

PAKISTAN GEOGRAPHICAL REVIEW

Geography



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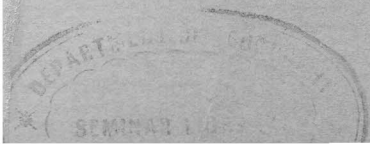
PU-Lahore



Volume 22

Number 1

January 1967



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Pakistan Geographical Review

Vol. 22, No. 1

January, 1967

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EDITORIAL AND BUSINESS OFFICE
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Pakistan Geographical Review

Volume 22

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Number 1

DISTRIBUTION PATTERN OF URBAN CENTRES IN PAKISTAN

QAZI S. AHMAD

A study of the distribution pattern of urban centres in Pakistan, as it appears at the outset, would present no problem to a researcher since any map showing such a distribution would immediately bring to light well-marked regional variations. For example, our study of such a map would reveal that, whereas East Pakistan tends to display a more or less uniform distribution of urban centres, the same is not true of West Pakistan where regional contrasts are prominent. One can easily discover that almost ninety—ninety-five per cent of towns in West Pakistan are concentrated in the Indus Valley which is flanked by a desert strip on one side and the arid mountain complex of the former Baluchistan and the North West Frontier Province on the other. Both these outflanking regions are the least urbanized areas of West Pakistan. They are characterized by a highly dispersed distribution pattern of urban centres, ninety per cent of which are mere villages with population much below the urban limit of 5,000. Yet, on a still closer observation, it would be realized that the extensive Indus Valley displays a variety of distributional patterns—random, even, and aggregated. Hence the generalization that the entire valley has a dense network of cities would appear to be not only vague but also misleading. There is, therefore, need for more rigorous tests that help to identify regional contrasts so far as they relate to the distribution pattern of urban centres in East and West Pakistan.

It is, therefore, intended to make use of statistical technique known as the nearest-neighbour analysis as outlined by Clark and Evans¹ and as exemplified by King² in his study of the pattern of urban settlements in selected areas of the

¹P. J. Clark and F. C. Evans, "Distance to Nearest Neighbour as a Measure of Spatial Relationships in Population", *Ecology*, Vol 35 (October, 1954) P. 445-453.

²L. J. King, "A Quantitative Expression of the Pattern of Urban Settlements in Selected Areas of the United States". "Tijdschrift Voor Economische en Sociale Geografie. Vol. 53 (January, 1962) pp 1-7.

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United States. Nearest neighbour analysis indicates the degree to which the distribution of individuals in a population on a given area departs from that of a random distribution.³

For the purpose of this study all urban centres over 5,000 population were considered.⁴ This meant a total of sixty-six urban centres for the areas selected in East Pakistan and 191 for those in West Pakistan. In the case of East Pakistan, the areas selected for study included the administrative divisions of Khulna, Rajshahi, Dacca and Chittagong excluding the Hill Tracts. The areas selected in West Pakistan included the divisions of Rawalpindi, Sargodha, Lahore, Multan, Bahawalpur, Khairpur and Hyderabad.⁵

METHOD

For each division named above a series of straight-line measurements were taken between the urban centres and their respective nearest neighbour.⁶ In several cases the nearest neighbour of a given town lay outside of the specified area.⁷

The distances to these neighbours were measured and included in the computation. In cases where two towns were located closer to one another than they were to any other town, the same distance was measured twice.

If N be the number of cities in a sample and r the distance from each city to its nearest neighbour, then the mean observed distance may be represented as $r_A = \frac{\sum r}{N}$. The mean distance which would be expected if this population (cities) were distributed at random r^E , can be shown to have a value equal to $\frac{1}{2\sqrt{p}}$, where p represents the density of towns per unit area. The ratio of observed mean distance

³Clark and Evans, *op. cit.* footnote 1, p. 446. The authors point out that ".....randomness as here employed is a spatial concept, intimately dependent upon the boundaries of the space chosen by the investigator. A set of points may be random with respect to a specified area but decidedly non-random with respect to a larger space which includes the specified area". This, probably, is one great weakness of nearest-neighbour statistics. Hence, as Clark and Evans point out, the areas selected for investigation should be chosen with great care.

⁴Based on *Population Census of Pakistan 1961*.

⁵The divisions of Peshawar, D. I. Khan, Quetta, Kalat and Karachi were excluded from the study in view of the fact that these areas possessed relatively very few urban centres.

⁶The distances measured in miles represent the direct airline distances.

⁷This, however, does not refer to the adjoining Indian territory. No attempt was made to include in the analysis such nearest neighbours as lay outside the territory of East and West Pakistan.

to the expected mean distance ($R = \frac{r_A}{r_E}$) can then be used as a measure of the degree to which the observed distribution approaches or departs from random expectation.⁸

In a random distribution, $R=1$, under conditions of maximum aggregation, $R=0$, and under conditions of maximum spacing (or uniform distribution) $R=2.1491$.⁹

NEAREST NEIGHBOUR ANALYSIS.

The results of the nearest neighbour analysis are shown in Table. 1 The table also gives the results (*i. e.*, C values) of the tests of significance of the diffe-

TABLE 1—NEAREST NEIGHBOUR ANALYSIS

Divisions	No. of Towns	Area of Division (sq. mi.)	Density of Towns Per sq. mi.	Mean Observed Distance (mi.) (rA)	Expected Mean Distance in Random Distr. (mi.) (rE)	Nearest Neighbour Statistic (R)	Nature of Pattern	C Values ^a
1. Rajshahi	... 18	13,347	.001348	14.66	13.63	1.07	Random	0.61
2. Khulna	... 18	12,810	.001405	14.38	13.36	1.07	Random	0.62
3. Dacca	... 19	11,937	.001590	13.57	12.56	1.08	Random	0.67
4. Chittagong (excl. Hill Tracts).	11	11,939	.000920	30.09	16.48	1.82	Approaching uniform	0.25
5. Rawalpindi	... 25	11,206	.00223	11.72	10.59	1.10	Random	1.02
6. Sargodha	... 36	17,095	.002105	12.30	10.91	1.12	Random	1.47
7. Lahore	... 38	8,907	.004266	9.15	7.65	1.19	Approaching uniform	2.34
8. Multan	... 35	24,826	.00140	16.05	13.36	1.20	Approaching uniform	2.27
9. Bahawalpur	... 15	17,508	.00085	15.93	17.14	0.92	Random	0.57
10. Khairpur	... 20	20,293	.00098	13.95	15.97	0.87	Aggregated	1.08
11. Hyderabad	... 22	36,821	.000597	14.09	20.49	0.68	Aggregated	2.80

^aC Values are derived from the sample formula regardless of size of sample.

⁸Clark and Evans, *op. cit.* footnote 1, p. 447.

⁹*Ibid.*, p. 447 and 451.

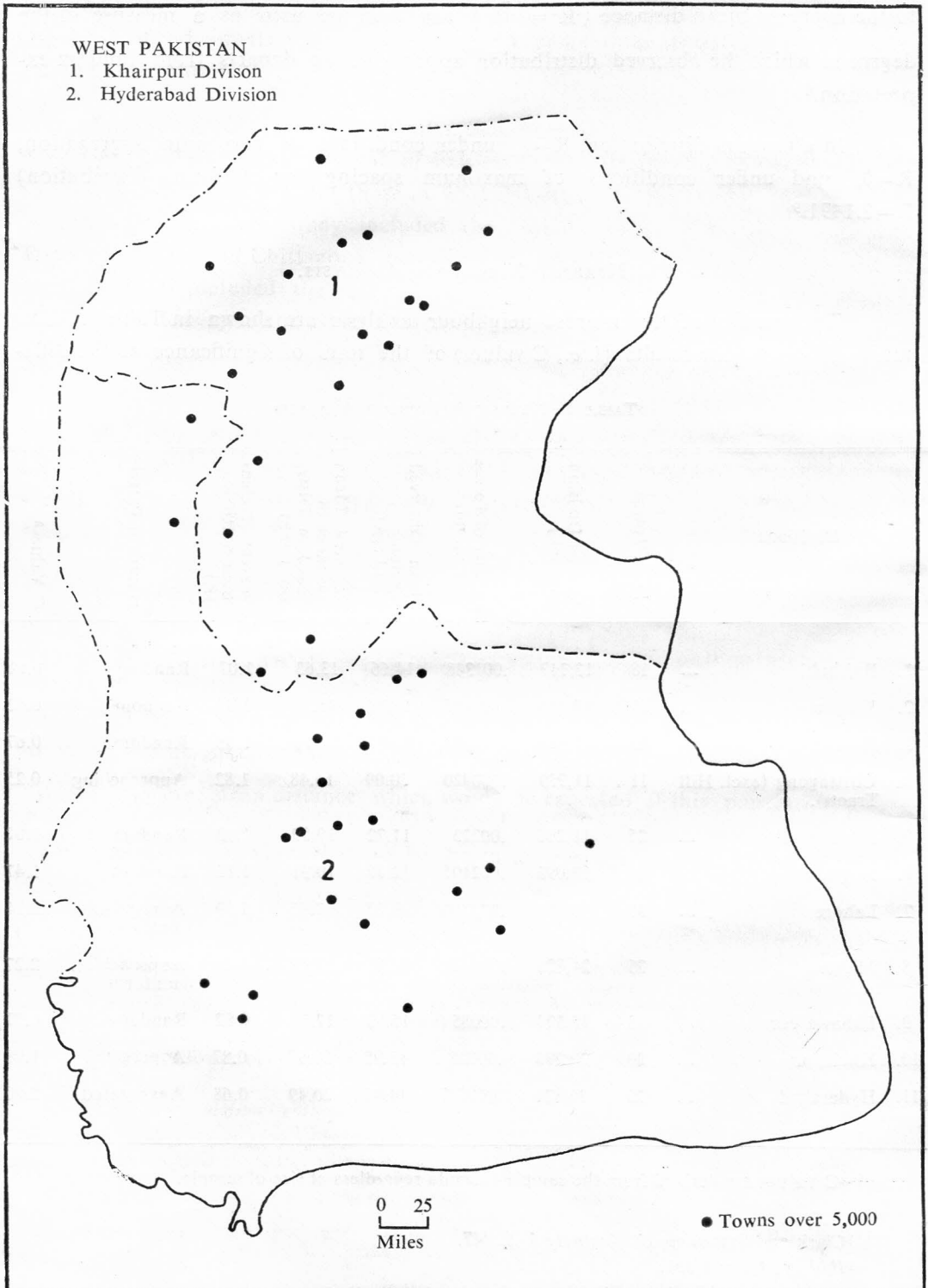


Fig. 1.—Distribution of Towns in West Pakistan.

rence between observed and expected mean distance.¹⁰ Reference to these will be made at appropriate places in the description that follows. The obtained values of R vary in magnitude from one area to another, and to the extent that they reveal regional variations in the distribution pattern of urban centres, they are close to results expected intuitively or as observed on the map (Figs. 1 to 3).

The tendency towards an aggregated settlement pattern appears in two divisions of West Pakistan, namely Hyderabad and Khairpur, for which the R values are 0.68 and 0.87 respectively. Of the two, Hyderabad shows a much greater tendency toward aggregation (see Fig. 1). The C value of 2.8 also shows that the observed distances clearly depart from random expectation with a high degree of significance. In both the divisions, the clustered areas correspond to the irrigated tracts of the lower Indus valley which forms a big oasis flanked by the Thar desert to the east and the arid mountains of Sind Kohistan to the west. In both clusters one can discern a general north-south linear arrangement of towns along main transportation routes which for the most part run parallel to the Indus river.

At the other extreme, a tendency toward uniform spacing was apparent in three of the areas studied, notably in the case of the Chittagong division ($R=1.19$). This is also clear from Fig. 2 which shows that the distribution pattern of cities in Multan and Lahore divisions tend to be more uniform than random. Again, a somewhat north-south linearity in the division of Multan reflects the direction of the major transportation routes which traverse this area. Most of Multan and the entire Lahore division form part of the canal-irrigated fertile lands of the former Punjab. These canal colony areas, as they are called, are served by a fairly dense net work of highways and railways. These factors seem to be conducive to a uniform distribution of urban centres in Multan and Lahore divisions.¹¹

In the case of the Chittagong division which displays most prominently a uniform spacing of settlements (Fig. 3) the result of the analysis ($R=1.82$), though statistically highly significant, yet is difficult to interpret. The fact that this area does exhibit a uniform spacing of towns can only be attributed to mere chance.¹²

¹⁰The formula used in this test of significance is $c = \frac{r_A - r_E}{\sigma r_E}$. The value of r_E for a population of density P is $\frac{0.26136}{N_P}$. See *ibid.*, p. 448.

