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DESIGN FOR DEVELOPMENT

U. I. ARCHIVE

BY

ISAAC AYINDE ADALEMO



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INAUGURAL LECTURE SERIES

# DESIGN FOR DEVELOPMENT

An Inaugural Lecture Delivered at the  
University of Lagos on Wednesday, December 21, 1983

U. L. ARCHIVE

By

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Yaba, Lagos, Nigeria,  
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I. A. Adalemo

An image of a book is shown at the  
University of Lagos on Wednesday, December 21, 1983

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## DESIGN FOR DEVELOPMENT

Vice-Chancellor,  
Deputy Vice-Chancellor,  
Provost, College of Medicine,  
Deans of Faculties,  
Distinguished Professors,  
Registrar,  
Fellow Academicians,  
Esteemed Relations and Friends,  
Ladies and Gentlemen

I feel honoured to have the opportunity to address such a distinguished audience on a topic close to my heart. It is a feeling of fulfilment that the long wait for this opportunity has finally come to an end. This inaugural lecture was formerly scheduled to be delivered on the 28th day of March 1980. The circumstances prevailing at that time did not, however, provide a particularly conducive atmosphere for serious academic activity. If there is ever any need for evidence with respect to the important role of the environment (broadly defined) on the direction and quality of human endeavour, that period in the life of this University provides incontrovertible evidence. I am particularly grateful that the current Vice-Chancellor, Professor Adesola, has succeeded in getting us out of the depressing moods which characterized that period and in creating the proper environment for academic activity. He has also, in his characteristically pragmatic manner, devised a means whereby the backlog of inaugural lectures can be cleared so that these lectures can once again, assume their proper status as inaugural lectures. If an inaugural lecture is meant to mark the commencement of one's professorial career, then delivering it almost seven (7) years after the formal commencement of the professorship can hardly be described as inaugurating it. I am, however, not complaining. The delay has not had any adverse effect on me. If anything, it has afforded me the opportunity for reflection; and my hope is that this lecture, like a wine of good vintage, kept in a well-made keg and stored in the correct wine-cellar-environment, the longer it waits in storage, the better it becomes. In somewhat poetic language, "The longer the wait the better the taste." Besides,

an inaugural lecture is not meant merely to mark, in a ceremonial way, the inauguration of a new professor; it is a quasi-academic device whereby each person elevated to the highest academic post in a University is afforded the opportunity to carry out a review of the field of academic pursuit with which he is identified and relate the relevance of his contributions within that field to the needs and aspirations of society. It should also serve as a vehicle for conveying any messages which the totality of his/her research experience suggests should be delivered to society at large and particularly to policy makers and those who are charged with the responsibility for implementing policy decisions. Mr. Vice-Chancellor, Sir, once again, I am grateful for this unique opportunity of giving the first inaugural lecture in the 1983/84 series I am tempted to say, first of the new series.

### Prolegomenon

There is incontrovertible evidence of design in the universe. The orderliness of the elements which make up the universe has been documented over and over again. The existence of laws or ordering principles which relate one element in the Universe System to another and, particularly, the recent discovery that all the laws of nature may, in fact, be unified, attests to this fact.

The creator of the universe has, in as much as the planet earth is concerned, assigned to man the responsibility for harnessing these ordering principles for the benefit of mankind. As the Bible record shows in Genesis Chapter 1 verse 28:

God blessed them and God said to them  
"Be fruitful and become many and fill the earth and *subdue* it, and have in *subjection* the fish of the sea and the flying creatures of the heavens and every living creature that is moving upon the earth".

Implicit in that assignment is the indication that there are development potentials which can be realised only by *subduing* (i.e. taming) and bringing some kind of order to a

planet which in its external relations within the universe system, is already governed by some laws; but which internally holds forth tremendous opportunities for designing and redesigning of its various elements in order to ensure that they work together for development to the benefit of mankind, and for making the earth a pleasant and proper habitat for all of us.

Man, in his quest for understanding the earth and the universe system within which it is situated, has tried to grapple with the enormity of the problem with which he is confronted by adopting a system of acquiring knowledge best suited to his physical and mental capabilities. His quest for understanding has given rise to the development of various fields of knowledge and modes of cognition, some of which are enunciated in Plato's Theory of knowledge. Geography is one of the earliest of such fields of knowledge as can be deduced from Kant's classification of sciences *circa* 1780 as reported by J.A. May (1970)<sup>1</sup>.

Geographical Science provides man with a cognitive system which enables him to manipulate his environment and interact with it in such a manner as to produce benefits for himself. This manipulation may lead to the ordering of our experience in such a way as to provide satisfactory answers to the questions people ask about their experience. Often, the order may have to be 'created' via mental constructs where none seems in our experience to exist. It is in this attempt to order our experience to provide rational answers to questions about our environment that geography has moved from the *World of appearances* to the realm of *intelligible world*. Geographers use representations (models) of reality, such as maps, to 'force' order out of seeming disorder, and in this way serve, in the words of Plato, "as a sort of bridge between the *visible thing* (experience, observable event) and the *intelligible reality*". In this way, progress was made leading to an approach to the discovery of the ultimate *form*, the immutable principles, which constitute the highest level of cognition in Plato's construct. That the movement from the *world of appearances* to the *intelligible world* has not always been

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1. May, J. A. (1970): *Kant's Concept of Geography*, University of Toronto Press.

straight, direct and irreversible is clearly illustrated in the development of the geographic discipline. The history of that development is not our main concern in this address and will therefore not delay us here. A rich literature exists which any interested person can consult to advantage. Suffice it to state here that Geography is a versatile and dynamic discipline. Its subject matter is as varied as interrelationships are varied on the earth's surface. Its methodology or approach to the study of these interrelationships is however unique and unparalleled. As the Association of American Geographers explains in the brochure *Geography as a Discipline*, "The constantly changing physical and human landscapes on the earth's surface challenge the geographer to provide continuing interpretations of all parts of the world from the spatial point of view." The point which should be obvious from this has also been highlighted by Peter Haggett. As I indicated in my Presidential Address to the Nigerian Geographical Association at the Bagauda Lake Conference in April 1981<sup>2</sup>, Haggett (1972)<sup>3</sup> has demonstrated that geography has connections with virtually all other disciplines, and that geographers are capable of exploiting these connections to provide the kind of multi-dimensional approach which is important to the proper study of environmental issues. The trend towards specialisation which has been encouraged by the procedures adopted for academic appointment and advancement in our universities poses basic problems for the future of environmental studies and may render our universities inadequate as training grounds and the best places for gaining experience in interdisciplinary interaction.

Universities should promote the idea of the interrelatedness of life rather than encourage the compartmentalization of disciplines. This does not mean that universities should not train specialists; they should also ensure that conducive atmosphere is created for these specialists to be able to work together across disciplinary lines on problems of common interest whose solution may require the cooperation of several specialized areas of knowledge. Solutions to the problems of the environment, for instance, are usually best obtained where the expertise of the natural sciences, the social sciences and environmental design arts can be integra-

2. I. A. Adalemo, "Geography and the Environmental Challenge," Presidential Address delivered at the 24th Annual Conference of the Nigerian Geographical Association, Bagauda, Lake, Kano State April 6, 1981.
3. Peter Haggett (1972) *Geography: A Modern Synthesis* Harper & Row Publishers, New York, & London.

ted. Geography tries to bring about the integration of knowledge from the various fields and successfully brings this to bear on the solution to the problem at hand. The ability to accomplish this feat confers a distinctive advantage and responsibility on geography vis-a-vis other disciplines. Mikesell has documented the various aspects or characteristics of the geographic discipline which make up what he has termed geography's comparative advantage. The most persuasive feature of this assessment is its reminder of geography's unique position as a discipline devoted to both natural and social sciences. On the natural science side, geographers have the advantage of a perspective that encourages awareness of the relationship of climate, water, landforms, vegetation, and soils. Such cannot be claimed by many meteorologists, hydrologists, biologists, and soil scientists who may not be willing to look beyond their particular phenomena. In contrast, physical and biogeographers have always had a comprehensive ecological rationale. The range of investigations conducted by geographers who identify themselves as social scientists is similarly broad and eclectic, and has the additional advantage of including both predictive and retrospective orientations (Mikesell (1974) pp.6 and 7)<sup>4</sup>

Because of the varied nature of subject matters which the discipline encompasses, individual geographers have to specialise in one of the sub-disciplines or specialized branches of geography. Every geographer, no matter his specialization, benefits from the broad knowledge about the environment and exposure to scientific techniques and procedures which geographic training guarantees. The unifying objective is the desire to understand our natural and cultural environments in their total spatial relatedness. Through such an understanding, we are better able to discover areas where reorganisation may bring about beneficial development or minimise possible negative impacts.

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4. Marvin Mikesell (1974) in Ian R. Manners and Marvin W. Mikesell (eds.) *Perspectives on Environment*, Association of American Geographers Commission on College Geography Publication No. 13, 1974.

It is probable that it was the recognition of the fact that geography provides us with integrated and meaningful view of the world, which no other discipline can match, that led the Communist Party Central Committee of the USSR to pass a Resolution in 1931, which made the knowledge of geography compulsory for entry into higher educational and technical colleges and institutions. This was followed in 1934 by another Resolution on the Teaching of Geography in Primary and Secondary Schools. The latter resolution made provision for the doubling of the number of hours hitherto devoted to the teaching of geography, the preparation of new textbooks, and the training of geography teachers in the universities and teacher training colleges. As of 1976 when I visited the Soviet Union for the second time, there were no less than 100 professors of geography at Moscow University's Faculty of Geographical Sciences alone. The geographical output of the Africa Institute in Moscow and the Geographical Institute (a department of the Russian Academy of Sciences) also in Moscow, and the effect of their activities on the development of the spatial economy of the Soviet Union, bear testimony to the wisdom of the Central Committee of the Communist Party in passing those resolutions and ensuring their implementation. Nigeria can borrow a leaf from this, especially as one of the primary tasks of the day is the need to provide local industry with raw materials from domestic sources, and the provision of basic data for the planning and distribution of the country's developing economy.

