activities; no one dominant sector can be identified as stimulating this growth.⁴⁵ To explain such growth it is necessary to turn to a rather different set of variables than those dealt with by the growth pole concept. Location is extremely significant and is probably best dealt with in terms of classical location theory. In addition the amorphous field of external economies in both public and private sectors must be considered and considered in conjunction with agglomeration theory.

In so far as the growth pole concept attempts to identify conditions under which growth will be accelerated, it offers only a partial explanation. Its partial nature is further emphasised by the fact that no attempt to consider institutional or political variables is made. There is a growing awareness that socio-cultural, political and other non-economic variables must be considered relevant to any explanation of growth, the failure to consider the spatial incidence of growth and relevant non-economic variables illustrates the somewhat myopic nature of the growth pole concept.

Summary and Conclusions

The theory of growth poles has been elaborated particularly by French and Belgian economists in an attempt to grasp the technical origins and dynamic interrelationships of the economic growth process. In many respects traditional location theory and classical input-output techniques have proved inadequate for this task but the growth pole concept too has been characterised by a number of shortcomings.

The first of these relates to ambiguities and inconsistencies in the definition and usage of terminology. Through a review of the relevant literature a distinction has been drawn between the concept of growth poles defined in terms of economic space and expressed as input-output matrices, and growth centres; specific locations defined in terms of geographic space. Within this constraint growth poles are defined as propulsive sectors of the economy which through the process of polarisation initiate and transmit growth through all sectors of the economy accelerating the rate of regional growth.

Propulsive industries are themselves defined in terms of their characteristics, namely, rapid growth, a high degree of interaction with other industries, great size and a dominant position. Polarisation is defined as the process through which economic growth is initiated and transmitted through the economy. The mechanisms involved in this process relate primarily to the utilisation of external economies and the subsequent multiplier effects which are generated.

The definition, if it can be so called, of the growth pole concept offered here is, because of the vague, confused nature of the field, somewhat inadequate. However, a number of conclusions can be drawn from

the preceding discussion. It is evident that on close examination the explanatory value of the growth pole concept is limited and that its objectives are not really achieved. This appears due to the fact that it deals only with a limited concept which is in fact part of a much more complex system. Growth pole literature has for the most part been restricted to consideration of the direct links between a hypothetical industry and a few others in an apparently closed economy. Neglected has been the very significant background variation and indirect linkage taking place. Furthermore the regularities of the hierarchical structure of the spatial distribution of economic activity are not considered, it is necessary to turn to the growth centre concept for a partial explanation of this phenomenon. Unfortunately there is also a lack of satisfactory explanation of how the existence of a growth pole and the process of polarisation in economic space appear on the ground in terms of the distribution of economic activity.

The process of polarisation described here is also limited in value as an explanatory model. Oversimplifications as in the Hirschman linkage model and the absence of the development of the idea into a set of equations adequately describing growth and distinguishing polarisation from other growth inducing effects, means that the process begs many more questions than it answers.

Finally it may be reiterated that the growth pole concept does not achieve that which it sets out to do--to provide a conditional theory of economic growth, since the conditions hypothesised are insufficient to distinguish a growth situation from a non-growth situation. The main contribution of the growth pole concept appears to be its emphasis on the disequilibria involved in the growth process. However, if this idea

is to be developed into a conditional theory of growth it would appear that the growth pole concept must be substantially modified and developed in conjunction with spatial criteria which at present remain the prerogative of the growth centre concept. At present, at both theoretical and operationally feasible levels, it is questionable that development pole theory has really contributed any fundamentally new method of analysis.

FOOTNOTES--The Growth Pole Concept:
A Review, Analysis and Evaluation

- 1 B. J. L. Berry, "Strategies, Models and Economic Theories of Development in Rural Regions," Agricultural Economic Report No. 127, U. S. Department of Agriculture (1967), p. 1.
- 2 M. S. Perloff, E. S. Dunn Jr., E. E. Lampard and R. F. Muth, Regions, Resources and Economic Growth (Lincoln: University of Nebraska Press, 1960), p. 57.
- 3 See D. C. North, "Location Theory and Regional Economic Growth," Journal Political Economy Vol. 63 (1955), pp. 243-258.
- 4 See B. Barfod, Local Economic Effects of a Large Scale Industrial Undertaking (Copenhagen, 1938).
W. Isard and R. Kuenne, "The Impact of Steel upon the Greater New York - Philadelphia Industrial Region, A Study in Agglomeration Projection," Review of Economics and Statistics, Vol. 35, No. 4 (1953).
- 5 H. A. Innis, Problems of Staple Production in Canada (Toronto: Ryerson Press, 1933).
G. M. Meier, "Economic Development and the Transfer Mechanism Canada 1895-1913," Canadian Journal of Economics and Political Science Vol. 19 (1953), pp. 1-19.
- 6 C. Clark, The Conditions of Economic Progress (London: Macmillan, 1940).
A. G. B. Fisher, "Capital and the Growth of Knowledge," Economic Journal Vol. 43 (1933), pp. 379-389.
_____ "Production, Primary, Secondary and Tertiary," Economic

Record Vol. 15 (1939), pp. 24-38.

