The spatial pattern of the Ethiopian population

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THE SPATIAL PATTERN OF THE ETHIOPIAN POPULATION

by

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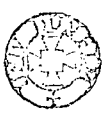
Thesis submitted for the Degree of M.A. of the University of Durham

December 1984



I declare that the material in this thesis has not been previously submitted for a thesis in this or any other university.

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To Amsalu

ABSTRACT

This study deals essentially with the pattern of distribution of Ethiopian population as a phenomenon resulting from centuries of dynamic changes in accordance with changes in historical and economic realities and in environmental possibilities. Thus, the dissertation seeks to link past events with and considers them as determinants of present rural and urban population pattern and the spatial aspects of ethnic, religious and linguistic groups and of types of activity. Ethnic complexity, the very peculiar altitudinal pattern of settlements, under-urbanization, urban primacy and the hierarchy of towns, economic and social backwardness, diverse environmental conditions and uneven resource distribution that in turn influence the spatial pattern of population distribution constitute the main topics of analysis.

Although owing to the absence of genuine information on past events and up-to-date population data, this work may lack demographic profundity, it is an initial statement that will hopefully throw much light on the geography of the Ethiopian population. Moreover, it will serve as an indicator of other possible approaches to studying the spatial and other aspects of Ethiopian population.

ACKNOWLEDGEMENT

I would like to thank Professor John I. Clarke of the Department of Geography, University of Durham for his help and assistance throughout the period of study. His criticisms, encouragement and support were of immeasurable help in compiling this work. He has my sincere thanks. I am also very grateful to Miss Judith Willis who untiringly devoted much of her time typing the manuscript. Lastly, I would like to express my indebtedness to the staff of the Centre for Middle Eastern and Islamic Studies and the School of Oriental Studies for their cooperation in finding much of the historical materials used in this work.

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INTRODUCTION

The scanty research outcomes, travel accounts, and historical materials on Ethiopian population have not been able to unveil the various facts and facets of what constitutes the real essence of the population. The limited individual and group efforts have not helped much to overcome the age-old unintelligibility of the country and people. Owing to the total lack of authentic population data, the realities of Ethiopian population are still shrouded in the darkness of myths and mythical interpretations of past and present population events. To this date, neither the Ethiopians themselves nor the outsiders are able to answer even the simplest question of what is the total number of Ethiopians. There is much truth in Perham's (1969:xvi) assessment of the prevailing intellectual realities. He used a simple example to explain this;

> "I have found it impossible, either from studying books or consulting living travellers and residents, to learn whether or for how long the mountains of Simen carry snow. Opinions conflict and no verification could be obtained. Ignorance of this kind could hardly be matched anywhere else in the world."

Perham's observation is hardly exaggerated and is but one among similar statements to be found in the works of various writers.

This study shares many of the difficulties faced by those who attempted to study the various characteristics of Ethiopian population due to the non-availability of relevant and reliable data. In view of the fact that there has been no census in the country, no population research including this thesis can boast of completeness and absolute dependability. Non-availability of analytic works that feature the spatial aspect of the population has also rendered this work difficult.

Only two round sample surveys, 1964-1967 and 1968-1971,

respectively referred to as the first and second round sample surveys, have been undertaken so far. Neither was complete in terms of the number of variables considered and the areas covered.

The first chapter of this work deals with the peopling of Ethiopia and the evolution of the country's population space over time. Although much of the information on Ethiopian history has little to do with and is of little use for the spatial analysis of population, those elements that are thought to aid understanding are extracted to depict as clearly as possible how the spatial pattern of population has been changing over time. Major events are discussed beginning form the time the country was supposed to have been settled up to the arrival of the first Semitic immigrants; from the onset of the first internal ethnic mobility of the christian era to the 16th century migration of the Oromo, and to the 19th century forced mobility triggered by slavery and slave raiding. In addition, the role of politics-religious movements in the process of the peopling of Ethiopia will be given due emphasis. Attempts are also made to show the present pattern of ethnic distribution that was formed in response to mass movements of people in various historical episodes.

Ethiopia is comprised of highly contrasting physical environments that in turn helped to give rise to contrasting economic practices. It forms one of the most elevated portions of the African continent, 'the Switzerland of Africa' as it is sometimes called, and yet it contains one of the lowest points of earth, the Danakil Depression. The highland regions experience cool-temperate climatic conditions whereas the lowlands are areas on scorching heat and scanty rains. The implications of this highland-lowland dichotomy for activity types and thereby for population patterns and densities, will be the main topic of analyses in Chapter 2.

This chapter which essentially considers the vertical or altitudinal pattern of population distribution reveals the strong reciprocal relationship between human and physical factors and the crucial role the latter played and still plays in shaping and reshaping the pattern of population distribution. It will also be seen whether the mountains of Ethiopia have the same effect as those elsewhere in the world or a different or even opposite effect.

As an extension of the examination of the altitudinal distribution pattern, the spatial pattern of population is discussed in Chapter 3. The smallest possible administrative units for which data are available are used with an object of assessing the size and density patterns of population and their covariation with the types of economic practices. In this chapter are also raised the currently very important issues of drought and famine from which millions of Ethiopians are suffering. Hazardous ecological zones in which immediate restructuring of population patterns is not only necessary but indespensable, are identified and some possibilities for redistribution are indicated. But, due to data problems the chapter lacks a temporal dimension and emphasises only the present pattern with no attempt at population projection, model building and theory formulation. In addition, not much is said on the demographic characteristics - spatial pattern of fertility, mortality, migration and other socio-economic variables - due to similar problems mentioned above.

Chapter 4 refers exclusively to urban populations: history of Ethiopian urbanization; size patterns of urban settlements; the hierarchy of towns and the demographic, economic and social characteristics of towns. Here is shown some of the contemporary features and problems of urban Ethiopia which in the main is

typical of the general phenomena in Third World urban systems. Rural-urban migration, which is by far the most conspicuous form of contemporary population movements will be discussed with an emphasis on 17 major towns surveyed in 1978. Urban age-sex structure and the high sex imbalance in which females outnumber males in almost all age groups and in the majority of urban centres and some of the reasons for such a lop-sided distribution will be accounted for. Some answers to important questions - like what does the general socio-economic environment of urban centres look like? - will also be given in the last chapter.

Inevitably, with a dearth of demographic data, this dissertation represents an outline synthesis rather than a profound analysis, but it is hoped that it raises many questions for further research.

CHAPTER 1

THE PEOPLING OF ETHIOPIA

The present spatial pattern of Ethiopia's population and many of its characteristics - ethnic, religious and linguistic - derives from three important factors:

1. the country's location amidst three worlds: the Arabian world, the Mediterranean world, and the Sub-Saharan African world, sharing their vices and virtues manifested in the form of incoming and outgoing people, cultures, information and innovations;
2. the internal mobility of various groups of people triggered by religious, political and expansionist motives which were both recurrent and of long standing; and
3. local physiography and climate, by which the above were seriously handicapped in some places and highly facilitated in others.

Thus, proper understanding of today's population pattern and the underlying processes that have brought it into existence is possible only if these exotic and indigenous factors are treated together. Implicit in this assumption is that the population pattern of the country at any moment in time was the reflection of the events that pre-dated it on the one hand, and a clue of what was to follow, on the other.

The usefulness of such an approach has always been emphasized by population geographers. Beaujeu Garnier's (1966:73) assessment of the completely different role that the same physical or economic factors play depending on the state of development of a given community, is one example. Clarke (1965, 1971) and Zelinsky (1970) are also amongst the pioneer proponents of this same idea, and

provide another example. At the same time, these and other population geographers stress one character which is true of all geographical phenomena in general, and population phenomena in particular - the dynamism of population which requires a dynamic approach. However, this is not an easy approach to adopt in studies like this one, due to the dearth of authentic historical records.

To this date, much of the history of Ethiopian population lies deep under the mantle of flatteries and lies, intended to perpetuate the "divine" and "absolute" monarchic rule of the last emperor and of all his predecessors. What comes under the title "The history of Ethiopia" or "The people of Ethiopia" is in the majority of cases either the biography of "Kings" or "Kings of Kings" and the "glorious" wars they fought against their native and foreign adversaries, or an account of the "superior" semitic culture that was "smuggled" into northern Ethiopia. Our study, which deals with population (not individuals) and the evolution of the whole population space (not only of northern Semitic areas) of Ethiopia, can benefit very little from these. Of course, individuals play important roles in history, but they themselves are borne by the society in which they lived and hence their roles do not replace or represent the role of the entire society. Unfortunately very few writers of Ethiopian history, both native and foreign seemed to have done what the titles of their work suggest. Our first impression of historical materials on Ethiopian population would therefore be that they are wrongly titled, as they contain only a fraction of the people's real history. People make history and a country's history is the work of <u>all</u> of its people. There is too much in what historians did not write than in what they wrote, for writing about few things and a few individuals brought them much

wealth, prestige and even academic promotions than if they were dealing with large population groups. One practical measure taken and which we can cite as an example is the award of "Haile Sellasie I international prize for Ethiopian studies" to scholars.

On the other hand, there are some notable works by very able writers who tried and still are trying to shed some light on the history, culture, language, demography, and economy of the hitherto forgotten sections, in both the northern and southern halves of the country. On these writings will depend much of the ensuing discussions on the peopling of Ethiopia.

In the initial part of this chapter will be examined the first of the three factors (the exotic element) mentioned earlier, focussing on the immigration, some three thousand years ago, of a group of people from Arabia. In the remaining sections will be discussed the mobility factor, in which three types of mobility are identified depending on the reasons that necessitated them:

1. politico-religious - the spread of Christianity and Islam and the resulting effect on religious and ethnic distributions;
2. forced mobility associated with the practice of slavery and the slave trade; and
3. traditional mobility, like that engendered by the Gada tradition of the Oromo people.

1.1 Ancient Immigration and Settlement

Ethiopia is often referred to (although not necessarily rightly) as a land of three thousand years of history. Simple arithmetic will enable us to trace back the initial date of origin of such a history (roughly 1000 B.C.). Perhaps many of those not acquainted with the country's history find it difficult to understand what is meant by this and what happened around the said date. It

was a time during which according to Sylvia Pankhurst (1955:28) the people of Ethiopia who used to live "... in the narrow fertile terraces of Arabia felix" immigrated to Ethiopia, the land that was "... destined to be their permanent home". Destined by whom? Pankhurst did not answer this, and the answer is not of much importance to us either, for the argument itself is erroneous, unfounded and unintelligible. Such breeding of people in one place and their transfer onto a barren land ready-made for occupation, is unheard of in history. The other more plausible argument comes from many writers (Jones and Monroe, 1955; Hess, 1971; Budge, 1928; Ullendorff, 1973; Pankhurst, 1968), who state that, sometime in the first millenium B.C. Semitic people from Arabia immigrated into northern Ethiopia and settled in coastal areas north of today's administrative region of Tigray. This has surely taken place and is corroborated by later archeological findings and by detailed studies of persons like Conti Rosini (cited in Taddesse, 1972). The monuments and stelae that have survived until the present suggest that there was not only foreign immigration but also an intensive cultural development. But the question is how could this be the beginning of Ethiopia's history? None of these writers would probably doubt that there were various groups of indigenous people who lived in Ethiopia before the advent of Semitic immigration. Why have these people - the Agaw, Kunama, Baria and Sidama, to name some - been regarded as having no history of their own? The answer is surely not as Budge (1928:130) put it, because they were "... to all intents and purposes savages and barbarians", but because they were not the ancestors of the ruling class or "the royal race" in favour of whom he was writing history. Obviously, the Semites brought with them new cultures and technologies, but this alone can not be a justification for regarding them as the

pioneers of Ethiopian history. For instance there is no reason why the traces of an earlier civilization like "Dolmens, such as exist in Britain ... Menhirs resembling those in France ..." and others which Pankhurst (1955:2) referred to as "an intense cultural activity by an ancient race as yet unidentified", could not have belonged to the aboriginal population.

This study regards Semitic immigration, settlement and their intermarriage with the native population, as one episode (and not as the beginning) in the process of the peopling of Ethiopia. The discovery of the oldest known human skull in Afar areas (3.4 million years old) (Johnson, 1981), suggests that the process began with the beginning of mankind, and that the post-immigration period is probably the recent phase of it. It is very unfortunate that we have no detailed anthropological and archaeological materials to show the various phases in the process of the peopling of the country before the Semitic immigration. But recent explorations in Melka Qonture area of Shewa administrative region and the discovery of traces of stone-age culture "from the later palaeolithic onwards" and "an important early palaeolithic site" (Buxton, 1970:23) mark the beginning of the acquisition of such materials. The prehistoric rock paintings and engravings which Levine (1974) mentioned were found in northern Ethiopia - in Eritrea and in Harerge. The most important fact which many Western writers did not understand or which they deliberately evaded is that this was the work of people who lived "... before the first appearance of Semitic-speaking immigrants ..." (Buxton, 1970:23).

Simoons (1960:12) has some idea of who these people could be. He maintains that the plateau area of Ethiopia was occupied by "hunting and gathering people" during the palaeolithic.

"In the southwest were Bushmanoid people, and in

> the northeast were Caucasoids. In time, the Caucasoids, who were of Hamitic stock and spoke Cushitic languages, dominated the entire area. At some unknown date prior to 3000 B.C., Negroid peoples pushed into the plateau from the west introducing agriculture to the Cushites and also interbreeding with them."

Thus, according to Simoons, the peopling of Ethiopia began at least 5000 years ago (2000 years before Semitic migration). Even more important to note is that the people were "culturally one of the most creative" in Africa and that they "established Ethiopia as an important centre of plant domestication" (Simoons, 1962:12). Traditional Ethiopian writers also have identified various Negheds (groups of people) who have lived in times even earlier than that given by Simoons. However, the fact that their accounts have a religious overtone (they for instance said that the first Neghed, the Neghed Orit perished under the great flood), makes them less useful sources in tracing back the beginning of the peopling of the country. Frequent reference to the country was also made by men of ancient civilizations, notably the Greeks who coined the name Ethiopia itself. Unfortunately, except for their characterization of the place as "far-off" and the southern end of the world (Levin, 1974:1); the people as graceful, virtuous and "blameless" (Hess, 1970:1) and their appearance as "burnt-face", they too have not left us any written material that we could use. For this reason, the Semitic (also known as Sabean) immigration period which was accorded a wider coverage will be the starting point in the analysis of the evolution of the country's population space.

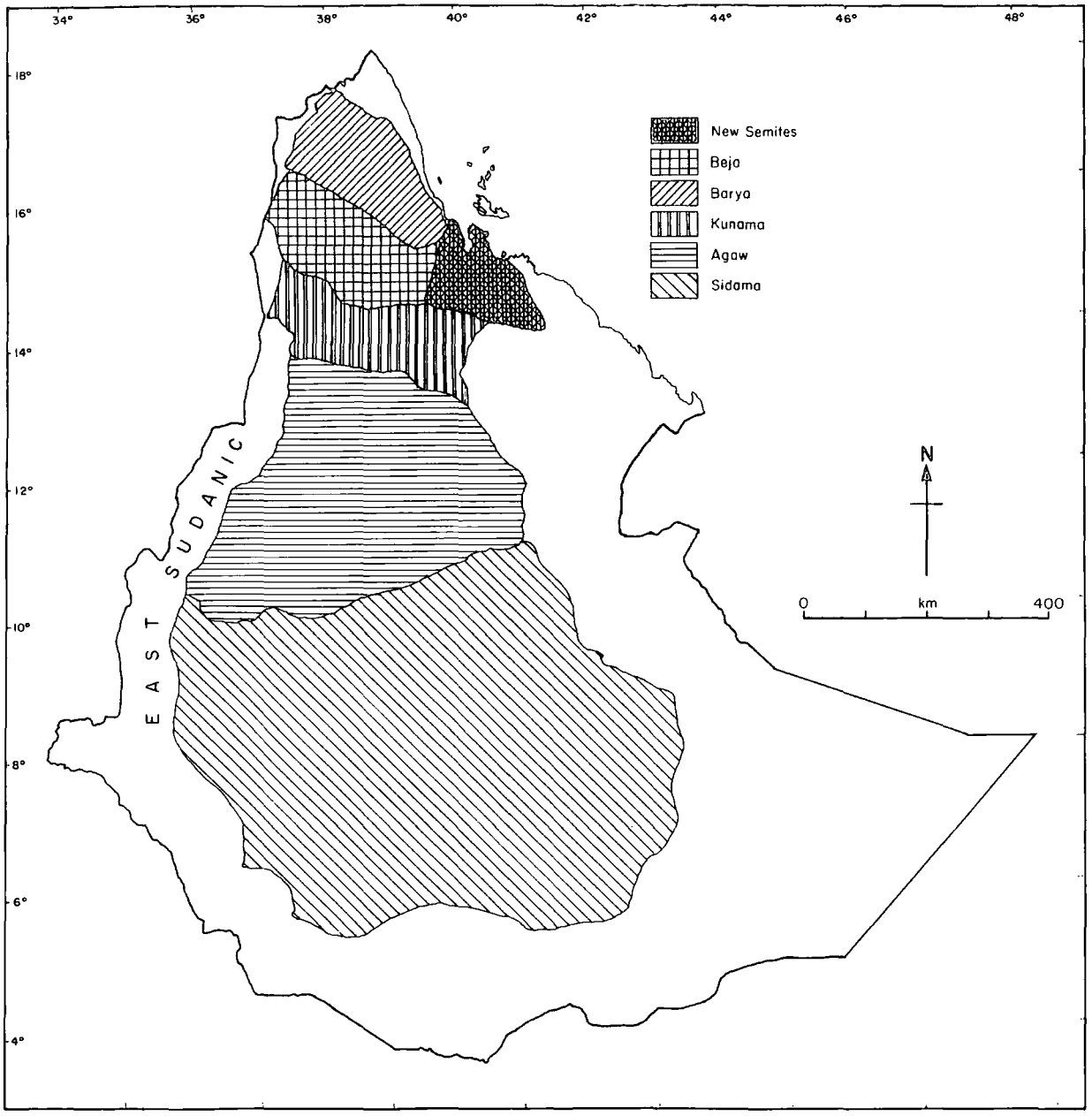
Sometime in the first half of the first millenium B.C. Semitic migrants crossed the Red Sea and settled along the Ethiopian coast and inland plateau regions. It was said that the major source of immigration was Southern Arabia. Writers argue that this inflow was not a single continuous event but had a wave-like character.

Different groups entered the country at different times. It is said that from the name of one among the immigrant groups, the Habashat, was derived the name Abyssinia, by which the country was known to European writers (Trimingham, 1950; Pankhurst, 1968; Buxton, 1970). In his preface, Buxton stresses "I have applied the term 'Abyssinians' specifically to the Semitic speaking peoples who still dominate the Ethiopian scene, and 'Abyssinia' to their historic mountain homeland". However, he is only one among a few who were honest and explicit about the usage of the terms. For other writers Abyssinia meant Ethiopia but the history of "Abyssinia" did not include the history of the entire population of Ethiopia. In addition, the name of the Semitic language Geez is thought to have been derived from the name of another migrant group - the Agazians. Nevertheless, the nomenclatures are not as important as the intentions behind their usage. As could be observed from the reaction of native writers, the terms Abyssinian or Ethiopian "are purely political" (Mestin, 1972:21).

As was stated earlier, some have a very mistaken view that Ethiopia was first peopled by the Semitic, but a more logical argument is provided by Taddesse (1972:5), who quotes Italian sources to have identified four major aboriginal groups:

1. the Beja pastoralists in areas north of the Anoba-Barka basin;
2. the Agaw in vast lands extending from the Mereb river in the north to river Jemma in the south;
3. the Kunama-Barya group who occupied a narrow belt of the Eritrean plateau between the Beja and the Agaw;
4. the Sidama group composed of various sub-groups like the Ometo, Maji Gimira and the Sidama proper (Hess, 1970:9) who lived all over areas south of the land occupied by the Agaw.

Fig I·1 ETHNIC DISTRIBUTION 5th CENTURY B.C.



The low-lying areas along the present Ethio-Sudan border was presumably inhabited by east Sudanic groups referred to as Neghede Shanqilla by Ethiopian sources. Figure 1.1provides a sketchy picture of the spatial pattern of Ethnic distribution immediately after Semitic immigration. The first three of the native peoples mentioned above (classed as Agaw-speaking peoples) are held responsible for the domestication of plants and the practice of cultivation which soon diffused into the southern Sidama areas (Gamst, 1969; Simoons, 1960). In addition, these two writers surmise that, the Beja, the Agaw, the Kunama and the Sudanic low-landers are all descendants of the Bushmanoid and Caucasoid hunters and gatherers mentioned earlier. Between these groups existed an "extensive racial mixing" (Simoons, 1960:20). The largest of the northern aboriginal groups, the Agaw, and the sub-groups (especially the Falasha and the Qemant) were given more attention by writers than the Beja, the Kunama and the Barya (Leslau, 1954; Gamst, 1969; Stern, 1862).

It was, therefore, upon these natives that the Semitic people began to impose their influence. The Semites, more likely occupied a small triangular area on plateaus in Akole Guzay, Axum, Adwa and Agame Awrajas (administrative sub-divisions) of today (Fig. 1.1). The creation of this Semitic area meant the first profound change in the spatial pattern of ethnic distribution. With this began the superimposition upon the predominantly African population and culture, of an Arabian culture. More important to note is that it was also the beginning of an intensification of the racial, linguistic and cultural intermixing which was already underway.

It is repeatedly claimed that the Semitic brought a "superior" culture and they were responsible for its further development and continuation (Ullendorff, 1960, 1973). Although we cannot regard

every thing "good" and "superior" to have been brought by the Semites, we can say that the native culture, especially the practice of cultivation, was highly revolutionized by the irrigation methods, terraces, canals and "elaborate hydraulic devices" they used (Simoons, 1970:13). However, the most important cultural breakthrough did not come until this mixed race and culture developed into one strong and world-famous state - the Kingdom of Axum.

Axum, "a city-state contemporaneous with Imperial Rome" (Hess, 1970:xix), was so advanced and magnificent that no writer of Ethiopian history (even case-studies of small population groups) could help mentioning it. For this same reason, the great majority of historians regarded its creation as the beginning of Ethiopian history. Axum's emergence as a strong and prosperous kingdom reputed especially for its architectural splendour (some of those monumental works stand to this date), was due mainly to the lucrative trade it had with the Arab and Mediterranean worlds (Hovarth, 1969; Taddesse, 1972). Cultural development that included the wheel-technology, the art of writing and painting, and the use of coins meant an all-round development of the kingdom. From the point of view of population studies, the emergence of city-systems in response to such developments and the resulting concentration of population in point locations would be another event worthy of note. This will be discussed in connection with the system of urbanism in Chapter 4.

Although there was widespread interbreeding of various native and immigrant population groups, no appreciable change had probably taken place in the pattern shown on Figure 1.1 until the turn of the Christian era by which time the Semites began to be more mobile. The mobility that resulted in the annexation of extensive territory far into today's Sudan and which even brought the original homeland,

southwest Arabia under Axumite rule, resulted in the Semitization of more and more population groups in today's administrative regions of Eritrea and Tigray. This also means that the pattern of ethnic distribution was beginning to assume a new shape. But, not until the 7th century A.D. was the foundation laid down for accelerated mobility that was to change the ethnic map of northern Ethiopia completely.

In the 7th century A.D. islamic powers emerged as the most formidable opponents of the Axumite kingdom. Their total control of the Red Sea proved to be an insurmountable barrier for Axumite trading activities with the Greeks, Egyptians, Persians and Indians (Perham, 1969). Although decadence was inevitable, the Axumites had to devise a means at least to survive as a state. Although it was the onset of "centuries of historical night" says Perham (1969:31-32), their rulers "... were not idle". What inevitably happened was a change of orientation from dependence on external trade to dependence on local trade and resources. The previously less heeded south began to attract much attention. It is this change of policy and the southward movement of the Axumites (Semites) that we characterized as the beginning of a transformation in the pattern of ethnic distribution. Apart from economic motives, perhaps even more important than this, existed two major driving forces that engendered and accentuated the southward movement - religion and politics.

1.2 Politico-religious Movements and the Changing Pattern of Ethnic Distribution (7th-16th century A.D.)

The post-Axumite period of isolation is characterized by a higher degree of mobility than is ever known in the history of Ethiopia. The recency of this period has also enabled writers to follow up the events with more ease than the pre-isolation periods.

Some three centuries before the isolation Christianity was introduced to Ethiopia, an integrative force that was to give the southward march a more vehement character. In the 4th century A.D., Christianity was accepted as the religion of the Axumites, but absence of significant move for its propagation confined its acceptance in or around the city of Axum itself. Besides, its importance was probably limited to its service as a common belief between Axum and its trading partners. But, now that "a slender thread of contact" Axum had with the outer world was reduced to "... the occasional importation from Egypt, of a new Coptic metropolitan", the Axumites had to use Christianity as a power for integrating fresh territory into their economic sphere (Perham, 1969:32).

The first of such multi-purpose incursions was on a territory occupied by immediate southerners, the Agaw. The land of the three northern aboriginal groups, the Kunama, Baria and Beja, had already fallen under Semitic influence during the pre-isolation expansion (1st to 4th century A.D.). The subjugation of the Agaw land to Semitic (also Christian) influence, although not easily and peacefully, and their eventual assimilation widened the Semitic area and, perhaps more important, it paved the way for further Semitization.

> "Cut off, at least for most of this period, from the coast and so from the lure of their old Arabian ambitions, the rulers concentrated their energies upon extending their kingdom southward over an open frontier, overrunning and assimilating the Hamitic speaking peoples in their way" (Perham, 1969:32).

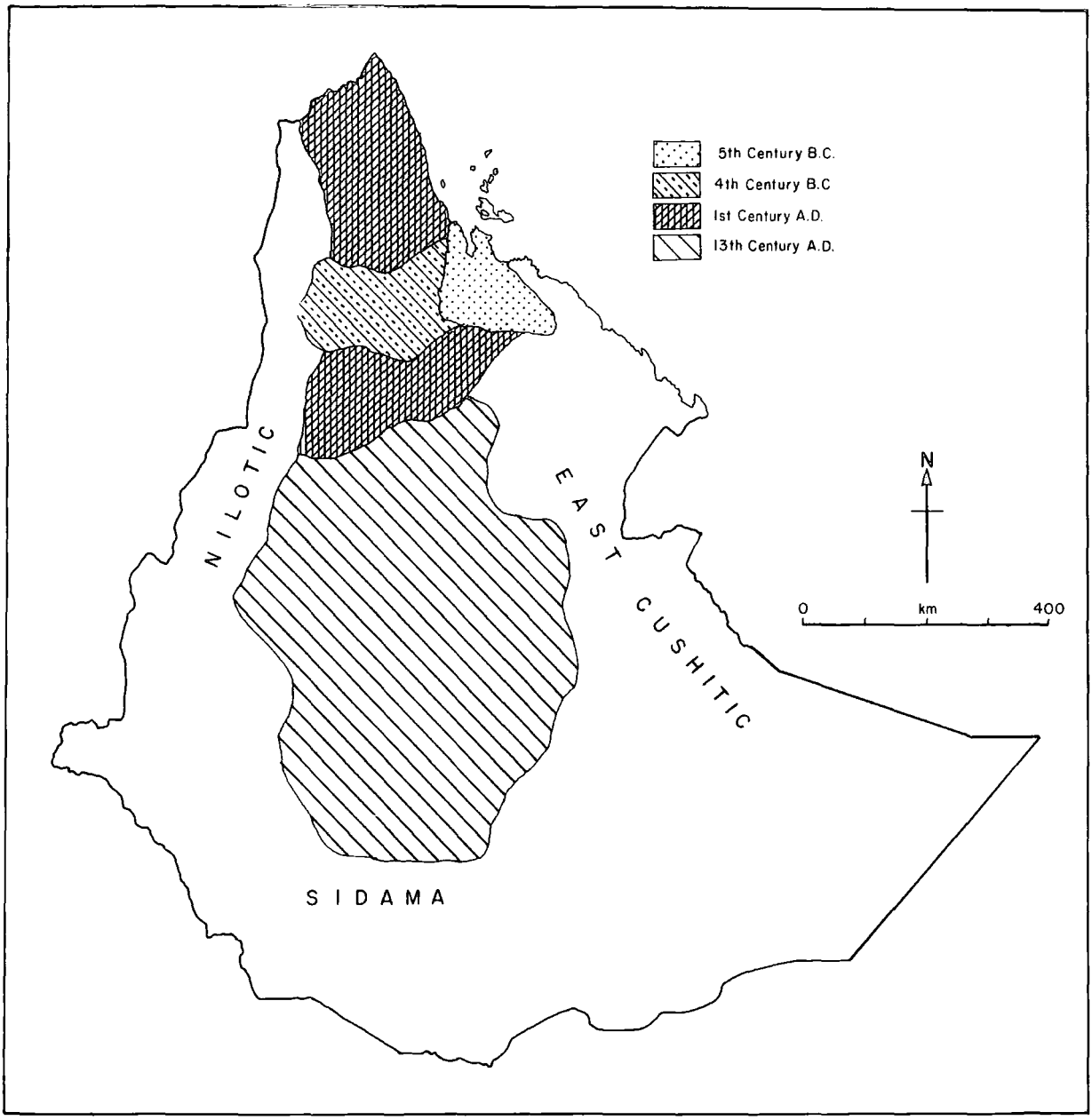
As was further summarized by Levin (1974:32), the introduction of Christianity and the Semitization process "... profoundly altered the ethnic complexion of northern Ethiopia ..." Of great interest to us, is however, the simultaneous alteration in the distributional pattern of this complex ethnic formation. Figures 1.2 and 1.3 are

designed to provide at least a rough picture of the changes in the spatial pattern of ethnic distribution shown on Figure 1.1 and the change over time of the extent of Christianized areas respectively. They give only a general picture, for the process was so dynamic that no precise representation (on maps) of the resulting structures is possible.

Here also comes the effect of physiography and climate. Nature also participated in the process of ethnic segregation, or "differentiation" as Levin (1974:30) called it. The ethnic picture of Ethiopia would surely have been very different from what we see at present if it had a uniform topography and a uniform climate. What we mean by this is that the war for Semitization and Christianization was not totally successful. The reason why it was unsuccessful was because various population groups, capitalizing on the shielding effect of the impregnable physiography, were able to maintain their ethnic identity amidst an entirely Semitic environment. Best examples are the five completely detatched enclave settlements of the Agaw that are now found spread over three administrative divisions of Eritrea, Gonder and Gojjam. If it were not for local topography, the extensive Agaw land (Fig. 1.1) would have been changed to a uniform Amhara-Tigrian land. The complex mountain formation of northern Ethiopia not only harboured some Agaw settlements but also put them on a counter offensive; an offensive that brought Axumite rule and Axumite kingdom itself to an end (12th century A.D.) even though the Semitization continued afterwards.

Climate also exacerbated the process of differentiation. The answer to the question; why the Afar, Ogagen and Borena lowlands remained purely Cushitic and why the western lowlands along the Ethio-Sudan boundary remained purely Nilotic; is to be found in

Fig 1·2 SEMITIC EXPANSION 5th CENTURY B.C. – 13th CENTURY A.D.



the hostility of their climate. High temperature and scanty rainfall which characterized the eastern and southeastern lowlands repelled any Semitization move. The hot and warm western lowlands were the breeding grounds for mosquitoes that spread incurable tropical diseases and thereby discouraged Semitization in that direction. Hence, Semitic expansion and Christian spread, as is also shown on Figures 1.2 and 1.3, was confined to "the very heart of the Ethiopian plateau" (Simoons, 1960:16) where nature is less hostile. Even here Semitization proceeded non-uniformly in that the high flat lands (locally known as ambas) where travel is relatively easy were assimilated easily while those in the valley floors, and river canyons were difficult to reach.

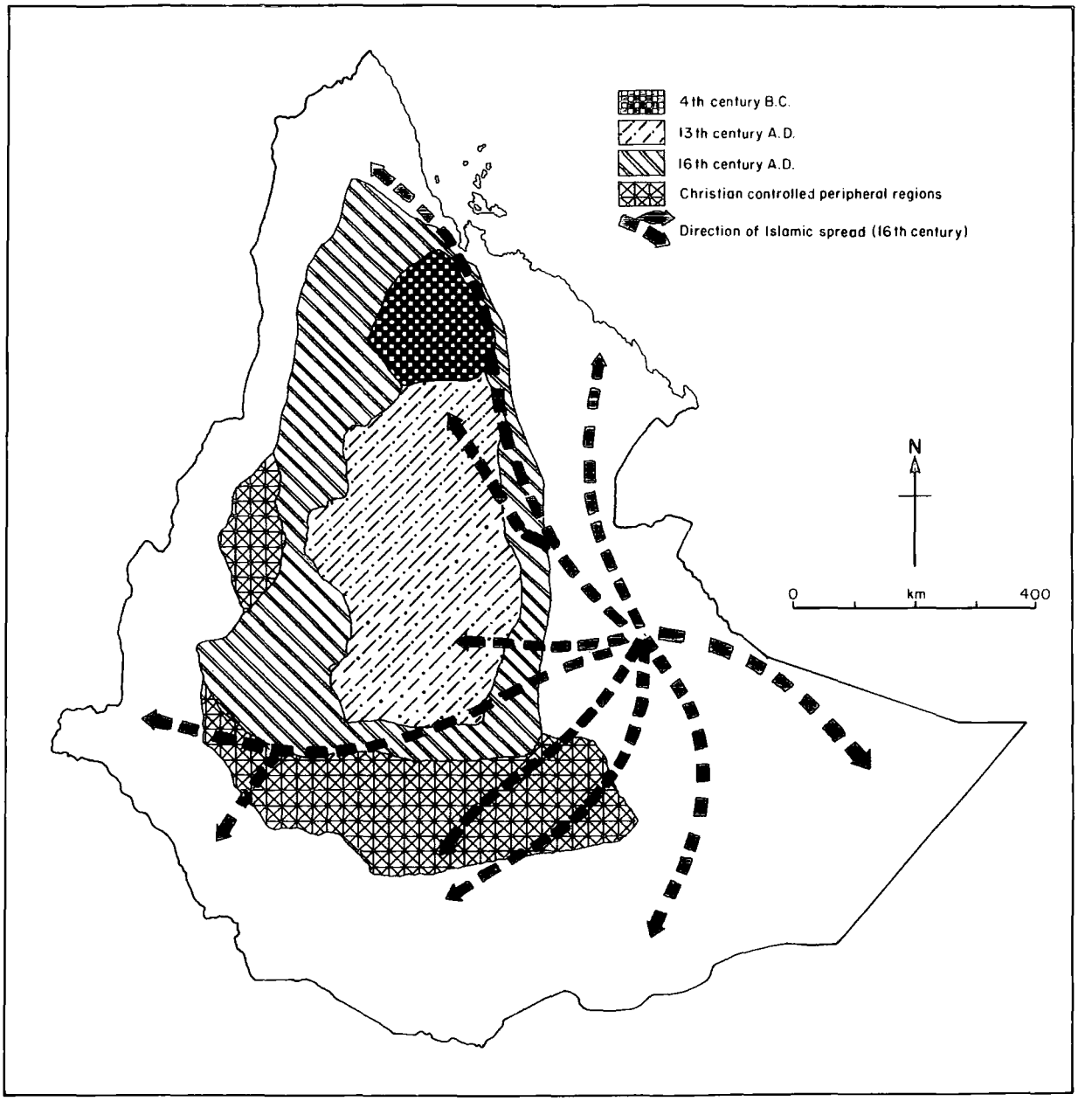
The physiographic and climatic highland-lowland dichotomy is also apparent in religious distributions. The eastern and south-eastern lowlands were islamized earlier because of their proximity to the Red Sea and the Gulf of Aden which from the 7th century A.D. were under islamic influence. Thus, the fact that the Semites did not reach these areas meant that they remained islamic. Even today these areas represent a single continuous islamic zone in Ethiopian (Mesfin, 1970:61; Kaplan, 1971:230). In the same way absence of Semitic influence in the western lowlands enabled the traditional belief of the area to remain unchanged. By and large, the present ethnic and religious diversities could only be viewed in terms of these intricate human and physical processes that have been operating jointly for thousands of years in the past. Landforms and climate accentuated the process of cultural, ethnic and religious segregation that was underway even before the arrival of Semitic immigrants, mainly through their effect on mobility. It may also be concluded that the Semitization and evangelization process resulted in the creation of two distinct ethnic and

religious areas in the northern half of Ethiopia:

1. the highland Semitic population with a generally uniform Christian faith;
2. the lowland non-Semitic population with non-Christian faith.

Very little, if anything, has been said by writers on what was going on in the southern half of the country during this period of differentiation in northern Ethiopia. For the same reason given at the beginning of this chapter, the south did not receive much attention from writers. Only recently did some case studies that throw light on the process of cultural development in southern Ethiopia come to the surface. Taddesse (1972:38) makes reference to a Sidama queen who resisted the Semitic influence and even "... destroyed churches and killed Christians". This Sidama queen, he adds, "... seems to have been widely known as the most powerful ruler in the Ethiopian region for a long time". Above all, what this tells us is that the Sidama had a strong political organization comparable to the northern counterpart and also that they were not a loose amalgamation of population groups as many pro-Semitic writers tended to generalize. From the viewpoint of ethnic and religious distribution, such a region of strong organization and stiff resistance marked the southern limit of Semitic and Christian influence. Hallpike (1972:5) in his study of the Konso, one among the Southern Cushitic groups, also emphasizes that "their way of life appears to owe little or nothing to those outside influences which have shaped traditional Abyssinia". As is also shown on Figure 3, the Semitic area extended only over a narrow plateau region north of today's Shewa administrative region. It appears that with the strengthening of Christian rule due to the seizure of power by the new Zaque dynasty (13th century), the Semitization and Christianization was intensified. During the three centuries

Fig. I·3 CHRISTIAN AREAS 4th CENTURY B.C. – 16th CENTURY A.D. AND THE SPREAD OF ISLAM



before the rise of islam (13th-16th century) an extensive area was Semitized with speed and efficiency never seen before (Fig. 1.3).

Figure 1.3 shows the approximate boundary of areas over which Christianization and Semitization were taking place for more than one thousand years between 4th century A.D. and the 16th century A.D. (see map Taddesse, 1972:298). The 16th century marks the coming to an end of such a process and the emergence of a more rigorous and protracted moslem influence that, as Ullendorff (1973:70) expresses it, "inundated nearly the entire territory of traditional Abyssinia". To Ethiopians, he adds, "a good deal of their hard-won civilization was destroyed, while to the historian and ethiopisat precious documentation and irreplaceable evidence perished for ever". No doubt there is much truth in this, but it is less a sympathy for the lost heritage than it is an apology for what happened to the royal faith, Christianity.

Islamic spread, the direction of which is shown on Figure 1.3, is essentially in the opposite direction to the Christian spread - from the lowlands to the highlands. In addition, unlike the Semitic movement which was multi-purpose, the Cushitic moslems had only one objective of islamizing all areas they overran. Thus, virtually no more ethnic differentiation (or Cushilization if we can call it) has taken place under the islamic spread of the 16th century. As a result no change has taken place in the pattern shown on Figure 1.2 during this time. The religious objective mentioned was also better achieved in the southern, southwestern and western highland regions than in the northern Christian highland region. Consequently, there was a more substantial change in the religious distribution than the ethnic distribution of Ethiopia. Although, as we have said, the islamic spread brought about no alteration in the spatial pattern of ethnicity, it had probably contributed a little to

a more profound and most recent process of further ethnic segregation - the Oromo migration.

1.3 Traditional Mobility: Migration of the Oromo People

The Oromo represent the largest ethnic group in today's Ethiopia. It might be necessary, at the outset to indicate that the name Oromo refers to the population group referred to as Galla by historians, both native and foreign. It was known to many, perhaps to all, writers that the latter name is often derogatory. Budge (1928:131) for instance rightly stated that "The Gallas say that the name Galla means 'immigrant', and they prefer to call themselves 'Orma' or 'Oroma' i.e. 'the strong men'" but he himself preferred the former. It was surely a right preference if his work (in two volumes) on Ethiopian history, which in reality has very little that is Ethiopian, was to be accepted and esteemed by the ruling minority he was writing it for. As is to be expected, the restoration of the real name had to wait not for a new breed of writers but for the elimination of the ruling minority itself. Not until the 1970's was this achieved; and not only this name but the real names of other ethnic groups were restored officially. But, the unearthing of their history which still forms the substratum of Semitic glory has not been easy and it is bound to require an unrelenting effort from dedicated historians.

Many writers characterized the movement of the Oromo as an "invasion" or "onslaught" (Hess, 1970; Pankhurst, 1965, 1968; Ullendorff, 1960, 1973); many others also called the counter offensive of the Beja and the Agaw on the Semites, and the islamic spread as an invasion. In this they were joined by local historians and academics. But no one writer, in any part of his/her book has referred to the Semitic movement as an invasion. The usage of the

term depended not on real acts and intentions of the various moving groups but on whether or not it was "legitimate" and "holy" as was the Semitic movement. Furthermore, many writers argued that the "invasion" was well timed and well calculated to make use of the weakened state of both the Christian highlanders and moslem lowlanders as a result of the devastations they had been inflicting upon each other. Conversely, as Levine (1974:79-80) observed it, the movement is characterized by lack of such deliberations in that:

> "In contrast to the Amhara expansion, the timing and style of the Oromo expansion were not calculated to extend political dominion. The Galla did not seek to gain recognition for a central authority to collect tribute, or to impose a national religious culture."

There is one important observation by the same writer which will provide us with a preliminary idea of the likely changes brought about by this migration on the already established spatial pattern of ethnic distribution. He stresses that, as opposed to the Amhara pattern of settlement which was "... to establish a defended enclave devoted to the maintenance and propagation of Amhara culture, the Galla adopted so readily to other cultures". This meant that they could (as they did) migrate in any direction and live among any group of people in peace. What else could have enabled the Oromo who were "... technologically inferior to the Amhara" and who had "... no weapons better than wooden spears" to reach twelve of the fourteen administrative regions, other than this adaptive capability very distinct to them (Levine, 1974:88).

Migration - why, where from, and where to? Those are more important questions in this study than the political interpretations of the movement on which enough has been said by other writers. The original source of Oromo migrants was variously described as the "southeast" (Pankhurst, 1955:337), "the outlying highland mass between the Abyssinian plateau proper and the Somali plain"

(Jones and Monroe, 1955:8) and "unknown" (Darley, 1926:15). A more elaborate presumption comes from Levine (1974:78) who suggested that "the Oromo homeland was in southern Ethiopia, somewhere between the middle lakes of the Great Rift Valley and the Bale plateau".

As to the reason why they migrated, Mesfin's (1972:16) contention that "they were taken by surprise" and his description of the migrants as a "terrified crowd" is not particularly satisfactory. In fact, no one can answer it satisfactorily without a thorough knowledge of Oromo traditions, particularly the Gada System, "... one of the most complex systems of social organization ever devised by human imagination" (Levine, 1974:132). This was, as (Asmarom, 1973:8) called it "a system of classes (luba) that succeed each other every eight years in assuming military, economic, political, and ritual responsibilities". Levine (1974) also identified eleven grades each with distinct functions. In the function of the sixth grade is to be found the reason why the Oromo were continuously on the move for over two hundred years. Again it is worthwhile to quote Levine whose book Greater Ethiopia is among the few impartial and prodigious works on Ethiopian population and, as he sub-titled it, its evolution as a multiethnic society. The sixth grade, as he stated it, is formed by men in the age group of forty-five to fifty-three (eight year interval). Those who enter this grade of the gada cycle (also known as the gada grade) become "... the new ruling class" constituted of "six carefully selected men" who for the eight year term provide the necessary "ritual and political leadership" (Levine, 1974:133). Main among the obligation of this leadership was to wage a war known as butta "... against a community that none of their ancestors had raided" (Asmarom, 1973:8) before the eight term ends. Thus what we called

Oromo migration is nothing but the cumulated movement of the various Oromo sub-groups necessitated by this gada tradition. The territory of Ethiopia now occupied by the Oromo, which is the most extensive of the areas occupied by ethnic groups, is also the cumulation of territories gained by men in the gada grade. It is this ephemeral but persistent nature of the cycle coupled with their ability to adapt to alien cultures and new physical environment that helped the Oromo to reach all but two administrative regions of the country. The two northern administrative regions of Tigray and Eritrea would not have remained aloof if not for the fact that the gada system became less effective because of distance and long separation from the source areas of Borana lowland in southern Ethiopia. Besides, if it were not for uneven physical conditions and unequal resistance by various host ethnic groups, the Oromo area would have had a circular or near circular shape with the source area as a centre. By this is meant that, the acquisition of new territories by the Oromo, one among "... the most expansive societies on record" would have proceeded uniformly in every direction (Asmarom, 1973:7).

No detailed account of the routes followed by Oromo migrants is available. "The first Galla movement for which we have documentation" according to Levine (1974:78) "occurred during the 1520's, when they invaded Bale". Perhaps during the same time "the Sidama resistance was broken" and the hitherto most extensive land of the various Sidama kingdoms - Enarea, Keffa, Welayta, Hadya and Sidama proper was "overrun by Galla tribes" (Abir, 1968:73). In the following decade, as is given by Levine (1974:78), "they crossed the Wabe Shebele and invaded Dewaro", and he continues by stating that in the next four to five decades

> "they penetrated northward to invade Fatigar and Shewa. One group then branched eastward and in 1567 made devastating raids in the Harer region.

> Other tribes pushed further north to invade the Amhara region, and beyond that Angot and Begemdir. In the last decades of the century they went farther into Begemdir, Dembiya, and Gojjam. Still another division of the Galla carried its invasion toward the west. They moved up the Great Rift Valley to the province of Waji, and subsequently spread to the Gibe River region to Damot, and into Gojjam."