¹¹Yet another possible (also basic) factor could be the "planned spacing of settlements" in these relatively recently developed areas.

¹²See Clark and Evans, *op. cit.* footnote 1, p. 450. "The presence of a boundary beyond which measurements cannot be made will tend to make the value of r_A greater than would be obtained if an infinite area were involved....." This remark seems to have some bearing on the nature of spacing of urban centres in the Chittagong division. Yet, another factor could be the small size of the sample.

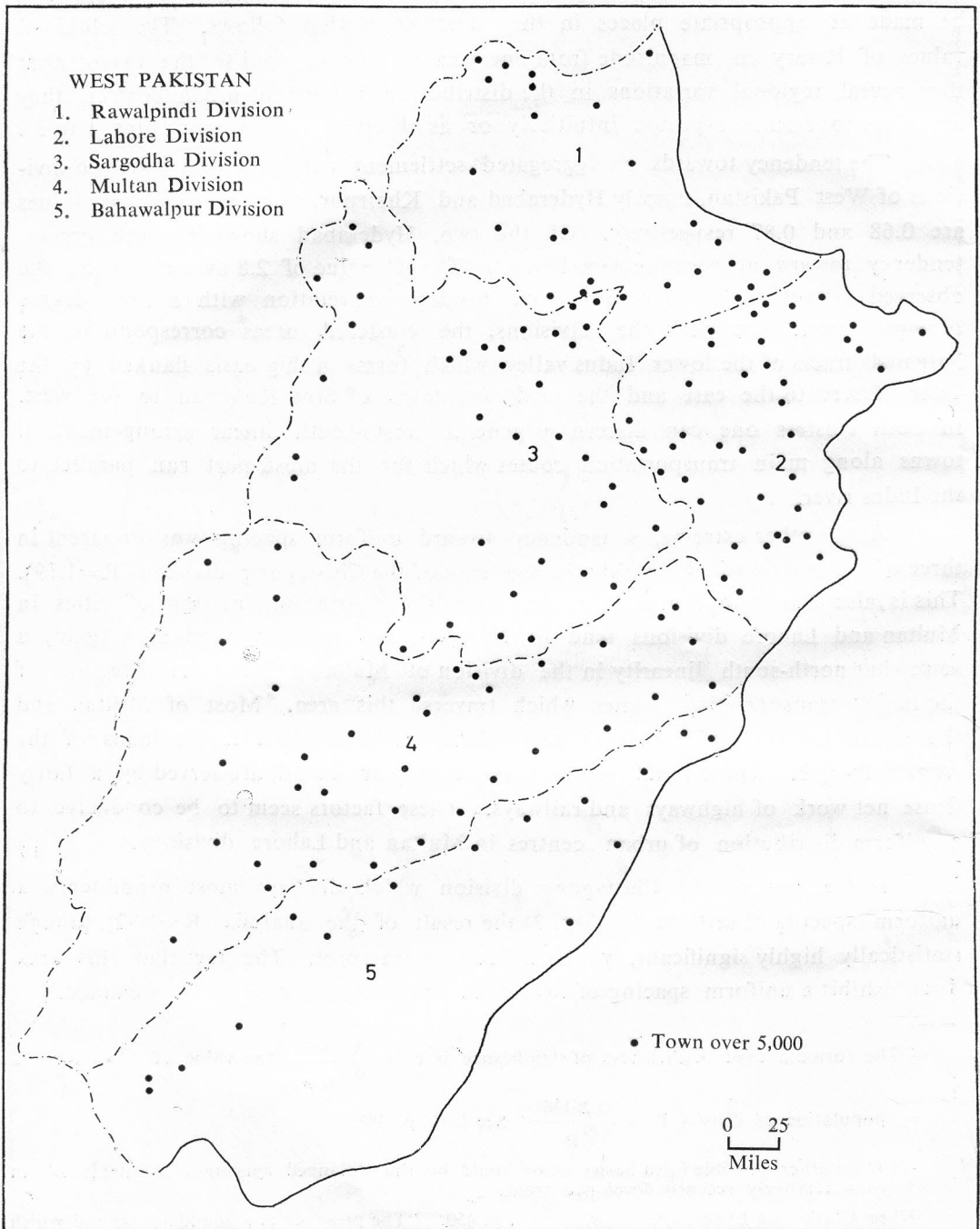


Fig. 2. Distribution of Towns in West Pakistan.

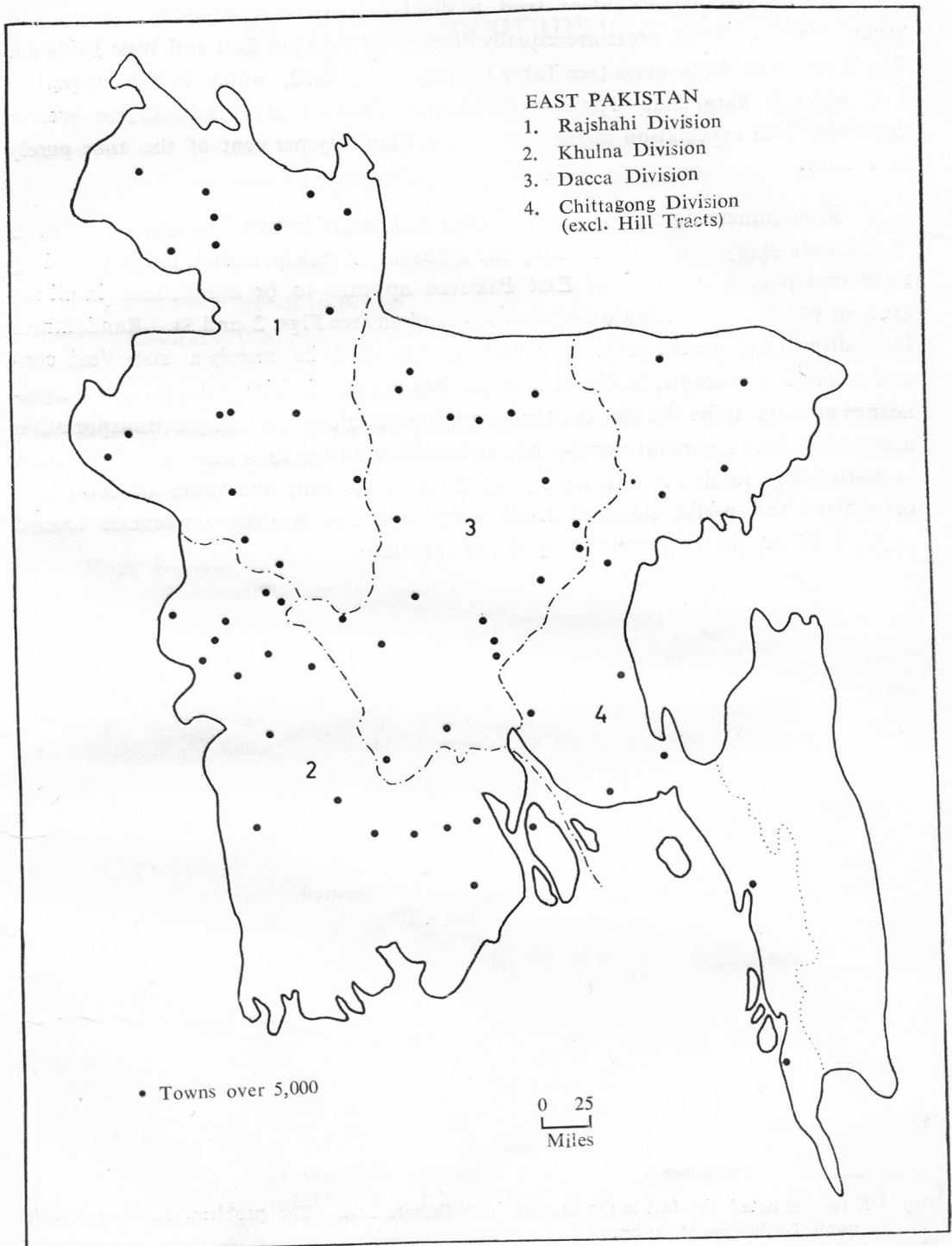


Fig. 3.—Distribution of Towns in East Pakistan.

The remaining six areas tend to display a pattern of randomly distributed urban centres. These areas are equally distributed between East and West Pakistan. The R values of these areas (see Table 1) vary from 0.92, which is Bahawalpur, to 1.12, which is Sargodha. The C values in four of the six areas indicate that greater departure from expectation might occur more than fifty per cent of the time purely by chance.

Randomness in this context indicates that forces influencing the distribution of cities are many and varied. Yet, the influence of transportation routes including river transport in the case of East Pakistan appears to be conspicuous in all the areas in which the distribution of towns is random (see Figs. 2 and 3). Randomness in relation to settlement patterns, therefore, may well be merely a statistical convenience. For example, in the case of the Bahawalpur division, the point of significance appears to be the fact the towns are located along two major transportation axes which have a general north-south orientation, rather than that the distribution is statistically random.¹³ However, as King points out, the value of $R=1$ is a convenient and useful standard from which one can measure tendencies toward aggregation or the uniform spacing of settlements.¹⁴

¹³King also noted this fact in the case of North Dakota area. The problem, however, should await further investigation.

¹⁴*Ibid.*, p. 6.

URBANIZATION TRENDS IN BRITISH COLUMBIA (CANADA)

AMJAD ALI BAHADUR RIZVI

THE SETTING

To the size of the state there is a limit as there is to other things.....none of these retain their natural power when they are too large or too small.....(a) state when composed of too few is not as a state ought to be, self-sufficing ; when too many, though self-sufficing in all mere necessities, it is a notion and not a state.¹

EVEN though the twentieth century World is not the same as the World of 2500 years ago, what Aristotle specified as the requisite size of a state, is true for the Canada's Province of British Columbia, a state which is too big for too few who live in it. According to 1961 Dominion Census of Canada, 1,629,082 people lived in 366,255 square miles of the Province's territory.² West Pakistan which has approximately the same area has 60 times as many people. Great Britain which is one-sixth in area of the Province has thirty times as many people and fifty times as much density. Three fourths of population of the Province live in urban areas and three-fourths of the urbanites are concentrated in one urban agglomeration in the south western pocket.

These facts form initial frame of reference for the kind of discussion being followed to meet the objective of this paper which is: to look into the urbanization process of British Columbia and the relevant environmental determinants and consequences.

The population of British Columbia grew from 36.2 thousand in 1871 to 178.7 thousand at the beginning of the twentieth century reaching 1,629 thousand in 1961. There has been a progressive rise in the inter-censal relative increase upto the first decade of the twentieth century. Thereafter, a decline ensued which

¹Aristotle quoted from B. Joweth's translation in : L. Wirth, "Urbanism as a way of life," *The American Journal of Sociology*, Vol. 44, No. 1 (1938), p. 10.

²The population of British Columbia was estimated to have reached 1,738,000 in 1964. Dominion Bureau of Statistics, *Yearbook 1965* (Ottawa : Queen's Printer, 1965), p 188.

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continued upto 1941. The last two decades are marked by increasing absolute and relative growth (Fig. 1.)

