PAKISTAN GEOGRAPHICAL REVIEW

Volume 24 ... Number 2

July 1969

Pakistan Geographical Review

Vol. 24, No. 2 July, 1969

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EDITORIAL AND BUSINESS OFFICES
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Pakistan Geographical Review

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SAIDU MINGORA: SOME ASPECTS OF FUNCTIONAL STRUCTURE OF A TOURIST TOWN IN A FRONTIER AREA

IQTIDAR H. ZAIDI

THIS paper is rooted in the assumption that tourism and frontier location of a town significantly influence the functional structure of that town so as to allow certain functions to assume more prominent position than others. It is proposed to elaborate this theme with reference to an urban place in North West Frontier of West Pakistan, namely, Saidu Mingora.

Saidu Mingora represents a town complex (in Swat State) made up of the three units of settlements: Saidu (the State Capital), Mingora (the commercial centre), and Katelai (a village emerging as an industrial centre). These settlements are not only functionally integrated but are also physically conurbated. From Mingora, which holds the central position, Saidu and Katelai fall within a radius of two miles (Fig. 1). Saidu and Mingora happen to be among those four settlements in the North West Frontier which according to the 1961 census were classed as urban places. Landi Kotal in Khyber Agency and Parachinar in Kurram Agency were the other two.[1] Situationally Saidu Mingora may be characterized as a gateway to Swat, a state richly endowed with places of tourist interests (Fig. 2). Many of these places fall on the trunk road from Saidu Mingora to Kalam. Thus all the tourists visiting Swat must make Saidu Mingora a halting place because of its hotel and other facilities or must stop-by there while going to or returning from other places. This tourism in Saidu Mingora coupled with the internally independent political status of the Swat State influences its functional structure as well as the nature of trade commodities.

[1] *Census of Pakistan Population, 1961*, Vol. 3, p. 5-VI.

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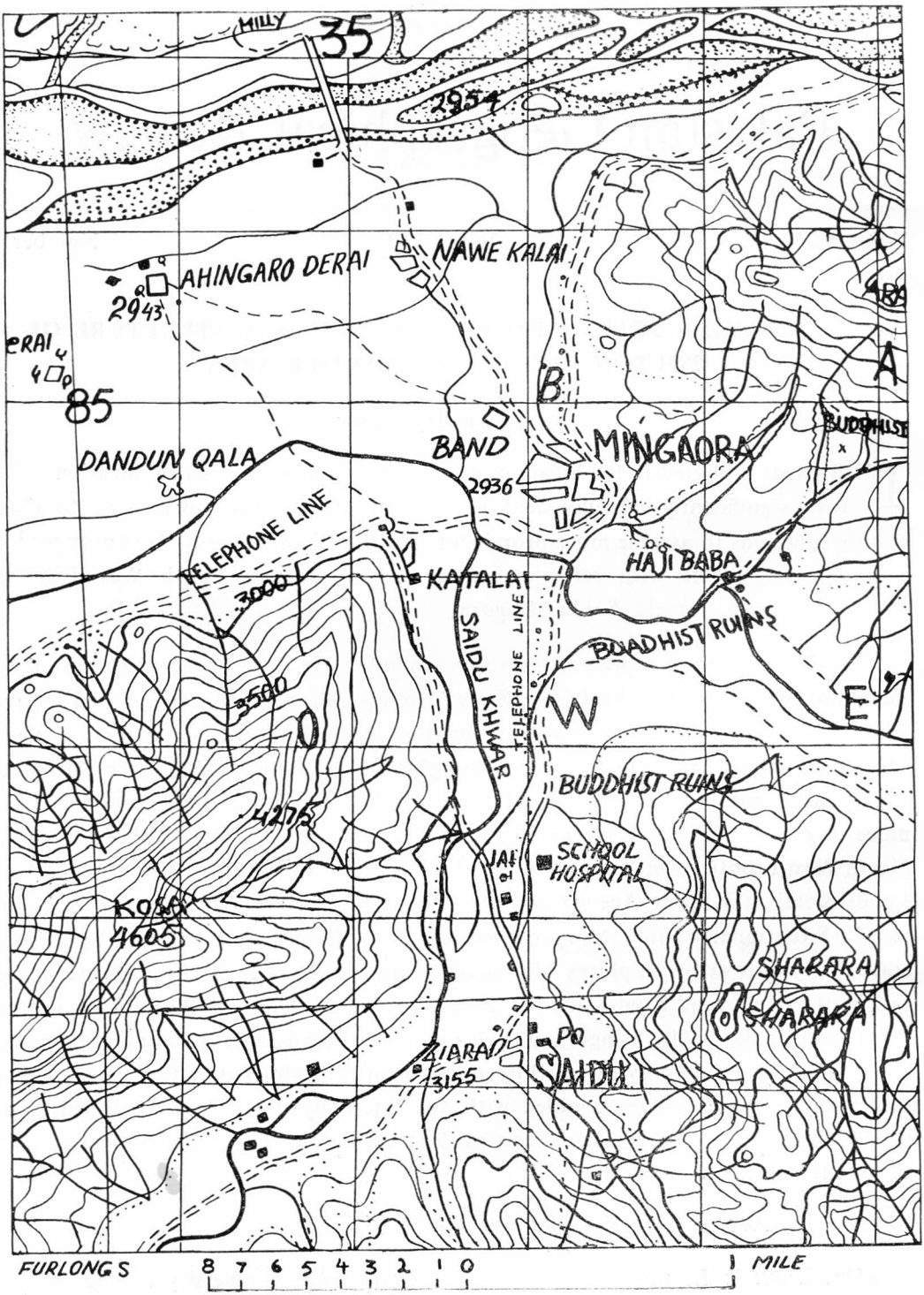

FIG. 1—Base 1″ to a mile Topographical Map No. 43 B/5. Survey of Pakistan (1942 edition).

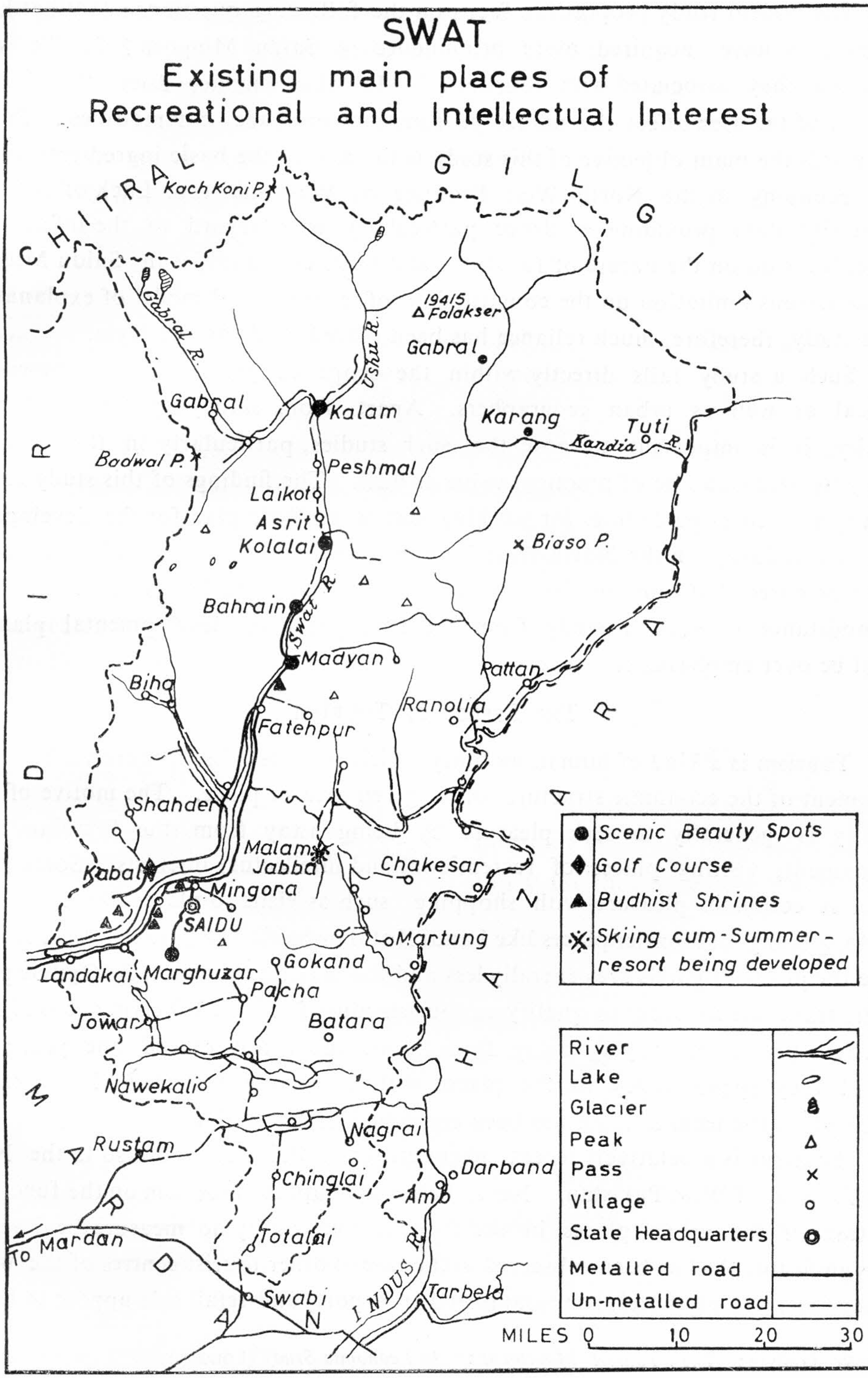
SWAT
Existing main places of
Recreational and Intellectual Interest
CHITRAL
GILGIT
DIR
MARDAN
HAZARA
Kach Koni P.
19415
Folakser
Gabral
Gabral R.
Ushu R.
Gabral
Kalam
Karang
Tuti
Kandia R.
Bodwal P.
Peshmal
Laikot
Asrit
Kolalai
Biaso P.
Bahrain
Swat R.
Madyan
Pattan
Biha
Ranolia
Fatehpur
Shahder
Malam
Jabba
Chakesar
Kabal
Mingora
SAIDU
Martung
Landakai
Marghuzar
Gokand
Pacha
Jowar
Batara
Nawekali
Rustam
Nagrai
Darband
Chinglai
Amb
To Mardan
Totalai
INDUS R.
Tarbela
Swabi
Scenic Beauty Spots
Golf Course
Budhist Shrines
Skiing cum-Summer-resort being developed
River
Lake
Glacier
Peak
Pass
Village
State Headquarters
Metalled road
Un-metalled road
MILES 0 10 20 30

FIGURE 2

The present study proposes to focus on the following questions : 1) What kinds of functions have acquired more prominence in Saidu Mingora ? 2) To what extent are they associated with tourism ? 3) In what manner does the frontier character of the area affect the nature of functions or trade commodities ? Put in other words the main objective of this study is to identify the basic ingredients of the urban economy in the North West Frontier of West Pakistan. Lack of sufficient quantitative data providing evidence particularly with regard to the influence of frontier location on the nature of functions and trade commodities in Saidu Mingora imposes serious limitation on the construction of a statistical model of explanation. In this study, therefore, much reliance has been placed on deductive logic.

Such a study falls directly within the scope of professional competence of political as well as urban geographers. Apart from satisfying the intellectual curiosity, it is important to note that such studies, particularly in the context of developing areas, can be of practical value as well. The findings of this study can be gainfully utilized as guide lines for working out a realistic plan for the development of tourist industry in the North West Frontier in general and in Swat in particular. It must be noted that tourism also affects the immediate hinterland of a town. Thus the importance of such a study from the standpoint of developmental planning cannot be over emphasized.

The Effect of Tourism

Tourism is a kind of human mobility which manifests itself, more visibly, as a component of the economic structure of a given area or place. The motive of such mobility is generally to seek pleasure by being away from the familiar home environment, visiting places of recreational and intellectual interests. Some times a tourist combines pleasure with shopping, such as visits to places like free ports, like Hong Kong, or frontier places like Landi Kotal or Saidu Mingora in West Pakistan, where the prices of goods are generally less and the material is better. As Ogilvie points out the travellers in order to qualify as tourists must fulfil the following conditions : 1) Their period of staying away from home must not exceed one year ; and 2) that they spend money in the places without earning it there.[2] It is with this meaning that the term tourism has been employed in this study.

Tourism is a relatively recent phenomenon in Pakistan, more so in the North West Frontier of West Pakistan. Nevertheless the impact of tourism on the functional structure of the urban places in the frontier area can by no measure be described as insignificant. As has been observed in the case of other tourist centres of the world, the services, (mainly hotel, restaurants and transport) and retail sale appear to be the

[2]F.W. Ogilvie : *The Tourist Movement : An Economic Study* (London); 1933 quoted in R.M. Brown : "The Business of Recreation", *Geographical Review*, Vo. 25 (1935), p. 468.

more prominent functions in the tourist centres of the North West Frontier of West Pakistan as well.[3] The State of Swat attracts a large number of tourists every year. It is reported that in 1968 there were 4,222 tourists who visited the area. Out of these 1,476 were foreigners and 2,746 were Pakistanis. Although none of the months is free from tourists in Swat, the major part of tourism seems to take place from April to October (Table 1).[4] This figure for 1968 is a little less than that

TABLE 1—DISTRIBUTION OF TOURIST VISITORS TO SWAT IN 1968 BY MONTHS

Month	Foreigners	Pakistanis	Month	Foreigners	Pakistanis
January	20	20	July	250	550
February	10	100	August	147	900
March	60	200	September	133	122
April	209	200	October	106	280
May	220	100	November	84	75
June	195	150	December	42	19
			Total	1,476	2,746

SOURCE: Regional Tourist Office, Swat.

of the year 1961 (when 4,244 tourists visited Swat), but as compared to the years from 1962 to 1966 the figure for 1968 is generally more than one and a half times greater (Table 2).

TABLE 2—YEARLY DISTRIBUTION OF TOURISTS VISITING SWAT FROM 1961-66.

Year	Tourists (including both Foreigners and Pakistanis)
1961	4,224
1962	2,114
1963	2,293
1964	2,157
1965	1,769
1966	2,695

SOURCE: As for Table 1. For 1967 Data were not reliable.

Tourism and Functions

A variety of functions is performed by Saidu Mingora. For the purpose of this study they have been classified as:

1) Retail Trade.

2) Services (which include hotels, restaurants, cinemas and other forms of recreation, schools and mosques.)

3) Government Service (including persons on the payroll of the State Government of Swat, Governments of West Pakistan or Pakistan.)

4) Miscellaneous (includes various kinds of odd jobs like house servants, cobblers, etc.)

5) Industry (includes both factory as well as cottage industries.)

[3]See for general discussion Brown; *op. cit.* footnote 1.

[4]Information obtained from Regional Tourists Office, Swat.

In the functional structure of Saidu Mingora retail trade and services dominate, which, together (including government services, and excluding transport services) constitute more than sixty-nine per cent of the total magnitude of functions, measured in terms of persons employed in each category of functions (Table 3).

TABLE 3—NUMBER OF PERSONS EMPLOYED IN EACH CATEGORY OF FUNCTIONS IN SAIDU MINGORA (1964)

Function	Total number of persons employed	Per cent of the total employment	Employment as percentage of total population
Retail Trade ...	1,339	27.5	6.8
Services ...	1,092	22.4	5.5
Government Services ...	953	19.5	4.8
Miscellaneous ...	759	15.6	3.8
Industry ...	721	15.0	3.6
All functions ...	4,864	100.0	24.6

SOURCE: Surveyed by M.A. Final Students in 1964-65 under the guidance of the author.

The functions which are generally associated with tourism are, as has been observed earlier retail trade and services, particularly hotels (including lodging houses) restaurants (including cafes and transport). Since the data for employment in transport services are not available for Saidu Mingora it has been found convenient to just describe the main aspects of the transport facilities for Saidu Mingora. For other services, namely, hotels and restaurants such data are available hence some measure of their distinctiveness has been employed.

There are several kinds of transports available for going to Saidu Mingora; namely, Peshawar-Swat car service, Rawalpindi-Saidu Mingora bus service, Government transport excursion services, and taxi services from Rawalpindi and Peshawar to Saidu Mingora. Taxi services are available within Saidu Mingora for travelling into Swat at the same rate, that is fifty paisas a mile. The availability of taxi facility within a small town like Saidu Mingora is certainly associated with tourism. In other towns of comparable size in West Pakistan the taxi facilities are unheard of.

The distinctiveness of the functions like retail trade, hotel services, and restaurants in Saidu Mingora showing the influence of tourism has been measured in terms of the ratio of employment in each of these category of functions to the total population of Saidu Mingora. In order to indicate distinctiveness of Saidu Mingora in terms of these functions it is considered appropriate to compare these ratios

with those towns where tourism is not so important. In this case all the cities of West Pakistan have been chosen.[5]

It is interesting to note that Saidu Mingora stands out in all the three categories of functions, namely, retail trade, hotels, and restaurants (Table 4 and Fig. 3). In retail trade the city of Sukkur with sixty-one persons per thousand of its population stands closest to Saidu Mingora whereas Quetta with forty-two persons per thousand of its population falls at the lowest end. Similarly in hotels Saidu Mingora employs five persons per thousand of the population, which is the highest. Next in rank is Peshawar city with 1.54 person per thousand. The employments in restaurants in Saidu Mingora also gives a big lead to the next ranking city, namely, Peshawar (per thousand employment being 22.2 and 10.5 respectively).

TABLE 4—RELATIVE POSITION OF SAIDU MINGORA IN TERMS OF ITS DISTINCTIVE FUNCTION

City	Population	Per thousand population employed in retail Trade	Per thousand population employed in hotels	Per thousand population employed in Restaurants
Saidu Mingora* ...	19,830	68.0	5.0	22·2
Karachi ...	1,912,598	49.0	0.9	8.9
Lahore ...	1,296,477	46.0	0.6	3.3
Hyderabad ...	434,537	53.0	0.2	9.2
Lyallpur ...	425,248	52.0	0.3	3.2
Multan ...	359,201	54.0	0.4	3.2
Rawalpindi ...	340,175	46.0	1.0	7.8
Peshawar ...	218,690	58.0	1.5	10.5
Sialkot ...	164,346	46.0	0.1	2.3
Sargodha ...	129,291	56.0	0.1	3.6
Gujranwala ...	196,154	57.0	0.2	2.1
Quetta ...	106,638	42.0	0.8	10.2
Sukkur ...	103,216	61.0	0.6	8.6
West Pakistan ...	9,654,000	81.0	0.6	7.0

SOURCE: *Census of Pakistan, 1961*, VOLS. 3 and 6 (for the cities of West Pakistan)

*Data for Saidu Mingora were gathered by the author in 1964 when he conducted a survey of the area with the M.A. Final students of the Department of Geography, University of the Punjab.

FRONTIERISM AND ITS IMPACT

The concept of frontier as a politico-geographical phenomenon derives its origin from the historical and etymological meaning of the word "frontier": that is 'what lies in front' or 'which is ahead of the hinterland'. With reference to the

[5]The term city as defined by the Pakistan Census of Population, 1961, includes those urban places which have a population size of 100,000 or more.

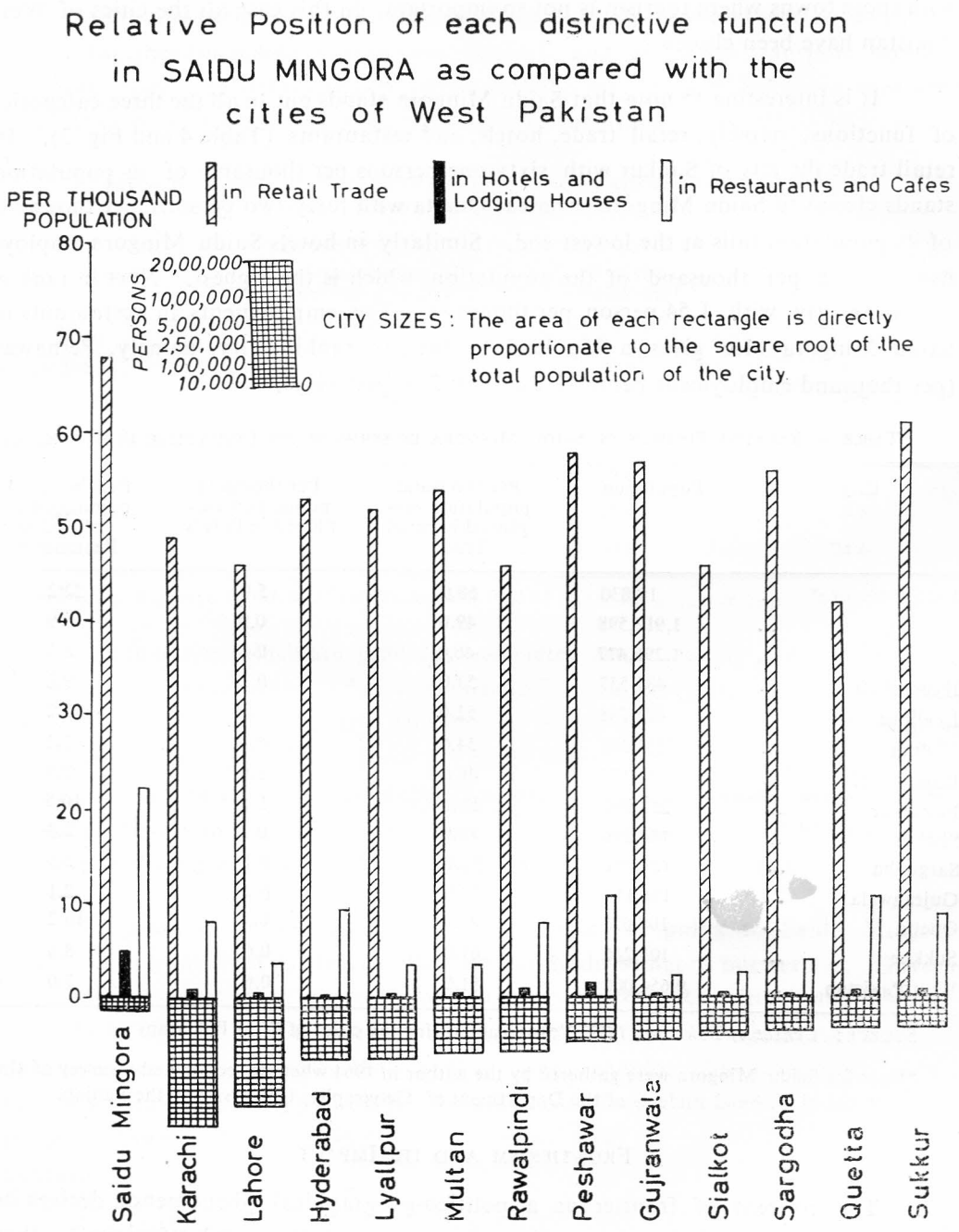
Relative Position of each distinctive function in SAIDU MINGORA as compared with the cities of West Pakistan
PER THOUSAND POPULATION
in Retail Trade
in Hotels and Lodging Houses
in Restaurants and Cafes
PERSONS
20,00,000
10,00,000
5,00,000
2,50,000
1,00,000
10,000
0
CITY SIZES : The area of each rectangle is directly proportionate to the square root of the total population of the city.
80
70
60
50
40
30
20
10
0
Saidu Mingora
Karachi
Lahore
Hyderabad
Lyallpur
Multan
Rawalpindi
Peshawar
Gujranwala
Sialkot
Sargodha
Quetta
Sukkur

FIGURE 3

modern states, which possess clearly defined boundaries, the term frontier may be defined as that part of the state area which lies along an international boundary, and which administratively, is only losely controlled by the central authority and where constant interaction between the people living on either side of the boundary takes place—people visit, migrate, intermarry, trade, and exchange goods with the people across the boundaries.[6] Such movements of people and goods from one state to another is generally the result of ill-defined international boundaries cutting across the cultural and economic boundaries.