In this process over a third of Ethiopia's land area in the east, west, north, south and what Hess (1970:47) called "the heartland of Solomonic Ethiopia" or the Shewa region, were occupied and settled. Some writers (Simoons, 1960:7; Kaplan, 1971; Abir, 1968; Hess, 1970) argue that Oromo settlement would have included much more territory and their influence would have been much more than it was if:

(1) they were not disunited and divided into numerous sub-groups in the later stages;

(2) they had an effective leadership in the form of strong political organization or government;

(3) the war lords of the gada grade (Aba Dulla) did not begin to betray the gada tradition and form their own small kingdoms, as did Aba Jifar of the Jimma Oromo group and Bekere of the Leka Oromo group; and

(4) firearms were not introduced by northern Semites to combat the expansion.

If these did not happen, says Hess (1970:48) for whom history is only a history of the group in power "... the history of Ethiopia might have become the history of a Galla kingdom".

What was the spatial consequence of Oromo migration? Because no reference was made by writers to any other population group south of the Sidama land, we cannot tell with certainty what were the extent of Oromo area before the 16th century. In the 16th century when the migration began, they might have been occupying an area south of the Jemjem plateau and Bale mountains which was far smaller

than that occupied by the Sidama (Asmarom, 1973:9). After the migration, the picture was completely different. The various sub-groups that come under the Sidama-Lacustrine, Omotic, Konso, Gimira and Maji, and Ometo were forced into small enclaves in the south western corner of the country. The southern portions of areas previously under Semitic influence (also Christian influence) shown on Figure 1.3 were completely absorbed (the Oromo in today's administrative regions of Arssi, Shewa, northern Bale and northern Sidamo). The Amhara of the north were cut off from those in Shewa (Jones, 1955:9). A buffer zone of Orómo settlement was created between the belligerent Christian highlanders and moslem lowlanders (today's Oromo area in Wello), and pocket Oromo settlements were established in today's Gonder and Gojjam administrative regions. Over three-quarters of the areas of Wellega and Illubasor, and a significant proportion in Keffa, were occupied and settled. In sum, a completely new ethnic space was created and it was truely a substantial change in the pattern of ethnic distribution of Ethiopia. The fact that the Oromo were the largest of all moving groups in the country's history also meant that a profound change in density patterns was to take place (this will be discussed in Chapter 2). Figure 1.4 shows the present ethnic distributions; see the pattern of Oromo areas and compare the whole pattern on Figure 1.3.

1.4 Forced Mobility: Slavery and Slave Trade

The massive deportation of slaves from West Africa by European colonialists had its non-colonial counterpart in north-east Africa, especially Ethiopia. The latter was perhaps more ferocious for it faced no opposition of the sort posed by freedom fighters in the Americas. Slavery in Ethiopia did not meet international

reaction either. Not until the 20th century did European governments and anti-slavery societies begin to defy the hitherto less heeded Ethiopian slavery.

In comparison to the previously discussed mobility types, slave raiding had less spatial consequence, but it certainly had a great effect on the settlement pattern of the raided areas. The reason why it did not have national spatial consequence and did not alter the pattern of ethnic distribution is not because of the scale of slave raiding (it was in fact considerably large), but because the slaves were either deported to various Arabian destinations or were distributed among "non-slave" families all over the country. Concerning the latter Harris (1844:198) observed that "from the governor to the humblest peasant every house possessed slaves of both sexes, in proportion to the wealth of the proprietor". Pankhurst (1968:75) also quotes many other writers who have reported the same.

Slave trading has been a common practice since, according to Perham (1969:217), "... the earliest days of which we have a record". Even during the Axumite times, "an essential basis for the commercial activities of the Muslim traders in the Ethiopian region seems to have been the supply of domestic slaves to the Near and Middle East" (Taddesse, 1972:85-86). The earliest form of slavery is however, considerably different from the latest form of slavery. Formerly the criteria by which slaves were generated were few in number and less complex than those used lately. Before Christianity forbade the sale of faithful members, the Amhara, Tigreans and other Semitic groups were included in the human trading. However, in comparison to the 13th century slave trade that included the southern Damot, Hadiya and Bale areas (Taddesse, 1972:87) it was quite negligible. As a result there was probably no significant

displacement of people. With the further expansion of the Semites, especially in the southern direction, fresh areas came in contact with experienced slave raiders, both Christians and moslems. The latter were more involved in this lucrative trade and they bought war captives taken by expanding Semites and sent them abroad through various ports of Mitsiwa, Zeila and Berbera. No record is available of the actual extent of slave raiding during this time.

Not until the 19th and 20th centuries did slave raiding reach its apex. Perhaps more slaves were raided in these two centuries than during the preceeding thousand years of slave trading. It is to this loathsome phase of slavery that our topic on slave raiding as one factor in the peopling of Ethiopia refers.

With the acquisition of much trading experience and the proliferation of caravan routes that traversed the north-south and east-west reaches of the country, slave merchants began to intensify their trading activities. This period (early 15th century) also coincided with the growing demand in the Arab world for "Habash slaves, as Ethiopian slaves were called" (Abir, 1968:53). Also important in facilitating this form of trading was the emergence of a new local slave merchant class with the task of collecting local slaves and transferring them to international traders. Local agents obtained slaves in various ways and the following were sold as slaves:

(a) war captives

(b) kidnapped children and even adults

(c) those who could not pay taxes; and

(d) those who volunteered to be slaves because of famine resulting from natural disaster (Pankhurst, 1968).

During the first three quarters of the 19th century all these were in practice although the widespread tribal religious and political

wars were by far the most important sources. In this process many people "from the Gurage country, though there were also Gallas and Shanqillas" and also people from the ethnic groups of "Kaffa, Welamo, Konta, Kullu, Gofa and Gamo" (Pankhurst, 1968:74) were sold in to slavery. Various people in this same group also sold slaves from other groups and also from their own group. As a result members of almost all southern ethnic groups were enslaved. The most important exception comes from the northern Christian or Semitic areas who during this time had the protection of "ecclesiastical and civil law" not to be sold but to buy (Abir, 1968). As a result the loss of men and the thinning of population was probably much greater in southern Ethiopia than any where else. It is very regrettable that there are no data to substantiate this.

The most consequential form of slave raiding which could be given a significant place in the peopling of modern Ethiopia came in the last quarter of the 19th century and lasted until the Italian occupatin of 1936. During this time more areas in the south, west, and south-east were included into the Ethiopian territory by emperor Menelik. Many administrators were dispatched into these fresh territories to ensure the effective subordination of the areas and people to the central government. These local governors and soldiers were not given salaries, they were simply allowed to help themselves to whatever was available in the south and west. They firstly took the land owned by the people, then the people themselves to work on the land. After a while there was an awareness that slaves were in great demand among the Oromo for work in agriculture and coffee plantations and by northern Semites as house servants. The armed soldiers and administrators soon began routing defenceless population groups mainly the Nilotic locally knownasShanqilla, and the southern population groups. This was

also a "source of supply to slave-merchants who could not afford, or did not want to pay for slaves, or who found out that the supply could not meet the demand" (Abir, 1968:56). Darley (1926), who has been at the site of intensive raiding, reported that the western and south-western areas were utterly depopulated. Perham (1969:220) also stated the same: "Whereas in 1920 the number of taxpayers in Maj [Awraja] was estimated to be in the neighbourhood of 30,000 it had been reduced by 1935 to 780 taxpayers". Furthermore, the population of Keffa ran down from 250,000 to 10,000, that of Gimira declined from 100,000 to 20,000 (Pankhurst, 1968:111). One Nilotic group studied by Staunder (1971) was also seriously affected. No one could expect the savage raiders to have left a record on the nature and extent of raiding and the above figures are estimates and only examples of the havoc inflicted upon the southern and western population. Inspite of this we can conclude with certainty that the density pattern, if not the ethnic pattern, has been undergoing very significant changes. Even today these southern and western extremities have a density pattern that bears the evidence of the 19th and 20th century raiding. Consequently forced mobility associated with slavery was one among the factors in the peopling of Ethiopia although not equally significant as the other two forms of mobility.

1.5 Present Pattern of Ethnic Distribution

In this section will be shown today's ethnic pattern that emerged in response to Ethiopia's relative location and the various mobilities discussed earlier. It will soon by clear that the existing ethnic and density pattern of the population is the exact reflection of the said processes. It should however, be admitted that the resulting pattern was so complex that it is not without

involving generalization that we venture on to the assessment of the present pattern. At present the various ethnic groups are fragmented physically and linguistically as is the physiography of the country.

Two sources, Bender (1976) and Levine (1974) are used to show the present ethnic map (Fig. 1.4), and some other related works are used in accompanying discussions. Their system of classification is strictly adhered to, for it is in line with the conventional method of classification used by many Ethiopian and foreign writers. The wordings used, like ethnic group, dialectal group, linguistic family, linguistic group, and others, may not be in line with those used by linguists and ethnographers.

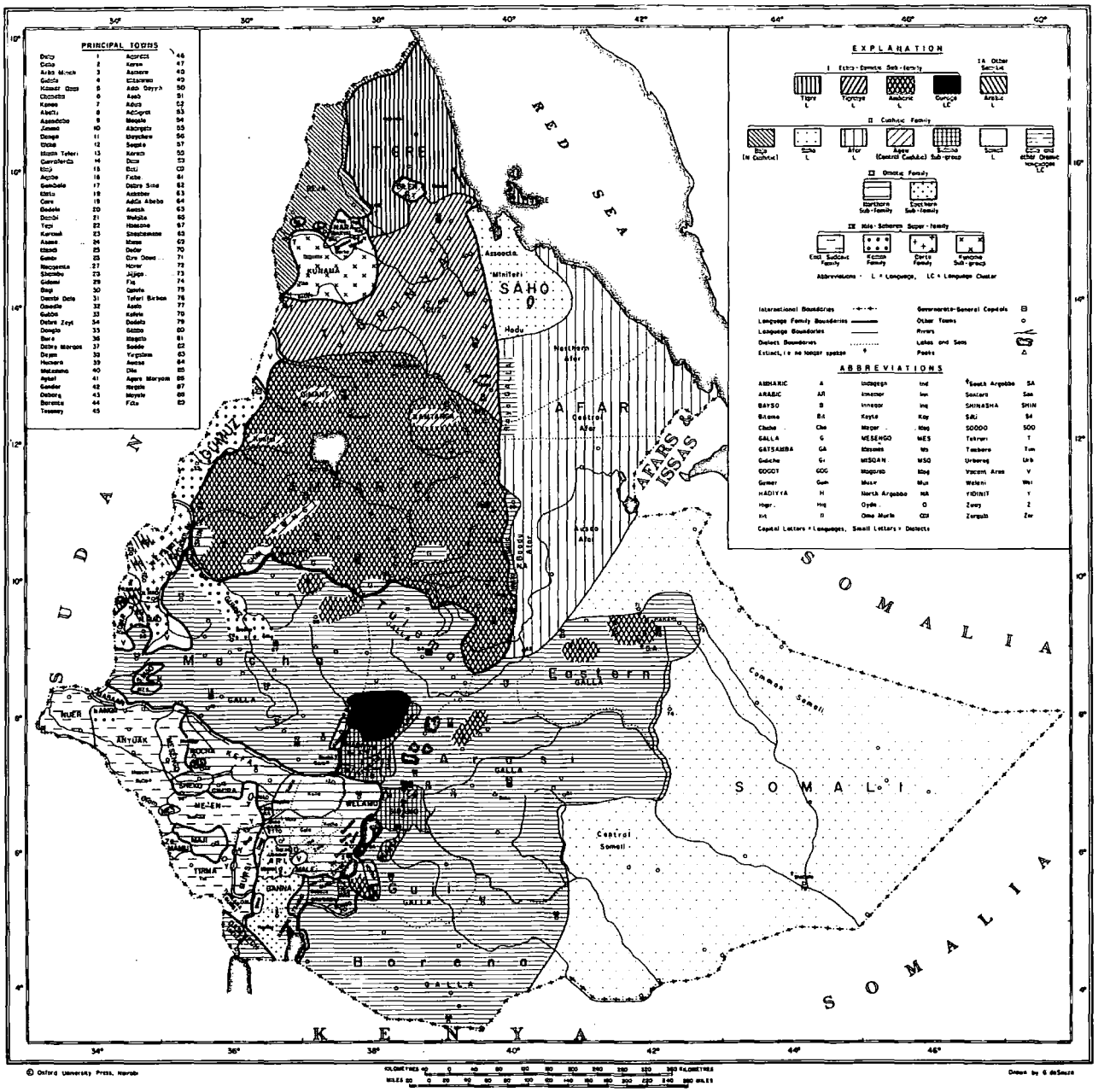
If we adopt the traditional method of using languages as the basis for classifying ethnic groups, we identify three major linguistic families in Ethiopia - the Semitic, the Cushitic and the Nilotic. In addition there are seventy to eighty language groups (Hodson, 1927) and about two hundred dialectal groups (Leslau, 1950). It is also important to note that many of the names especially dialectal names to be seen are those used by western writers on the basis of actual dialect names or names of the geographical areas in which they are spoken.

1.5.1 The Nilotic Group

The Nilotic group, also known as the Negroid or Sudanic, are the least studied population groups. They are descendants of the original inhabitants of Ethiopia which were, as Levine (1974:39) described them, the "ancient inhabitants of greater Ethiopia". Although it is well recognized that there exist several sub-groups in the Nilotic language family, their respective population sizes and locations are not known. The four languages they speak according to Levine are "branches of the Nilo-Saharan family:

Fig. 1.4

DISTRIBUTION OF MOTHER - TONGUES



Source : Bender (1976)

Koman, Kunama, Berta and Eastern Sudanic". On the whole, they occupy a narrow belt extending from Lake Rudoff to areas north of the Gash river basin along the Ethio-Sudanese border (Fig. 1.4) which mainly because of the pressure from Semitic and Cushitic highlanders, is mostly below 1000 metres of elevation. This zone, which is traditionally called Kolla, is not favoured by highland farmers.

According to Levine, the Nilotes numbered 360,000 in 1974, a considerably small size for an aboriginal population group that according to Simoons (1960) has been in Ethiopia for 5000 years. This is, above all a reflection of the miserable conditions they were forced to live in the torrid lowlands and the slave raiding they were subjected to in the late 19th and early 20th centuries. By comparing Figures 1 and 4, it will be seen that the Nilotes still live in the same region they lived thousands of years ago. Furthermore they are still engaged in sedentary hoe cultivation which they themselves introduced into the area (they introduced the domestication of plants at about 3000 B.C.). Until very recently they were not only denied a share from the ancient and modern "civilizations of Ethiopia" but were also despised, insulted and raided for men, women, and children. Even western writers joined local "non slave" people and rulers in defaming and describing them almost as having a non-human appearance. Ullendorff (1973) characterized them first as "dolichocephalic" and then as "prognathous" and later concludes that the reason he mentioned them was "not so much on account of their comparative numerical significance, but because they form no integral part of the life and civilization of Ethiopia". His statement was in fact equally mistaken as his ideas; he seems to have been engrossed very much in the reviling of all non-Semites as uncultured, uncivilized and

misfits to the "advanced" culture of Ethiopia. In his same book it is possible to see that Professor Ullendorff was not even consistent with his criterion of "numerical significance", as could be inferred from the way he characterized the country's largest ethnic group, the Oromo. He stressed that the Oromo had "little to contribute to the Semitized civilization of Ethiopia" and like the Nilotic people "they possessed no significant material or intellectual culture" (Ullendorff, 1973:73). Scholars like Ullendorff, who as Levine (1974:17) put it, "... saw their work chiefly as a branch of Semitic studies" should have written only about the Semites of Ethiopia or the "true Ethiopians" as they called them. Failure to know this limitation has rendered their work untrue and unscientific. Levine (1974:18, 19) also had mentioned the fallacy of such unbridled works. He states that:

> "Of recent works which embody this image most extensively, The Ethiopians by Edward Ullendorff might be mentioned. Subtitled An Introduction to Country and People, this work is actually an introduction to selected aspects of Amhara-Tigrean culture. Ullendorff's concern is overwhelmingly with those whom he calls 'Abyssinians proper', the carriers of the historical civilization of Semitized Ethiopia, [who] live in the central and northern highlands."

The truth is that every population group has been part of and contributed to the national well-being of the country, whether as a slave, or a governor or a scientist.

The Nilotes consist of about twenty sub-groups (Appendix 1) and except the Nuer who lead a pastoral life, all the rest are sedentary cultivators (Levine, 1974:39). Most are still able to keep their traditional beliefs because as we have mentioned earlier they were least influenced by Christian and islamic forces.

1.5.2 The Semitic Group

As has been noted earlier, Semitic cultures were better

studied than either Nilotic or Cushitic cultures. Although almost all rulers of Ethiopia whose work dominated the scene of Ethiopian history were from this group, it would be incorrect to generalize that all Semites have participated in or benefited from such hereditary rule.

In the process of Semitic expansion discussed before, numerous non-Semitic groups were absorbed. Such an absorption meant the fusion of numerous distinct elements into one common Semitic variable - Semitic culture and language. This common variable did not give rise to one single Semitic population group, because the force of the subordinated elements was strong enough to enable the affected groups to retain much of their pre-amalgamation characteristics. In consequence, new hybrid cultures and population groups developed under the Semitic umbrella. At present there are five such hybrid groups - Tigre, Tigrians, Amhara, Gurage and Adere (Harari) and several sub-groups. Two other groups, the Argoba and Gafat are nearing "extinction" because of assimilation with other Semitic and non-Semitic groups.

If we start with the northernmost group of the Semitic language family, we have the Tigre who inhabit a triangular area in the highlands and lowlands of northern Eritrea. The Tigre consist of eight known sub-groups most of which are moslems (Kaplan, 1971; Levine, 1974) and nomadic tribesmen (Buxton, 1970) (see Appendix 1 also). Some like the Bellu tribes practise sedentary cultivation. Closer contacts of the Tigre with other Semitic and Cushitic groups have resulted in much differentiation so that several tribes with separate habits, economic practices and beliefs have emerged. Generally, however, there are two major linguistic divisions of the Tigre: "the Beja tribes of Boni Amer and Bet Mala who speak the North Cushitic language Bedawie and often use Tigre as a second language" and

"some originally Beja groups" who speak Tigre (Levine, 1974:36). Tigre is also spoken in the offshore islands of the Dahhak archipelago.

South of the Tigre area, we have the Tigrigna speaking people (writers often confuse these with or consider them as part of the Tigre), here after referred to as Tigrians (an alternative name Tigrawi is given by Levine). This is the second northern group that branched out during the process of ethnic differentiation within the Semitic group. The Tigrians now live in the administrative region of Tigray where we still have the ancient capital of Axum. This has led Kaplan (1971) to conclude that the Tigrians are immediate descendants of the Sabean ancestors who founded the ancient Axumite kingdom. Areas in southern Eritrea and the northern border areas of Gondor are also inhabited by Tigrians, although the influence of Amharic is very strong in the latter. Absence of major dialectal or tribal groups makes the Tigrians a relatively homogeneous linguistic group. In some Tigrigna areas, mainly where they come in contact with other languages, a modified form of Tigrigna is spoken. A good example is the case of the Welquayt where Amharic is gaining ground and in southwestern Tigrigna areas where Agaw language is spoken quite often (Bryan, 1948). In addition, some vocabulary differences in Tigrigna spoken in Hamasien, Adwa, Temben and Akale Gugay Awrajas are observable.

In the central plateau region of Ethiopia that includes the administrative regions of Gonder, Gojjam, Shewa and Wello, live the Amhara people, the largest in the Semitic group. In the absence of censuses and relevant population data, local writers were tempted to conclude that the Amhara represent the major ethnic group. Mesfin (1972:18) for instance stated that "There is no doubt that the Semitic linguistic group form the majority of the Ethiopian

population" and regarding the Semitic sub-group of the Amhara he added, "Amharic speakers form the single largest linguistic group in the country". Other writers doubt this. Korten (1972:19), and Levine (1965:2) gave the respective percentage of the Amhara and the Oromo as 20 and 40, and argued that the Amhara do not hold the said majority status. Knutsson (1967:30) believed that "an estimation of the size of the Galla group as amounting to half or somewhat more than half of Ethiopia's population seems justified". For Abir (1969:2) the Oromo "account for nearly half of Ethiopia's population". The doubts of these writers seems to be justifiable and it is really regrettable that even this elementary fact of which is the largest group is not known. One reason, as Korten (1972:19) concluded, was "the reluctance of the ruling Amhara to allow public recognition of their status as a numerical minority". But, above all it is the complete absence of censuses and the exclusion, perhaps deliberately of questions on language from the two-round sample surveys undertaken (1964-67 and 1968-71) that contributed to such heated debate. From the purview of population study it would be logical to trust the argument of the large majority of writers, that the Amhara do not form the ethnic majority. In fact, the majority question is far less important now than before for the political fear that necessitated it is no more prevalent. Instead there is widespread concern for the hitherto neglected ethnic minorities.

The Amhara are settled agriculturalists and produce various crops, mainly grain. The relative ecological stability of the areas they occupy together with their widespread contempt for other occupations has made agriculture the most important practice of the Amhara. It is a near sacred an occupation for Amhara farmers as is trade for the moslems. The life of the Amhara, also of much of the Tigrians is centred around the Orthodox church. Ever since the

introduction of Christianity in Axumite times, the church has been a unifying factor in Amhara-Tigrian politics, economy, and social organization. As a result much of the historical heritages of ancient Ethiopian civilization that survived destruction are preserved in churches. At the same time, the church had a very negative and even reactionary role in Amhara life, especially through its resistance to changes and innovations, and the proscription of "about two-thirds" (Mesfin, 1972:200) of the days in a year as non-working saint days. Regarding the former, many writers have noted that the church which was equally influential as the state, was greatly opposed to the introduction, for instance, of telephones, electricity, piped water, hotels, vehicles, modern schools and other exotic elements, for they were regarded as the devil's work. This could also be inferred from Pankhurst's (1968:26) statement that the wife of the development minded emperor-Menelik 'belonged to the old school which opposed all innovations and mistrusted foreigners". As for the sluggishness resulting from the strict observance of saint days, Mesfin's (1972:201) observation of what he aptly termed, the "two-fold assault on the individual Christian", is good evidence. This double assault as Mesfin stated it resulted from the fact that the individual "... did not work on the holy days and therefore his productivity was reduced substantially. At the same time these holy days consumed his savings" for he had to prepare big feasts. This was, however, by no means limited to Christian Amhara or Tigrians, but was common among Christians of all other ethnic groups.

The spiritual life was, and still is, regarded as more worth devoting one's time and energy to than the "corruptive" material or earthly life which should be lived only if it is miserable enough to ensure entry into heaven. Striving for more, "excessive" work, and intellectual curiosity were seen as evil doings and a blunder on

God's wishes (Mesfin, 1972:20). Mesfin summarizes the effect of this moribund thinking by saying, "Work, the source of all wealth was looked down upon" and "far from being a social evil, poverty was the most desirable spiritual asset ...". This is an anti-progressive mental construct which forms one among the factors responsible for the country's present underdeveloped state and which should be done away with immediately. The other erroneous notion which was equally negative was that which held skills like foundry, tannery, weaving, pottery and others in very low repute. These constituted the caste group in Amhara and almost all other ethnic groups. Names like Faqi (tanners) and Teyib (smiths) given to men in the caste group were highly disparaging. In addition, many, if not all, in the caste group were regarded as Buda (literally this means evil-eyed), capable of sucking someone's blood through his eyes and converting himself into a hyena at night. In consequence, men in the caste group were feared, despised and isolated, and their skills which would normally have constituted the base of local industrialization, were supressed. Although this is less the case since the revolution, it is still far from being extinct.

Far detached from the main Semitic areas of the north and the ancient site of Semitic settlement, are to be found three Semitic groups - the Gurage, Adere (Harari) and Argoba. One possible explanation for the formation of these Semitic enclaves in an entirely Cushitic environment was given by Hess (1970:10), who argued that they remnants of the Axumite military colony which was driven back by the Sidama (Taddesse, 1972).

The Gurage, according to Shack (1966:5, 6) whose work was entirely on the Gurage people and culture, noted that it was through centuries of Semitic-Sidama inter-marriage that they evolved as a distinct ethnic group. Shack also noted that "the Gurage tribal

grouping is called by the Gurage as well as by other tribes "Ya sabat bet Gurage", "Gurage of the Seven Houses (Tribes)". The Chaha, Ennemor, Geyto, Muher, Ezha, Akilil and Walani form the Seven Houses. The Gurage, as Shack further observed it, have suffered greatly from "the crusades and prophets of both Ethiopic Christianity and Islam". At present they are best known for their business activities in which they monopolize the retail sector in Addus Ababa. Dexterity, industriousness and readiness to take up any manual work are among the noble characteristics of Gurage life that should be cherished, esteemed and adopted by all other population groups. Unfortunately the many jokes and humours that picture a Gurage man only as a miser and money-maker, testify to the existence of a tendency to disapprove of such noble qualities. Their proximity to the capital had always been the motivating factor for Gurage trading activities. In fact, they were among the first who migrated into the capital and participated in the early phase of city building soon after the establishment of Addis Ababa. Even today a considerable number of Gurage farmers, youngsters and even children flow into the capital for temporary employment in manual work and return back during cultivation season. They usually serve as porters, daily labourers and street vendors. Among the Gurage also existed the caste system in which woodworkers, blacksmiths, tanners and potters named by them as Fuga, Nafwra, Goza and Adicho respectively were accorded a low social status (Pankhurst, 1968:43; Levine, 1974:196).

The other southern Semitic group the Adere, live in the city of Harar and have hardly mixed with other groups as they had a strong tradition that limited marriage within their own group. The Adere are also unique in the sense that they live only in urban areas, mainly Harer where the supposed Axumite military contingent was left. Leslau (1965), who has studied the Adere culture and language,

emphasized mainly how all Adere activities, beliefs, and social organizations are centred around the practice of chewing chat (leaf taken as a stimulant). Surely, this also applies to the Oromo and Somali of eastern Ethiopia.

One southern Semitic group which because of assimilation are now nearly disappearing are the Argoba whose few members live in two detached settlements in Harerge and Shewa administrative regions. It is assumed that, it won't be too long before the Argoba language is overtaken by Amharic in the Shewan region and by Oromigna in the Harerge region (Bryan, 1948). Little information is available on the peculiarities of Argoba culture, probably because of the assimilation.

Geez, another Semitic language does not have a distinct group of speakers who occupy a certain portion of the country. Its use is limited to Orthodox churches. Only churchmen use it as a medium of instruction in church teachings and for delivering prayers.

1.5.3 The Cushitic Group

People of the Cushitic group are found scattered all over the country in large and contiguous areas as well as small pocket areas. For a better insight into the distributional character of the Cushitic group, we can divide them into two - the northern Cushitic and the southern Cushitic.

(a) The Northern Cushitic

The northernmost representatives of the Cushitic speaking group are the Beja who now live in north-western Eritrea. A portion of the Beja live in the Sudan. Perhaps only in the lowland region of Akordat Awraja is pure Beja spoken. In the highlands that are favoured by all northern population groups intermarriage has occurred between the Beja and other groups and therefore there is a clear linguistic overlap, for instance with the Tigre, Tigrians, and Agaw (Bryan, 1948). The Beja are "... nomadic herdsmen who travel widely in search of

forage for their flocks and herds. Islam is the faith of the overwhelming majority" (Kaplan, 1971:96). Kaplan also estimated the number of the Beni Amer, the largest in the Beja group, as approximately 60,000 in Eritrea and 100,000 in the Sudan.

The other northern Cushitic are the Agaw, one among the northern aboriginal population which as we have noted previously were greatly influenced by Semitic immigration and the Christianization and the Semitization process that followed suit. The present Agaw land (Fig. 1.4) is only a minute fraction of that shown on Figure 1.1 which they occupied before the advent of the immigration. It is also very interesting to note how the Semitization cut the Agaw settlements into five small areas (Fig. 1.4). At present the Agaw near Asmara (Bilen) are not only hundreds of kilometres away from those in Gojjam (Awi) but have evolved into a different cultural group, with a different form of the original Agaw language. The Falasha (Beta Israel) in Gonder are not the same as either the Qemant or Kunfel Agaw in the same administration. Long years of separation have resulted in their evolution as separate entities. As has been indicated at the beginning of this chapter the Agaw sub-groups especially the Falasha have attracted many writers' attention, for one main reason that they are Jews (Black Jews, as many writers refer to them). It is not well established whether the Falasha are Jewish immigrants who entered Ethiopia during Sabean immigration or indigenous converts. The name Falasha, according to Leslau (1954) seems to have come from the Amharic word Felese meaning that which migrated. This, together with the way the people call themselves - Beta Israel (House of Israel) seems to suggest that they are Jewish immigrants rather than converts. One other Agaw group, the Qemant, have also been studied by Gamst (1969:6) who observed that not all the Qemant are speaking their original Agaw language.

He stated that "one-third of them speak Qemantinya well; one-third have little knowledge of the dialect and speak Amharic only; and the other third falls inbetween". This is common to all Agaw sub-groups and provides a good example of how the Agaw and other aboriginal populations were affected by Semitization. Inspite of these differences Gamst adds, "... they preserve, as a group, more of the old Agaw culture and society than any other group, and they are the only ones who retain a pagan-Hebraic religion". However, because the Semitization (this time Amharization as Gamst called it) has continued up to the present "... the Qemant sociocultural system is vanishing" with declining adherence to the traditional pagan belief.

The Afar and Saho represent the last two in the northern Cushitic group. The Afar (Danakil) are nomadic herdsmen who live in "... the most inhospitable area in the country: the hot sand, lava and scrub brush lowlands of the Danakil Depression" (Kaplan, 1971:95). Many Afar also live in the Djibouti Republic. The Saho also live in eastern Eritrea; the largest sub-group according to Kaplan are the Asaorta who in turn are comprised of five tribal groups. Most are moslems, and except those who are beginning to settle, most are nomads.

(b) The Southern Cushitic

The Oromo, the largest sub-group of the Cushitic group, live mainly in the southern half of the country. In the northern half are also to be found many Oromo areas in central Wello, Gonder and Gojjam administrative regions. The reason why we classed them as southern Cushitic is only because by far the largest proportion live in the south. At present the Oromo live in the western and south-western highland regions and form the great majority of the population in Bale, Arssi, Shewa, Wellega and Illubabor and a significant proportion in Sidamo, Keffa, Harerge and Wello

administrative regions. Four major groups, the Macha, Tulama, Arsi and Borana, are to be found, their respective areas of habitation being the western highlands, the Shewan highlands, Arssi-Bale massif and the Borena lowlands. There are also various sub-categories of these major groups (Appendix 1). The Borena are regarded as the Angafa (elder) Oromo, for as was discussed earlier they are parental population from which the wave of Oromo migrants spread in every direction to form the other three sub-groups. The Oromo are mainly settled agriculturalists, and produce much of the grain crops and coffee which together with other exportable animal products constitute the economic base of the country. Much of the references made to the Oromo focussed on the 16th century migration which we have briefly discussed in the previous sections. Others like Asmarom (1973), Lewis (1965) and Knutsson (1967) emphasized the internal social organization of the Oromo, detailed discussions of which are beyond the confines of this work.

The whole of the eastern lowlands around Dire Dawa, the whole of Ogaden, southern Bale and southern Sidamo are occupied by another Cushitic group - the Somali. Like their northern neighbours, the Afar, the Somali are also nomadic herdsmen who without regard to boundary limits traverse extensive areas in Ethiopia and Somalia in search of water and grass. Some dialectal groups are recognisable among this seemingly uniform population group. Dialects like Issa, Darod, Saab, and Issaq mainly named after the tribes who speak them, are notable examples (Bryan, 1948). Almost half of the areas occupied by the Issa lie in Ethiopia and the other half in Djibouti and Somalia. More Issaq areas are in Somalia with a significant portion in Ethiopia. The largest Somali group in Ethiopia are the Darod who occupy the whole of Ogaden, Southern Bale and Southern Sidamo lowlands. It is this distributional pattern of the Somali

that made the Horn of Africa one of the most politically sensitive and unstable areas of the world. Moreover, it is the over ambitious claim of the Somali government to bring all Somali under one Somalian flag that added much fuel to the fire.

The last two Cushitic groups are those which were broadly classed as Lacustrine group and Omotic group by Levine (1974:191, 192) (Fig. 1.4). In the Lacustrine group (those who live around the Rift Valley lake areas of Ethiopia) are to be found the Sidama and Konso, two of the ancient population groups of southern Ethiopia. According to Kaplan (1971:93), "there are at least five different groups of languages" in the Sidama group: Alaba, Derasa, Hadiya, Kembata and Sidama proper. The Konso in turn are divided into nine sub-groups (Appendix 1). This could tell us how complex is the ethnic formation of south-central Ethiopia.

Another southern Cushitic group, the Omotic, are divided into four sub-groups which in turn are divided into several small groups (Levine, 1974) (see Appendix 1 also). People in both Omotic and Lacustrine groups are sedentary cultivators engaged mainly in the production of ensete, a crop known for its exceptionally high yield per hectare so that several people could be sustained on a small plot of land. It is also due to this age-old ensete growing practice that numerous ethnic groups were able to accommodate one another onto the Lake and Omo river area of south-central Ethiopia.

The ethnic formation is so complex by all standards that a holistic study of each and every ethnic group of Ethiopia is unthinkable in this dissertation. Ethiopia is now repeatedly referred to as an ethnic museum. It now provides a peculiar example of how complex is the ethnic formation in sub-Saharan Africa. However, it requires years of research and the joint venture by ethnographers, anthropologists, sociologists, etc. before the true picture of the

social and economic characteristics of the numerous ethnic groups of Ethiopia is unraveled. An institute entrusted with such a task, the Institute for the Study of Ethiopian Nationalities, was established in 1983. As stated previously, there are 70 to 80 language groups and over 200 dialectal groups. But, how are all these groups distributed? What is the implication of the highly complex distribution of southern ethnic groups for the density of population in that region? Does the relative homogeneity of ethnic formation in eastern and southeastern Ethiopia lead to a different density pattern than is found in southern Ethiopia? These will be revealed in Chapter 3 which deals with the spatial pattern of population. But, before that, we will discuss how physical factors, through their direct effect on the mobility patterns outlined earlier, have brought about non-uniform attitudinal patterns of population distribution and density.

CHAPTER 2

ALTITUDE AND POPULATION: UNDERLYING FACTORS OF VERTICAL DISTRIBUTION

Reminiscent, as we are, of the complex mobility patterns of the various ethnic groups discussed in Chapter 1 and of the various historical and cultural developments that were to shape the present population pattern, we can now divert our attention to examining the actual spatial structure of Ethiopian population that was formed in response to these intricate man-man and man-nature interactions. It is of course difficult and perhaps not necessary at this stage to single out each one of the human and physical factors of population distribution and analyse it in a detailed manner. But, for reasons due to be discussed in detail, altitude deserves a special emphasis.

All the past population movements, although seemingly multi-directional, were mainly from the lowlands to the highlands, because the highlands had and still have a lot to offer and are much more convenient to live in than the lowlands. Movement of all the major ethnic groups like the Oromo, the Amhara, the Tigriana, and the Sidama was basically uni-directional - towards the highlands, with the lowlands serving as no more than springboards for any population group who entered the country. Except in a few cases, whereby some ethnic groups like the Nilotic were forced to move down-slope into the lowlands, and the Somali and Afar whose ascent was curtailed by the Semitic peoples who already had strongholds in the highlands, all attempts to occupy and settle the highlands were successful. As a result, one major feature of Ethiopian population geography is that ethnic diversities increase with altitude. For example the lowlands in the eastern and southeastern part of the country which constitute over a third of the country's

total area are occupied by three ethnic groups only (the Somali, the Afar and the Oromo) whereas the highlands are inhabited by over seventy linguistic groups. Ethnic diversity that best characterizes the Ethiopian population therefore refers mainly to the highland areas.

The question why the highlands were refuges, why they turned to be areas of convergence for the various waves of mass flow, and what pull-factors were operating in the highlands will be answered in this chapter. Our major promise in this case will be that preference for the highlands to the lowlands was never without pre-calculation of the economic, social, and political advantages to be accrued.

Militarily, the highlands offered better natural fortresses than the lowlands with the consequence that any population group that pioneered others in climbing up the mountains was always in a better offensive and defensive position than those who opted to do the same at a later date. One good example is that in many parts of Wello and Shewa administrative regions, particularly in areas jointly settled by the Amhara and the Oromo, "the former as a rule live higher than the latter" (Galperin, 1981:78). Galperin also adds that new in-migrants to places already settled by other predecessors were always forced to live "above or below the optimum belt" of habitation. Another good example is the war between the Christian highlanders and the moslem lowlanders. The stiff resistance by the former and the final victory over the well organized moslem forces could, from the strategic point of view, be attributed to the shielding effect of the highlands. It therefore comes as no surprise that many of the existing highland towns were once military garrisons. The people in the highlands are also not infrequently referred to as warriors and guardians of Ethiopia's independence.

Mesfin's (1972:2) reference to the people as "fierce inhabitants" and "war-like highlanders who jealously guarded their independence", is an indication of the sense of militarism among some highland people, if not all. The fact that all of the wars of the Zemene mesafint (era of the princes) were fought on the central and northern highland regions, also corroborates this idea (Abir, 1968).

Politically, almost all of the kingdoms and dynasties that at one time or another assumed leadership are highland-based, and all have their power centres in the highlands. Notable examples are centres like Axum, Lalibela Gonder, and Meqdala. These and other seats of early governments flourished, grew to a considerable vigour and died in the highlands with little, if any, attempt to establish links with the lowlands. The works of personalities that are often mentioned as national heroes are confined in the main to the highlands. Even the lowland-based islamic forces had their power centre of Harar, in the eastern highland regions of the Hararge plateau, the most elevated part in eastern Ethiopia.

Culturally, Ethiopia's early development and civilization was highland-bound, as the cultural glories of Axum, Lalibela, Gonder and others were strictly restricted to the highland regions, except on rare occasions when territorial expansion necessitated a move towards the lowlands. Even the cultural achievement of the modern time that includes industrialization and urbanization, as a sign of strict lineage to the early patterns, focussed on the highlands. Much of the communication, transport, banking facilities and public utilities like health services and schools are also concentrated in the highlands. Large population centres like Addis Ababa (2400 metres), Asmara (2300 metres) and Dire-Dawa (1160 metres) are all located on the highlands. All administrative capitals and most of the Awraja capitals with relatively high

population sizes were consciously or unconsciously sited on the highlands.

In terms of religion, Christianity that until recently was regarded as the state religion, spread only over the highlands. Almost all of the 14,000 churches and over 800 monasteries (Galperin, 1981:59) that were found in Ethiopia in 1974, are located in the highlands. It is also typical of the monasteries to be located in the hardly accessible mountain areas, to secure effective isolation of the monks from other people that are grossly considered sinners, and also because mountains are considered to be nearer to the domain of God (the sky) than the lowlands.

Two important questions should be raised at this juncture.

1. What are the main pull-factors that led to the concentration of economic, social, political and religious activities in the highlands?
2. How did each one of or the combination of these factors affect the pattern of population distribution? The answer to these two questions is very central, and forms the basis of analysis in this chapter.

To begin with, three important variables - physical, economic and social, are considered as the answers to the first question concerning the pull-factors.

2.1 Physical Factors

2.1.1 Physiography

Topographic diversity is the major characteristic of the Ethiopian landmass. Mountains rising to an elevation of more than 4,500 metres, extremely rugged and dissected plateaus, very deep and steep river canyons, depressions of up to 120 metres below sea-level, gentle and undulating plains, and various other local topographies

dot the various parts of the country's land surface. The elevated parts of the country are often compared with those in Switzerland, as the country is sometimes referred to as the Switzerland of Africa. But, in Switzerland, as Trimingham (1965:2) indicated, "the heights are barren peaks, the valleys fairly broad and fertile" whereas in Ethiopia "all this is reversed, the heights are mostly open plateaux, the valleys jungle-choked gorges or canyons of great depth". The implications of this topographic contrast for the attitudinal pattern of population distribution in the two countries are obvious.

Generally, three physiographic regions are found in Ethiopia:

1. The Rift Valley region.
2. Highlands north of the Rift Valley and associated lowlands.
3. Highlands south of the Rift Valley and associated lowlands.

Although this classification is in wide use locally, it gives less information on the altitudinal dimension. The other method which is closer in approach to the classifications used in this chapter is that of altitudinal categorization as, upper highland (above 2000 metres), lower highland (1000-2000 metres) and lowland (below 1000 metres) (Bekure, 1983). The dichotomization of the general topography into highland and lowland using the 1000 metre contour line is also very useful, for it really marks a divide between two physiographically, economically and climatically contrasting regions of the country. Daniel's (1983) work on the identification of the marginal areas of the country using soil moisture criteria, also approximates to the altitudinal classification used in this chapter.

Many writers on Ethiopian geography and economy have touched upon or at least tacitly recognized the effects of physiography on various economic and social activities. Galperin (1981:25) had properly recognized the use of altitudinal zoning which he called

"the natural division on a vertical plane", in the study of the distribution of population and economic activities in Ethiopia, but he did not go farther to do so. Of course height in itself does little, or would even have a negative effect on population if it was not for its ameliorating effect on other physical variables. But, which physical variables? This leads us to the identification of other natural factors which were made favourable for the mainly nature-dependent economic activity of the population and high population densities, by altitude.

2.1.2 Temperature

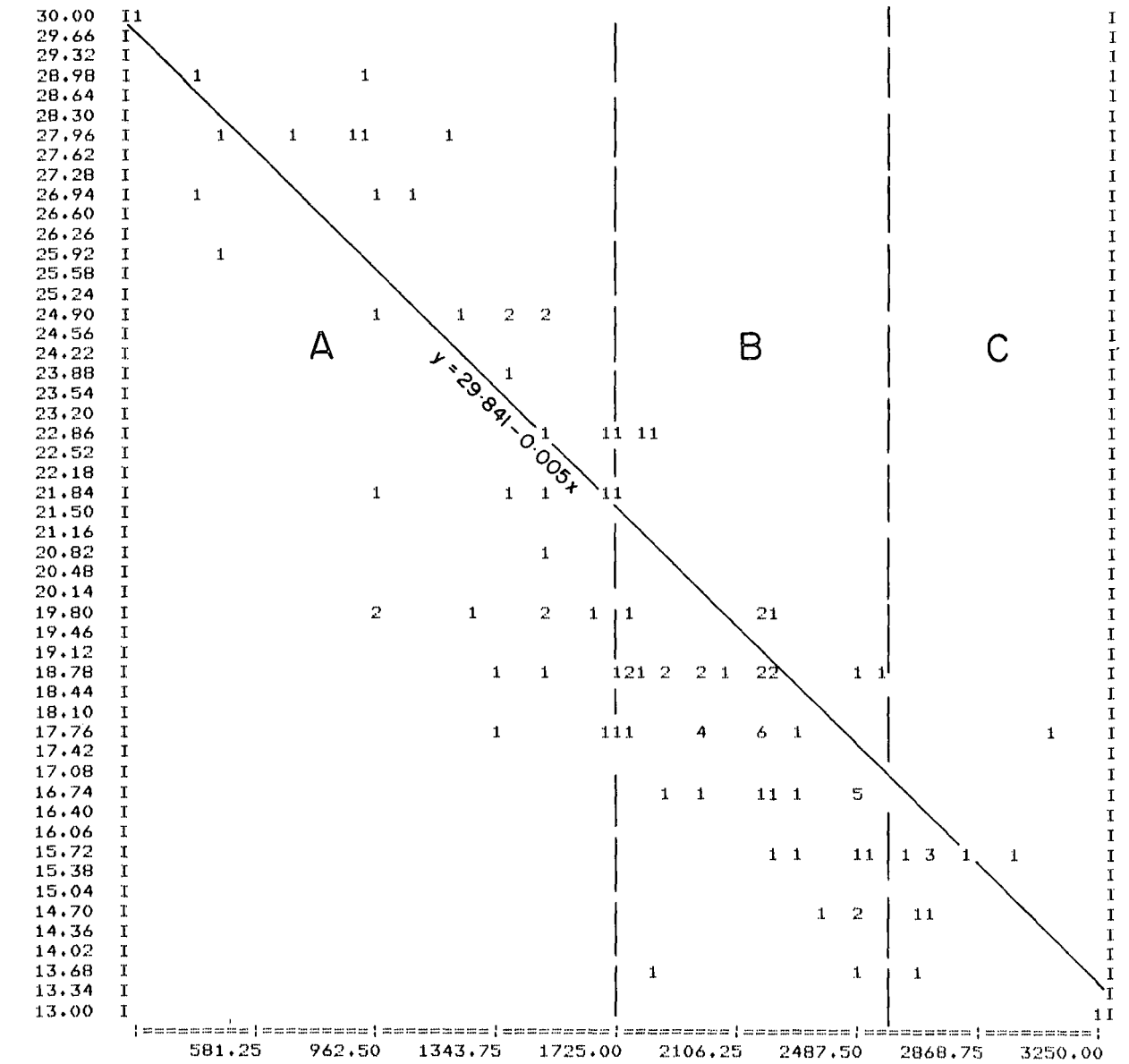
The fact that temperature decreases with altitude, except in cases of temperature inversion, is agreed upon universally, and it is not the intention of this study to prove if it so. What is sought for here is to show how and to what extent Ethiopia's high mountains alter temperatures and form different climatic conditions than would be expected in the light of the country's tropical location. In the absence of the highlands, the whole of Ethiopia would have a climate similar to that in the lowlands of Ogaden or the Danakil, which would lead to a different economic activity and thereby to different population pattern. Conversely, the vertical extent of places made favourable for habitation is not without limit, at a certain level, because of shortage of oxygen and also for reasons that the peaks become more and more steep, habitation ceases. Therefore, if temperature alone was to decide the optimum limit of habitation, there would be some intermediate altitudinal regions, which, by evading extreme temperatures, create ideal conditions for settled agriculture. To identify these intermediate altitudinal regions, biregression method is used. It is however undoubtable that no accurate and reliable temperature data could be obtained from the few weather stations found in the country and from the

rather archaic instruments they use. In the absence of any other choice a use is made of the temperature map (Mesfin, 1972:21) and temperature data (Daniel, 1977:48-57) to obtain average temperature values for 102 Awrajas of the country (see Appendix 2). The same method is applied to get average altitude of each Awraja (Appendix 2) and the details of how the latter was worked out will be discussed shortly in this chapter.