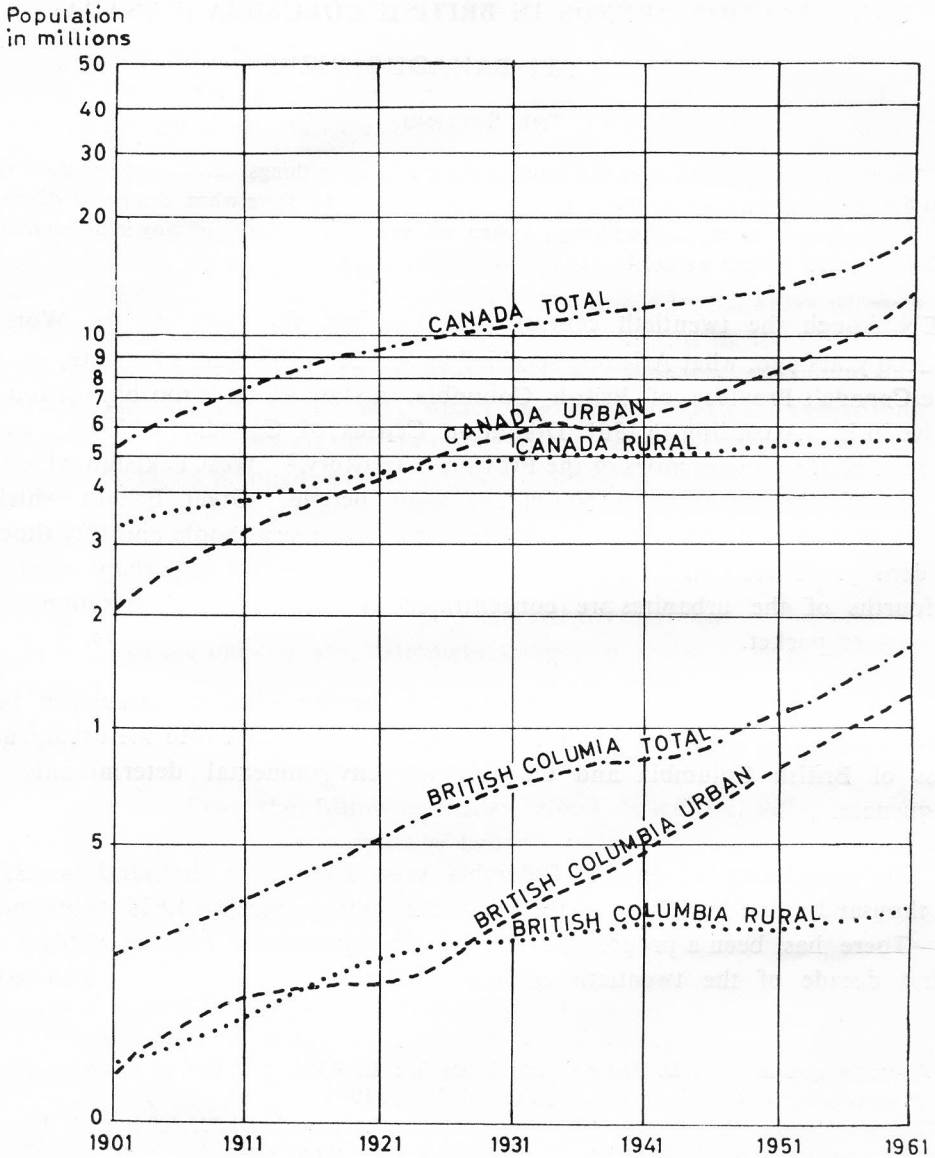


FIGURE 1

The population growth of British Columbia has been faster than of its sister provinces. The percentage of its population to national average increased from three in 1901 to nine in 1961. The Province ranked third among its sister provinces in 1921

and sixth three decades after. Table 1 shows that the growth rates of 4.3 and 4.0 per cent per annum for the decades 1941-51 and 1951-61 respectively have almost been twice the national average for the same period.

TABLE 1—BRITISH COLUMBIA : INCREASE OF POPULATION
1871—1961

Census Year	Population Increase (in thousands)	Population Increase (percentage)
1871	36.2	
1881	49.5	36.4
1891	98.2	98.5
1901	178.7	82.0
1911	392.5	...
1921	524.6	33.7
1931	694.3	32.2
1941	817.9	17.8
1951	1,165.2	42.5
1956	1,398.5	20.0 ^a
1961	1,629.1	16.5 ^a

Source : Dominion Bureau of Statistics. *1961 Census of Canada* (Ottawa : Queen's Printer, 1963).

^aFigures refer to the pentathlon census, hence five year increase only. Of the total growth rate of 39.8 per cent in 1951-61, 19.2 per cent was the natural increase and 20.6 per cent net migrational increase.

These facts suggest that the comparatively low demographic base of British Columbia, particularly of its interior regions is expanding. Among others, the neighbouring provinces have been the main contributors to this development. "Much of the gain has been at the expense of the Prairie Provinces....."³ Migration rather than the natural increase has been the main determinant of growth. The Prairies, for example, gained at the rate of 23,000 per year during 1941-61. "Migration," discovered Welch, "was more important than natural increase as a mechanism of adjustment between the initial distribution of population and the changes in the factors which shape the distribution pattern."⁴

³*Ibid.* p. 163.

⁴R. L. Welch, *Growth and Distribution of Population in British Columbia, 1951-61*, (An unpublished Masters Thesis in Geography, Vancouver : University of British Columbia, May, 1964), p. iii.

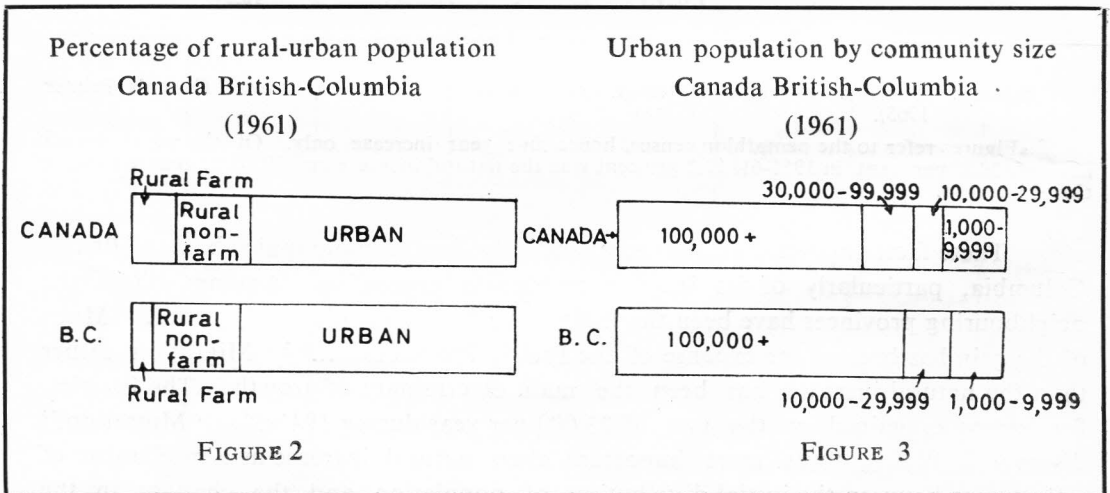
The above picture tends to conceal a multitude of variations found among areas and socio-economic groupings being accounted for in this study.

CHARACTERISTICS AND TREND OF URBANIZATION

Temporal Change: The change of definition of the terms "urban" and "rural" after the Decennial Census of 1941 makes the inter-censal comparability hazardous. The definition of the term "urban" changed from the "incorporated cities, towns and villages irrespective of the size" in censuses prior to 1951 to "all incorporated and unincorporated cities, towns and villages of 1,000 and over" plus urban and metropolitan fringes in the 1951 census and after.⁵ In the first Pentathlon Census of 1956, the definition though slightly altered, was "substantially the same" as that of 1951 and 1961.⁶

The rural and urban population figures for 1951 and 1961 censuses have been standardized to 1956 definition and are available in the 1961 Census reports. This makes comparison of the present with the recent past convenient. The pre-1951 figures have been treated as such on the assumption that although affected in absolute values, the overall urbanization trend remains undistorted by doing so.

De-ruralization is the basic cause of urbanization in British Columbia. Figure 1 (Table 2) shows that except for a fall in 1921, the Provincial intensity of urbanization has been more significant than the national intensity (Fig. 2). This has, in fact, been far more significant than the intensity of other urbanizing provinces.



⁵Dominion Bureau of Statistics, *1961 Census of Canada, Introductory Report to Volume 1, Part 1, Bulletin 1,1-11* (Ottawa: Queen's Printer, 1963) pp. XI-XII.

⁶Dominion Bureau of Statistics, *1961 Census of Canada, Population: Rural and Urban Distribution, Bulletin 1,1-7* (Ottawa: Queen's Printer, 1963), p. inside front cover.

TABLE 2—URBAN GROWTH TRENDS IN CANADA AND BRITISH COLUMBIA
1901—1961

Census Year	Canada		British Columbia	
	Urban Pop. (000s)	U—R (per cent)	Urban Pop.	U—R (per cent)
1901	2,022	38	90	50
1911	3,273	45	204	52
1921	4,352	50	248	47
1931	5,572	54	395	57
1941	6,252	54	443	54
1951	8,628	62	793	68
1961	12,700	69	1,182	73

Source: Dominion Bureau of Statistics, *Canada Yearbook*, 1916, 1947, 1956, 1961 (Ottawa: Queen's Printer and Controller of Stationery), p. 83, 111, 153, 197 respectively for years.

From a period of rising urbanization prior to 1901, a period of fall ensued. After the second decade of the twentieth century, the proportionate increase recorded an all time peak becoming half as much during 1931-41 (Fig. 3). Since then, there has been a continuous growth of urban population. In view of the definitional refinements the recent urbanization response is more real, both in absolute and relative terms, than the previous response:

Change in Community Sizes. Community sizes reflect urbanization response. Table 3 reveals that although the Province and the Nation both show a major concentration of population in metropolitan areas, there is more ostensible display of this behaviour in the former than in the latter case (Fig. 4).

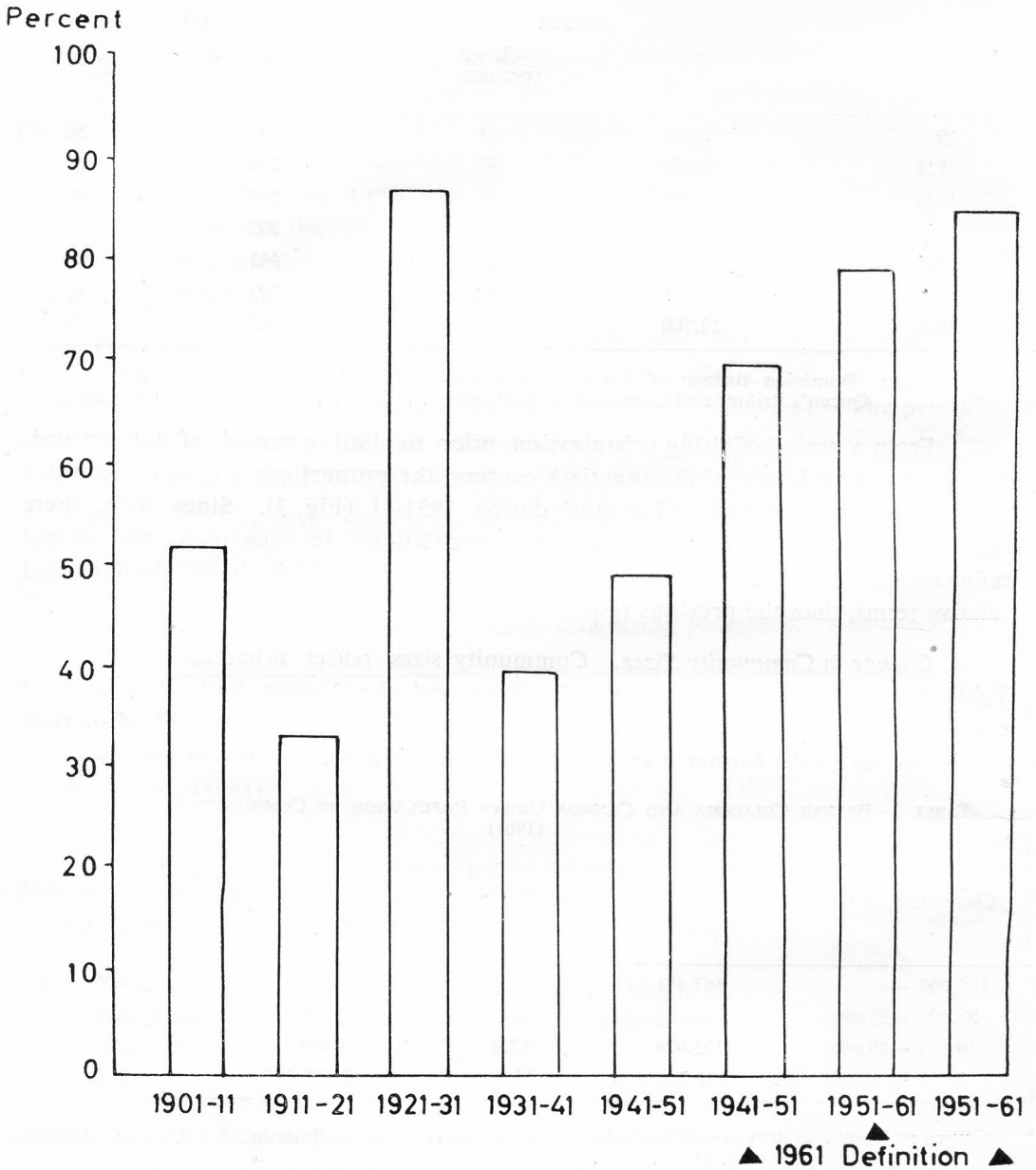
TABLE 3—BRITISH COLUMBIA AND CANADA URBAN POPULATION BY COMMUNITY SIZE GROUPS
(1961)

Community Size	British Columbia		Canada	
	Population	Percentage	Population	Percentage
100,000 +	867,691	73.4	7,923,997	63.5
30,000 —99,999	1,704,787	13.1
10,000 —29,999	152,978	12.9	1,049,111	8.4
1,000 — 9,999	151,256	13.7	2,022,495	15.0

Source: Dominion Bureau of Statistics, *1961 Census of Canada*, Bulletin 1.1-7 (Ottawa: Queen's Printer, 1963), p. 14-1, Table 14.