Mr. Vice-Chancellor, Sir, the topic of this inaugural lecture is *DESIGN FOR DEVELOPMENT*. The topic has been chosen deliberately to emphasize my own area of specialization within the geographic discipline, while at the same time allow me scope to reflect on my various interests. My research interest within the special subfield of economic geography has centred on the study of traditional marketing

systems as they exemplify spatial interaction patterns and mirror the level and intensity of socio-economic development. It has also embraced the whole field of regional planning (which is nothing but applied geography) and especially the desire to deal with the policy and environmental implications of unplanned and haphazard development of the national human settlement system<sup>5</sup>. At first look, traditional marketing systems and human settlements systems may not seem to belong together; in the course of this inaugural lecture, their inseparability would have been convincingly demonstrated.

### Definition of Terms

Before I go any further, let me allay some fears by attempting a definition of terms. The two key words in the title of this inaugural lecture are capable of conjuring ideas which they are not meant to represent. The words *Design* and *Development* are very emotive words and they often mean different things to different people.

By '*Design*', I do not intend to limit myself to the construction put on that word by architects, town planners and colleagues in the general area of physical design although I would by no means exclude that construction from my definition. I am also not referring to artistic design nor to Stage Design even though the latter is generically related to physical and spatial design. Any man-made change (or

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5. This theme has featured again and again in my writings. In fact, it has become one of my preoccupations and major concerns. See for example I. A. Adalemo, "Towards a Model of Planned Urban Development in African Countries" — Chapter 8 in Mabogunje and Faniran (eds.) *Regional Planning and National Development in Tropical Africa* (IUP 1977); I. A. Adalemo, "Urbanization Information Overload and Regional Development" pages 189 — 203 of *Urbanization and Nigerian Economic Development* Proceedings 1977 NES Conference; I. A. Adalemo, "The Physical Growth of Metropolitan Lagos and Associated Planning Problems in Department of Geography Occasional Papers No. 1, University of Lagos 1982; I. A. Adalemo and A. A. Bolade, "Spatial Consequences of National Development Planning Process: Reflections on the spatial consequences of Sectoral Bias in the Nigerian National Development Plans." Paper delivered at the 25th Annual Conference of the Nigerian Geographical Association, University of Ibadan, April 1982; The Role of Rural Market Places." Chapter 11 in Aidan Southall (ed.) *Small Urban Centres in Rural Development in Africa* African Studies Programme, University of Wisconsin, Madison, 1979.

plan for effecting such change) in the physical environment constitutes, in my view, a design.

My view, in this respect, coincides with that of Rapoport (1976) who, speaking from a cross-cultural perspective, reached the following important conclusions:

All man-made environments are designed in the sense that they embody human decisions and choices. Designed environments obviously include places where man has planted forests or cleared them, diverted rivers . . . . The placement of roads and dams, of pubs and cities are all design . . . The work of a tribesman burning off, laying out a camp or village and building his dwelling is as much an act of design as the architects' or planners' act of creating beautiful (and functional) buildings or dreaming up ideal cities... The common factor of all this activity is that *it represents a choice among all the possible alternatives*. The nature of the choices made tends to . . . . reflect the culture of the group concerned . . . . It affects the way they *interact* and *structure space* . . . Design can (therefore) be seen as a choice process.

Rapoport (1976, pp.20–21)<sup>6</sup>

I have compressed Rapoport's statement on this issue but have taken care not to distort it. The notion that Design can be seen as a choice process, and that this choice process is culture bound, appeals to me. It is in this sense that 'Design' is used in this lecture. We are concerned here primarily with *Man's Design* (Socio-cultural and Spatial) as distinct from *God's Design* (Teleological) to which we made passing reference at the beginning of this lecture, *Nature's Design* (Ecological) or even *Transcendental Design*.

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6. Amos Rapoport (ed.) [1976] *The Mutual Interaction of People and their Built Environment – A Cross-Cultural Perspective*. Mouton Publishers, The Hague & Paris.

As for the word 'Development', any attempt at definition will be an exercise in futility. Whole books have been written on what Development means or does not mean. More recently, Mabogunje (1980) has tried in several chapters of the book *The Development Process: A Spatial Perspective* to grapple with this problem of definition. He examined the meaning of the word from the points of view of economic growth, modernisation, distributive justice and socio-economic transformation but decided finally to deal with Development as Spatial Reorganization. He asserts that Development "clearly involves a deliberate exercise of choice in making decisions", and that "certain types of spatial arrangement (design) can be expected to make a relatively better contribution to the attainment of specified goals than others". Development can therefore be seen as the attainment of goals previously specified according to a deliberate design. More correctly, development should be seen as progressive attainment of specified goals. Development plans are the device whereby goal specifications are reviewed in the light of past performance and experience; and future expectations are given expression.

One important point on development has to do with the mistaken notion that development consists mainly of economic growth and the continual expansion of goods and services to satisfy increasing levels of consumption. That notion was based on a view of the world which can no longer be sustained, and economists would be the first to point this out. The Brandt Report (1980)<sup>7</sup>, written by eminent economists, suggests that development involves a profound transformation of the entire economic and social (and I will add spatial) structure of a community, be it regional, national or international. It is unfortunate that the practice of development planning in Nigeria is yet to catch up with the realistic idea of development as espoused in the Brandt Report. The problem, I guess, is that space is so fundamental that nobody, with the probable exception of geographers, cares to deal with it explicitly. We tend, instead, to assume it away; but it refuses to be taken for granted and often has its own back on us.

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7. Brandt, Willy et. al (eds.) [1980] *North-South: A Programme for Survival*, Pan Books, London & Sydney.

In a recent paper by myself and Dr. Bolade on the **Spatial Consequences of National Development Planning Process**<sup>8</sup>, the point is made that we are, in spite of all protestation to the contrary, still preoccupied with economic and particularly sectoral development planning. Our development plans have little, if any, explicit social and spatial objectives and goal specifications. As has been pointed out elsewhere (Daily Times of May 24, 1980 p. 3), economic development planning in Nigeria has followed essentially the project basket approach. This is why the plans have been unable to mitigate those factors and institutions that had hitherto limited our development level – the concentration of power at the centre to facilitate the exploitation of the nation's resources for the benefit of the colonial administration and a highly polarized space-economy characterised by interregional inequalities and spatial imbalances even within regions. The factors which have helped in ameliorating interregional disparities had nothing to do with the institutionalised economic planning framework. They are (1) the creation of new States in 1967 and 1976, (2) the gradual evolution of a liberal revenue allocation formula which had progressively de-emphasised the principle of derivation and placed more premium on the principles of equality, developmental needs and national unity, and (3) the designation of Local Government as the third tier of government and the consequent recognition of local government headquarters as administrative centres with the implication that that has for the distribution of developmental activities. This, along with the emergence of new growth centres which was consequent on the establishment of new state capitals, has the potential for minimising the primary structure of the space-economy by increasing the number of core-urban centres or growth points. This also has the effect of reducing the extent of peripheral areas surrounding these growth points thereby ensuring a more effective operation of the favourable impacts of growth from the centre.

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8. I. A. Adalemo and A. A. Bolade; "Spatial Consequences of National Development Planning Process" Proceedings of Nigerian Geographical Association Conference, April 1982.

The spatial consequences of our development orientation are reflected in the rapid rate of rural-to-urban migration accompanied by increasing urban unemployment, the rapidly exploding urbanisation levels without a commensurable increase in the provision of essential facilities, the declining agricultural production and the unfortunate situation of massive importation of food into a basically agrarian economy. As long as it is relatively easy for the elite to manipulate the instruments of State to the advantage of individual, regional and ethnic rather than national interests, to that extent shall we continue to fail to attain the desired goals. As long as the success or failure of development plans is measured primarily in terms of the extent to which targeted growth in Gross National Product is met and in terms of the ability to spend the budgetary allocation rather than in terms of physical achievements, so long shall the real development elude us. It would seem that some effort is now being made to look at physical achievements. According to the 2nd Progress Report on the 3rd National Development Plan (Page 7):

for the first time in the history of Plan Progress reporting in this Country, the Central Planning Office (CPO) has attempted to devise an aggregate measure of Plan achievement to complement the purely *financial ratio* we have hitherto used. The measure is based on a combination of financial and physical performances.

There are however some difficulties in the application of this measure of Plan achievement as can be deduced from the following statement:

Unfortunately, because of non-response by some agencies and the poor quality of returns by a few others, it has not been possible to compute a completely reliable and comprehensive performance ratio for all the projects.

It is amazing that an attempt is being made to obtain reports of physical achievements especially as the Plans themselves did not specify achievement levels in physical terms. Consequently, the few reports of plan physical achievements are to be interpreted with caution. Probably the most realistic approach to this problem is the commissioning by the Ministry of National Planning of a cartographic report on plan achievement under which the Geography Department at the University of Lagos is preparing an Atlas of Plan Implementation.

### Geography As Spatial Design

My interest in Design for Development started quite early. As early as I can remember, I have always been fascinated by maps and the design patterns they present to the senses. I must ask for your indulgence to seize the opportunity afforded by this lecture to pay tribute to a relatively unknown and unsung but dedicated teacher who recognised this interest and, more than anyone I can recall, nurtured that interest and gave me the encouragement I needed to continue my quest for knowledge in this field of interest even though I could have gone off into more materially lucrative pursuits. We know him simply as Mr. Charles. My contemporaries at Ibadan Grammar School will know who I am talking about. He is obscure and is probably not counted among the famous; I can however share with him the words of Immanuel Kant:

High Towers, and metaphysically-great men resembling them, round both of which there is commonly much wind, are not for me, my place is the fruitful bathos, the bottom-land of experience.