The correlation coefficient (r) value for the two variables and 102 cases is -0.86 which indicates a strong inverse relationship, and the coefficient of determination (r^2) value of 0.855 shows that 85.5 per cent of the variation in temperature between the Awrajas is explained by the variations in altitude. But, this is nothing more than the confirmation of the fact that temperature decreases with altitude, and does not indicate where the optimum altitudinal region we are looking for is located. For this reason, scatter plot of the 102 cases is prepared and the least square best-fit line, a line that "minimizes the sum of squared deviation of points" (Yeates, 1974:70) is drawn across (Fig. 2.1).

A look at the distribution of the positive residuals (scatter points above the least-square line) and the negative residuals (those below the line) will give us some useful information. The positive residuals show that many Awrajas up to 1725 metres of altitude (those within Area A) experience higher temperature conditions than is suggested by the least square line and above this altitudinal limit the proportion of Awrajas with higher temperature than is expected declines sharply (in Area B and C). Conversely, there are more negative residuals (Awrajas with temperatures below that predicted by the least square line) in Area B than in either A or C. Therefore there is some kind of uniqueness manifested by Awrajas within the altitudinal limits of 1725 and 2870 metres (Area B). This area,

Fig 2·1 A SCATTER DIAGRAM AND REGRESSION LINE OF TEMPERATURE (°C) ON ALTITUDE (metres)



which avoids extreme altitudes while enjoying below expected temperature conditions is more likely to be an optimum area of habitation if only temperature was the determining factor. One thing to be noted is that the sea level temperature predicted by the least-square line 29.8°C is very close to the actual temperature readings at the ports of Assab (29.4°C), and Mitsiwa (28.5°C). The slope value of the line (-0.005) indicates a temperature decrease of 5°C for every 1000 metres of ascent (dry adiabatic lapse rate).

2.1.3 Rainfall

To facilitate proper comparison of altitude-rainfall and altitude-temperature relationships, the same methodology as above is also used in this case. The basic assumption of the existence of altitudinal limits with optimum temperature conditions is also substituted by the idea that there might exist altitudinal limits with optimum rainfall conditions. In other words, it is to be assumed that there exists an intermediate altitudinal level which has a benefit of higher rainfall conditions than is to be expected by some mathematical formula of altitude-rainfall relationship. As above, a scatter plot of altitude and rainfall is drawn and the least-square line is fitted to show the linearity of the relationships between the two, and to assess the distributional nature of the positive and negative residuals. As was the case with the altitude-temperature relationship, area B (1725-2870 metres) has more Awrajas with an annual rainfall amount higher than is predicted mathematically by the best-fit line with the equation $y = -83.762 + 0.569x$ (Fig. 2.2 bottom). The percentage distribution of positive residuals with respect to this line in Areas A, B, and C gave a result of 33 per cent, 60 per cent, and 7 per cent respectively. This means that among the Awrajas that experience higher than the normally expected rainfall amount, 33 per cent are those within

altitudinal limits of up to 1725 metres, 60 per cent are those within 1725 and 2870 metres of altitude and only 3 per cent are above 2870 metres. These conditions, especially those in the second category, correspond fairly well with areas of below normal temperature conditions (Area B) (Fig. 2.1).

The correlation coefficient value for these two is 0.7 which again is a fairly strong and direct relationship, but as the coefficient of determination is only 0.475, only 47.5 per cent of the variation in rainfall is explained by altitudinal variation. As opposed to only 14.5 per cent unexplained variation in the altitude-temperature relationship, 52.5 per cent of the variation in altitude-rainfall relationship is unexplained or is due to deviation. This can also be seen from the distribution of residuals and their distance from the regression line, particularly in Area B. More deviation is also shown by the positive residuals than by the negative ones. For this reason, a further attempt is made to show how far the Awrajas in Area B are deviating positively from what is suggested by the main line of best-fit, by drawing another line (Fig. 2.2, upper). The line is made to predict 500 mm of rainfall higher than what is normally predicted and this gave a new regression coefficient of 416.238 (500 more than -83.762).* In this case only 2 points lie above the new line in Area A, whereas 7 points still lie above it in Area B, but none in Area C. To explain it more, there are still many Awrajas within altitudes 1725-2870 metres whose actual rainfall record exceeds 500 mm more than what their altitudinal position suggests. For this very reason, Area B is again unique and deserves special consideration than the other two; and it is also unique in terms of kinds of economic practices

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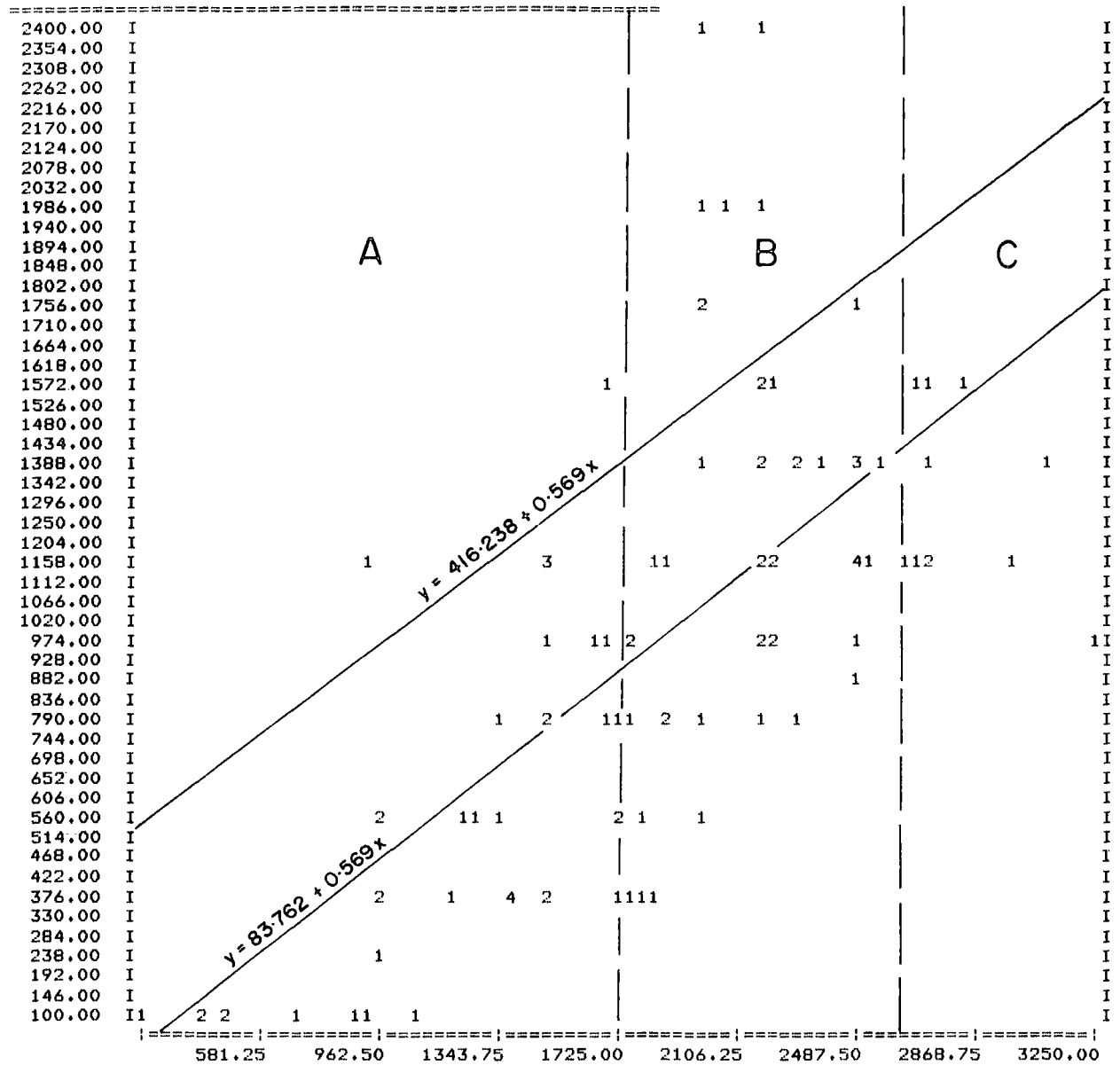
* The slope remains the same because parallel lines have same slope.

Fig 2·2 SCATTERPLOT AND REGRESSION LINE OF RAINFALL (mm) ON ALTITUDE (metres)



and population concentration, as will be shown soon in this chapter. We can summarize the temperature and rainfall conditions of the three areas as follows:

Area	Altitude	Temperature	Rainfall	General climatic condition
A	low	Many Awrajas higher than expected	Many Awrajas lower than expected	hot and dry
B	medium	Many Awrajas lower than expected	Many Awrajas higher than expected	warm and wet
C	high	Many Awrajas lower than expected	Some Awrajas lower than expected	cold and moist

Areas A, B, and C correspond to the traditional climatic classification of places in Ethiopia as Kolla,, Woina Dega and Dega. The experience we have of the world population distribution pattern is that areas of extreme climate like tropical deserts and polar icecaps are hostile to human habitation, and the tropical hot and wet climate is also generally not suitable for dense habitation, although there are exceptions (e.g. Java). On the other hand, warm and wet temperate climate areas are among the most densely populated areas of the earth. Which one of the three areas of Ethiopia is therefore, to have high population densities? This is one of the basic questions to be answered in this chapter.

2.2 Altitudinal Pattern of Population

As a first step towards answering this question, the 102 Awrajas in the country are categorized into different altitudinal zones which may be referred to interchangeably as climatic regions.

No doubt, there is also an economic undertone, for variation in physical conditions not infrequently leads to differences in economic activity.

Six altitudinal zones, hereafter known as zones 1,2,3,4,5 and 6, are identified, their respective altitudinal extent being as follows:

Zone 1 : mountainous (above 2600 m)

Zone 2 : upper highland (2200-2600 m)

Zone 3 : lower highland (1800-2200 m)

Zone 4 : mostly highland (1400-1800 m)

Zone 5 : mostly lowland (1000-1400 m)

Zone 6 : low land (below 1000 m)

Zone 1 contains 11 Awrajas that are represented by 11 points in Area C on Figures 2.1 and 2.2 Zone 2 with 25 Awrajas and Zone 3 with 26 Awrajas are together represented by 51 scatters in Area B on the two Figures mentioned. The remaining Zones 4, 5 and 6 contain 20, 11 and 9 Awrajas respectively and lie under the first category A on Figures 2.1 and 2.2.

It cannot of course be claimed that the altitudinal values for all Awrajas are precise and reliable, nevertheless, an attempt is made to obtain as representative a figure as possible of the average altitudes of each awraja by way of:

1. Considering the altitudinal variations within individual Awrajas and taking average values. This is done by superimposing the administrative division map (Fig. 2.3) on the topographic map of the country (Fig. 2.4).
2. Using the contour lines on a relatively large-scale map of the country prepared by the Ethiopian Mapping Agency (1982).

In so doing the basis for the analysis of population distribution on a vertical plane is laid and this scheme will be adhered to throughout this chapter.

Fig. 2·3 ADMINISTRATIVE DIVISIONS

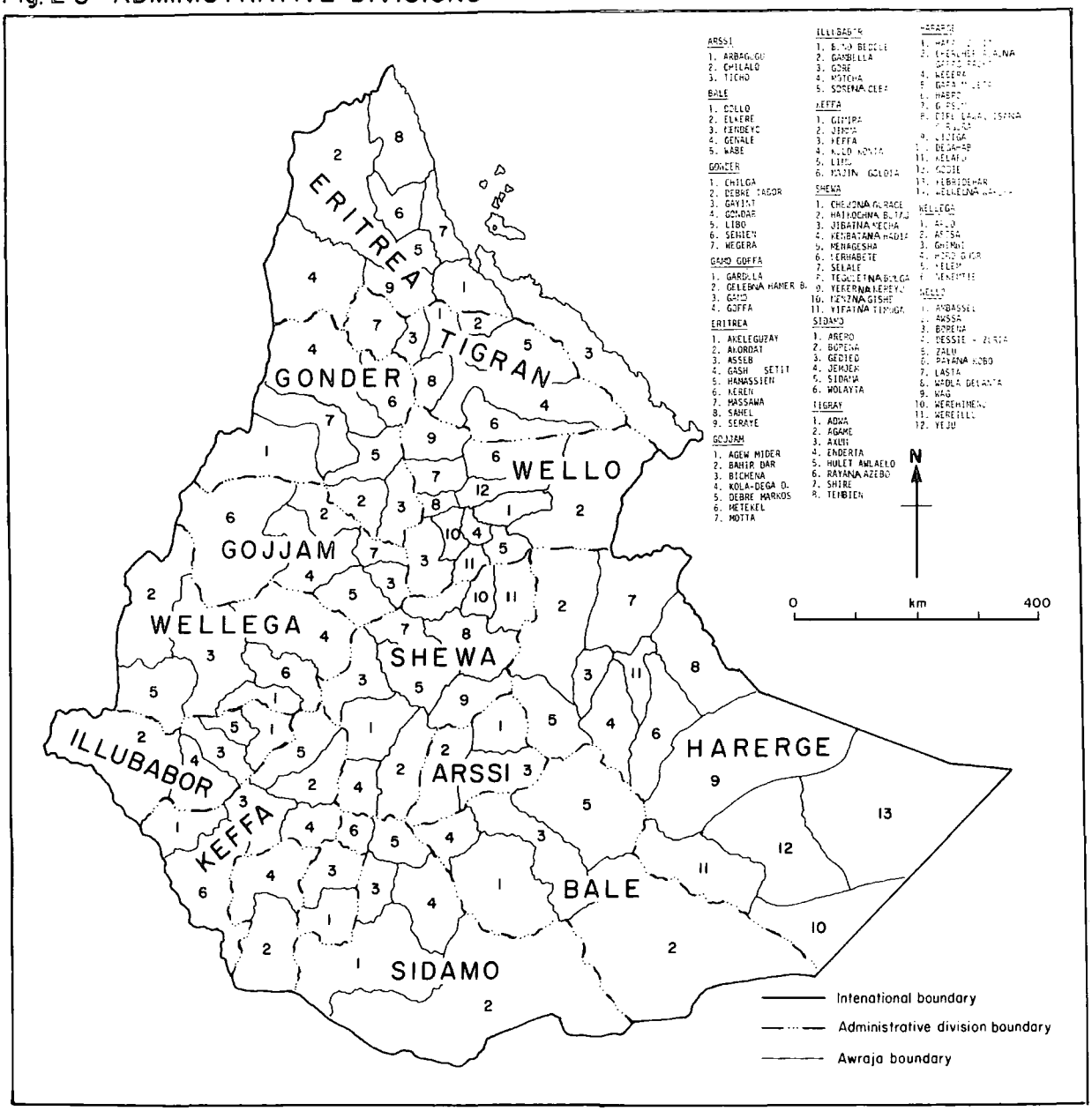


Fig 2·4 RELIEF OF ETHIOPIA

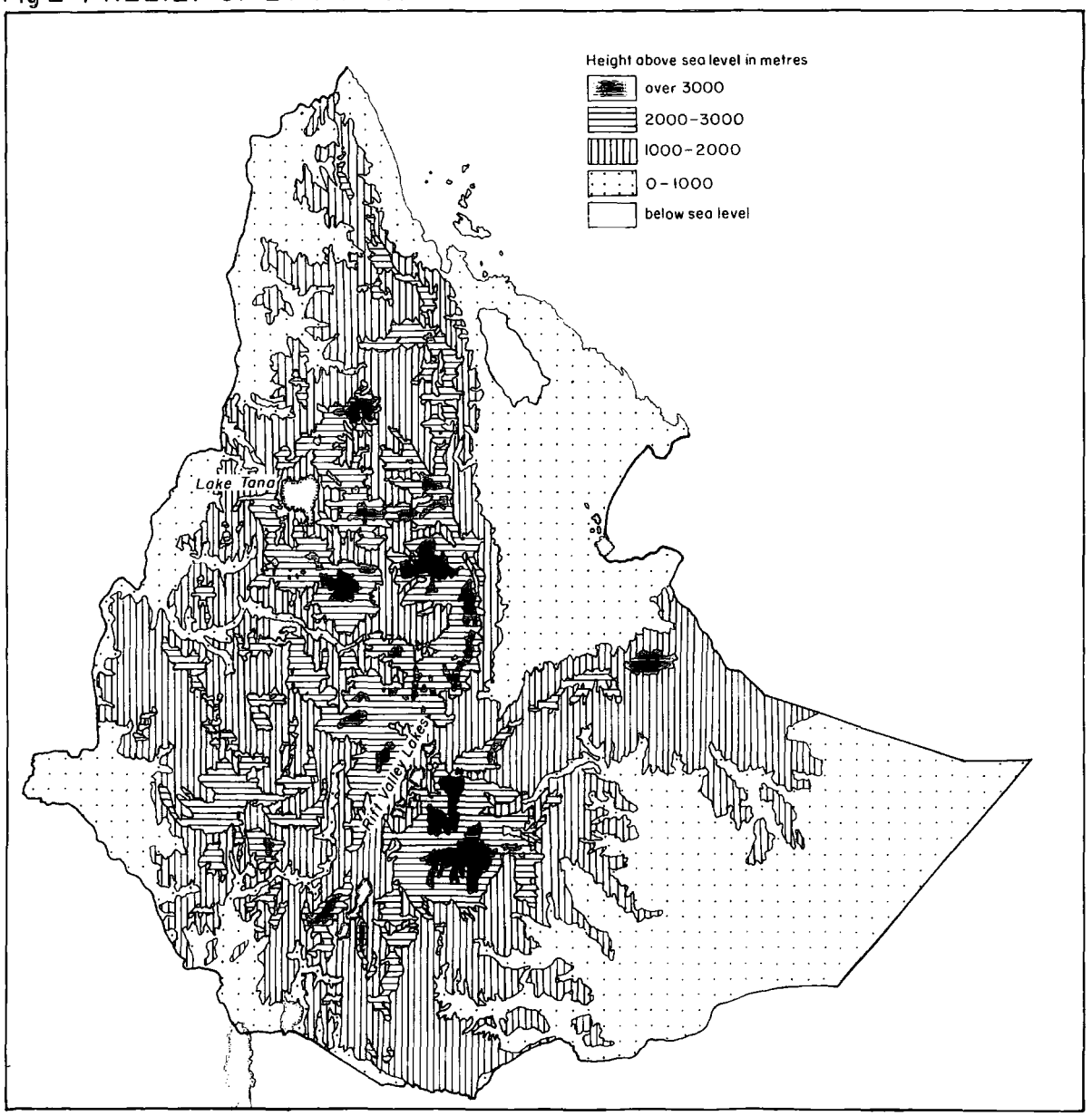


Table 2.1 gives us information on altitude, area and population of the six altitudinal zone whereas the area and population figures for the 102 Awrajas are given in Appendix 3.

Table 2.1

Area and Population Size by Altitudinal Zones

Zone	Average altitude (m)	Area ('000 km^2)	%	Total population (1980) ('000s)	%	Average Density (per km^2)
1	2800	70.3	5.8	3156.5	10.2	45.0
2	2400	144.7	11.8	11308.6	36.4	78.2
3	2000	237.9	19.4	8550.6	27.5	36.0
4	1600	344.1	28.1	4306.7	13.9	12.5
5	1200	163.4	13.4	2671.9	8.6	16.4
6	600	263.1	21.5	1071.0	3.4	4.0
Total		1223.5	100.0	31065.3	100.0	25.4

From the very beginning it is essential to know the limitations of the population data we are using. Information on population size of Awrajas for 1980 is the latest available sample estimate derived from the second round national sample survey (1968-1971) that included more than 80 per cent of the population. The data are also considered to be "more reliable" than the previous sample estimates (Central Statistical Office, 1980a:34). To this date no general census has been carried out in Ethiopia. Besides, no attempt at knowing the size, density, demographic characteristic, etc. was made until as late as 1964, when the national sample survey first round (1964-1967) began. All population figures given in the historical works of different writers before this date were merely speculations and referred, in most cases, only to a fraction of the population.

Although it was not successful in covering the whole country the first sample survey (1964-67) was a sign that people had just

started to realize the importance and indispensability of population statistics. Previously its usefulness in planning, in administrative activities, in military strategies, in politics, etc. was either not recognized or disregarded.

Academics, among others, were the first to realize the pressing need for reliable population data, and some like Mesfin (1967) were trying indirect methods like using the number of persons registered to vote in partliamentary elections, to estimate the total population size of Ethiopia. His estimate of 24,581,000 persons for 1960 was far better than some official and semi-official estimates that raised the figure to nearly 40,000,000 (Mesfin, 1967:15). In 1962 the Central Statistical Office gave a new population estimate of 21,534,800 persons.

According to information at hand, this was the first estimate ever made by an institution that was established primarily to supply population and other socio-economic data. Subsequently, we have had an almost continuous annual supply of information, although very crude and unreliable.

Year	Population	Growth rate
1963	21,909,000	1.7
1964	22,303,000	1.8
1965	22,699,000	1.8
1966	23,143,000	2.0
1967	23,607,000	2.3

(C.S.O., 1967 and 68)

Of all these figures, perhaps only the 1967 estimate may be trusted, for it was the immediate result of the first sample survey ever undertaken in the country. This should not however, be mistaken to mean that it was a true figure, because the survey did not include all parts of the country (Eritrea and Bale were not included).

For nearly fifteen years since the survey (1967-82) the Central Statistical Office has been producing Statistical Abstracts at irregular intervals, the last issue of which was published in 1980. But, only one other sample survey (national sample survey second round) was undertaken in these fifteen years and no census. The content and layout of almost all statistical abstracts published by the C.S.O. has been monotonously the same, beginning with a chapter on "Land and Climate" followed by "Population" and ending with a chapter on "Law and Order".

The second national sample survey (1968-1971) is said to have made use of "better sample design" and "better quality and quantity of human resources" and this claim appears in all the post-survey publications (1976, 1978 and 1980a), on the same page (15), first paragraph and with the same wording. Such emphasis on form might seem aimless and unnecessary, but, it is a good indication not only of the lack of new and genuine population data, but also the prevailing drowsiness in analysing the existing data.

In sum, only two sample surveys have been conducted so far, one of which was only partially complete and, as was stated above, it is only the second survey that is deemed "reliable", "qualitative" and "well organized". But, is this really true? Can we depend fully on information supplied in the various Statistical Abstracts?

Table 2.2 is an excerpt from population data for a period of six years (1975-80) and shows the rates of growth by Awraja from one year to another. Only selected Awrajas are included to facilitate a better appreciation of whether the Ethiopian population data may be relied on or not.

The data for 1978 are the immediate outcome of the second sample survey II and the data for pre-1978 years are either projected forth from the first national sample survey or back from

Table 2.2

Rate of Population Growth of Selected Awrajas (1975-80)

Administrative Region	Awraja	Annual Rate of Population Growth (%) 1975-76	1976-77	1977-78	1978-79	1979-80
Arssi	Chilalo	2.5	2.5	2.4	3.2	2.7
Bale	Elkere	2.6	2.6	2.6	3.2	2.7
	Wabe	2.7	2.6	2.6	3.1	2.7
Eritrea	Gashna S.	2.7	2.6	2.6	2.9	2.7
	Akordat	2.6	2.6	2.6	2.9	2.7
	Sahil	2.7	2.6	2.6	2.9	2.7
Gojjam	Bichena	2.7	2.6	2.6	2.9	2.7
	Mota	2.6	2.6	2.5	3.0	2.7
Harerge	Jijiga	2.7	2.6	3.2	3.0	2.7
	Degehabur	2.7	2.6	2.5	2.9	2.7
	Kebridgehar	2.6	2.3	3.4	3.0	2.7
	Welwelna W.	2.7	2.6	2.8	2.9	2.7
	Diredawa I.G.	2.7	2.6	2.9	3.0	2.7
Shewa	Chebona G.	2.1	2.0	1.8	2.7	2.1
	Kembatana H.	2.1	2.0	1.8	2.7	2.1
Wello	Kayana K.	2.8	3.1	2.6	2.8	2.7
	Yeju	2.5	2.6	2.6	3.1	2.7
	Ambassel	2.7	2.6	2.5	3.0	2.7
	Kalu	2.7	2.6	2.6	3.0	2.7
Tigray	Rayana A.	2.7	2.7	2.5	3.0	2.7
	Inderta	2.7	2.6	2.5	3.0	2.7
Wellega	Gimbi	2.7	2.6	2.6	2.9	2.7
Illubabor	Buno B.	2.7	2.6	2.5	3.3	2.7
Keffa	Jimma	2.7	2.6	2.5	3.0	2.7

the 1978 data, thus they are simply mathematical artefacts.

At first glance, one might not be able to discover the futility of the above given information, unless of course one is made aware of two important things:

1. the uniqueness of this period in the political, social and economic history of Ethiopia; and
2. the nature and location of each one of the Awrajas considered and the degree to which they were affected.

The 1970s represent a very unique episode in the modern history of Ethiopia resulting in dramatic changes in natural and political

conditions of the country. They were years, in one general term, of turmoil. Perhaps no other population group was in such a state of instability as was the northern, eastern and southeastern population of Ethiopia during this period. By this, we not only mean that this was the region that suffered adversely, but also that there were other places that escaped such a disturbance and existed in a state of relative tranquility.

Table 2.2 is therefore composed of Awrajas that have and have not suffered from natural disasters (drought, famine and disease) and political events (war in various fronts) that were devastatingly severe and widespread in the 1970s.

To our astonishment, the populations for example of Jijiga, Kebridehar, Diredawa, and Welwelna Werder Awrajas, where hundreds of thousands of persons fled their homes due to Somali aggression, were reported as having the fastest growth rates in the country. In 1975-76 when the war with Somalia was at its peak, and when Somalia was claiming to be feeding half a million Ethiopian refugees, the populations of Awrajas in Harerge and Bale, according to the given data had higher growth rates (2.7 per cent) than those in the war-free zones like Kembatana Hadiya and Chebona Gurage (both 2.1 per cent).

In 1975, the drought victims in Wello and Tigray were just beginning to receive food and medical aid having lost many of their children, the aged and the sick. But, surprisingly enough, one of the drought-stricken Awraja, Rayana Kobo, had the highest growth rate among the Awrajas considered (2.8 per cent) and others like Ambassel, Kalu, Rayana Azebo and Enderta had also growth rates of 2.7 per cent each.

Awrajas in Eritrea which were suffering a double toll of drought and civil war appeared to have similar growth rates as

those in Arssi, Keffa, Illubabor and Wellega, and even greater than those in Shewa. This is all unrealistic, illogical, and misleading and calls for the need for great caution and meticulousness in dealing with the population data, especially the temporal aspect of it.

During the 1977-78 period almost all Awrajas, according to the data available, had for unknown reasons, lower growth rates than they had in 1975-76 (Table 2.2). Exceptions to this rule come from the part of the country where one would normally expect the lowest growth rate; from Jijiga and Kebridehar Awrajas in the Ogaden. The two had growth rates of 3.2 per cent and 3.4 per cent respectively, much above the national average of 2.5 per cent.

Again for reasons one can hardly surmise, the rates of population growth in many Awrajas suddenly rose to well over 3 per cent during the 1978-79 period, and nearly all Awrajas had growth rates greater than the preceding years. In fact there is nothing that we can think of as being responsible for such swift demographic change. During this time the drought problem was only partially solved and people in the inaccessible parts were either receiving random air-drop food at the best or were dying from hunger (Legum, 1975). Thus, we have no grounds to believe that the natural increase of population in this region was growing. Besides, the Ogaden and most parts of Eritrea were in a state of instability due to military problems; they could certainly not have had such big rates of growth claimed by the Central Statistical Office (1978).

The last part of the period we have considered, according to the data at hand, was characterized not only by reduced growth rates but also of uniform growth rates for almost all Awrajas considered (2.7). Chebona Gurage and Kembatana Hadiya, two of the most densely population Awrajas in the country that suffered little from

drought and did not have political problems, had by far the lowest growth rate of 2.1 per cent. Nobody knows why.

In sum, not much can be done with the existing population data, but the paradox is that nothing can be done without it. It is with this in mind that we should venture on the examination of the altitudinal pattern of distribution. With the hope that it is the result of the "well designed" sample survey II and the latest of all published population data, the 1980 Awraja population data will be used in this chapter.

Thus, according to C.S.O. the population of Ethiopia was 31,065,300 in 1980 and the area 1,223,500 square kilometres which gives a national crude density of 25.4 persons per square kilometre. But, strange as it may appear, population size tends to increase progressively with altitude in Ethiopia as opposed to the general world pattern whereby population size and densities decrease with increasing altitude. The fact that highlands in Ethiopia play a positive role in population concentration has been noted by some population geographers (Clarke, 1965), but the actual degree of influence and the rate at which population sizes and densities increase with altitude has remained unknown.

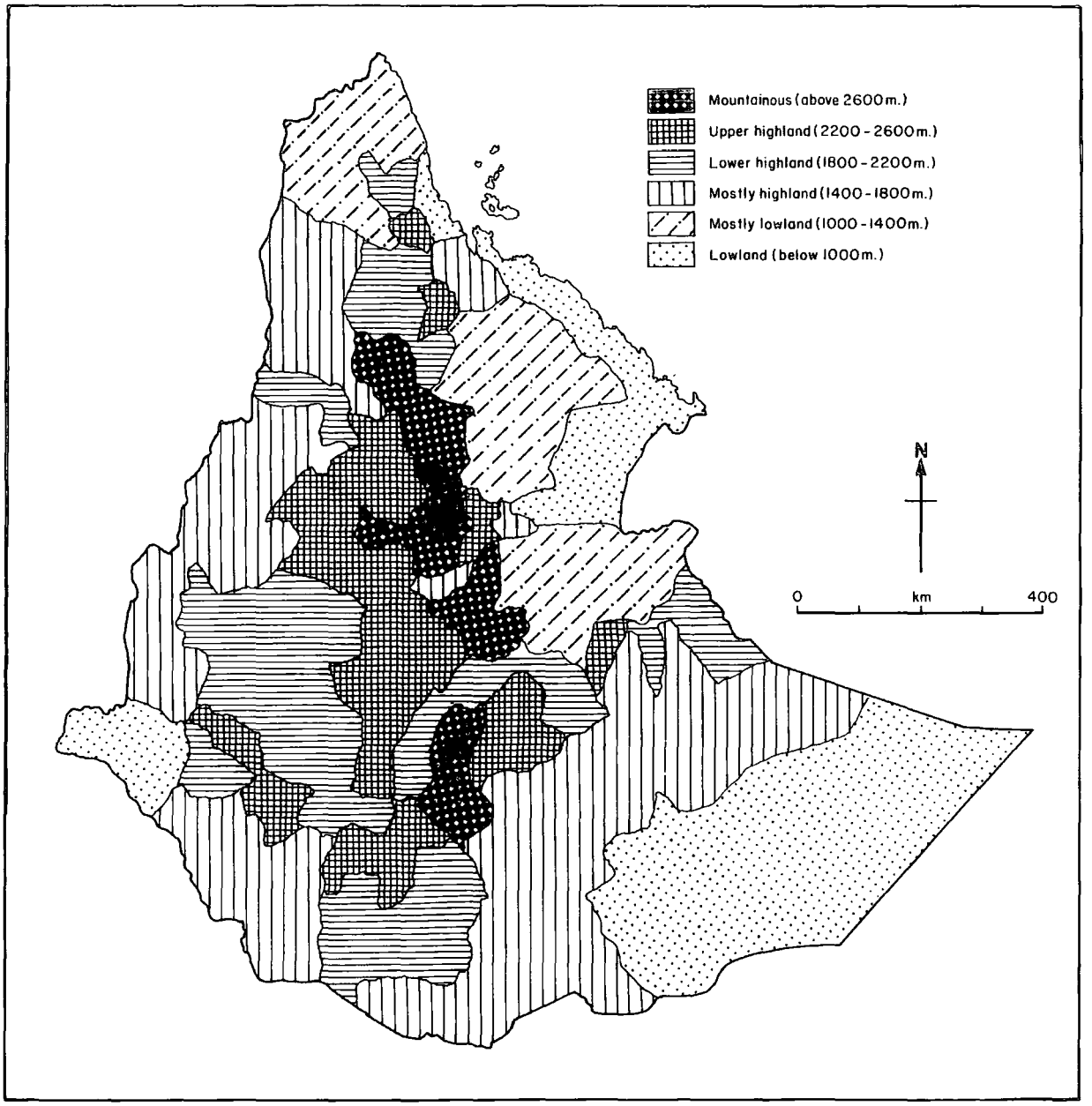
As may be seen from Table 2.1, population size increases simultaneously with increasing altitude up to 2400 metres, beyond which it falls sharply. In the lowlands of Ethiopia (zone 6, below 1000 m), that comprise 21.5 per cent of the total area, live only 3.4 per cent of the total population, and the crude density in this zone is less than one-sixth of the national average (4 persons/km^2). It could be reiterated that the lowlying areas, designated as Area A (Figures 2.1 and 2.2) have abnormal rainfall temperature combinations which led us to conclude that they are hot and dry climatic areas. The low population size and density is therefore a logical

outcome of such climatic conditions which surely have led to the dominance of economic activities that preclude dense habitation. What type of activity prevails in this area will be discussed under the sub-heading economic factors.

In zone 5, where the highlands intersperse the dominantly flat lowland topography, population size begins to increase slightly and, although this area is only a little more than half the area of the lowlands, it contains 8.6 per cent of the country's population to form a crude density of 16 persons/km^2 which is four times that of zone 6. The two lowland and mostly lowland areas together constitute over a third of the country's area (35 per cent) but contain only 12 per cent of the total population.

Where the highlands start to assume prominence in local topography, zone 4, the percentage share of the total population increases to 13.9. This area is also unique in that although it contains smaller number of Awrajas than zones 2 and 3 it is the largest of the six zones covering 28.1 per cent of the total area. Besides, unlike zone 5 which comes in close contact with the mountainous and upper highland regions (see Fig. 2.5) and which is in the proximity of the historically important northern part of the country, zone 4 comprises Awrajas in the southern, south-western, and western part of the country that are far away from ancient centres of population concentration. Here the impact of history which is mainly evidenced by lower population density in the mostly highland zone 4 (12.5 persons/km^2) than in the mostly lowland zone 5. As seen from Figure 2.5, the latter consists of Awrajas in the administrative regions of Wello, Eritrea, and northern Harerge where, as has been noted in Chapter 1, settled agricultural practices began. Thus, the three low-lying zones of Ethiopia below 1800 metres of altitude together form 63 per cent of the country's area but

Fig.2·5 ALTITUDINAL ZONES BY AWRAJA



share only a quarter (25.9 per cent) of the population total.

In the lower highland area (zone 3) where the lowlands cease to exist, population size and density show a swift increase. Together with the upper highland zone 2 they contain 64 per cent of the country's total population, on 31 per cent of the country's area. It is very interesting to note that these two zones correspond with Area B on Figures 6 and 7 which is found to be unique in terms of its temperature and moisture characteristics. The answer for the question whether this climatic uniqueness and optimum rainfall-temperature conditions would give rise to high population size is to be found here. Although, it is erroneous to attribute density variations entirely to variations in physical factors, it can certainly be concluded that eccentricities in the physical conditions of these two regions, through the positive effect they have on economic practices, have contributed to high population sizes and densities. Population density in zone 3 increases to 31 persons/km^2, which unlike the previous three areas is higher than the national average.

Zone 3 is by far the most populous altitudinal zone in the country with a population size which is 36.4 per cent and a remarkably higher density of 78 persons/km^2. This is in fact the highest of all zonal densities, twenty times that of zone 6 where density is the lowest.

The highest zone, zone 1 has a population share which is very much in contrast to what one expects of mountainous areas, to strengthen our argument that Ethiopia is unique in terms of vertical population distribution pattern. This region, in spite of its ubiquitous steep sloped and rugged mountain formations, is the second most densely populated of all regions we have (45 persons/km^2). Its area is only one fourth, for example, of the area of the lowland

zone whereas its population size is nearly three times as large, the density difference being 11 times.

To facilitate the visual inspection of the trend in percentage increase of population with altitude, a cumulative frequency curve is prepared (Fig. 2.6).

Population numbers increase slowly up to 1600 m (average altitude of zone 4) and then very rapidly until 2400 m, beyond which it declines once again. The two broken lines show the two thresholds. Until the first threshold, there is a 1.6 per cent increase of numbers for every 100 metres of altitude, and between the thresholds the percentage increase by the said interval rises to 8. Above 2400 metres, the percentage increase becomes 2.6.

Other than the altitudinal contrast, the area-population inequity within regions also needs to be emphasized, for it serves as a clue to whether certain altitudinal regions are under more population pressure than others or not, and if not, which regions are more likely to face such problems if area alone was the determining factor.

In three purely highland zones (1, 2 and 3) is found not only high population size and density but also high population-area imbalance, as the percentage share of the area total by these three zones is lower than that of population share. The opposite is the case in the other low-lying zones. Thus, if area alone was to decide the carrying capacity of a zone, higher population growth, whether natural or migrational, would be encouraged in zones 4, 5 and 6 than in the upper three zones. It will be seen if the actual Ethiopian reality corroborates this assumption and if the lowlands are now the foci of attention in the current resettlement programme. under the heading of economic factors, later in this chapter and for the moment suffice it to state Wood's (1982:157) observation

that most of the current resettlement 'involved downslope movement'.

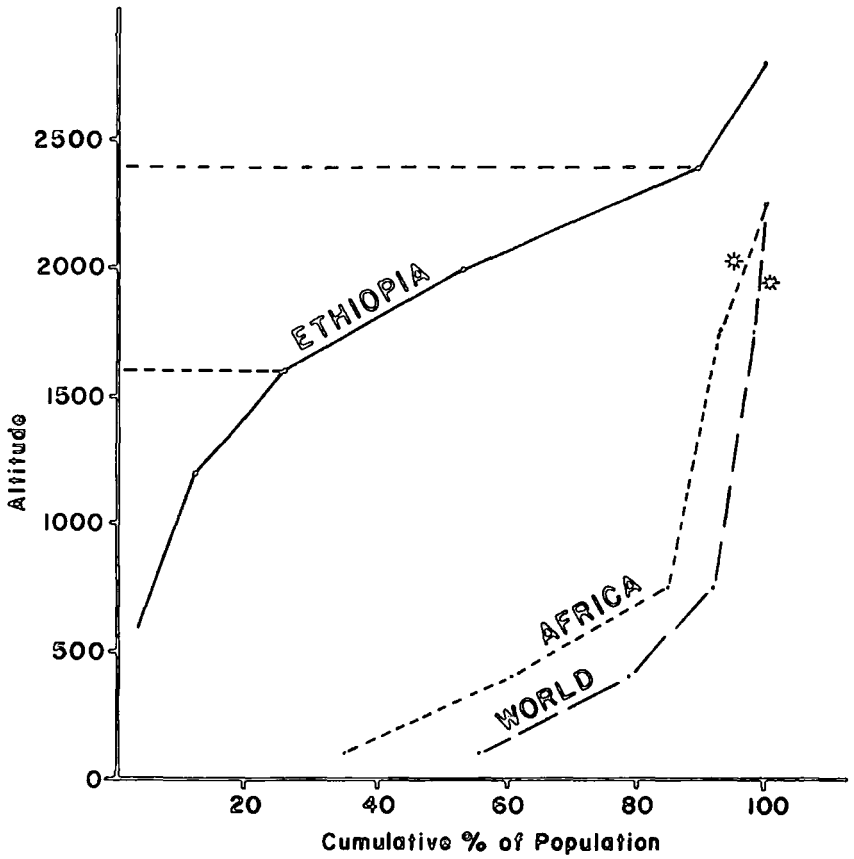
If population was distributed evenly and, furthermore, if as a result all the six zones had an equal population density, their population size would be as follows:

Zone	Observed Pop. (mill.)	Expected Pop. (mill.)	O-E	$(O-E)^2$	$\frac{(O-E)^2}{E}$
1	3.2	1.8	1.4	1.96	1.09
2	11.3	3.7	7.6	57.76	15.20
3	8.5	6.0	2.5	6.25	1.04
4	4.3	8.7	-4.4	19.36	2.23
5	2.7	4.2	-1.5	2.25	0.54
6	1.1	6.7	-5.6	31.36	4.68
Total	31.1	31.1	0	118.94	24.78

The upper three zones have a positive O-E value and the lower three have a negative O-E value which means that these two groups of zones have population sizes above and below what their areal size suggests, respectively. Furthermore, if all the six zones had population sizes proportional to their areal size, individual O-E values would all be zero and the sum of squares of these observed minus expected values ($(O-E)^2$) would also be zero. Zones 2 and 6 manifest higher deviation than others but in opposite directions. The O-E value for zone 2, for example, indicates that 7.6 million extra people live there than what the population size would be if population was evenly distributed throughout the country. Conversely the population in the lowland zone 6 is less by 5.6 million than it would be otherwise. Only extreme cases are mentioned to highlight the major deviations in positive and negative directions.

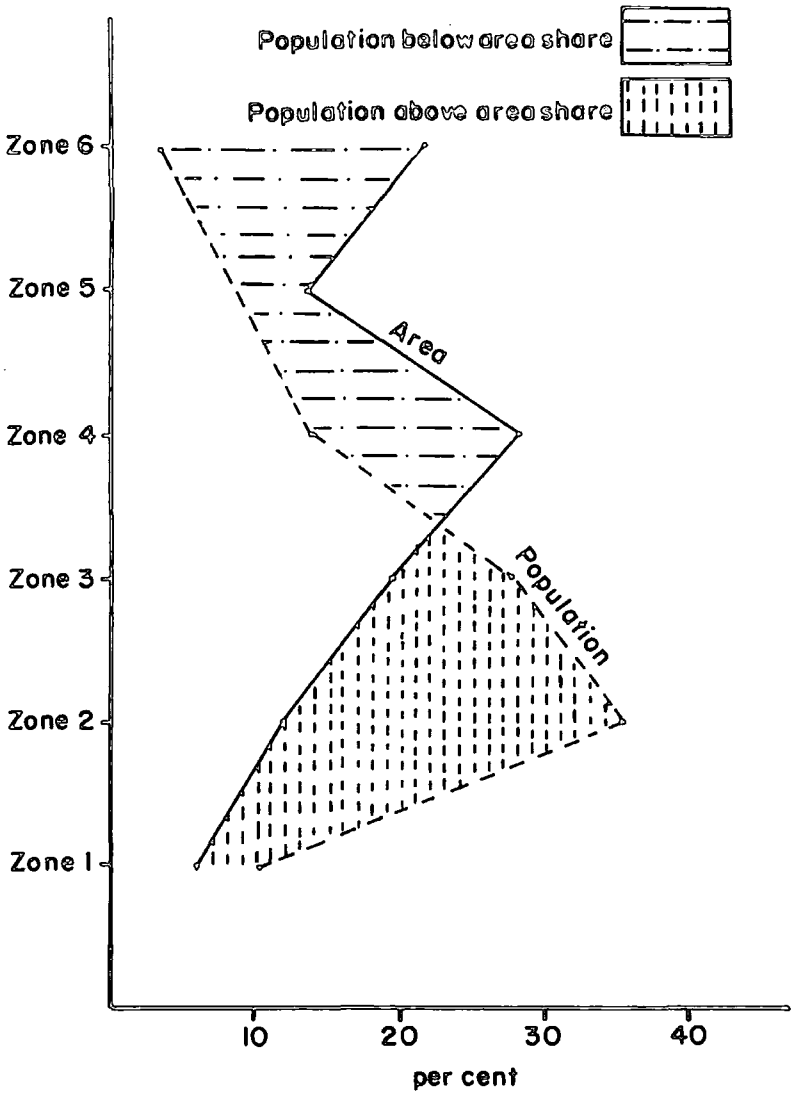
To proceed further with the examination of the observed and expected distributions, the chi-square statistic that measures "the aggregate difference between observed frequencies and those expected

Fig. 2·6 CUMULATIVE FREQUENCY DIAGRAM FOR POPULATION AND ALTITUDE



* Redrawn from Staszewski (cited in Clarke, 1965: 18)

Fig 2·7 PERCENTAGE OF AREA AND POPULATION BY ALTITUDINAL ZONES



under H_o" may be applied (Hammond, 1980:171). Our H_1 (research hypothesis) would be that the distribution of population in the six altitudinal zones is so uneven that the discrepancy can never be the result of chance variation.

$$\chi^2 = \Sigma\left(\frac{O-E}{E}\right)^2$$

In this calculation, the higher the χ^2 value the farther would the assumption of even population distribution be removed from reality and the higher is the likelihood that the research hypothesis formulated above would be true. The χ^2 value under conditions of perfect match between expected and observed frequencies would be zero, but as the calculated χ^2 value in the Ethiopian case is 24.78 million the assumption of even distribution is not only wrong but absolutely absurd. Because the research hypothesis is proved to be true, we are now confronted with the task of answering the question - if we say the zonal variation is never due to chance, what are the factors that underly such variation? This question is partly answered in Chapter 1 and some variables are hinted upon earlier in this chapter, but the most important factor of population distribution still remains unexamined.