Although the major portion of urban population is concentrated in one or two big centres, small-sized urban units are conspicuous by their abundance. There is a major clustering of non-metropolitan urban population in the lower half of the 5,000-20,000 community sizes. Increasing number of "city" communities are entering

BRITISH COLUMBIA : URBAN INCREASE AS A PROPORTION OF TOTAL POPULATION INCREASE 1901-1961



Decennial Change

1951 Definition

1956 Definition

Fig. 4. Source : Upto 1941-51 copied from : H. F. Angus, *et al Organization in British Columbia, A Mimeographed Progress Report* (Vancouver: University of British Columbia, 1954), Pa 2-3, updated from 1961 and 1956 Population Censuses Data.

into the rank of 10,000—20,000 size communities (Table 4). A study of the University of British Columbia came out with a not too distant a finding:

.....although all of them have grown substantially in the last decade the smaller urban places below 6,000 and the next to the largest sized group 10,000—19,999 have experienced the most rapid rate of growth.⁷

TABLE 4—BRITISH COLUMBIA : COMMUNITIES^a BY POPULATION SIZE GROUPS (1941-1961)

Community Size	1941	1951	1956	1961
100,000	1	1	1	1
50,000—100,000	...	1	1	1
20,000— 50,000	1	1	1	2
10,000— 20,000	...	3	7	10
5,000— 10,000	9	9	8	6
500— 5,000	15	15	14	12

^aIncludes incorporated "cities" and excludes "towns" "district municipalities" and "villages."

Source : Government of the Province of British Columbia, *British Columbia : Facts and Statistics* (Victoria : Bureau of Economics and Statistics, 1964), p. 31.

Spatial Change. The story of sequence of settlements in British Columbia shows their preponderance in the flood plains of Frazer Valley and fringes of Vancouver Island (Tables 5 and 6). Upto the turn of the last century, urban units increased little but existing ones in Vancouver Island, Lower Frazer valley and and Kootenaya expanded slowly. During the first quarter of the twentieth century,

TABLE 5—BRITISH COLUMBIA : PROPORTION OF URBAN POPULATION TO THE TOTAL POPULATION IN CENSUS DEFINED GEOGRAPHICAL AREAS (1951—1961). (Based on 1956 Census definition)

Census Divisions	1951		1961		Diff Points
	Percentage	Rank	Percentage	Rank	
1. East Kootenays	44	4	52	7	8
2. West Kootenays	49	3	54	5	5
3. Okanagan	43	5	53	6	10
4. Lower Mainland	88	1	91	1	3
5. Vancouver Isl	65	2	73	2	8
6. Cent. S. Interior	30	8	37	10	7
7. Cent. S. Coast	42	6	65	3	23
8. Central Interior	19	10	39	9	20
9. North West	41	7	65	4	24
10. North East	25	9	47	8	22
British Columbia	71	77	77		

Source : Dominion Bureau of Statistics, *1961 Census of Canada*, Bulletin 1.1-7 (Ottawa : Queen's Printer, 1963), p. 14-13.

⁷H. G. Angus, et al., *Urbanization in British Columbia*, A mimeographed progress report, (Vancouver : University of British Columbia, Division of Community and Regional Planning, Summer, 1954), p. 19.

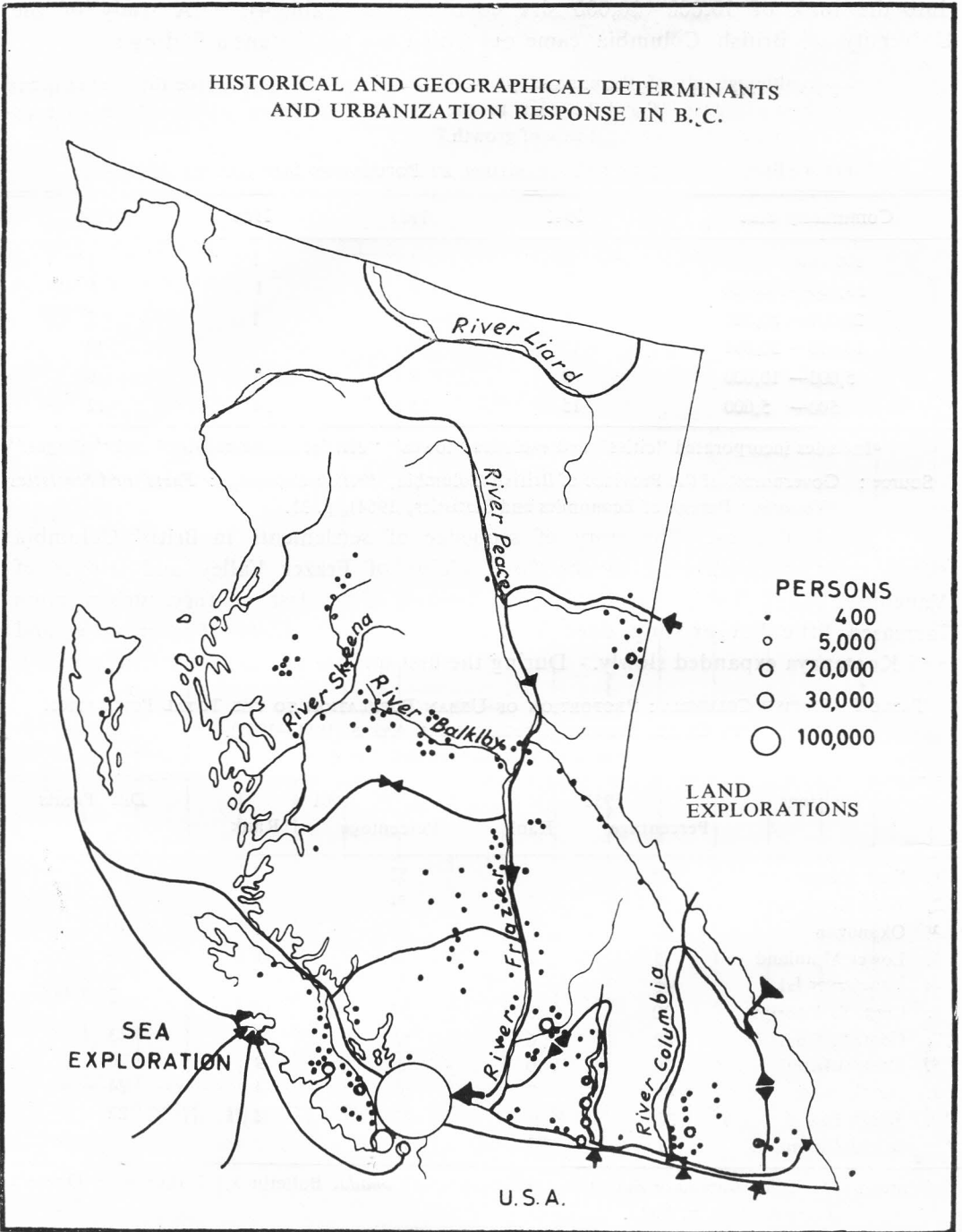


Fig. 5. Source : J. D. Chapman, *et al.* (ed.), *British Columbia Atlas of Resources*, (Vancouver : British Columbia Natural Resources Conference, 1956), P. 30 (Explorations) and p. 32 (Settlements) (improved to 1961 Census Data).

TABLE 6—BRITISH COLUMBIA: URBAN POPULATION IN COMMUNITY SIZE GROUPS AND GEOGRAPHICAL AREAS (1961)

Census Divisions	(Population in 000s)					
	a100,000	30,000— 99,999	10,000— 29,999	5,000— 9,999	2,500— 4,999	1,000— 2,499
One	11.6	2.7	3.8
Two	11.6	7.1	8.0	12.2
Three	38.3	14.7	...	9.7
Four	728.7	13.1	16.4
Five	139.0	...	34.2	...	11.0	13.9
Six	18.7	...	3.0	2.8
Seven	10.7	...	3.0	7.1
Eight	16.4	...	4.7	...
Nine	12.0	8.2	4.6	...
Ten	11.0	...	3.6	...

^aFor names of Census Divisions see Table 5.

^bSource: Dominion Bureau of Statistics, *1961 Census of Canada*. Bulletin 1.1-7 (Ottawa: Queen's Printer, 1963), p. 14-13.

while urban settlements in south grew further, a series of them became established along the Upper Frazer, Nechako and Balkey-Skeena valleys. From the next quarter of the present century, the extent of urbanization in pioneer lands was enlarged (Fig. 5).⁸

The urbanized areas in south west continued to grow over time and space (Tables 5 and 6), others were too distant in the scale of hierarchy to show any prospect of catching up the initially developed ones. However, in spite of the slightly significant declining tendency in relative growth of Victoria and Vancouver⁹ and the rather rapid relative growth of resource oriented urban units, the strength of initial base is likely to inhibit prospects of substantial shift of urban centre of gravity in the distant future (Fig. 6). Even if the growth continues to the point where the dis-economics of scale outweighs societal economies, the concentration to interior growing points is likely to accelerate. Yet the gap between major urban agglomeration and the other smaller urbanizing points would tend to be wide.

⁸J. D. Chapman, *et al.*, (ed.), *British Columbia Atlas of Resources*, (Vancouver: British Columbia Natural Resources Conference, 1956) p. 32 (Resources map 15).

⁹*Eg.*, During 1951-61, Victoria and Vancouver experienced a fall in their rates of growth from 36 to 33 and 41 to 37 respectively.

BRITISH COLUMBIA : URBAN POPULATION BY COMMUNITY SIZE & GEOGRAPHICAL AREAS SIZE—1961

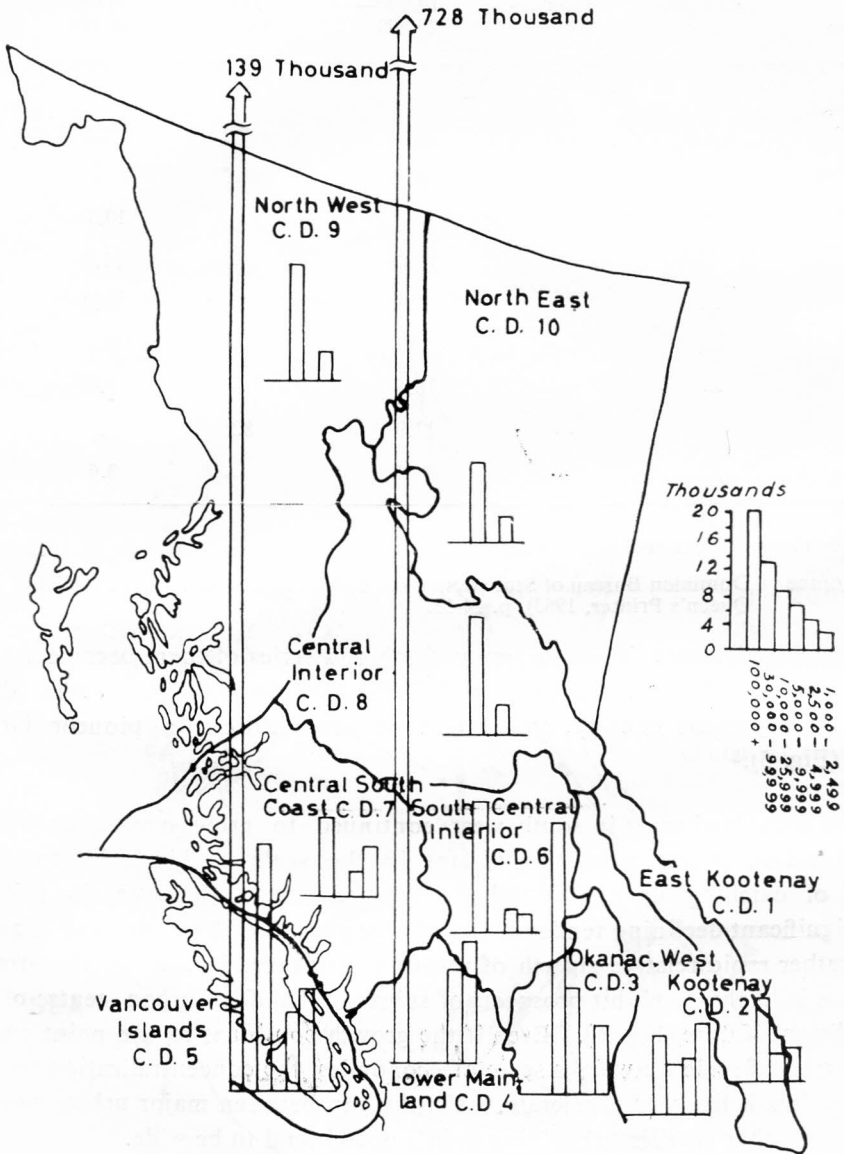


Fig. 6. Source of Data : Dominion Bureau of Statistics, 1961 Census of Canada, Bulletin-1-7 (Ottawa : Queens' Printer), P. 14-1, Table 14

DETERMINANTS OF URBANIZATION

The explosive and implosive change of urbanization is the tangible expression of historical, geographical and socio-economic forces. These forces have been responsible for a series of fits and starts in the urbanization scene of British Columbia.