But that is only half the story, the other half concerns a relatively better known teacher and economist – Professor O. Aboyade who, without realising it, kindled my interest in development economics by making sure that I read everything Kuznets has ever written and more. The conjunction of these two influences ensured my commitment to econo-

mic geography and particularly those aspects of it that are relevant to spatial development.

The fascination which geography holds for me goes beyond the ordinary pictorial attraction of maps. The fact that its study enhances our understanding of the world around us in such a way as to demonstrate the interrelatedness of phenomena makes it, in my evaluation, an indispensable discipline for anyone who is interested in development planning. Until we are able to understand the operation of the existing socio-spatial system, we cannot confidently prescribe the direction and magnitude of change that is likely to bring about positive and desirable results.

Since location or place is central to all development efforts, geography should be central to development planning. It is true that the problems associated with spatial factors can be very complex and difficult, but this is not sufficient reason to run away from them. Geography tries to confront these problems so that more realistic solutions could be obtained. It starts by providing basic spatial information but, contrary to most people's notion of geography, it does not stop there. The geographer's training prepares him or her to play diagnostic and prescriptive roles (if one may borrow those terms) especially when it concerns development planning. Geographical research is the very basis of design for development. Through it we get insights into the socio-spatial interaction patterns which are the articulations of economic, ecological, cultural, historical and political factors whose interplay results in the complex patterns which geographic research tries to unravel.

### **Finding Out Where We Are and Pointing The Way**

The major issues which have commanded my attention in the course of my academic career are:

- (1) The acquisition of baseline information necessary to development planning,

- (2) The implications of regional imbalance and regional inequality for national development, and
- (3) Reordering, restructuring or reorganising space for purposes of enhancing development.

These concerns go beyond just helping to find out where we are. They also involve pointing the way we should be going. The second issue involves, in fact, the question of values and ideology. The study of the patterns of socio-economic interaction in the Kainji Basin,<sup>9</sup> which could be described as the starting point of my field research career, was designed to provide baseline information for the planning of development in Kainji Basin prior to the commissioning of the Kainji Dam. In this my initial research effort, issue number one was emphasized; but apart from providing baseline information, projections were made and suggestions proffered as to the way and manner the disruption to the existing interaction patterns could be minimised. Opportunities for the development of new and beneficial interaction patterns were also identified.

Subsequent to this, and probably arising from my experience in the field, the issues of regional imbalance and regional inequality came to the fore. That this is so could be ascertained from my presentation to the International Conference on Regional Planning and National Development in Tropical Africa in 1972,<sup>10</sup> the presentations to the Nigerian Economic Society both in 1977 and 1981<sup>11</sup> and, more recently, in my monograph on the Physical Growth of Metropolitan Lagos and Associated Planning Problems<sup>12</sup> The work on the physical growth of Lagos and my involvement in research on the role of small and medium sized towns in development, tie together the concerns exemplified by issues 2 and 3 and more will be said presently on these. For now,

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9. I. A. Adalemo, *The Marketing of Major Cash crops in the Kainji Lake Basin*: NISER Monograph No. 1. NISER, University of Ibadan Press 1969. Also "Resettlement of Population Displaced by the Kainji Lake" *The Nigerian Geographical Journal* Vol. 11 No. 2, December, 1968 pp. 175-188.
  10. I. A. Adalemo, "Towards a Model of Planned Urban Development in African Countries" in Mabogunje and Faniran (1977) op. cit.
  11. I. A. Adalemo, "Urbanization, Information Overload and Regional Development" in Proceedings of the 1977 Nigerian Economic Society Annual Conference; A. A. Bolade and I. A. Adalemo, "....."
  12. I. A. Adalemo, *The Physical Growth of Metropolitan Lagos and Associated Planning Problems* Occasional Papers No. 1, Department of Geography, University of Lagos, 1982.

let me direct attention to my research work in the area of traditional markets and how this relates to the three major issues outlined above.

### Traditional Marketing Systems and Development

The study of traditional market systems is only a special case of the study of socio-economic interaction patterns over space and in time perspective. Consequently, the geographical concepts and techniques which have been developed for use in the analysis of interaction patterns have been found to be useful in these studies. As was indicated in the Preface to one of the publications resulting from the study of traditional market systems, the rationale for the studies is based on the conviction that "It is .... essential for the economy that we have some knowledge of the rural market system if we are to begin to integrate it into the national system in a beneficial way .... It is equally important to understand the spatial and temporal structures of the market centres and the system of markets which comprise them..... It is further hoped that these insights will be useful for planning purposes – particularly in the planning for spatial interaction within the rural areas and between the rural areas and the rest of the economy." (Adalemo, 1981, p. xiii – xiv)<sup>13</sup> In the Foreword to the same publication, Professor Nystuen made the following comments:

Market fairs are a good vehicle for better understanding human geography because movement patterns associated with them are clearly linked to the spatial arrangements of the fairs themselves ....

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13. 1. A. Adalemo, *Market Places in a Developing Economy*, Michigan Geographical Publication, Department of Geography, University of Michigan (1981).

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While periodic markets reflect the cultural traditions of their own societies, they also resemble one another in their spatial/temporal forms because the underlying geographical rationales that independently evolve are the same. The empirical truths of the Nigerian case are thus useful checks on the general deductive theory that has been developed to explain such spatial/temporal strategies. New knowledge and insight are provided in this study and we have in this work a good example of the value of a geographical point of view for understanding human processes and conditions.

Just one example will suffice to demonstrate the import of those words.

In the attempt to understand the socio-spatial interaction patterns in the marketing system, it became necessary to generate theoretical trade areas under various assumptions and then compare the observed patterns with these theoretically generated areal patterns. The basic technique adopted is that suggested by the social gravity model of human interaction. The model is based on the postulate that the probability that an object (e.g. a group of persons) at a location will be attracted to a centre is proportional to the ratio:

$$A_j / D_{ij}^\alpha$$

where

$A_j$  is the attraction of a centre (j)

$D_{ij}$  is the distance from a location (i) to the centre (j) and

$\alpha$  is an exponential constant which reflects the effect of distance on various kinds of movement.