2.3 Economic Factors

Which particular economic activity should one consider as being responsible for the marked variation in the altitudinal pattern of population distribution? Is it the industrial sector that engages some 76,600 persons (0.2 per cent of the total) (Central Statistical Office, 1980a:79), that should be deemed important source of variation? Certainly not. Or is it the tertiary or public service sector that accounts for perhaps a slightly greater percentage of employment than industry (data for these not available)? Again no. Undoubtedly, it is the agricultural sector that provides a livelihood

for 86.4 per cent of the country's population, that should be regarded as the major determinant of the pattern of settlement, degree of concentration, and density patterns both altitudinally and spatially. As is true of all Third World nations, and the poor African countries in particular, the Ethiopian population does not yet have the material culture to extricate itself from the strong bond that tied it firmly to the land for thousands of years. Its fate still depends more on the vicissitudes of nature than man's own creation. The bid to eke out a living in the most primitive and traditional style has resulted in no more than a scratch on the land. In such circumstances where people have little saying of their own, it is very natural that they aggregate themselves in areas where nature is less hostile and less demanding - the highlands. Unlike people in the advanced world who, through constant innovations have succeeded in widening their ecumene, confinement to the early settled highlands still continues. As a result, more cultivated land, more rural population, and higher agricultural density is to be expected in the highlands than the lowlands.

Table 2.3

Size and Percentage Distribution of Agricultural Land and Rural Population by Altitudinal Zones

Zone	Rural Population ('000's)	%	Cultivated Land ('000 ha .)	%	Grazing land ('000 ha .)	%	Growing Season
1	2,991	11.1	2859.7	14.7	2559.8	3.6	4.8
2	8,804	32.7	5860.6	30.2	6040.4	9.3	5.5
3	7,724	28.7	5853.5	30.1	10384.7	16.3	5.3
4	4,082	15.2	3315.5	17.1	24640.9	38.2	3.3
5	2,321	8.6	1354.9	7.0	7620.1	11.8	1.1
6	992	3.7	181.7	0.9	13409.2	20.8	0.9
Total	26,914	100.0	19428.9	100.0	64655.1	100.0	

Few data are available on the size of agricultural land, types

of cropping, and production levels especially when it comes to the Awraja level, a level of aggregation for which we have population data. However, a use is made of the relatively recent unpublished agricultural data by the Land Use Department, Ministry of Agriculture (1976). The fact that it is compiled from aerial photographs may not make it fully reliable, nonetheless, it contains more information, covers more area, and is more representative than the one per cent sample survey data by C.S.O. (1975). Besides, the latter excludes grazing and other lands and emphasises land used for growing of crops only. Agricultural data by Awraja (Appendix 4) are aggregated to the level of the six zones; the urban population, which is not as dependent on land as the rural population, is excluded.

Much difference is observable between the area-population relationship (Table 2.1) and the agricultural land-population relationship shown on Table 2.3. In the former case, no relationship could be seen while in the latter population sizes in the six zones vary either directly, as is the case with the size of cultivated land, or inversely, as is shown by the percentage distribution of grazing land. One major conclusion that may be drawn is therefore that population size and density in the six zones is a function entirely of the size of agricultural lands and the type of land-use. As has been emphasized repeatedly, this comes as no surprise in the light of the fact that agriculture is both the oldest and the modern, basic industry in the country.

As may be inferred from the patterns in Table 2.3, the decrease or increase in the size of cultivated land is matched by a comensurate increase or decrease in the size of population in all six zones. But, excepting the percentage share of zone 5, the zonal variation in population size is inversely related to the

variation in the size of grazing land. More important to note is that the optimum altitude, rainfall, and temperature conditions in the upper and lower highland zones, given as Area B on Figures 2.1 and 2.2, is proved to have resulted in high cultivable land size. As shown on Table 2.3, 60.3 per cent of the total cultivated land in the country. Here is also to be found the strong link between the physical factors, economic factors and population. Physical factors have direct impact on types of agricultural practices which in turn influence population size and densities. Values for the length of growing season or number of months in a year with surplus soil moisture summarize the rainfall-temperature-altitude relationships shown on Figures 6 and 7. On both figures the least-square line fails to predict properly the values of scatter points in Area B, which, as is stated earlier, means that Awrajas between 1725 and 2600 metres of altitude experience lower temperatures (Fig. 2.1) and higher rainfall (Fig. 2.2) than expected. This is mainly due to the position of the upper and lower highlands athwart the moist equatorial westerlies that bring heavy rains to the country. Thus, irrespective of their low altitudes (lower than zone 1), these two zones have the benefit of higher rainfall and lower temperature than normal. Consequently, both have a growing period (calculated from map on Daniel (1977:28)) longer than five months, the direct effect of this being that places like those in the highlands of Illubabor "afford two cropping seasons annually" (Green, 1974:18) and in the southern Shoa area perennial cropping of ensete (false banana) is made possible. This in turn leads to higher numbers of people being supported on smaller plots of land, and hence to higher population sizes and densities.

Notwithstanding the topographic inconveniences, the mountain population in zone 1 has brought far larger areas under cultivation

(14.7 per cent of the total) than the lowland population. Whenever pressure on land is felt and in times of absolute exhaustion of the lands, up-slope expansion was sought as the better alternative than descending to the lowlands, the effect being that more areas are reclaimed from mountain slopes while the potentially rich lowlands remain unaffected or unutilized.

Besides, the economic advantage of working on the highlands, it is the belief of the people and the unswerving determination to live and die where one's father lived and died, that explains why a person is where he is. In his case study of a settlement in the central highlands, Mesfin (1971:28) gave his general assessment of the people's mental construct by saying:

> "Land has made the fathers what they are as they have made the land what it is. Their bones lie buried in this land and have become part of the land and made it sacred. The land is the spiritual bond that ties the living and the dead. It is also a symbol that manifests and testifies to the common origin and the common destiny of the living."

As a result and also because of the communal type of land ownership that prevailed in the highlands, particularly in the north, a certain plot of land is shared equally among the children of a deceased father and the share of each child is reshared among his children upon his death. In this way cultivable lands undergo constant parceling with all kinds of uses and misuses on them. This, aside from its depreciating effect on the land, tends to stifle population movement, as a person is unable or unwilling to abandon the land of his forefathers in favour of a new workable plot. It could therefore be assumed that the current density patterns are no more than a stereotype of the patterns that existed centuries before. The highlands were areas of dense habitation and still are; conversely the lowlands are sparsely populated as they were before. The high percentage of cultivated land in the three purely highland

zones (1, 2 and 3) (75 per cent) testifies to the prevalence of unchanging activity patterns over thousands of years.

To make figures comparable with the crude densities by altitudinal zones given in the preceding discussions, the agricultural density is calculated for every square kilometre of agricultural land, and the result for the six zones is as follows:

Table 2.4

Crude and Agricultural Density by Altitudinal Zones

Zone	Agricultural density (cultivated and grazing land)	Crude Density (km^2)	% difference
1	55.2	45.0	23
2	74.0	78.0	-5
3	47.6	36.0	32
4	14.6	12.5	17
5	25.8	16.0	61
6	7.3	4.0	82

As was the case with crude density agricultural density increases rapidly from zone 4 or when we enter the highlands. To show how different the two forms of densities are in each region the percentage difference is calculated $\left[100 \left(\frac{\text{Agr. density-Crude density}}{\text{Crude density}}\right)\right]$ In the lowland zone, the agricultural density is higher than the crude density by 82 per cent and the difference is 61 per cent in the mostly lowland zone. For the rest of the zones the difference becomes lower and even negative as in the case of zone 2. This alludes to the fact that, of all the six zones, the highest proportion of rural-living population is in zone 6 (zonal urban-rural proportion), and the proportion diminishes in lower zones until we come to zone 2 with the least proportion of rural living population. The corollary of this argument is that the lowest proportion of urban-living population is in zone 6, and

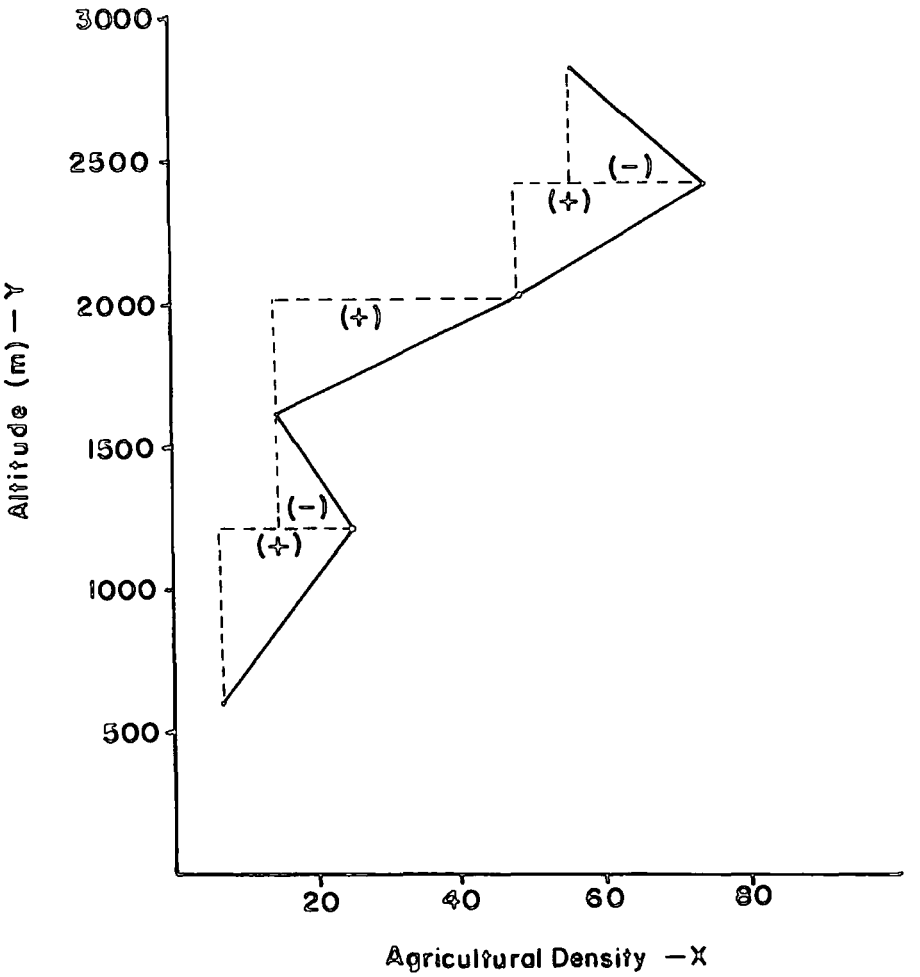
that it increases up to zone 2. This is however, what the percentage differences between the crude and agricultural densities suggest, and we shall see in the subsequent discussions if it is really so. Any finding that confirms this argument would at the same time entail the assumption that agriculture alone doesn't determine the density variation between the altitudinal zones, and leads us to the investigation of other responsible factors, one of which is urbanization.

Density gradient (the rate of increase or decrease in X-agricultural density with respect to Y-altitude) is calculated from the density curve (Fig. 2.8) for every 100 metres of ascent from each zone to the next higher zone.

The density gradient between the lowest two zones is 2.1 which means that when we go up from the lowlands (zone 6) to the mostly lowland region (zone 5), the agricultural density increases at a rate of 2.1 persons/km^2 for every 100 metres of ascent. The gradient value of -2.8 between zones 5 and 4 shows the rate of decrease, in this case, of density by the said interval. Between zones 4 and 3, and zone 3 and 2 the rate becomes positive as it was between 6 and 5 and rises to 8.3 and 6.6 respectively. This fantastic increase can also be observed from the steepness of the curve between zones 4 and 2. The steeper the curve, the higher is the gradient. Between the upper two areas the gradient again becomes negative (-2.2).

One might ask why, agricultural density and hence density gradient decrease between zones 5 and 4. In view of the general Ethiopian reality whereby population size progressively increases with altitude, no negative gradient except perhaps in the mountainous region was to be expected. Then why do we have retrogression in the lower altitudes? This, as shown in Table 2.3

Fig 2·8 DENSITY GRADIENT FOR SIX ALTITUDINAL ZONES

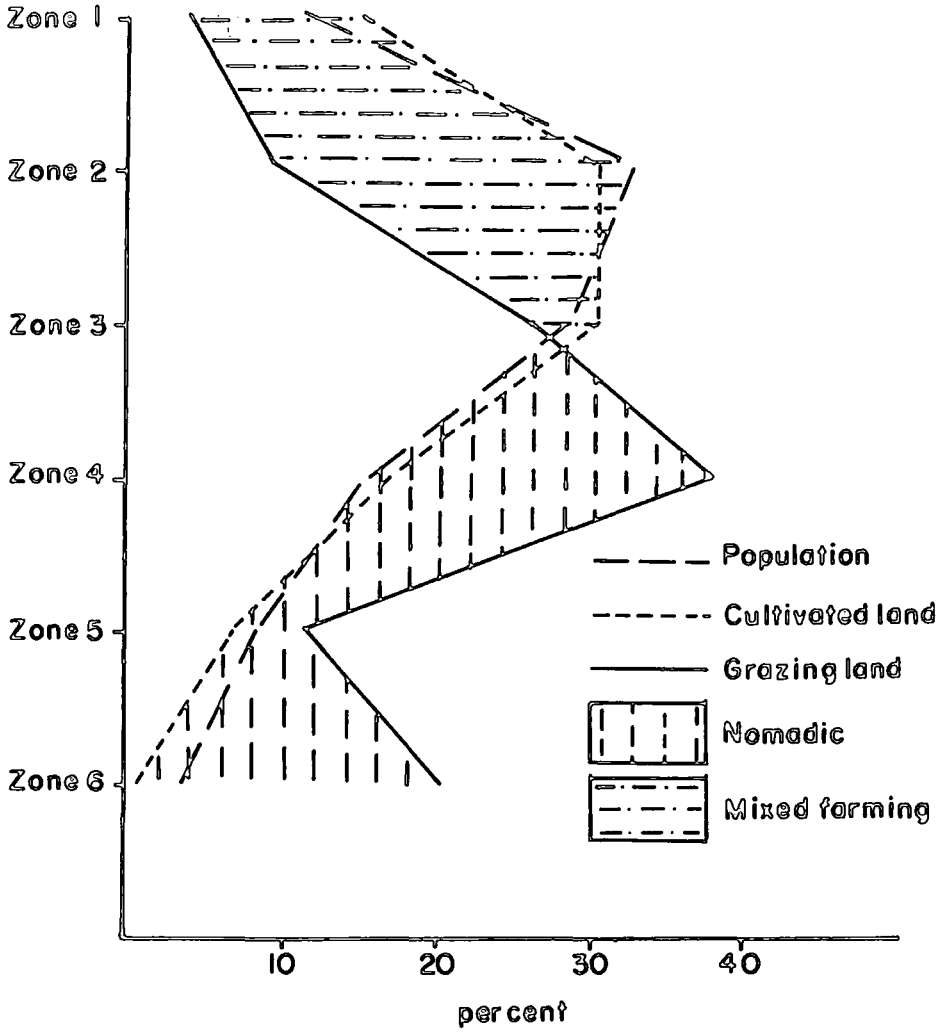


is because zone 4 has more grazing land than all other zones, which in turn led to a higher denominator in the density calculation and thereby to lower density. Had we considered the cultivated land only, the picture would be very different and nearer to the expectation of constant density increase with altitude. This, at the same time, is the vindication of the opposite effect cultivated lands and grazing lands have on density patterns.

The relationship between the three curves (Fig. 2.9) is typical of an agrarian society. Notice the perfect covariation of population-cultivated land curves, the latter being the best predictor of the former. In the absence of population data, the curve for percentage distribution of cultivated land could be used as an estimator or vice-versa. This, in other words is an indication of the fact that much of the variation in population sizes is due mainly to variations in the size of cultivated land. The curve for grazing land shows a trend which is almost the opposite of that shown by the other two. Zones with high percentage of grazing land have low percentage of cultivated land and population, and vice-versa.

The three lower altitudinal zones, where percentage of grazing land is far higher than percentage of cultivated land, are grossly classified as nomadic areas, and the upper three zones where the grazing land percentage is very low, as areas of mixed farming. Except in some low-lying areas in western Ethiopia, where nomadism does not exist, this generalization is correct and corresponds to the actual activity types shown on Mesfin's Atlas (1970:33). The fact of classifying the lower highlands, upper highlands and mountainous zones (zone 3, 2 and 1 respectively) as zones of mixed farming is in perfect harmony with that shown in the same source. In the upper two zones are grown cool weather

Fig 2·9 PERCENTAGE DISTRIBUTION OF POPULATION, CULTIVATED LAND AND GRAZING LAND BY ALTITUDINAL ZONES



crops like teff, barley, and wheat, the production of which is made possible by the high rainfall-low temperature conditions of this area. In the lower highland zone, where temperature is slightly higher than the above two, are grown crops like sorghum, millet and maize. In the southern part of the upper and lower highlands are found the ensete cultivators. In this area 40 per cent of the farmers owned holdings of less than 0.3 hectare and 87 per cent of them less than 1.5 hectares (FAO, 1973), and this indicates the ability of a small plot of land as small(as 0.3 hectare)to support one family in ensete cultivation areas. According to F.A.O. estmations, there were 26.4 million cattle in Ethiopia in 1973, that made the country the first in Africa in terms of cattle population and 8th in the world after India, U.S.A., U.S.S.R., Brazil, China, Argentina and Pakistan. The sheep and goat population also made the country 2nd in Africa. Of all domestic animals found in the country, 22 per cent of the cattle, 25 per cent of the sheep, 77 per cent of the goats and 100 per cent of the camels were kept by the nomads, and the rest by mixed farmers (F.A.O., 1973:15). The high percentage of cattle in areas of mixed farming is because they are used as draught animals. For nomads, goats are very important because they easily adapt to the dry conditions and supply them with milk and meat, their only means of existence. Why camels are totally owned by the nomads is also obvious.

What we generally infer from these two dichotomies in highland and lowland activities is that the altitudinal contrast is supplemented by a clear contrast in types of land-use which in turn has resulted in contrasting density patterns. In view of the reluctance to give up the economic practices handed down to either the nomads or the mixed farmers by past generations, the over-utilization of land in the upper three zones and its under-

utilization in the lower three zones is likely to continue. The fact that the lowlands are nomadic areas, does not mean that there is no possibility of settled agriculture; conversely, as is shown on Table 2.5, there is a larger percentage of unutilized agricultural land in the lowlands than in the highlands.

Table 2.5

Size and Percentage of Unutilized and Unutilizeable land

Zone	Utilizeable but Unutilized land (000 ha.)	%	Unutilizeable land (000 ha.)	%
1	802.4	3.4	1331.4	6.5
2	1914.7	8.3	1950.1	9.5
3	2856.4	12.4	4434.7	21.7
4	4973.0	21.6	8977.4	44.3
5	4670.7	20.2	899.0	4.4
6	7158.8	32.0	2770.3	13.6

No specification is given by the Land-Use Department of the Ministry of Agriculture on what criteria were used to classify a land as utilized or unutilizeable, and the figures are therefore, used with the hope that some rational criteria have been used.

The three purely highland zones, as shown in Table 3, are running short of unutilized but utilizeable land, the percentage of this being far lower than that in the three low-lying zones, with the least percentage of unutilized workable land in the mountainous zone (3.4 per cent). This figure is however illusive, as it suggests the existence in all parts of zone 1, of lands of profitable operation. The reality is that after centuries of intensive use and misuse, much of the lands in this zone, especially those for instance in the Awrajas of Simien, Wag Lasta, Wadla Delanta, Were Himenu, and Borena (Fig. 2.3), are on the verge of being abandoned. Conversley, Awrajas in zone 4, 5 and 6, with 74 per cent of the unutilized but utilizeable agricultural land

remain potential sites of attraction and resettlement. Details of both spontaneous and planned resettlement sites given by Wood (1982) are confirmation of this fact. Although the movement of resettling subsistence farmers is currently over relatively short distances to the nearby "escarpments and lowlands at the edges of the highlands", a resettlement move covering hundreds of kilometres of distance to the lowlands is both inevitable and a necessity (Wood, 1982:159). Except in the southwestern parts of zones 2 and 3, where pressure on land is less felt, there is no room for resettlement within the highlands.

The abolition of the archaic land tenure system and private ownership of land by the land reform of 1975 has loosened the bond that tied a peasant to the land of his father or forefathers, and the economic motive is beginning to influence a peasant's decision to live in this or that area. Moreover, unlike the up-slope movement onto mountain tops that was of long standing, the present movement is geared primarily to the unsettled low-lying areas. The land reform which is among the most important achievement of the Ethiopian revolution, not only freed the Ethiopian peasant of the merciless exploitation he was subjected to, but gave him the opportunity to make his own choice of where he should go to look for workable land. This among all other things is likely to have an effect on future density patterns, as the long-used highland areas start to be anandoned in favour of fertile alluvial soils in the western lowlands, extensive irrigable land along the Awash river in the Rift Valley, and the Wabe Shebele and Ghenale river plains of southeastern Ethiopia.

The land that is classified as unutilizeable refers to areas under forests and other woody vegetation, as given by the Ministry of Agriculture, but this might include swamps, like those in

Gambela, gorges like those along the courses of Abbay, Tekkeze and Ghibe, rugged mountain tops, and sandy soils like those in the Ogaden and the Danakil. Some of these, like the forst lands are wrongly included, for they are within the reach of the people even with the 'axe and fire technology' at hand, and only 15 per cent of the original forest cover has survived to this date.

2.4 Public Services

One of the outstanding causes and at times consequences of zonal disparities in population size is disparity in the distribution of establishments intended to serve the public. These are factors of population distribution in the sense that they act as pull-factors. They are also the consequences of population sizes because their numbers and functional complexity increase with increasing sizes of population.

Due to lack of information on other types of services, only three service types are considered, and their distribution by altitudinal zones examined:

1. Health Services
2. Schools
3. Transport

These are to be regarded only as indicators of the pattern of distribution of public services that was developed in response to the pattern of population distribution. Data on education are obtained from an unpublished source (Ministry of Education, 1980), that on health services from the Ministry of Public Health (1979), and the transport data from the transport map of the country (Appendix 4).

There is one thing common to these three services, that they are concentrated in a few centres, urban centres, as in the case

of the first two or link urban centres as is the case with transport. Besides, their services are mainly for the urban population rather than the rural. It is therefore worthwhile to see the distribution of urban centres* and urban population by altitudinal zones before proceeding to the examination of the patterns manifested by these services.

Table 2.6

Number and Population Size of Urban Centres by Altitudinal Zones

Zone	Urban Centres	%	Urban Population ('000s)	%	Percentage Urban
1	21	8.6	166	4.0	5.3
2	84	34.6	2,504	60.3	22.2
3	69	28.4	826	19.9	9.7
4	32	13.2	225	5.4	5.2
5	31	12.8	350	8.4	13.1
6	6	2.4	79	1.9	7.4
Total	243	100.0	4150	99.9	

The latest map of Ethiopia (Mapping Agency, 1982) contains detail of places including small villages, but the paradox is that 16 of the urban centres given by the Central Statistical Office of the country are not found on this map. Dissimilarity in the number of urban centres given by C.S.O. (1980a) and that given on Table 4 results from this fact. Consequently, the rural population total given on Table 2.3 includes the population in these unidentified urban centres (0.27 per cent).

In the initial part of this chapter it was stated that urbanization has its genesis in the highlands of northern and central Ethiopia. The fact that 72 per cent of the urban centres and 84

* According to local criteria, any centre with a population of 2000 or more persons is regarded as urban.

per cent of the urban population are found in the upper three highland zones is, however, another indication that urbanization not only has its origin in the highlands, but has also spread in the same zone. It is also very useful to note that zones of high population size (Table 2.1) have more urban centres and urban population and vice versa. The less populated low-lying zones (4, 5 and 6), for instance, have far fewer urban centres and urban population than the highlands, 28 and 16 per cent respectively. If we see the zones separately, we find out that only 6 per cent of the urban centres and 2.4 per cent of the total urban population exist below 1000 metres. In contrast, 34.6 per cent of the urban centres are found in the upper highland zone and nearly two-thirds of the total urban population. Degree of urbanization in this zone is also far more than all others and above the national value of 13.6 per cent. One can easily see the distributional imbalance in the number of urban centres between the purely highland zones (1, 2 and 3) and the mixed high and lowland zones (4, 5 and 6) (Fig. 2.10). A more interesting pattern is found in the eastern mostly lowland areas, where there are many mixed-highland and lowland Awrajas in Wello and Tigray administrative regions, but where the urban centres are entirely concentrated in the highland parts.

This altitudinal pattern among all other things, explains the pattern of all urban-based public services of which health institutions, schools and transport are a part. Consequently these services are likely to have a distributional pattern which is nothing more than a stereotype of the pattern exhibited by the distribution of urban centres. The pattern on Table 2.7 is a good testimony of this fact.

Although there are 84 hospitals and over a thousand health centres and stations in the country, only 15-20 per cent of the total

Fig 2·10 DISTRIBUTION OF URBAN CENTRES

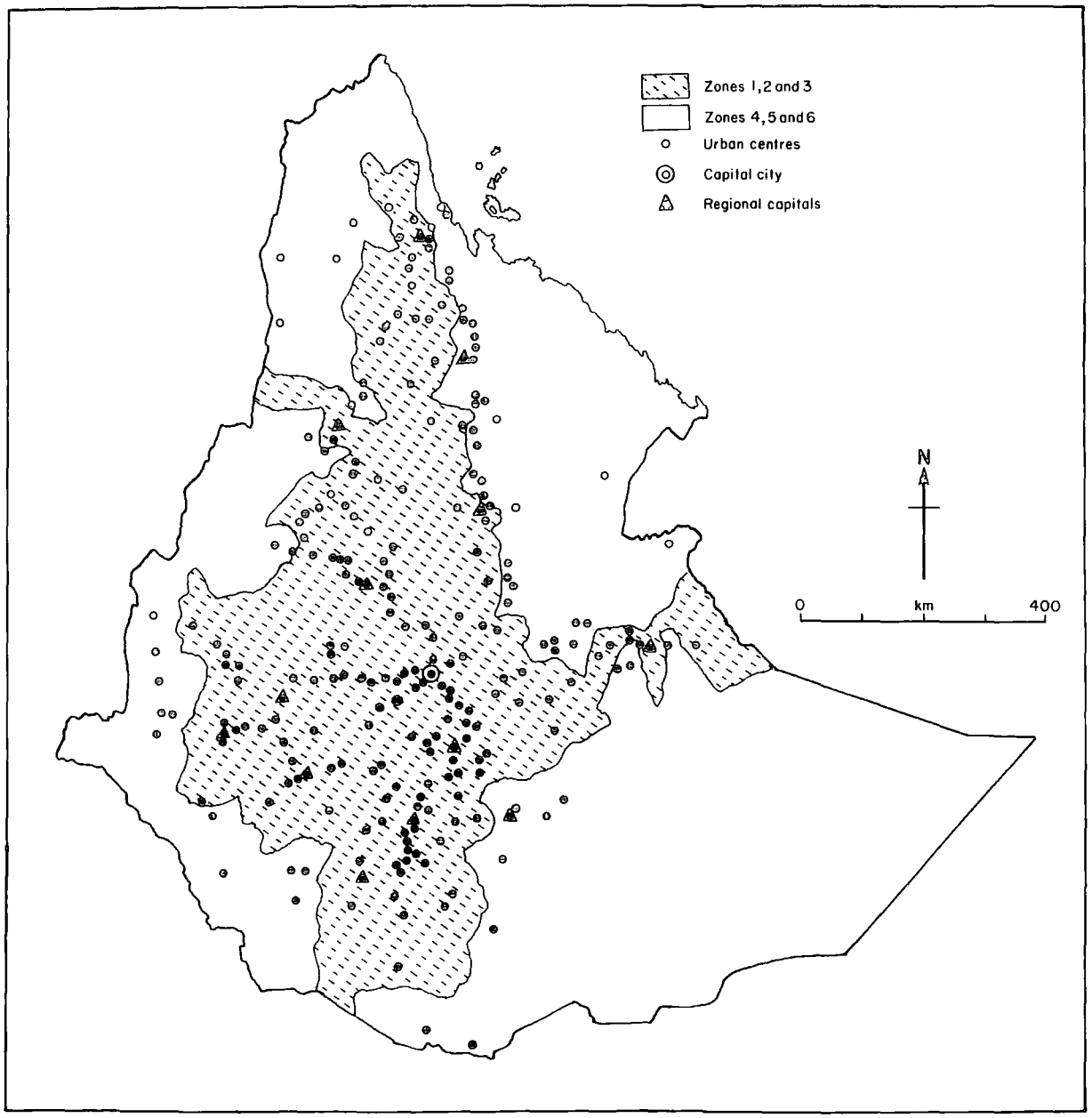


Table 2.7

Distribution of Health and Educational Institutions and All Weather Roads by Altitudinal Zones

Zone	Hospitals No.	%	Health Centres & Health Stations No.	%	Schools	%	All weather roads (km) No.	%
1	1	1.2	112	8.1	431	7.9	980	9.3
2	41	48.8	385	27.9	1944	35.5	2670	25.3
3	20	23.8	355	25.7	1653	30.2	3052	28.9
4	9	10.7	267	19.3	854	15.6	2050	19.4
5	7	8.3	201	14.5	516	9.4	1184	11.2
6	6	7.2	62	4.5	81	1.4	624	5.9
Total	84	100.0	1382	100.0	5479	100.0	10560	100.0

population has access to the hospitals (UNFPA, 1980) basically the urban population. Only the other two types of health services have reached the rural population. An indication of this fact is that the percentage distribution of health centres and health stations is similar to the percentage distribution of rural population and shows more covariation than that of hospitals. The latter show high concentration in the highly urbanized zone 2 (41 per cent). Similar trend is also observable in the distribution of schools, more than two-thirds of which are found in zones 2 and 3. Both modern and traditional schooling has its beginning in the upper three highland zones. Right from the time of the Axumite Kingdom, there was church education that later on spread over the highlands following the spread of christianity. Modern schools were also introduced first to the highland zones, where it may not therefore be surprising to find more schools. Moreover, because both schools and health services are meant for the public, it is normal to find that they are concentrated in the highly populated highland zones.

A more intriguing example of the highland-lowland dichotomy

in the degree of concentration of public services is the pattern of the transport network (see Fig. 2.11). The ease and low cost of construction in flat lowland topographies did not attract much road building, instead the rugged highland regions are relatively well supplied with all-weather roads, this being an indication that population rather than topography has been the determining factor in road construction. On the other hand although the 780 km long railway line between Addis Ababa and Djibouti no doubt played a much important role in the transport of goods and people, its role in influencing population patterns is trivial. As the great majority of Ethiopian towns are roadside towns, the pattern of all-weather roads is closely associated with the pattern of urban centres and urban population. In this regard, transport routes are to urban centres what cultivable land is to rural population.

To bring the discussion on population and altitude to a final conclusion, we can say that, except in the case of grazing land percentages, all the variables considered show a progressive increase with altitude and each variable depends on one or a number of other variables. But how strong is the relationship between two or more sets of variables? Do all vary in a similar way and to an equal magnitude. To depict objectively how related the variables are and which ones are more interrelated than others, a correlation matrix for eight variables in the six altitudinal zones is prepared (Table 2.8).

It is not necessary to explain the relationship between individual variables because the matrix speaks for itself. But, generally two sets of relationships may be identified, the first five variables as one closely related family of variables and the lower three as another family of interrelated variables. It is important to note that among the first set of variables, altitude does not directly relate to population, as the r-value is only 0.57; instead

Fig 2·11 PATTERN OF ROAD TRANSPORT

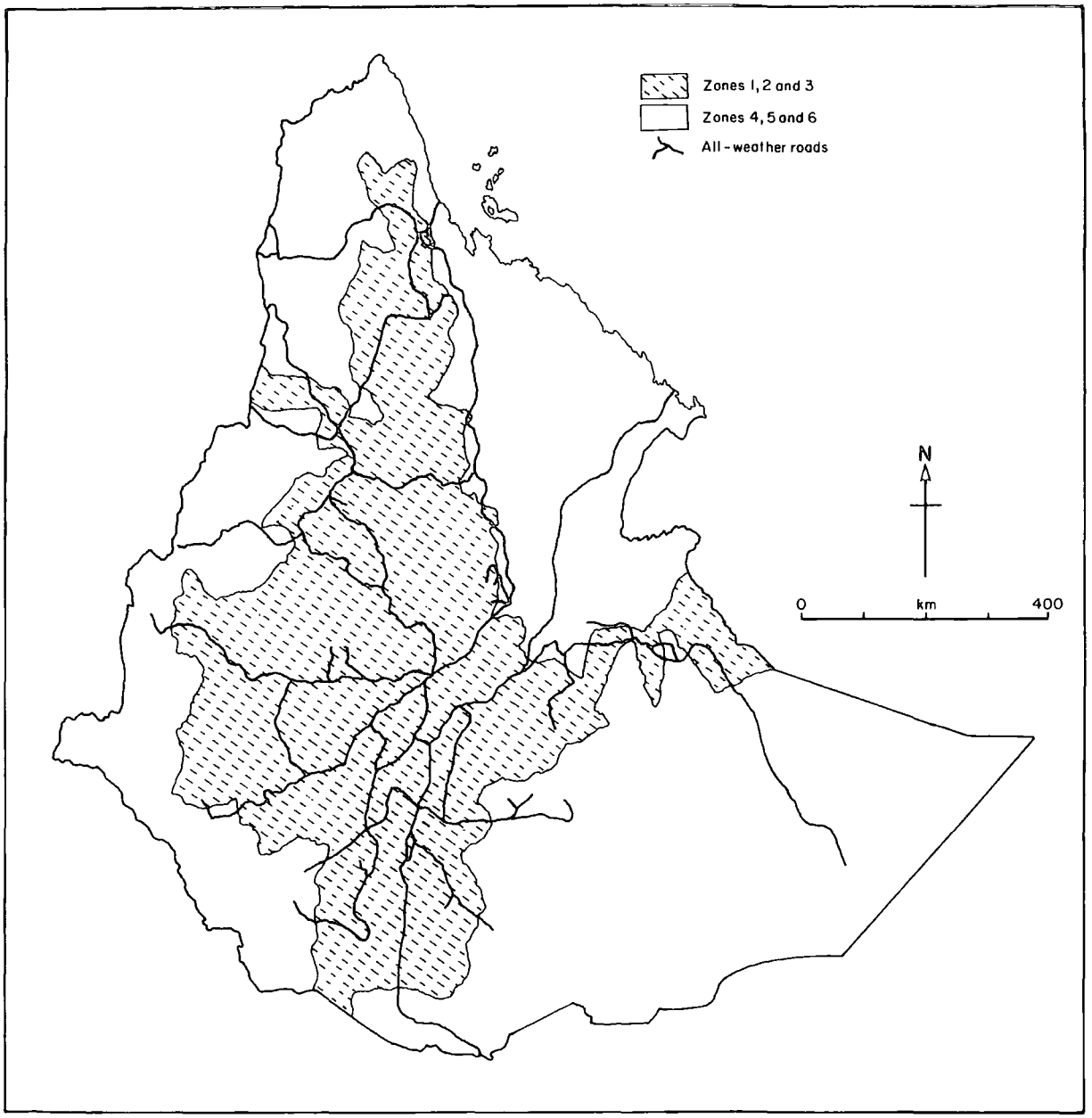


Table 2.8

Correlation Matrix for 8 physical, economic and population variables by six Altitudinal Zones

	Variables							
	1	2	3	4	5	6	7	8
1	1.000							
2	.570	1.000						
3	.686	.975	1.000					
4	-.499	-.145	-.126	1.000				
5	.891	.833	.914	-.286	1.000			
6	.493	.979	.925	-.204	.736	1.000		
7	.420	.841	.726	-.316	.592	.879	1.000	
8	.407	.942	.938	.117	.729	.916	.658	1.000

The variables are:
1 Average altitude (m)
2 Rural population
3 Cultivated land
4 Grazing land
5 Growing season (number of months with surplus soil moisture)
6 Number of urban centres
7 Urban population
8 All-weather roads (km)

It correlates strongly with growing season, and the growing season correlates strongly with cultivated land. This in turn is highly correlated with rural population. This means that the effect of altitude on population is not direct. It directly affects temperature and moisture conditions which in turn determine the length of growing season. This, by making conditions favourable or adverse for cultivation, determines the size of rural population in a given altitudinal zone. The fact that population sizes are directly and strongly correlated with the size of cultivated land is also a confirmation of the fact that economic factors, rather than physical factors, are more responsible for the altitudinal variation of Ethiopian population.

Grazing land correlates negatively with altitude indicating that its size diminishes with altitude. It is also inversely related to rural population size although the relationship is very weak.

Among the lower three variables, all-weather roads strongly relate with number of urban centres, as stated earlier, due to the fact that almost all of the urban centres are located along transport routes, the length and number of which relates to the number of urban centres and the population living in them. As has been observed earlier zones of high and low rural population have a correspondingly high and low number of urban centres and urban population; the r-value of 0.98 between variables 6 and 2 and the value of 0.84 between variables 7 and 2 tell the same story.

Several other stories are of course told by the correlation matrix, but can we produce one single story out of this series of stories? Can we produce a single dimension that summarizes all the uniformly uni-directional dimensions given on Table 2.8? The need for answering this question leads us to the use of the principal component analysis, with the assumption that the overall altitudinal variation in physical conditions, economic conditions and population sizes is contained within the eight variables given above. This will therefore produce as a starting point six axes representing the six altitudinal zones and a scatter of points representing the relative positions of the eight variables when the standardized values of observations are used.

If lines are drawn radially from the origin (0,0) of the axes to each one of the scatter of points, we will have the vector space that contains all information supplied by the standardized data matrix (Yeates, 1974). Geometrically speaking, the angles between the vectors indicate the degree of relationship or the r-values given on Table 6. What is looked for here is if there exists one best-fit vector that summarizes the dimensions shown by all vectors on the vector space (Johnston, 1980). This would in other words be the geometrical representation of the principal component or the

"basic underlying dimension" we are looking for. If all the vectors lie on the best-fit vector and the angle between them becomes zero, the cosine value (the same as r-value between the vectors) would be 1, to give a sum of 8 for the eight vectors. This is a condition in which the principal component or the first component explains the entire variation contained within the variables under consideration. Let us now see what is the actual value of the first component for the eight variables and six zones.

Component	Eigen values	Percentage of trace	Cumulative Percentage trace
1	5.703	71.29	71.29
2	1.351	16.88	88.17
3	0.725	9.06	97.23
4	0.187	2.33	99.56
5	0.035	0.43	100.00
6	0.000	0.00	100.00
7	0.000	0.00	100.00
8	0.000	0.00	100.00

Principal Axis Matrix
Columns = eigenvectors, Rows = variables

	1	2	3	4
1	.298	-.475	-.471	.296
2	.411	.143	.087	-.068
3	.411	.093	-.163	-.144
4	-.110	.753	-.416	.465
5	.379	-.176	-.407	.119
6	.399	.140	.276	.177
7	.345	.014	.569	.671
8	.372	.358	-.071	-.417

The square of the cosine values for the angles between each vector and the best-fit vector (r-value) or the square of the factor loadings, when summed will give the eigen values for the eight components. In the Ethiopian condition the high eigen value of 5.7

(71.3 per cent of the total eigen values) shows that much of the zonal covariation of the eight variables considered is associated with the first component. The percentage value also indicates that 71.3 per cent of the zonal covariation is explained by the first component.

This in other words means that of the many stories that are told on the relationship of the eight variables by the correlation matrix (Table 2.8) 71.3 per cent are identical stories and only the remaining 28.7 per cent are different stories. Column 1 on the principal axis shows the contribution by each variable to the 71.3 per cent identical stories (in statistical terminology these are the factor loadings). The larger contributors are variables 2 and 3, and more than that, they contribute the same amount. This reminds us of what was already said about the relationship of rural population and cultivated land. We said that in the absence of one, the other could be used as the best estimator and this was also shown on the curve for the percentage distribution of two variables (Fig. 2.9). When we said the one could be used in place of or as an estimator of the other we also meant that both of them tell the same story. Variables 5, 6, 7 and 8 also have almost an equal amount of contribution to the principal component. As has been seen in the previous discussions, grazing land area is the only variable that decreases with altitude and this is shown by its strange relation to the principal axis. The second component with an eigen value of 1.35 is mainly due to this variable and the high loading it has on this component is such an indication. Thus in addition to the altitudinal covariation of the eight variables that is associated with the first component, 16.9 per cent of the variance is associated to the second component, to bring the total of the variation accounted for by the two components to 88.2 per cent.

Another principal component analysis is done for all variables except variable 4, with the assumption that the total covariance that is shown by the principal component would increase, if the grazing land was not included. In this case the eigen value for the eight components would be as follows:

Component	Eigen value	Percentage of trace	Cumulative percentage
1	5.647	80.67	80.67
2	0.908	12.97	93.64
3	0.395	5.64	99.28
4	0.042	0.61	99.89
5	0.008	0.11	100.00
6	0.000	0.00	100.00
7	0.000	0.00	100.00

The percentage covariance that is related to or explained by the first component has increased from 71.3 per cent to 80.7 per cent, revealing that much common variation is shown when grazing land is not included in the list of variables that are supposed to contain or explain the zonal variation in physical, economic and human conditions.

In sum, the method provided us with a summary of what we have been discussing under various sub-topics of physiography, climate, economy, services, etc. It has also singled out one among all factors of vertical distribution considered - grazing land that has a role very dissimilar with the roles other variables play in the vertical pattern of Ethiopian population. All other variables those in the public services category for instance increase with altitude as does the population they are intended to serve. Economic variables, particularly cultivated land area also increases altitudinally with an increase in the size of the cultivators.

CHAPTER 3

SPATIAL DISTRIBUTION OF POPULATION

This chapter will be a continuation, but with a different perspective, of a look at the distributional aspect of population that was started in Chapter 2. Of course, there is one important feature that this and the last chapter have in common - they both depend on same data base (Central Statistical Office, 1980a). There is also one significant difference; whereas the vertical dimension of population space was the sole object of analysis in Chapter 2, the horizontal or spatial dimension will have prime emphasis in this chapter.

3.1 Patterns of Awraja Population Sizes

Size variation and uneven distribution is the major characteristics of Awraja populations. Except two Awrajas that were wrongly reported to have exactly identical population sizes for many years, no other Awraja has population sizes similar to that of another Awraja. The two eccentric Awrajas are Kelafo and Gode in south-eastern Ethiopia, their mathematically derived and by no means real population sizes over six years are as follows:

Awraja	1975	1976	1977	1978	1979	1980
Kelafo	69,200	71,000	72,900	73,900	76,100	78,100
Gode	69,200	71,000	72,900	73,900	76,100	78,100

(Central Statistical Office; 1978, 1980a)

This is typical of cases where a population of a certain year is considered as a base and figures for subsequent years are calculated at a given rate of increase.

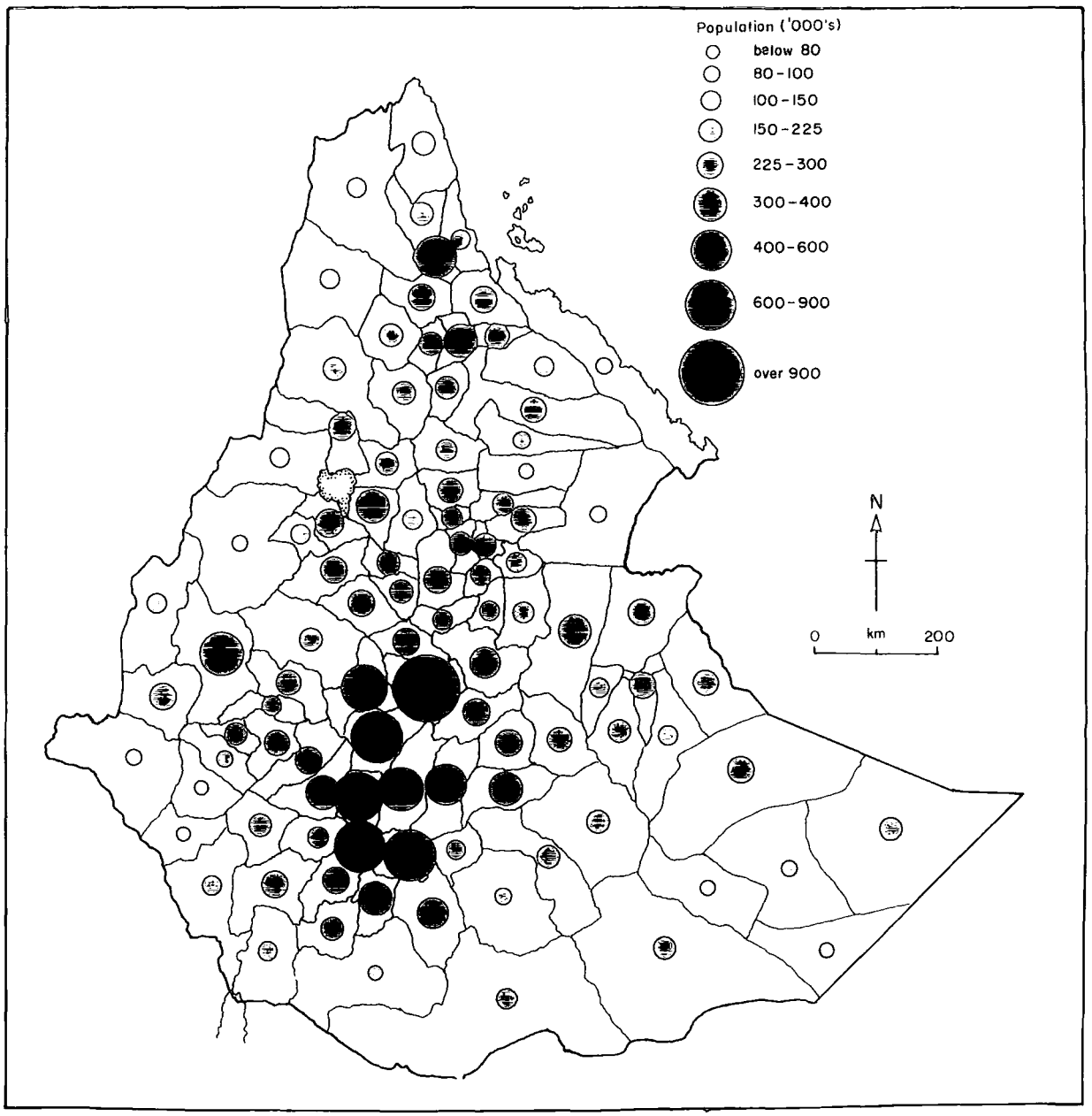
According to population data in the latest Statistical Abstract of Ethiopia, the most populous Awraja is Menagesha (1,755,000 persons), although 73 per cent is due to the population of the

capital, Addis Ababa. The second largest is Chebona Gurage, the southern neighbour of Menagesha, but unlike Menagesha only 3.8 per cent of the population is urban. Thus, of all Awrajas this one has the largest rural population and Menagesha has the largest urban population. The third and fourth population giants, Sidama and Welayta, are in Sidamo administrative division south of the first two. If we extend the list to include the largest (population-wise) ten Awrajas we will have Kembatana Hadiya in the fifth place followed by Jibatna Mecha, Gimbi, Hamasien, Haikochna Butajira and Chilalo. Like Menagesha, Hamasien also owes much of its size to the contribution of Asmara which accounts for 68 per cent of the Awraja total. In addition, these two Awrajas share the distinction of being more urban than rural. The third largest city - Diredawa, for instance accounts only for 24 per cent of the population total of Diredawa Isana Gurgura Awraja.