The North-West Frontier of West Pakistan is that part of the province which lies between the Durand line and the settled districts of Hazara, Mardan, Peshawar, Kohat, Bannu and Dera Ismail Khan. The areas included in the North-West Frontier are known as Frontier states and Agencies, namely, the states of Chitral, Dir and Swat which are controlled by more or less absolute rulers who exercise their power at the discretion of the Pakistani Government. The Agencies are named as, North Waziristan, South Waziristan, Khurrum, Khyber, Mohmand and Malakand, which are administrated directly by the Central Government through its agents, but which in their internal affairs and cultural, social and economic relationships with the people across the Durand line remain independent (Fig. 4).

Brief Historical Background of the North West Frontier

As Kristof remarks "frontiers are offsprings and reflections of particular historical conditions".[7] Historically and culturally the people of North West Frontier have remained very much connected with the people on the other side of Durand line—Afghanistan. For a long period in the past, North West Frontier and Afghanistan have formed a part of the same political area, ruled from Kabul, Kandhar, or Delhi. (Ghaznavide and Ghori Kingdoms of the 11th-12th century A.D., the Mughal Empire and the Durrani Kingdoms of the 18th century). The transitional character of North West Frontier emerged more conspicuously during the British period.[8] The British policy of making Afghanistan a strong buffer state between Russia and British India was particularly responsible for creating this hilly

[6]For a detailed discussion on 'frontiers' see L. K. D. Kristof: "The Nature of Frontiers and Boundaries", *Annals*, Associaton of American Geographiers, Vol. 49 (1959), pp. 269-282; J.R. Mackay: "The Interactance Hypothesis and Boundaries in Canada: A Preliminary Study", *Canadian Geographer*, Vol. 11 (1958), p. 1; H.J. De Blij: *Systematic Political Geography* (New York: John Wiley, 1967), pp. 198-202.

[7]Kristof: *op. cit.*, footnote 6, p. 272 (footnote).

[8]See for a detailed discussion O. Caroe: *The Pathans* (London; Macmillan, 1962), pp. 117-421; O.H.K. Spate: *India and Pakistan, A General and Regional Geography* (London: Methuen, 1957), pp. 437-444; A. Tayyab: *Pakistan: A Political Geography* (London: Oxford University Press, 1966), pp. 98-99 and 195-199.

inaccessible tribal part of their empire as a transition zone. As a result the Durand line was demaracated south of the "Safed Koh" and the Kabul river (that is across the Khyber) and for a section east of the Kunar river. The international boundary thus drawn separated some tribes notably Mohmand "as convenient neighbour as a nest of hornets." Thus there was door open for a constant transborder intrigue. The North West Frontier area could hardly be considered to be ruled by the British except that the strategic points were garrisoned to meet any outrages outside the tribal limits with force. A policy of peaceful penetration was employed by the British and direct subsidies to the loyal leaders and other economic benefits were allowed to the tribal people. This policy, however, was backed by force and occupation of key points.[9] The state of Swat owes its emergence to such a policy and intrigues of the British raj.[10]

Pakistan on its emergence as a sovereign state inherited these frontier states and agencies. Fiscal problems and defence priorities made the Government of Pakistan withdraw her military forces from the North West Frontier. The subsidies are, however, continuing. Keeping in view the gigantic social, economic, administrative and political problems of this area the subsidies are inadequate to arrest the flow of people and goods between North West Frontier and Afghanistan.

Impact of Frontierism on Trade Commodities

It is a common observation that at the urban places in North West Frontier, namely, Parachinar in Kurrum Agency, Landi Kotal in Khyber Agency and Saidu Mingora in Swat State, foreign goods brought in from across the Durand line are sold at attractively cheap rates. In this way tourism in these areas represents a shopping-cum-sight-seeing activity. The significance of these markets, flooded with foreign goods, can very well be judged from the fact that there are so many checkposts established by the Central Board of Revenue, Government of Pakistan (Fig. 4). These custom checkposts cordon off the entire North West Frontier. For further precautions the checkposts also exist at the main entrances leading in and out of the settled districts themselves. The checkpost at Attock Bridge covering the entire north western area, including the frontier states, agencies, and the settled districts, particularly of Mardan and Peshawar, reveals the importance of these markets in relation to the areas east of Indus, which including Karachi makes the major contribution to tourism in these frontier areas. Despite such checkposts the tourist centres in frontier area flourish as popular shopping centres. The abundance of foreign goods in these areas and the increasing number of tourist visitors are rather giving

[9]Spate ; *op. cit.* footnote 8.

[10]*Story of Swat* : Translated in English by A.A. Husain from Urdu as narrated by Miangul Abdul Wadud, the founder of the state to Muhammad Asif Khan.

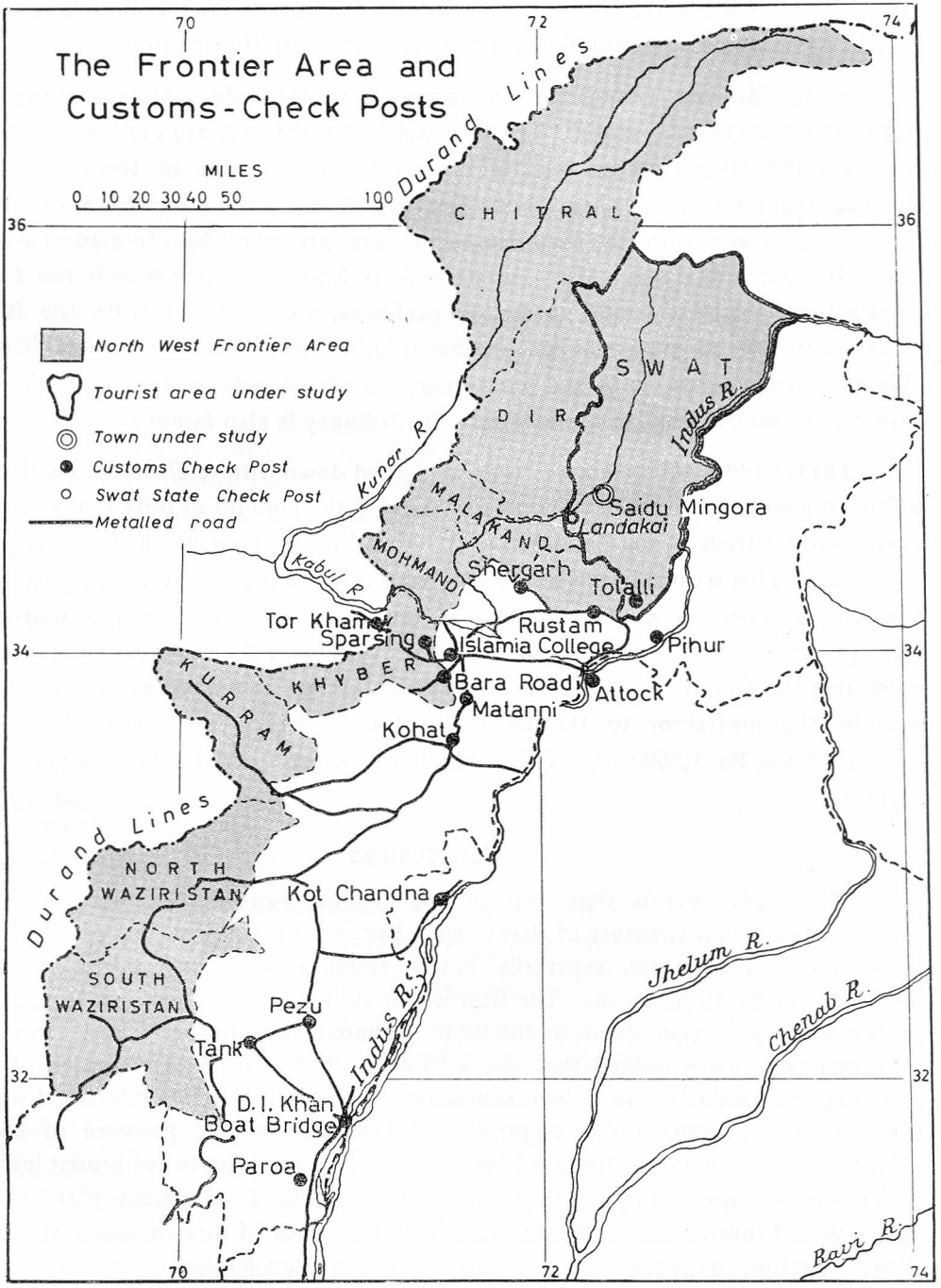
The Frontier Area and Customs-Check Posts
MILES
0 10 20 30 40 50 100
North West Frontier Area
Tourist area under study
Town under study
Customs Check Post
Swat State Check Post
Metalled road
Durand Lines
CHITRAL
SWAT
DIR
MALAKAND
MOHMAND
KURRAM
KHYBER
NORTH WAZIRISTAN
SOUTH WAZIRISTAN
Kunar R.
Kabul R.
Indus R.
Jhelum R.
Chenab R.
Ravi R.
Saidu Mingora
Landakai
Shergarh
Totalli
Tor Khamar
Sparsing
Rustam
Islamia College
Pihur
Bara Road
Attock
Matanni
Kohat
Kot Chandna
Pezu
Tank
D.I. Khan
Boat Bridge
Paroa
70
72
74
36
34
32

FIGURE 4

rise to new market places. Thus the presence of foreign goods in the tourist towns of N.W.F. has become an essential characteristic of their retail trade function.

Saidu Mingora cannot be an exception to this rule. Almost all the cloth shops carry foreign made cloth. The very fact that there were 113 cloth shops in 1964 shows the unusual prosperous business in cloth. For a size of town like Saidu Mingora the number of cloth shops are too many unless the town carries on a booming trade with the tourists who are attracted by foreign materials. Again the general stores, which number forty-four also carry mainly the foreign manufactured electrical goods, cosmetics, perfumes, etc.[11] Apart from the foreign goods there are indigenous goods like Swati ladies shawls, embroidered table cloth, table mats, zari purses, caps and hand bags, luncheon sets and articles of wood work which can be bought as souvenirs. Swati honey is also famous.

The economic importance of tourism as tied down with retail trade, particularly in foreign goods, can be estimated on the basis of the amount of duty that is charged from outgoing trade at the Landakki post. The duty is charged on the receipts of purchases. This is done by the contractor who is given the charge of the post by the Swat Government. The exact amount of the duty charged from the tourists on their purchases is not available. What is available and can be used as a basis for estimating the economic importance of trade in foreign commodities is the amount paid by the contractor to the Swat Government, which for the year May 1968 to April 1969 was Rs. 1,860,000. This is about ten per cent of the total revenue of Swat State.[12]

Conclusions

The study reveals that tourism and frontier location of a town significantly affect the functional structure of that town. Because of tourism the functions like retail trade and services, especially hotels, restaurants, and transportation become distinctive in Saidu Mingora. The frontierism influences the functions in the form of introducing foreign goods as the trade commodity on cheaper prices. In view of these results it can be opined that the economy of North West Frontier of West Pakistan, particularly the urban economy, cannot be properly understood without taking into consideration the magnitude of tourism and the presence of cheaply priced foreign goods as trade commodities. The development of tourist industry, which must occupy an important place in the economic development plans for the North West Frontier, cannot be divorced from the factor of foreign goods which offer great attraction to the tourists from various parts of West Pakistan.

[11]The number of shops were counted by M.A. Final students of the Department of Geography in 1964-65 under the guidance of the author.

[12]Information provided by Finance Advisor to the ruler of Swat.

URBANIZATION IN PAKISTAN: PAST AND PRESENT

QAZI S. AHMAD

ALTHOUGH Pakistan has been traditionally rural, there are clear evidences of a change in the situation particularly since independence. The acceleration in the growth of cities, the concentration of large numbers of people in greater urban agglomerations, the trend towards industrial and commercial expansion, all indicate that urbanization in Pakistan is likely to gain momentum as it goes forward. The Census of 1961 has much to offer in this regard. Accordingly, an attempt has been made to trace historically the rise in urban population in Pakistan as well as in its two major components, East and West Pakistan, since the beginning of this century. Subsequently, a probe is made into the probable causes of urban growth in Pakistan, with particular reference to the regional disparity between East and West Pakistan.

TABLE 1—URBAN POPULATION AS PER CENT OF TOTAL POPULATION, 1901-1961.

Year.	Pakistan	West Pakistan	East Pakistan
1901	5.10	9.77	2.43
1911	4.90	8.71	2.54
1921	5.40	9.75	2.64
1931	6.50	11.76	3.02
1941	7.90	14.20	3.36
1951	10.40	17.82	4.34
1961	13.10	22.52	5.19

SOURCE: *Census of Pakistan Population, 1961*, VOL. I, P. II, 17.

A study of Figure 1 and Table 1 indicates that there is a marked regional variation in the degree of urbanization between East and West Pakistan. As is clear from Table 1, East Pakistan shows a very modest increase of less than three per cent in the degree of urbanization over a period of sixty years, and its figure for 1961 (5.19 per cent) reflects its predominantly rural character. West Pakistan, on the other hand, shows a much greater increase, particularly since 1941, and its figure for 1961 (22.52 per cent) reveals that more than one fifths of its total population lives in urban centres of all sizes. The logistic curve for Pakistan, particularly since 1921, is indicative of a phase of rapid urbanization which might even accelerate in the next few decades as a result of the increased temp. of industrial and commercial activity (Fig. 1).

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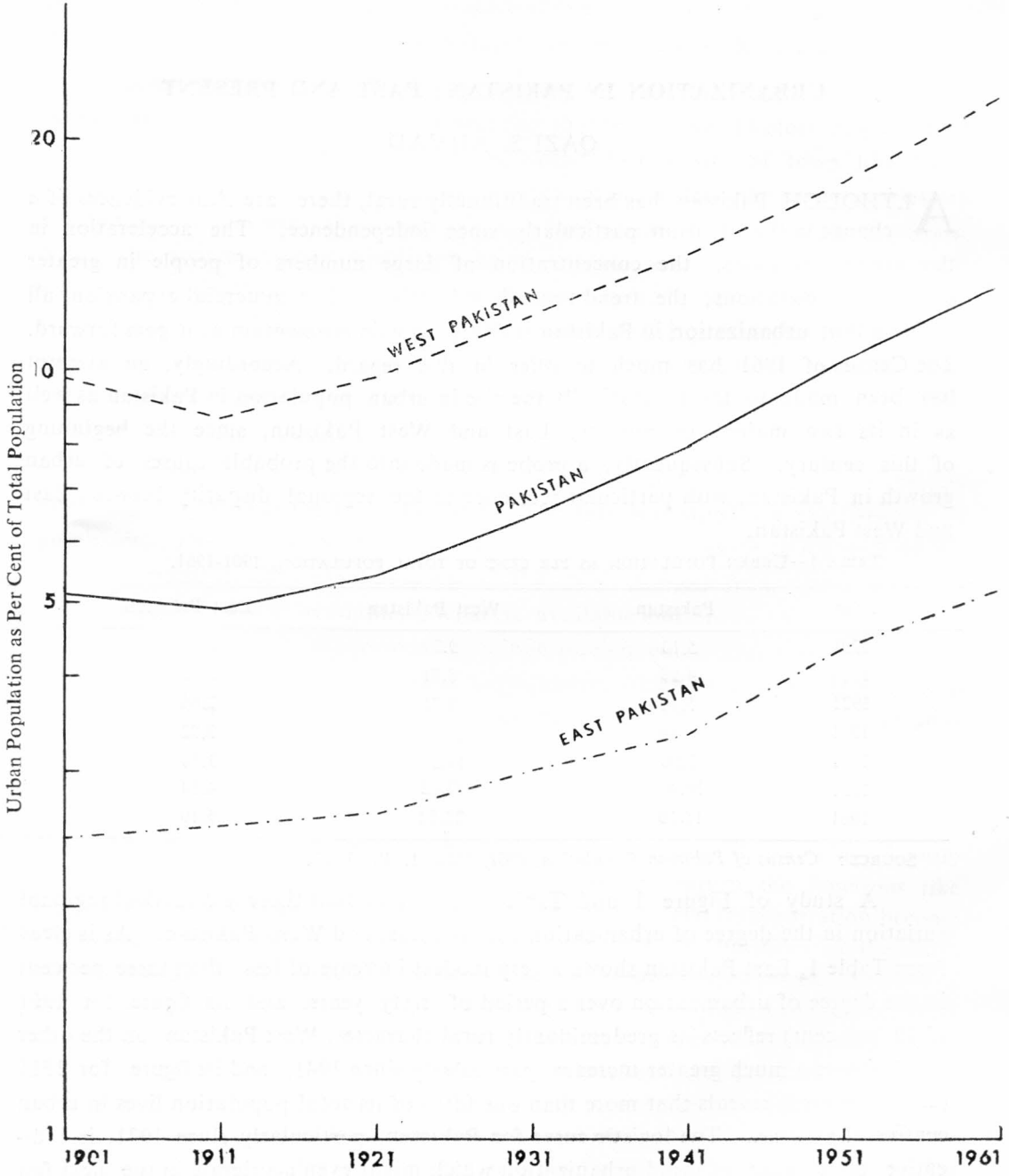

FIG. 1—Pakistan : Percentage Distribution of Urban Population, 1901—61

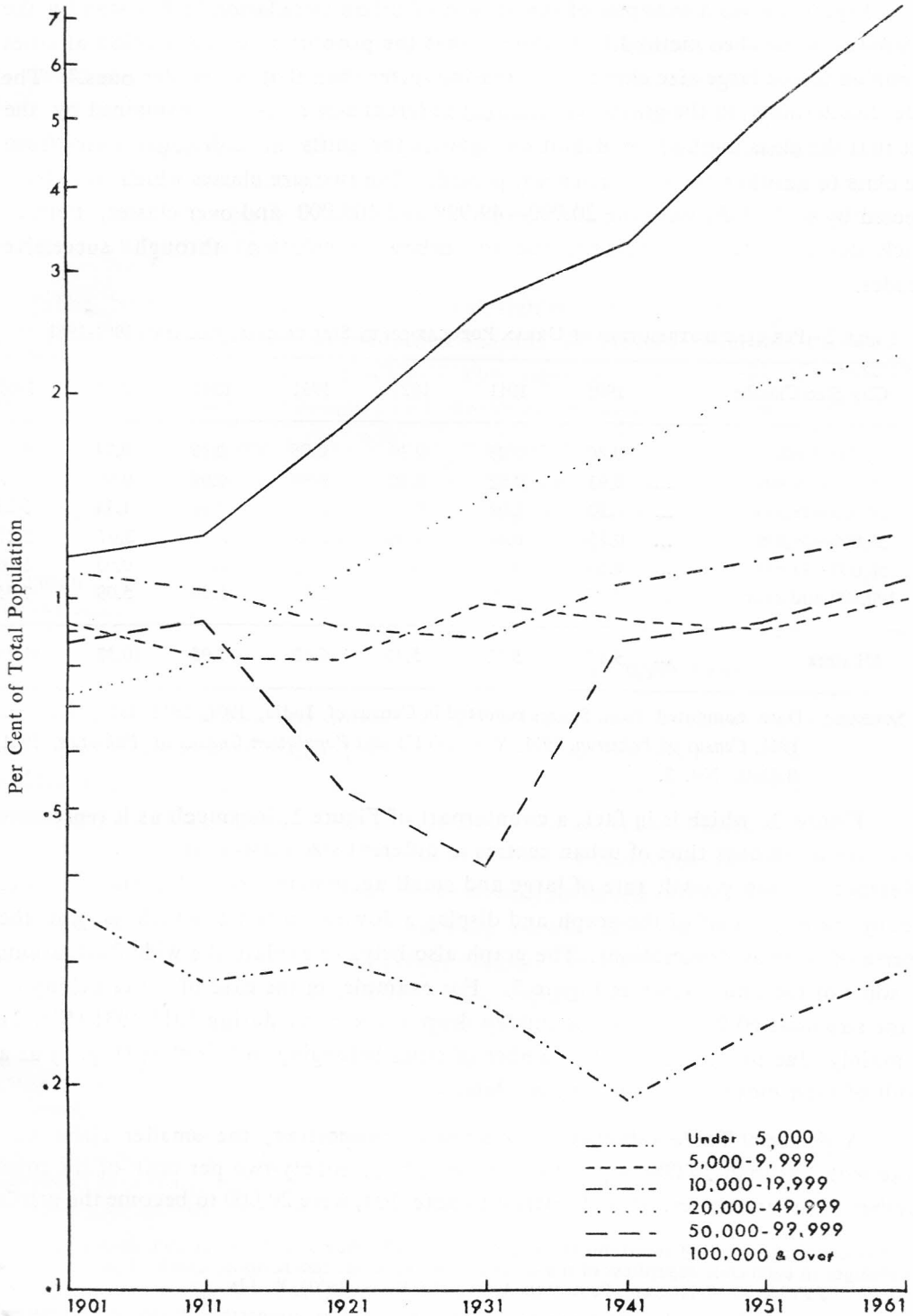

FIG. 2—Pakistan : Population Change by Size of City, 1901—61

Figure 2 gives a synopsis of the growth of urban population in Pakistan by the instantaneous or class method.[1] It shows that the proportion of population of cities belonging to the large size classes is increasing faster than that of smaller ones.[2] The wide fluctuations in the graph representing different size classes are explained by the fact that the class method, by definition, ignores the shifts of individual cities from one class to another during inter-censal period. The two size classes which were least affected by such shifts were the 20,000—49,999 and 100,000 and over classes, both of which demonstrate a continuous rise in urban population through successive decades.

TABLE 2—PER CENT DISTRIBUTION OF URBAN POPULATION BY SIZE CLASSES, PAKISTAN 1901-1961

City Size Classhs		1901	1911	1921	1931	1941	1951	1961
Under 5,000		0.36	0.28	0.30	0.26	0.19	0.24	0.29
5,000— 9,999	...	0.93	0.82	0.82	0.99	0.94	0.90	1.00
10,000—19,999	...	1.10	1.04	0.91	0.88	1.06	1.14	1.23
20,000—49,999	...	0.73	0.81	1.10	1.40	1.63	2.07	2.27
50,000—99,999	...	0.87	0.93	0.53	0.41	0.87	0.93	1.06
100,000 and over	...	1.16	1.24	1.77	2.68	3.26	5.09	7.35
All sizes	...	5.15	5.12	5.43	6.62	7.95	10.37	13.20

SOURCE : Data computed from figures reported in Census of India, 1901, 1911, 1921, 1931, and 1941, *Census of Pakistan*, 1951, Vols. I-VIII and *Population Census of Pakistan*, 1961, Bulletin No. 2.

Figure 3, which is in fact, a counterpart of Figure 2, inasmuch as it represents the distribution over time of urban centres in different size classes, shows clearly the difference in the growth rate of large and small agglomerations. The smaller cities occupy the upper half of the graph and display a downward trend which is just the reverse of large agglomerations. The graph also helps to explain the wide fluctuations in some of the lines shown in Figure 2. For example, in the case of cities belonging to the size class 50,000-99,999, the sudden drop in the curve during 1911-1931 (Fig. 2) is mainly due to the fall in the number of cities belonging to this class (Fig. 3) as a result of their moving to a higher size class.