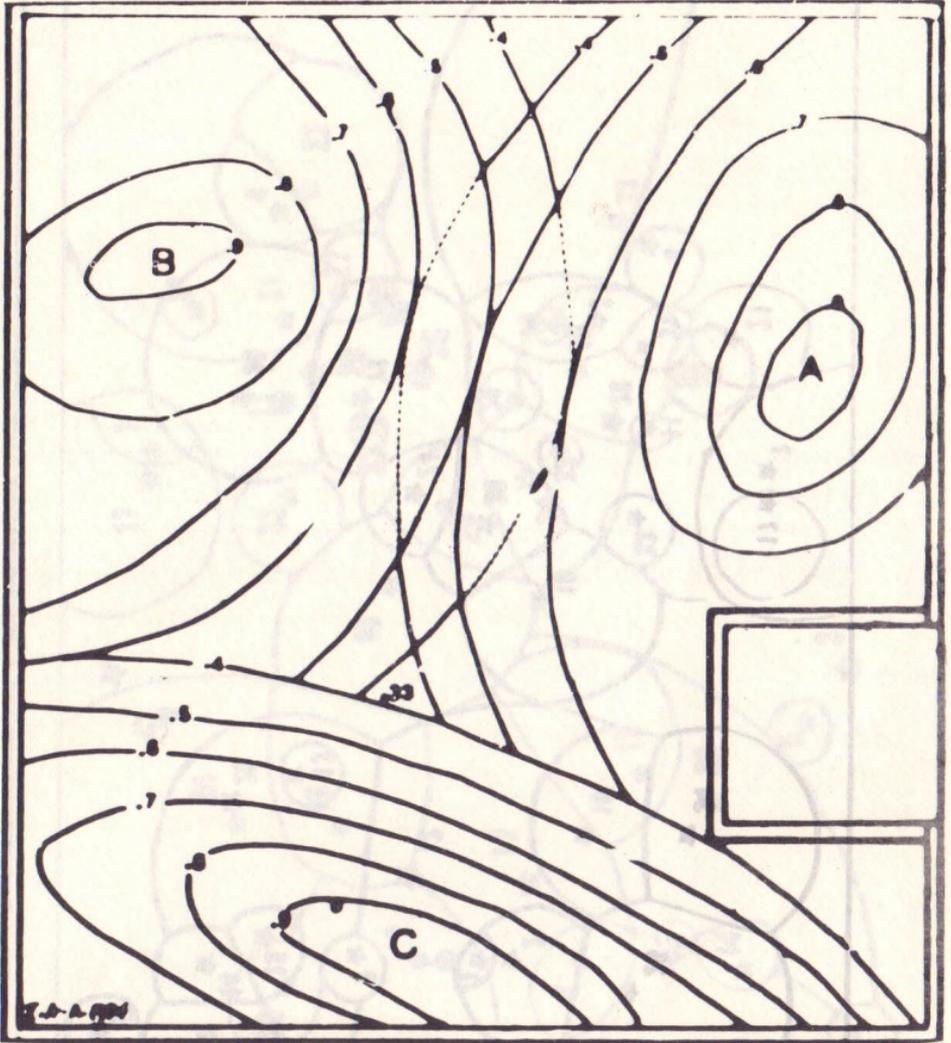


FIGURE 1

ISO-PROBABILITY LINES AROUND THREE CENTRES A, B and C

FIGURE 2

(ALL MARKETS IN STUDY AREALY ADOPTED) POTENTIAL/INTELLIGENCE OF MARKET AS INDICATED BY SIZE OF SETTLEMENT POPULATION

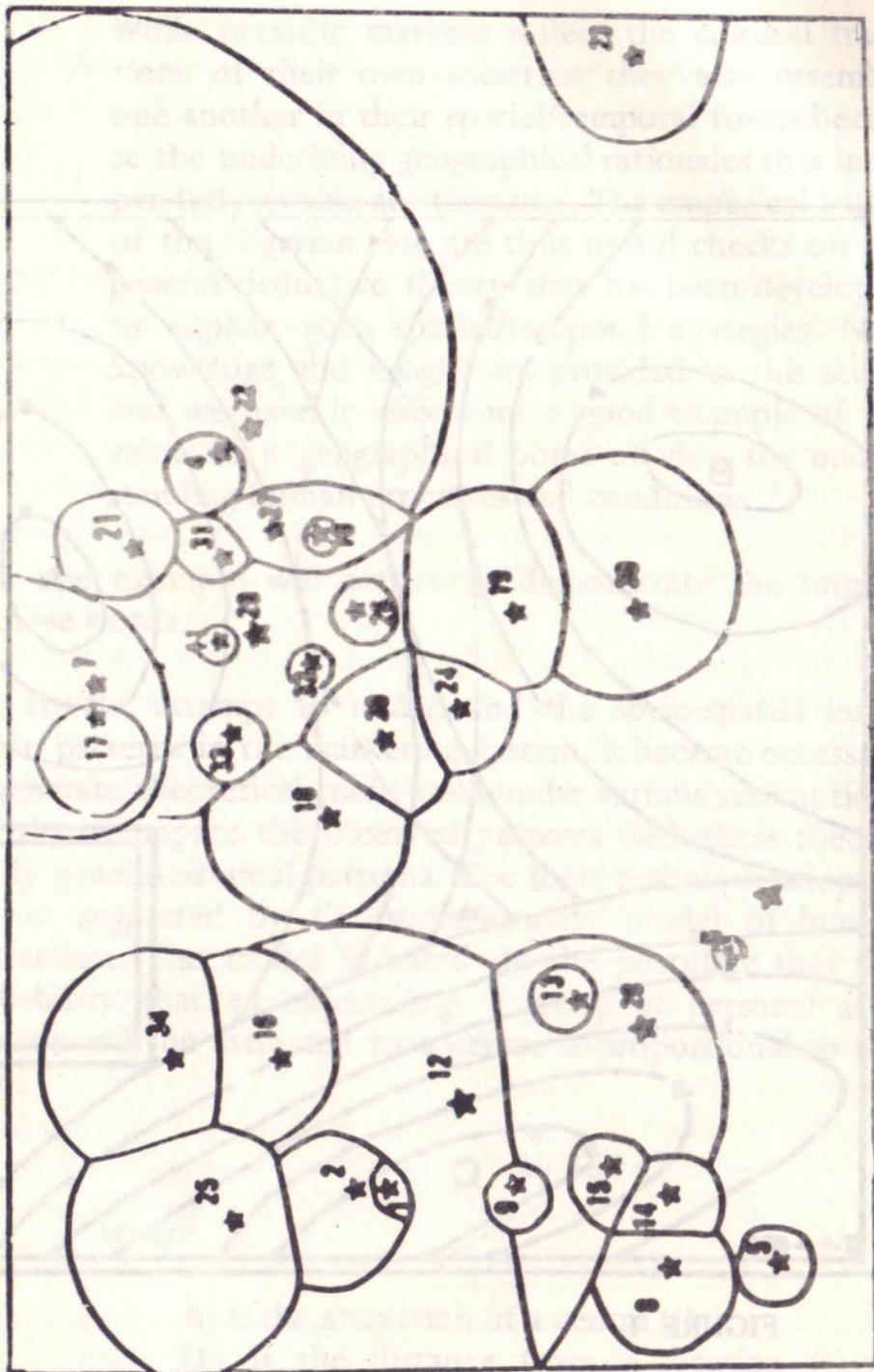


FIGURE 2

POTENTIAL HINTERLANDS OF MARKETS AS INDICATED BY SIZE OF SETTLEMENT POPULATION (ALL MARKETS IN STUDY AREA)

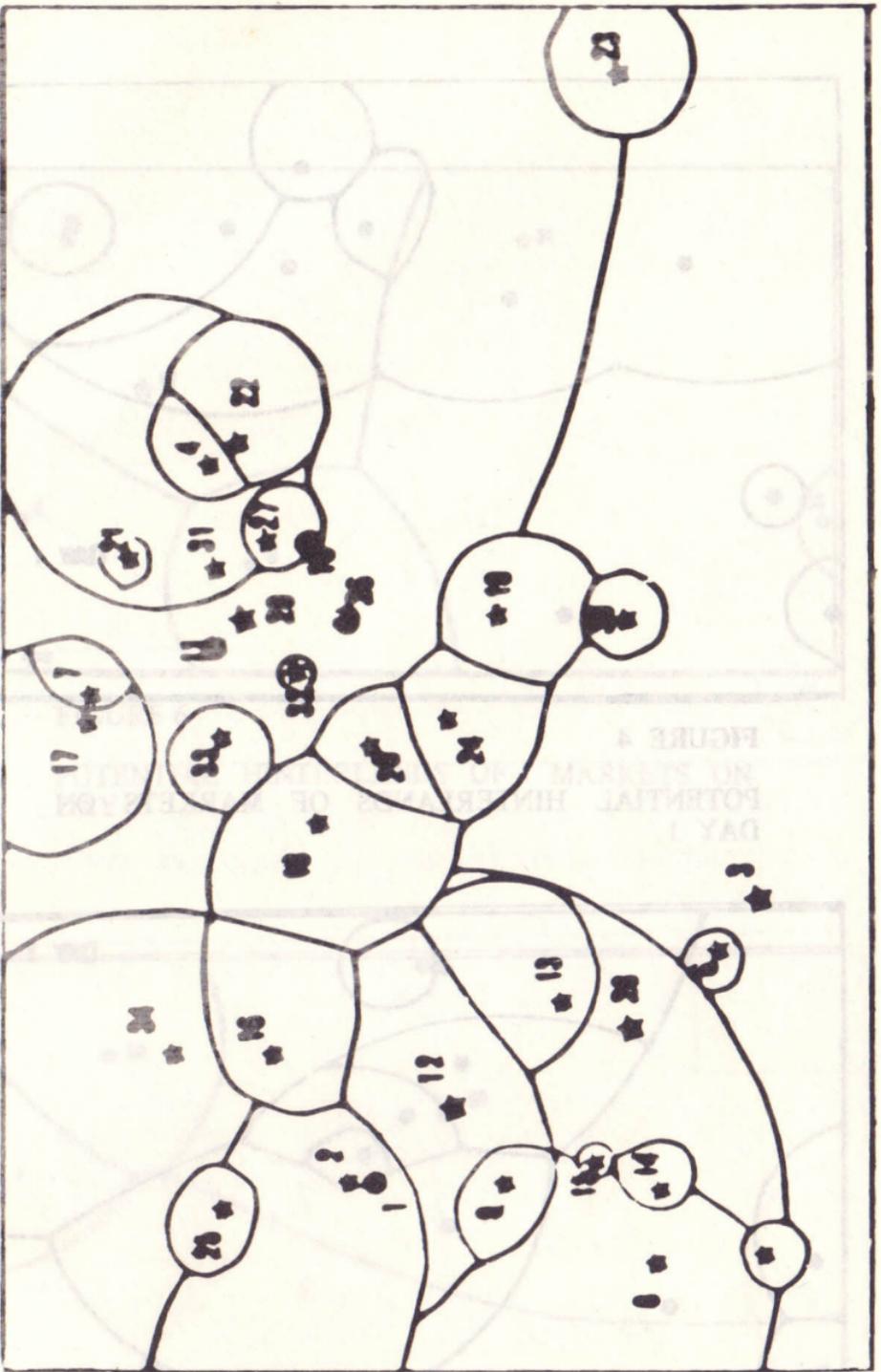
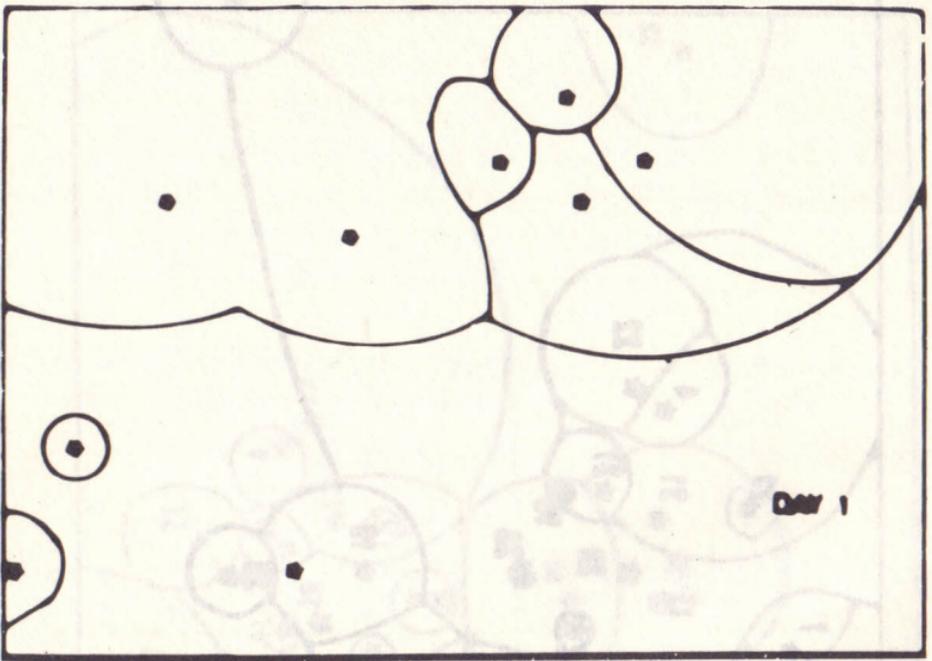