At the other extreme, we have Awrajas with population sizes as low as 66,000, as in the case of Mocha, and many others with sizes less than 100,000. Some examples are Gimira (68,000), Borena (75,000), Kelafo (78,000), Gode (78,000), Rayana Kobo (78,000) and Asseb (80,000), all in altitudinal zone 6. These figures might not mean much unless they are taken together with the area over which the population is spread. If not the best, the alternative way of looking at it is to calculate population densities. This will be done later in this chapter, but before that let us dwell a little more on size patterns.

As is shown in Figure 3.1, there is a distinct centre periphery dichotomy in Awraja population sizes. Peripheral Awrajas (those that are bounded by the international boundary), also referred to as lowland zone or altitudinal zone 6 in Chapter 2, have very large areas but low population size. On the other hand,

Fig 3·1 POPULATION SIZE BY AWRAJA 1980



central Awrajas, despite their small areal extents, contain large population sizes. This is what is generally called centre-periphery dichotomy, in that they have both contrasting areal characteristics and population sizes. In saying this we are also aware of the physiographic dichotomy into highlands and lowlands that goes with it.

Table 3.1 provides summary statistics for the population of all Awrajas, excluding that of Addis Ababa.

Table 3.1

Size-class of Awraja Populations (1980)
(population in thousands)

Class	Number	%	Top	Bottom	Midpoint
1	3	2.9	874.0	802.3	838.1
2	1	1.0	802.3	730.6	766.4
3	2	2.0	730.5	658.8	694.6
4	2	2.0	658.8	587.1	622.9
5	1	1.0	587.0	515.3	551.1
6	6	5.9	515.3	443.6	479.4
7	9	8.8	443.5	371.9	407.6
8	15	14.7	371.8	300.1	335.9
9	20	19.6	300.0	228.4	264.1
10	22	21.6	228.3	156.6	192.4
11	12	11.8	156.5	84.8	120.6
12	9	8.8	84.8	13.0	48.9

This scheme involves the grouping of Awrajas with similar population sizes, and reduces the complications that would be incurred otherwise. As is shown in Table 3.1, the highest frequency is observed in size-class of Awrajas with populations between 157 and 228 thousand, followed by those in the size-class of 228 to 300 thousand and 300 to 372 thousand. These three classes together constitute more than half of the Awrajas (56 per cent). From such a frequency distribution we observe that most Awrajas have intermediate

(relative to one another) population sizes with almost equal proportion of those with high and low population sizes. This may also be inferred from the sizes of the circles in Figure 3.1. Awrajas in central Ethiopia including southern Shewa, northern Sidamo, eastern Arssi, and some in Wellega (Gimbi), Eritrea (Hamasien) and Gondar (Debre Tabor) are in the class size above those with medium size. Others, particularly the peripheral Awrajas, have lower populations than those which we termed as medium-sized Awrajas, and thus they are represented by small circles (Fig. 3.1) (see Appendix 3 also).

The mean population of all the 102 Awrajas is 287,700, with 60 Awrajas (59 per cent) and 42 Awrajas (41 per cent) having population sizes less and more than the mean respectively. Except two Awrajas, Keffa and Horogudry, whose sizes tend to approximate to the mean population, all others have sizes which are deviant from the mean in either positive or negative direction. The general deviation could also be observed from the standard deviation value of 177,300. Even more important in showing the extent of size variations from one Awraja to the other is the Coefficient of Variation (V) or (CV) which is the "relative variability" that has been most widely used by geographers (Gregory, 1963):

$$V = \frac{S}{\bar{X}} \times 100$$

In our case the coefficient of variation would be 61.6 per cent. In case of perfectly even distribution, the V value would be zero indicating that there is no deviation (S=0). Hence, values greater than zero always show the existence of variation the extent of which depends on how divergent the value is from zero. The 61.6 per cent value for Ethiopian Awrajas is such an indication. The coefficient would have been far greater if our units of analysis were the Wereda (sub-divisions of the Awraja) because the above

value refers to inter-Awraja variations and conceals the intra-Awraja variations. Different levels of aggregation bear different results and better results are achieved if the smallest possible level is used. Unfortunately, absence of data would not let us go any lower than Awraja level.

Fuller (1978) proposes the use of the Location Quotient (L.Q.) method in the study of spatial patterns of population, because the method helps in "answering questions of relative density". A brief account of the pattern that would emerge when this technique is used will be provided to serve as a transition to the analysis of density patterns. In this technique areal densities, Awraja densities in our case, are compared with, or are expressed as a ratio of national crude density. Theakstone and Harrison (1970) in their book The Analysis of Geographical Data, compare the population density in Lancashire with that of Britain, to indicate the usefulness of this method in population studies. They regard the method as a measure of whether population is localized in a certain areal unit or dispersed evenly over all units considered. Here unity indicates equality of areal density to national density and if the densities in all Awrajas were the same as the national crude density of 25.4 persons/km^2, all would have a Location Quotient value of 1. Any value below and above 1 indicates relative dearth or superfluousness respectively.

Only one Awraja, Garamuleta, has an L.Q. of 1, and all the rest have above or below this value. If we set a hypothetical limit of 25.4 persons/km^2 to be the optimum density for the country, then those with higher than 1 L.Q. will be areas with excess of population and those with lower than 1 L.Q. will be areas with population deficiency. We must of course be pre-warned that "excess" and "deficiency" are relative terms, and that we are

dealing with a hypothetical case. Hence, excess does not necessarily imply pressure on land and deficiency does not denote the need for inmigration or accelerated growth.

Table 3.2 shows various Awrajas in various L.Q. categories or in various "excess" and "deficiency" categories.

Table 3.2

Classification of Awrajas by Location Quotient Method

Class	Category	Location Quotient	No. of Awrajas
1	High deficiency	0.0-0.2	12
2	Medium deficiency	0.3-0.5	12
3	Slight deficiency	0.6-0.8	13
4	Normal	0.9-1.1	5
5	Slight excess	1.2-2.0	29
6	Medium excess	2.1-5.0	24
7	High excess	above 5.0	7

This, as has been stated above, is a hypothetical classification based solely on mathematical manipulations and thus, it may or may not correspond to reality. Whether a place is overpopulated or underpopulated depends on "the economy and physical resources of an area within the context of its history and culture" and not on whether it is less or more densely populated than its neighbours (Zelinsky, 1970:37). At the same time we should not forget that densities are indicators of how favourably the economic, cultural, and historical factors are combined to shape the population phenomena of a given place. As may be seen from the examples given below, in most cases there is a direct correspondence between the above given statistical categories and the reality. Among these and other Awrajas that come under the above excess and deficiency categories, no one is found to be in the deficiency category while it has an excess of population in reality and vice-versa. Most

Class	Some Examples
1	Elkere, Metekel, Welwelna W., Gambela, Awsa, Borena
2	Chilga, Gimira, Rayana A., Akordat, Asosa, Mocha
3	Chercher A.G.G., Jijiga, Gore, Yifatna T., Enderta, Horo G.
4	Gardula, Garamuleta, Wag
5	Keffa, Agew Midir, Seraye, Teguletna B., Ghimbi, Libo
6	Debre Tabor, Bichena, Gedeo, Chebona G., Kalu, Agame
7	Menagesha, Dessie Z., Welayta, Kembatana H.

of the Awrajas in the first two classes are in the zones that we referred to as altitudinal zones 6 and 5 in Chapter 2. We are reminiscent of the fact that these two contain only 12 per cent of the country's population while sharing 35 per cent of the total area (Table 2.1). Hence, our findings, although they use only mathematically derived values, do not contradict reality. By the same token, Awrajas in the last two classes lie in the upper and lower highland zones discussed in Chapter 2 that contain by far the largest population percentage over a comparatively small areal extent.

3.2 Density Patterns by Awraja

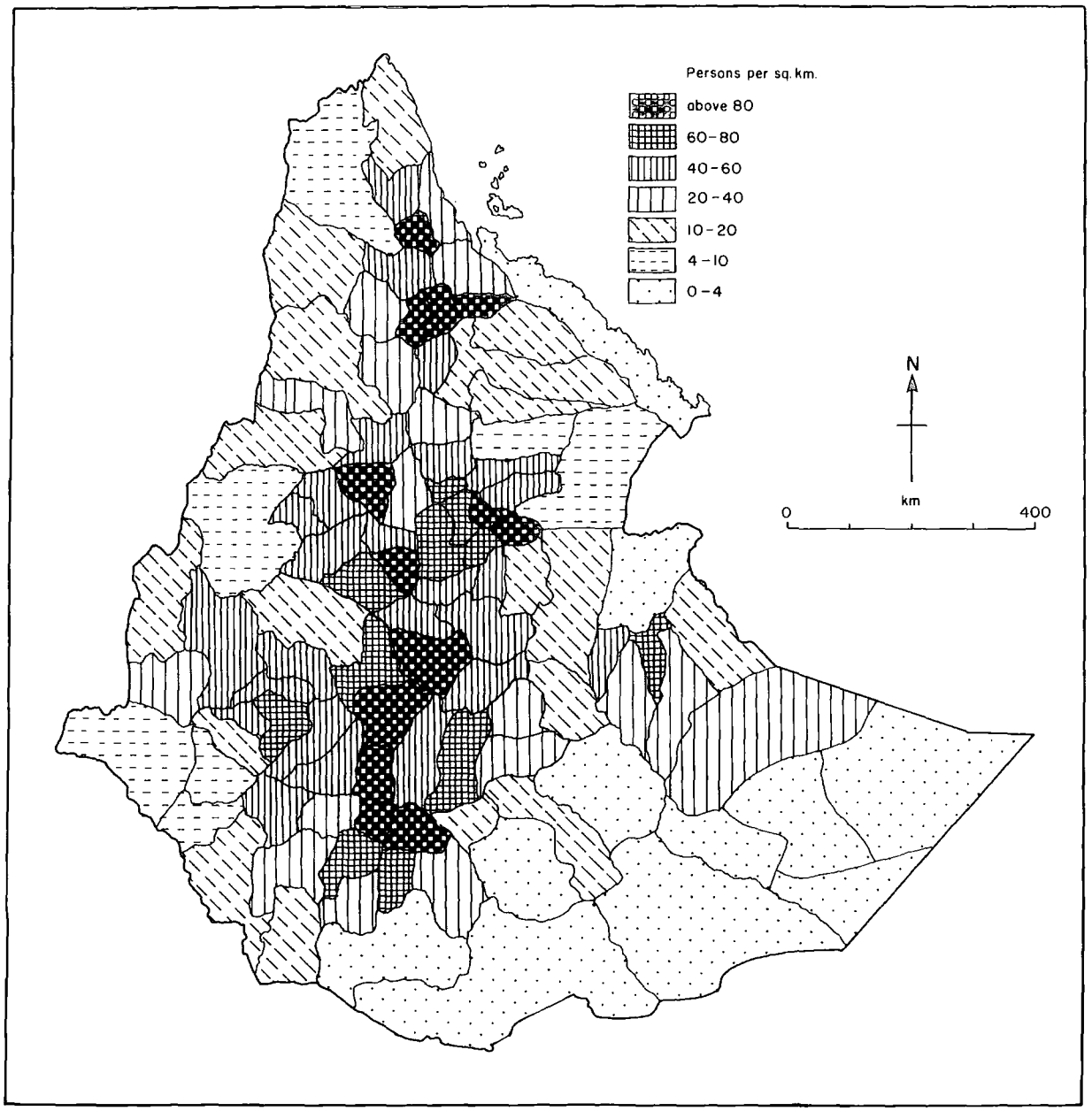
Admittedly, much generalization is to be incurred in not being able to go any lower than Awraja level, and as was stated earlier this is constrained by the complete absence of area and population data for the sub-divisions of Awrajas. In this scheme Awrajas like Welwelna Werder (59,000 km^2), Borena (65,000 km^2) Elkere (56,000 km^2) and others are assumed to have every square kilometre of their areas to be occupied by the same number of persons. Any one of these three has an area larger than all the six Awrajas in Keffa, or the five Awrajas in Illubabor or the four Awrajas in Gamo Goffa taken together. In addition, Awrajas like Hulet Awlalo, much of whose area is under the Danakil

Depression, 100 metres below sea level, and Gambela, where swamps form a considerable proportion of the area, are assumed as having their populations distributed over each and every square kilometre of their areas. Furthermore, we still regard the forest land in Awrajas of Illubabor and Keffa administrative regions to have the same number of persons as the non-forest lands. In Chapter 2, we named the altitudinal zones 4 and 5 as mostly highland and mostly lowland zones respectively. What this means in terms of population sizes is quite obvious. But, in this case the whole area of an Awraja is considered irrespective of whether it is purely highland, or purely lowland or a combination of both.

Figure 3.2 shows patterns in seven density per km^2 categories that include Awrajas with densities as low as 2.4 and as high as 245. Twelve Awrajas, all in the central part of Ethiopia are in the first category of above 80, some like Welayta (245), Kembatana Hadiya (172), Dessie Zuria (160), Sidama (145) and Adwa (136) representing the most densely inhabited Awrajas of Ethiopia, while others like Bichena (91), Debre Tabor (88) and Agame (81) have lower densities than the ones mentioned above. Some of these high density Awrajas like Adwa and Agame, are amongst the ancient sites of intensive cultural and racial mixing that gave rise to dense habitation. Although we are not sure if they can maintain any longer their present high density, its origin is mainly caused by their historical past. In fact, medium to high densities in the whole region of central Eritrea and northern Tigray are more due to historical reasons than to contemporary economic advantages.

On the other hand, high densities in the southern Awrajas of Chebonagurage, Kembatana Hadiya, Welayta and Sidama are due primarily to economic reasons and the high growth potentiality of the region. Thanks to the land-efficient ensete culture, the population

Fig 3·2 POPULATION DENSITY BY AWRAJA 1980



of the region has grown considerably in the last few decades and is likely to grow at a faster rate than any other region in the country. Shack (1966:1) calls the whole region an "Ensete Culture Complex Area". Ensete (Ensete edulis) is not only the mainstay of the people of the region, but is also a crop around which various cultural traits have evolved. In his study of the Gurage (one among the numerous ethnic groups whose life is centred around the growing of ensete), Shack indicates the importance of ensete by saying "ensete dominates Gurage modes of thought and interests, and moulds their livelihood". The plant also responds accordingly by offering a quantity of yield much larger than what could be harvested if any other crop was cultivated on the same area of land. In this regard ensete plays a similar role and has a similar effect on population density as the South-east Asian rice.

As is shown in Figure 3.2, Awrajas with intermediate densities (those in the second and third categories), are either neighbours or are not too far from those with the highest density of above 80 persons/km^2. Such coalescence of high and medium-density Awrajas and their exclusive restriction to the central portion of the country testifies to the existence of some pull factors most of which have been discussed in the previous chapters. This, at the same time is an indication of the existence of some form of diffusion, "the spread of phenomena over space and through time" in the historical past of Ethiopia (Johnston, 1981). In this case, we can apply the concept of diffusion to the movement of people between adjacent Awrajas in which dearth in one is redressed by the flow of people from the neighbouring populous Awraja. This could be likened to the form of diffusion known as expansion diffusion whereby high density areas expand between two time periods, time t_1 and time t_2 (Haggett, 1979:299). There is also

a form of diffusion which Haggett calls relocation diffusion in which "the things being diffused leave the areas where they originated as they move to new areas". Two good examples of this form of diffusion of people in Ethiopian reality are the southward movement of the Semitic people and the massive flow of the Oromo northwards from southern Ethiopia, both of which have been discussed in Chapter 1. Although in opposite directions, the line of flow of these two major groups of people was along the central highland zone from Borena in the south to Sahil in the north, with the effect that every settlement gap left by one group was filled by the other. We should not therefore be surprised to find this zone being densely populated (Fig. 3.2). The two forms of diffusion have been operating jointly in central Ethiopia to produce a pattern of generally high densities in this region and generally low densities elsewhere (predominantly along the peripheries). Obviously the movement had and still has an economic undertone. Man is a rational being and his activities are guided by pre-calculated advantages whether economic, or social, or political. Hence, it was above all the pleasant highland climate, ease of farming, and a secure and long-lasting settled life that attracted many Ethiopians towards the above-mentioned high density zone. This stable life condition had in the recent past attracted even more and more persons, for as Rhind and Hudson (1980:3) put it, "the use of any given parcel of land affects not only those who reside there or have use of that land - for whatever purpose - but also those who live or have use of adjacent and surrounding areas".

On the other hand, densities as low as 2.4 persons/km^2 in Gedeo, 3.1 in Arero, 3.2 in Kebridehar and 3.6 in Welwelna Werder may be observed. As shown in Figure 3.2, these and almost all others with densities below 20 persons/km^2 are in peripheral Awrajas where,

unlike the Central Awrajas, life is precarious, full of hardships and of nomadic or semi-nomadic type. The whole area covering Eastern Eritrea, Tigray and Wello, plus the region that includes the Ogaden, Elkere, and Borena lowlands, is primarily covered with open desert grassland with rainfall not exceeding 300mm a year. Rain-fed agriculture and permanent settlement is therefore uncommon in this region. The only form of adaptation possible is nomadic herding which often suffers from lack of water (FAO, 1961) and non-availability of all year-round grazing land. Except in "small oases of cultivated land, consisting exclusively of irrigated fields" that are rarely found around "the flood plains" of the major perennial rivers that drain this region (Galperin, 1981:143). Uniformly low densities in this region are thus due primarily to the hostility of nature.

Similarly, on the mainly lowland (but sometimes attaining a considerable height of up to 1500 metres) along the whole length of the Ethio-Sudanese border are found areas of predominantly low densities. This is the land, as was stated in Chapter 1, of the Nilotic people of Ethiopia whose life is dependent on hunting, fishing and "primitive clearance farming" (Galperin, 1981:57) that did not result in dense habitation of the region.

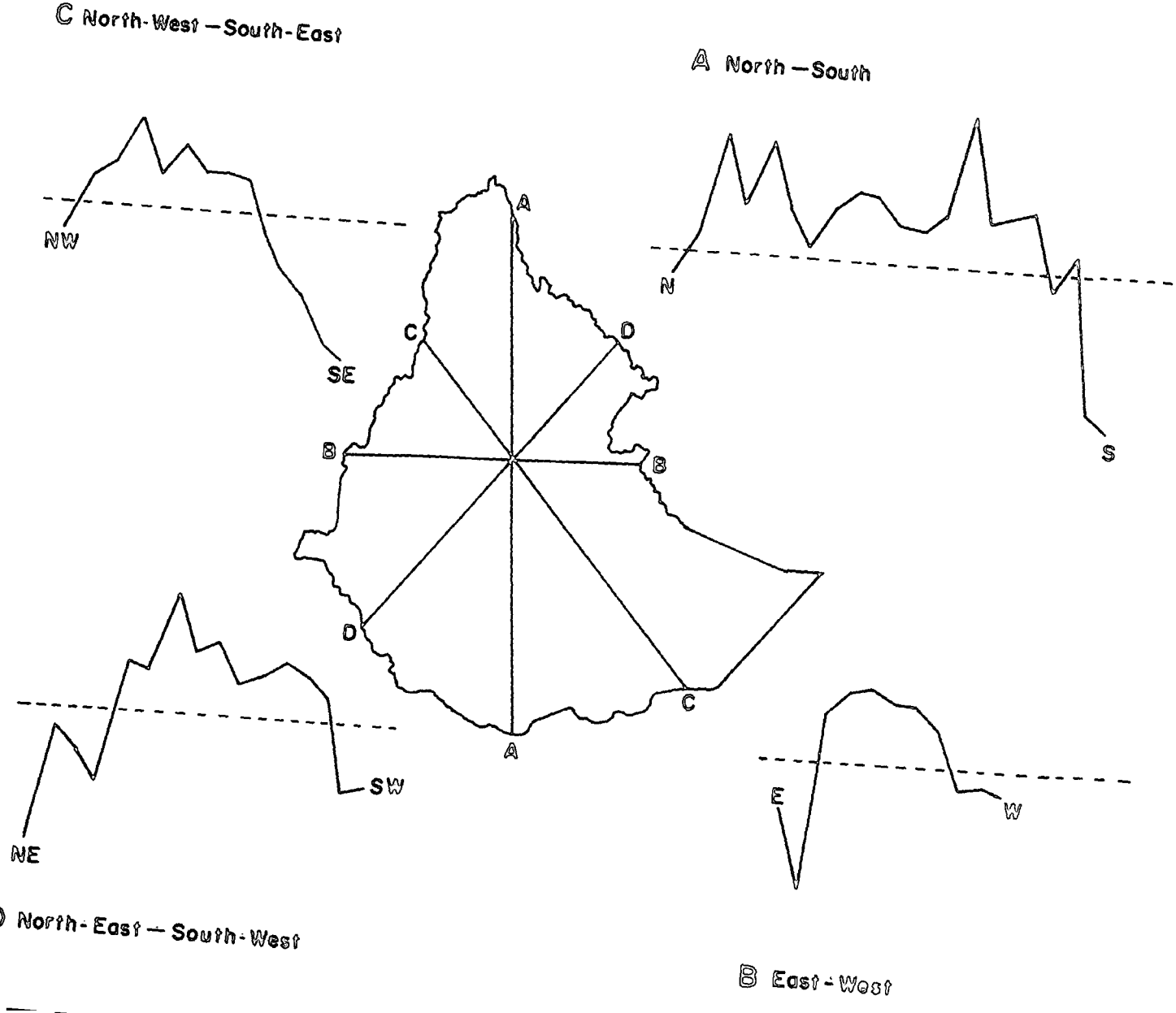
By and large, the pattern shown in Figure 3.2 has one important characteristic, that densities are higher in the centre and diminish in all directions towards the periphery. As may be seen from Mesfin's atlas (1970:49), this pattern has been the same for nearly 15 years, although as will be discussed in this chapter it is likely to change. Thus, according to the present pattern, travel along any straight line direction across the country would involve the coming across of low density areas at the departure end, high density in the central highland region, and once again low densities at the arrival end.

To provide a better apprehension of this fact, Figure 3.3 with densities along four different cross sections - north to south (A), west to east (B), north-west to south-east (C) and north-east to south-west (D) are prepared. In this scheme, we are also producing what is called by Griffith (1982) as "a planar surface upon which has been demarcated a single, continuous region". The length of the curves depends on the number of Awrajas encountered along one planar surface. In addition, the broken line is superimposed to help the visual assessment of the extent of departures in density values of individual Awrajas from the national average of 25.4 persons/km^2.

The longest curve (A), besides being an indicator of the presence of a chain of Awrajas with densities far above the national average, also shows that there exists a marked density contrast between neighbouring Awrajas. The three prominent peaks show the high densities in Hamasien, Adwa, and Menagesha that one encounters when travelling from north to south along approximately the 39^{o} east meridian. Along this route the vast majority of Awrajas have densities higher than the average and only a few on the northern and southern extremities have lower densities than the average. This is both what we expect, and in conformity with the discussion in Chapter 2 of the existence of the majority of Ethiopian population in the lower highlands (zone 3) upper highlands (zone 2) and mountainous (zone 1) parts of the country.

Various places of high and low densities are also shown by curves B, C and D. But, there is one main thing that is commonly shared by all the four curves; that densities are much lower in the margins than in the central portion. This, in other words, refers to the centre-periphery contrast discussed earlier in this chapter; those in the centre having uniformly high densities and those in the

Fig 3·3 POPULATION DENSITY ALONG FOUR DIFFERENT CROSS-SECTIONS



periphery uniformly low densities. The existence of such tendencies in geographical distributions, have led geographers to formulate the idea of spatial autocorrelation. The application of this concept to our cross-sections or planar surfaces would be that,

> "if events occurring at specific locations on this ... surface are interdependent, implying the presence of some spatial autocorrelation mechanism, then influences from events that take place outside this region, especially along its borders, will diffuse into this region and vice-versa" (Griffith, 1982).

By the same token, we observe that every Awraja in central Ethiopia has a density which is above the national average itself and a neighbour with similar density characteristics. Similarly, every Awraja in peripheral Ethiopia has a lower than national average density itself and a neighbour with lower than national average density (Fig. 3.3). Furthermore, the conclusion we draw from Figure 3.3 would be that, for any other cross-section drawn in any direction, the pattern would generally be the same, lower values at the ends and higher values in the middle.

The other feature that the above generalization suggests is that the centre of Ethiopian population or

> "the point upon which the [area] would balance if it were a rigid plane without weight and the population distributed thereon, each individual being assumed to have equal weight and to exert an influence on the central point proportional to his distance from the point" (Shryock, 1976:73)

should be in Central Ethiopia.

3.3 Spatial Central Tendency and Dispersion of Population

Three types of spatial distributions constitute the theme of any geographical research:

1. point distributions
2. line distributions
3. areal distributions - (a) descrete - shown by choropleth maps
   (b) continuous - shown by isolines.

(Hammond and McCullagh, 1978). Although these three have been the main elements of geographical analyses for so long, the way they are approached and the techniques employed to study them have been changing considerably (Johnston, 1979). Population geography, as one branch of geography, has contributed to and benefitted from such changes which mainly involved rigorous quantification as "much larger armoury of statistical and mathematical techniques" began to be in use (Clarke, 1984). Among such techniques that are to be used in this section are measures of the spatial central tendency and dispersion of population; specifically the mean centre, the modal centre, the median point and the standard distance deviation.

One major handicap in the use of centrographic methods to calculate the mean centre and median point is that points, usually geographic centres of an area, are assumed to represent the geometric locations of those areas. In this scheme, the extent to which the point may represent the area depends on whether the whole population is concentrated at or around that point, or not. In highly urbanized countries where distributions could be almost entirely shown by point patterns, there is a higher likelihood that the point will fully represent the area. But, in countries like Ethiopia where population is primarily rural and dispersed the use of points incurs much generalization. Inspite of such constraints the method has been in widespread use and has shown fruitful results. It is also used in this section with the hope that we will get at least a rough idea of the centre of Ethiopian population.

The first step in the calculation of the location of the mean centre and the medium point is to locate the assumed centres of population of each areal unit under consideration which in our case would be the Awrajas (Fig. 3.4). All subsequent discussions

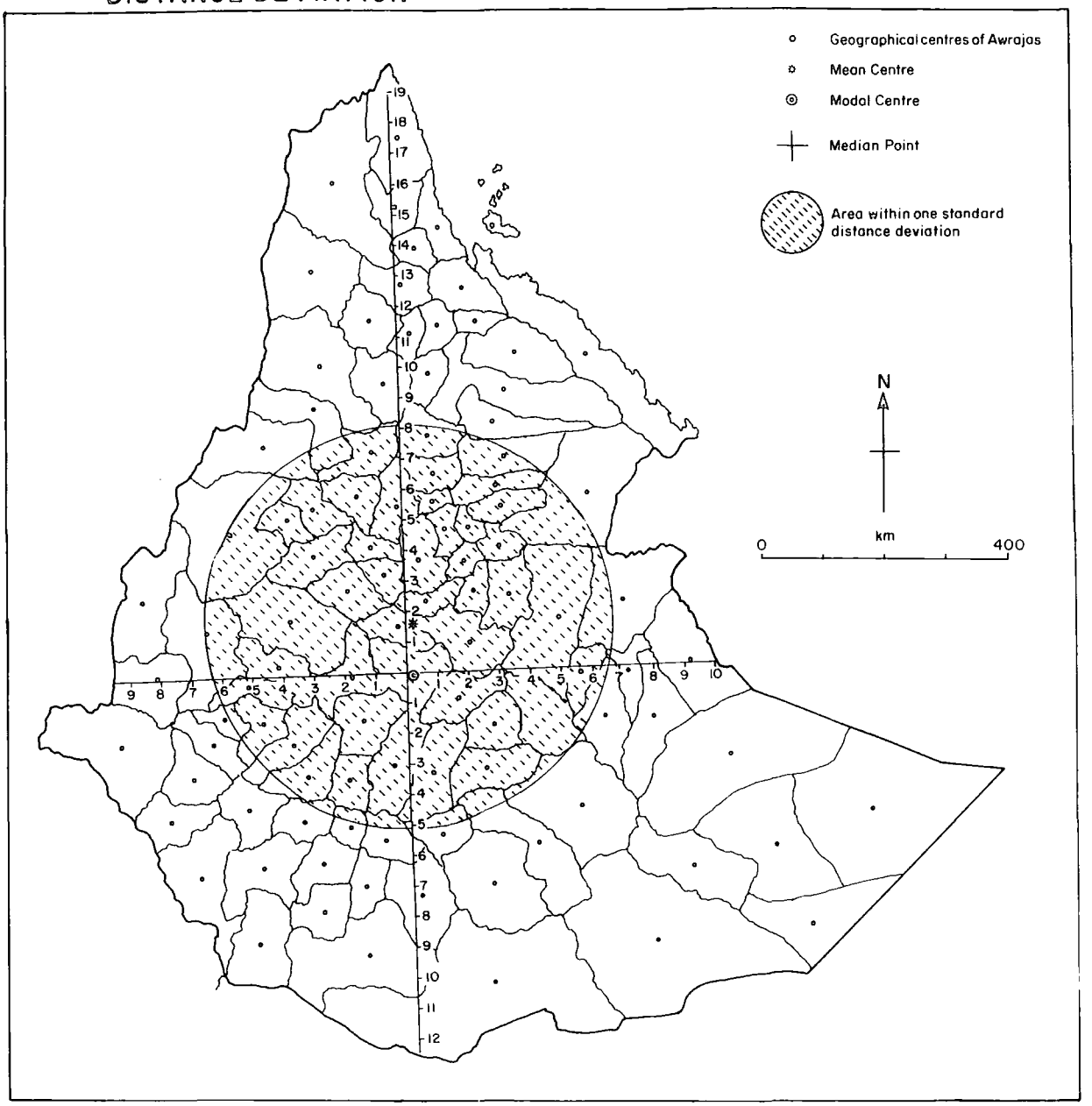
and geometrical measurements will depend on the centres of population shown on the figure; each point has a value equal to the population size of that Awraja.

Next is the superimposition of two orthogonal lines in such a way that they divide the country's population in two equal halves (northern and southern half and eastern and western half) (Fig. 3.4). The horizintal line passes approximately across the 9^{o} north latitude, or about one and a half degrees south of the latitude that divides the country in to two, geographically. One characteristic of the median lines is that in cases of high localization of population, they are pulled towards or run across areas of high concentration. Likewise, the fact that the horizontal median line lies south of the geographical half of the country shows that it is responding to the pulling effect of the southern populous Awrajas. In the same way and for the same reason given above the vertical median line is also pulled about one and half degrees to the west of the longitude that divides the country into east-west geographical halves ($40\frac{1}{2}^{o}$ east longitude).

The median point of the Ethiopian population space therefore lies at 9^{o}N 39^{o}E where the two median axes intersect. The point is in Menagesha Awraja very close to the capital city of the country which itself is the modal centre of Ethiopia. Remarkably, a few kilometres separate the median point and the modal centre. Calculation of the mean centre requires knowledge of the population size of each areal unit considered and the X and Y coordinates of the chosen points in the area with respect to orthogonal axes drawn across the population space. Hence, the location of the mean centre which uses the formula:

$$\bar{X} = \frac{\Sigma pixi}{pi} \quad \bar{Y} = \frac{\Sigma piyi}{pi}$$

Fig 3·4 MEAN CENTRE, MODAL CENTRE, MEDIAN POINT AND STANDARD DISTANCE DEVIATION



will be the function of two things; population sizes (pi) of Awrajas and geometric distances from the two axes, X and Y. As regards to the latter, we see that an Awraja is either

1. close to only one axis, or
2. close to both axes, or
3. far away from both axes.

In terms of geometric distance from the origin,* which is one factor in the location of the mean centre, Awrajas in the third category have the maximum pulling effect. Those in the first category have a medium effect and those in category two have the minimum effect. More important and indicative of where the mean centre would be is however, the distance-population combination (pixi and piyi). Here are some examples:

High pixi		High piyi
Welwelna W. Degehabur Jijiga Asosa	due to distance	Sahil Keren Borena Arero
Gonder Chercher A.G.G. Harer Zuria Ghimbi	due to population	Ginbi Teguletna B. Yererna K. Bunobedele
Adwa Welayta Chebona G. Chilalo	both distance and population	Hamasien Adwa Sidama Wolayta

One important point is that these and other high pixi, piyi Awrajas are found on both sides of the axes with the consequence that their pulling effect is neutralized, making conditions for the mean centre favourable to remain at or around the origin (0,0) or the median point which is itself not far from the modal centre. Any

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* The origin is fixed at the median point-location or the intersection of the median lines which are themselves used as the axes of reference in the calculation of the mean centre.

diversion of the mean centre from the origin in any direction would therefore indicate that the balance of forces has swung in favour of Awrajas in that direction.

According to the calculations made, the mean centre of Ethiopian population has an $\bar{X}$ value of 0.1, and a $\bar{Y}$ value of 1.55. This lies in Selale Awraja north of, but not too far from the median point and the modal centre. This approximates a normal distribution, a distribution whereby the mean, median, and mode have an overlapping position, high frequency is observed around these three, and frequencies decline gradually away from them. The spatial application of these rules will therefore be that the population tends to be concentrated around the three points, in central Ethiopia in our case, and decreases in every direction away from the location of the points. In addition, as is the case with numerical data, about 68 per cent of the population will be encompassed by the circle drawn with a standard distance deviation (spatial equivalent of standard deviation) as a radius and the mean as a centre.

Another striking outcome in this calculation is the low $\bar{X}$ value which testifies to the existence of perfect east-west balance of forces (equal -pixi and +pixi values). Another expected outcome is that the mean centre is pulled northwards from the origin by the northern populous Awrajas. This, in other words means, higher cumulative piyi north of the X axis than south. To exemplify this fact Awrajas with the highest ten piyi values are given (page 126) Eight out of the ten, including Hamassien whose pull is the strongest of all, are located in northern Ethiopia within the Keren-Axum-Agame triangle where both population sizes and densities are higher (see Figs. 3.1 and 3.2). The existence of such a region far away from the centre will therefore not enable us to carry on

	Awraja	North/South	piyi
1	Hamasien	(N)	8723
2	Sahil	(N)	4999
3	Sidama	(S)	-4701
4	Adwa	(N)	4439
5	Seraye	(N)	4300
6	Welayta	(S)	-4247
7	Keren	(N)	3799
8	Akele Guzay	(N)	3796
9	Agame	(N)	3586
10	Axum	(N)	3465

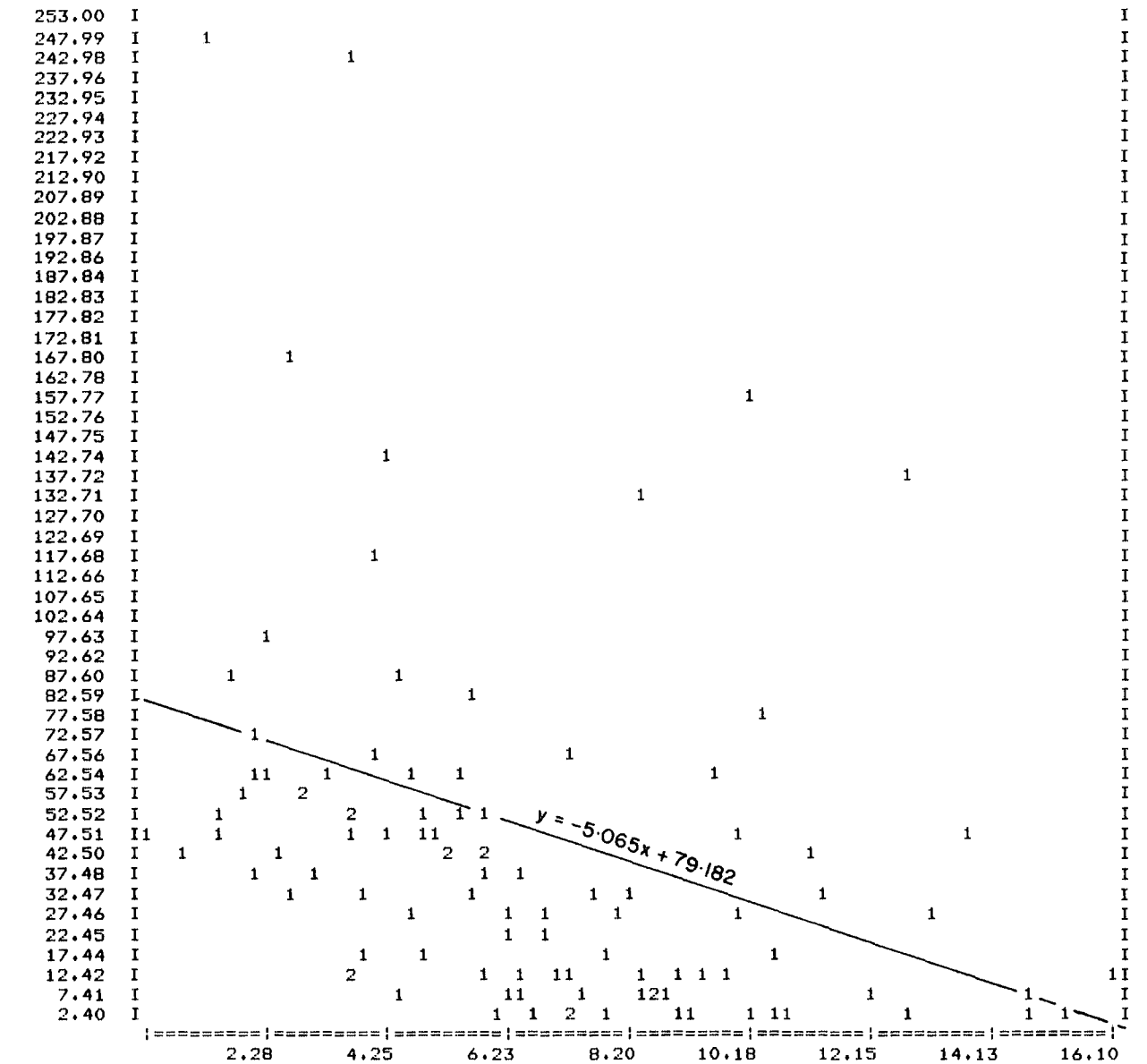
with our assumption of normality in the spatial pattern of population. This is because one criterion of normality, that frequencies should decline away from the centre, will not hold true. We can instead, say that the pattern approximates to normality for we have decreasing density patterns in all directions away from central Ethiopia except along the central highland zone that extends northwards up to the above mentioned triangle (Fig. 3.2). As a means to showing this, a correlation coefficient for distances of 102 Awrajas from the mean centre and their respective densities is computed.

The distance used in such computation is not actual ground distance but a geometrical distance of the form:

$$\text{Dis.} = \sqrt{(xi-\bar{X})^2 + (yi - \bar{Y})^2}$$

This might not, of course, make the result fully reliable, nevertheless, the usefulness of the method in showing distance-density relationship in Ethiopian reality may be observed from the pattern on Figure 3.5. The scatter points do not exhibit a perfectly linear pattern, but, on the whole their distribution is such that they tend to assume less and less density values the further we go to the right-hand side of the figure or as the distance from the mean centre increases. The most manifest characteristic is however

Fig 3·5 SCATTERPLOT OF POPULATION DENSITY ON DISTANCE FROM THE MEAN CENTRE



their deviation from the least-square line, especially the eight points that have a density value of more than 100. The least-square line is very slanting itself because the relationship is not strong, although not random, and fails to explain much of the variation of the two variables. The computed correlation value of -0.4 has a goodness of fit of 0.2 indicating that only 20 per cent of the variation in density is explained by the straight line distance from the mean centre. In other words only 20 per cent of the variation is due to regression and the remaining 80 per cent is due to deviation. Thus, we will be correct only in two out of ten cases if we say that population density decreases only due to distance from the mean centre because as has been indicated earlier in this chapter, there are exceptional Awrajas which inspite of their larger distances from the centre, have higher densities. Best examples are the Awrajas represented by the eight scatter points mentioned above which deviate greatly from the least-square line (see Fig. 3.5 also). The other exceptions are those like Yifatna Timuga, Chercher A.G.G., Horogudru and Habro that have low densities irrespective of their relative closeness to the mean centre (Fig. 3.2). These and other exceptions of this type may be seen from the cluster of scatters between 6.2 and 10.2 units of distance on Figure 3.5 which have a more or less similar density value of below 15. The map of the residuals would give a pattern very similar to Figure 3.2. The eight highly deviant positive residuals (Fig. 3.5) represent the distances and densities of Menagesha, Wolayta, Kembatana Hadiya, Dessie Zuria, Sidama, Adwa and Kalu which would probably form the first class in our residual map and be shown by the darkest shade. The similarity of this supposed map with the density map (Fig. 3.2) would therefore be that these same Awrajas form the first density category.

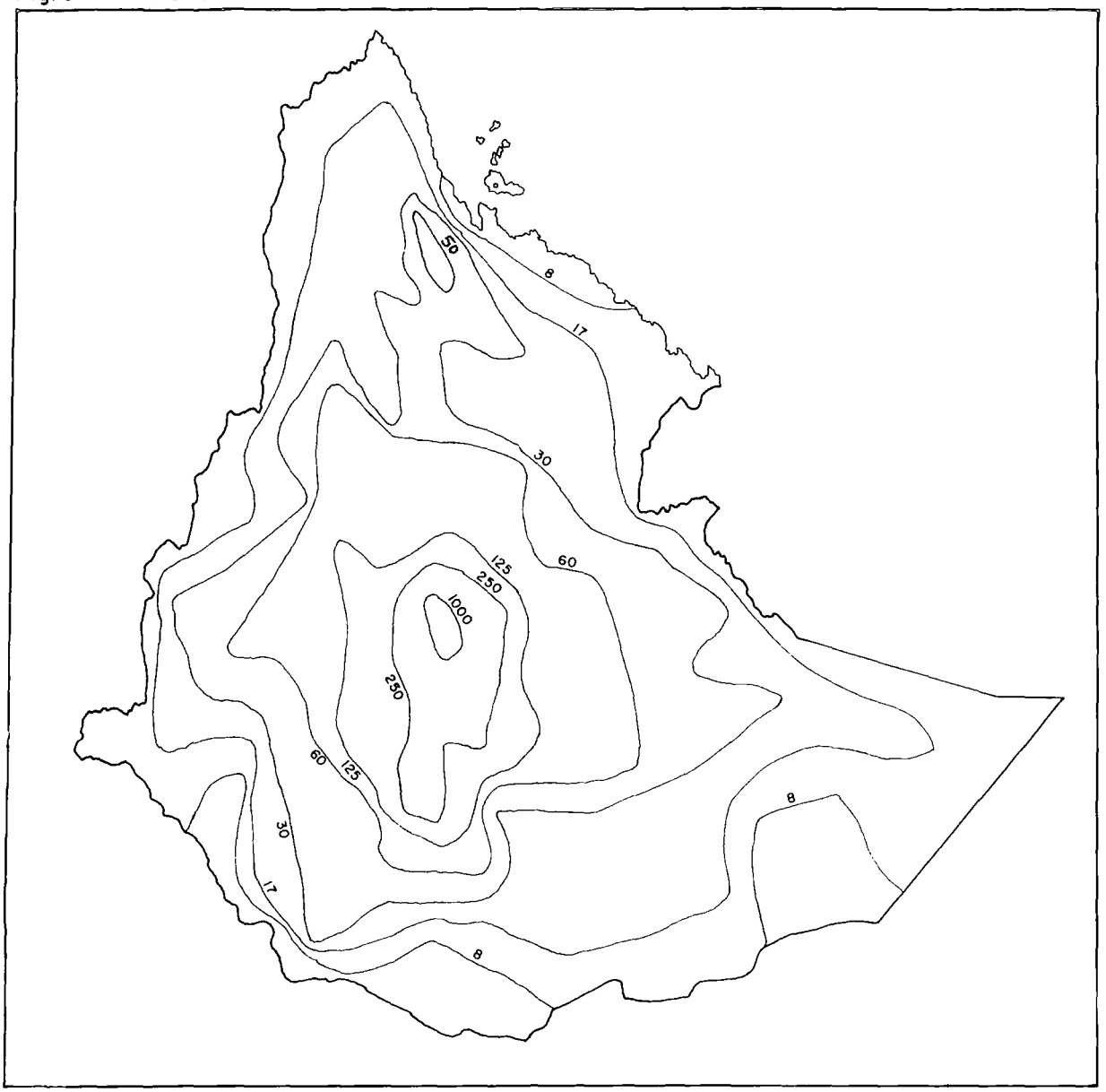
3.4 Population Potential at the Mean Centre

The ongoing discussion might not be fully complete in the absence of one good measure of "the nearness or accessibility of a given mass of people to a point" - the population potential (Johnston, 1981). The usage of the mean centre as the "point" mentioned in the above definition would be very appropriate, for as was stated previously the mean centre is itself a point of balance of the population space.