A glance at Table 3 shows that, in terms of proportion, the smaller cities i.e., those with less than 50,000 population, form about ninety-two per cent of the total number of urban centres. It is of interest to note that, were 20,000 to become the urban

[1]The use of this method ascertains the population in all urban size classes at each census, tracing the changes in each class regardless of the cities that make it up. See Kingsley Davis, The *Population of India and Pakistan* (Princeton : Princeton University Press, 1951), P. 128.

[2]The word "city" as used in the paper implies all urban centres irrespective of size of population.

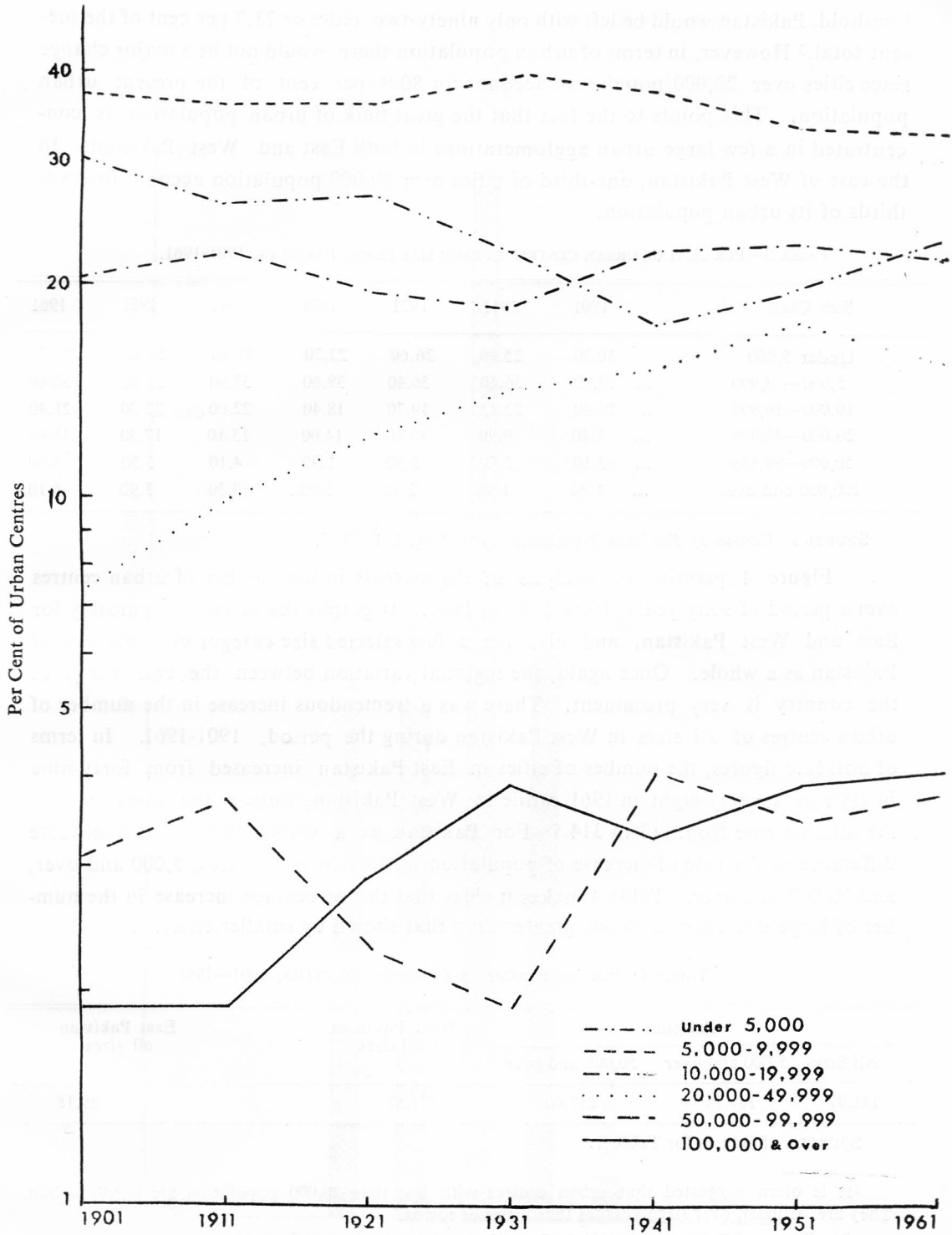

FIG. 3—Pakistan : Per Cent of Urban Centres in each Size Class, 1901—61

threshold, Pakistan would be left with only ninety-two cities or 23.7 per cent of the present total.[3] However, in terms of urban population there would not be a major change since cities over 20,000 population account for 80.9 per cent of the present urban population. This points to the fact that the great bulk of urban population is concentrated in a few large urban agglomerations in both East and West Pakistan. In the case of West Pakistan, one-third of cities over 20,000 population account for two-thirds of its urban population.

TABLE 3—PER CENT OF URBAN CENTRES IN EACH SIZE CLASS, PAKISTAN, 1901-1961.

Size Class	1901	1911	1921	1931	1941	1951	1961
Under 5,000	30.20	25.90	26.60	22.20	17.60	19.40	22.70
5,000— 9,999 ...	37.00	36.40	36.40	39.60	37.90	33.60	32.40
10,000—19,999 ...	20.40	22.22	19.70	18.40	22.00	22.30	21.40
20,000—49,999 ...	7.40	9.90	12.10	14.00	15.10	17.30	15.60
50,000—99,999 ...	3.10	3.70	2.30	1.90	4.10	3.50	3.80
100,000 and over ...	1.90	1.90	2.90	3.90	3.30	3.90	4.10

SOURCE : *Census of Pakistan Population, 1961*, VOL. I, P. II, 7.

Figure 4 permits an analysis of the increase in the number of urban centres over a period of sixty years, from 1901 to 1961. It graphs the increase separately for East and West Pakistan, and also for a few selected size categories in the case of Pakistan as a whole. Once again, the regional variation between the two wings of the country is very prominent. There was a tremendous increase in the number of urban centres of all sizes in West Pakistan during the period, 1901-1961. In terms of absolute figures, the number of cities in East Pakistan increased from forty-nine in 1901 to seventy-eight in 1961, while in West Pakistan, during the same period, the number rose from 113 to 314.[4] For Pakistan as a whole, there is a remarkable difference in the rate of increase of population in the two size classes, 5,000 and over, and 50,000 and over. Table 4 makes it clear that the percentage increase in the number of large size cities is much greater than that shown by smaller cities.

TABLE 4—PER CENT INCREASE IN NUMBER OF CITIES, 1901—1961

Pakistan			West Pakistan all sizes	East Pakistan all sizes
All Sizes	5,000 and over	50,000 and over		
141.97	168.14	287.00	177.87	59.18

SOURCE : Same as for Table 1.

[3]It is often suggested that urban centres with less than 20,000 population are hardly urban. They are, at most, over sized villages than cities or towns.

[4]*See Census of Pakistan, 1961*, Vols. 2 and 3.

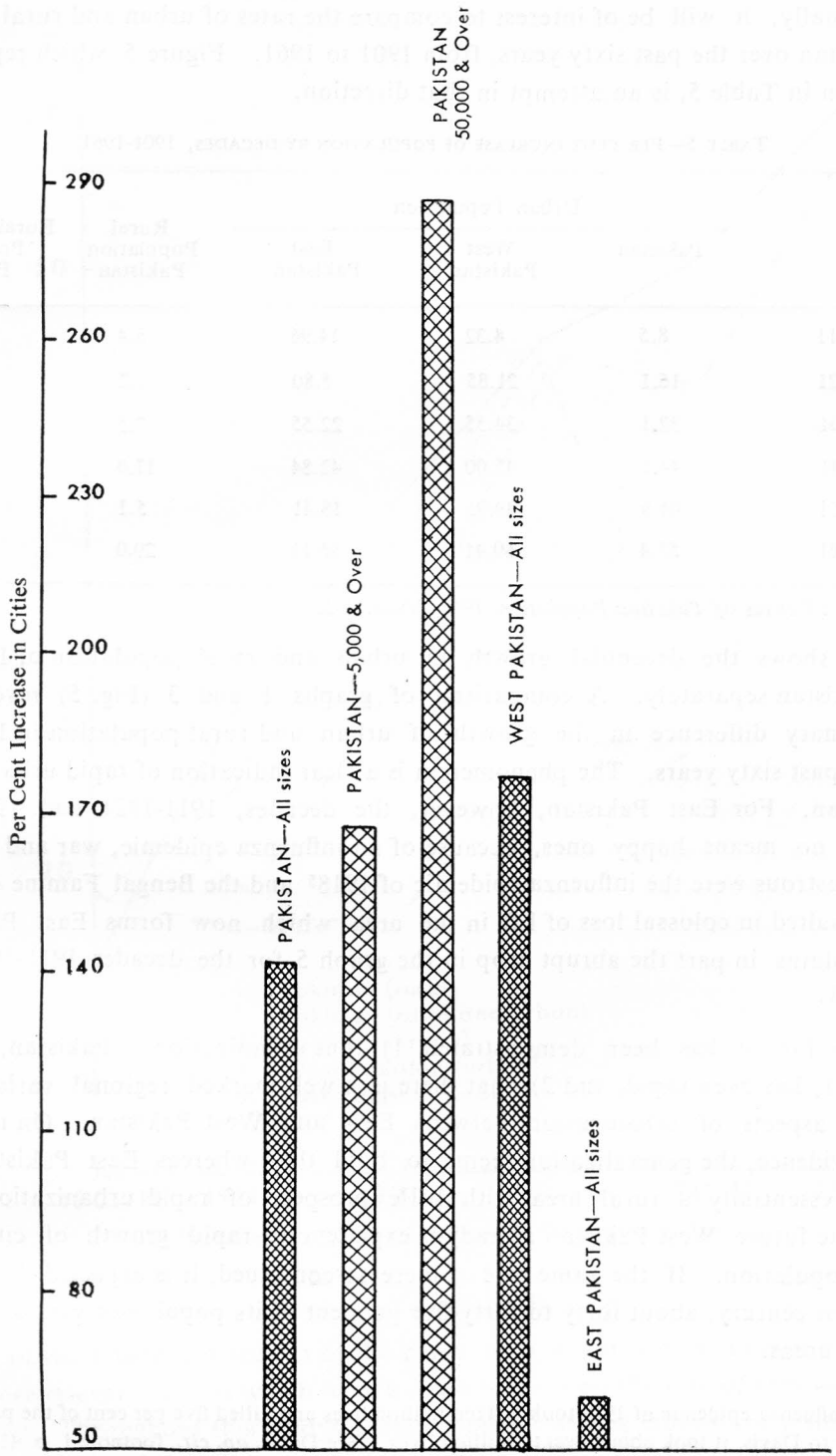

FIG. 4—Pakistan : Per Cent Increase in Cities, 1901—61

Finally, it will be of interest to compare the rates of urban and rural growth for Pakistan over the past sixty years, from 1901 to 1961. Figure 5, which represents data given in Table 5, is an attempt in that direction.

TABLE 5—PER CENT INCREASE OF POPULATION BY DECADES, 1901-1961

Year	Urban Population			Rural Population Pakistan	Rural and Urban Population Pakistan
	Pakistan	West Pakistan	East Pakistan		
1901-11	8.5	4.32	14.96	8.4	8.4
1911-21	16.1	21.85	8.80	6.2	6.7
1921-31	32.1	34.55	22.55	7.5	8.8
1931-41	44.1	45.00	42.84	17.0	18.8
1941-51	41.9	49.91	18.41	5.1	8.0
1951-61	57.4	60.41	45.11	20.0	23.7

SOURCE : *Census of Pakistan Population, 1961*, VOLS. 1-3.

It shows the decennial growth in urban and rural population of East and West Pakistan separately. A comparison of graphs 1 and 3 (Fig. 5) reveals the extraordinary difference in the growth of urban and rural population in Pakistan over the past sixty years. The phenomenon is a clear indication of rapid urbanization in Pakistan. For East Pakistan, however, the decades, 1911-1921 and 1941-1951 were by no means happy ones, because of an influenza epidemic, war and famine. Most disastrous were the influenza epidemic of 1918[5] and the Bengal Famine of 1943[6] which resulted in colossal loss of life in the area which now forms East Pakistan. This explains in part the abrupt drop in the graph 5 for the decades 1911-1921 and 1941-1951.

So far, it has been demonstrated 1) that urbanization in Pakistan, at least since 1941, has been rapid, and 2) that there is a well-marked regional variation in different aspects of urbanization between East and West Pakistan. On the basis of this evidence, the generalization seems to hold that whereas East Pakistan still remains essentially a rural area with little prospect of rapid urbanization in the immediate future, West Pakistan already is experiencing rapid growth of cities and urban population. If the same rate of increase continued, it is expected that by the end of this century, about forty to forty-five per cent of its population would be living in urban areas.

[5]The influenza epidemic of 1918 took sixteen million lives and killed five per cent of the population. According to Davis, it took about twenty million lives. See Davis, *op. cit.*, footnote 1, p. 41.

[6]The famine of 193 in Bengal is estimated to have taken between 1.5 and 3 million lives. *Ibid.*

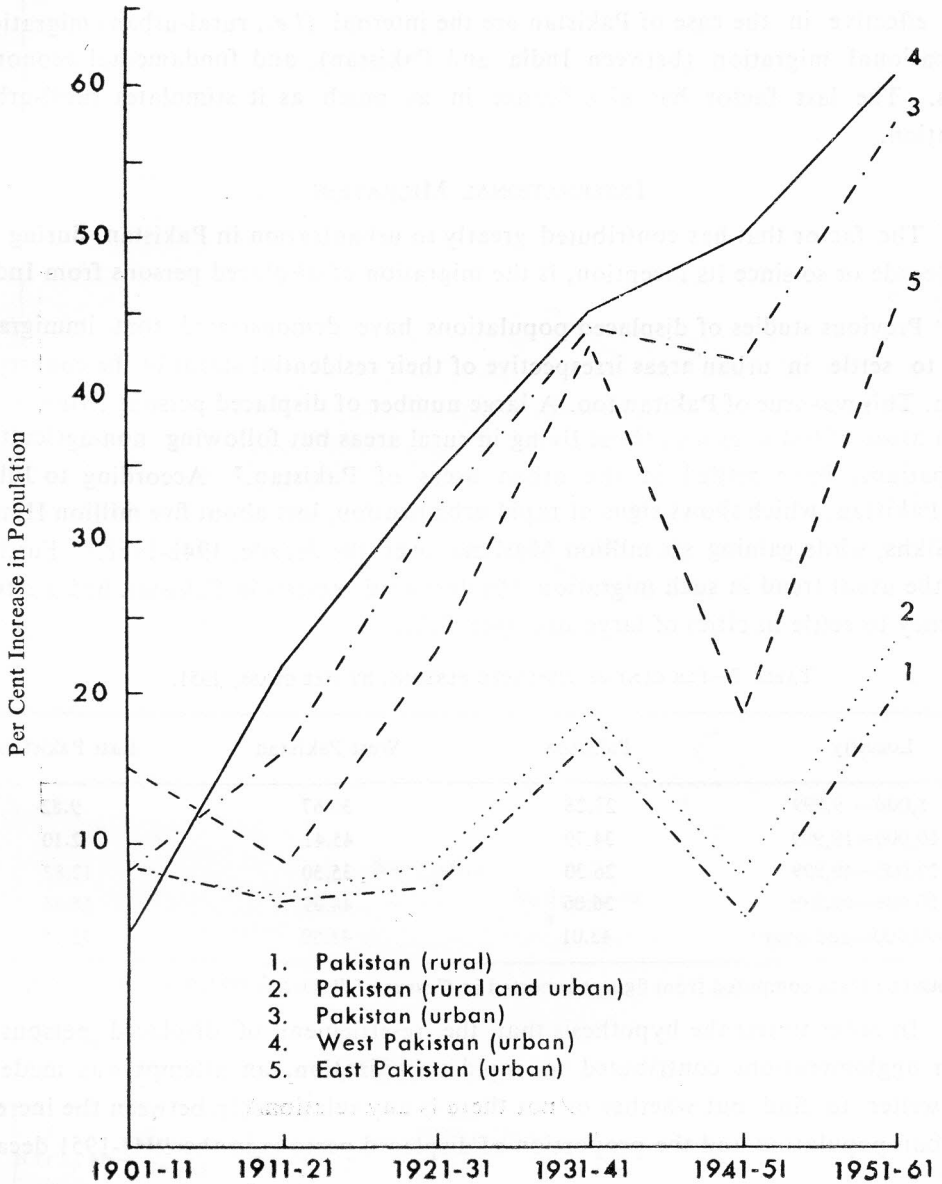

FIG. 5—Pakistan : Per Cent Increase of Population by Decades.

CAUSES OF URBAN GROWTH

In the subsequent section of the paper, an attempt is made to evaluate some of the more relevant factors which have a direct bearing on the rate of growth of cities in Pakistan. Throughout this analysis, due emphasis will be laid on the probable causes of regional variation in urbanization between the two wings of the country.

Of the various forces responsible for urbanization those that have proved to be more effective in the case of Pakistan are the internal (*i.e.*, rural-urban) migration, international migration (between India and Pakistan), and fundamental economic forces. The last factor has significance in as much as it stimulates rural-urban migration.

International Migration

The factor that has contributed greatly to urbanization in Pakistan, during the first decade or so since its inception, is the migration of displaced persons from India.

Previous studies of displaced populations have demonstrated that immigrants tend to settle in urban areas irrespective of their residential status in the country of origin. This was true of Pakitan too. A large number of displaced persons living in the urban areas of India, as also those living in rural areas but following non-agriculture occupations, have settled in the urban areas of Pakistan.[7] According to Jillani West Pakistan, which shows signs of rapid urbanization, lost about five million Hindus and Sikhs, while gaining six million Muslims over the decade, 1941-1951.[8] Further, as is the usual trend in such migration, the displaced persons in Pakistan had a strong tendency to settle in cities of large sizes (see Table 7).[9]

Table 7—Per cent of displaced persons, by size class, 1951.

Locality	Pakistan	West Pakistan	East Pakistan
5,000— 9,999	27.28	30.67	9.82
10,000—19,999	34.79	45.41	2.10
20,000—49,999	26.30	35.50	12.83
50,000—99,999	36.06	44.09	18.83
100,000—and over	43.01	48.80	13.58

Source: Data computed from figures reported in *Census of Pakistan 1951*, Vols. I to VIII.

In order to test the hypothesis that the resettlement of displaced persons in larger agglomerations contributed to rapid urbanization, an attempt was made by this writer to find out whether or not there is any relationship between the increase of urban population and the proportion of displaced persons in the 1941-1951 decade.

[7]In a recent study, Jillani makes an interesting study of the resettlement problem of displaced persons in Pakistan. See Mahmud Salim Jillani, "Resettlement of Displaced Persons in Pakistan", (unpublished Ph.D. dissertation, Department of Sociology, University of Chicago, 1962). Chapter II is specially devoted to urban residence of displaced persons. This study is summarised in his article "Resettlement Pattern of Displaced Persons in Pakistan," *Geografia*, Vol. II, No. 2 (Winter, 1963), pp. 77-98. The major findings are reported at the end of the paper on page 92. All references are drawn from this paper.

[8]*Ibid.*, p. 80.

[9]N.A. Shamsi, "The Integration of Displaced Persons in Pakistan, "*Census of Pakistan, 1951 Demographic Miscellany, Census Bulletin No. 6* (Karachi, 1957), p. 24.

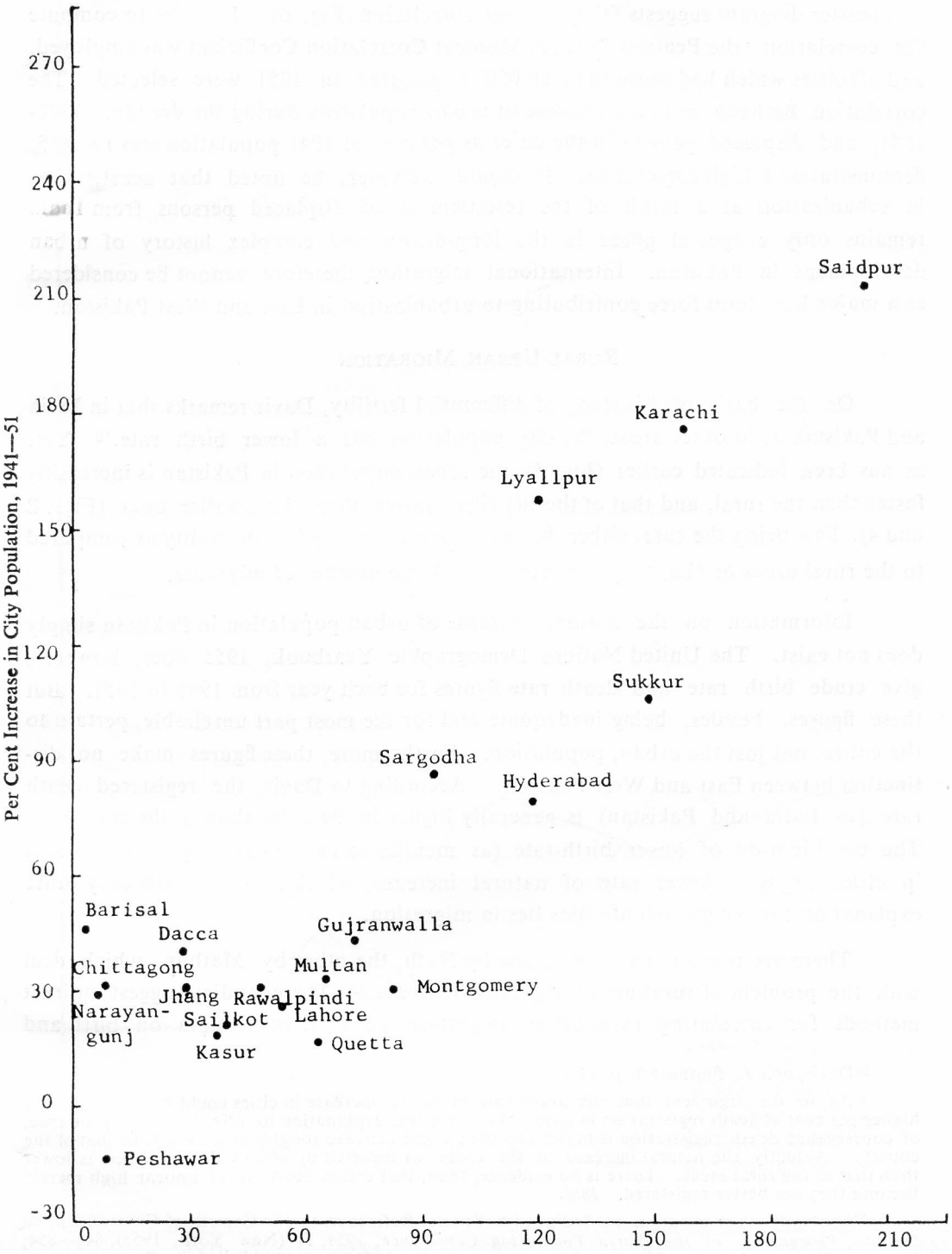

FIG. 6—Pakistani Cities : Population Growth and the Displaced Persons Population (Scatter Diagram).

The scatter diagram suggests fairly strong correlation (Fig. 6). In order to compute the correlation, the Pearson Product Moment Correlation Coefficient was employed, and all cities which had more than 50,000 population in 1951 were selected. The correlation between per cent increase of urban population during the decade, 1941-1951, and displaced persons in the cities as per cent of 1941 population was $r=.875$, demonstrating a high correlation. It should, however, be noted that acceleration in urbanization as a result of the resettlement of displaced persons from India remains only a special phase in the long-drawn and complex history of urban development in Pakistan. International migration, therefore, cannot be considered as a major long term force contributing to urbanization in East and West Pakistan.