- 7 Perloff et al, op.cit., p. 59.
- 8 W. W. Rostow, The Stages of Economic Growth: A Non-Communist Manifesto (Cambridge, 1960).
- 9 For a detailed description of the "stage" theory see E. M. Hoover and J. L. Fisher "Research in Regional Economic Growth," Universities-National Bureau Committee on Economic Research, Problems in the Study of Economic Growth (New York: N.B.E.R., 1949), pp. 180-188.
- 10 See A. L^ösch, The Economics of Location trans. W. Wolgom and W. F. Stolper (New Haven: Yale University Press, 1954).
- 11 For a detailed discussion of problems associated with the export-base theory see, C. M. Tiebout, "Exports and Regional Economic Growth," Journal of Political Economy Vol. 64, pp. 160-164.
D. C. North, "A Reply" Journal of Political Economy Vol. 64 (1956) pp. 165-168.
- 12 F. Perroux, "Note sur la notion de pole de croissance" in F. Perroux L'economie du XX^e siecle, (2nd ed. Paris: Presses Universitaires de France, 1964), pp. 142-153.
- 13 F. Perroux, op.cit., p. 155.
- 14 University of Glasgow Social and Economic Studies "Regional Policy in E.F.T.A.: An Examination of the Growth Centre Idea," Occasional Papers No. 10 (Edinburgh: Oliver & Boyd, 1968), p. 59.
- 15 Regional Policy in E.F.T.A. op.cit., p. 64.
- 16 F. Perroux, "Economic Space: Theory and Applications," Quarterly Journal of Economics LXIV (1950), p. 90.

- 17 F. Perroux, op.cit., p. 94-97.
- 18 D. F. Darwent, "Growth Pole and Growth Centre Concepts: A Review, Evaluation and Bibliography," Department of Regional Studies, Working Paper No. 89 (Berkeley, California: University of California, 1968), p. 3.
- 19 J. Boudeville, Les espaces économiques (Paris: Presses Universitaires de France, 1961), pp. 8-16.
- 20 N. M. Hansen, French Regional Planning (Bloomington: Indiana University Press, 1968), p. 109.
- 21 J. Boudeville, "Les notions d'espace et d'integration." Paper given at the International Conference on Town and Regional Planning, Basle, (1965), p. 2. Cited by Hansen, op.cit., p. 110.
- 22 F. Perroux, L'economie du XX^e siecle, loc.cit., p. 85.
- 23 L. E. Davin, Economie regionale et croissance (Paris: Genin, 1964), p. 56.
- 24 F. Perroux, "Economic Space: Theory and Applications, loc.cit.
_____ "La Notion de Developpement," L'economie de XX^e Siecle, loc.cit.
cit.
- J. Paelinck, "La Theorie du Developpement Regionale Polarise," Cahiers de l'I.S.E.A. Serie L. 15 (1965).
- J. Boudeville, Problems of Regional Economic Planning (Edinburgh: Edinburgh University Press, 1966).
- 25 One exception is J. Boudeville, "Contribution a l'Etude des Poles de Croissance Braziliennes: Une Industrie Matrice, la Siderurgie du Minas Gerais," Cahiers de l'I.S.E.A., Serie F, 10 (1957).

- 26 P. Aydalot, "Note sur les economies externes et quelques notions connexes," R. E. XVI (1965), p. 962 cited by N. M. Hansen, op.cit., p. 115.
- 27 A. O. Hirschman, The Strategy of Economic Development (New Haven: Yale University Press, 1958), pp. 98-104.
- 28 A. O. Hirschman, op.cit., p. 102.
- 29 D. F. Darwent, op.cit., p. 12.
- 30 R. L. Meier, A Communications Theory of Urban Growth (Cambridge, Mass.: M. I. T. Press, 1962).
- 31 T. Scitovsky, "Two Concepts of External Economies," Journal of Political Economics (April 1954).
- 32 N. M. Hansen, op.cit., p. 114.
- 33 See also J. Paelinck, "La Theorie du Developpement Regional Polarise," loc.cit.
- 34 D. F. Darwent, op.cit., p. 6.
- 35 J. Paelinck, op.cit., p. 14.
- 36 N. M. Hansen, op.cit., p. 115.
- 37 A. O. Hirschman, op.cit.
- 38 P. Streeten, "Unbalanced Growth," Oxford Economic Papers Vol. 11 (1959), p. 170.
- 39 See for example Perloff et al, op.cit., Chaps. 10-18.
- 40 J. Schumpeter, Business Cycles Vol. 1, p. 102 cited by Streeten op.cit., p. 181.
- 41 J. Boudeville, op.cit.

- 42 For a discussion of the nature of urbanisation economies see W. Isard, Location and Space Economy (Cambridge, Mass: M. I. T. Press, 1956), pp. 182-188.
- 43 N. M. Hansen, op.cit., p. 117.
- 44 B. Chinitz, "Contrasts in Agglomeration: New York and Pittsburgh," American Economic Review Vol. 51 No. 2 (1961), pp. 279-289.
- 45 T. M. Burley, "Industrial Expansion in the Federal District, Mexico," Geography, Vol. 47 No. 2 (1962), pp. 184-185.

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