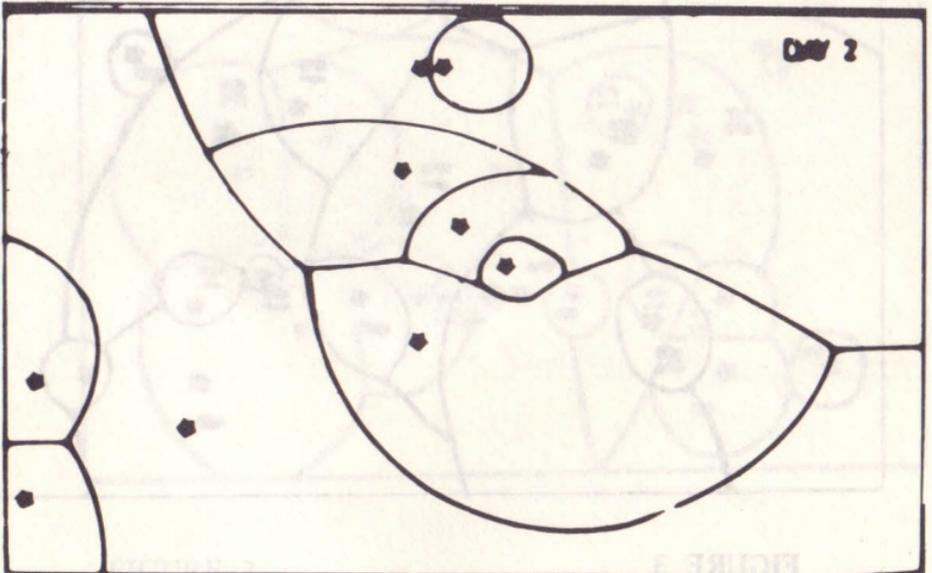
FIGURE 3

POTENTIAL HINTERLANDS OF MARKETS AS INDICATED BY SIZE OF TRADERS (ALL MARKETS IN STUDY AREA)



**FIGURE 4**

POTENTIAL HINTERLANDS OF MARKETS ON DAY 1.