Rural-Urban Migration

On the basis of his study of differential fertility, Davis remarks that in India and Pakistan as in other areas, the city population has a lower birth rate.[10] Yet, as has been indicated earlier (Fig. 5), the urban population in Pakistan is increasing faster than the rural, and that of the big cities faster than the smaller ones (Figs. 2 and 4). This being the case, either the cities have extremely low mortality as compared to the rural areas or else, they are receiving a large number of migrants.

Information on the natural increase of urban population in Pakistan simply does not exist. The United Nations Demographic Yearbook, 1955 does, however, give crude birth rate and death rate figures for each year from 1946 to 1951. But these figures, besides, being inadequate and for the most part unreliable, pertain to the entire, not just the urban, population. Furthermore, these figures make no distinction between East and West Pakistan. According to Davis, the registered death rate (in India and Pakistan) is generally higher in the cities than in the country.[11] The combination of lower birth-rate (as mentioned earlier) and higher death rate in cities imply a lower rate of natural increase, which mean that the only other explanation for the growth of cities lies in migration.

There are two known studies, one by Nath, the other by Mathur, which deal with the problem of rural-urban migration in India.[12] These studies suggest indirect methods for calculating rural-urban migration when relevant data on birth and

[10]Davis, *op.cit.*, footnote 1, p. 133.

[11]As to the argument that the lower rate of natural increase in cities could be the result of a higher per cent of death registration in cities, Davis has this explanation to offer: "It may be true, of course, that death registration is better and the natural increase roughly comparable to that of the country. Actually the natural increase in the cities, as reported by official vital statistics, is lower than that in the rural areas. There is no evidence, then, that urban death rates appear high merely because they are better registered. *Ibid.*

[12]V. Nath "Urbanization in India with Special Reference to the Growth of Cities," United Nations, *Proceedings of the World Population Conference, 1954*, II (New York, 1955), 843—854; Prakash Chandra Mathur, Internal Migration in India, 1941-51, (unpublished Ph.D. dissertation, Department of Sociology, University of Chicago, 1961).

death rates do not exist. Following the procedure outlined by Nath and making use of the recent estimates of the rate of natural increase of population in West Pakistan, the writer has been able to make an estimate of the proportion of migration included in the overall annual increase of urban population in West Pakistan. Unfortunately, a similar set of data does not exist for East Pakistan.

It will be seen from Table 6 that, for each time period, net migration forms considerable portion of the total annual or decennial increase in urban population. It was, for example, sixty-four per cent of the annual increase for the year 1959. Even if allowance is made for the influx of displaced persons from India, which should have become very small by 1959, the proportion of rural-urban migration remains high (above 50 per cent). This, it should be realized, is a very modest estimate, rather, it may be an under estimate of the actual migration rate due to the unrealistic assumption made originally by Nath which adequates the rate of natural increase of the total population with that of the urban population.

TABLE 6—INCREASE IN URBAN POPULATION AND NET MIGRATION

Year/Decade	Urban Population (.000)	Increase of Urban Population (.000)	Natural increase of Urban Population (.000)	Net Migration (.000)
1951	6,036	...	...	...
1955	7,253	1,217	434	783
1959	8,716	1,463	522	941
1951—59	...	2,680	1,256	1,424

The Urban Population figures for the years 1955 and 1959 have been computed using 1951 as the base year.

The migration from rural to urban areas and also from small agglomeration to big cities will, in all probability, continue at an increasing rate, since the "pull" from the cities is strengthened by the "push" from the rural areas in almost all Asian countries.[13] This is true of West Pakistan, but little is known of the rural-urban migration in East Pakistan although it could be inferred that it is on a much modest scale as compared to West Pakistan.[14]

From the foregoing it is clear that the great disparity in urban growth between East and West Pakistan is due to the difference in the rate of rural to urban migration in the two regions. Why is there such a difference in the rate of internal migration between the two wings is a fit topic for discussion in a separate paper.[15]

[13]Philip M. Hauser (ed.), *Urbanization in Asia and the Far East, Proceedings of the joint UN/UNESCO Seminar on Urbanization in the ECAFE Region, Bangkok, 8—18 August*, 1956 (Calcutta, 1987), p. 9.

[14]Nafis Ahmad, "The Urban Pattern in East Pakistan", *Oriental Geographer*, I (January, 1957), 36.

[15]The problem has been discussed by this writer in another article entitled, "Multiple Courses of Urban Growth : The Example of Pakistan. ' (unpublished).

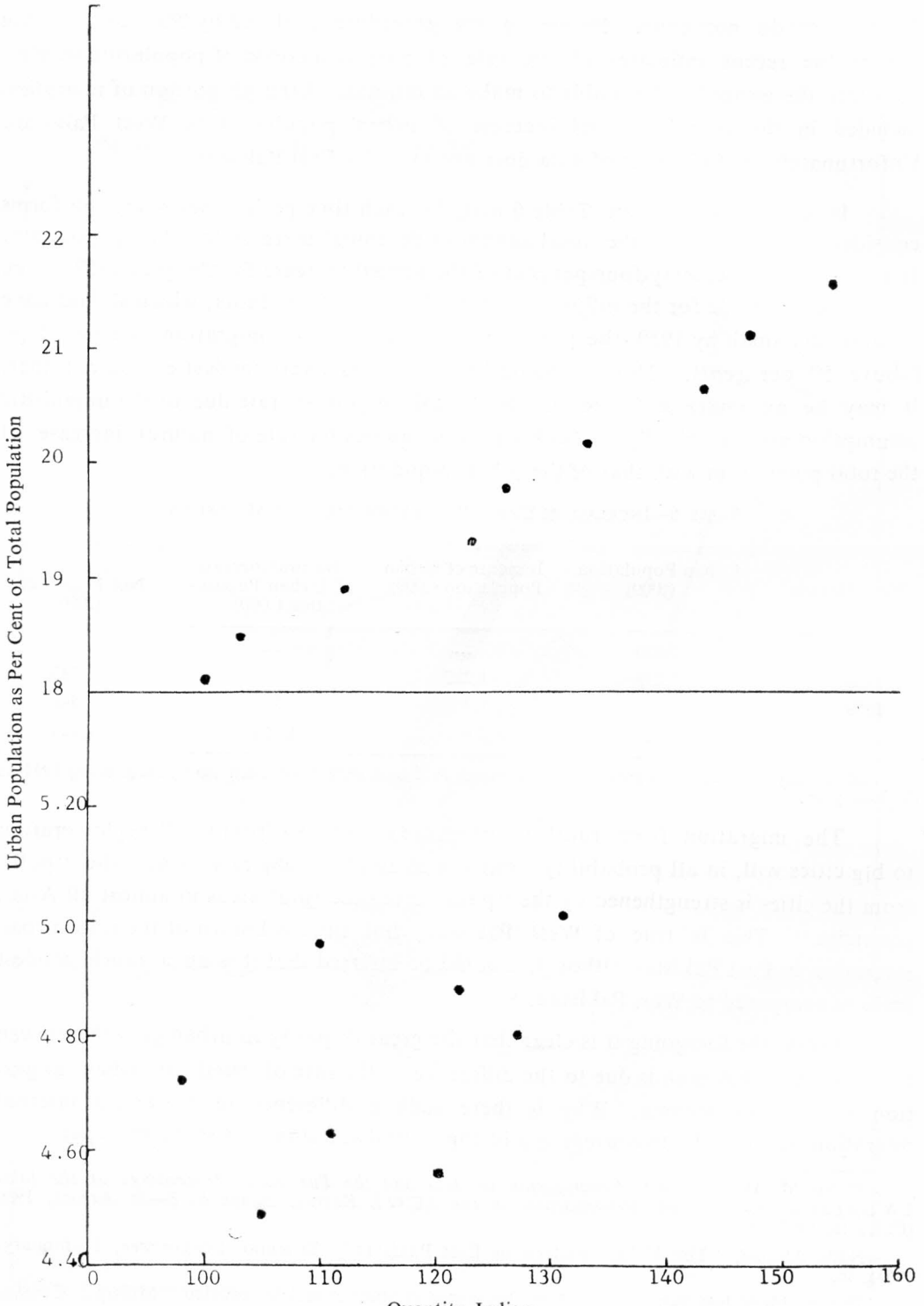

FIG. 7 (Top)—West Pakistan : Urbanization and Economic Development (Scatter Diagram)
(Bottom) East Pakistan : Urbanization and Economic Development (Scatter Diagram)

POPULATION GROWTH OF KARACHI: THE EXAMPLE OF A LARGE CITY IN DEVELOPING COUNTRIES*

ZAFAR AHMAD KHAN

PURPOSE of this study is to examine the spatial pattern of the growth of Karachi's population and thus to point out some of the problems, which are generally associated with the large cities in developing countries.

Karachi is the only urban centre in West Pakistan with nearly two million people. Its closest rival Lahore contains only a little over one million inhabitants. Other major cities are comparatively very small. Karachi is four times greater than Hyderabad, five times greater than Lyallpur, and six times greater than Multan, the third, fourth and fifth largest cities of West Pakistan.

Until 1941, Karachi was the second largest city in the West Pakstan region. In 1951, it surpassed Lahore and became the largest city in the country. The number of persons immigrating into this city during the past two decades was far greater than into any other urban centre in West Pakistan. Its population rose from 387,000 in 1941 to 1,068,000 in 1951, an increase of 161 per cent.[1] For comparison, the growth during the same decade in Lahore was from 672,000 to 849,000 (26%), in Hyderabad from 135,000 to 242,000 (80%), in Lyallpur from 70,000 to 179,000 (155%) and in Multan from 143,000 to 180,000(27%). By 1961, the population of Karachi became 1,296,000 (80% increase) and that of Lahore only 1,296,000 (52%), Hyderabad 435,000 (79%), Lyallpur 425,000 (137%) and Multan 358,000 (98%) (Fig. 1).[2]

According to a survey,[3] the total population of Karachi in 1959 was 1,805,000. Of this number, 1,788,000 (83.5%) were immigrants who came to the city after 1947. About 1,174,000 (64.4%) persons came from India, 316,000 (17.6%) from various parts of Pakistan (excluding Karachi) and 16,000 (1.4%) from other countries. The remaining 300,000 (16.6%) were born in Karachi.

*This paper is a part of the Ph. D. Thesis of the author on Karachi, University of London, 1967.

[1] *Population Census of Pakistan 1951*, Ministry of Home and Kashmir Affairs, Karachi, 1951.

[2] *Population Census of Pakistan 1961*, Ministry of Home and Kashmir Affairs, Karachi, 1961.

[3] S. S. Hashmi, *The People of Karachi: Data from a Survey* (Pakistan Institute of Development Economics, Karachi, 1964).

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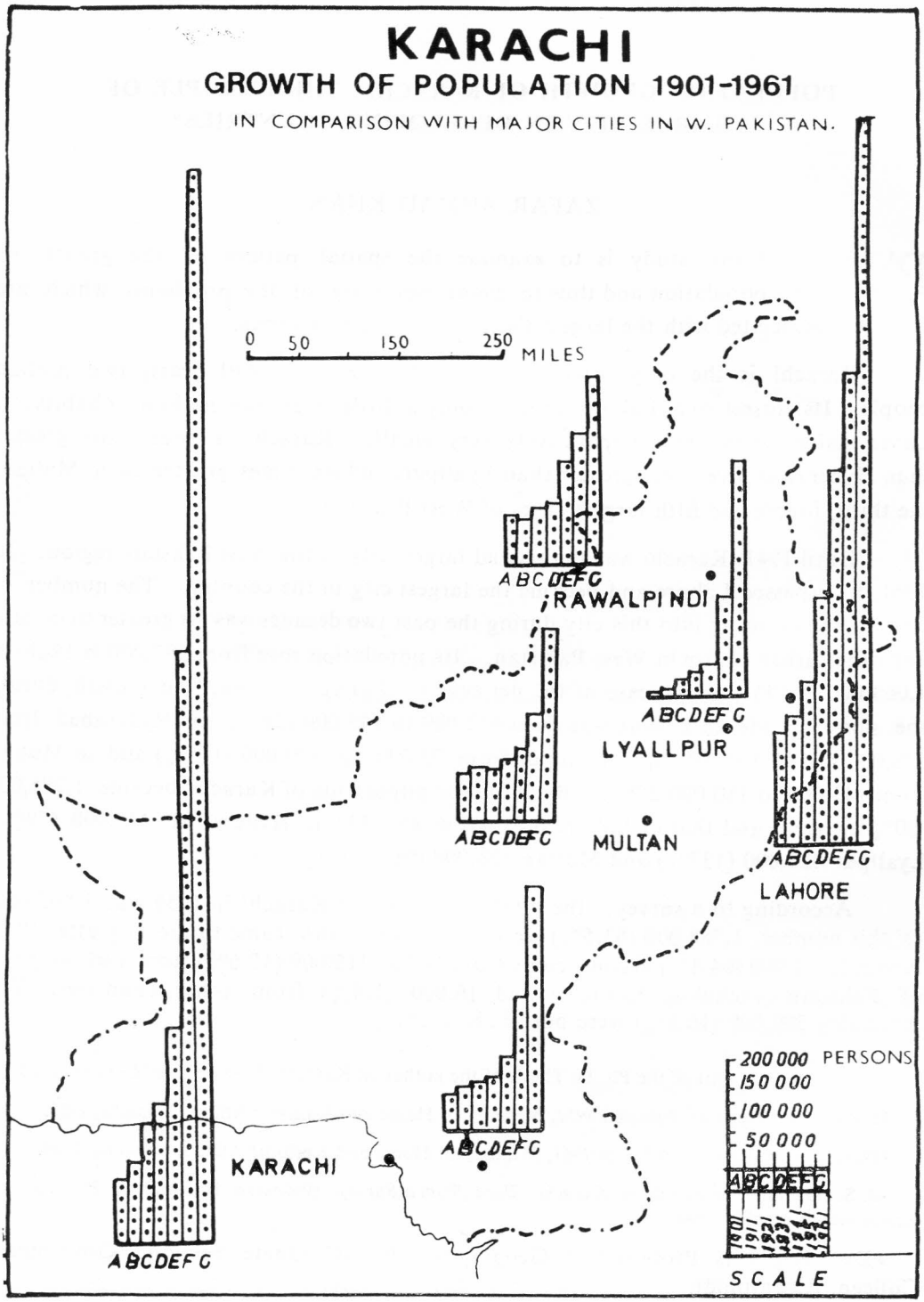
KARACHI
GROWTH OF POPULATION 1901-1961
IN COMPARISON WITH MAJOR CITIES IN W. PAKISTAN.
0 50 150 250 MILES
RAWALPINDI
LYALLPUR
MULTAN
LAHORE
KARACHI
ABCDEFG
200 000 PERSONS
150 000
100 000
50 000
1901
1911
1921
1931
1941
1951
1961
SCALE

FIGURE 1

The distribution of natives, inmigrants and immigrants, is by no means random. Some sectors of the city are inhabited predominantly by natives, some by inmigrants and others by immigrants. Similarly, there is a sharp contrast in the density of population from area to area. Such irregularities although produced to some extent by economic and social competition, are largely related to the social history of sectors and their location in areas of special interest to certain groups. An examination of such a distribution provides an answer to the question whether or not one can expect similar zones of population distribution and density to develop in other cities which like Karachi are developing too fast on account of industrial growth.

Origin of population

Large scale immigration started in 1947, the year of the establishment of Pakistan (Table 1). The number of arrivals was highest between 1947 and 1950, when a total of 1,014,975 persons reached the city from different parts of the Indo-Pak sub-continent. Of this number, 928,575 persons came from India as refugees and 86,400 persons inmigrated from various parts of Pakistan. After 1950, there was a sharp decline in the number of refugees coming from India. There was a further decline in the number of persons immigrating from India after 1955, when the Government of Pakistan banned the unauthorized entry of refugees from India. Since then the majority of the migrants were drawn from within Pakistan.

Of the Indian immigrants, forty-two per cent came from the Northern Provinces which included Indian occupied Kashmir, the Punjab, Delhi and Uttar Pradesh (Fig. 2).

Table 1—Karachi Immigration from India and Pakistan territory 1947-1959

Year	Total Immigrants	Immigrantes from India	Immigrants from Pakistan
1947	531,650	502,675	28,975
1948	206,725	190,250	16,475
1949	119,475	102,650	16,825
1950	157,125	133,000	24,125
1951 }	69,338	51,125	17,663
1952 }	69,338	51,125	17,663
1953	49,912	28,987	20,925
1954	49,912	28,987	20,925
1955	37,250	15,162	22,088
1956	37,250	15,162	22,088
1957	36,100	11,922	24,178
1958	36,100	11,922	24,178
1959	9,122	2,981	6,141
	1,409,297	1,145,948	262,249

Figures shown against each year are averages of the years parenthesized.

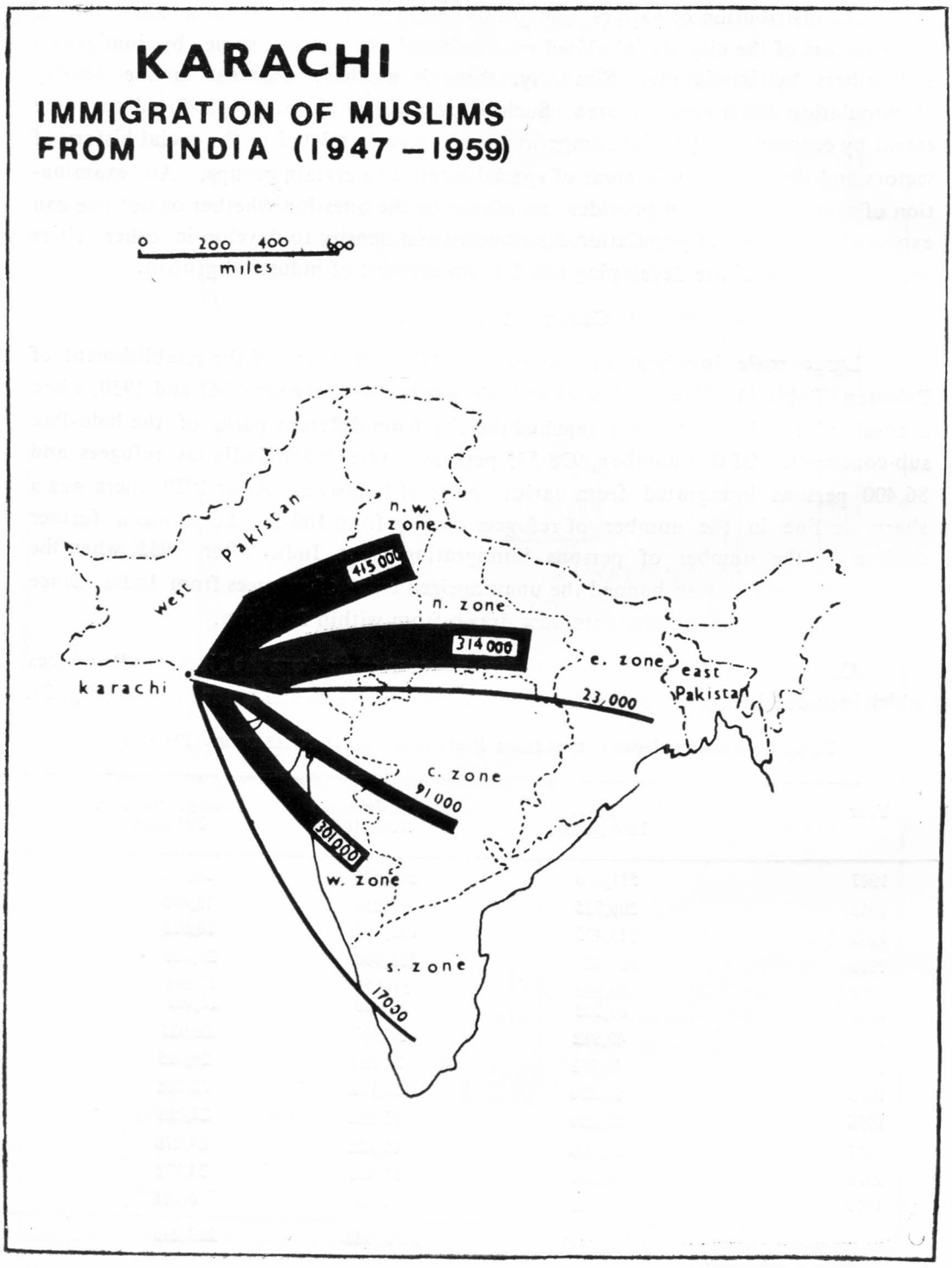
KARACHI
IMMIGRATION OF MUSLIMS
FROM INDIA (1947 – 1959)
0 200 400 600
miles
west Pakistan
n.w. zone
415 000
n. zone
314 000
e. zone
east Pakistan
23,000
karachi
c. zone
91 000
301 000
w. zone
s. zone
17000

FIGURE 2

The next highest number of persons (26%) came from the Western provinces that is, Rajasthan, Junagadh, Manavadar and Bombay. Of the remaining twelve per cent eight per cent came from the central provinces (Madhya Pradesh and Andhra Pradesh). Two per cent from the eastern provinces (Bihar, West Bengal and Assam) and one per cent from the southern provinces (Mysore, Madras and Kerala).

The highest percentage of immigration from the northern and western provinces of India can be accounted for by two factors : First the provinces are situated quite close to West Pakistan and have direct railway links with Karachi. Secondly, they experienced the worst type of organized arson and killing in the early years of partition. Muslims were either massacred or driven off en masse.[4]

The comparatively low percentages of immigration from other provinces in India were due to their greater distance from West Pakistan. The railway routes which the residents of these provinces could use, passed through the provinces of Delhi and East Punjab where the lives of Muslims were not at all safe. Hence most of the Muslims affected by the riots left their homes for safer areas in India instead of taking the risk of being killed on their way to Pakistan.

In the case of inmigrants (originating within Pakistan) it is interesting that they came in greater numbers from far off provinces than they did from adjacent ones (Fig. 3). The distant provinces of the Punjab, N.W.F.P. and Azad Kashmir contributed forty-three, thirty-nine and two per cent respectively. Against this, the adjacent provinces of Baluchistan and Sind contributed only four and three percent respectively. This means Karachi has drawn only seven per cent of its inmigrants from the surrounding region. The situation is quite different in Bombay, the other important port-city on the western coast of the Indo-Pakistan subcontinent. There sixty-five per cent of all inmigrants have been drawn from the adjacent provinces of Meharashtra, Mysore and Gujrat.[5]

The high proportion of people from the Punjab and N.W.F.P. among the inmigrants into Karachi is, however, not surprising. In contrast to the people of other provinces who are famous for attachment to their 'native locale'[6] these people are enterprising and highly mobile. This attitude is primarily the result of tradition. Their forefathers came to India with the Muslim invaders. They formed the armed forces for successive governments and lived for the major parts of their lives away from their homeland. Certain social and economic forces also played an important role in their migration. The pressure on land in both the provinces became intolerable owing to the huge influx of refugees in the years after

[4]I. Stephens, *Pakistan* (London, 1963), pp. 182-183.

[5]Times of India 'Bombay Attracts Fewer Job Seekers now', Bombay, Jan. 15,1964. News Report of Survey Conducted by Demographic Training and Research Centre, Bombay.