As is clearly known, population potential is a function both of the number of individuals and their distances from a certain point. It is this "sum of the reciprocals of the distances of all individuals in the population" from a point that forms the population potential of that point (Shryock, 1976). It is also by connecting points of equal potential that we produce the potential map of the area under study.

Due to the very large number of units involved we cannot calculate the population potentials for all Awrajas of Ethiopia. Besides, the only distance (though geometrical or straight line) we know to all Awrajas is from the mean point. The resulting map would therefore show places of equal $\frac{Pi}{di}$ values with respect to the mean centre (pi is the population of an Awraja and di is its distance from the mean centre) in place of normal potential map that shows places of equal $\sum_{i=1}^{n} \frac{pi}{di}$ values. Figure 3.6 therefore shows places of equal quotient when population size is divided by distance. The usefulness of the method lies in the fact that Awrajas with equal influence on or accessibility to the mean centre may easily be known. As was mentioned by Stewart (1958), "people exert an influence at a distance which in many instances varies directly with the size of the population and inversely with the distance from it". Hence,

Fig. 3·6 POPULATION POTENTIAL AT THE MEAN POINT



Awrajas are less influential if their population sizes are lower, or if their distances are larger or because of both. The least accessible are those that are both distant and with low population sizes. Conversely, those that are nearby and populous have the maximum influence upon or accessibility to the mean centre. This means that, even in case of even distribution accessibility decreases because of distance. But, in Ethiopian reality whereby the central Awrajas are populous and the peripheral ones are not, we would expect the accessibility to be highly contrasting. This maybe best observed from Figure 3.6. The contrast is so great that places connected with the central isoline are nearly sixty times accessible than those connected by the peripheral line marked 17, and over one hundred times more than those connected by the lines marked 8. The truthfulness of this fact might be suspected on grounds that straight line distances in place of actual distances from the population centre are used. But the fact is that even if we have data on actual distances between the centres of various Awrajas of Ethiopia the contrast will still be the same, although the figures would probably change. Whatever distance data we may use the periphery will always be found to be less accessible than the centre in so far as the centre of Ethiopian population remains closer to the geographical centre of the country.

Another enclave of relatively high accessibility is observed around the Hamasien-Axum-Agame triangle mentioned earlier in this chapter. Although they are equally remote as their neighbouring Awrajas like Shire, Mitsiwa, Asseb and others, their accessibility or influence is exalted by their high population sizes.

3.5 Future Spatial Pattern

Processes that have brought about the present population

pattern of Ethiopia could hardly be thought of as being in operation momentarily and are unlikely to be operating in the future. The ethnic, religious, and political movements that triggered mass flows of people in every direction and all over the country, and that resulted in their settling in areas other than their homelands, are less vigorous at present and are declining. Modern Ethiopia is basically

> "... the product of the dynamic interactions of internal as well as external forces manifested through warfare, migration, and expansion. In this process, religion, deplomacy, distant trade, intermarriage, dynastic alliances, conquests, resistance to colonialism (and in more recent years to feudalism and imperialism) interacted in the foregoing of the modern revolutionary state" (U.N.F.P.A., 1980:1).

But, as was discussed in Chapter 1, these are things of the past in the main, although we cannot deny the existence of some even in twentieth century Ethiopia.

What is then more likely to determine the future spatial pattern of Ethiopia's population? Why are people moving now? Where are they moving to? The answer to these questions is very basic to the understanding of what the population space of Ethiopia will look like.

There are two major reasons for the current and future alterations in the spatial pattern of population in Ethiopia, economic motives and political decisions, whatever these might imply and whichever sub-categories should come under them. The terms "resettlement", "redistribution" and "migration", now have mainly an economic overtone. People used to be evicted when the land was wanted for large-scale commercial farming, for establishing industrial plant, and for various other reasons connected with the land tenure system (Alula and Fassil:1980). This of course was common in many African countries as well

(Clarke, 1982) and it is not this kind of population movement that we are dealing with in this section, but of nature-imposed re-distribution.

Ethiopia provides perhaps an exceptional example of a country whose population is on the eve of largescale migratory movements. For reasons that are now gaining internation attention and wide-spread publicity, millions of peoole are bound to move if they are to escape the spectre of death hovering over them. Any reader of daily newspapers will not find it difficult to know what is meant in this statement. Nowadays the name Ethiopia is beginning to denote nothing more than a land of natural disaster, to any outsider.

The severe drought that claimed more than one hundred thousand lives and that constitutes one among the reasons for the 1974 revolution and the overthrow of Emperor Haile Selassie (Legum, 1975) is still proving to be a bottleneck in the post-revolution attempts to better the life conditions of Ethiopians. It is a natural hurdle to be overcome if the noble aims and objectives of the present government to transform the living conditions of the rural and urban poor is to be successful.

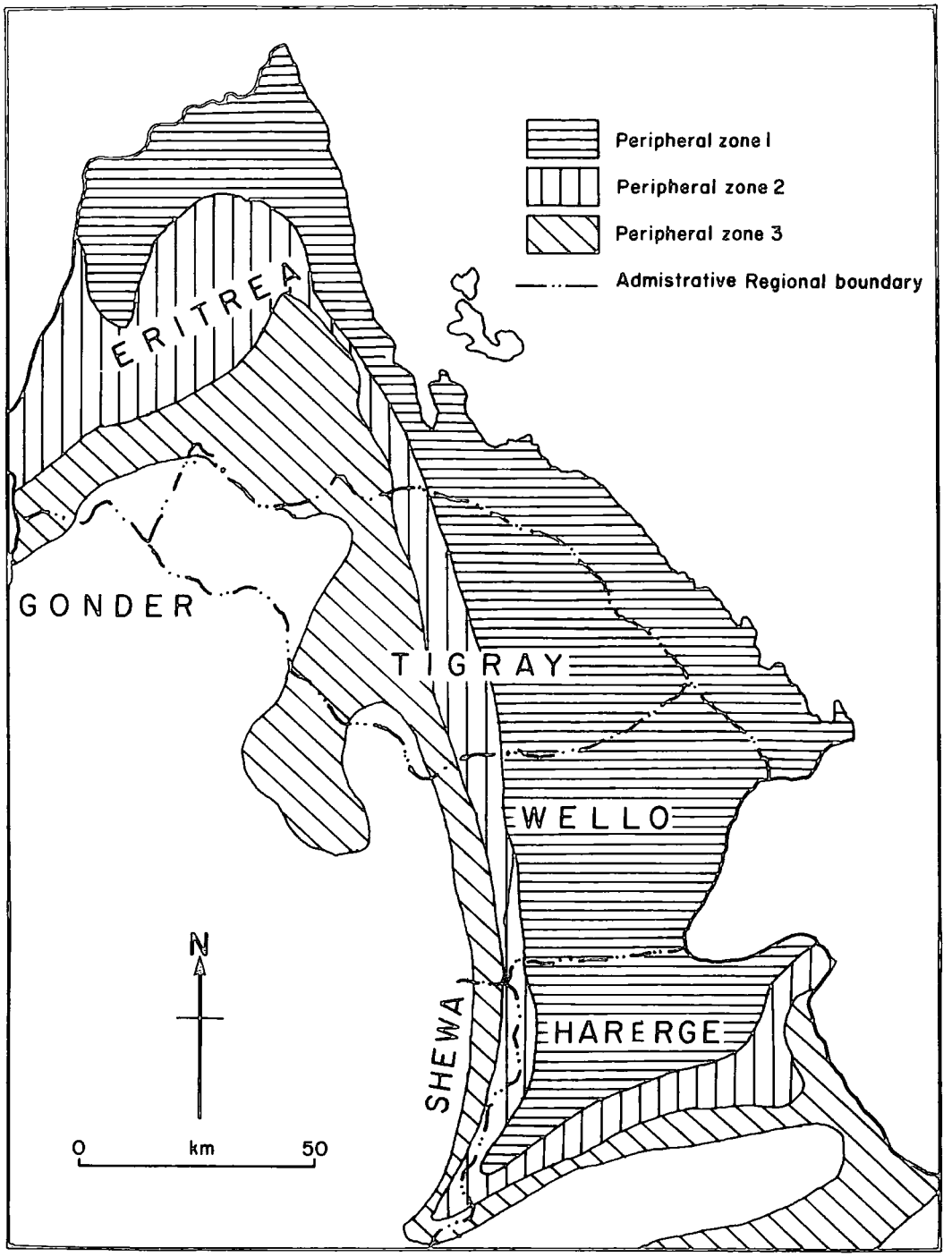
According to latest government reports, about five million people (nearly $\frac{1}{6}$th of the total population) is hit by drought and had no harvest for the last three years. For an Ethiopian peasant even one year's crop failure is a disaster, for he hardly keeps spare crops to carry him on to the next harvest. What then is the solution? Obviously, it is neither feasible nor advisable to feed the starving population indefinitely. There is only one way out, although not necessarily an easy one; hastening and intensifying the resettling of drought victims in drought-free areas, and river valleys, that is already underway. Provided all the logistic, financial and human requirements for the government's future

resettlement plans are met and provided the international community responds positively to the government's aid request, all the starving people will of necessity be on the move. More important to us is the spatial implication of such instability.

Although we cannot tell what the future pattern will look like with absolute precision, we can nevertheless construct a map which is nearly representative using our background knowledge of where the drought was severe and the resulting pattern of outmigration In the last twenty years, areas of frequent drought incidence are most parts or in some cases all parts of the administrative regions of Eritrea, Tigray, Wello, Harerge, Bale, Sidamo, Gamogofa, and Shoa (Relief and Rehabilitation Commission, 1975). It was here that the drought had its devastating effect, and where the life of millions of people is still under threat. In the absence of climatic data, these may be taken grossly as areas of impending mass outmigration. Thanks however, to the short but highly informative piece of work by Daniel (1983:1) who used a minimum of ten years of climatic record to delimit "those ecological zones of the country where rainfed agriculture is either an unreliable undertaking or is impossible because of climatic constraints, mainly moisture constraints", we can stand on a relatively firm ground to begin our analysis. Daniel called the perilous ecological zones as peripheral zones which he divided into three (Figs. 3.7 and 3.8). He also ably characterized the three zones as "the most problematic region of Ethiopia where a substantial number of Ethiopians struggle to survive in a hostile environment" (1983:9). The moisture criteria are as follows (page 137).

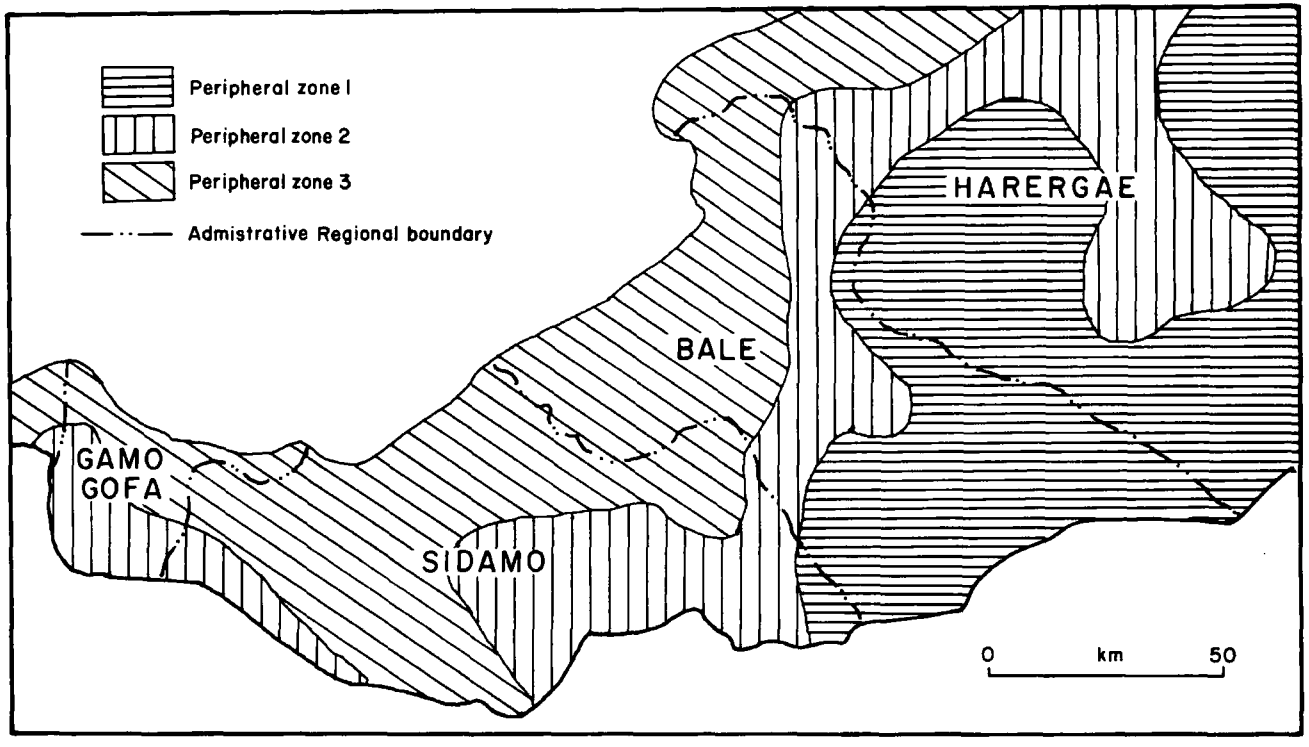
Both rainfall amount and the length of growing period decrease from peripheral zone 3 to peripheral zone 1. From this we can conclude that even within these three regions of climatic hazard

Fig 3·7 PERIPHERAL ZONES OF ETHIOPIA IN THE NORTH AND NORTHEAST



Source: Daniel, 1983

Fig 3·8 PERIPHERAL ZONES OF ETHIOPIA IN THE SOUTH AND SOUTHEAST



Source: Daniel, 1983

Table 3.3

Moisture Criteria for Delimiting Peripheral Zones

		North	North-east & East	South & South-east
PZ3	RF (mm)	450-700	600-775	500-900
	LGP (days)	90-130	90-140	90-240
PZ2	RF (mm)	200-450	475-600	300-500
	LGP (days)	45-90	45-90	45-90
PZ1	RF (mm)	less than 200	less than 475	less than 300
	LGP (days)	less than 45	less than 45	less than 45

PZ = peripheral zone
RF = rainfall
LGP = length of growing period

Source : Daniel, G. (1983:4)

exist degrees of risk, zone 3 being far more hazardous to live in than zone 2 and this in turn more hazardous than zone 1. This has been seen in practice during the last twenty years, it was mainly in zones 1 and 2 that repeated cropfailures, drying of river courses and water wells, loss of vegetation cover and the resulting loss of animal and human life were at their maximum. According to reports by the Relief and Rehabilitation Commission (1975), two million people were affected by the drought in these two zones of Tigray and Wello. Not only that, in the mid 1960's over 50,000 people died in Tigrai alone (Legum, 1975:11).

This however, was not the earliest date of occurrence of drought for hundreds of years there have been droughts, which were often supplemented by human and animal epidemics (Pankhurst, 1968). Records by western travellers and visitors to the various natural calamities are available, especially for the second half of the 19th century. The damage used to be even more severe because of the number of other disasters involved, as inferred from the following statement of Pankhurst (1968:218) on the events of 1889:

> "all the crops have been burnt by the sun. The drought led to a harvest failure which was soon

> intensified by the cattle plague, which by killing off almost all the oxen brought ploughing to a halt ... An influx of locusts and caterpillars occurred at about the same time ... There were also reports in 1892 of the appearance in Amhara of thousands of rats."

Most of these were common mainly in the lowlands, on the highlands bordering the lowlands and in some cases in the central highlands.

Daniel would probably have produced the same ecologically hazardous zones if he had used one hundred years in place of a ten year moisture record, except that the area would probably be smaller in the former case because the drought zone has been expanding from time to time. What all this means is that, the zone we already termed as peripheral zone has never been safe and dependable to live in, neither is it safe at the moment with five million people facing the threat of death, and will never be safe in the future. In spite of this fact 19 per cent of the total rural population continues to live in the climatically unstable and unreliable areas of peripheral zones 3 and 2 delimited by Daniel. This figure approximates the percentage of people reported to be starving by the government (16 per cent). If we include the population in the relatively better but not fully reliable zone 3 the percentage increases to 25 (Appendix 6). In some administrative regions like Eritrea almost the total rural population lives in areas within the three zones; while 72, 63, and 53 per cent of the respective rural populations of Hararge, Bale and Tigrai live within the peripheral zones. In Wello where thousands of people died and the rest out-migrated in the 1960's and early 70's, 27 per cent of the rural population still lives in the peripheral zone. Eleven out of the fourteen administrative regions have part of their areas ranging from 3 per cent (Gonder) to 98 per cent (Eritrea) in these hazardous ecological zones.

When we come down to Awraja level the percentage of rural population in the peripheral zones becomes quite high; as high as 100 per cent in Kelafo and Gode, 87 in Welwelna W., 84 in Awsa, 77 in Mitsiwa and so on (Daniel, 1983:19-22).

In his concluding remarks, Daniel also adds that "in dividing peripheral Ethiopia into three sub-zones ... it is implied that there is peripheral zone four ... where rain-fed agriculture should be practised with the expectation of drought or below normal precipitation in one out of every few years". The basic question is therefore what should and could be done to mitigate such dangers and save the lives of millions. One might expect an answer from Daniel who devotedly studied the ecological characteristics of peripheral Ethiopia. Unfortunately he concludes, "it is neither the purpose ... nor the competence of this writer to suggest what should be done ..." (Daniel, 1983:10). Nevertheless, as has been stated earlier, any observer of the current situation of Ethiopia has none but one thing to suggest - resettlement. Although this is a very arduous task in the light of the feeble economy of present-day Ethiopia, it is bound to happen and the ensuing discussions will focus on what the resulting spatial pattern will look like.

If we look back to the pre-1974 revolution plans and government policies, we observe the existence of grave concern over the extreme pressure on land in some areas while others remain almost unused. The pressing need for urgent resettlement was explicitly stated in the third five year plan of the former feudal government in which it was said,

> "a gradual but accelerating shift in the agricultural population will begin to be seen during the third plan, from the present overcrowded northern and central highlands to the lowland areas and in still longer run, to the south-western highlands ..." (Ethiopian Government, 1968:373).

This initiated emphasis on lowlands, specifically those drained by major Ethiopian rivers, and the south-western highlands as the potential recipient areas. More important to be noted is that identical resettlement strategies are also in use currently (Wood, 1982, 1985), to the effect that tens of thousands of people still continue to flow into the said regions.

It is by relying on such plans that the map of the future spatial pattern (Fig. 3.9) is prepared. It cannot be claimed that the map displays the exact pattern of settlement, for the construction of such a map would require detailed knowledge of the interplay of physical possibilities and human decisions, mostly of planners, economists, sociologists, politicians etc. that would be involved in shaping the future pattern of population.

To facilitate visual comparison of the current and future population pattern, another dot map (Fig. 3.10) is prepared by using the 1980 Awraja population numbers. The population is assumed to be distributed uniformly in each Awraja. This map is drawn to a scale of one dot to 5000 persons where as Figure 3.9 is designed mainly to have a visual effect and be assessed only in comparison to Figure 3.10 because it is difficult to estimate the exact number in this or that river valley or highland region. The works of Wood (1982 and 1985) and Daniel (1977 and 1983) are used in the preparation of the map.

Two things are now evident in view of the present direction of flow of the settlers and the location of resettlement sites which emphasized the colonization of "... grazing lands of pastoralists, forested areas, little used woodlands and grass land" (Wood, 1982:157).

1. The lowlanders, mainly the wandering nomads are turning and will have to turn their faces to the nearby river plains where there

Fig 3·9 PROBABLE FUTURE PATTERN

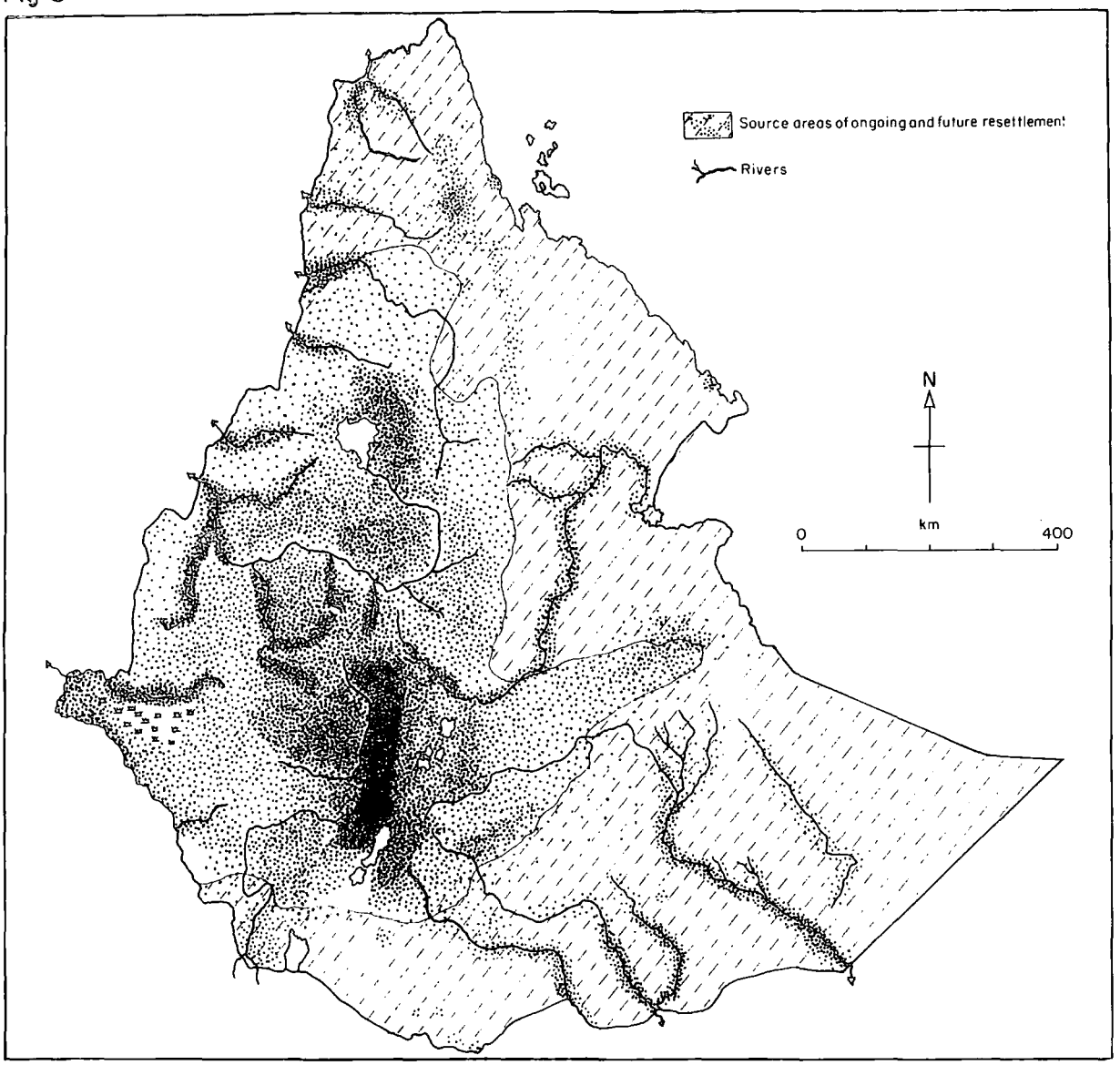
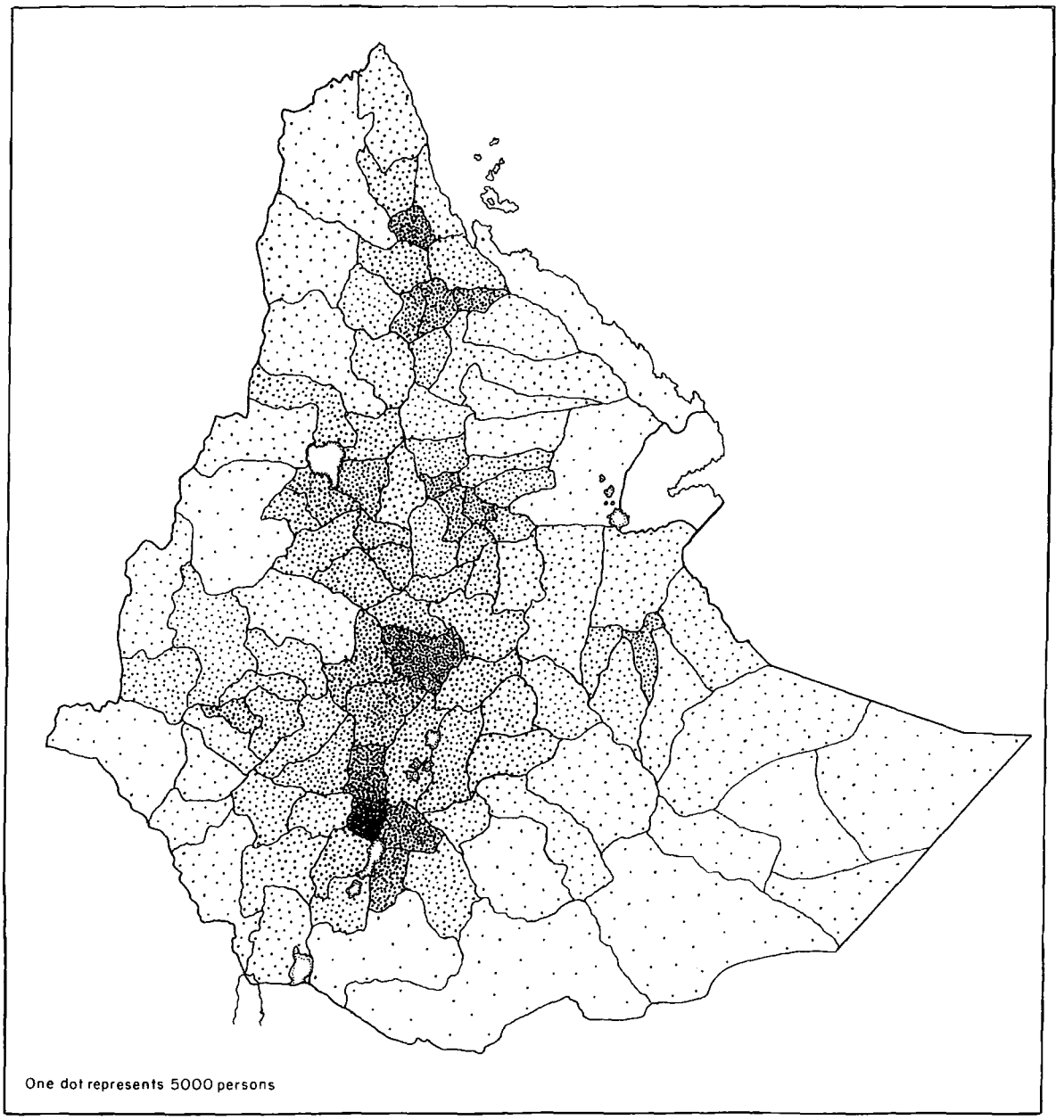


Fig 3·10 PRESENT SPATIAL PATTERN



are good-quality alluvial soils. When compared to the whole lowland region of the Horn of Africa, the Ogaden, Bale, and Borena lowlands offer a far better development possibility (Prothero, 1968). For this reason, for the nomad in the eastern and south-eastern lowlands of Ethiopia there is only one choice - to settle along the banks of rivers like Wabeshebele, Ghenale and Dawa.

2. Although some highlanders may be moving into the highlands far south and west of the drought-stricken areas, the potential and more reliable foci of resettlement would be the river plains on the foothills of the highlands along the whole length of the Ethio-Sudanese boundary. This region still is among the least-used but highly fertile soil regions of the country where even under the semi-mechanized commercial farming of pre-revolution times, "returns tended to be much higher and quicker than for comparable investments in the highlands" (Ethiopian government, 1968:375). Wood's (1982:158-9) outlines of the type and origin of settlers and their area of settlement is also one good vindication of this fact.

Both in pre and post-revolution periods, larger numbers of people have been settling along the sides of rivers in sites like Humera, Gode, Amibara, Angargutin, Didesa, Dubti and many others. In view of the great irrigation potential of Ethiopia rivers and the multitude of possible resettlement sites, the ones that are now used are very insignificant. For that matter, Ethiopia is second, next to Zaire, in terms of water resources, in Africa. Of course, some like Abbay and Ghibe, much of whose courses are along the steep mountain slopes of central highlands, are more useful for hydroelectric power production than irrigation. But, the rest like Awash, Baro, Wabeshebele, Ghenale, tributaries of Abbay and others have agricultural potentials far in excess of the country's need. It is along these rivers' courses that maximum

population density should be observed in the future (Fig. 3.9). Many, for instance, depend entirely on the water and silt supply of Wabeshebele and Ghenale in the neighbouring country Somalia to the extent that the country is sometimes referred to as the country of "scant pastures and two rivers" (Mesfin, 1964:21). Mesfin, also adds that these are "the only known resources" Somalia has. The paradox is that both of these rivers have not been used in their source areas of Ethiopia.

Abbay contributes about ninety per cent of the waters of the Nile especially those rich in silt on which depend the whole population of Egypt and millions of people in Sudan; and yet very little, if any, use has been made of this river in Ethiopia. Inland lakes which are favourably situated on level plains of the rift valley floor in the case of rift valley lakes and in the middle of Dembia and Fogera plains in the case of Lake Tana, have hardly been used. Now is the right time for them to be put to efficient use in order that millions of lives may be saved and the impending catastrophe averted.

Comparison of Figures 3.9 and 3.10 reveals one significant change in the likely spatial pattern of the future, that settlement in the eastern and south-eastern parts become linear (along river banks) and a considerable portion of the area would be empty. Some places with prospects for oil production (Ogaden) and salt and potash production (Danakil) might retain enclaves of settlements that would depend on the mining industry. Likewise the ports of Asseb and Mitsiwa, and some Awraja capitals would still be able to retain their non-agricultural population. These and some other industrial centres like Diredawa, and militarily important centres like Jijiga, will probably continue to grow and present the only exceptions to our assumption of complete evacuation of the zones

we have called peripheral.

On the other hand, the western half of Ethiopia together with the elevated parts of Arssi and Bale, would inevitably undergo a considerable density increase resulting from normal natural increase which will be supplemented by a huge inflow of new settlers. It is our contention that the river valleys and plains in the lowlands that run along the Ethio-Sudanese border from Gelebna H.B. Awraja in the south to Akordat Awraja in the north will be areas of maximum density. The process has already begun. One good example is the movement in 1979, of 5000 farmers from Wello to two resettlement sites, one in the western extremity (Assosa Hoha) and the other in Bale (Melka Oder). This was also supposed to continue at the rate of 40,000 households annualy (Wood, 1985). It is these and other evidences on the current resettlement patterns, that make our assumption of the possibility of immediate change in density patterns and the supposed map of this pattern (Fig. 3.9) more realistic.

CHAPTER 4

THE URBAN SYSTEM

4.1 Genesis of the System of Urbanism in Ethiopia

> "Urban systems, identified as the intelligible wholes for urban studies, are seen as the product of complex historical development, and their constitution is not deducible from a priori assumptions" (Smailes, 1971:1).

For this reason, it is worthwhile to look back in time to the processes that underlie the current under-developed state of Ethiopian urbanization. It seems that there is lack of unanimity among Ethiopian urbanists on whether pre-20th century Ethiopia had any form of urbanization or not. This is apparent in the conflicting statements of writers like Akalu (1967:35), who suggested that "throughout its history Ethiopia had urban centres of varying size ...", and those who maintain that historical Ethiopia was "characterized by an absence of true urbanization" and that centres like Axum and Gonder were only exceptions to this rule (Alula, 1983:3). However, although it is true that all pre-twentieth century urban centres "owed their origin to the integrative activity of the political and military movements of the ruling elite rather than to the influence of natural economic functions", (Akalu, 1967:35), it would be wrong to conclude that Ethiopian urbanization is only a phenomenon of this century. As discussed in Chapter 1, and as observed from the writings of many historians, there always existed urban centres whose numbers varied from a handfull of small trade centres around big political capitals at one time to a system of urbanism comprising of numerous centres at other times. Furthermore, although there were unbridged time-gaps between various phases of urbanism in which rurality was the commonest form of life, Ethiopia has always experienced the

emergence of various urban centres in different historical episodes.

If we abide by the criteria of the existence of a system of urbanism, we notice that there were three temporally discontinuous systems of urbanism in Ethiopia. System in general is defined as "... a set of interrelated parts" (Hugget, 1980:1) and also as "... a set of objects together with relationships between the objects and between their attributes" (Hall and Fagan, 1968 cited in Coffey, 1981:16). Furthermore, a system according to Haggett (1975:15) is also defined as "a group of things or parts that work together through a regular set of relations". Thus, for us to identify which period in the historical past of Ethiopia had seen urban formations that exhibited a system-like character, two elements derived from the above definitions need to be emphasized:

1. the existence of more than one element (urban centre in our case) attested to by the usage of the term "a set of ";
2. the existence of interaction and interdependence between the elements that existed simultaneously.

There were three periods in historical Ethiopia during which existed a set of urban centres that fulfilled the above criteria - the Axumite period, the 13th century development of urbanism around Lalibela, and the 16th century development around Gonder. Enough has been said about the city-state of Axum in Chapter 1.

The urban system that developed around Lalibela, although it was soon "... nipped in the bud" (Mesfin, 1972:185), was also a very developed one even by present standards. The magnificent building structures and technologies that survive to this date testify to the existence of a developed centre of the 13th century urban system. In addition, notwithstanding the paucity of literature on how Gonder functioned as a centre of the 16th century urban system of Ethiopia, it may be inferred that its relative permanency

and the brief moment of tranquility it enjoyed, resulted in its emergence as the focal point of the 16th century urban system of Ethiopia.

In the 19th century came a new and very astonishing phase in the history of Ethiopian system of urbanism - the period of what Hovarth (1969:205) called the "wandering", "roving", and "nomadic" capitals. This was when political and military motives, and not economic considerations, determined the founding, development or abandonment of various urban and urban-like centres. Various kings of the Zemene Mesafint (Era of princes) established their own capitals which were meant not for symbiotic development but for mutual destruction. Thus, this period of wandering capitals saw the complete absence of true urban systems that fulfilled the criteria mentioned earlier. This was in part what led many writers to conclude that Ethiopia had no urbanization before this century. All the 19th century capitals, whose number cannot be stated precisely, were mainly "... an amorphous mass of tents" (Hovarth, 1969:209) whose lives depended on the length of time the military expedition required. The fact that they had no urban character meant that there was no urban development throughout the 19th century until the concluding decades when Asmara and Addis Ababa were founded. Instead, there was the proliferation of parasitic politico-military centres that impoverished rural Ethiopia rather than contributing to its development. As was aptly summarized by Horarth (1966:216-17):

> "Associated with nomadic capitals was a reversal in the normal urban-rural relationships. With the advent of mobile capitals in historic Ethiopia, the city moved to the 'food' rather than the usual practice where 'food' is transported to the city; this reversal had the effect of suppressing any institutional means that existed for the transfer of rural surpluses to cities.

Thus the 19th century saw not only a retrogression in urban development but also the worsening of living conditions in rural Ethiopia that had to support the parasitic capitals.

The population size of the ephemeral capitals fluctuated from time to time in response to the prevailing political and military situations. The following are some examples from Pankhurst's (1968) chapter on Ethiopian urbanization:

Town	Initial date	Population	Later date	Population
Chelicut	1840's	3000	1880's	nearly ruined
Antalo	early 19th C	7000	1920's	1000
Adigrat	1830's	1200	1880's	1000
Mekele	before war with Italy	15000	after the war	7500
Sekota	1870's	6000	1881	1500
Debre Tabor	1850's	30000	1891	3000
Debre Markos	1900	6000	1920	3000
Metema	1879	10000	1930's	3000

The dates were given as 60's, 70's etc. and in relation to some important events like the Ethio-Italian war and they are put here as they were given, on purpose, for it will enable us to know how imprecise are the dates and facts of even the recent developments. It is of course not the actual dates and sizes of town populations that we are looking for but what we previously termed retrogressive development was exactly like. However, these are only a few examples of the declines in population sizes of various towns due either to war or to their total abandonment. Not until the founding of Asmara and its rapid development under Italian colonization, and Emperor Menelik's decision not to abandon his fourth capital (Addis Ababa), was the basis laid for the development of a true and modern system of urbanism.

The present capital Addis Ababa emerged as a new capital of

a "new" Ethiopia (following the boundary reconsolidation and the inclusion of a vast territory in the south, to what was previously called as Abyssinia). New capitals of new nations, as Breese (1966:40) put it "stand at the head of the emerging country" and this encourages the erection of "imposing public structures for prestige purposes as well as for symbols of the new government to the native population". The new capital, Breese adds, becomes an important power centre, "... the locus of economic power" and the "headquarters of industrial, commercial and other enterprises developing within the country ...". This was exactly the case behind the development of Addis Ababa as an alien metropolis in an entirely rural environment. It is also very important to note that this was the process by which Addis Ababa soon began to assume the status of a primate city; "one surpassingly large city" character (Breese, 1966:48).

Addis Ababa emerged as a typical feudal city with no plan of its own. Numerous quarters, locally known as Sefer, were allotted for important personalities, mainly war chiefs whose homes formed the nuclei of various Sefers. To this date many Sefers in Addis Ababa bear the names of personalities who resided in them. The most central and very important of all Sefers was the palace area. Modern technologies like pipe water, electricity, telephones and factories, were all amalgamated in the palace. The palace was "... in one sense a microcosm of the empire and in another an almost self-sufficient unit with its own agricultural and industrial resources and enterprises" (Pankhurst, 1968:705). Meanwhile, resources from the nearby and distant countryside were channelled towards the palace to finance the purchase of new western technologies for the palace itself and for important homes in various Sefers. Modern roads were built to connect the palace to

these Sefers, and the introduction of motor cars required further road building between Sefers. In this early phase of development the capital had hardly any form of infrastructural linkage with other administrative capitals. Not until the completion of the Ethio-Djibouti railway line in 1917 was such a linkage achieved, although it was only along a single line. The rail line provided the first modern form of linkage between the capital and the series of small urban centres that soon emerged along the line and also with the outside world. For the first time the transportation of goods and people to and from the coast by pack animals was made unnecessary. Thus, this was one step forward in the process of modern urban development, but the emergence of a true urban system that had a nation-wide character and that brought the majority of regional centres into direct contact and inter-dependence with the capital had to await another major event in the modern history of Ethiopia - the Italian occupation.

4.2 Towards a Modern System of Urbanism

Urban developments during and after the Italian occupation (1936-41) represented by far the most important period in the evolution of the Ethiopian system of urbanism which, as Alula (1983: 7) put it, marks "a watershed" for the country's urbanization. The Italian occupation, irrespective of its short duration, provided the basic ingredient of an urban system - a network of linkage between the nodes that comprised the system. The occupation not only introduced "... a new system of central places" but also had "a far reaching consequence ... for certain services found in present day Ethiopia" (Alula, 1983:8). The desire to reach potential mining and agricultural areas, and to tighten the military control of the country required an intensive road building work. New

administrative centres were established and on the existing ones were imposed alien forms of town plan and building structures. Communication networks, new industries and new intra-urban road structures served as a landmark on which major post-occupation developments depended. It was in fact an absolute dependence in that the Italian-type transport and town plans, instead of being re-shaped to suit local needs, were preserved as they were.

One notable structure which was an Italian making and that survived to this date is the radial network of roads. Roads were constructed only to connect Addis Ababa to regional capitals with few if any, linkages between the latter (Fig. 2.11). This in turn reshaped the spatial structure of urban settlements, most of which were the offsprings of the road building process itself, meaning that it was the small camps of the road builders that later on became small towns (Mesfin, 1972). As is clearly stated by Alula (1983:11)

> "not only did the transport network in Ethiopia manifest to an appreciable extent a colonial structure, but so also did the spatial structure, bequeathed from the occupation period, remaining noticeably rigid, and, despite some feeble attempts at restructuring, continuing to be highly fragmented and essentially externally oriented."

Aside from the permanent regional centres and garrison towns such as Jimma, Azezo, and Combolcha that were mentioned by Alula, a number of new urban centres emerged during and after the occupation. Although there was further urban development in the post-occupation period, the rate was slow as compared to the five-year occupation period. The number of towns with a population size of 2000-5000 increased from 35 in 1938 to 104 in 1968 (Central Statistical Office, 1968) and those with a population size of 5000-10,000 grew almost seven-fold from 8 to 55 within the same period. Not only the number, but the size of individual centres had also grown considerably, that of Addis Ababa for instance

more than doubled from 300,000 in 1938 to 644,000 in 1968. The population of Asmara and Dire Dawa also grew by similar proportions from 98,000 to 179,000 and from 20,000 to 51,000 respectively. In view of the fact that these are the three largest urban centres in Ethiopia, their population sizes of the 1960's were still low. So they had to grow swiftly and at an unprecendated rate in the 1970's if they were to assume the status of the three most important "population giants" in the 1980's.

The 1970's were by far the most important period in Ethiopia's urban development not so much because there was appreciable economic development and not particularly because there was a sudden move towards rapid industrialization, but because of the several-fold increase in the rate and volume of rural-urban migration. The continued misery, impoverishment and the worsening of the overall living conditions in rural Ethiopia triggered a huge wave of outmigration never seen before. In 1978 urban centres like Bahir Dar, Awassa and Jimma were growing at an annual rate of 10.7, 10.1, and 9.5 per cent respectively (Hailu, 1982). By this time the total number of places that were urban had already grown from the 1968 figure of 158 to 259. It also appears that such rapid growth continued unabated into the 1980's. Some examples are given below to show the rate of growth over the six years between 1978 and 1984:

Urban Centre	%growth
Addis Ababa	38
Dire Dawa	42
Asmara	38
Bahir Dar	42
Jimma	41

During this same period the total urban population of Ethiopia

increased by 40 per cent. This goes to show us that the Ethiopian urbanization is still at its early stage - a stage of rural-to-urban mass transfer like that seen during the industrial revolution in western Europe.

By and large Ethiopian urbanization is mainly a phenomenon of the 20th century and particularly of the post-1936 period. It is therefore in this late beginning that the answer to the question why Ethiopia is one of the least urbanized countries of the world is to be found. Besides, unlike the urbanization in the developed world that was founded on a sound industrial economy, Ethiopian urbanization was the superimposition of pre-mature urban forms on an entirely agrarian economy. Furthermore unlike the industrial economy of the developed world that brought about, and that was able to support, numerous big cities, the Ethiopian economy gave rise to a few big urban centres - one million city and two other cities with more than 100,000 inhabitants. This however, is not peculiar to Ethiopia, as is observed by Johnson (1970:152-53), it is a phenomenon which is very common to all developing economies. The Ethiopian million city (also the primate city) is obviously the capital Addis Ababa and the other two are Asmara and Dire Dawa (the latter attained a population size of 100,000 only in 1984). Johnson suggested two reasons for such polarized development in developing countries,

> "In the first place a primate city is customarily a capital city, an administrative centre where the ruling classes reside, together with their entourage, their retainers and servants, and where artisans, politicians, and professional people who cater to the needs, desires, and whims of the patricians will perforce also congregate."

As has been mentioned earlier this was exactly what happened in Ethiopia. What is the other reason? Johnson continues by saying that,

> "A second reason for the disproportionate size of large urban centres vis-à-vis smaller cities or towns in less-developed countries is to be found in the polarizing influence of linear forms of transport facilities ... which tend to exaggerate investment at the poles of a transport axis, concentrate enterprises of many varieties at such terminal sites, and lure talented and adventurous people to the larger cities by leading them to believe that differentially higher incomes are to be found there."

This has been, still is, and will be the case behind Ethiopian urbanization. Johnson's summary sounds as though he was writing particularly about Ethiopian urbanization in that it conforms to and provides a good conclusion of what has been discussed up to now.

4.3 Size Patterns of Urban Settlements

From what has been said so far, it is not difficult to imagine that urban centres of Ethiopia are not only smaller in number but are also of very unequal size. Let us first of all see the temporal pattern of numbers. The earliest date for which information on numbers of urban areas is available is 1938 when an Italian ministry (quoted in Central Statistical Office, 1972b:42) gave the list of urban places and their sizes. At this date there were only 63 urban centres (Alula, 1983) in the whole of Ethiopia, with a total population of not more than a million. Thirty years later 247 centres were reported to be in the list of urban areas (Central Statistical Office, 1968). But this was a highly inflated figure, for it included places with population sizes as low as 317 persons (Sele), 337 persons (Gudela), 368 persons (Kora), etc. If we use the current criterion of a population size of 2000 as a minimum for a place to be urban, we find that there were only 158 urban centres by the said date with a population total of 1,818,000. Thus, between 1938 and 1968 the urban

population probably doubled and the number of urban centres increased by 150 per cent.