Historical Factors

The ekistic (settled) areas in the south western coastal fringes of British Columbia have been the result of first exploratory attention by Captain Cook (1778), Captain Vancouver (1792) and others. Land exploration made by Mackenzie (1793), Thompson (1806) and Simon Frazer (1808) and others¹⁰ opened avenues of colonization along the routes (Fig 5). The fur trade and mineral exploration intensified colonization efforts.

The era of territorial expansion started from the middle of the nineteenth century when the province came under British jurisdiction. Ekistic units grew along the historic routes : *e.g.*, Dewdney trail, Harrison trail and the Cariboo Wagon road. The pre-twentieth century phase, one of steady urbanization was stimulated by the completion of Trans-Continental Railway in 1885.

The continuous growth of urbanization was, however, interrupted under the impact of first world war and depression in the first quarter of the twentieth century. As a result of the post-depression public policy (*e.g.*, Veterans Land Act, Dominion Housing Act, immigration policies and rail rout colonization scheme), the urban process was speeded up. The last two decades are marked by increasing public interest in housing and planning. This coupled with developing provincial identity has been manifested in the urban response.

Spatial Factors

The sequence of urbanization has been affected by the geography of the Province. The mountainous topography had always inhibited the growth of settlements. The moderate maritime coastal fringe and the Frazer delta were the logical areas of initial start. The overland routes have been river-oriented ; valleys, as such, became outstanding features ekistically. Among important urban centres, there are ten in Frazer basin, seven in Columbia, two in Peace, two in Skeena-Stikine, one in Liard basins and ten in coastal belts. Convenient access and maritime effects, in short, have been important spatial factors in the growth of Vancouver and Victoria metropolitan areas.

The fertility of Frazer and Okanagan valleys encouraged farming which, along with the mineralogically favourable batholithic intrusions of the Columbian mountains gave rise to flourishing centres. The oil-rich devonian beds and the fertility of Peace basin were operating factors in the north. Of all the things, the lure of

¹⁰Chapman, *et al*, (ed), *op. cit.*, footnote 8, p. 31 (Resources map 14).

GROSS VALUE OF MANUFACTURING PRODUCTION B. C.—1920—1964

Millions of dollars

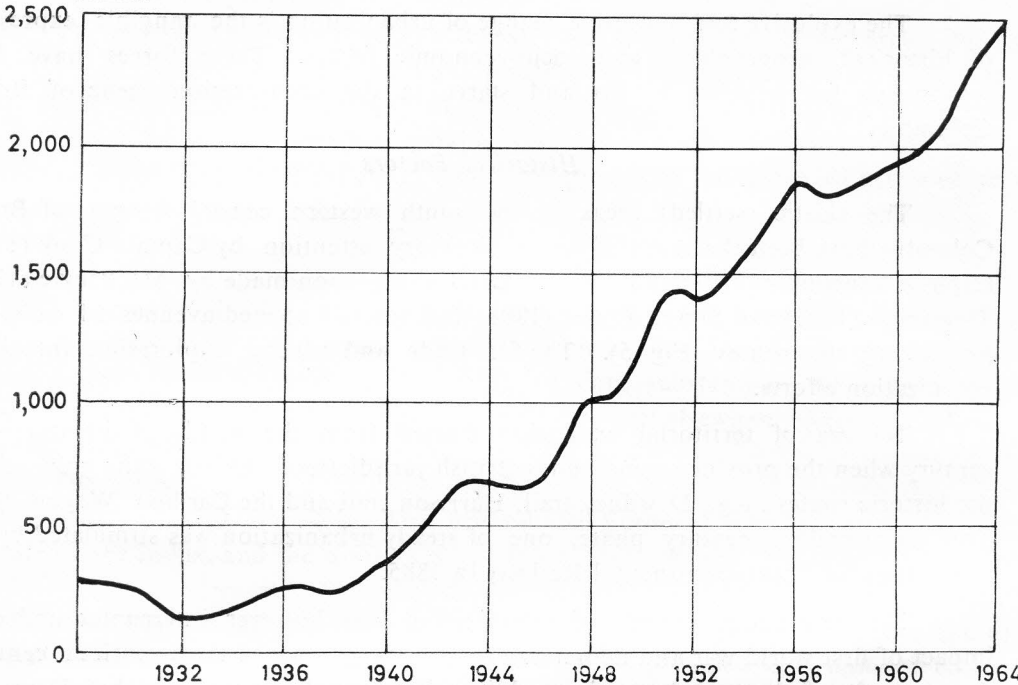


Fig. 7. Source : Government of the Province of British Columbia, *British Columbia Facts and Statistics 1963*. (Victoria : Bureau of Economics and Statistics, 1964), P. 25.

the so called 'Beautiful British Columbia' ostensibly lurked behind the urbanization process.

Figure 6 shows that most of the urban population living in medium-sized communities (10,000—29,999) live in southern part of the Province (Table 6). Most of the rest in this group live in resource-based regions which, as has been seen, have undergone substantial growth in recent times.

The geographical factors combined with historical inertia (Fig 5) not only provided initial stimulus but also, as will be examined in what follows, in combination with economic factors, have been the most important stimulants to urbanization in British Columbia.

Economic Bases

Economic variable subsumes many other determining attributes. As an integrated variable, it furnishes the most telling explanation of urbanization in British Columbia.

The growth of fur trading and gold mining, the opening-up-of-west craze, the building up of trans-continental railways, the development of forestry and pisciculture and the prospecting of petroleum and gas have all involved heavy capital investment. The income, in turn, generated filtered into the investment inventory

of urban areas and strengthened their gravitating power. The two major pitfalls (war and depression) produced economically implosive results.

Figure 7 demonstrates the growth of manufacturing production which paralleled the urban growth. Figure 8 establishes that urban-based secondary and tertiary industries grew faster than rural-based extractive industries. Urbanization had been coincidental with the widening gap between the growth of two urban economic components. Both urbanization and economic growth had been the cause and effect of each other.

GROWTH OF URBAN-BASED AND RURAL-BASED ECONOMIC
ACTIVITIES IN BRITISH COLUMBIA

In million of dollars

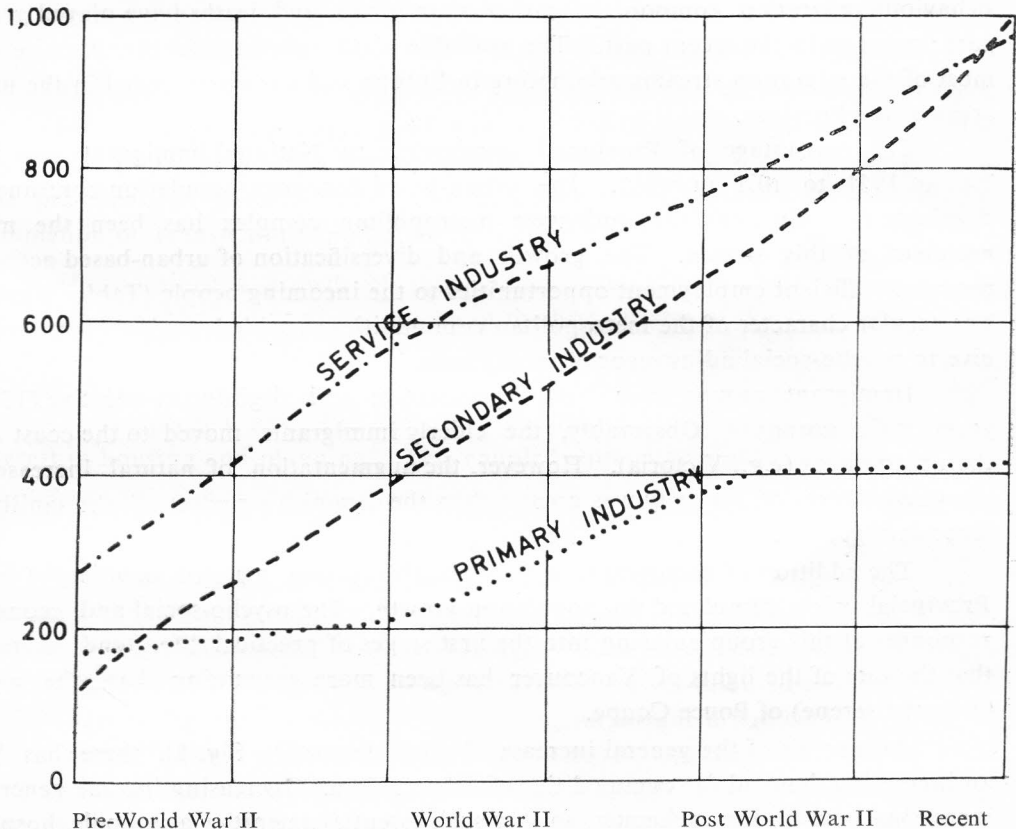


Fig. 8. Source : *Encyclopaedia Canadiana*, (Ottawa : The Canadiana Company Ltd., 1965), p-17.

The relatively fast growth during 1951-61 (and also during 1941-51) has been the result of the faster growth in the latter than in the former half of the decade, as the data speak : the per capita capital investment declined from \$ 625 in 1951 to \$ 575 in 1954, but rose to \$ 1075 in 1957 ;¹¹ corresponding figure for Canada as a

¹¹Figures extracted from graph 7 (source not cited) in : Walch, *op. cit.*, footnote 4, p. between 25 and 26 (unnumbered).

whole was \$ 460, \$ 500 and \$ 480. There is thus, direct correlation between the growth of economy and the growth of urbanization.

The rather impressive increase of urban-rural ratio in the interior areas during 1951-61 can be attributed to the development of infra-structure as in Prince George and Peace valley areas, development of industries as in Powell River, Ocean Falls and Kitimat and the somewhat notable proliferation of secondary and tertiary activities in the 'resource frontiers'. Hence the growth of middle-sized urban centres in the interior regions (Fig 5).

Social Determinants

Among the social determinants of urbanization in British Columbia demographic phenomena and cultural norms have been operative. Among the demographic behaviour migration components rather than births and deaths have played greater part; more so in the recent past. The available data substantiate the premise that most of the migration streams originating in Europe and elsewhere ended in the urban areas of the Province.

The percentage of Provincial immigrants to National immigrants rose from 7.4 in 1951 to 10.1 in 1961. The urban-based European population continued to dominate the influx, and the south west metropolitan complex has been the major recipient of this stream. The growth and diversification of urban-based activities provided sufficient employment opportunities to the incoming people (Tables 5 and 6). The secular character of the metropolitan communities provided environment conducive to psycho-social adjustment of immigrants.

Immigrant groups have been age-selective and slightly sex-selective (15—30 years male group).¹² Observably, the elderly immigrants moved to the coast after their retirement (*e.g.*, Victoria). However, the augmentation of natural increase by the youthfulness of majority was greater than the diminishing effect of the sanility of secondary groups."¹³

The addition of demographically productive young married couples of non-Provincial origin stimulated the population growth. The psycho-social and economic responses of this group entering into the first stages of practical life, tend to reveal that the lure of the lights of Vancouver has been more gravitating than the gloom (however serene) of Pouce Coupe.