[6]K. Davis —*Population of India and Pakistan*, (Princeton 1951), p. 107.

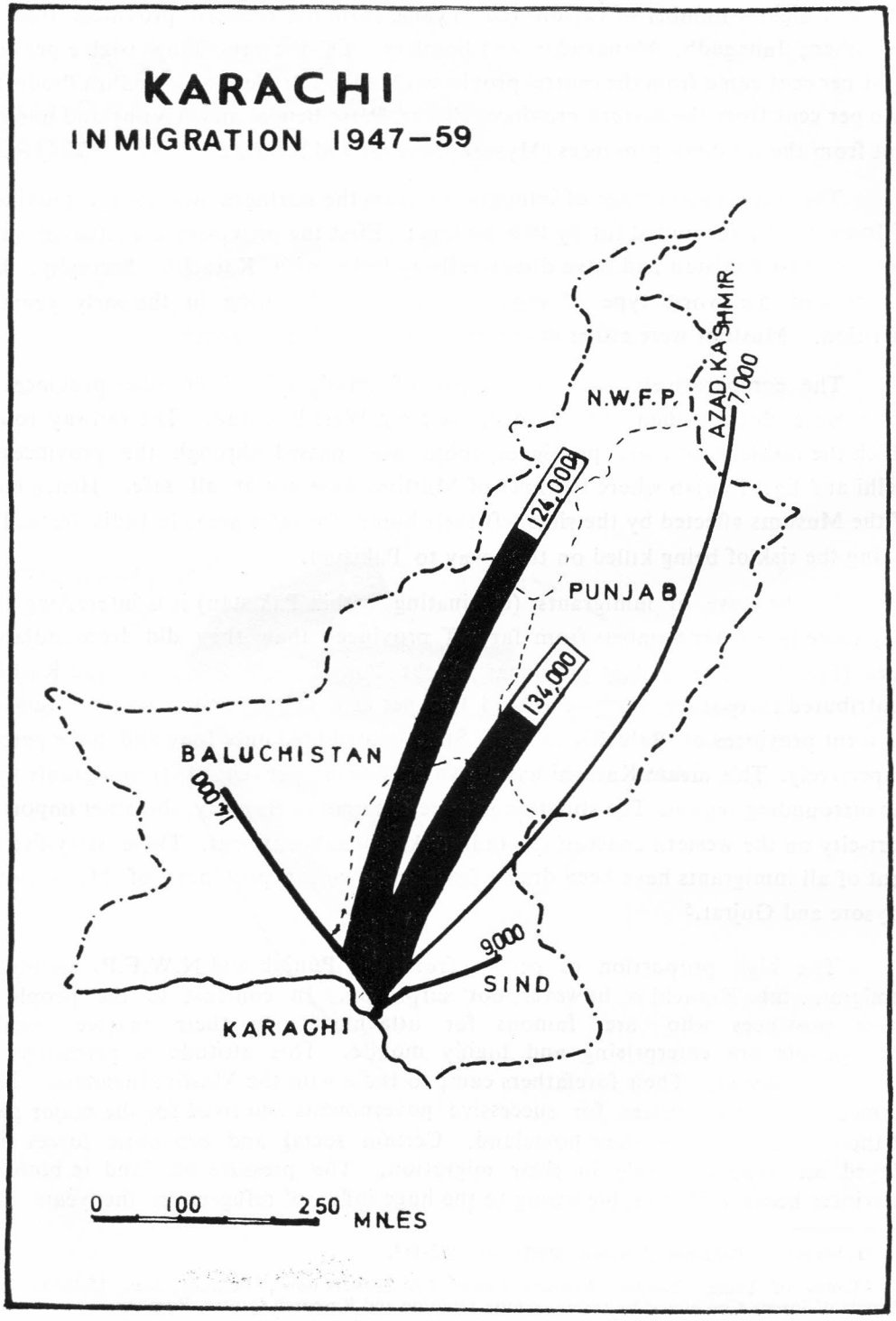
KARACHI
INMIGRATION 1947–59
N.W.F.P.
AZAD KASHMIR
7,000
124,000
PUNJAB
134,000
BALUCHISTAN
16,000
9000
SIND
KARACHI
0 100 250 MILES

FIGURE 3

1947 and the loss of vast amounts of land as a result of water-logging and salinity. The proportion of males over females is very high so that many men are unable to marry and settle down and thus respond readily to the opportunity of earning extra money for their family by migrating to an urban centre.

The map of the distribution of population by origin which is examined here is based on enumeration districts of a survey. Ward figures were deliberately ignored because they lacked certain details. The survey in question was conducted in 1959 by the Central Statistical Office, Karachi.[7] It was revised in 1960-61 by the Institute of Development Economics, Karachi to include the areas outside the Municipal limits that were left in the previous survey.[8] The city was divided for this purpose into 162 enumeration districts called 'chunks'. These chunks were small enough to be easily managed by single enumerators. After the numbers of the natives, inmigrants and immigrants were obtained in each of the chunks, they were arrayed in three different groups and their median and two quartiles established. These gave four categories which have been mapped.

A high percentage of immigrants is a marked feature of residential Karachi (Fig. 4). The areas on the urban fringe are predominantly immigrant. Here are found refugee colonies and re-settlement townships, which have been developed to provide alternative accommodation for poor refugee families living in the city proper since 1947 in huts, religious buildings, schools and clubs. Another predominantly immigrant area extends from just north of the city centre eastward along the river Lyari. It is mainly comprised of the 'Government *quarters*'[9] and the *kothi*[10] districts developed by housing societies (Fig. 5). The third predominantly immigrant area is on the eastern fringe of the city centre. It contains the Government quarters in Jacob Lines, and the barrack areas in Jutland Line and Abbysinia Line. Very high densities of immigrants are also found in two sections of the *chawls*[11] district—the Sadar Bazar and Ranchore Lines. The remaining part of the *chawls* district has a high density of immigrants. High densities are also found north of the *chawls* district in the *villa*[12] district and a section of the kothi district which extends east

[7]*Sample Survey of Karachi Population, 1959* (Karachi Central Statistical Office, Government of Pakistan, Ministry of Finance, 1959).

[8]Hashmi and others, *op. cit.* footnote 3.

[9]*Quarter* : A small single storeyed terraced house containing two to three rooms and built normally by Government for low-salaried employees.

[10]*Kothi* : A type of house, combining the characteristics of a bungalow and a typical muslim house.

[11]*Chawl* : A kind of 4 to 5 storeyed tenement containing a number of independent dwellings arranged horizontally on each floor.

[12]*Villa* : A compact and small size bungalow, without spacious compound and large front and backyards.

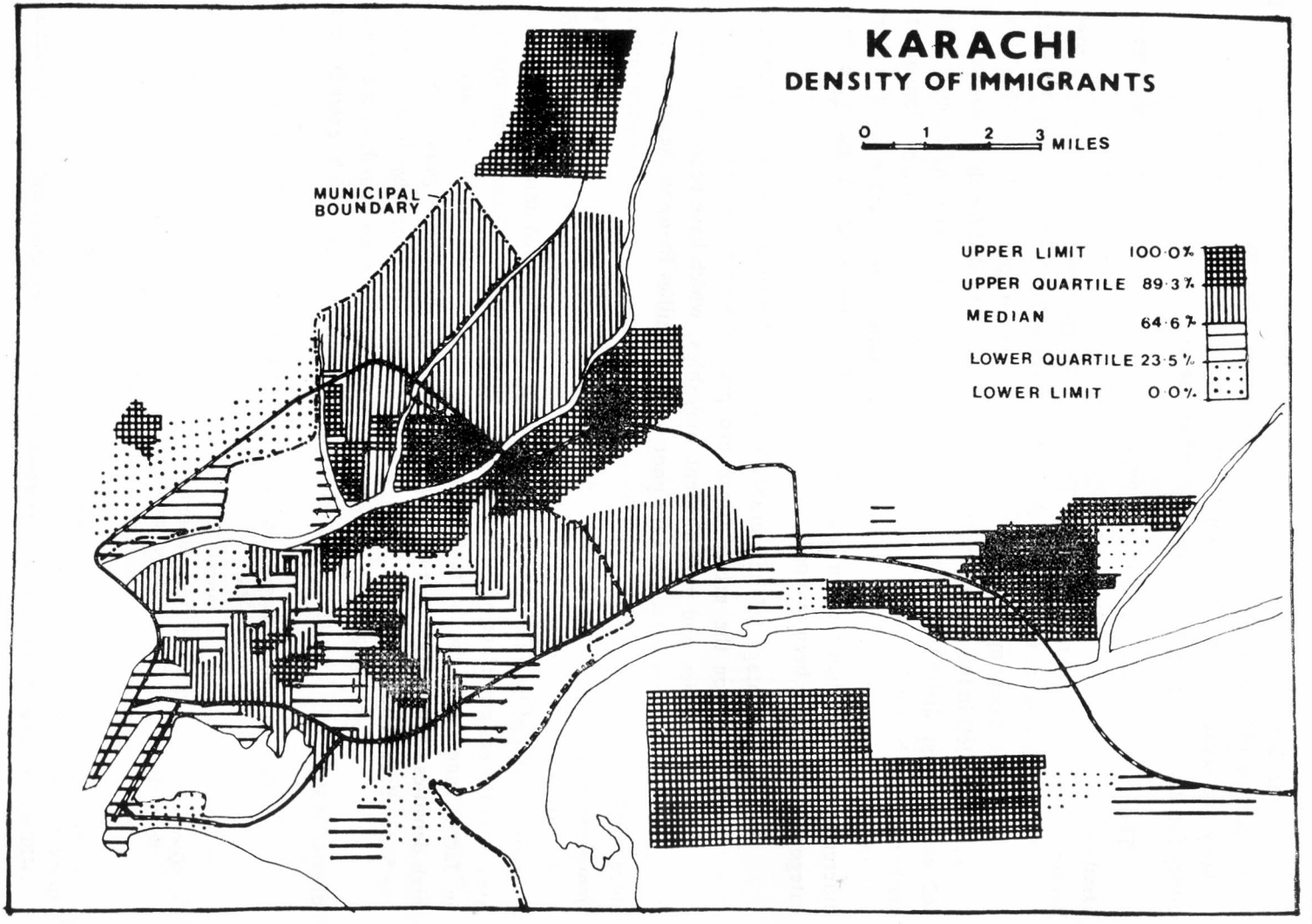
KARACHI
DENSITY OF IMMIGRANTS
0 1 2 3 MILES
MUNICIPAL BOUNDARY
UPPER LIMIT 100·0%
UPPER QUARTILE 89·3%
MEDIAN 64·6%
LOWER QUARTILE 23·5%
LOWER LIMIT 0·0%

FIGURE 4

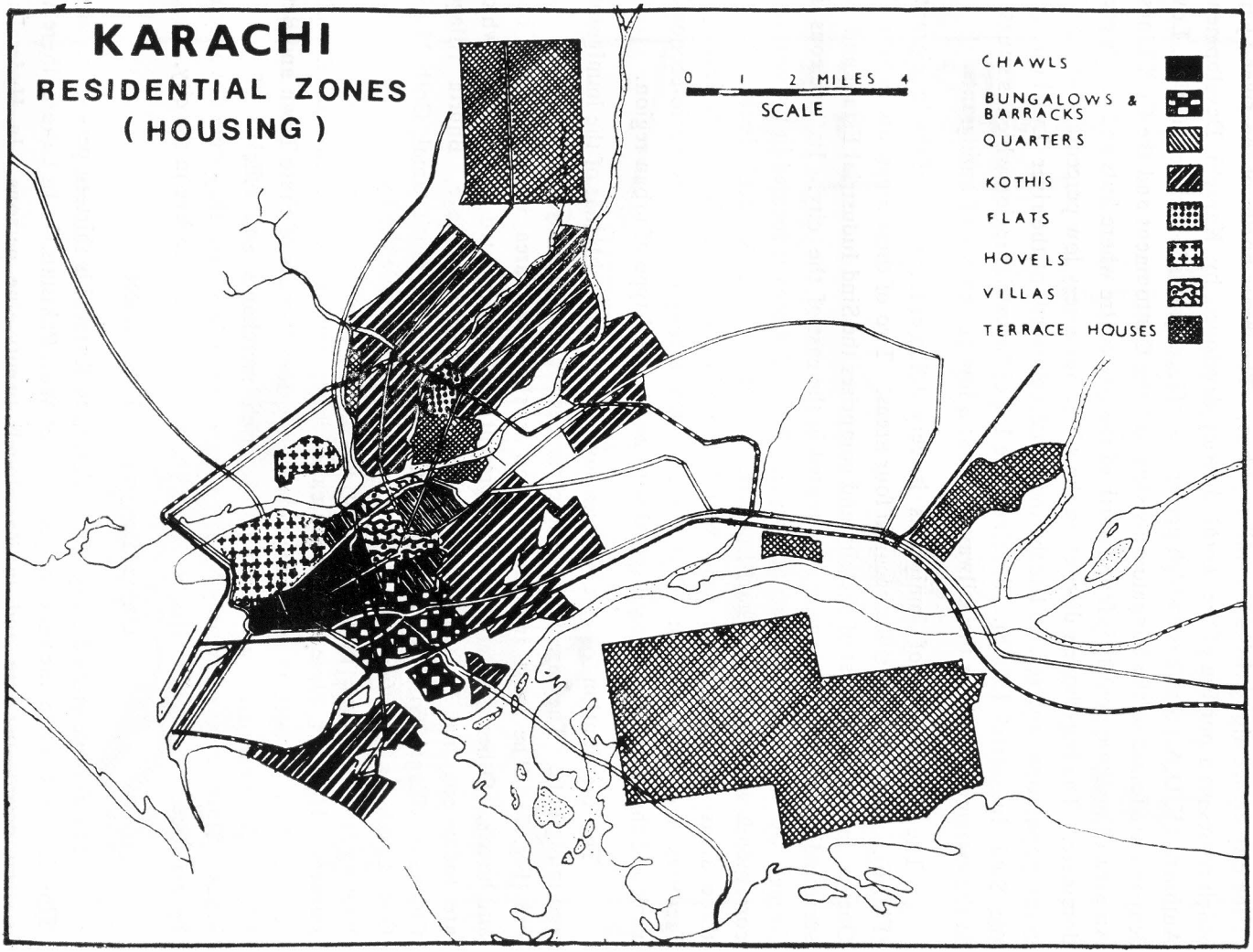
KARACHI
RESIDENTIAL ZONES
(HOUSING)
0 1 2 MILES 4
SCALE
CHAWLS
BUNGALOWS & BARRACKS
QUARTERS
KOTHIS
FLATS
HOVELS
VILLAS
TERRACE HOUSES

FIGURE 5

of the city centre along the main railway line. The areas north of the river Lyari which represent a portion of the *kothi* district developed by Karachi Development Authority (K.D.A.) also have a high percentage of immigrants in their population. Low densities are found in the bungalow districts of the Cantonment and the Civil Lines. An area of medium density is found north of the city centre where huts and hovels predominate. The huts/hovels district on the whole has a very low percentage of immigrant population, and so also has the industrial belt north of the river Lyari (around the Sind Industrial Estate). Similarly the Landi Industrial region which is situated in the extreme east along the railway line, has a low percentage of immigrants.

The distribution of inmigrants is very different from that of the immigrants (Fig. 6). Very high densities occur in four areas. Two of these areas are industrial. One is in the north-west of the city and comprises the Sind Industrial Estate and the surrounding region. The second is situated in the east of the city. Its nucleous is formed by the Landi Industrial Estate. The third area is located in the west and corresponds with the West Wharf Industrial region and the Karachi docks. In all three areas the inhabitants have been brought into work in the newly developed factories and docks. Most of the inhabitants belong to the same socio-economic rank and the three regions correspond with an identical type of urban region.

The distribution of the natives contrasts sharply with that of the immigrants and inmigrants. They are confined to certain sections of the city, all of which are old (Fig. 7). The most important region is the Lyari area, which is built of huts and hovels. Other scattered areas represent the old isolated settlements, which are today engulfed by the urban extensions. Shershah village, Bhutta village, Chanesar village, Gizri village, Goth Gul Mohammad, Goth Jamal, Goth Malir, Goth Landi are but a few examples. These centres resemble the Lyari area both in housing and the type of people who are mainly labourers, unskilled workers and farmers. However, there is another area of high density to the east of the city centre. It is a portion of the high class bungalow districts of Frere Town and Bath Island. These districts are inhabited by rich merchants and officials of various kinds. Since they are mainly Muslims, Parsis and Christians, they were not affected by partition. Unlike the Hindus and Sikhs, they continued to live in the city.

Gross Density of Population

The average gross density of population in Karachi is thirteen persons per acre. This is less than in the other major cities of West Pakistan.[13] In Lahore, there are sixteen persons per acre and in Rawalpindi twenty-nine persons. In Hyderabad, there are thirty-seven persons per acre, in Peshawar thirty-eight, in Multan fourty-two

[13] *Census of Pakistan*: Ministry of Home and Kashmir Affairs, Karachi, 1961, Vol. 3, pp. 11, 94-95.

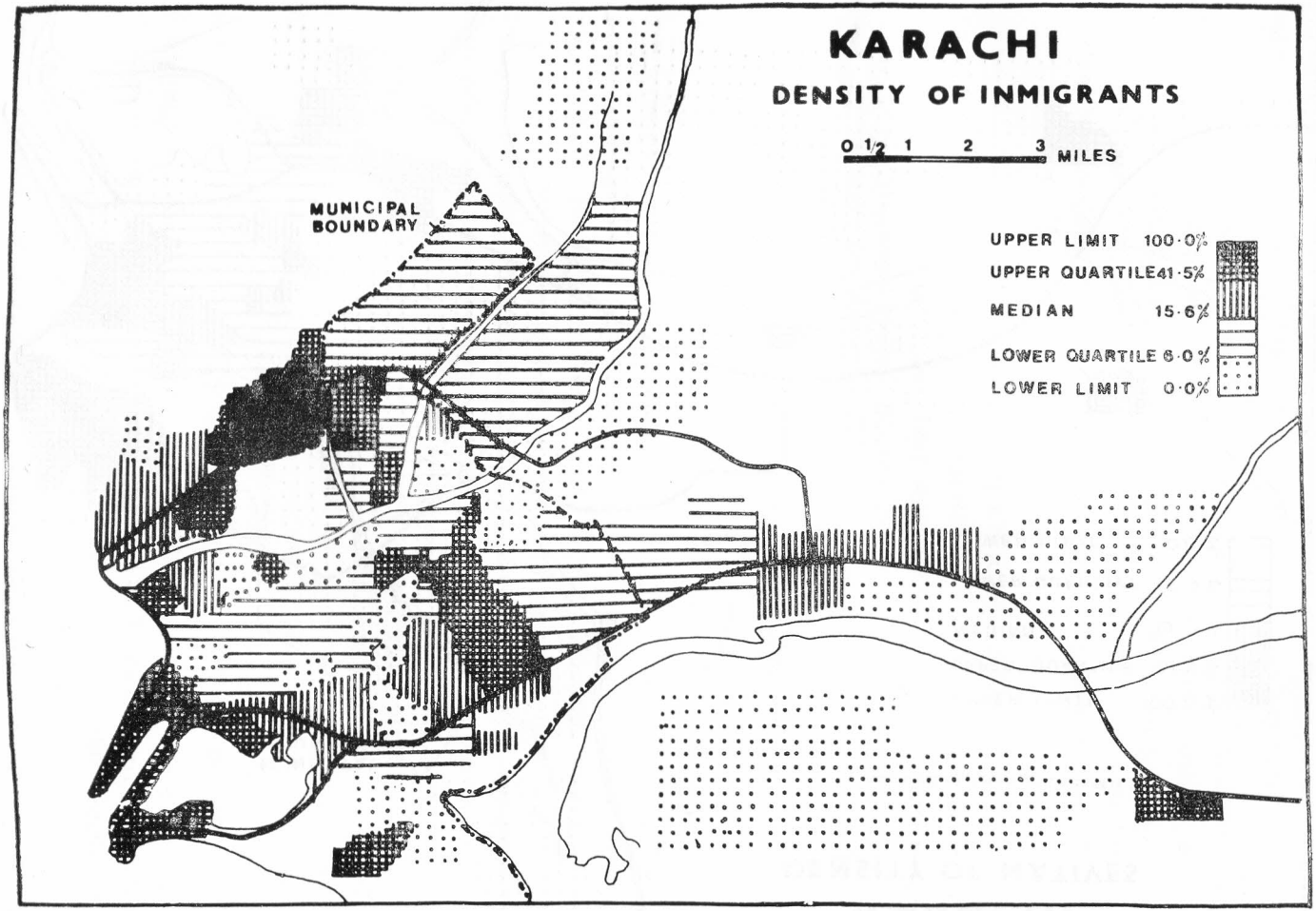
KARACHI
DENSITY OF INMIGRANTS
0 1/2 1 2 3 MILES
MUNICIPAL BOUNDARY
UPPER LIMIT 100·0%
UPPER QUARTILE 41·5%
MEDIAN 15·6%
LOWER QUARTILE 6·0%
LOWER LIMIT 0·0%

FIGURE 6

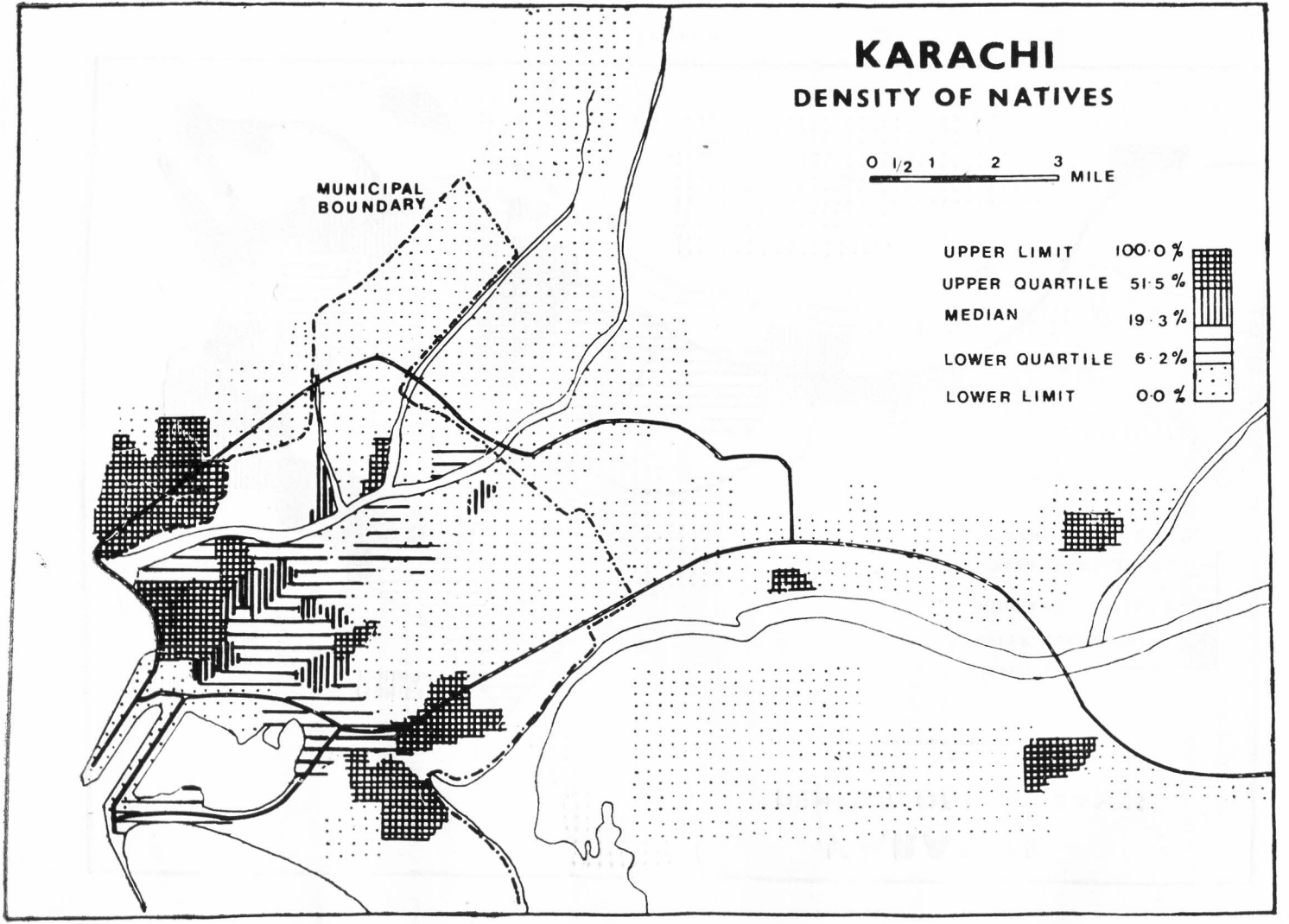
KARACHI
DENSITY OF NATIVES
0 1/2 1 2 3 MILE
MUNICIPAL BOUNDARY
UPPER LIMIT 100·0 %
UPPER QUARTILE 51·5 %
MEDIAN 19·3 %
LOWER QUARTILE 6·2 %
LOWER LIMIT 0·0 %

FIGURE 7

and in Lyallpur sixty. The low gross density in Karachi is the result of the inclusion of vast tracts of undeveloped land within the Municipal boundary in recent years.