Table 4.1 provides a summary information on the number of urban areas in different size classes for 1938 and 1968 and for subsequent four year intervals. As may be observed from the temporal pattern on Table 4.1 the number of urban centres in some size-classes has been rising and falling over the 46 year period considered, while the number in other size-classes has always been increasing. If we first focus on the growth pattern of the total number of urban areas, we note that this increased at an average rate of 5 per cent per year between 1938 and 68. When compared to the post-1968 average annual growth rate of 2 per cent, this was a period of fast increase in the number of urban areas. Here and there was seen the mushrooming of nodal settlements which by attaining a population size of 2000 were registered as urban. Two factors may be thought of as contributing to the proliferation small towns in this early stage:

1. the need for central services, food, drinks, etc. at weekly market places or around the camps of road builders that led to the permanent settlement of people who catered for such services;

2. the introduction to these centres of low-order industrial commodities that accorded them functional distinction from the surrounding countryside.

Good evidence for the prevalence of such tendencies during 1938-68 is that in terms of absolute numbers, the main increase was observed in the size-class of 2000-4999 (a three-fold increase), although those in the next higher size class of 5000-9999 experienced a quadrupling of numbers.

The fact that the Ethiopian system of urbanism had passed this nascent stage of the creation of new small centres is shown by

Table 4.1

Number and Percentage of Urban Areas by Size-Class of Population, 1938, 1968, 1972, 1976, 1980 & 1984

Size-class	*1938		1968		1972		1976		1980		1984	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
2,000- 4,999	35	55.6	104	65.8	94	51.4	75	40.5	115	44.4	76	30.3
5,000- 9,999	8	12.7	32	20.3	49	26.8	55	29.7	81	31.3	90	35.8
10,000-19,999	13	20.6	11	7.0	24	13.1	34	18.4	34	13.1	49	19.5
20,000-49,999	5	7.9	8	5.1	13	7.1	14	7.6	20	7.7	24	9.6
50,000-99,999	1	1.6	1	0.6	1	0.5	5	2.7	7	2.7	9	3.6
100,000 and above	1	1.6	2	1.2	2	1.1	2	1.1	2	0.8	3	1.2
Total	63	100.0	158	100.0	183	100.0	185	100.0	259	100.0	251	100.0

Source : Central Statistical Office (1968)
Central Statistical Office (1972a)
Central Statistical Office (1976)
Central Statistical Office (1980a)
Central Statistical Office (1984)

* Alula, 1983

the decrease in the number of small towns from 1968 onwards (Table 4.1). By 1972, some of the small towns had grown and were included in the next higher size-classes.

The population sizes of urban areas in the given size-classes has also been changing over the period considered.

Table 4.2

Percentage of Population in Size-classes of Urban Areas (1968-84)

Size-class	1968	1972	1976	1980	1984
2000-4999	19.4	13.0	9.3	10.2	5.6
5000-9999	12.4	12.7	11.6	13.6	12.2
10,000-19,999	6.9	12.5	13.3	10.5	13.3
20,000-49,999	13.2	15.6	12.0	13.9	14.0
50,000-99,999	2.8	2.5	9.3	11.4	13.1
100,000 and above	45.3	43.7	44.5	40.4	41.8
Total	100.0	100.0	100.0	100.0	100.0

Between 1968 and 1972 the total population of urban centres increased by 46 per cent. The later year saw not only a rise in total population size, but also a marked alteration in the proportion that lived in various size-classes as compared to the 1968 proportions (Table 4.2). The percentage proportion in the size-class 2000-4999 declined from 19.4 in 1968 to 13.0 in 1972. This of course was only a beginning in the percentage fall of the population who lived in towns of the lowest size-class; a decline that has continued ever since. Another significant change observed was that proportion living in the size-class of 10,000-19,999 nearly doubled between 1968 and 1972 although this was not continued into the subsequent years. The most significant change in the 1980's was the decrease in the proportion of urban inhabitants in the size-class 2000-4999 to the lowest percentage of 5.6 and the increase in the percentage of those who lived in the size-class of 10,000-

Fig 4·1 PERCENTAGE NUMBER OF URBAN AREAS IN VARIOUS SIZE-CLASSES (1938-84)

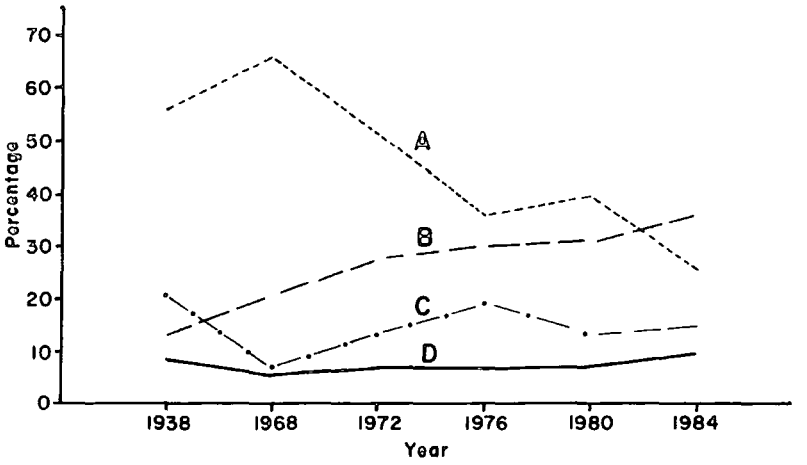
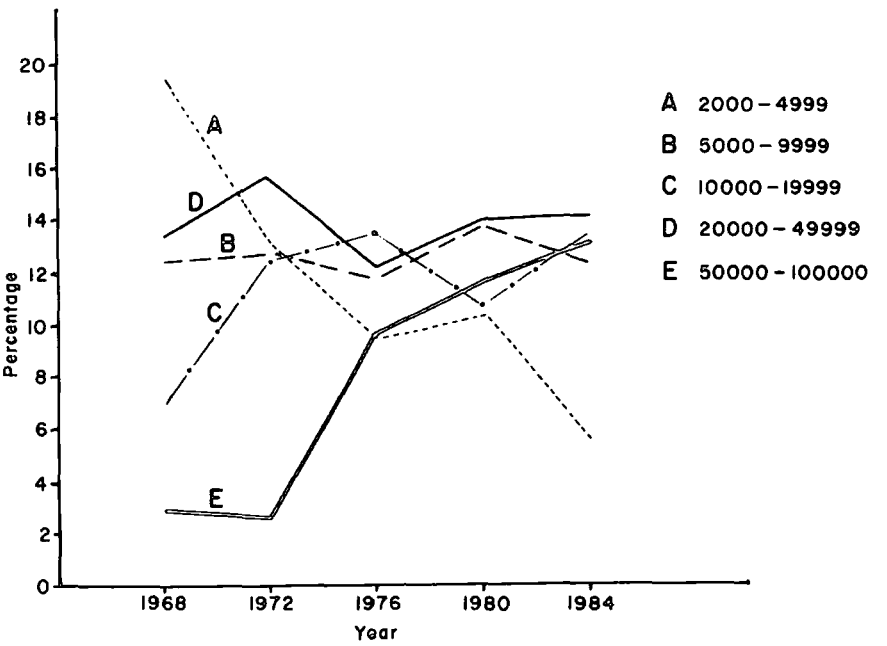


Fig 4·2 PERCENTAGE POPULATION OF URBAN AREAS IN VARIOUS SIZE-CLASSES (1968-84)



19,999, 20,000-49,999 and 50,000-99,999 to a new record of 13.3, 14.0, and 13.1 respectively.

Figures 4.1 and 4.2 show the changes in the temporal patterns of the number and population of urban areas by the above given size-classes.

4.4 Rank-size and Primacy

So far, we have been looking at the size-class patterns of urban centres and how these patterns have been changing over time. In classifying urban settlements into various size-classes we are implying that their population sizes are unequal and also that a few urban centres have larger sizes than others, and hence the hierarchy of towns. In this section will be discussed the nature of such a hierarchy and two important concepts in hierarchical distribution of towns, the rank-size concept and urban primacy. Zipf's rank-size rule is that "if the population of a town is multiplied by its rank, then this will equal the population of the largest and highest ranked city" (Carter, 1972:84) and the diversion from this rule indicates the existence of primacy. "Pick any large area. It will likely contain many small cities, a lesser number of medium-size cities, and but few large cities" (Berry and Garrison, 1958:83). Will the Ethiopian urban size distribution conform to Zipf's rank-size rule or it will be a stereotype of London during the time of Mark Jefferson which was "seven times as large as Britain's second city, Liverpool" and that saw,

> "The finest wares ... the rarest articles, the greatest talents, the most skilled workers in every science and art. Thither flows an unending stream of the young and ambitious in search of fame and fortune, and there fame and fortune are found. London is the kingdom's market for all that is superlative in intellectual and material productions. Its supereminence as a market runs parallel to super-eminence in size. It is the primate city of the United Kingdom" (Jefferson, 1939:226).

From what has been said so far it is easy to conclude that Jefferson's concept of primacy is much nearer to the reality of the Ethiopian urban system than Zipf's regular ordering of size according to rank. Zemenfes's (1983:80) empirical findings based on the correlation of 23 urban centres' ranks and sizes confirms this fact that "the towns considered have ... low conformity with the rank-size equation" and also that "... rank is not a good predictor of population size".

The first forty urban centres in the Ethiopian rank-size pattern are considered according to their rank-size ordering in terms of their 1984 population sizes. The first in our system of ranking is obviously Addis Ababa, the primate city, followed by Asmara the second city with one-third of the population of Addis Ababa and the third city Dire Dawa with a population one-fifteenth of that of Addis Ababa. Addis Ababa's emergence as a primate city was a reaction to the highly centralized power structure of emperor Menelik's (the founder) government. With the total absence of any move towards decentralization ever since, not only did the capital retain its primacy but also showed an ever-increasing divergence from the rank-size rule. In view of the further concentration of power at the centre which is currently underway, this tendency is likely to continue and to be even more accentuated. In the 1950's and 60's Addis Ababa was growing at a rate which was among the fastest in Africa (7 per cent per year) (Central Statistical Office, 1972b). In this same source is shown that even as early as the 1930's the capital's population was more than three times higher than that of the second city and nearly half of the total urban population. Of the 7.4 per cent of the country's population that lived in urban areas in 1968, 2.6 per cent (over a third) were residents of the capital. Four years

later, the urban population numbered 2,656,000 (10 per cent of the total population) of which 34.3 per cent lived in Addis Ababa. The 1976 and 1980 urban populations of Ethiopia were 11.8 and 13.6 per cent of the total respectively, Addis Ababa's share being 35 and 30 per cent respectively. Although the capital's population grew by 22 per cent between 1980 and 84 its percentage share from the population that is urban remained at the 1980 figure of 30 per cent. This should not however, be mistaken to mean a reduction in its primacy, for this resulted not from the increase in the percentage share of those immediately below it (second, third, fourth, etc.) in the hierarchy, but the increase in the percentage share of those in the lower and middle size-classes (Table 4.2). Today's Addis Ababa with a population size of 1,552,400 is not only the most populous but also the most parasitic and rapacious of all cities and towns. Although its verification requires data on numerous socio-economic variables and further research, it could without doubt be concluded that, the capital consumed and still consumes far more than what it produces. Furthermore, although it is supposed to be the most industrial city in the country containing the highest number of industrial establishments, three-quarters of its labour force is not engaged in the production of material goods (Hailu, 1982). Until now the capital is busy "... adding constantly to her pavements, public works, and public services", and it is still "... a rapidly expanding metropolis" as it was twenty years ago (Fellows, 1964:71), but all this was and to a large extent still is at the expense of other urban centres.

Not much information is available on how the second largest city, Asmara, grew and functioned. Its population size has always tended to be a third of Addis Ababa's. Asmara has had a relatively healthy and non-parasitic form of development because of the

Fig 4·3 RANK-SIZE DISTRIBUTION OF 40 URBAN CENTRES

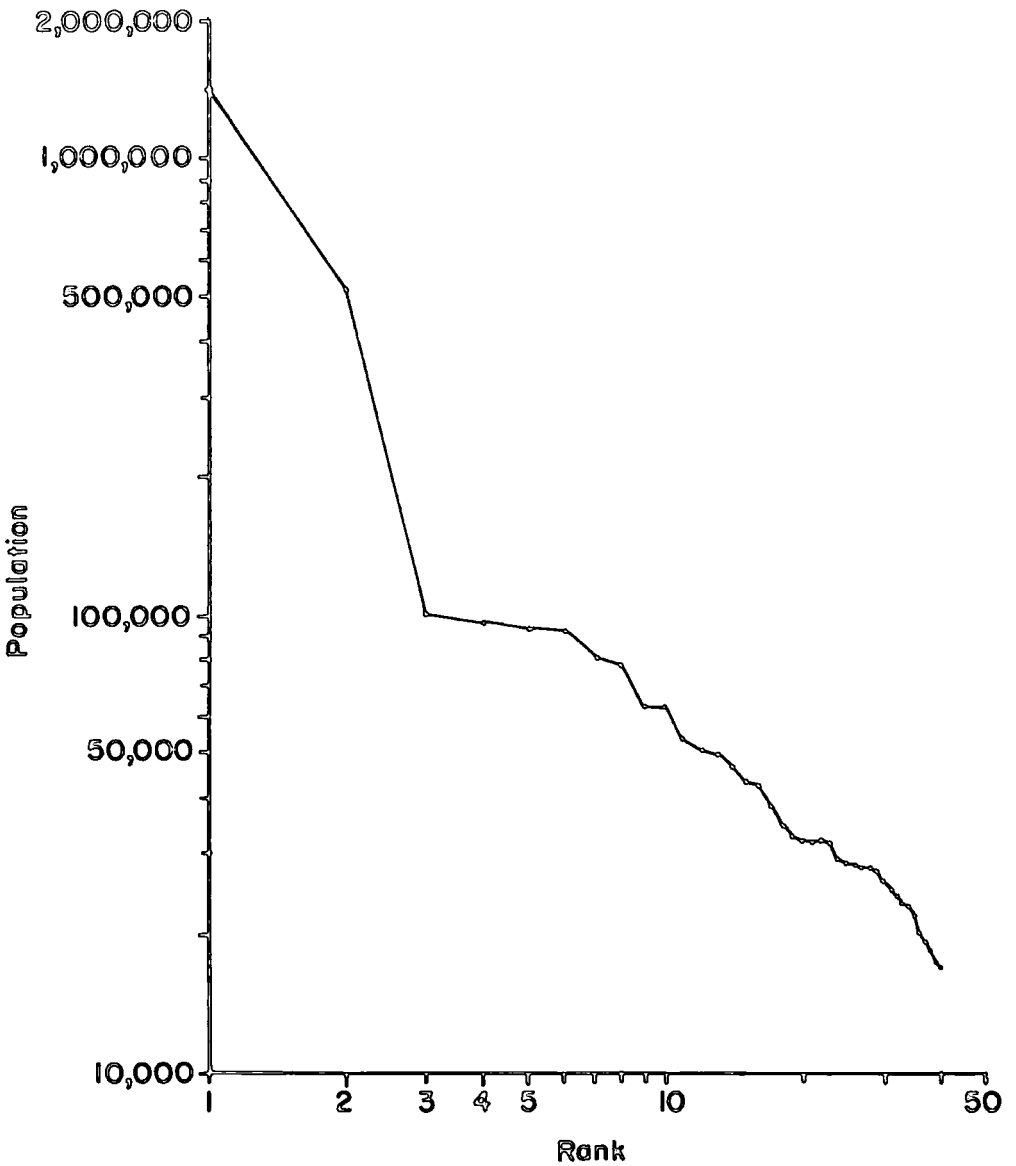
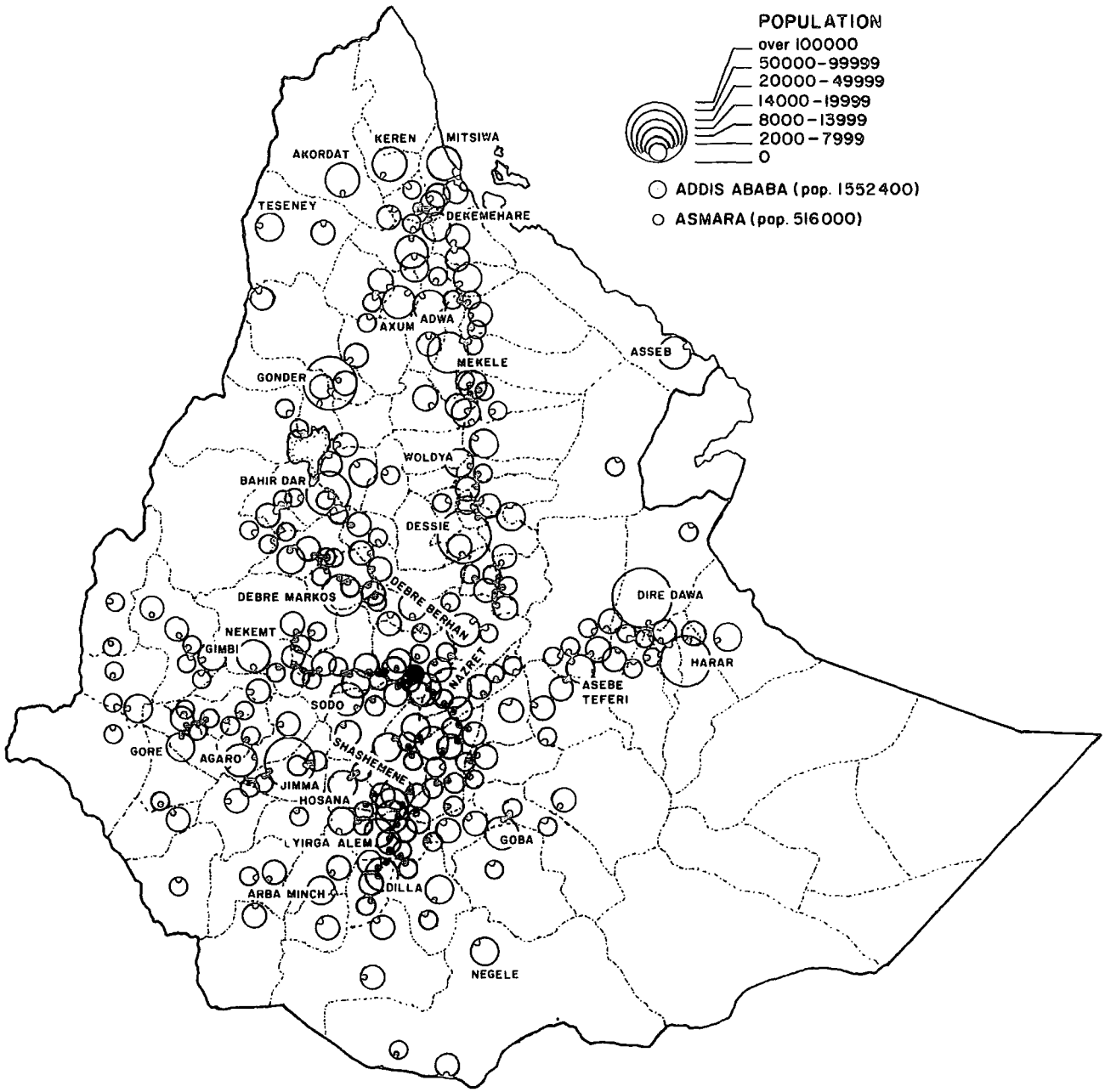


Fig. 4·4 SIZE PATTERNS OF URBAN AREAS 1984



number of industrial plants established by the Italians. Its proximity to the Red Sea coast and western-oriented development contributed to its relatively stable and persistent development until very lately, when political problems have tended to slow down such a development.

Dire Dawa, the third city in the hierarchy, had also experienced a rapid growth of population and economy because of its location along the Ethio-Djibouti railway line and its function as an important industrial and commercial centre, in eastern Ethiopia.

Figure 4.3 shows the rank-size of the first 40 urban centres in the urban hierarchy drawn on a double-logarithmic scale, it conforms in the picture in many African countries.

The 1984 population of the first three cities in the rank-size order was 41.8 per cent of the total urban population and the first ten accounted for 52.8 per cent (Table 4.3). It means that more than half of the total urban population is living in only eight of the 251 urban centres found in the country. As is shown on Table 4.3, 70 per cent of the urban population lives in the 40 ranked towns and cities while the remaining 30 per cent lives in 211 urban centres.

4.5 Regional Aspect of Urbanization and Urban Population Distribution

The major characteristics of Ethiopian urban centres is that their role as sources of innovation diffusion into the nearby and distant regions is very minimal. There is a very rudimentary and insignificant form of what regional planners call the "spread effect" or "forces favouring convergence between the rich and poor regions" and "backwash effect" or an "outmigration of factors from the poor region [that] induce a more efficient use of

Table 4.3

Cumulative Percentage of the Largest 40 Urban Centres

Urban Centre	Rank	Cumulative percentage of population	Urban Area	Rank	Cumulative percentage of population
Addis Ababa	1	29.9	Asseb	21	
Asmara	2	39.8	Shashemene	22	
Dire Dawa	3	41.8	Adwa	23	
Gonder	4	43.6	Dilla	24	
Dessie	5	45.4	Yirga Alem	25	63.9
Nazreth	6	47.2	Gimbi	26	
Jimma	7	48.7	Goba	27	
Harar	8	50.2	Axum	28	
Debre Zeit	9	51.5	Adi Ugri	29	
Bahir Dar	10	52.8	Agaro	30	66.5
Mekele	11		Sodo	31	
Debre Markos	12		Fiche	32	
Keren	13		Asebe Teferi	33	
Akaki	14		Dekemehare	34	
Assela	15	57.6	Teseney	35	68.1
Mitsiwa	16		Woldya	36	
Akordat	17		Gore	37	
Nekemt	18		Arba Minch	38	
Awassa	19		Hosana	39	
Debre Berhan	20	61.0	Negele	40	70.0

Source : Central Statistical Office (1984)

resources" (Glasson, 1978:116). Mutual interdependence between town and country and the service of central places in descending order of functions like that postulated by the central place theory is lacking in some regions or improperly developed in others. Thus, it is not possible to think of a functional region in Ethiopia, a region which "... displays a certain functional coherence, an interdependence of parts, [and which is] composed of heterogeneous units, such as cities, towns and villages, which are functionally interrelated" (Glasson, 1978:38). No doubt there

are heterogeneous urban units all over the country but there is less appreciable functional interdependence whereby the growth in one particular large unit leads to a simultaneous growth in the sub-units and hence the whole region served by functionally related units. Thus, there is no region we can delimit on functional criteria. For this reason, administrative regions are used in this section. Mesfin (1982) also used the same method.

The fourteen administrative regions may be grouped as northern, eastern, central, western, and southern as follows:

Northern	Eastern	Central	Western	Southern
Eritrea	Harerge	Shewa	Gojjam	Keffa
Tigray	Bale	Arssi	Wellega	Gamogofa
Wello			Illubabor	Sidamo
Gonder				

The northern region is comprised of ancient and medieval urban centres mentioned earlier in this chapter, and it is therefore the birthplace of Ethiopian urbanization. Among those in the eastern region Harerge has one historical centre, Harar, and one modern industrial centre, Dire Dawa. A relatively fast development of this region began with the construction of the Ethio-Djibouti railway line. In the central region is located the primate city from where the country's radial road network diverges. Because most urban settlements in Ethiopia are roadside settlements, this region that has the lion's share of the total road lengths, may also be expected to contain the largest number of urban settlements and urban population. The western and southern regions have a very short history of urbanization; however, their growing agricultural, mining and trade importance accords them the potentiality to grow faster than all other regions in the near future.

As expected, the central region is the most urbanized of all regions. Although it is composed of two administrative regions

Table 4.4

Percentage Population and Annual Rate of Growth of Urban Areas, by Region, 1968-84

Region	1968 pop.	1972 pop.	1968-72 rate of pop. gr.	1976 pop.	1972-76 rate of pop. gr.	1980 pop.	1976-80 rate of pop. gr.	1984 pop.	1980-84 rate of pop. gr.
Northern	28.7	28.9	11.6	28.8	5.0	31.2	8.3	28.6	4.8
Eastern	8.4	7.9	9.4	7.8	4.4	7.6	7.5	7.7	6.1
Central	47.6	47.1	10.9	47.5	5.4	45.0	6.3	45.6	6.1
Western	6.9	6.7	10.5	6.7	5.0	8.6	17.5	8.7	6.1
Southern	8.4	9.4	15.4	9.2	4.5	8.6	8.3	9.4	6.1

whose area is only 9 per cent of the total area of the country, it contained more than 45 per cent of the population in all the 16 year period considered above. The northern historic region, having lost its pre-eminence as the major urbanized region in the past, holds the second place in terms of urban population percentages. The other three regions each contained between 7 and 10 per cent of the total urban population in the last 16 years.

Between 1968 and 1972 all regions except the eastern had an annual rate of growth of more than 10 per cent. It is also worthwhile to note that the hitherto less urbanized southern region had an exceptionally high annual growth rate (Table 4.4). In the following four year period 1972-76 the annual growth for all regions dropped to a rate that was less than half of that during the previous four year period. No information is supplied by any source as to why such a dramatic decline took place. It could most likely be because of the political instabilities following the 1974 revolution. Another extremely fast growth rate of 17.5 per cent per year was observed between 1976 and 1980, this time by the western region which, as said above, has a better resource potential for further urban growth. Political problems and recurrent natural disasters did not favour rapid urbanization in the northern region in the 1980s.

All other centres showed a uniform rate of growth of 6.1 per cent during this time.

4.6 Social, Economic and Demographic Characteristics of Urban Areas: The Case of Seventeen Major Urban Centres

One major characteristic of Ethiopian urbanization is that it is urbanization without industrialization. This phenomenon, which is common to all third world countries, has often been referred to as over-urbanization, or "... a higher degree of urbanization than is justified by the degree of industrialization (Payne, 1977:33). This is also proving to be a self-perpetuating phenomenon in that the areas that are now urban, while lacking the standards characteristic of those in the developed cities are still "developed" enough (in the eyes of the rural poor) to attract more and more persons from far and wide, thus adding to their already over-inflated sizes as time goes by. Although most have little more than rural village functions, they still have what Breese (1966:101) called "... a seemingly endless power to attract more and more people to the urban maw". The immediate outcome is that the social and economic demand of the urban crowd becomes far in excess of what urban centres can provide. What then is the effect of such a wide gap between demand and supply on the actual living and activity conditions of urban inhabitants of Ethiopia. This section seeks to provide brief answers.

In 1978 the Central Statistical Office undertook a population and housing survey of 17 urban centres. Of the many variables considered in the 1978 survey, some will be used as indicators of social, economic and demographic characteristics of urban centres. It is worthwhile to start with the most important variable in Ethiopian urban population dynamics which is also the main component of urban growth-rural-urban migration.

4.6.1 Rural-Urban Migration

This is by far the commonest form of population movement in contemporary Ethiopia. The various forms of mobility discussed in Chapter 1 are hardly noticeable at present. Even the ongoing resettlement programme mentioned in Chapter 3 cannot rival the rural-urban migration in terms of the number of people that move at once. Of the average urban growth rate of 7 per cent per annum, 4.5 per cent is due to inmigration from rural areas (the average natural increase of Ethiopian population both urban and rural, is 2.5 per cent). Although we cannot fully rely on the spurious impression of accuracy shown in Hailu's (1982) calculations, Table 4.5 can provide us with a brief idea of the extent and role of rural-urban migration. By comparing the rate of growth of urban areas with the percentage contributed by natural increase (Table 4.5) it may easily be seen that the excessive rate of urban growth is mainly due to inmigration. For instance, of the growth rate of Bahir Dar, which is the fastest growing of all urban centres surveyed (10.7 per cent annually) 7.4 per cent is due to inmigration and only 3.3 per cent is due to natural increase. The respective figures for Awassa and Arba Minch (the second and third fastest growing towns) are 5.9 and 4.3 and 5.6 and 2.9 per cent. It therefore means that 70 per cent of the population growth in Bahir Dar, 58 per cent in Awassa and 69 per cent in Arba Minch are due to inmigration. Among the urban centres surveyed, Dire Dawa, the third industrial city and Harar showed a different growth pattern during the survey year in that they had both low natural increase and low inmigration that resulted in low rates of growth of less than 3 per cent each (Table 4.5) and the largest doubling times. However, this is very illusive in that such low growth rates did not continue in to the post-survey years. Between 1978 and 1984 the population of Dire Dawa

Table 4.5

Components of Urban Population Growth and their Per cent Contribution (1978)

Town	Growth rate 1970-1978	CBR	CDR	Natural increase	Yearly net in-mig.	% contr. of N.I.	% contr. of mig.	Doubling time in years
Addis Ababa	4.79	32.3	12.8	1.95	2.84	40.71	59.29	14.5
Bahir Dar	10.69	38.7	6.0	3.27	7.42	30.59	69.41	6.5
Debre Berhan	5.59	20.3	7.1	1.32	4.27	23.61	76.39	12.4
Debre Zeit	6.36	43.4	9.6	3.38	2.98	53.15	46.85	10.9
Nekemt	5.74	27.9	6.0	2.19	3.55	38.15	61.85	12.1
Metu	7.59	25.1	3.5	2.16	5.43	28.46	71.54	9.1
Awassa	10.14	51.1	8.2	4.29	5.85	42.31	57.69	6.8
Dire Dawa	2.65	34.3	22.6	1.17	1.48	44.15	55.85	26.2
Goba	6.58	32.9	11.7	2.12	4.46	32.22	67.78	10.5
Assela	7.93	31.5	5.7	2.58	5.35	32.53	67.47	8.7
Gondar	6.62	36.7	7.0	2.97	3.65	44.86	55.14	10.5
Mekele	5.51	37.7	9.2	2.85	2.66	51.72	48.28	12.6
Dessie	5.08	32.7	14.2	1.85	3.23	36.42	53.58	13.7
Akaki	8.39	49.7	8.7	4.10	4.29	48.87	51.13	8.3
Jimma	4.68	34.4	10.1	2.43	2.25	51.92	48.08	14.8
Arba Minch	9.49	39.2	10.0	2.92	6.57	30.77	69.23	7.3
Harar	2.74	36.5	15.4	2.11	0.63	77.01	22.99	25.3

Source : Hailu (1982)

increased from 72,200 to 102,2000 with an annual growth rate of 7 per cent. Harar also experienced a similar growth rate of 7 per cent (Central Statistical Office, 1978, 1984). It is also interesting to note that even the natural increase in some urban areas is higher than the national average of 2.5; Bahir Dar and Debre Zeit are some examples.

Table 4.6 also provides supporting evidence for what has been said regarding the role of rural-urban migration in the high growth rates of urban areas. The percentage distribution of the male and female population is shown by place of birth.

In most of the surveyed urban areas over 40 per cent of the population is rural born. In Bahir Dar, Assela and Arba Minch

Table 4.6

Distribution of Population by Town and Place of Birth (1978)

Town	Place of Birth							
	Urban		Rural		Same Town		Total	
	Male	Female	Male	Female	Male	Female	Male	Female
Addis Ababa	7.2	8.9	16.6	18.1	23.3	25.2	47.4	52.6
Bahir Dar	3.2	3.0	20.8	33.2	20.6	18.8	44.9	55.1
Debre Berhan	5.5	7.5	16.6	27.7	20.1	21.3	43.1	56.9
Debre Zeit	5.7	7.7	19.2	23.4	21.1	22.6	46.2	53.8
Nekemt	5.5	6.7	10.5	13.0	28.5	35.0	44.9	55.1
Metu	10.9	13.8	17.8	16.1	18.0	23.0	46.9	53.1
Awassa	10.8	11.5	24.9	23.4	13.8	15.1	49.9	50.1
Dire Dawa	11.4	14.2	11.2	13.9	23.2	23.5	47.4	52.6
Goba	4.8	5.3	20.8	29.2	18.4	21.1	44.2	55.8
Assela	3.4	5.0	27.5	28.2	17.2	18.3	48.1	51.9
Gondar	5.5	7.0	14.3	26.2	21.1	25.2	41.3	58.7
Mekele	7.1	8.6	15.3	24.5	20.8	22.8	43.7	56.3
Dessie	4.2	4.8	17.5	27.2	22.7	21.9	45.2	54.8
Akaki	4.8	5.8	20.8	25.7	18.4	21.0	45.7	54.3
Jimma	7.6	8.1	15.0	16.8	25.5	26.1	48.7	51.3
Arba Minch	9.6	12.5	30.4	26.6	10.1	10.2	50.4	49.6
Harar	8.4	12.6	9.7	12.5	26.6	28.4	45.8	54.2

Source : Hailu (1982)

it was more than 50 per cent. Another important fact is that females constitute the greater proportion of inmigrants. Of the rural-born inmigrants in Bahir Dar over 60 per cent were women. In Debre Berhan, Gonder, Mekele and Dessie the proportion of female inmigrants was 63, 65, 61 and 61 per cent respectively. On the whole, except in Arba Minch where there were slightly more male inmigrants than female, there were more rural-born female residents than male in the surveyed urban centres. The consequence of such sex selective inmigration on urban sex ratios and other socio-economic conditions of urban Ethiopia will be discussed later.

Rural-urban migration had involved not only the transfer of

people from the country to the town but also rural poverty, high illiteracy rates, archaic traditional values, high fertility norms, etc. As a rule "the fertility of migrants for example, tends to fall between that of the population at origin and the population at destination" (Lee, 1969:296). According to Lee, the same is true of the education of rural immigrants which is "... greater than that of the non-migrant at origin [but] is less than that of the population at destination". Outmigration also deprives rural Ethiopia of the most productive section of the population. In rural Ethiopia, even "... children under fifteen constitute a sizeable portion of the labour force" (Assefa, 1974:20). In addition, as Payne (1977:35) stated, "migrants do not gain employment immediately upon arrival in the cities ... they exist on rural savings which acts as a drain by transferring it to the city".

Why migration? What were the rural push factors that engendered the continuous and ever-increasing flow of people to the towns and cities? Numerous reasons which this work cannot exhaust fully could be cited. However, one prominent push factor needs to be mentioned and that is the rural serfdom and merciless exploitation of peasants. Before the 1974 revolution few rural people owned lands while the rest was the property of absentee landlords. Such a system of land tenure, which if seen in its minutest details remains to be one of the most complex tenure systems known to feudal societies (see Schwab, 1972; Hoben, 1973; Alula, 1982), left very little (if any) land for the own cultivator. The peasant not only had to produce under the most arduous and miserable working conditions, but also to give the majority of his produce to the landlords, tax collectors and local usurers. Whatever produce that remained was lavished on various religious and social commitments mentioned in Chapter 1. This left the

peasants in a constant state of destitution with no bright future to look forward to. In such a state of desperation there was only one choice - to move. But, where to? The only alternative was to enter the "urban paradise", where life is much more "cosy" and less strenuous.

The 1975 land reform certainly revolutionized the future of the peasant by according him full ownership rights of the land he cultivated. However, the wound inflicted on the peasant by centuries of oppression and exploitation was not minor enough to heal very quickly. As may be seen from the post-revolution growth rate of urban centres (Table 4.2), the rural push forces are far from being extinct. As a result the urban centres are being filled with newcomers. Of the 1978 male population of Arba Minch, for instance, 60 per cent had lived there only for five years or less and of the total female population of this same town, 55 per cent had five or less years of residence. The picture was more or less the same in Awassa, Bahir Dar and Assela during the 1978 survey of seventeen major urban centres (Central Statistical Office, 1980b). Only in a few urban centres like Akaki, Dire Dawa and Debre Zeit were the proportions of migrants with five and less years of stay lower.

4.6.2 Urban Age-Sex Structure

Out of the 1984 total urban population of 5,196,500 more than half (53 per cent) were women. But, because of the non-availability of data on this year's urban age-sex structure, we will limit ourselves to the data from the 1978 urban survey used previously. The seventeen urban centres in the survey had a population of 687,700 of which 46 per cent were male and 54 per cent female to give an average sex ratio of 92 males per 100 females. That this was different from the rural sex-ratios of the time may

be seen from Table 4.7.

Table 4.7

Rural Age-Sex Structure and Sex Ratios by Broad Age Groups, 1978

Age Group	%Male	%Female	Sex Ratio Males per 100 females
0-14	43.8	43.2	105.9
15-29	27.2	26.7	106.4
30-45	16.3	16.1	105.3
45 + over	12.7	14.0	94.8

Source : Central Statistical Office (1978)

Rural Ethiopia is characterized by high sex ratios of more than 105 males per 100 females until the age of 45. Two major factors are responsible for this imbalance:

1. In rural Ethiopia, female mortality is reported to be unusually higher than male mortality rate due to higher number of maternal deaths at child bearing age of 15-45 (Central Statistical Office, 1974). The reason given by the Central Statistical Office is that, there is lack of gynaecologists and mid-wives. The fact that only an insignificant percentage of rural women have access to modern hospital facilities and that pregnancy complications are not diagnosed at early stages also means that an appreciable percentage of pregnancies end fatally. Even most normal pregnancies not infrequently resulted in the death of both the mother and the child because of improper traditional midwifery. It is also worthwhile to note that the life expectancy of Ethiopian women is only 40 years whereas that of men is 45 years (Central Statistical Office, 1974) although this does not conform to the excess of females above 45 years of age shown above.

2. Outmigration of rural females is unusually higher than male outmigration. This is an exception to the general fact that in

Africa there is higher male outmigration than female outmigration. O'Connor (1983:71) has also observed this fact. He stated that,

> "The chief exception to the general African pattern of male majorities in the migration stream is provided by Ethiopia. Not only do more women than men move to the city there, but they more often stay permanently, and this applies particularly to the large number who are divorced."

We can therefore expect the urban sex ratios at young ages to have the opposite character. Table 4.8 shows such a contrasting pattern of age-sex distribution very clearly.

The similarity between the urban and rural age structures shown in the Table is the high proportion of the young population 0-14 years of age which is more than 40 per cent in both cases. In addition, the male population is larger than the female population at this young age. These are more or less the only major similarity the two distributions share. The excess of male population in 15-29 age group in rural Ethiopia is no more the case in urban areas. As is shown in Table 4.8, excepting Assela and Arba Minch, all other urban centres in the survey had a higher female population percentage than male in this age group. If we break down the broad age groups of 15-29 by five age intervals the female-male imbalance and the resulting low sex ratio would be seen clearly, as in the following examples:

Male:Female Sex Ratios in Age Group

Urban Centre	15-19	20-24	25-29
Bahir Dar	47.4	54.9	59.7
Debre Birhan	66.8	65.1	49.9
Debre Zeit	61.9	56.1	64.9
Nekemt	80.7	80.8	64.2

It might also appear very surprising to see that the female-male ratios in the 20-24 age group in Gonder and Goba are 3:1 and 2.7:1

Table 4.8

Percentage by Age Group and Sex of Seventeen Urban Centres, 1978

Urban Centre	Total pop.	0-14 Male	0-14 Female	15-29 Male	15-29 Female	30-45 Male	30-45 Female	45 and above Male	45 and above Female	Total
Bahir Dar	48,200	48.8	40.9	26.1	40.1	18.1	11.7	7.1	7.4	200.0
Debre Birhan	22,135	49.7	37.6	21.9	27.1	11.3	17.6	17.1	17.7	200.0
Debre Zeit	44,722	49.1	44.0	21.4	30.1	17.0	13.8	12.5	12.1	200.0
Nekemt	24,478	52.7	47.3	22.5	24.1	13.2	15.8	11.6	12.8	200.0
Metu	9,877	42.7	42.6	27.2	31.4	20.0	14.4	10.0	11.7	200.0
Awassa	24,175	49.2	47.2	26.9	35.2	16.3	13.1	7.6	4.6	200.0
Dire Dawa	73,466	43.6	38.5	25.2	33.3	17.6	15.4	13.7	12.9	200.0
Goba	19.943	61.1	46.5	19.0	24.8	9.6	14.4	10.3	14.3	200.0
Asela	31,471	45.2	43.4	31.2	30.5	13.2	14.1	10.4	12.0	200.0
Gonder	58,359	55.2	41.5	18.4	30.2	14.1	16.1	12.3	12.2	200.0
Mekele	42,130	52.2	40.2	23.3	30.5	13.2	16.1	11.4	13.2	200.0
Dessie	67,298	49.3	39.9	21.9	29.4	14.5	16.4	14.2	14.5	200.0
Akaki	32,321	44.8	42.3	20.7	31.8	22.1	15.0	12.5	11.8	200.0
Jimma	57,861	48.4	41.2	26.1	33.2	15.2	10.3	15.9	9.7	200.0
Arba Minch	14,250	40.8	41.6	40.1	35.4	12.4	14.8	6.7	8.2	200.0
Harar	55,519	50.8	38.9	21.0	28.6	14.7	16.7	13.5	15.8	200.0
Nazreth	61,510	46.8	41.0	26.2	30.4	1 .3	15.5	12.2	13.1	200.0
17 Urban Centres	687,719	48.8	41.3	24.0	31.2	15.4	15.2	12.0	12.3	200.0

respectively (Central Statistical Office, 1980b). Sex ratios of over hundred were observed only in Assela and Arba Minch which as we have said earlier were (during the survey date and not necessarily at present) the only two of the surveyed urban centres with lower male than female populations in the 15-29 age group. What in general would be the effect of such sex imbalance on urban life and activity conditions? What in particular would its effect be on female employment and marital conditions? The following sections try to answer these and related questions.

4.6.3 The Social and Economic Situation of Urban Residents

Of the many variables considered in the 1978 survey and for which complete data are available, twelve are singled out as a means to unravelling, at least briefly, the general socio-economic environment of urban Ethiopia. They will be discussed under two sub-categories as economic indicators and social indicators.

(a) Economic indicators

Four urban centres Addis Ababa, Dire Dawa, Asmara and Akaki are regarded as the industrial centres of the country, not because a significant proportion of their labourforce is engaged in industries but because the few industrial establishments of the country are concentrated in them. If the industrial labour force is taken as the sole criterion, only Akaki can approximate to the character of industrial functional specialization manifested by industrial centres in the developed world. All other urban centres are characterized by the lack of functional specialization, for they were founded for military and administrative reasons and not for economic reasons. The capitals of the fourteen administrative regions and their sub-divisions - Awrajas and Weredas-constitute more than three-quarters of the centres that are currently registered as urban. In these centres are found functions that are mainly and in some

cases purely administrative with the result that urban employment is mainly in the materially non-productive sphere of tertiary activities. But, because this is not an ever-expanding sphere of employment, it has already been saturated with no room left for the migrants that arrive daily. In consequence, there is a low percentage of working population and hence a low crude activity rate in almost all urban centres.

Column A of Table 4.9 shows that crude activity rate in the 17 urban centres varied from as low as 25.6 per cent in Goba to a maximum of 44.0 per cent in Bahir Dar. Thus, only a quarter of the population of Goba that is active "... men and women who are normally employed, but who may be temporarily unemployed" (Clarke, 1972:87) (the same criterion was used by the Central Statistical Office during the survey) supports itself, the remaining three quarters that is inactive and the surrounding countryside. Even in Bahir Dar where the crude activity rate is the maximum among the surveyed urban centres 56 per cent of the urban population and the large hinterland (Bahir Dar is the 10th largest urban centre) depend on those who are actually working. Moreover, not all the active are engaged in the production of material goods, so among them some are dependent on others for the lower and higher goods they need. To be precise, 60 per cent of Bahir Dar's active population is engaged in tertiary activities and depends on the remaining 40 per cent for material goods. This would not matter if it was limited only to Bahir Dar and if there were many other centres where the proportion of materially productive population formed the main employment. There was only one such centre among the surveyed urban centres, Akaki, and no doubt it still is the only one in the country. As has been mentioned earlier, even Addis Ababa does not fit into this category notwithstanding the largest number of

Table 4.9

Some Indicators of the Nature of Urbanization in the 17 towns (1978)

Urban Centre	Economic Indicators					Social Indicators						
	*A	B	*C	*D	*E	F	G	H	I	J	K	L
Bahir Dar	44.0	37.6	13.7	25.4	60.9	71.6	0.2	7.8	41.5	68.8	2.3	63.0
Debre Birhan	35.9	42.3	5.2	20.6	74.2	67.9	0.2	12.0	50.9	33.7	1.2	54.3
Debre Zeit	34.6	44.1	15.9	18.1	67.9	58.7	0.1	8.5	38.7	39.9	1.5	23.0
Nekemt	32.4	42.6	15.8	11.1	73.1	64.7	0.4	6.3	31.5	53.6	1.9	49.9
Metu	38.5	48.6	19.5	9.1	71.1	63.9	1.2	6.2	41.3	68.0	2.3	53.8
Awassa	41.4	60.2	27.0	18.9	53.4	55.6	0.2	4.3	46.6	50.9	1.8	33.5
Dire Dawa	33.8	50.8	5.4	31.3	63.2	51.5	0.1	6.4	29.6	85.1	2.3	18.3
Goba	25.6	51.5	14.9	11.3	73.8	52.6	0.2	7.4	50.4	46.3	1.8	43.8
Asela	32.4	39.2	21.2	11.9	66.8	51.9	0.9	6.1	44.8	47.8	1.7	37.7
Gonder	28.2	41.8	5.1	18.6	76.3	68.7	0.7	4.7	51.3	78.4	2.5	48.3
Mekele	34.9	42.6	5.6	24.4	70.0	69.3	0.3	3.9	38.4	88.7	2.9	46.6
Dessie	31.0	47.8	7.6	17.7	74.6	62.6	0.1	8.0	52.6	74.0	2.5	39.2
Akaki	42.0	49.4	3.8	66.7	29.5	58.1	0.4	7.2	26.6	62.5	1.8	55.7
Jimma	35.5	49.9	10.9	15.1	73.9	55.6	0.3	4.6	35.5	60.1	2.0	37.7
Arba Minch	36.5	43.9	15.2	14.1	70.4	52.1	0.7	4.5	46.6	69.3	2.2	44.7
Harar	28.0	56.3	11.5	14.4	74.1	47.1	0.4	6.1	29.2	72.0	2.0	30.3
Nagreth	-	46.6	8.0	20.0	72.0	61.2	0.2	6.8	37.8	54.5	1.9	20.1

A - Crude activity ratio of the total labour force
B - Percentage of economically inactive females from the total female population of above ten years of age (excluding the student population)
C - Percentage of working population engaged in primary activities
D - " " " " " " secondary activities
E - " " " " " " tertiary activities
F - " " " " unable to read and write
G - " " " " who have completed university education
H - " " " men who are divorced
I - " " " women who are divorced
J - Percentage of housing units with one or two rooms only
K - Average number of persons per room
L - Percentage of population without any toilet facility

Source : Central Statistical Office (1980b) * Hailu, 1982

productive plants it contains. As may be seen in Table 4.9, column E, in urban centres like Gonder up to 76 per cent of the labour force is engaged in tertiary activities. In sum, most of the urban centres have more than 70 per cent of their labour force in the tertiary sector of the economy.