**FIGURE 5**

POTENTIAL HINTERLANDS OF MARKETS ON DAY 2



FIGURE 6

POTENTIAL HINTERLANDS OF MARKETS ON DAY 3

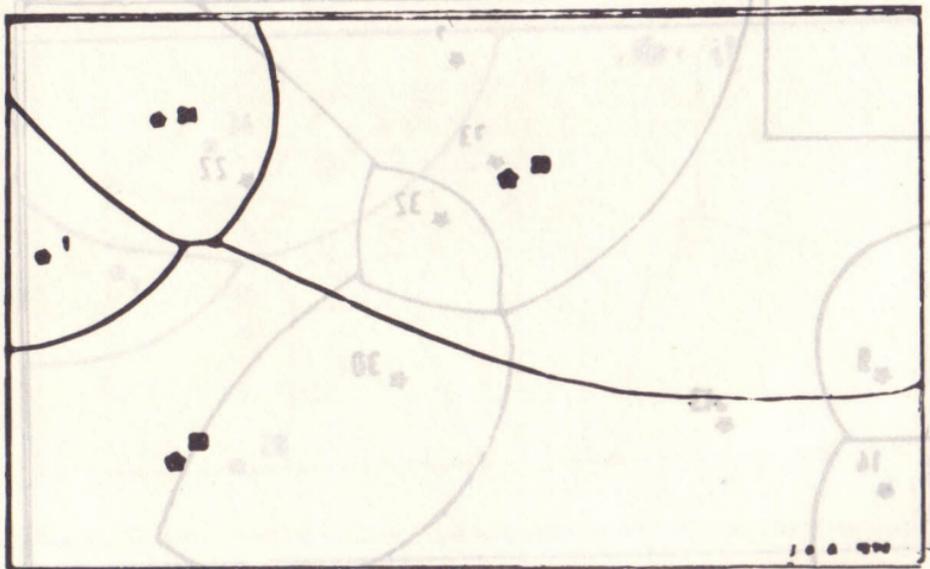


FIGURE 7

POTENTIAL HINTERLANDS OF MARKETS ON DAY 4

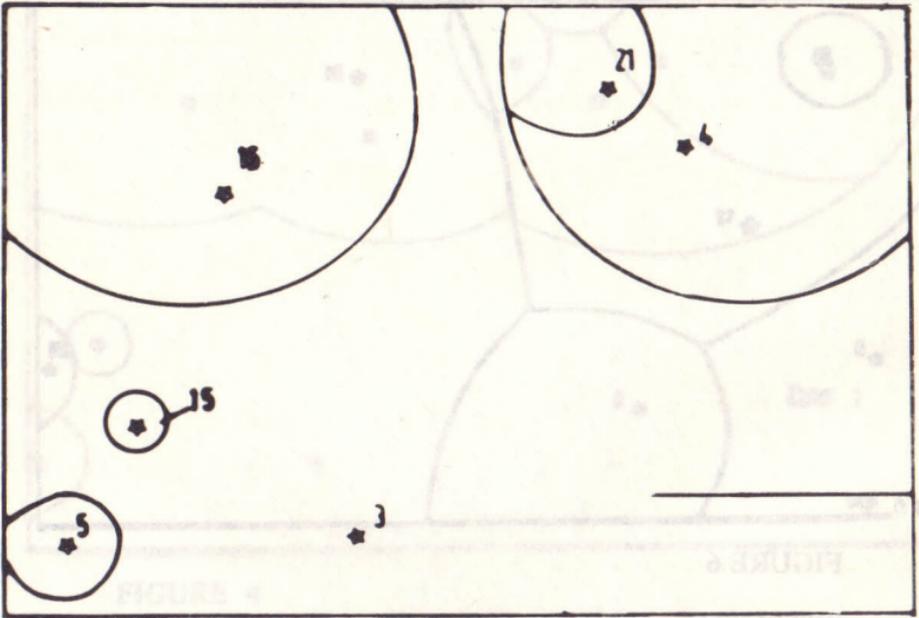


FIGURE 8

POTENTIAL HINTERLANDS OF MARKETS ON DAY 5

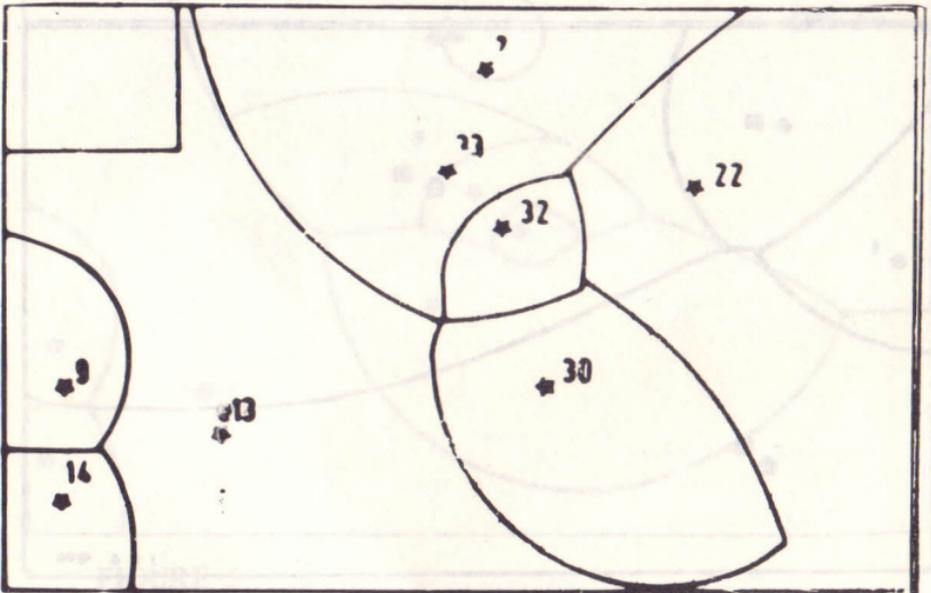


FIGURE 9

POTENTIAL HINTERLANDS OF MARKETS ON DAY 6



FIGURE 10

POTENTIAL HINTERLANDS OF MARKETS ON DAY 7

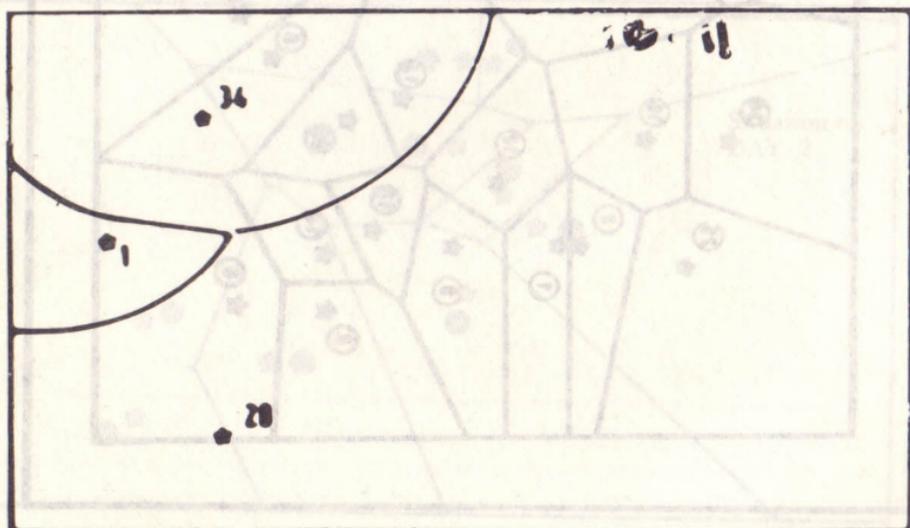


FIGURE 11

POTENTIAL HINTERLANDS OF MARKETS ON DAY 8

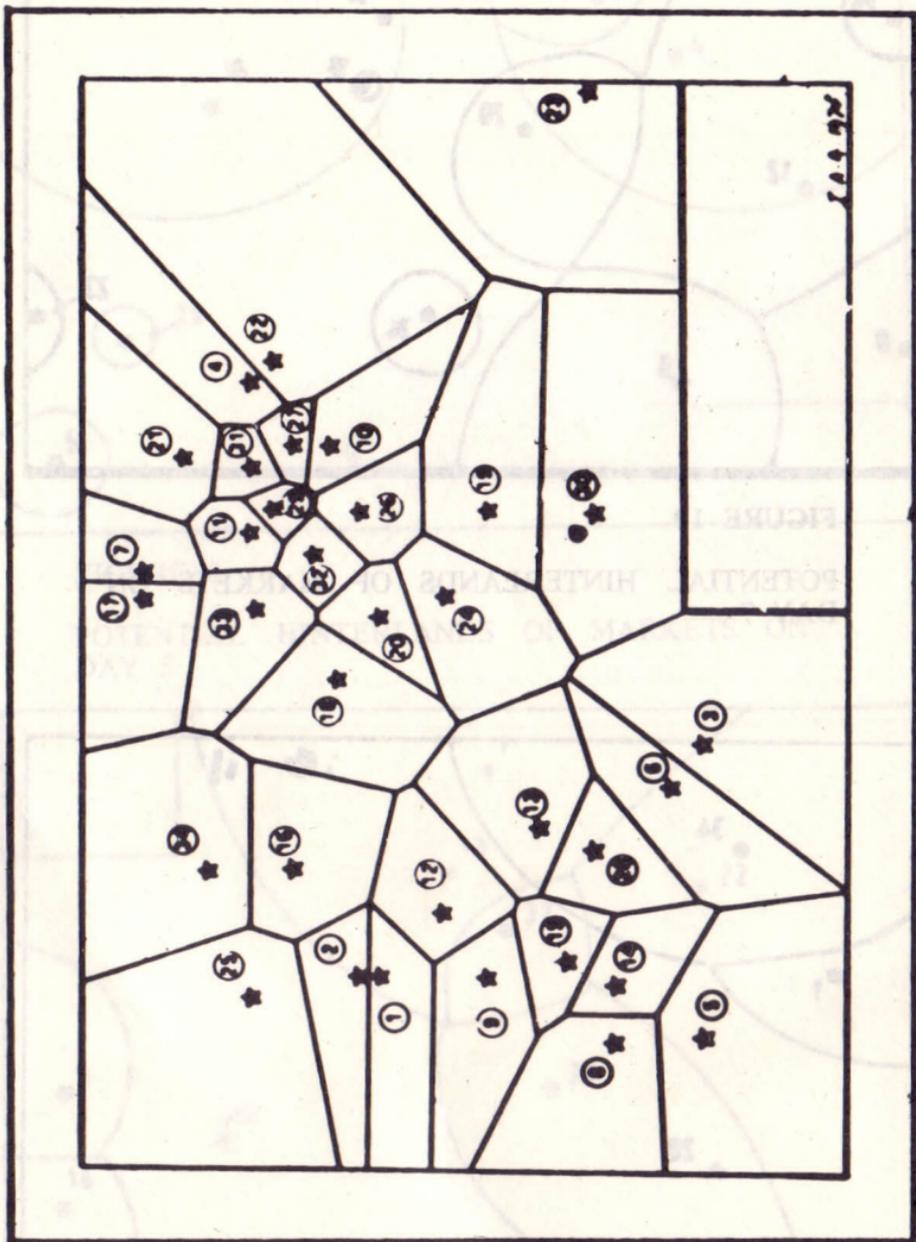


FIGURE 12

THIESSEN POLYGONS FOR ALL MARKETS IN STUDY AREA

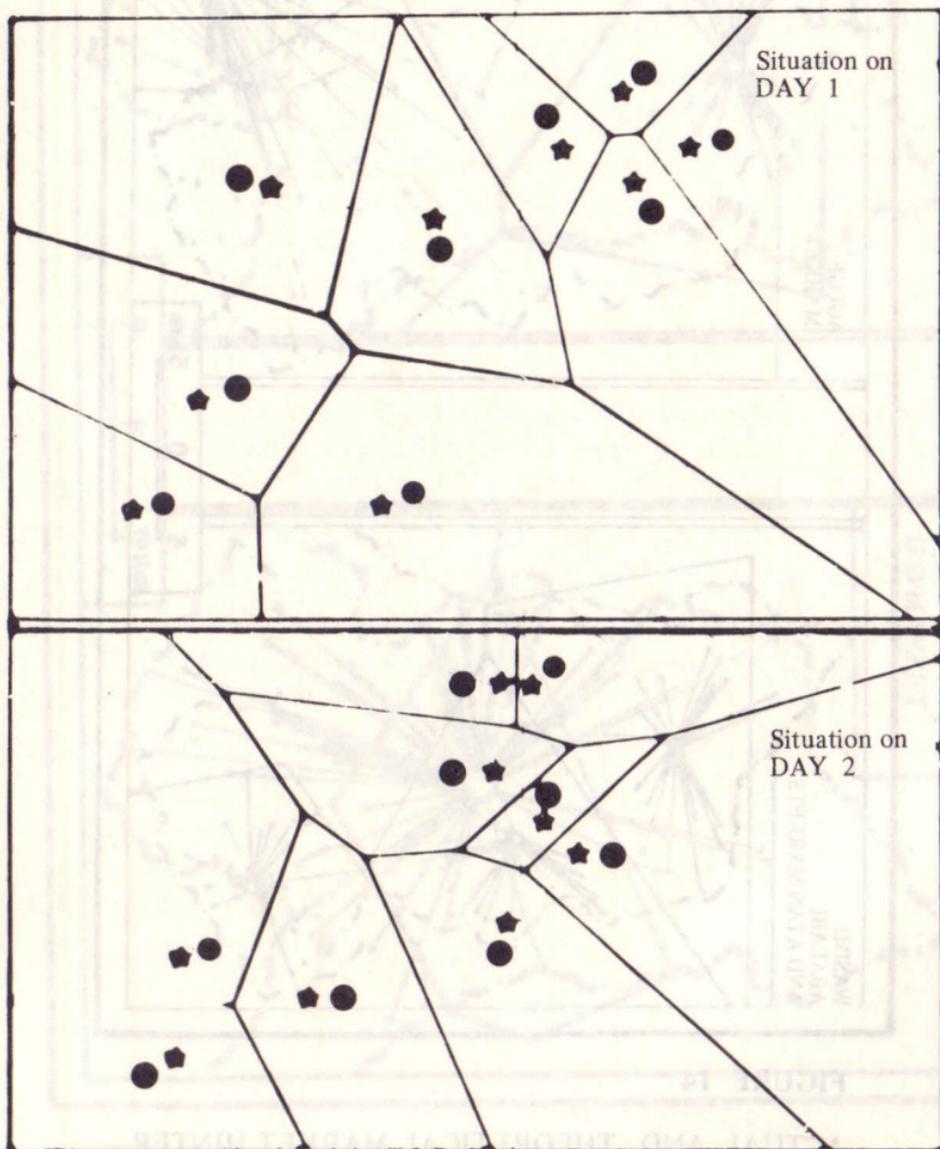


FIGURE 13

THIESSEN POLYGONS FOR MARKETS ON DAYS  
1 AND 2

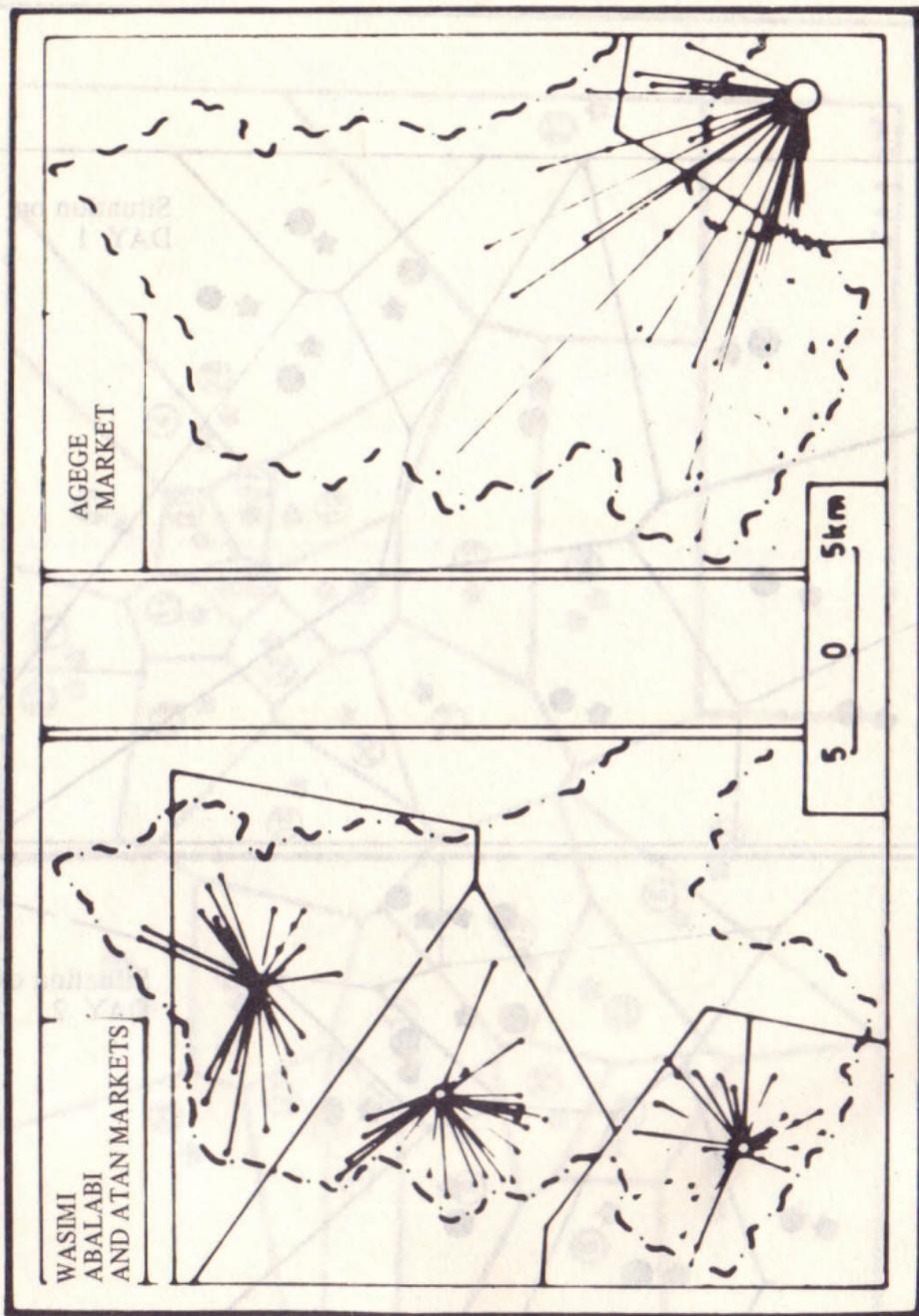


FIGURE 14

ACTUAL AND THEORETICAL MARKET HINTERLANDS

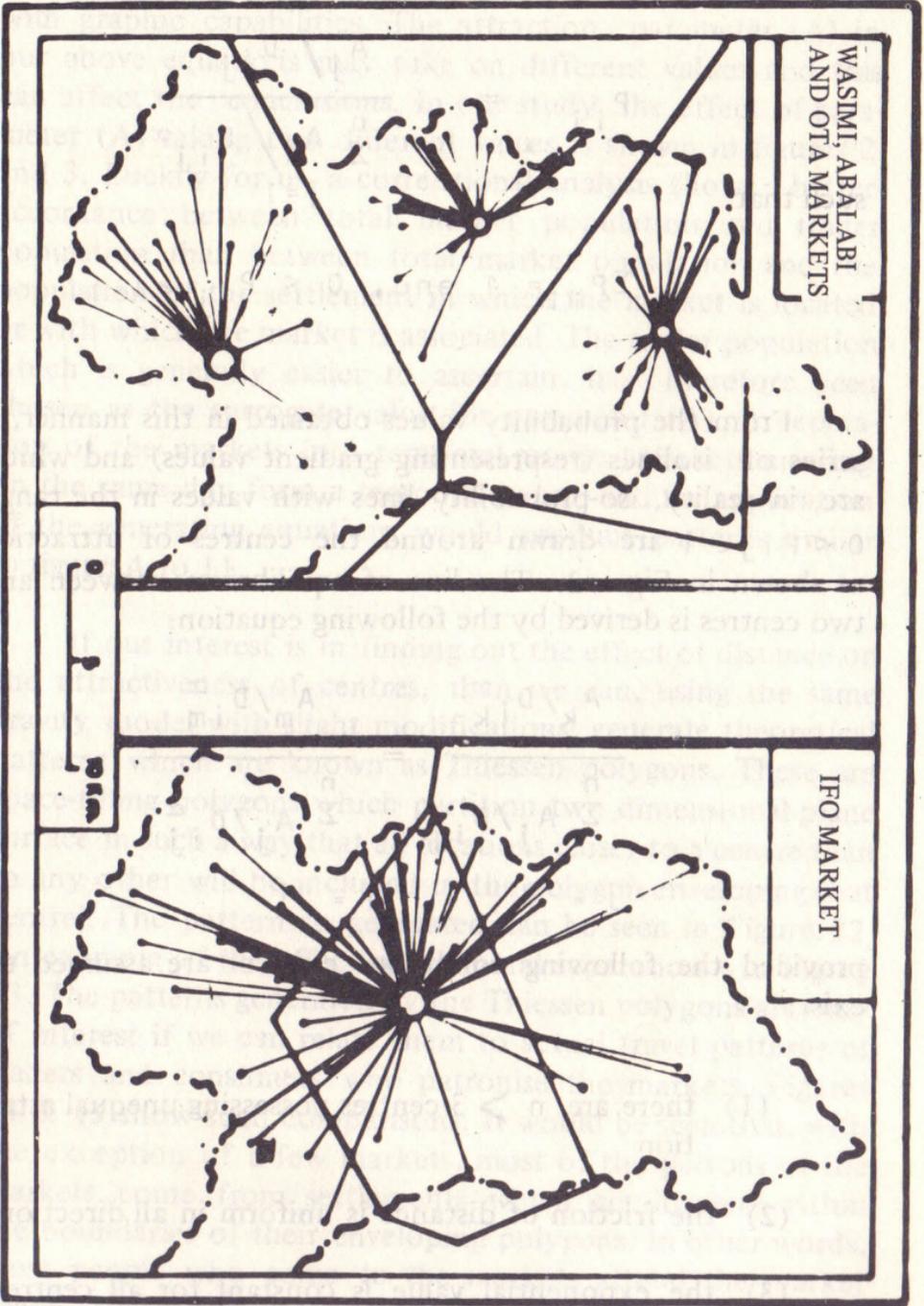


FIGURE 15

THEORETICAL AND ACTUAL MARKET HINTERLANDS

A set of probability values is generated by the equation:

$$P_{ij} = \frac{A_j / D_{ij}^\alpha}{\sum_{j=1}^n A_j / D_{ij}^\alpha}$$

such that

$$\sum P_{ij} = 1 \text{ and, } 0 < P_{ij} < 1.$$

From the probability values obtained in this manner, a series of isolines (representing gradient values) and which are, in reality, iso-probability lines with values in the range  $0 < P_{ij} < 1$  are drawn around the centres of attraction as shown in Fig 2. The line of equilibrium between any two centres is derived by the following equation:

$$\frac{A_k / D_{ik}^\alpha}{\sum_{j=1}^n A_j / D_{ij}^\alpha} = \frac{A_m / D_{im}^\alpha}{\sum_{j=1}^n A_j / D_{ij}^\alpha}$$

provided the following conditions exist or are assumed to exist:

- (1) there are  $n > 3$  centres possessing unequal attraction
- (2) the friction of distance is uniform in all directions
- (3) the exponential value is constant for all centres, and
- (4) the direction of travel is a straight line.

The equi-probability lines and the lines of equilibrium between pairs of centres can be generated using a computer with graphic capabilities. The attraction parameter (A) in our above equations may take on different values and this can affect the conclusions. In our study, the effect of parameter (A) taking two different values is shown in figures 2 and 3. Luckily for us, a correlational analysis shows a better accordance between total market population and trader population than between total market population and the population of the settlement in which the market is located or with which the market is associated. The trader population which is generally easier to ascertain, has therefore been chosen as the surrogate value for parameter (A). A separation of the markets into temporal groups (markets meeting on the same day form a temporal group) and the application of the generating equations would produce patterns similar to figures 4 to 11

If our interest is in finding out the effect of distance on the attractiveness of centres, then we can, using the same gravity model with slight modifications, generate theoretical patterns which are known as Thiessen polygons. These are space-filling polygons which partition two dimensional plane surface in such a way that all locations closer to a centre than to any other will be included in the polygon enveloping that centre'. The pattern so generated can be seen in Figure 12. An example of the effect of temporal separation is in Figure 13. The patterns generated