There are overcrowded wards in the oldest parts of the city. Here the gross density ranges from 200 to 693 persons per acre.[14] The highest densities are found in the Old Town (693), Ramaswami (594), Napier (466), Ranchore Line No. 1 (422), Ghulam S. Kassim (378), Lawrence Quarter No. 1 (360), Ranchore Line No. 2 (303), Lyari Ward No. 10 (302), Arambagh (300), Tahilram (297), Bundar (247), Wadhumal (273) and Market (272).

The high density zone is surrounded by a belt of medium population density (50 to 200 persons per acre). Further out still there are several wards in which the densities generally do not exceed 50. They represent the recent expansion of the city at the edge of the Municipal limits. Beyond the Municipal boundary the population densities are normally low except on the urban fringe where both medium and high densities are found in the newly developed refugee colonies. Beyond this fringe there are some scattered settlements in which the density is very low, normally not exceeding five persons per acre.

Net Density of Population

But the population densities quoted for each ward are misleading. Inaccuracies may arise from large tracts of open land, factory sites, railway tracks and other non-residental areas.[15] In order to overcome this difficulty a population density map of the city has been prepared on the basis of the built up area only (Fig. 8). Since the figures for the census enumeration districts could not be obtained, the enumeration sub-areas (called chunks) of the 1960-61 population survey conducted by the Institute of Development Economics, Karachi, were used.[16] The chunks are 162 in number and each is small enough to be easily managed by a single enumerator. The area of the residential land in the chunks, was calculated after excluding open lands and other non-residential areas. An array was then made of all the densities and the median and quartiles calculated. In this way four categories of population density were established. They were 1) 0.5 to 33.3 persons per acre, 2) 33.3 to 123.8 persons per acre, 3) 123.8 to 249.6 persons per acre, 4) 249 to 701.5 persons per acre.

The high densities of 249 to 701.5 forming the upper quartile are found in and around the city centre. The area extends from the Old Town eastward along Bundar Road and Lawrence Road up to the Gandhi Gardens. It is the oldest section of the city and consists of 3-5 storey apartment buildings called '*Chawls*'.

[14]Karachi Development Authority : *Population and Residential Density Report*, MP 12, Karachi 1961.

[15]E. Jones : A Social Geography of Belfast, Quantum Reprints (London; 1965), p. 136.

[16]S. S. Hashmi : *op. cit.*, footnote 3.

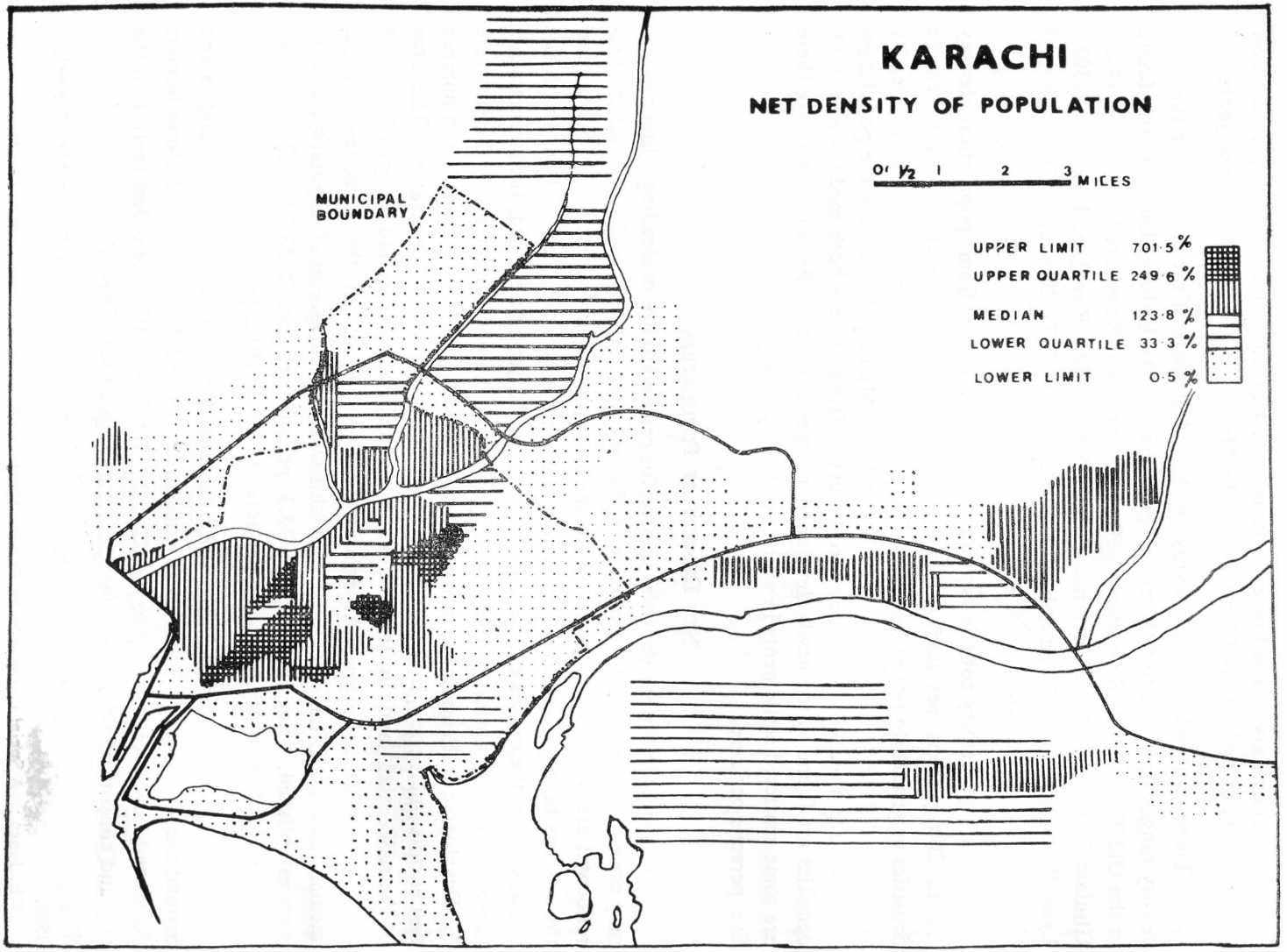
KARACHI
NET DENSITY OF POPULATION
0 ½ 1 2 3 MILES
MUNICIPAL BOUNDARY
UPPER LIMIT 701·5 %
UPPER QUARTILE 249·6 %
MEDIAN 123·8 %
LOWER QUARTILE 33·3 %
LOWER LIMIT 0·5 %

FIGURE 8

The central very high density region is bounded on the north, east and south by a belt of high density ranging from 123.8 to 249.6. The area on the west is not used for residential purposes. Here are to be found docks, Port Trust offices, and industrial premises. The northern section of the high density belt is comprised of the housing district of 'huts and hovels'. The origin of this district will be discussed later. Here it is sufficient to point out that the area is inhabited by labourers and factory workers. The eastern and southern sections of the high density belt are parts of the *Chawls* district. The former is comprised of Sadar Bazar and Artillery Maidan and the latter the Serai quarter. Unlike the rest of the *Chawls* districts, these areas were planned for elegant living. Sadar Bazar was developed as a regimental market. The upper floor of the buildings were utilized for residential purposes by the Indian merchants. On account of decent development, it has gradually became an important residential district for Christians and Parsis. Artillery Maidan was planned in the 1930s as a residential locality for businessmen and Government officials. The ground floor of many of the buildings have recently been converted into shops, restaurants and small factories. The Serai Quarter was developed in the fourth quarter of the nineteenth century as the mercantile quarter of Karachi. The ground and first floors of the buildings were used for offices and the ground and the remaining one or two floors for residential purposes. The area has always served as the mercantile quarters of Karachi. Several of the buildings have been replaced in recent years by skyscrapers to provide accommodation for commercial offices.

An extension of the high density belt is found along the river Lyari. It includes the quarter districts' of Lawrence Road (Pakistan Quarters), Martin Road and Jamshed Road ; 'the terraced housing districts' of Liaqatabad, P.I.B. Colony ; a portion of the '*kothi* districts' containing Firdaus Colony, Rizvia Colony, and Pirabad. A few wedges of high density are also found east of Sadar Bazar. They are comprised of the 'quarter district' of Jacob Lines, the barrack districts of Jutland Lines and Abbysinia Lines.

Except for the barracks region, the remaining of the above districts were developed after 1947. The barracks were built by the Cantonment Board for army personnels. When vacated by the British army in 1947, they were occupied by immigrants from India. Whereas a barrack was owned previously by a single family, it was now shared by two or more families. The quarters were built by the Government of Pakistan for her employees receiving low salaries, and the terraced houses for poor refugee families. The plots are very small and normally measure eighty square yards. This has restricted the accommodation to one or two rooms only. Unlike the Government sponsored quarters and terraced housing districts, the *kothi* areas of Firdaus Colony, Rizvia Colony, and Pirabad were developed by private housing societies. Although the *kothis* are comparatively larger, they have been divided into small

portions and rented out to different families. The inhabitants may be classified according to income as 'middle class'.

Between the high density areas of Sadar Bazar, Soldier Bazar, Jacob Lines and Abbysinia Lines lies a prominent belt of intermediate densities (33.3 to 123.8). It is mainly comprised of the bungalow districts of the Karachi Cantonment and the Civil Lines, and ; the villa districts of Garden East, Garden West and Jamshed Road quarter No. 1. A few areas of intermediate densities also occur on the north and east of the high density belt. They represent the high class *kothi* districts of Nazimabad No. 1 and PECH Societies No. 1.

Areas of low densities (0.5 to 33.3) extend from the intermediate and high density areas to the urban fringe. They include the *kothi* districts which have recently been planned by the Karachi Development Authority. On the outer limit of low density area are a number of scattered settlements with high densities.

Overcrowding

An important index of overcrowding is the number of persons per room. The average number in Karachi is 3.6,[17] which indicates a high degree of overcrowding (Table 2). 50.7 per cent of the population live at a density of five and more persons per room and fourteen per cent live at a density of four persons per room. 15.1 per cent of the population live in rooms containing two persons. Only seven per cent of the population live in rooms containing one person.

Table 2—Density of Persons per room and the size of population in each category.

Density		Population	Per cent of Total Population
Up to 1 person	...	130,200	7
2 persons	...	229,000	12.7
3 persons	...	278,700	15.1
4 persons	...	249,600	14.0
5 persons and more	...	897,200	50.7
Persons having no room	...	10,600	0.5
Total		1,795,300	100

The density of persons per room, however, differs from area to area according to the type of housing. This kind of information could not be obtained from the census returns. A sample survey was conducted by the author in 1964, which showed that the highess degree of overcrowding was found in the huts/hovels district (Table 3). Here the average density per room is as high as 6.9. The next most highly crowded district was the *chawls* zone. It had a density of 4.6 persons per room. Next come the terraced housing districts (3.8) and the quarters districts (3.5). The density of

[17] *Census of Pakistan, Karachi District*, Ministry of Home and Kashmir Affairs, Karachi 1961. Part III, Table 5.

persons per room in the flats zone was 2.4 and in the *kothi* districts 1.6. The residential areas containing spacious bungalows and villas were the only housing zones which were entirely free from overcrowding. The villa district had an average of one person per room and the bungalow districts of 0.8.

TABLE 3—KARACHI : DENSITY OF PERSONS PER ROOM IN HOUSING DISTRICTS

Housing Districts		Average No. of Persons per Room
Huts/Hovels Districts	...	6.9
Chawls Districts	...	4.6
Terraced Housing Districts	...	3.8
Quarters Districts	...	3.5
Flat Districts	...	2.4
Kothi Districts	...	1.6
Villa Districts	...	1.0
Bungalow Districts	...	0.8

Note : The table is based on a sample survey and the figures are therefore approximate.

MOST DENSILY POPULATED SECTORS

When the net densities and the densities of persons per room are considered together it becomes quite evident that the areas most affected by congestion and overcrowding are the districts containing three types of housing. These are the *chawls* district, the huts/hovels district and the terraced housing districts. The *chawls* district is the oldest section of the city and represents its central area. The huts and hovels district is situated north of the city in a zone which may by termed the 'integumental zone'. It is a mixture of old and new houses, small factories and godowns. The terraced housing districts however are mostly situated on the urban fringe and have been developed after 1947. An examination of the initiation and development of each of the three sectors explains the real causes of population densities.[18]

The centrally located *chawls* were built by wealthy inhabitants in the early stages of the city development, with a number of independent one or two room apartments on each floor these high tenements provided accommodation to several families on small plots of land. On the one hand they offered a solution to the problem of the shortage of space within the 'Municipal Quarters' and on the other they fulfilled the requirements of the early immigrants who were mainly males. Rich persons specially liked to live in the city centre, which although based like other pre-industrial cities on fallacy of prestige to some extent, bore a great relation to the non-advancement of technology that restricted mobility.[19] As soon as the immigrants

[18]E. Jone : *op. cit.*, footnote 15.

[19]G. Sjoberg, *The pre-industrial City : Past and Present*, Paper back Ed. (New York; 1965), pp. 99-100.

felt settled, most of them called their families from up-country. The whole family then lived in the same apartment. This led to overcrowding and by the end of World War I, the average density in the *chawls* district was as high as four persons per room.[20] The condition was aggravated still further after 1947. Whenever an apartment fell vacant on account of emigration of a Hindu or Sikh family to India, it was immediately occupied by more than one Muslim refugee family. However, during the last decade (1951-61) thousands of families have moved from the district to new suburbs. But it is still one of the most important residential portions of Karachi, especially for businessmen, professional men and the employees of various firms. They live quite close to their work and derive benefits from the social and recreational facilities provided.

But the *chawls* were suitable only for those who could pay high rents. People with meagre incomes were forced to build their own poor houses along the river Lyari where land was cheap and fresh water readily available. With the establishment of several factories in the area in the early decades of the twentieth century more and more of these houses were built by labourers and workers. In the years following the establishment of Pakistan (1947) a very large number of huts and mud houses were built by refugee families. Private landlords also erected houses to meet the needs of the mill workers employed in the nearby Sind Industrial Estate. The development was unplanned and the material poor. At the present time the buildings are in such a stage of deterioration process in which the meanest properties yield profits to the owner through sheer density of population forced by necessity to live in undesirable surroundings.[21] Not only the houses are mean and very small, they are also dirty and bear a dismal look. There are no drainage arrangements in the area. Pools of filthy water may be found here and there. Every available foot of land has been built upon so that instead of streets and roads there are narrow and winding lanes which provide the only approach to the houses. In several parts, the population density is as high as 1200-1300 persons per acre. Similar high densities are found in several other industrializing cities. Densities of 1000 persons per acre are known in Singapore and 2000-3000 in Hongkong. But the people in these cities live in buildings of three or more storeys. The Lyari's population density of 1200-1300 persons per acre is thus unique and the resulting misery exceed that found elsewhere in the world.[22]

[20]A.E. Mirams, Report on the Development of Karachi (Supplementary), Bombay, 1924.

[21]Mobel L. Walker, Urban Blight and Slums, *Havard City Planning Studies*, Vol. XII, Cambridge, 1938, p. 17.

[22]*Lyari Re-development Scheme*, Survey of Existing Conditions. Karachi Development Authorily, Karachi, 1961, p.5.

Although an equally bad environment is found in the terraced housing districts, they are quite different from the Lyari slums and from the old decayed *chawls* district of the central city. They are of recent origin and have been created exclusively for the poorer classes of immigrants. After the vacant lands on the urban fringe had been marked out for development, the building plots were given to individual families. On some of them a room was built before they were allotted. The immigrants constructed their houses according to their means. The average plot measures only eighty square yards. The houses consist of one or two rooms. Most of them have no windows and any adequate ventilation. The only opening is provided by a small doorway. In order to secure privacy, old kerosine oil tins and gunny bags are used to make screens, which further restrict the entrance of light and air. Except for the laying out of building plots no further help was provided for these colonies. Parks, schools and shopping centres are lacking. Neglect of sanitation is evidenced by heaps of garbage and pools of sewage, whilst the existence of service latrines contribute further to the polution of air and soil. In this environment live nearly 360,000 people or one-fifths of the total population of Karachi.

The development of such shanty towns on the urban fringe of cities is familiar in almost all the so-called developing countries.[23] India's '*bastis*' and '*Katras*' Brazil's '*favelas*', Argentina's '*villas demieria*', Chile's '*callampas*' Venezuela's '*Barrios*' and Peru's '*barriads*' are all fundamentally similar. They are the result of a very rapid rate of urbanization. The problems created are too great to be easily solved by the poor countries. The situation is quite different in Western cities where sites such as these are occupied by decent suburbs in which the land values are very high and the inhabitants belong to the upper income groups.[24]

[23]Jones E., Towns and Cities, London, 1966, p. 50.
[24]*Ibid.*

SPATIAL PATTERN OF SEX RATIO IN PAKISTAN

S. HAMID HUSAIN ZAIDI

IN his study of the way Indian cities differ from each other, Ahmad found that the component that accounted for the greatest proportion of total variance was a north-south regionalism based on sex ratio and related factor of female labour force.[1] Another component in which too sex ratio found to be a significant variable was east-west regionalism based on occupational characteristics, sex ratio and degree of clustering. This as well as several other studies have brought to light the importance of sex ratio as a highly significant demographic element in the study of regional variations.[2]

In the present paper, which deals with spatial pattern of sex ratio in Pakistan, an attempt has been made to demonstrate whether there are regional variations in the distribution of sex ratio in Pakistan. If so, what could be the possible explanation for this phenomenon ?

The most puzzling aspect of the study of male-female ratio obtaining in Pakistan is the smaller proportion of female population in all parts of the country without exception. Males outnumber females everywhere, in both East and West Pakistan, and in the various parts of each province. Of the various reasons given for the disparity in the male-female population in India those which hold good for Pakistan as well, are as follows :[3]

> "In the first place, a larger proportion of boys than girls seems to be born in this country than in the West."
>
> "Secondly, girls in the first few years of their life, still seem to suffer from greater neglect than boys, as a result of which Nature's balancing action of taking away more boys than girls in the first year of life does not properly come into play, and the survival of girls never seems to draw even with that of boys."

[1]Qazi Ahmad, *Indian Cities: Characteristics and Correlates* (Chicago: University of Chicago Press, 1965), pp. 30-49.

[2]Sex-ratio refers to the number of females per 1000 males in a population.

[3]*Census of India*, Paper No. 1 of 1962, 1961 Census. Final Population Totals, p. XVII.

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"Thirdly, a heavy toll of female lives is taken in the earlier period of the reproductive age, that is, between the ages of 15 and 34. The toll is so heavy that the difference between male and female population grows remarkably rapid and wide, and this gap is never made up in middle or old age. What is more, proportionately greater deaths occur among females even between the ages 35 and 54 than is commonly believed."

"All these factors help to widen the male lead at birth with age, which our still modest expectation of life does not give much of a chance to narrow."

In addition to various other factors mention should also be made of the factor of under-enumeration of females at the time of decennial census. Although there has been some improvement in the enumeration of females in the 1961 Census, this factor cannot be ruled out entirely.

According to the 1961 census, the difference between male and female population adds up to 4.5 million. This gives a masculinity ratio (*i.e.* number of males per 100 females) of 113.[4] What are the sociological implications of such a marked difference in the male-female ratio is a matter that should engage the attention of sociologists, although its implication in the context of regional variation is a fit topic for consideration of geographers as well.

Spatial pattern of sex ratio

A reference to Fig. 1 helps in making a number of observations on the spatial pattern of sex ratio in Pakistan.

There is a marked difference between East and West Pakistan in terms of sex ratio. East Pakistan shows higher proportion of females in almost all districts as compared to West Pakistan. In the words of Krotki, "while East Pakistan is approaching more usual levels of the masculinity ratio, the very high figure for the West part of the country must remain under a grave cloud of doubt."[5] It is only in the case of Dinajpur, Chittagong and Chittagong Hill Tracts that the sex ratio drops below 900. In majority of the districts it ranges between 900 and 950.

On the other hand, West Pakistan shows remarkable variations in the distribution of sex-ratio. It drops as low as 740 in the Quetta district, varies between 820 and 890 in a large number of districts, and shows unbelievably high proportion of

[4]With reference to this abnormal high ratio, Krotki, remarks :

"This seems to be a ratio quite without precedence for a large population. Furthermore, it is the shortage of women at all ages which is so remarkable." See K.J. Krotki, "A first glance at the Pakistan Age Distribution" *The Pakistan Development Review, 1* (Summer, 1961), p. 71.

[5]Krotki "First Release from the Second Population Census of Pakistan; 1961," *The Pakistan Development Review, 1* (Autumn, 1961), p. 74.