Another aspect of urban employment is women's participation in work. Did the high female inmigration and their numerical superiority in almost all centres, lead to higher female employment than male? Column B of Table 4.9 gives a satisfactory answer. It shows the percentage of economically inactive women above the age of ten, excluding the student population of women and of the too old. This in other words is the percentage of women who ought to work but who are not actually working. Up to 52 per cent in Goba, 56 per cent in Harar and 60 per cent in Awassa were not working during the survey; only in Bahir Dar and Assela is the proportion of economically inactive women below 40 per cent.

(b) Social indicators

The first two variables chosen as indicators of urban social characteristics relate to literacy. This will help us to see objectively if our previous statement that rural-urban migration is also the transfer of rural illiteracy to the towns is true. This does not of course mean that towns were free of illiteracy before inmigration but that their literacy state was worsened with the inflow of uneducated migrants. The high percentage of urban illiterates shown on Table 4.9 is no more the case in present day Ethiopia, for the post-revolution literacy campaign has reduced it to almost nothingness. During and before the 1978 survey, however, more than half of the labourforce in 16 urban centres (Harar was the exception) were not able to read and write. This did not come as a surprise in the light of the fact that education in the past was

the sole monopoly of a few urban elite. In urban centres like Bahir Dar, Debre Birhan, Nekemt, Gonder, Mekele, Dessie and Naẓreth, more than 60 per cent of the economically active population could not read and write. The proportion would have been even larger if the data referred to the entire urban population rather than to the working population only. The working population that had completed university education was only a minute fraction (as low as .01 per cent) of the total.

The marital status of the labourforce was another social variable considered in the survey. The percentage of male and female divorcees among the economically active population is considered to answer the question if the high rate of female migration that made females in the 15-29 age group redundant, had also resulted in less possibilities for the divorcee migrant women to remarry. However, this does not imply that such a risk is limited only to migrant women because inmigration disturbs the male-female proportion of the resident population also lessening the chance of the non-migrant women to remarry. In addition, it is not the numerical imbalance only that determined marriages in urban Ethiopia. Economic inability to run family life, and lack of housing facilities were and still are the major factors that contributed to the high percentage of divorcees shown in Table 4.9. The percentage of divorced men was so low that it did not exceed 10 per cent in all urban areas except in Debre Berhan where 12 per cent were reported to be divorced. On the contrary the percentage of divorced women was as high as 53 per cent in Dessie, 51 per cent in Gonder and again 51 per cent in Debre Birhan. Note the relationship between the previously mentioned 3:1 female-male ratio in Gonder and the percentage of female divorcees in this same urban centre. In all the surveyed urban centres, over a quarter of the working women were divorcees.

The third group of social variables relate to the housing conditions of urban areas. The percentage of housing units with one or two rooms only, the number of persons per room, and the percentage of population without any toilet facilities are considered. The Central Statistical Office (1980b:9) defined a housing unit as,

> "a structurally separate and independent place to live in. The word separate means that it is separated by walls from its surroundings or from other housing units. The word independent means that the occupants can come in and go out of their quarters without having to go through anybody else's quarters."

The housing conditions in Ethiopia cannot be very different from those in other Third World cities where "the combination of high growth rate ... and in equalities in distribution of resources, has created situations in which a large proportion of urban populations are unable to afford conventional minimum dwellings" (Payne, 1977:71). The Ethiopian urban economy has long shown its unreadiness to absorb and accommodate the ever growing number of immigrants. New migrants and resident members gradually found it difficult to get houses with sufficient number of rooms. The means were sought in partitioning the existing housing units into smaller units often into single rooms. Up to 63 per cent of housing units in Mekele, 59 per cent in Dire Dawa and 55 per cent in Arba Minch were found to be single roomed during the survey. These large percentages were by no means due to the tradition of building single roomed houses; in fact this is very uncommon. As is shown in Table 4.9, more than 60 per cent of the housing units in Bahir Dar, Metu, Gonder, Dessie, Akaki, Jimma, and Arba Minch, and up to 85 per cent in Dire Dawa and 88 per cent in Mekele had one or two rooms only. Besides, houses are often shared, not among individuals but among families, with the consequence that the number

of persons per room was always more than one. In the majority of the surveyed urban centres the average number of single room occupants was two or above. Mekele, that had the largest percentage of single or double roomed housing units, also had the highest average number of persons per room, 2.9.

The fact that only the number of occupants and not the housing units or the number of rooms in them was increasing meant that the housing facilities, water, electricity, toilets, etc. had to be shared by many more than they are able to serve. The worst case is when all or some of these essentials of life are lacking. For instance, it is not uncommon for Ethiopian urban houses not to have any form of sanitation facilities - toilets, bathrooms, and places for waste disposal. Even the commonest dry-pit latrine was not available for over half of the residents of Bahir Dar, Debre Birhan, Akaki and Metu (Table 4.9). It is only six years since the survey was undertaken, and it cannot be said with certainty if substantial improvements in these and other urban facilities have since taken place, but it may be argued that six years were not enough to bring about profound changes.

In sum, the fact that Ethiopia is among the least developed countries of the world meant that it was not able to afford the cost that sustained numerous million cities in the developed world. In consequence, only small towns with small population sizes dot the map of Ethiopia. But, because they are parasitic and not productive centres, even these are proving to be a burden that the country's feeble economy can no more support. However, because there is no forseeable means to lessen the existing urban parasitism in the near future and to make urban centres productive centres, Ethiopian urbanization needs to be discouraged. In view of the present economic conditions of the country, particularly the chronic

famine in the drought-stricken areas and shortage of food even among the most productive areas, rural development needs to be given the major priority. This will have a double advantage of alleviating the widespread food problem and the bettering of rural living conditions which in turn leads to a cut in the out-migration of the most productive section of the rural population. A cut in rural outmigration will relax urban tensions manifested in the urban unemployment, lack of housing facilities, widespread crime and prostitution, and the deterioration of living conditions in general.

CONCLUSION

Today's population pattern of Ethiopia and its complex ethnic formation are the results mainly of history, levels of economic development, political, religious and traditional mobilities and the dissimilar ways by which these were influenced by the varied physical conditions of the country. In this regard, the country provides a very interesting example of the relationships between socio-economic variables on the one hand and physical variables on the other, relationships that constitute the theme of various works by population geographers. As may be inferred from the materials in all the chapters, there is no part of the country in which such a relationship is unnoticeable and there is no time in the past when any one of these variables has been aloof of the effect of all others. It is also the special way in which the human and physical factors were interacting that gave rise to exceptionally complex and intricate ethnic patterns, an eccentric altitudinal pattern in which population sizes and densities increase with height and decrease away from the central highlands towards peripheral Ethiopia.

However, the present population pattern is only the reflection of the interactions, interdependence and interrelationships of physical and human factors in the Ethiopian past and by no means an indication that the same pattern will continue to exist. It is now beginning to be felt that these interrelationships are no longer healthy and advantageous, and that new ways of human reactions are necessary to combat the new challenges of nature, manifested in complete changes in the physical and ecological conditions of most parts of Ethiopia. A notable example is the prevailing chronic drought in northern, eastern, and southern

Ethiopia. The fact that over four-fifths of the country's population derive their livelihood from the mainly nature-dependent industry of agriculture is a sufficient justification for expecting an immediate restructuring of the population pattern in a manner that mitigates and at best overcomes the catastrophe that would otherwise be inflicted by the vicissitudes of nature.

Although Ethiopia is still far from being urbanized, with only 13.6 per cent of the population living in urban centres, the prospect for further urbanization is very gloomy. In addition, any move towards further urbanization will entail the accentuation of the already apparently polarized infrastructural and economic development and encourage the prevailing urban parasitism instead of lessening it. Development priorities need to be given to rural Ethiopia, so that rural living conditions may be bettered and the rural push-factors rendered less vigorous. Only this can change the existing mentality among the rural farmers that everything good is to be found in urban centres, and so curb the resulting out-migration. Stopping or even reducing the influx of rural migrants could lead to a proportionate and balanced developments of urban economies and population.

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APPENDIX 1

MAJOR ETHNIC GROUPS AND SUB-GROUPS OF ETHIOPIA

Major Group	Sub-Group	Area of Settlement by Administrative Region
1. Semitic		
(a) Tigre	Beni Amer, Ad Sawra, Ad Sheik, Bet Mala, Ad Muallim, Aflenda, Bet Asegede, Bet Juk, Marya, Mensa, Meshalit, Sabdarat	Eritrea
(b) Tigrians	-	Eritrea Tigray
(c) Amhara	-	Wello, Gojjam, Gonder, Shewa, Harergo
(d) Gurage	Chaha, Ennemor Geyto, Muher, Ezha, Aklil, Walani	Shewa
(e) Adere	-	Harerge
(f) Argoba	-	Harerge, Shewa
2. Cushitic		
(a) Agaw	Awi, Beta Israel, Bilen, Qemant, Kunfel	Wello, Gojjam, Gonder, Eritrea
(b) Saho	-	Tigray, Eritrea
(c) Afar	-	Harerge, Wello, Tigray, Eritrea
(d) Somali	-	Harerge, Bale, Sidamo
(e) Oromo	Arsi, Borena, Annya, Qota, Gera, Gomma, Guma, Jimma, Limu Inarya, Guji, Kereyu, Lega, Mecha, Raya, Soddu	Arssi, Bale, Kefa, Harerge, Sidamo, Welega, Illubabor, Shewa, Tigray
(f) Sidama	Alaba, Burji, Derasa, Hadiya, Kambata, Qebenna, Sidama, Timbaro	Sidamo, Shewa
(g) Konso	Arbore, Bussa, Dasenech (Geleba), Gawwada, Gidole (Gardulla), Gobeze, Konso, Tsamako, Weige	Gamogofa

continued ...

Major Group	Sub-Group	Area of Settlement by Administrative Region
(h) Omotic	Anfillo, Bosha, Gonza, Janjero, Kefa, Mocha, Bencho, Dorsha, Maji, Mere, Nao, Sheko, She, Amaro, Basketo, Borodda, Chara, Dita, Doko, Dollo, Dorze, Gamu, Getami, Gidicho, Gofa, Konta, Koysha, Kucha, Kullo, Male, Ochllo, Oyda, Welayta, Zala, Zayse Baka, Bio, Dime, Shangama, Sido, Ubamer, Banna, Beshada, Hamer, Karo	Keffa, Gamogofa, Sidamo, Illubabor, Welega, Gojam
3. Nilotic	Berta, Anyuak, Bume, Gumuz, Koma, Kunama, Majangir, Mao, Meban, Mekan, Nara, Nuer, Suri, Surma	Keffa, Gamogofa, Illubabor, Welega, Gojam, Gonder

Source : Levine (1974)

APPENDIX 2

DATA ON ALTITUDE, AVERAGE ANNUAL RAINFALL, AVERAGE ANNUAL TEMPERATURE AND NUMBER OF MONTHS WITH WATER SURPLUS BY AWRAJA

Zone 1 Awraja	Average Altitude	Average Annual Rainfall (mm)	Average Annual Temp. (°C)	No. of months with water surplus
1. Simen	3125	1400	18	3.5
2. Mota	2750	1400	16	5.0
3. Wadla Delanta	2833	1600	16	5.0
4. Borena	2750	1600	15	5.0
5. Menzna Gishe	2750	1200	16	3.0
6. Teguletna Bulga	2700	1200	14	3.5
7. Chilalo	3000	1200	16	6.5
8. Genale	3250	1000	13	8.0
9. Wag	2660	1200	16	3.0
10. Lasta	2750	1200	16	5.0
11. Werehimeau	2700	1600	15	5.0
Zone 2				
1. Hamasien	2300	800	18	2.0
2. Debre Tabor	2330	1400	17	5.0
3. Adwa	2500	900	17	2.0
4. Libo	2500	1400	17	5.0
5. Were Ilu	2500	1400	16	5.0
6. Dessie Zuria	2500	1000	17	5.0
7. Gayint	2300	1400	16	5.0
8. Agew Midir	2250	1600	19	5.0
9. Bahir Dar	2200	1200	18	5.0
10. Gamo	2500	1400	18	8.0
11. Kola Dega Damot	2500	1400	17	5.0
12. Debre Markos	2400	1400	15	5.0
13. Bichena	2500	1400	15	5.0
14. Selale	2500	1200	14	5.0
15. Chebona Gurage	2500	1200	15	5.0
16. Kembatana Hadiya	2250	1200	17	5.0
17. Menagesha	2500	1000	16	5.0
18. Ticho	2250	1000	16	5.0
19. Arbo Gugu	2583	1400	19	5.0
20. Gore	2200	2400	18	11.0
21. Sidama	2200	1200	19	9.5
22. Jibatna Mecha	2500	1200	17	5.0
23. Gedeo	2250	1200	19	9.5
24. Webera	2250	1000	19	3.5
25. Kefa	2500	1800	20	8.0
Zone 3				
1. Keren	1830	400	23	1.3
2. Serae	1830	600	19	2.0
3. Shire	1800	800	19	2.0
4. Axum	2000	600	18	2.0
5. Temben	2000	800	17	2.0

continued ...

	Altitude	Average Annual Rainfall (mm)	Average Annual Temp. (°C)	No. of months with water surplus
Zone 3 (continued)				
6. Gonder	2200	1000	20	3.5
7. Gimbi	2000	1800	19	6.5
8. Horo Gudru	2100	1400	18	5.0
9. Nekemt	2000	1800	18	6.5
10. Arjo	2000	2000	18	9.5
11. Sorna Geba	2000	2400	18	11.0
12. Buno Bedele	2200	2000	17	8.0
13. Limu	2200	1600	20	6.5
14. Jimma	2200	1600	18	6.5
15. Kulokonta	1800	1200	19	6.0
16. Welayita	2000	1400	19	6.5
17. Gardula	2100	800	18	8.0
18. Arero	1800	400	20	5.0
19. Jemjem	2100	1000	19	6.5
20. Habro	1800	1000	19	3.5
21. Harer Zuria	1900	800	19	2.0
22. Jijiga	1850	400	23	0.5
23. Merhabete	1850	1200	14	5.0
24. Haikochna Butajira	1900	800	17	5.0
25. Yererna Kereyn	1800	1000	18	5.0
26. Mocha	2100	2000	19	9.5
Zone 4				
1. Gashna Setit	1400	400	25	0.5
2. Akele Guzay	1500	400	20	1.3
3. Wegera	1700	1000	23	1.3
4. Chilga	1800	800	23	3.5
5. Metokel	1650	1000	20	3.5
6. Asosa	1500	1200	25	3.5
7. Kelem	1500	1200	22	5.0
8. Gimira	1500	1800	21	5.0
9. Majina Goldya	1500	1000	20	5.0
10. Gofa	1700	1600	18	8.0
11. Gelebna Hamer Bako	1400	400	22	5.0
12. Borena	1400	400	24	4.0
13. Delo	1800	600	19	8.0
14. Wabe	1800	400	22	2.0
15. Mendeyu	1800	600	18	2.0
16. Gara Muleta	1700	800	22	3.5
17. Gursum	1500	800	23	0.5
18. Degehbur	1400	400	25	0.5
19. Agame	1500	400	18	2.0
20. Kalu	1500	800	19	1.3
Zone 5				
1. Sahil	1100	100	27	0.5
2. Akordat	1200	400	28	0.5
3. Hulet Awlalo	1000	250	27	0.5

continued ...

	Altitude	Average Annual Rainfall (mm)	Average Annual Temp. (°C)	No. of months with water surplus
Zone 5 (continued)				
4. Enderta	1250	600	25	1.3
5. Rayana Azebu	1000	600	20	1.3
6. Yifatna Timuga	1350	800	18	2.0
7. Chercher A.G.G.	1000	400	22	0.5
8. Diredawa I.G.	1000	400	25	0.5
9. Rayana Kobo	1000	600	20	1.3
10. Yeju	1300	600	19	2.8
11. Ambasel	1350	600	19	1.3
Zone 6				
1. Mitsiwa	950	100	29	0.5
2. Asseb	200	100	30	0.5
3. Awsa	500	100	26	0.5
4. El Kere	700	100	28	0.5
5. Kelafo	400	1000	29	0.5
6. Gode	400	100	27	0.5
7. Kebri Dehar	900	100	28	0.5
8. Welmelna Werder	500	100	28	0.5
9. Gambela	950	1200	28	5.0

Source : Mesfin (1970)
Daniel (1977)

APPENDIX 3

AREAS AND RURAL AND URBAN POPULATION SIZES OF AWRAJAS (1980)

Awrajas	Area ('000 km^2)	Total pop. ('000s)	Rural Population	No. of Urban Centres	Urban Population
Zone 1					
1. Simen	8.5	256.1	247,065	1	9,035
2. Mota	3.9	232.1	219,742	2	12,358
3. Wadla Delanta	3.0	206.2	206,200	-	-
4. Borena	5.8	365.2	365,200	-	-
5. Mensna Gishe	3.4	147.6	144,188	1	3,412
6. Teguletna Bulga	10.6	431.9	398,495	3	33,405
7. Chilalo	9.7	587.3	511,019	9	76,281
8. Genale	8.1	154.7	143,897	2	10,803
9. Wag	7.2	201.2	183,642	2	17,558
10. Lasta	6.0	307.2	307,200	-	-
11. Werehimeau	4.1	267.0	264,281	1	2,719
Total	70.3	3156.5	2,990,930	21	165,570
Zone 2					
1. Hamasien	4.4	623.1	165,165	5	457,935
2. Adwa	3.3	448.4	420,362	2	28,038
3. Debre Tabor	5.5	483.3	464,821	2	18,479
4. Libo	6.2	264.3	246,967	2	17,333
5. Were Ilu	2.5	155.4	149,432	1	5,968
6. Dessie Zuria	1.5	239.3	161,129	2	78,171
7. Gayint	5.8	213.8	209,485	1	4,315
8. Agew Midir	4.7	204.8	189,648	3	15,152
9. Gamo	4.4	291.6	264,555	3	27,045
10. Kola Dega Damot	7.9	413.3	384,782	4	28,518
11. Debre Markos	5.4	406.2	353,099	4	53,101
12. Bahir Dar	7.7	422.8	361,981	4	60,819
13. Bichena	2.6	237.4	225,346	2	12,054
14. Selale	6.6	340.5	311,405	4	29,095
15. Chebona Gurage	8.8	874.6	841,912	3	32,688
16. Kembatana Hadiya	4.4	757.3	738,441	3	18,859
17. Menagesha	7.0	1755.2	392,066	10	1,360,134
18. Arba Gugu	6.5	239.1	229,180	1	9,920
19. Gore	7.3	120.6	94,296	2	26,304
20. Sidama	5.9	854.8	766,048	8	88,752
21. Jibatna Mecha	11.1	696.8	642,740	8	54,060
22. Gedeo	5.8	480.2	439,104	4	41,096
23. Ticho	8.4	323.0	306,684	3	16,316
24. Webera	3.9	178.2	166,945	2	11,255
25. Kefa	7.1	284.6	275,738	1	8,862
Total	144.7	11,308.6	8,804,331	84	2,504,269
Zone 3					
1. Keren	4.9	246.7	208,769	1	37,931
2. Serae	7.1	336.0	298,989	3	37,011
3. Shire	8.0	251.7	231,712	3	19,988

continued ...

	Awrajas	Area ('000 km^2)	Total ('000s)	Rural Population	No. of Urban Centres	Urban Population
	Zone 3 (continued)					
4.	Axum	4.2	274.8	253,205	1	21,595
5.	Temben	5.2	249.7	241,186	1	8,514
6.	Gonder	11.7	402.9	322,139	2	80,761
7.	Gimbi	16.5	686.9	650,904	6	35,996
8.	Horo Gudru	17.4	284.6	271,469	3	13,131
9.	Nekemt	6.5	310.6	279,555	2	31,045
10.	Arjo	3.6	166.0	160,658	1	5,342
11.	Sorna Geba	3.6	201.2	190,709	3	10,491
12.	Buno Bedele	5.0	320.3	310,333	3	9,967
13.	Limu	7.0	381.0	355,317	2	25,683
14.	Jimma	9.4	509.7	431,868	5	77,832
15.	Kulokonta	6.4	203.9	198,912	1	4,988
16.	Welayta	3.4	832.9	811,287	2	21,613
17.	Gardula	9.5	255.8	216,022	1	9,778
18.	Arero	24.3	75.3	60,884	2	14,416
19.	Jemjem	12.0	408.1	387,212	3	20,888
20.	Habro	18.4	303.1	285,660	3	17,440
21.	Harer Zuria	5.1	359.4	284,816	3	74,584
22.	Jijiga	15.8	268.8	255,038	1	13,762
23.	Merhabete	4.6	198.6	198,600	-	-
24.	Haikochna B.J.	10.9	605.4	530,326	8	75,074
25.	Yererna Kereyu	7.8	381.5	226,506	8	154,994
26.	Mocha	9.3	65.7	62,255	1	3,445
	Total	237.9	8,550.6	7,724,331	69	826,269
	Zone 4					
1.	Gasha Setit	17.4	209.6	186,813	2	22,787
2.	Akele Guzay	8.1	298.9	284,322	2	14,578
3.	Wegera	18.3	274.3	250,663	3	23,637
4.	Chilga	16.9	158.7	155,147	1	3,553
5.	Metekel	32.2	121.3	113,182	2	8,118
6.	Asosa	15.2	186.4	181,152	2	5,248
7.	Kelem	10.6	384.7	365,384	3	19,316
8.	Gimira	7.2	68.0	61,592	1	6,408
9.	Majina Goldya	15.9	168.2	165,361	1	2,839
10.	Gofa	10.1	307.3	303,525	1	3,775
11.	Gelebna H.B.	16.1	178.7	172,402	1	6,298
12.	Borena	65.3	157.0	130,830	3	26,170
13.	Delo	22.3	99.4	95,845	1	3,555
14.	Wabe	27.7	233.4	226,086	1	7,314
15.	Mendeyu	13.9	214.3	186,118	3	28,182
16.	Gara Muleta	9.6	243.8	234,317	2	9,483
17.	Gursum	15.6	153.1	142,908	1	10,192
18.	Degeh Bur	16.6	368.8	368,800	-	-
19.	Agame	3.8	309.4	296,184	1	13,216
20.	Kalu	1.4	171.4	161,252	1	10,148
	Total	344.1	4,306.7	4,081,883	32	224,817

continued ...

Awrajas	Area ('000 km^2)	Total ('000s)	Rural Population	No. of Urban Centres	Urban Population
Zone 5					
1. Sahil	18.2	281.2	281,200	-	-
2. Akordat	26.7	211.3	181,932	1	29,368
3. Hulet Awlalo	13.4	193.7	176,633	3	17,067
4. Enderta	18.6	317.0	260,789	3	56,211
5. Rayana Azebo	9.2	117.4	92,902	4	24,498
6. Yifatna Timuga	10.1	172.8	142,627	5	30,173
7. Chercher A.G.G.	25.3	456.3	413,897	6	42,403
8. Diredawa I.G.	22.2	337.5	252,942	2	84,558
9. Rayana Kobo	9.6	78.4	56,297	2	22,103
10. Yeju	3.7	198.8	178,203	2	20,697
11. Ambasel	6.4	307.5	284,101	3	23,399
Total	163.4	2,671.9	2,321,422	31	350,477
Zone 6					
1. Mitsiwa	4.8	139.3	91,816	3	47,484
2. Assab	25.8	80.1	55,048	1	25,052
3. Awsa	27.8	115.0	112,189	1	2,811
4. El Kere	56.3	117.4	177,400	-	-
5. Kelafo	15.4	78.1	78,100	-	-
6. Gode	20.0	78.1	78,100	-	-
7. Kebri Dehar	28.0	87.5	87,500	-	-
8. Welwelna Werder	58.9	212.5	212,500	-	-
9. Gambela	25.6	103.0	99,128	1	3,872
Total	263.1	1,071.0	991,781	6	79,219

Source : Central Statistical Office (1980a)

APPENDIX 4

DATA ON AGRICULTURE AND PUBLIC FACILITIES BY AWRAJA

Awrajas	AGRICULTURE				PUBLIC FACILITIES			
	Cultivated land ('000 ha.)	Grazing land ('000 ha.)	Others ('000 ha.)	Utilizable ('000 ha.)	Hospitals	Other health institutions	No. of schools	All weather roads (km)
Zone 1								
1. Simen	359.8	450.4	48.1	121.7	-	6	38	90
2. Mota	147.9	111.7	13.1	51.3	-	12	34	76
3. Wadla Delanta	146.4	99.0	5.4	27.1	-	8	32	44
4. Borena	284.6	200.6	128.6	76.5	-	11	12	-
5. Menz na Gishe	197.2	117.8	39.6	32.5	-	11	62	70
6. Teguletna Bulga	469.8	430.8	140.9	110.5	-	21	85	250
7. Chilalo	491.5	367.6	285.2	111.8	1	26	102	230
8. Genale	128.8	228.2	582.9	81.4	-	11	40	92
9. Wag	249.2	227.2	30.7	98.9	-	9	28	28
10. Lasta	205.9	232.0	19.6	68.5	-	9	43	100
11. Were Himenu	162.6	94.5	37.3	22.2	-	9	40	-
Total	2383.9	2129.0	1190.5	691.9	1	112	431	730
Zone 2								
1. Hamasien	139.1	151.0	69.7	106.1	6	25	94	152
2. Adwa	146.5	180.6	23.9	38.0	1	14	101	58
3. Debre Tabor	337.0	208.1	11.5	316.4	1	19	72	154
4. Libo	184.1	246.6	23.2	71.1	-	14	20	32
5. Were Ilu	123.9	53.2	7.4	16.8	-	9	40	-
6. Dessie Zuria	45.9	41.4	25.9	11.0	3	11	60	44
7. Gayint	245.4	297.3	26.9	85.4	1	20	43	40
8. Agew Midir	170.1	216.5	16.7	43.9	-	7	37	102
9. Bahir Dar	293.8	228.9	19.7	106.5	1	12	62	134
10. Gamo	202.7	248.8	77.8	119.8	2	28	64	162
11. Kola Dega Damot	378.3	300.0	47.5	57.3	1	15	63	108
12. Debre Markos	868.5	267.2	34.9	47.5	1	13	58	112
13. Bichena	107.1	216.5	0.8	58.9	-	9	37	58
14. Selale	307.9	236.6	53.9	55.7	-	11	61	140
15. Chebona Gurage	534.7	358.4	126.5	96.1	1	18	190	204
16. Kembatana Hadiya	190.6	238.8	75.4	56.9	2	11	234	160
17. Menagesha	343.4	244.3	70.7	60.6	14	15	104	304
18. Ticho	320.9	650.9	157.3	141.0	-	14	52	-
19. Arba Gugu	249.0	304.9	109.1	72.1	1	11	45	-
20. Gore	70.7	134.6	286.3	53.4	-	7	54	88
21. Sidama	236.5	177.3	68.8	5.4	1	35	137	172
22. Jobatna Mecha	455.7	393.5	126.5	96.1	2	15	101	184
23. Gedeo	164.3	201.7	99.2	55.6	1	23	73	92
24. Webera	160.6	202.7	52.9	67.8	1	12	54	60
25. Kefa	83.9	240.6	339.6	74.7	1	17	88	110
Total	5860.6	6040.4	1950.1	1914.7	41	385	1944	2670

continued ...

Awrajas	AGRICULTURE				PUBLIC FACILITIES			
	Cultivated land ('000 ha.)	Grazing land ('000 ha.)	Others ('000 ha.)	Utilizable ('000 ha.)	Hospitals	Other health institutions	No. of schools	All weather roads (km)
Zone 3								
1. Keren	38.9	301.5	69.5	106.1	1	11	7	64
2. Serae	282.2	304.5	36.6	73.7	1	20	13	118
3. Shire	357.8	343.4	75.5	83.3	-	11	37	84
4. Axum	211.4	131.6	2.5	33.7	1	10	50	82
5. Temben	285.7	101.1	0.3	22.0	-	10	37	-
6. Gonder	302.1	525.6	87.6	89.7	1	19	55	228
7. Gimbi	800.1	900.9	267.6	188.8	2	29	318	220
8. Horo Gudru	757.3	839.2	286.0	178.5	-	21	84	80
9. Nekemt	311.5	372.5	98.9	70.1	1	16	67	138
10. Arjo	205.7	207.3	75.8	43.9	-	8	56	44
11. Sorna Geba	28.0	55.3	172.5	30.3	1	26	76	60
12. Buno Bedele	231.7	239.8	217.7	62.8	-	18	74	140
13. Limu	198.0	197.4	128.0	49.6	-	15	63	44
14. Jimma	157.2	367.2	240.2	78.7	1	22	72	204
15. Kulokonta	80.5	299.8	395.6	191.5	-	9	37	-
16. Welayita	83.4	172.5	89.4	41.6	1	15	177	172
17. Gardula	74.0	299.2	96.1	105.6	-	13	45	194
18. Arero	220.0	1486.5	572.4	396.2	-	13	27	150
19. Jemjem	33.2	493.9	441.3	106.5	1	15	44	146
20. Habro	137.7	368.9	64.9	76.5	-	15	44	60
21. Harer Zuria	108.3	165.8	66.7	56.8	4	16	100	56
22. Jijiga	107.6	1017.2	271.6	429.5	1	12	19	136
23. Merhabete	220.2	144.5	35.8	31.5	-	8	35	30
24. Haikochna B.J.	307.2	548.7	82.5	173.4	1	19	123	410
25. Yererna Kereyu	264.6	304.3	59.2	73.9	4	22	121	232
26. Mocha	49.2	196.1	500.4	62.2	-	15	49	14
Total	5770.1	10212.2	4345.2	2814.8	20	355	1653	2880
Zone 4								
1. Gashna Setit	328.2	1091.1	169.7	244.0	1	19	3	210
2. Akele Guzay	157.9	358.9	39.0	265.2	1	19	33	100
3. Wegera	552.2	1031.1	86.7	218.2	1	11	23	210
4. Chilga	294.3	972.3	211.5	155.8	-	9	22	140
5. Metekel	458.3	2002.0	400.1	318.6	-	15	44	168
6. Asosa	234.2	996.0	993.8	185.7	-	12	37	132
7. Kelem	549.5	585.6	141.6	110.2	1	21	229	-
8. Gimira	61.2	229.1	250.6	58.4	1	20	21	48
9. Majina Goldya	35.2	984.6	395.6	191.5	-	6	20	-
10. Gofa	6.0	763.8	429.5	189.7	-	12	88	110
11. Gelebna H.B.	1.1	688.5	267.7	472.7	1	23	39	58
12. Borena	-	3876.7	1894.8	877.4	1	18	12	218
13. Delo	14.4	959.9	1287.8	236.5	-	9	5	-
14. Wabe	10.8	892.3	627.3	376.8	-	10	34	32
15. Mendeyu	178.7	322.7	451.8	160.4	1	18	83	218
16. Gara Muleta	125.4	663.7	244.2	144.6	-	9	35	-
17. Gursum	127.1	890.8	215.8	158.4	-	7	14	92
18. Degeh Bur	-	165.0	557.7	450.4	-	7	2	162
19. Agame	70.7	161.0	41.1	105.0	1	8	61	90
20. Kalu	113.3	195.6	20.5	43.5	-	14	49	62
Total	3318.5	24640.9	8979.4	4973.0	9	267	854	2050

Awrajas	AGRICULTURE				PUBLIC FACILITIES			
	Cultivated land ('000 ha.)	Grazing land ('000 ha.)	Others ('000 ha.)	Utilizable ('000 ha.)	Hospitals	Other health institutions	No. of schools	All weather roads (km)
Zone 5								
1. Sahil	26.1	802.3	180.2	906.4	1	6	NR	-
2. Akordat	155.8	1663.1	169.7	244.0	1	7	2	80
3. Hulet Awlalo	100.1	161.0	41.1	105.0	-	10	39	60
4. Enderta	409.6	781.0	69.8	737.8	1	18	89	50
5. Rayana Azebo	147.0	391.8	51.9	294.2	-	12	46	60
6. Yifatna Timuga	61.9	414.4	59.7	99.0	-	16	44	130
7. Chercher A.G.G.	212.4	1369.4	176.2	849.8	1	31	86	390
8. Diredawa I.G.	8.4	842.0	32.0	797.6	2	16	52	88
9. Rayana Kobo	43.8	565.2	58.1	402.6	-	10	37	110
10. Yeju	69.2	239.3	29.0	125.7	1	14	52	72
11. Ambasel	120.6	390.6	31.3	108.6	-	14	69	144
Total	1354.9	7620.1	899.0	4670.7	7	201	516	1184
Zone 6								
1. Mitsiwa	63.0	179.0	16.1	275.6	2	12	9	60
2. Aseb	-	1125.7	0.3	1568.0	1	6	4	90
3. Awsa	69.5	1231.0	35.6	1422.8	1	6	18	388
4. Elkere	-	3556.3	796.7	1402.0	-	5	5	-
5. Kelafo	-	1046.8	257.4	435.8	-	5	7	-
6. Gode	49.2	1180.9	144.0	430.9	-	5	-	86
7. Kebri Dehar	-	165.0	577.7	450.3	1	4	2	-
8. Welwelna Werder	-	3160.0	176.2	849.8	-	6	6	-
9. Gambela	-	1764.5	786.3	323.6	1	13	30	-
Total	181.7	13409.2	2770.3	7158.8	6	62	81	624

Ministry of Agriculture (1976)
Ministry of Education (1980)
Ministry of Public Health (1979)
Ethiopian Mapping Agency (1982)

APPENDIX 5

URBAN CENTRES AND POPULATION SIZES BY AWRAJA

Awraja	Name of Urban Centre	Urban Population (1980)
1. Arbagugu	Tinsae Birhan	9,920
2. Chilalo	Asasa	3,987
	Assela	34,874
	Bekoji	4,040
	Dera	4,966
	Huruta	7,795
	Kofele	6,985
	Sire	6,922
	Kersa	2,599
	Sagure	4,113
3. Ticho	Gubossa	4,355
	Robi	7,427
	Ticho	4,534
Not Located	Siltana	2,683
4. Genale	Adaba	5,135
5. Wabe	Ginir	7,314
6. Mendeyu	Goba	21,776
	Robi	3,704
	Gorro	2,702
7. Delo	Mena	3,555
8. Elkere	-	-
9. Libo	Addis Zemen	9,053
	Kola Diba	8,680
10. Wegera	Amba Giorgis	5,338
	Dabat	8,825
	Humera	9,474
11. Debre Tabor	Debre Tabor	11,584
	Werota	6,895
12. Gayint	Nefas Mewcha	4,315
13. Chilga	Aykel	3,553
14. Simen	Debark	9,035
15. Gonder	Gonder & Agego	76,932
	Gorgora	3,829
Not Located	Istie	4,705

Continued ...

Awraja	Name of Urban Centre	Urban Population (1980)
16. Hamasien	Asmara	424,532
	Dekemehare	16,560
	Adi Teklezan	3,185
	Himbirti	6,511
	Nefasit	7,147
17. Serae	Adi Kwala	12,243
	Debarwa	4,529
	Adi Ugri	20,239
18. Keren	Keren	37,931
19. Mitsiwa	Mitsiwa	32,977
	Hirgigo	6,086
	Gindae	8,421
20. Akele Gugay	Senafe	5,803
	Adikeyih	8,775
21. Gashna Setit	Teseney	15,640
	Barentu	7,147
22. Asseb	Asseb	25,052
23. Akordat	Akordat	29,368
24. Sahil	-	-
25. Not located	Dekeshehay	5,237
	Emba Derho	9,129
	Quazen	6,794
	Tseazega	6,935
	Tsaeda Christian	7,430
25. Gamo	Arba Minch	14,979
	Chencha	6,664
26. Gofa	Felege Neway	5,402
	Bulki	3,775
27. Gardula	Gidole	9,778
28. Gelebna H.B.	Jinka	6,298
29. Bahir Dar	Tis Abay	2,680
	Mer Awi	3,384
	Bahir Dar	52,188
	Adet	2,567
30. Kola D.D.	Bure	11,673
	Jiga	3,555
	Dembecha	4,278
	Finote Selam	9,012

Continued ...

Awraja	Name of Urban Centre	Urban Population (1980)
31. Debre Markos	Debre Markos	40,686
	Lumame	2,700
	Dejen	6,407
	Amanuel	3,308
32. Agew Midir	Dangla	8,498
	Injibar	3,593
	Durbete	3,061
33. Metekel	Chagni	4,810
	Gimjabet	3,308
34. Mota	Mota	7,719
	Bertole M.	4,639
35. Bichena	Bichena	6,141
	Debre Work	5,913
36. Harer Zuria	Alem Maya	8,774
	Kersa	2,889
	Harer	62,921
37. Chorchor A.G.G.	Asbo Toferi	17,304
	Fodis Baker	2,807
	Gota	6,922
	Hirna	8,148
	Asebot	3,788
	Meisso	3,434
38. Caramuleta	Bedeno	4,742
	Girawa	4,741
39. Habro	Bedesa	6,867
	Gelemso	7,030
	Mecheta	3,543
40. Webera	Deder	7,576
	Chelenko	3,679
41. Diredawa I.G.	Diredawa	82,024
	Aisha	2,534
42. Gursum	Fugnan Bira	10,192
43. Jijiga	Jijiga	13,762
44. Degeh Bur	-	-
45. Gode	-	-
46. Kebri Dehar	-	-
47. Welwelna Werder	-	-
48. Kelafo	-	-

Continued ...

Awraja	Name of Urban Centre	Urban Population (1980)
Not located	Aweday	2,725
	Melka Rafu	6,104
49. Buno Bedele	Buno Bedele	4,651
	Denbi	2,661
	Kumbabe	2,655
50. Gambela	Gambela	3,872
51. Gore	Gore	15,586
	Mettu	10,718
52. Sorna Geba	Tobba	4,759
	Jurumu	3,050
	Yayu	2,682
53. Mocha	Teppi	3,445
54. Limu	Agaro	19,992
	Limu Genet	5,691
55. Kefa	Bonga	8,862
56. Kulokonta	Waka	4,988
57. Gimira	Mizan Teferi	6,408
58. Jimma	Jima	63,837
	Asendabo	2,653
	Seka	4,059
	Shebie	3,263
	Gimbie	4,020
59. Majina Goldya	Maji	2,839
Not located	Haro	3,370
	Kumbi	2,680
60. Menagesha	Addis Abeba	1,227,159
	Addis Alem	6,825
	Akaki	35,022
	Holeta Genet	9,698
	Alem Gena	4,131
	Gefersa	5,747
	Holeta	9,698
	Sheno	3,772
	Sebeta	6,466
	Chancho	2,874
	Sendafa	8,440
61. Haikochna B.J.	Alaba Kulito	8,082
	Butajira	10,956
	Meki	10,058
	Negele	8,980
	Shashemene	23,348
	Alem Tena	7,902
	Adami Tulu	2,874
	Zway	2,874

Continued ...

Awraja	Name of Urban Centre	Urban Population (1980)
62. Teguletna Bulga	Ankober	3,950
	Debre Birhan	24,785
	Enware	4,670
63. Jibatna Mecha	Bako	7,364
	Ijaji	3,772
	Gedo	6,645
	Welenkomi	5,029
	Ghinchi	6,645
	Guder	4,131
	Ambo	15,984
	Sheboka	4,490
64. Yifatna Timuga	Debre Sina	7,543
	Karakore	5,568
	Robi	9,160
	Efeson	4,310
	Sembetie	3,592
65. Yerorna Kereyn	Debre Zeit	49,570
	Wonji	5,029
	Mojo	10,596
	Nazreta	69,865
	Welenchiti	7,902
	Awash	3,950
	Dukem	4,310
	Metehara	3,772
66. Selale	Fiche	16,882
	Goha Tsion	3,233
	Gebre Guracha	6,106
	Debre Tsige	2,874
67. Chebona Gurage	Wolisso	21,193
	Tulubolo	4,670
	Welkite	6,825
68. Kembatana Hadiya	Hosana	13,650
	Shone	2,335
	Shinshicho	2,874
69. Menzna Gishe	Mehal Meda	3,412
70. Merhabete	-	-
Not located	Koshe	3,053
71. Arero	Agere Mariam	7,921
	Yabelo	6,495
72. Sidama	Agere Selam	7,687
	Aleta Wondo	14,331
	Teferi Kella	2,747
	Awasa	26,361
	Leku	8,368

Continued ...

Awraja	Name of Urban Centre	Urban Population (1980)
	Yirga Alem	22,656
	Arbegona	3,216
	Bore	3,386
73. Jemjem	Bule	3,939
	Odoshakiso	4,812
	Kibre Mengist	12,137
74. Gedeo	Dilla	23,167
	Wenago	5,366
	Yirga Chefe	8,794
	Chelelekti	3,769
75. Borena	Hidilola	4,365
	Negelo	14,352
	Moyale	7,453
76. Welayta	Sodo	18,078
	Boditi	3,535
77. Temben	Abi Addi	8,514
78. Hulet Awlalo	Aguale	3,580
	Wukro	10,759
	Senkata	2,728
79. Agame	Adigrat	13,216
80. Rayana Azebo	Adi Shaho	4,238
	Weyra Wuha	4,141
	Korbete	3,967
	Maychew	12,152
81. Adwa	Adwa	23,975
	Intichio	4,063
82. Axum	Axum	21,595
83. Inderta	Huazen	4,566
	Mekele	46,846
	Qiha	4,799
84. Shire	Inda Selasie	10,759
	Inda Baguna	4,450
	Seleklaka	4,779
Not located	Mersa	4,373
85. Arjo	Arjo	5,342
86. Kelem	Dembi Dolo	12,679
	Gidami	3,004
	Mugi	3,633

Continued ...

Awraja	Name of Urban Centre	Urban Population (1980)
87. Gimbi	Enango	4,630
	Ghimbi	13,522
	Mendi	5,699
	Guyi	3,051
	Billa	2,564
	Nejo	6,530
88. Nekemt	Nekemt	27,163
	Sire	3,882
89. Asosa	Asosa	2,731
	Begi	2,517
90. Horo Gudru	Shambu	7,824
	Fincha	2,695
	Haratu	2,612
Not located	Ayana	2,576
	Kiltu Kara	3,514
	Homa	2,552
91. Dessie Zuria	Dessie	75,616
	Kutaber	2,555
92. Ambasel	Haik	5,822
	Bati	12,375
	Wuchale	5,202
93. Rayana Kobo	Kobo	10,787
	Alamata	11,316
94. Kalu	Kombolcha	10,148
95. Wag	Korem	7,410
	Sekota	10,148
96. Yeju	Mersa	4,855
	Woldiya	15,842
97. Were Ili	Were Ilu	5,968
98. Were Himenu	Tenta	2,719
99. Awsa	Asaita	2,811
100. Lasta	-	-
101. Wadla Delanta	-	-
102. Borena	-	-

Source : Central Statistical Office (1980a)

APPENDIX 6

APPROXIMATE AREA AND RURAL POPULATION OF ADMINISTRATIVE REGIONS IN THE PERIPHERAL ZONES OF ETHIOPIA

Admin. Region	Total Area	%	Total Rural pop.	%	Within PR3				Within PR2				Within PR1				Total Within PR			
					Area		Pop.	%	Area		Pop.	%	Area	%	Pop.	%	Area	%	Pop.	%
1. ARSI	24.60	100	1062	100	0.84	3	29	3									.84	3	29	3
2. BALE	128.30	100	847	100	41.76	33	329	39	16.55	13	73	9	47.61	37	134	16	105.92	83	536	63
3. ERITREA	117.40	100	1701	100	27.25	23	845	50	31.18	27	484	27	56.39	48	347	20	114.82	98	1676	99
4. GAMO GOFA	40.10	100	978	100	9.73	24	159	16	8.95	22	77	8					18.68	47	236	24
5. GONDER	73.40	100	1928	100	2.34	3	42	2									2.34	3	42	2
6. HARARGE	264.80	100	2905	100	31.64	12	743	26	60.14	23	653	22	153.93	58	697	24	245.71	93	2093	72
7. KEFA	53.00	100	1511	100	3.82	7	27	2									3.82	7	27	2
8. SHEWA	85.50	100	4528	100	3.28	4	69	2	2.76	3	37	1					6.04	7	106	2
9. SIDAMO	116.70	100	2646	100	49.18	42	237	9	37.82	32	65	2	2.35	2	1	-	89.35	77	303	11
10. TIGRAI	65.70	100	2005	100	14.77	22	677	34	4.09	6	163	8	27.15	42	221	11	46.01	70	1061	53
11. WELO	79.00	100	2479	100	14.89	19	501	20	3.69	5	52	2	31.60	40	114	5	50.18	64	667	27
TOTAL ETHIOPIA	1233.50	100	27184	100	199.50	16	3658	13	165.18	13	1604	6	319.03	26	1514	6	683.71	55	6776	25

Source : Daniel, 1983:18