As a result of the general increase of rural incomes¹⁴ (Fig. 8), there has been an increasing demand for commodities of urban origin. Increasing income generated increasing taxes to the exchequer, so that such essential amenities as schools, hospitals and cultural institutions could be established in communities of a certain size that could support them. Coupled with this, there has been the universally-recognized

¹²M. C. Urquhart and K. A. H. Buckley (ed), *et al*, *Historical Statistics of Canada*, (Cambridge : at the University Press, 1965), p. 16, Yearbook, 1965, *op. cit.*, p. 222 (Table 5).

¹³Welch, *op. cit.*, footnote 4, p. 37.

¹⁴*Eg.*, Farm cash income rose from 29 million dollars in 1927 to 154 million dollars in 1963. The Government of the Province of British Columbia, *British Columbia Facts and Statistics 1963* (Victoria : Bureau Economics and Statistics, 1964), p. 34 (Table 3).

fact that urban behaviour and urban living have been a symbol economically developed civilizations so that British Columbia could not be an exception to the socio-economic determinants of urbanization the world over.

CONSEQUENCE AND CONCLUSION

Urbanization is a phenomenon not typical British to Columbia; it is a world-wide phenomenon which has attained alarming proportion in recent decades. The many faceted ramifications in the urban mosaic of the resource-rich mountains Province have been the response of a series of spatial and temporal stimuli discussed in the preceding pages. Let some of the dramatic observations be dampened by a fact which lurks behind such studies on British Columbia. In terms of the ratio of urbanized areas to the Provincial areas, the situation is far from alarming and the immediate problem within grips—in this respect even the most urbanized and developed nations are handicapped. Some of the concerns of urbanists and planners are often more dramatic than real.

The persistent growth of Vancouver and Victoria metropolitan complexes as a result of historical and economic inertia, the continued inhibiting efforts by communities of next urban hierarchy to enter into the metropolitan status, the accelerating growth of communities in lower hierarchy, the uninterrupted performance of middle-sized communities in numerical strength, the impressive behaviour of resource-oriented communities and poliferation of river-oriented transportation-based ekistic areas have, as has been found, been the consequence of inter-webbed spatial factors.

The shift of the 'resource frontier' to the central and northern regions as a result of national public policy, the stagnation of the southern interior, the concentration of socio-cultural, commercial and political life of the province in the metropolitan south west and the developing provincial identity as interacting events would tend to characterize the responding urban mosaic of British Columbia, provided 'other things' remain the same.¹⁵

In the light of afore-mentioned facts, there is the dire need of public policy for concerted and coordinated action, as proposed in some academic quarters.¹⁶ Such concerted and coordinated action would enable the province of British Columbia to withstand and absorb the transition from metropolis to megalopolis and from megalopolis to ecumenopolis, the universal city—the ultimate fate of the contemporary urbanizing World as visualized by one of the most prolific students of urbanization and its associated problems.¹⁷

¹⁵Among other things not remaining the same may be, for example, the rationale behind the exploration of water resources. A most massive ever scheme of diversion of Alaskan, Yukon's and British Columbia's water to the water-thirsty western part of the United States, is at the initial stage of inter-governmental consideration. See, The R. M. Parsons Co., *NAWAPA*, Brochure 606-2934, (Los Angeles and New York: 1965). Also see, *NAWAPA: its impact on British Columbia*, a Regional Planning Project prepared by Final Year Masters Students at the Department of Planning, University of British Columbia, Vancouver, B.C. Canada.

¹⁶H. P. Oberlander of the University of British Columbia quoted in: *The Vancouver Sun*, February, 1966.

¹⁷C. A. Doxiadis, *Ecumenopolis—Towards a Universal Settlement* (Athens: Doxiadis Associates, 1963), p. 1 (mimeographed).

LAHORE : MAJOR URBAN REGIONS

M. MUSHTAQ

THE morphology of the city of Lahore is characterised by the existence of several distinctive forms differing from one another in layout, intensity of building, types of houses, open spaces and functional character. The old city and its bazars represent a typical local environment, with narrow lanes, old clustered houses, crowded shops and little open space. The Civil Lines and Railway Colonies resemble parts of a modern city with isolated residences and wide straight roads meeting each other at right angles. The two regions also differ in their functional performance. Civil Lines and Railway Colonies are mostly residential areas whereas the old city has a mixed functional character. The Cantonment, with its distinctive pattern of roads, barracks, rifle ranges and parade grounds, indicates its importance as a military station. The extensive area under the railway station, marshalling yards, stores and workshops, shows the importance of the city as a communications centre. Finally the latest planned and developed residential estates and housing schemes on the outskirts of the city have added a new pattern to the structure of the city. The city of Lahore thus has sharp contrasts. The residential areas of Civil Lines, Gulberg, Samanabad and others stand in a vivid contrast to the squalid slums of the old parts of the city with their insanitary and filthy conditions. The business and shopping areas of the old city are extremely congested and vie with some of the largest cities of the world in the volume of traffic of all kinds. The villages in the suburbs of the city represent a rural landscape in sharp contrast to the urban concentration.

In the city, therefore, the following urban zones based on differences in street layout, density of developments types of houses, social and economic structure and the functional concentration, can be recognized: 1) The core or the old city 2) the intermediate zone 3) Suburban zone (Fig. 1)

THE CORE

The core is represented by the walled city developed on comparatively high ground above the surrounding plain. It covers an area of one square mile and was formerly surrounded by a wall which was raised and moat was filled. A garden now occupies the place. A wide dual carriageway goes right-round this part of the city connecting thirteen gates which are the main approaches to the area.

The old city is a compact mass of buildings three to four stories high, the

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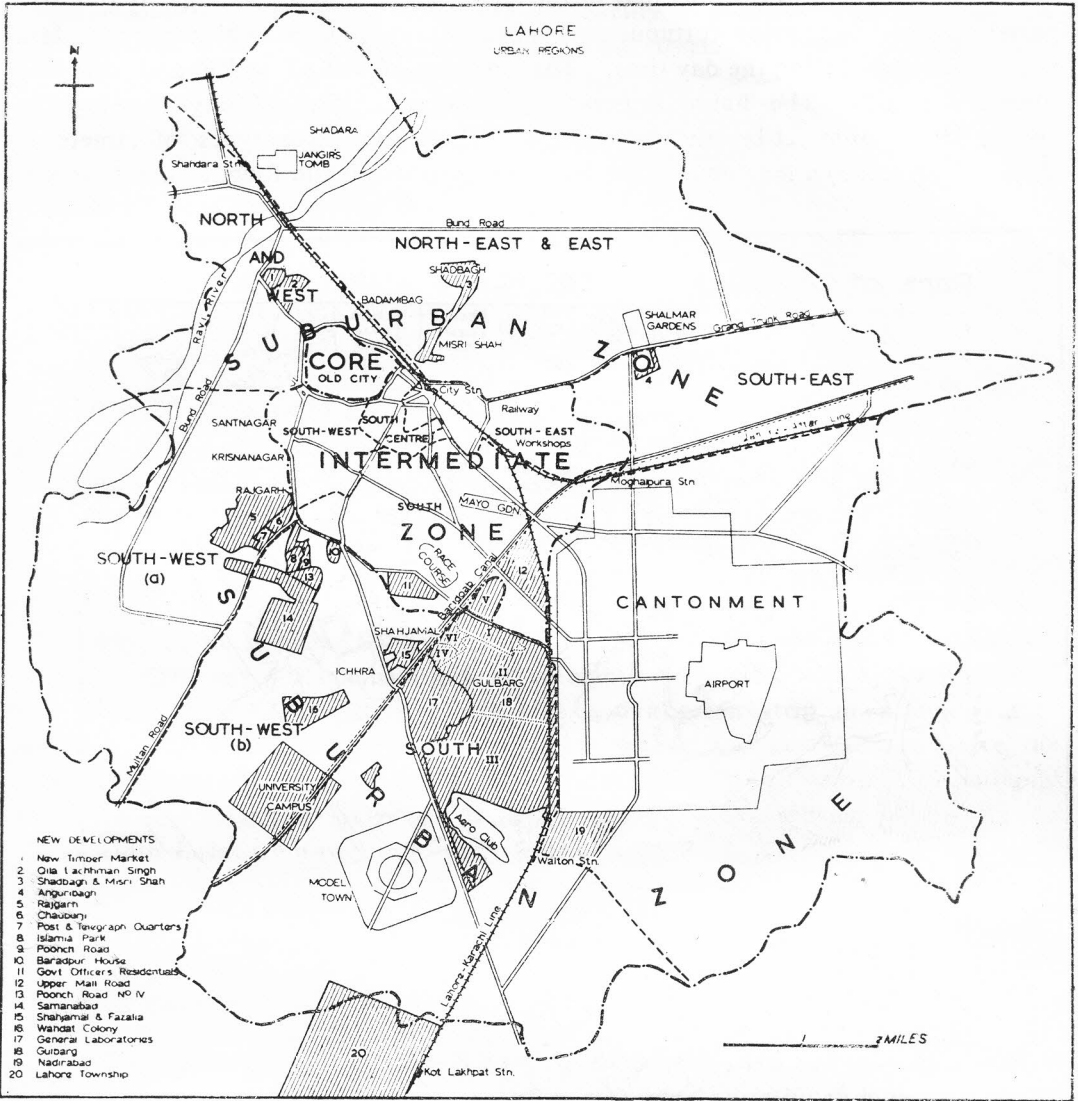


FIGURE 1

majority of which are aged and liable to collapse in the rainy season. The overall picture remained unchanged until after 1950 when Improvement Trust affected a slow change by clearing away blighted areas. The Delhi Gate and an area around the Wazir Khan's mosque have been cleared and new markets, like the Azam and Pakistan Cloth markets, have been built. Similarly the Shahalmi Gate-way and an area adjacent to it has been reconstructed. The Churi Market to the north of Shahalam market, has been built after clearing the debris of the fallen houses. In other words, the old, narrow and intricate net-work of streets is gradually giving place to new wide roads.

Like most old towns, this part of the city is marked by an irregularity of street pattern. There are narrow tortuous streets and lanes some of which remain dark and dismal even during the day time. The lanes are of varied width and confused direction (Fig. 2). The figure illustrates a portion of the old city showing the special feature of street layout and pattern. There are three types of streets 1) Bazar, 2) Street, 3) a lane or an Alley based on their width and functions.

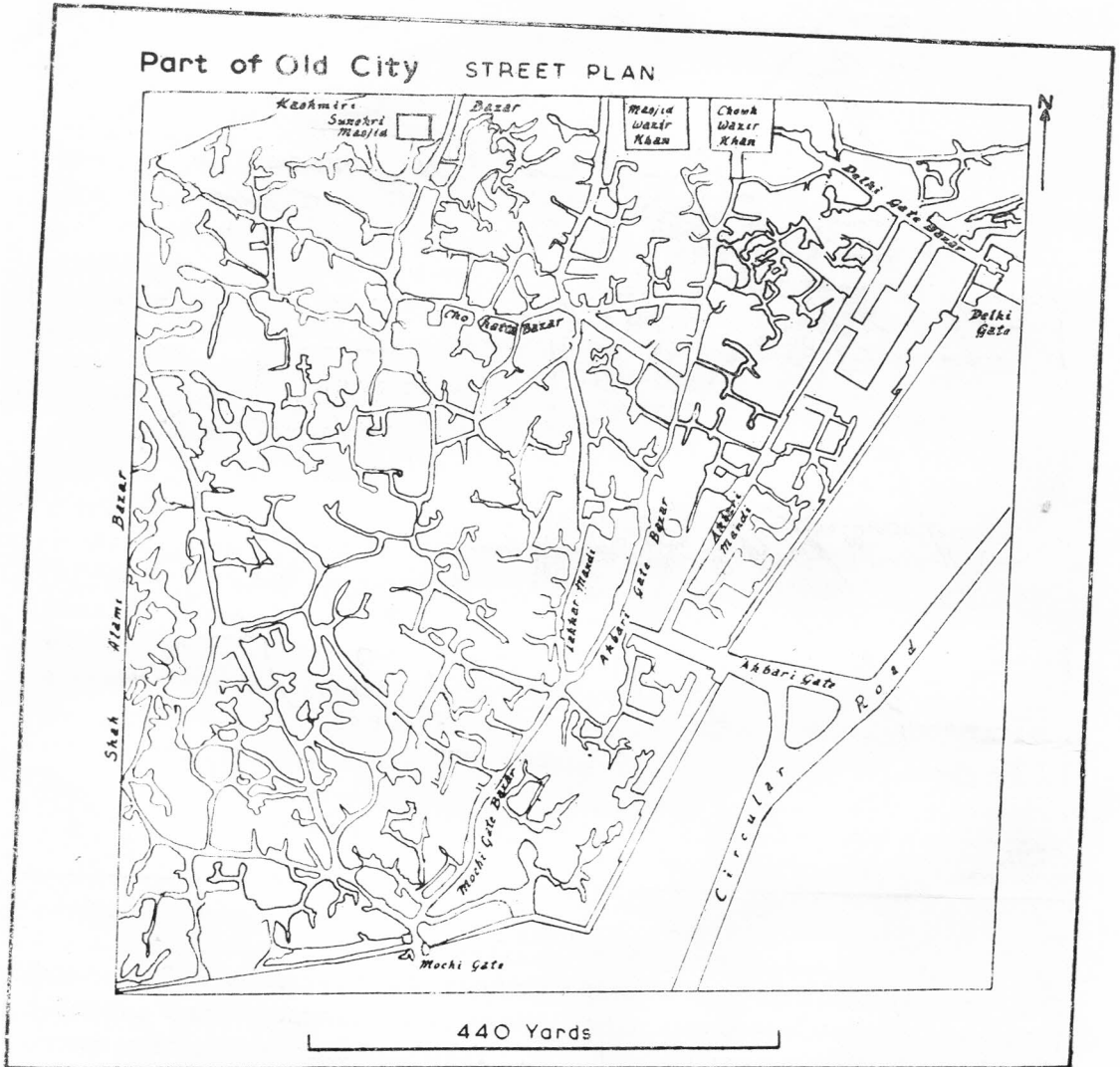


FIGURE 2

The bazaar is the major shopping area with concentrated trading. It possesses a variety of shops which serve the day to day and special needs of the people. They are the main channels of ingress and egress for various kinds of traffic. They are

winding and their width varies fifteen to twenty feet. The shop frontages face the bazar-line whereas the house-doors open in the streets and lanes.