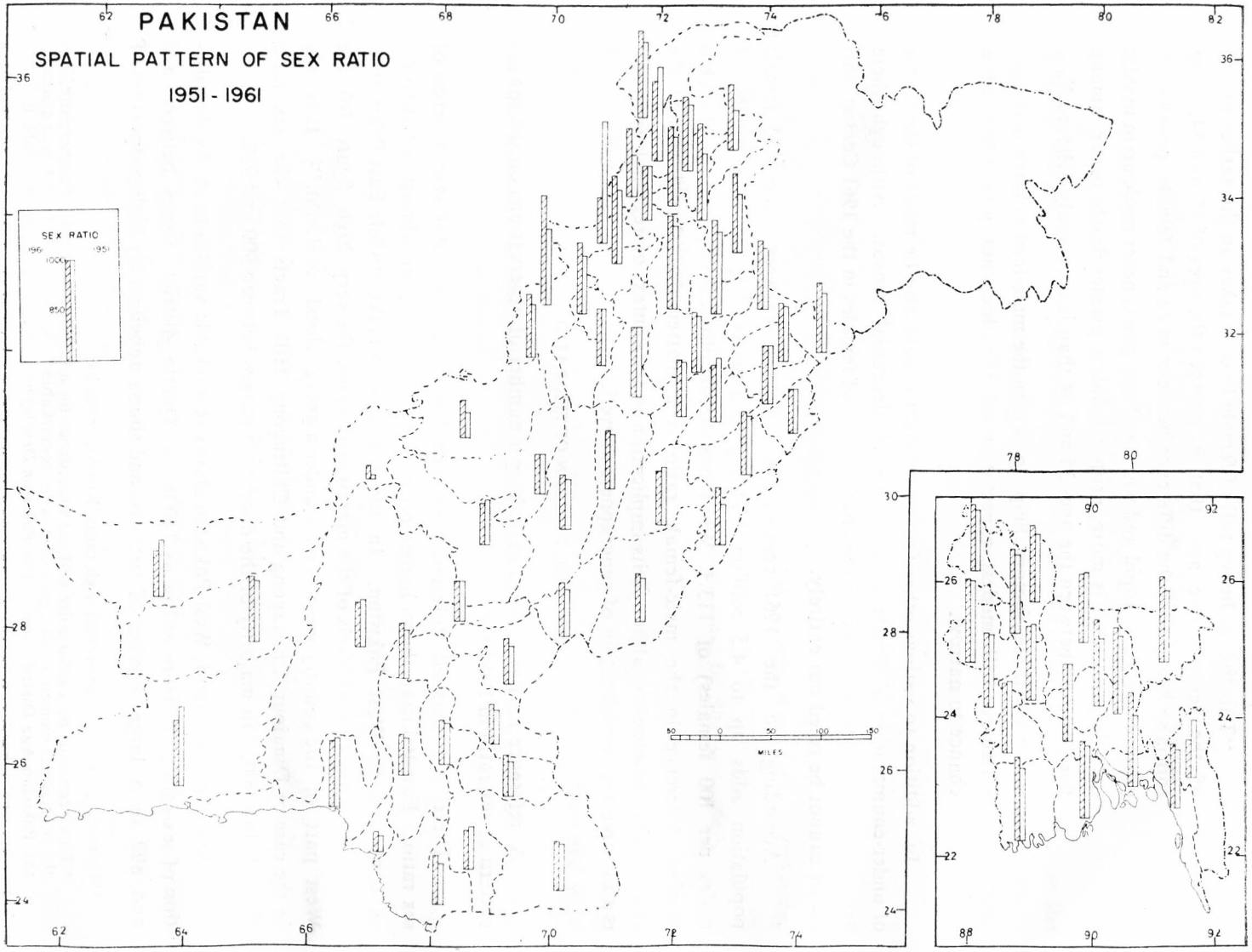
PAKISTAN
SPATIAL PATTERN OF SEX RATIO
1951 - 1961
SEX RATIO
1961
1951
100
85
MILES

FIGURE 1

females in a few northern districts such as Hazara (980), Kohat (950), Campbellpur (970), that is, the districts included in the Peshawar and Rawalpindi Divisions, as well as in some of the Tribal Areas. A reference to the map (Fig. 1) shows that the entire belt of northern districts (that is, those bordering Kashmir) have sex-ratio exceeding 900, a value much higher than the average for West Pakistan which is 868. This is an exceptional phenomenon and may possibly be due to the fact that the male population had gone elsewhere in search of employment. In addition, these districts also provide the bulk of manpower for the Armed Forces of the country. It seems that the quantum of total exodus (including out-migrants and men going out to take up service in armed forces) from this region is relatively the greatest in West Pakistan. This factor tends to increase the proportion of females, thereby raising the sex-ratio. About the distribution of sex-ratio in the Tribal Areas, it may be mentioned at the earliest that the sex-ratio figures as diagrammatically represented on the map (Fig. 1) have been computed on the basis of male and female population statistics provided by the Census. These population figures, as clearly mentioned in the Census, represent the combined population derived by adding the enumerated and the estimated population.[6] In as much as the estimated population accounts for sixty-two per cent of the total population of the Tribal Areas, the sex-ratio figures computed on the basis of total population (*i.e.* enumerated and estimated) do not seem to be close to reality. As appears from Fig. 1 the proportion of females in most Tribal Areas is relatively markedly high, so much so that it attains an incredible proportion of females (1021) in the case of North Waziristan, while in South Waziristan it drops to a mere 880.

South of the belt of the northern districts with high proportion of females, the sex-ratio values over the rest of West Pakistan maintain a uniform level although there is slight but steady decline in the proportion of females from north to south. In all these districts the sex-ratio is generally low, much below the average for West Pakistan (868). However, in as much as the distribution conforms to the expected pattern of male-female distribution, there is hardly any need for explanation. Nor is there one easily available, except the factors mentioned at the outset. The three major exceptions are the districts of Kharan, Mekran and Las Bela, all of which have the same sex-ratio *i.e.* 900, a figure much higher than the average for West Pakistan. This is, probably, due to the fact that these districts have sent out more men to other areas than the adjoining districts.

[6]"The Census was done on the basis of estimation in those areas where it was difficult to carry out an enumeration." See *Census of Pakistan 1961*, Vol. 2, p. VI-3. The estimated population accounts for 62.7 per cent of the total population of the Tribal Areas, according to the 1961 Census.

In order to find some explanation other than those already mentioned for the marked variation in the distribution of sex-ratio in West Pakistan, it was decided to undertake a few correlation exercises.

A probe into literature dealing with relationship among various population characteristics helped in formulating the hypothesis that there is an inverse relationship between the sex-ratio (or proportion of females) and degree of urbanization, or (per cent urban population). In other words, one would expect lower proportion of females in the districts with higher proportion of urban population.

In order to test this hypothesis four scatter diagrams were drawn separately for East and West Pakistan for the years 1951 and 1961 (see Figs. 2 to 5). Since the scatter diagrams are self explanatory there was no need for computing correlation coefficient. However, in the case of East Pakistan, an attempt at correlation between sex-ratio and per cent urban population using 1961 data yielded a coefficient of –.13, indicating that there was inverse, though weak, relationship between the two variables. The results derived from a study of the scatter diagrams are by no means contrary to expectation. A negative though weak correlation is understandable in view of the remarkably uniform values of sex-ratio over greater part of West Pakistan and secondly, due to the fact that not all the migrants from rural areas go to work in the urban areas of that district; some may go to a bigger town in some other districts or to some other region, for a variety of reasons.

In fact more meaningful result can be achieved if the investigation is conducted within the framework of multiple regression analysis which, in all probability, would reveal not one but several factors that contribute to variation in the distribution of sex ratio in East and West Pakistan.

Changes in Sex Ratio Between 1951 and 1961

Figure 1 clearly represents the fact that there has been definite, though slight, improvement in sex ratio in both East and West Pakistan. The reason generally ascribed to this phenomenon is the more thorough coverage of females in enumeration of the 1961 population. The number of females has registered an increase though in slightly varying proportion. A few major exceptions are Chittagong Hill Tracts in East Pakistan and the districts of Chagai, Mekran, Las Bela, Kalat, Hyderabad and Lyallpur together with Khyber Agency and Dir in West Pakistan.

Regionalization Based on Sex Ratio

Another finding of this analysis, and the one which should be of great interest to geographers, is the grouping of sex ratio in four major clusters, two of which (groups 1 and 2) consist of districts with sex ratio below the average for West Pakistan

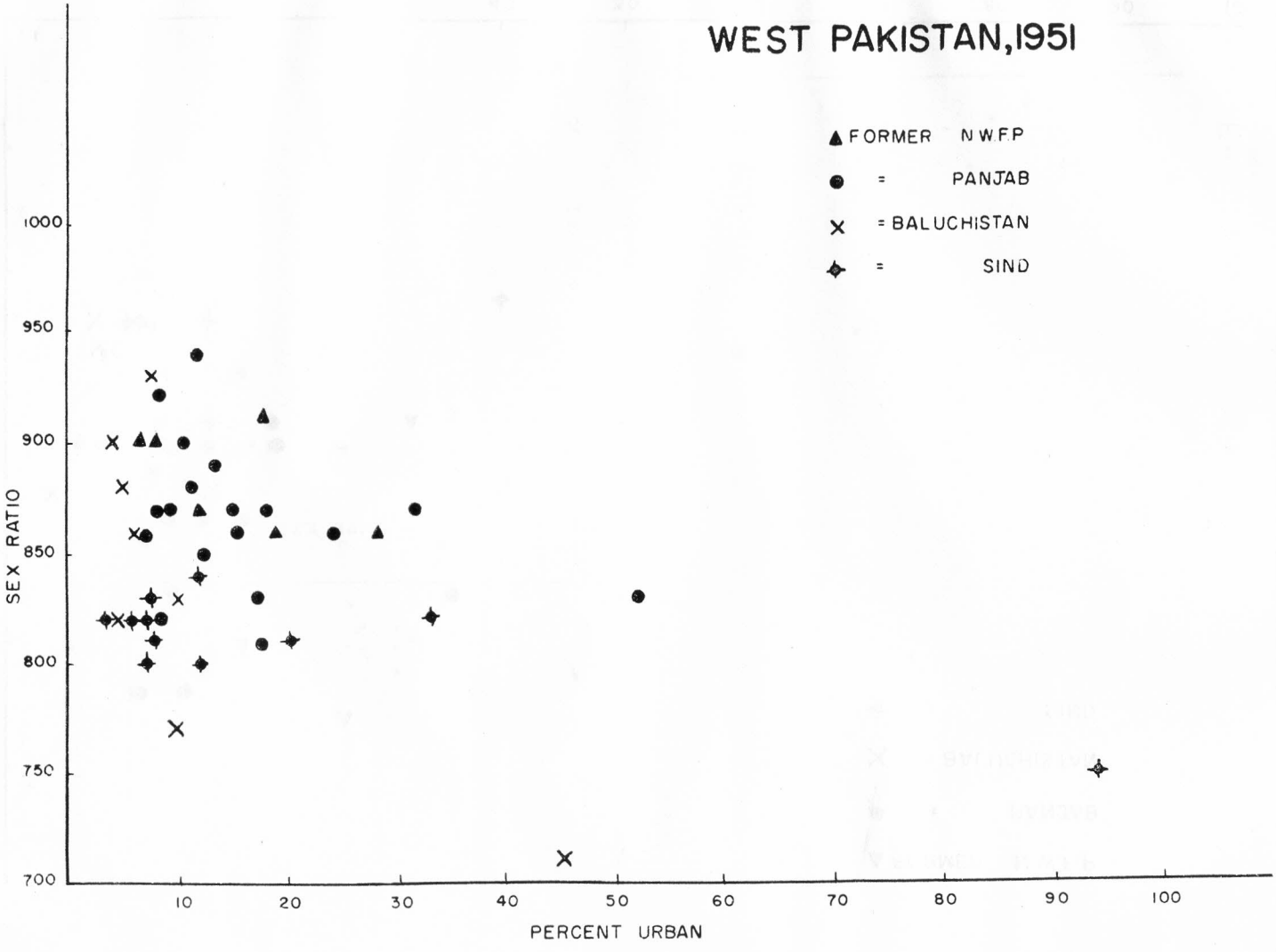
WEST PAKISTAN, 1951
▲ FORMER N.W.F.P
● = PANJAB
× = BALUCHISTAN
✦ = SIND
SEX RATIO
1000
950
900
850
800
750
700
10
20
30
40
50
60
70
80
90
100
PERCENT URBAN

FIGURE 2

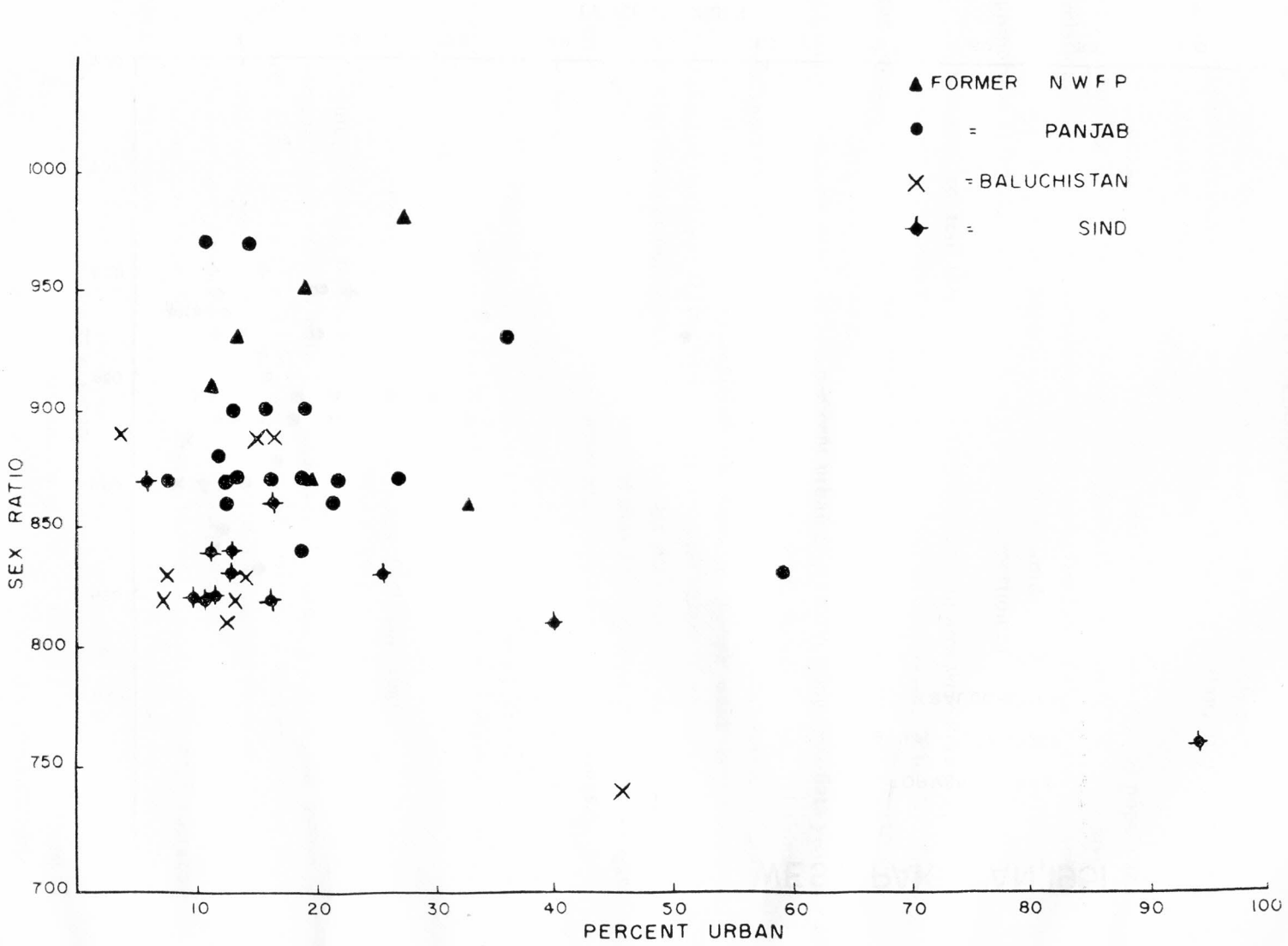
WEST PAKISTAN,1961
FORMER N W F P
= PANJAB
= BALUCHISTAN
= SIND
SEX RATIO
1000
950
900
850
800
750
700
10
20
30
40
50
60
70
80
90
100
PERCENT URBAN

FIGURE 3

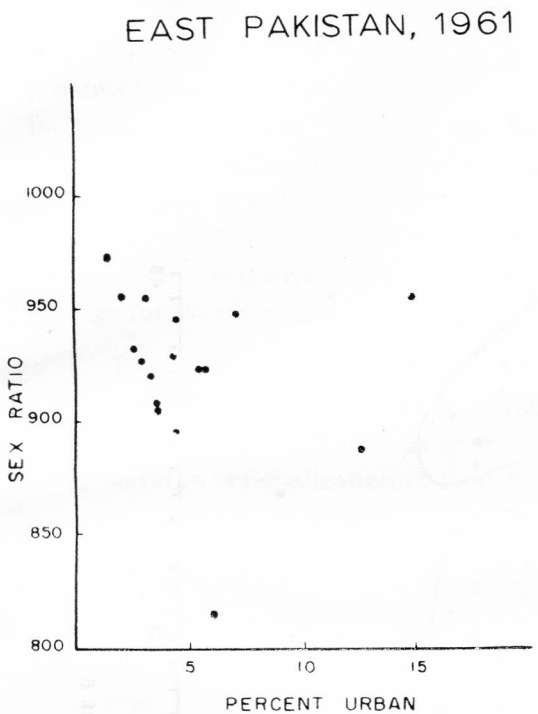

FIGURE 4

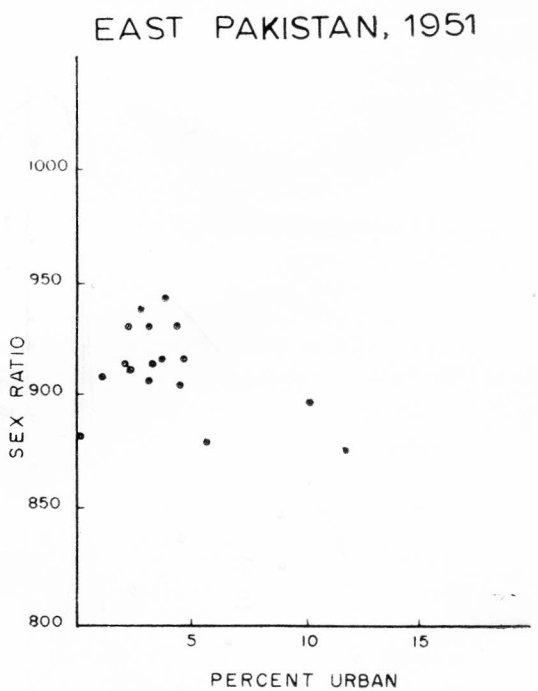

FIGURE 5

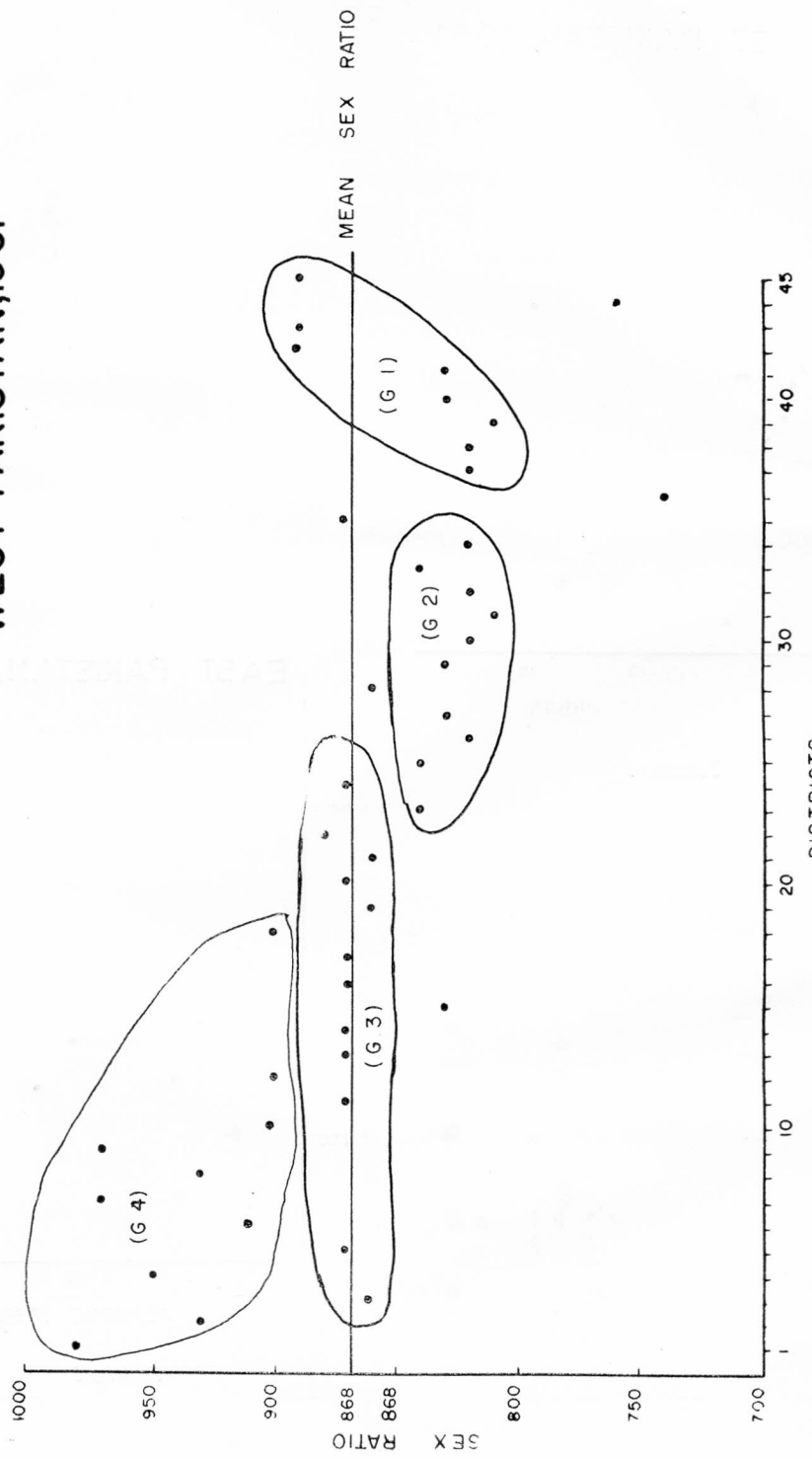
WEST PAKISTAN, 1961
MEAN SEX RATIO
(G 1)
(G 2)
(G 3)
(G 4)
SEX RATIO
1000
950
900
868
868
800
750
700
1
10
20
30
40
45
DISTRICTS

FIGURE 6

(Fig. 6.) The districts included in groups 1 and 2 are those of the former provinces of Baluchistan and Sind, in that order. Group 3 consists of districts included in the former 'Punjab' and Bahawalpur State. All the districts in this group have sex ratio which show slight departures in both directions from the average figure for West Pakistan. Finally, Group 4 consists of ten districts (districts bordering Kashmir) which are included in the former provinces of Punjab and North West Frontier. These districts have sex ratio values which are considerably larger than the average for West Pakistan.

This grouping, or more significantly, regionalization of sex ratio is a very important finding, and needs to be further explored within the framework of multiple regression analysis. Sex ratio as an important demographic element may prove to be a key factor in regionalization of West Pakistan based on cultural differences.

NEWS AND NOTES

SYED ALI IBNE HAMID RIZVI, 1925–1969

Dr. Rizvi died suddenly of heart failure in Dacca on March 16, 1969. In him our profession has lost a dedicated outstanding scholar, a stimulating teacher and a charming friend. His death is untimely not only because he died at an early age of 44 but because he departed at the prime of his most productive period when he was expected to make valuable contribution to the promotion of academic and professional status of geography in Pakistan. He pioneered geomorphology as a field of specialization by Pakistani geographers and was deeply involved in researches in fluvial morphology. Following in the footseps of his professor R. J. Russell, Dr. Rizvi worked and preached the idea of a more geographical geomorghology, which in Pakistani geography has yet to gain a deeper appreciation.