by the Thiessen polygons are only of interest if we can relate them to actual travel patterns of traders and consumers who patronise the markets. Figures 14 & 15 show such comparisons. It would be seen that, with the exception of a few markets, most of the patrons of the markets come from settlements which are located within the boundaries of their enveloping polygons. In other words, most people who come to the markets attend the market nearest their home-base. This has been confirmed by sample interviews of market patrons which show that proximity to home-base is the single most important factor which influences the decision to attend a market. When patrons cross

the boundaries of the Thiessen polygons to attend markets farther away, they are indicating that, for a number of factors, that market is more important to them than the nearer market.

Peculiarities of the temporal and spatial configurations of these markets become evident when analytical methods of the type developed here is applied to their study. The model provides us with a powerful tool for careful planning of market locations to ensure that groups of settlements are adequately served. In the case in which settlements have to be relocated, as happened in the Kainji Dam Area, minimum disruption of marketing and other socio-economic activities could be ensured by the use of these instruments.

The instruments are also useful in the analysis of the location of other facilities such as health centres, schools, administrative centres, farm equipment centres, farm input depots, etc. Their use is not limited to the location or relocation of market or shopping centres. The location of any centre providing services to the surrounding area can be analysed using the techniques outlined above. It is for this reason that it has been relatively easy for me to move from the study of market centres to the study of small urban centres and their role in the development process. In fact, I have come to see the market centres as potential centres of development especially as their existence represents the results of conscious choice (design again) on the part of the local population. This realisation may assist us in the process of identifying indigenous centres of development with potentials for stimulating growth. Such centres can then be provided with facilities which will enable them perform their assigned roles. We are equally concerned with larger urban centres. It is our belief that a great deal can still be done about the management of centres which colonial administration has allowed to grow out of tune with their proper role within the national socio-economy. To this end, we carried out a study of the growth pattern of the Lagos metropolis and the implications for development planning. The study<sup>14</sup> shows that

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14. I. A. Adalemo: *The Physical Growth of Metropolitan Lagos and Associated Planning Problems*. Occasional Papers. No. 1, Department of Geography, University of Lagos 1982.

metropolitan Lagos is nothing but an aggregation of villages and towns which have for a long time been uncoordinated in their development. This lack of coordination has led to the emergence of various problems in the development of the city and the metropolis. In order to advert our minds to these problems and their possible solution(s), we shall quote extensively from the conclusions of the study.