The streets and lanes differ from the bazaar in the fact that there are few shops in them. They serve as tributaries of the main bazaars just to conduct traffic from mohallas at the back of the main bazaars. The streets are six to seven feet wide whereas a lane is three to four feet in width. The streets are sinuous and generally one loses his bearing. The buildings on sides of the 'passageways' are higher in comparison to the street width. Consequently they are dark. Thus land in this part of Lahore is used very intensively. There is hardly any open space and minimum space is left for roads and streets. The houses are built on small plots of fifty to seventy square yards, but they rise to three, four or even more stories. The ground floors of the houses are generally kept for sitting parlours, stores or shops etc. The first floor is kept for household activities. The upper two or more stories are used as living accommodation. The roof is used in summer for sleeping and has a small latrine in one corner. The sight of these houses, even from outside, is very depressing and gloomy. Inside they are devoid of light and usually nurture delinquency.

Planned Pockets like Shahalmi area are marked by wide roads and streets (Fig. 3). The main Shahalam bazaar is eighty feet wide which provides dual carriage-ways each about thirty two feet wide, with a green strip of fifteen feet in between. The buildings have a ten feet wide arcade and corridors to serve the shoppers. Each building has a plot area of nine marlas (225 sq. yards). The buildings have a general height of sixty feet with the exception of general markets. The street width varies from twenty to forty feet.

The northern portion of this part of the city is occupied by the fort and places attached to it. The fort occupies a commanding position and along with its allied places of Badshahi masjid, Huzuribagh and Ranjit Singh's Smadh, occupy a large area.

This part of the city is really a zone of 'concentrations'. It shows the highest intensity of buildings, highest density of population, very high concentration of trade and traffic. In contrast it has the lowest concentration of services. The recent developed pockets have injected modernity into the age-old urban blight of the city centre, but they in no way change the real character of this part of the city. The land is used at approximately the same intensity except that roads are wider.

THE INTERMEDIATE ZONE

This region represents the late nineteenth & early twentieth century accretions to the city core. On the west zone is separated by the locality of Krishana Nagar and extends south wards including the localities of Chauburji and the junction of Multan-Bahawalpur road in the south-eastern direction along the Gulberg road. It is termi-

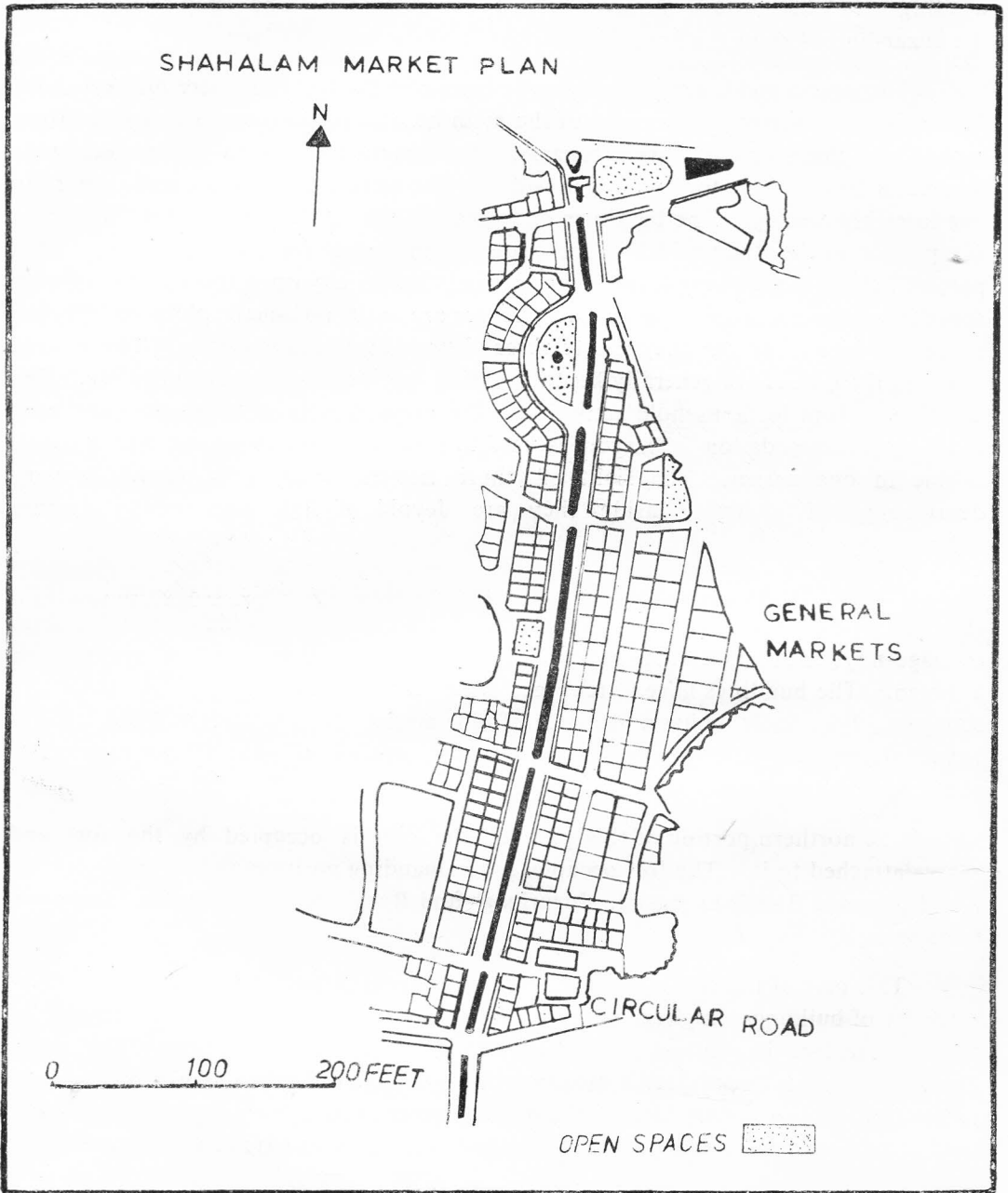


FIGURE 3

nated in the east by the Grand Trunk road which runs beside the railway station and workshops. To the south it approaches the Lahore Karachi railway line. The zone is totally absent to the north, east and west, because the area is lowlying and was liable to seasonal floods. This zone possesses distinctive urban characteristics. Its functions are variable and the following sub-divisions would be desirable for further discussion :

- 1) South-west, 2) South-Central, 3) South, 4) South-East (Fig. 1).

South-west

This section of the region comprises of localities of old and new Anarkali, the localities of Lake-Lytton roads and Bank square. It was the site of a Sikh Cantonment at the time of occupation by the East India Company which was later transferred to Mian Mir. After its occupation the area was used for the establishment of Provincial administrative offices and consequently resulted in the concentration of several other offices.

This region is the administrative, commercial and educational focus of the city of Lahore. The Civil Secretariat, the Town Hall and other local authority offices, the Headquarters of Post and Telegraph departments, the offices of Accountant General and Excise and Taxation of West Pakistan Government, the Headquarters of District and Provincial Police Force, the High Courts and District Courts are situated here. At the same time almost all the banks and other commercial institutions are clustered in and around the Bank square and the Upper Mall Road between Dhobi Mandi and General Post Office. There are also situated several of the educational institutions, like the Panjab University (Old Campus) and other colleges. The colleges along with their hostels show a strong functional influence. The medical college along with its hostels and hospitals, occupies a considerable area to the east and thus has created a force of its own. The Anarkali Bazaar, the Urdu Bazaar and Nila Gumbad Chauk are important trade areas. It is, in fact, another area of concentration in Lahore.

The region, on the whole, is fairly open and possesses the Anarkali (Golbagh) garden as a public park. There are also compact pockets of residential areas of old Anarkali, Dhobi Mandi and Nila Gumbad. The area covered by them is very small in relation to the whole. The buildings in the commercial area of Bank Square even rise higher than six stories. The roads here are well laid and represent a net work leading to almost all parts of the city.

South-Central

This region comprises of Gowal Mandi, Ramgali and Naulakha areas on the south and south eastern fringes of the old city from Mori Gate to Yakki Gate.

From Yakki to Mori gates the southern section of the region is covered by the old locality of Qila Gujar Singh and its adjacent localities of Royal Park and Nicolson road. The eastern side is bounded by the Railway Police Lines and Railway station. This is an important residential area of Lahore and represents late nineteenth and early twentieth century development. It differs from the old part of the city in the sense that streets and roads are moderately wide, otherwise the land here is also completely occupied by buildings.

The roads here are straight and are met by fifteen to twenty feet wide streets. On the main roads and streets about residential buildings which are three to four stories high. They are noticeably higher along the Nisbet road and in the Royal Park area. The Lakshmi Chowk has some of the city's large mansions. Qila Gujar Singh shows all the characteristics of the old city, but the outskirts possess modern buildings and bungalows.

Ramgali and Landabazaar are the areas of inns and cheap hotels. The residential area in Ramgali is confined to the sides of Brandreth-Circular roads.

This region possesses high densities of population and houses. As a matter of fact Gowalmandi is the second most congested area of the city. The concentration of hardware trade, second-hand goods trade in Landa Bazaar, foundries, manufacturing establishments, together with wool, iron and steel and fruit market in Ramgali area shows a strong imprint on the function and form of the region. This business sector joins with the main trade region of the old city and Railway Station and therefore represents the second major focus of activity of Lahore.

South

It covers a large area to the south of the city and extends southwards to the Lahore-Karachi railway line. The north-western corner of the area is occupied by Mozang and to the north-east it approaches Qila Gujar Singh and Railway Colony. The eastern limit is the Lahore Mian Mir Section of the Railway line and to the south it follows the Gulberg road. It is called Civil Lines. The Civil Station was established in 1860 on an area of ruins, kilns, and other decaying constructions, though it hardly gives the impression of a planned locality. The roads present a confused pattern as they have several inter-sections and multiple junctions reflecting clearly the influence of two centres of activity to the north-east and north-west.

The old localities of Ghari Shahu and Mazang possess the old urban characteristics of compactness and congestion, giving way to better houses and roads on the outskirts. The largest and the oldest graveyard of the city, called Miani Sahib, is situated beside Mozang on both sides of the Bahawalpur road.

The Civil Lines present the early European quarter of the city which differs in its layout and plan of houses from the indigenous part of the city. The residences generally occupy a central position in their plots and are enclosed by boundary walls and hedges. In several cases servants quarters and kitchens also occupy a part of the plot, which is always poor in layout. The special feature of the station was the palaces which belonged to princes, such as Bahawalpur house, Kashmir house, Patiala House and Chamba House. Now almost all of them are occupied by the government offices. All of them occupy spacious areas.