Dr. Rizvi was born in January 1925, and came of a highly respected Syed family of Agra, India. He was one of those unhappy children who lose their parents at an early age. He lost his mother at the age of 4 and his father when he was about 9 years old. However, the parental bereavement did not come in his way of building a brilliant educational career. He received his school as well as university education at the Muslim University of Aligarh, the famous seat of learning. He took his first Master's degree in philosophy in 1946, and the second in geography in 1948. His background in philosophy and mathematics was of special help to h'm in developing clarity of thought, maturity of judgement and precision of expression, for which he was well known among his colleagues and students.

Dr. Rizvi started his professional career as a lecturer in geography at the Balwant Rajput College, Agra. In 1950 he migrated to Pakistan and joined the Department of Geography, University of Dacca, as a lecturer. Here, with professor Nafis Ahmad as Chairman, he played pioneering role in developing the postgraduate teaching and research programme. Thus his contribution to the cause of promoting geography in East Pakistan cannot be exaggerated.

In 1953 Dr. Rizvi proceeded to the U.S.A. on study leave. He joined the Department of Geography of the Louisiana State University at Baton Rouge. Rizvi's contact with Professor Russel stimulated his interest in geomorphology, particularly in fluvial morphology of deltaic regions. He was able to complete his doctoral work in the barest minimum period of about two years, and returned to the University of Dacca in 1955. Filled with enthusiasm for geomorphological studies Dr. Rizvi initiated a special course in geomorphology at the University of Dacca. His provocative lectures drew promising students to his course on geomorphology and thus a

properly guided teaching and research programme in geomorphological problems was developed at the Department of Geography. In 1961, Dr. Rizvi was elevated to Readership in Geography at the same university, which position he held until his death. In 1957, Dr. Rizvi married Miss Najma Aziz of noble parentage from Barisal in East Pakistan. Mrs. Rizvi was also a geographer (who took her M. A. degree in Geography from the University of Dacca) and shared with Dr. Rizvi the enthusiasm for teaching and research.

Dr. Rizvi was one of the very few Pakistani geographers who made a number of visits to the United States on teaching or research assignments. From 1959 to 1961 Dr. Rizvi was a visiting Fellow in the Department of Agricultural Economics of the Cornell University. In 1964 he was again invited by the Department of Geography, University of Denver, Colarado, as a visiting Assistant Professor where he stayed till 1966. In the summer of 1966 he went to Canada and taught at the University of Waterloo. He returned to the University of Dacca in the autumn of 1966, and took the charge of the Department of Geography as its Head, which position he held till 1968. During the same period, namely 1966 to 1968, Dr. Rizvi also served as the President of the East Pakistan Geographical Society, and also as Joint Director, National Atlas Board of Pakistan. In all these capacities he exhibited the enviable qualities of administrative and intellectual leadership. In his trips abroad Dr. Rizvi was accompanied by his wife. Mrs. Rizvi availed these opportunities most profitably and secured M. A. degree in Geography (from the University of Florida in the first trip) and in Anthropology (from the University of Denver in second visit).

His deep involvement in research on geomorphological and hydrological problems of East Pakistan earned Dr. Rizvi a great deal of respect among his professional colleagues. He was invited to preside over the Section on Geomorphology, Hydrology, Climatology and Oceanography in the Second All Pakistan Geographical Conference held at Lahore in December 1968. His presidential address entitled "Pakistani Geomorphology" is being reproduced in the following pages, as his last message to his fellow geographer geomorphologists. His counsel and advice were sought and valued by various agencies, outside of the University of Dacca, engaged in investigations into geographical, geomorphological and hydrological problems. He held important offices in many learned societies, both national and international.

Dr. Rizvi gave his thoughts and time very generously to his students and all others engaged in academic pursuits. Many of his students are holding responsible positions in the government, universities, colleges and other commercial and industrial agencies. He served the East Pakistan Geographical Society very devotedly and held at different occasions the offices of Treasurer, Secretary, Vice-President and President. The Society in order to express its gratitude for his services has instituted a Dr. Rizvi Memorial Award to be given annually to the most talented student of the Honours School of Geography at the University of Dacca.

Dr. Rizvi is survived by his wife, Mrs. Najma Rizvi, a daughter Naheed, and a son Naveen. May he rest in peace.

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PAKISTANI GEOMORPHOLOGY

A. I. H. RIZVI

Geomorphology has been traditionally a part of geography in Pakistan. It came with the syllabuses that we borrowed wholesale from some foreign universities at the time of establishing the first geography departments in our institutions. Pakistani geographers have made some significant contributions to the advancement of geomorphology without indulging in the controversy, with the geologists, regarding its proper departmental affiliation and without debating among themselves the question of its place in and its relevance to geographical studies.

Geology, which in our country has been and continues to be a device to find economic minerals, has shown little interest in land form studies and has made no claims on geomorphology. Most geology departments in Pakistani universities do not offer more than a part course of what is called physical geology. Geomorphology courses are, more or less, confined to geography departments only. It is not implied however, that the teaching of geomorphology in geography departments is quite satisfactory and nothing need to be done about it. On the contrary, we have no adequate programme for the training of geomorphologists in our country and the students, who become interested in the subject after being exposed to it in their beginning courses, find no opportunity for specialization in the field. In their organization and content most geomorphology courses at the Honours and post-graduate levels follow the well known textbooks in the English language and give little or no scope for originality and research. The students have either no access to or no use for the vast modern literature that is being turned out every year in many advanced countries of the world.

Presidential address delivered by Late Dr. Rizvi to Section 2, Geomorphology, Hydrogeography, Climatology and Oceanography of the Second All Pakistan Geographical Conference, Lahore December, 1968.

Emergence of Geomorphology as a Science

The inadequacy of geomorphology programmes in the two earth sciences departments is understandable. After all, both geology and geography have their own goals to pursue and their interest in the study of land form is, of necessity, subservient to the demands of their respective fields.

Geologists who, in Europe and America, have made significant contributions to the development of morphological concepts and methods, consider geomorphology an essential part of their craft and use it as a means to achieve their geological ends. Their primary interest is in structures, processes, and geological history rather than in the land forms as such. To them a hill is not just a surface form with a certain combination of geometrical expressions like elevation slope, relief, etc., it is a fold, a fault block, a plug, a residual mass, or a volcanic cone. A plain is not only a gently sloping surface with small relief and low or high elevation it is also a unit of horizontal layered structure with unconsolidated or weakly consolidated sediments. The geologist studies the land forms because to him they are the indicators of uplift and subsidence, folding, and faulting, construction and destruction. They provide him with a clue to the tectonic and gradational activities that have operated in the past or are operating now.

Like geologists, geographers are also interested only in a part of geomorphology which suits their purpose. To them the land is a stage on which the human drama is enacted. From their point of view, the study of land forms is a part of the study of the total physical environment which affects man and his activities in a variety of complicated ways. It was, perhaps, for this reason that phpsical geography courses in some Pakistani universities were, until recently, called the physical basis of geography, a term which is still preferred by many geographers in Pakistan.

Geographical geomorphology has a preference for empirical rather than explanatory descriptions of the earth's surface features. It aims to pro-

vide factual and accurate information about the present landscape and does not consider relevant the explanation as to its origin and development. There is a tendency to demarcate the spheres of geological and geographical interests within the field of geomorphology. The genetic study of processes belongs to the realm of geology, whereas geography reserves to itself the right to study the areal variations of land forms and their relationship with human phenomena.

Geography and geology are, by no means, the only fields which have found geomorphology useful. A number of other disciplines such as botany, forestry, soil science and hydrology, to mention only a few, have also profited by the study of land forms. In alluvial areas of East and West Pakistan there is a significant covariation of land form types and soils. Any soil survey which disregards the morphological factors affecting the distribution of soils in the plains of Pakistan is bound to reach erroneous conclusions. In the floodplain and deltaic areas of East Pakistan within a short distance at right angles to the river, from the levee-crest to the backswamp, one can find a greater grain size variation than along the river in a number of miles. Similarly, in conducting studies on spatial distribution of vegetation types or location of surface and ground water, geomorphology is often found helpful. Like geography and geology, some of these sciences have also made significant contributions to geomorphology from their own points of view and in their own interest. With geographical and geological geomorphology; already in existence, are we now heading towards botanical, pedalogical, hydrological, and other types of geomorphology also ?

I do not believe that by putting together the parts of geomorphology produced under the auspices of different sciences it is possible to have a meaningful and coherent whole. A whole science of geomorphology must pursue its own goal of studying land forms in their entirety and for their own sake. Geography and geology have taken good care of geomorphology and have helped it grow to its present stature, but now it has come of age and is capable of taking care of its own interests. Let not the parental patronage be prolonged to the extent of oppression and tyranny.

The emergence of geomorphology as a full grown science is being witnessed in many countries of the world, where post-graduate geomorphology programmes and independent sections and departments are being established. Geography, which has nurtured many an infant discipline in the past and has helped them grow into full-fledged sciences, has learnt by experience that by doing so it has gained much more than it has lost. It is evident that oceanography, hydrology and climatology could not make their present contributions had they remained within the fold of geography. In fact as a result of their separation more specialised information on oceanographic, hydrologic and climatic phenomena is available to geography and others who can make use of it in one way or another.

Geomorphological Research in Pakistan

Almost unlimited research possibilities exist for Pakistani geomorphologists both in the academic and applied aspects of their subject. From the sandy beaches of Cox's Bazar to the snow-capped mountains of the northern West Pakistan a large variety of geomorphic landscapes present a challenge which remains largely unaccepted. The need for extensive research on the nature of land in Pakistan can be hardly overemphasized. As a first step a general geomorphic study of Pakistan, with a view to formulating long-term research goals and identifying areas of study, seems essential at this stage. As the teaching and research programmes mature, some sort of regional and systematic specialization may develop in different universities of Pakistan. Geographical locations of our universities offer opportunities to study mountain and glacial geomorphology, coastal morphology, arid and semi-arid land forms, and above all alluvial morphology.

Mountain and glacial geomorphology should be studied not only because we have large valley glaciers and some of the highest and loftiest mountains of the world but also because these areas are still unexplored, little understood and largely unutilized. The study of the effects of waxing and waning of valley glaciers on the flow regimes of our rivers is important from more than one point of view. We ought to trace the

extent of Pleistocene glaciation in high altitude areas and its direct and indirect effects on our land. Effort should be made to fill up the gap in our area, in the world-wide coverage of the quaternary studies.

The study of arid land forms as a whole is still in its infancy in Pakistan and there is much scope for academic as well as applied studies in this field. In the west wing of Pakistan we have extensive areas which are classified as deserts and semi-deserts. These are characterized by small precipitation, high rate of evaporation, and meagres oil moisture which does not allow a vegetative cover. Canal irrigation, which has helped to bring some of the arid areas under cultivation, has proved to be a mixed blessing. The twin problems of large scale salinization of land and waterlogging are reducing productive lands to wildernesses. While experts of many fields are tackling the problem from their respective points of view the geomorphologist need not shy away from making his contribution to national welfare.

To a student of gemorphology the deltas and flood plains of the Ganges, Brahmaputra, and Indus rivers provide a unique opportunity of studying alluvial process and forms. No where in the world do we find alluvial rivers so abundant and depositional areas so extensive as in Pakistan. Nature has placed at our disposal two of the largest riverine tracts of their kind which together surpass, in their complexity and extent, similar areas elsewhere in the world, including those associated with the Mississippi, Rhine, and Hwang Ho rivers. It is in this field that we should be able to make the maximum contribution.

It is surprising that in spite of geographers' vital interest in the habitat of man traditional geomorphology has almost wholly ignored depositional features such as are the alluvial plains of East and West Pakistan where an overwhelming majority of our people live. The time honoured treatises on geomorphology have little guidance to offer to the student of alluvial phenomena in East Pakistan. We were told that because the sea level acts as an ultimate base level of erosion the rivers cannot erode their valleys below the level of the sea. Meandering was explained as a function of flattening gradients and the inability of streams to carry their heavy burden which they must discard to wander aimlessly in the featureless plain. We find, to our bewilderment, the Burhiganga river near Fatullah, where a buried clay plug has given it a right angled turn, flowing through a channel which has been eroded to a depth of some twenty feet below sea level. In fact all the major distributaries of the Ganges delta near the sea have their bottoms thirty to ninety feet below sea level. We do not find also the meandering rivers too heavily loaded or their wanderings aimless. On the contrary, there is rhythm and regularity in the development of meanders. Rivers which are charged with too heavy a burden are inefficient as transporting agents and do not meander freely. They start braiding. Far from being featureless, the deltas and flood plains exhibit a variety of land forms no less interesting than that found in the areas of high elevations and bold relief.

Practical applications on fluvial studies, particularly in East Pakistan, are of the utmost importance from the standpoints of inland navigation, land and water use, and human adjustments in relation to the phenomenon of floods. It is indeed unfortunate that the organizations which have to deal with these vital and multi-sided problems are manned entirely by the specialists of a single field and are deprived of the benefits of alternate approaches and points of view.

Training of Geomorphologists in Pakistan

The goals of Pakistani geomorphology can be realized most effectively by increasing the number of active, efficient, and dedicated professional workers in the field and by proving their usefulness by producing high quality research work of practical and academic importance. Let us remember that underutilization of talents is a characteristic of underdevelopment. With the growth of the country, hopefully in the not too distant future, the need will be felt for the specialized contribution of the geomorphologists.

I think that it is time we should make a beginning by establishing post-graduate teaching and research programmes in geomorphology in

some of our universities with a view to raising these sections to the status of full-fledged departments in the near future. The bold and imaginative step taken by the University of Dacca in establishing a soil science department nearly twenty years ago, in spite of many misgivings about its success, has proved to be a move in the right direction. Soil science is now an established field of learning and is taught in several universities and colleges of the country. A venture of comparable significance in another branch of earth science is now called for.

The objective of training geomorphologists, however, is not merely to respond to the demands of the employment market, where we send our young men and women, diploma in hand, to fill up the vacancies that arise from time to time. It is to cater for the basic need of the scientific understanding of the terrain features of our country which, apart from being a worthwhile academic objective in itself, offers unlimited possibilities of practical application.

The training programme in geomorphology, to be sure, should begin with the introduction of advanced post-graduate courses in systematic and regional aspects of the field. Students holding Honours degrees in geology, geography and soil science and with a workable background in mathematics and statistics should undergo a rigorous training for two years in theory, laboratory work, and field investigation methods. It should be a dynamic programme aiming, not only to impart knowledge but to advance its frontiers by creative research.

In this age of quantification and computerization we shall not be serving our science well if we ignore the research methods and tools which recent advances in science and technology have placed at our disposal. The inadequacy of qualitative and verbal descriptive methods should lead us to increasing quantification in the study of terrain properties.

Fundamental to the study of geomorphology, as indeed to the study of all branches of earth science, are the secoudary sources of obtaining quantitive information about the planetary surface such as large scale topographic maps and aerial photographs. Outside of Western Europe and the United States few areas in the world have been mapped and photographed so completely as East Pakistan and parts of West Pakistan. However, continuing official restrictions on the use of photographs and some large-scale maps remain a serious obstacle in the way of geoscientific research. It is unfortunate that these tools are denied to those who are most qualified to use them. A revision of policy in this regard will go a long way towards creating conditions conducive to research in earth sciences and will establish our claim to maturity and self-confidence.

Summary and Conclusion

The interests of all earth sciences will be served by recognizing the emergence of the morphological approach in land form studies. This should lead to the establishment of student training programmes in the universities with a view to developing a team of workers to conduct creative research in the fundamental and practical aspects of the field. Research facilities should be provided and the research tools, such as maps and aerial photographs, made available.

Applied geomorphology, which can make effective contributions to the understanding of the basic aspects of such phenomena of national importance as floods, aridity and salinity, navigability of streams, and the effects of terrain properties on military operations and functions, should be encouraged along with the academic and theoretical study of the subject.

BOOK REVIEWS

The Peripheral Journey to Work : A Geographic Consideration. Edward J. Taaffe, Barry J. Garner and Maurice H. Yeates. Published for the Transportation Center at Northwestern University Press, Evanston, III, 1963, xiv and 125 pp, maps. diagr., tables.

"Geographical Studies of the Journey to Work have concentrated on two questions : the commuting range of individual cities, and the structure of the commutation area. A further question concerns what may be called the 'regional mobility' of the working population—the degree to which employed persons in the smallest administrative area travel daily to and from places of work beyond the boundaries of that area.''

Robert E. Dickinson. "The Geography of Commuting : The Netherland and Belgium," *Geographical Review*, 47 (October, 1957), p.521.

This study, which was initiated under the auspices of the Transportation Center at Northwestern University, is an extremely important contribution to metropolitan transportation geography. It promises to provide an insight into the processes that are changing the spatial organizational structure of American cities. Attention is focussed on "one changing component of the aggregate metropolitan traffic flow, the journey-to-work to employment centers at the periphery of the city." The objectives of this study are threefold : 1) to identify key differences between peripheral and C. B. D. commuting, 2) to develop a basic rationale for the observed peripheral commuting pattern, and 3) to speculate upon the implications of an anticipated increase in peripheral commuting for the spatial organization of the city.

The book is organized in six chapters : introduction (5 pages) ; a comparison of peripheral and central business district commuting patterns (13 pages); spatial distribution of peripheral commuters (15 pages) ; the application of probability models to the peripheral commuter pattern (23 pages) ; other factors affecting the peripheral commuter pattern (46 pages); and conclusions and future development (21 pages).

Students of metropolitanism seem likely to derive benefit from the introductory chapter, in which some of the terms are briefly defined to identify parts of the city. There are three zones within the city proper : the CBD, the fringe or frame of the CBD, and the middle zone—the large mass of the city. Beyond the middle zone, there are three zones : the peripheral zone, the radial zone, and the interstitial zone. "Peripheral zone is at the edge of the city, lying both inside and outside the city limits. Outlying shopping centers, belt railways and peripheral highway ...are found in this zone; as is a considerable proportion of the new manufacturing development in metropolitan areas." The radial zones often include commuter railroads and are aligned along major transportation axes. "They represent older suburban settlements and have good access to the CBD considering their distance." The new: auto oriented suburbs, have been termed as interstitial areas. These are broad zones between the radials and are "characterised by scattered subdivisions and low population densities."

The authors contend that peripheral commuting differs in several significant respects from CBD Commuting. Chapter II, therefore, identifies differences between peripheral and CBD labour forces in terms of three important characteristics—the relative importance of the different modes of transportation ; differences in the sex, occupation and age composition ; and differences in commuting distance. Chapter III examines the spatial distribution of peripheral commuters in the light of a visual comparison of more than a dozen well-executed maps of different parts of the city of Chicago. It was observed that "the peripheral pattern is more tightly clustered around the destination district."

In addition, "it also seemed from the maps that income, occupational structure and the presence of alternate employment opportuhities affect the spatiai distribution of the peripheral labour force."

Static versions of Hagerstrand's Monte Carlo simulation of diffusions model are used, in Chapter IV, to further investigate the spatial distribution of peripheral commuters. The West Suburban district of Chicago, which contains a strong random element, is chosen as a sample of commuter trips. Simulated maps are compared with actual maps. This progressive comparison through a dozen extra ordinary maps has resulted in "a fairly good reproduction of the basic outlines of a peripheral labourshed." A simple probability model (Model IV) is thus developed to describe the total peripheral commuter pattern in terms of a set of generalized population, distance, and suburban location relationships. The relation of three additional factors and the postulates of Model IV to peripheral commuting is more critically examined in Chapter V, in the light of twenty-eight well produced self explanatory maps and graphs. The additional factors examined are ; 1) composition of the labour force ; 2) the spatial distribution of income ; and 3) the spatial distribution of alternate employment opportunities.

Chapter VI discusses a number of conclusions as to the essential nature of the peripheral cummuting as a component of the aggregate metropolitan traffic pattern. Conclusions are summarized and discussed in conjunction with findings from other studies. Some of the implications of the findings for the future development of peripheral commuting are also considered in this chapter. The authors hope that "future research will provide a clearer understanding of the technical, economic and political feasibility of such peripherally-oriented transport facilities as secondary radials and peripherals, expanded bus services, improved internal access patterns, and a wide range of additional alternatives. Another promising research path suggested...is the development of a dynamic model to trace peripheral commuting changes through time, at the level of individual commuter behaviour" (p. 125).

Most of the study is based on data collected in 1956 by the Chicago Area Transportation Study. The strength of the book lies in the use of highly sophisticated analytical tools of geographic research and in excellent catographic presentation of the data. This small volume is richly illustrated with more than sixty maps and graphs. The catographic work is clear in definition, upto date in techniques, and superb imaginative in design. A special machine, cartographatron, was used by the authors for the preparation of flow or desired line maps and origin-cell dot maps.

"Peripheral Journey to Work" is a scholarly work of absorbing interest. It is well-written, informative, and stimulating. The reader finds missing only a map of the functional zones of Chicago, a bibliography, and an index. Addition of a glossary would also have increased the usefulness of the book. However, the authors and the Transportation Center at Northwestern University must be congratulated on having carried out such a notable task. The greatest value of the book will be as a guide toward further study and research.

University of Karachi BILAL AHMAD

Bhutan : A Physical and Cultural Geography. Pradyumna Karan, University of Kentucky Press, Lexington, 1967, 103 pp.; photos, maps, diagrams, illustrations, bibliography, appendix, index, 1 : 253, 440 maps in pocket 17.50.

Professor Karan must be congratulated to have brought out the first regional geography of the Himalayan Kindhom of Bhutan. His academic interest in the Himalayan kingdoms of the subcontinent is a long and unbroken one. His extensive publications on Nepal bear witness to Dr. Karan's deep involvement with the region as a geographer. Never have these kingdoms been so adequately exposed to geographer, scholars in other disciplines and general readers as they have been done by Professor Karan. Bhutan, until 1960 "the most closed country in the world" offers a great challenge to environmental and behavioural scientists for exploring a hitherto less known land and people. Professor Karan must be credited for doing such pioneering work

which can provide basis for further studies on this region by the more adventurous members of the present or up-coming generation of geographers.

Bhutan : A Physical and cultural Geography presents a general survey pertaining to exploration, evolution of the kingdom, the contemporary political scene, physiography, climate, vegetation and soils, economic patterns, cultural patterns, transport, trade and economic development and prospects and problems. It is an unusually very well-illustrated book and contains twenty-three maps and ninety photographs out of which twenty-three are in colour. A four colour relief map is enclosed in the pocket. The readable text coupled with illustrations depicts a vivid picture of Bhutan. In his chapter on settlement patterns and house types the author presents original material based on his field work. His chapters on climate and land use are particularly weak because of the paucity of published materials on these topics. The abundance of published material on the contemporary political scene has been fully utilized by the author to make his treatment of this chapter impressive.

Relevance of the discussions on political personalities, veterinarians, names of road engineers and aid officials is however doubtful. The book as a whole provides useful information about the hermit land of Bhutan which can be profitably utilized by scholars, politicians and regional planners ; and is therefore a valuable addition to the books on South Asia containing scholarly treatment. The appendix containing a list of proper names, the text of principal treaties and documents relating to Bhutan, and a glossary is extremely useful.

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PAKISTAN GEOGRAPHICAL REVIEW was instituted in 1949 replacing Punjab Geographical Review which was started in 1942. The object of this publication is to further dissemination and exchange of scholarly knowledge. Its volumes contain research articles on various topical and regional themes of Geography with particular reference to Pakistan. The Review is published half-yearly in January and July.

Submit all manuscripts and publications for Review to the Editor, Pakistan Geographical Review, Department of Geography, University of the Punjab, Lahore.

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Volume 22, Number 2, 1967 contains index from volumes 8 to 22.

Published by K. U. Kureshy, Editor, Pakistan Geographical Review
Printed at the Pakistan International Printers, 118. G. T. Road, Moghalpura, Lahore.