### Lessons from the Study of Metropolitan Lagos

The physical growth of Metropolitan Lagos has been phenomenal. The original city on the island started as a non-urban settlement occupied by farmers and fishermen. At about the same time as the settlement started to acquire urban (mainly trading and administrative) functions, other non-urban settlements were springing up in the area which can now be identified as comprising metropolitan Lagos. Although there were deliberately planned sections such as Ikoyi, Apapa, Ebute-Metta, Yaba and, more recently, Surulere and Ikeja GRA, the city has grown mainly by encroaching upon and incorporating existing non-urban settlements. Once a non-urban settlement is incorporated, the vacant areas are filled in and transformation takes place within the absorbed settlement such as to make it difficult to recognise it as a formerly separate entity from the city. Many of such settlements however still retain their non-urban characteristics (physical and social) and remain quite recognisable. The study has identified three groups of such settlements within Metropolitan Lagos.

The first group consists of villages which can be said to have been completely absorbed into the urban system. They were either totally demolished to make way for urban growth as occurred to villages which formerly occupied the area on which the University of Lagos now stands, or were gradually transformed by urban structures replacing the non-urban ones. The second group is made up of villages which have persisted in spite of urban encroachment and have actually absorbed a large number of poor urban population. Villages such as Iwaya and Maroko have defied trans-

formation probably because of the peculiarity of the physical landscape on which they are located. Iponri village and Oto give the impression that they will persist as 'cysts' within the structure of Metropolitan Lagos. A third group of non-urban settlements actually represent deliberate movement in anticipation of the growth of the main metropolitan area. These are speculative settlements which are established ahead of the growing edges of the metropolis and with which speculators hold down large tracts of land whose value appreciate as metropolitan growth approaches them.

Any of the three types of settlements which have been identified in this study has its associated planning problems. Demolition of villages to make way for urban development has led to the forced movement of population within the metropolitan area and has resulted either in the creation of new villages or the swelling of older ones. If the population from demolished villages move into existing villages, the density of these villages rises and living conditions are worsened. The persistent villages on the other hand represent pockets of poorly provisioned areas within the urban system. They easily harbour social deviants and represent another form of problem for the administration of the city. The third group of villages which result from speculative dealings in land are probably the most problematic. Their establishment ahead of the growth of the metropolitan area preempts the planning strategies of the metropolitan authority and unless the authority is willing to commit large sums of money to pay for compensation, it is forced to skirt such settlements and allow them to grow as unplanned areas within the metropolis. Even where such areas are laid out by the land speculators, their planning is often not in accordance with the general overall plan of the metropolis. Since this practice goes on continuously as the metropolitan area expands, the planning problem it presents also persists. This may actually explain why, apart from the natural villages which existed during the early development of the city of Lagos, the city and the metropolis continue to grow as an aggregation of non-urban settlements. There are in addition to these

groups of settlements others which have been absorbed into the metropolis which, in their own rights, could have developed into and be administered as independent urban settlements. These settlements such as Mushin, Ikeja and Agege absorbed the bulk of the migrants who came into the metropolitan area from the various parts of Nigeria.

The fact that these were incorporated into the metropolitan system without really distinctive administrative set-up and the attempts at one time to actually administer most of the area from City Hall created problems of size and led to poor planning and plan implementation. The recent reorganisation which brought about the establishment of distinct local governments to administer different parts of the metropolitan area is a recognition of this problem. The establishment of these distinctive administrative areas has led to an improvement in the provision of urban amenities and the maintenance of existing facilities. The conclusion one is forced to draw from this is that the recognition and establishment of smaller and more manageable administrative areas within the metropolis, will lead to improvements in services. The suggestion is therefore that urban cells should be created within the existing metropolitan area and that the concept be employed as an organising principle to guide the future expansion of the metropolis. Within the existing local government areas, autonomous urban administrations should be established which will be coordinated by a Metropolitan Council made up of representatives of the various city administrations which comprise the metropolitan area. The process which has started by the creation of Local Government Areas should be taken further so that the administration of the extensive metropolitan area with the large population constantly and rapidly increasing by the influx of migrants can be made more effective.

The need, of course, for metropolitan-wide authorities to provide for transportation, water supply and other amenities which economies of scale indicate are better provided at that level should be recognised. A Metropolitan Planning

Authority is also essential to ensure that discordant planning policies which may be counter-productive are not pursued by the various city administrations.

These conclusions have implications for the spatial and administrative reorganisation of the country as a whole. We indicated earlier that one of the fortuitous events which have had some impact on the socio-economic development of Nigeria is the creation of States in 1967 and 1976. As one of the consultants to the States Creation Panel whose recommendations led to the creation of states in 1976, I cannot but say a few things about that experience especially as it relates to the third issue which we identified earlier on in this inaugural lecture — the issue of reordering or restructuring space for purposes of facilitating development.

The rationale for the creation of states is to bring government nearer the people. It involves the decentralisation and devolution of administrative authority. The sentiments which were expressed after the creation of states in 1967 and 1976 as well as the current agitation for the creation of more states show that this principle is accepted by most people. The dilemma arises however when this rationale is applied indiscriminately to justify personal selfish cravings. Nigeria can probably do with the creation of a few more states but a wholesale proliferation of states will defeat the very purposes of the idea of creating states i.e. the creation of optimal administrative areas through which negative effects (externalities) are minimised and positive effects are maximised thereby making for efficient government functions at all levels. On the basis of past experience and our geographic training, we have a few suggestions to make in this regard.

### **Reorganisation of Space for Administrative Effectiveness**

Before any more states are created in Nigeria, geographers and sociologists in the universities and research institutes should be commissioned to carry out studies of the patterns and intensities of interaction among the various

communities which make up the nation. We may discover that while the need for the creation of a number of states in addition to the existing ones may be justified, what we really need is the creation of more local government areas to ensure the proper administration of each community. Effective administrative organisation would require a hierarchical arrangement down to the lowest level. Below the level of the Local Government Authority, for instance, we can have Area Councils, Town Councils and Village Councils in that order. Each level of administration should be franchised and the area of jurisdiction clearly delimited. The study of patterns and intensities of interaction suggested earlier as well as the experience of the geographer in regionalisation techniques, will come in handy in this regard.

In the event we are worried about the cost of such an administrative set-up, it is also being suggested that membership of councils below the level of the Local Government Authority (LGA), if not including that, should be on a part-time basis. Village and town councils will send representatives to area councils and chairmen of area councils should be ex-officio members of Local Government Authorities. In this way, there are linkages throughout the system.

The Local Government Reform introduced by the last military regime has moved us closer to what should obtain, but, I am afraid, it has not gone far enough. The situation whereby a major urban settlement would not have its own independent administration even if it would be in a hierarchical relationship with a higher administrative authority, does not augur well for the management of our urban centres. As we have shown in the Study of Metropolitan Lagos, we may even need to establish administrative units within a large city along the lines of urban cells which are components of the metropolis. This, of course, presupposes that we have the necessary information on the extent of the influence of each human settlement such that we can delimit it for purposes of administration. The fact that we do not have necessary information on this aspect of our socio-spatial

economy makes it compelling that a study be carried out on the existing structure of the National Human Settlement System. The work of the National Census Bureau should include the acquisition of data that would enable us deduce the structure and nature of our settlements from the smallest to the largest. When such information becomes available, we can tackle the problem of formulating a national settlements policy in which we can suggest what the structure of our human settlements system should be and what functions they should be performing. It should then be possible to relate objective to policy and performance. The structure of the National Human Settlement System has a great deal to do with the course of national development. The rate and efficiency with which developmental stimuli are passed on is largely a function of the structure of that system. This is the point we have tried to make in our research reports and publications, some of which have been referred to earlier in this lecture.

Mr. Vice-Chancellor, Sir, my interest in design for development has also led to my participation in the provision of maps which are designed to facilitate the decision making process for project formulation and execution. I have been privileged to serve on the National Atlas Project Committee and to have contributed to the first edition of the National Atlas. Currently, I am involved in preparations for the second edition of the National Atlas. As a member of the Nigerian Cartographic Association, I have had the further opportunity of presenting my views and results of research efforts in forums through which policy makers can inform themselves on the importance of maps to national development.

Let us now reiterate some of the salient points in this inaugural lecture. The lecture has sought to demonstrate how a geographic point of view can enhance our understanding of the world around us and how geographic research can serve as a basis for proper design for development. The shortcomings of the current development planning procedure wherein the spatial objectives, constraints and implications

are not explicitly stated have been highlighted. It is our view that the change which was brought about by the government whereby the Ministry of Economic Planning was changed to the Ministry of National Planning should go beyond a mere name change. We have indicated in the course of this lecture that it would be a mistaken notion if development is thought of only in terms of economic development. The Ministry of National Planning should therefore be constituted and made to operate in such a manner that all the fields of knowledge which can contribute to national planning are able to do so. Space, we have discovered, is basic to all development planning and plan implementation. We are therefore concerned that spatial aspects of development be not taken for granted. We have to change from the project basket approach to development to a more comprehensive approach geared towards the correction of social and spatial (i.e. regional) imbalance and the upliftment of the socio-economic condition of the country. We should be concerned about designing development in such a way as to enhance the linkages within the economy. We should *redesign* the economy in such a way as to dismantle the colonial heritage which have negative impacts on our socio-economy.

One final point which keeps recurring when the issue of development is discussed is that of data availability and adequacy. There had been treatises on 'Planning without Facts' and 'Groping in the Dark' and so on. The development of data banks in recent times is a device to improve the situation with respect to data availability and quality. As has happened in other areas, there does not seem to be adequate coordination of activities in this area. It is my submission, Sir, that the expertise of geographers be brought to bear on this aspect of our national development planning effort so that the problem will not persist. Location is a common factor to all information and the best way to coordinate the data bank contents is to include location codes along with the other information to be stored in the bank. Geographers know how to provide these location codes. The development of a geographical coordinate system will go a long way to

improve our data banking system and consequently improve the quality of information available for designing for development.

Mr. Vice-Chancellor, Sir, Distinguished Ladies and Gentlemen, I hope we have said enough to justify the claim that geographers can play an important role in facilitating the development process and that geography can serve as a basis for and contribute in a meaningful way to development planning.

Thank you for giving me your attention.