The Civil Station was aimed at providing accommodation for the administrative staff of the provincial and other offices and safe, healthy residences for the European officers. The Civil Lines have two distinctive units of townscape—the administrative area to the northwest and the residential area to the south, with its shopping ribbon along the Upper Mall road. All possible measures were adopted for the safety of the British population of the Civil Lines. A strong police force in the police station was reinforced by a military contingent stationed in the Birdwood barracks. The station was more or less isolated from the rest of the city. At present, no doubt, there is no ‘white population’, but that character of the locality is maintained by the local ‘whites’.¹

The civil lines is one of the best residential areas of the city. It contains the residences of the bureaucracy, with a greater portion of Anglicized and well-to-do professional classes and business men. Institutions, like the Chiefs College for boys and Queen Mary College for Girls are symbols of higher social and economic status of the area where no person of average income could dream of admittance for education. There are other institutions with spacious buildings and lawns. Almost all the high class hotels and clubs are found in this area along the Upper Mall road. The Assembly Chamber and the Government House are very important features of the area. Bagh-e-Jinnah and the Race Course are the other important places of recreation.

The triangular section of the Civil Lines to the extreme south is more or less an open space. There are bungalows on both sides of the Upper Mall road and Canal. The well known place is the Civil Services Academy. The southern tip of the area is occupied by the Punjab Constabulary barracks, paradegrounds, a hospital and a golf course. Further to the east is the locality of Mian Mir, a component area of Mian Mirs’ monastery across the railway-line. Again to the east, across the Allama Iqbal Road, are situated the localities of Dharampura and the offices and Workshops of the Canal and Irrigation Departments. Here is also situated the locality of Mayo Gardens. It is mathematically rectilinear in form and houses the executive staff of the railway headquarters. Opposite to it blocks of servant quarters have recently been

¹A Secluded community of rich (Anglicized) people.

constructed by the West Pakistan Government. The whole area of Civil Lines is open with minimum possible density of houses and population. The only area of higher densities is that of the Mozang-Temple-Beadon roads strip. The roads are wide and lined with trees. The estates like the Golf estate, to the south of Jinnah Gardens, presents in itself a park due to numerous trees in the area. This part of Lahore, on the whole, shows a clear differentiation of residential, recreational and other uses.

South East

This section of intermediate zone is a large area to the south-east of the old city (fig 1). This large area represents a completely independent and different form from the rest of the city. This area consists of two separate units of railway station area along with its residential colonies and workshops. The station is separated from the workshops by the locomotive shed, a transitional area, which serves both of them. The railway station area again constitutes an independent unit. It possesses the main railway station with its large marshalling yards and godowns, the Railway Police Lines and offices, the residential colonies and the Railway Headquarters. The railway station has several platforms and siding tracks to cater for the enormous traffic of various kinds. The Lahore railway station is one of the biggest stations of the country. There are two Musafar Khanas (passenger waiting halls)—One for the north-bound and the other for the south-bound passengers. There are two over-bridges to serve the pedestrians. The southern one joins the two railway colonies, then the Allama Iqbal road to the west and Grand Trunk road to the east. The Railway Police Lines and offices are situated to the west and the Railway Headquarters further to the south on the Allama Iqbal road. The Railway Headquarters comprise a unit of several offices, a well equipped hospital and a school for the children of the staff and the residents of the colonies. The front side of the station has hotels, a tonga stand, city and West Pakistan Road Transport Stand and station, a taxi stand and a large bicycle stand. This area is served by wider roads provided with footpaths.

The Railway Colony, known as Naulakha Colony has a checker-board plan. It constitutes two parts, Naulakha South East and Naulakha South West of the railway station. In 1862 when railway lines from Delhi and Karachi reached Lahore, a small residential area was completed to the south west of the railway station. The staff at that time was small and consisted wholly of Europeans. Later on with the expansion of Railways the staff also grew and the need for a new residential colony arose. Therefore the Naulakha south-west was constructed on a larger area. Both parts lack any central market place for the day to day needs of the residents. The Naulakha south-west has an institute called the Burt Institute, equipped with a theatre, reading rooms, billiard rooms and playing fields for the recreation of the residents. At present both parts house the operational staff like drivers, conductors, clerks and guards.

Further to the south-east is the locomotive shed. Here all the locomotives are stationed, serviced and fuelled. The main electric power house, exclusively for the railways, is situated here beside the locomotive shed.

The workshops consist of large general stores, locomotive workshops, carriage and wagon workshops and a large printing press. The locomotive workshops manufacture locomotive parts and carry on the essential repairs and maintenance. The southern side is occupied by the carriage and wagon shops which carry on repairs and construction of carriages and wagons. Each of the workshops consists of several workshop units to cater for different demands. The eastern corner of the area is covered by the Moghalpura residential colony and has the same pattern as the Naulakha colonies. There is an institute, like the Burt Institute with recreational facilities. The residents are the workshop officials.

The whole area is surrounded by a high wall and therefore, gives an impression of a large industrial estate. It possesses all the smoky, dirty and noisy characteristics of an industrial area. There are several tracks, siding tracks and dumps inside the workshops.

(City of Lahore, as already explained, has extensive suburbs on all sides. The asymmetrical expansion of the city is the result of a very strong repulsive influence of the river. The land to the north, west and east is low and the river, being in its plain stage, is shallow and sluggish. Its course is very tortuous. A small rise in its level was enough to spill it over its banks. As a result the area was always a victim of its annual floods and changes of its channel. Under such conditions the city could not expand on these sides. The recent embankment of the river has insured safety and therefore expansion of suburbs on these sides has become possible. The land on all other sides of the city is high and suitable for settlement, but the railways and cantonment areas have proved obstacles in the way of expansion to the south-east. (The only direction to which the city could expand without obstruction was the south-west and south. Here therefore are situated the main suburbs of the city.

This is an open region with residential localities intermingled with factories and cultivated fields. The newly established residential estates and housing schemes are found in various parts of this region (fig 1). The urban characteristics of this region are different from those of the Core and Intermediate Zone. This region can be easily divided into the following subdivisions for the sake of convenience :—

- 1) Suburb North and West,
- 2) Suburb South-West,
- 3) Suburb South,

- 4) Suburb South and South-East,
- 5) Suburb South-East and
- 6) Suburb North East and East (Fig. 1)

Suburbs North and West

This area lies immediately to the north and north-west of the old city after the Circular Road and extends upto Shahdara across the Ravi river. The built-up area is confined to the narrow strip between the railway line and the Circular road in the north-eastern corner of the region. The Corporation waterworks and general bus stand are situated here. The deserted bed of the river, known as Chotta Ravi¹, traverses the area. The area between the Chotta Ravi and the Circular road is occupied by Iqbal park (where Pakistan Memorial, a most important morphological feature, is under construction). The other partially built up area is along the Ravi road across the Chotta Ravi river. The important localities are of Vandan, Qila Lachman Singh, Muminpura and New Timber Market. These localities are poorly constructed. With the exception of the main roads all the minor roads and streets are unpaved. The streets are in a dirty state with a drain running in the middle, which is often stagnant and strinking. There is a nearby developed middle class, posing scheme on an area of 35² acres parallel to the Chotta Ravi river. The rest of the area between the Chotta Ravi and embankment is open land either cultivated or covered by tree plantations like the Ravi Park plantation.

Further north is the locality of Shahdara. It is separated from the city by the river but makes an important part of the suburbs of Lahore. Here are situated several factories amongst the cultivated fields. On the whole the area is rural in character and has poor residences. The surrounding region is exposed to annual floods and therefore, is unhealthy. Emperor Jahangir's mausoleum is an important tourist resort.

The western zone occupies the area between the Ravi Park road, the embankment to the west and Gandhi Mori road to the south. The built-up area is confined to the Circular-Gandhi Mori roads and both sides of the Ravi Park roads. The south-western part of the region is covered by a compact mass of buildings. The residences are poor. The streets are unpaved and, therefore, untidy. The rest of the areas is occupied by cultivated fields and fruit orchards.

Suburbs south-west.

This is situated between the Gandhi Mori-Multan roads and the canal further south. The area to the north of Multan road is comparatively low, whereas

¹Small Ravi.

²Lahore Today & Tomorrow (Lahore Improvement Trust 1956, Qila Gujar Singh Scheme).

to the south-west is a part of Mangja, relatively upland. Therefore for the sake of convenience it would be easy to consider it as south west a) and south-west b) (Fig. 1).

a) This is a large residential area and possesses the localities of Rikhi-nagar, Krishnanagar, Rajgarh, Post & Telegraph Colony, Sodiwal quarters, the localities opposite to Nawankot and villages like Sandas, Babu Sabu and Sodiwal. These localities have fairly wide roads and streets joining the major roads. Each of them is separated by open spaces generally fields. Krishnanagar is a closely built-up area without any space for a public park. The houses are a mixture of two to three storeyed buildings with a small courtyard inside. Rajgarh, on the other hand, is a sparsely built-up area and the process of building is in progress in the open spaces. Several of the open places are used for milch cattle. The Post & Telegraph quarters are newly built government residences and house the workers of their departments. The rest of the area is cultivated and irrigation is provided by pumping the sewerage water.

b) This is a large area extending between the canal and the Multan road. It has the localities of the Chauburji Garden estate, Nawankot, Samanabad estate, Ichhra, Rahmanpura, Muslim Town, Wahdat Colony and the New University Campus. The Samanabad along with its allied estates, covers an area of 264 acres. It comprises the Multan road street scheme, Poonch Road Scheme, Arya Nagar Scheme, Samanabad extension and Poonch Road Number V Scheme. The Shah Jamal Housing Scheme (140 acres) and Fazalia Colony (11 acres), are across the Ferozepur road to the south of the Borstal Institute and Mental Hospital.² The other important housing colony is the Wahdat Colony for government servants and the latest addition of National Bank of Pakistan Colony. The most important and dominating feature of this area is the New University Campus, a town in itself. Each of the estates have detached and semi-detached houses and wide roads and streets provided with all the possible facilities. Each settlement is a complete unit, with its own central market, school, dispensary, open spaces for recreation and cultural centres.

Samanabad estate with its extension covers an area of 205³ acres. It is a middle class colony with semi-detached villas and bungalows occupying the north western and north parts of the area and to the south are situated the batteries of quarters (Fig. 4). Most of the residences are two storeyed buildings and are provided with all the modern amenities. The roads and streets are well laidout keeping in view the needs of modern traffic.

⁴*Op. cit.* footnote 3 (Samanabad Scheme).

⁵*Ibid.*

Expansion in the whole area is going on rapidly. The old localities like that of Ichhra, Rehmanpur and Muslim Town are surrounded by new residences, new residential schemes like New Muslim Town Schemes and small factories. The modern constructions have greatly inflated their sizes. Along with the planned residential areas individual constructions are appearing rapidly especially along the Ferozepur and Multan roads. Still the region has a large area under cultivation.

Suburbs South.

This covers the south and south-western side and constitutes a large area lying between the canal, Lahore-Karachi railway line and Gulberg road. The Ferozepure road passes through the area and separates the Model Town to the west from the Gulab Devi Hospital, Civil Aerodrome, Sports Stadium, Forman Christian College and the Gulberg estates to the east.

The Model Town is a planned residential area built before the establishment of Pakistan. The area was the part of Rakh Kot Lakhpat, a forest reserve, close to the Ferozepur road about 7 miles south of the city. Model Town is a sort of garden suburb inhabited by high officials and other well to do people and covers an area of more than 2,000 acres.⁴ Model Town possesses an impressive square plan with a vast circular open space in the centre encircled with a ring road. The periphery of the town is also bounded by a road which is a complete square. The whole area has been divided into strips by roads meeting the inner and outer ring roads. The strips have been divided into plots of suitable sizes for bungalows. The northern side of the Model Town is occupied by Garden Town besides the village of Jevauna. The partially built up area follows both sides of the Ferozepur road to the south even across the railway line. The rest of the area is fields and part of Rakh serves as a recreational area for the residents.

Further to the south are situated the Gulab Devi Hospital with its living quarters and the institution of Walton Training School. There are wide playgrounds and lines of residential quarters. The area between the Forman Christian College, to the north, and Gulab Devi Hospital is occupied by the aerodrome and the new sports stadium. The Forman Christian College has a large tract of land (more than 100 acres) and consists of several blocks of buildings, playgrounds, hostels and a modern hospital.

The rest of the area is covered by the latest planned housing estates of Gulberg including the previously built-up area of canal park (Fig. 1). The

⁴Final Settlement Report, *Urban Areas in Lahore District* (1935-39) p. 21.

⁷It is used as an aero-club as the Civil aerodrome has been shifted to the Pakistan Air Force aerodrome in the Lahore Cantonment.

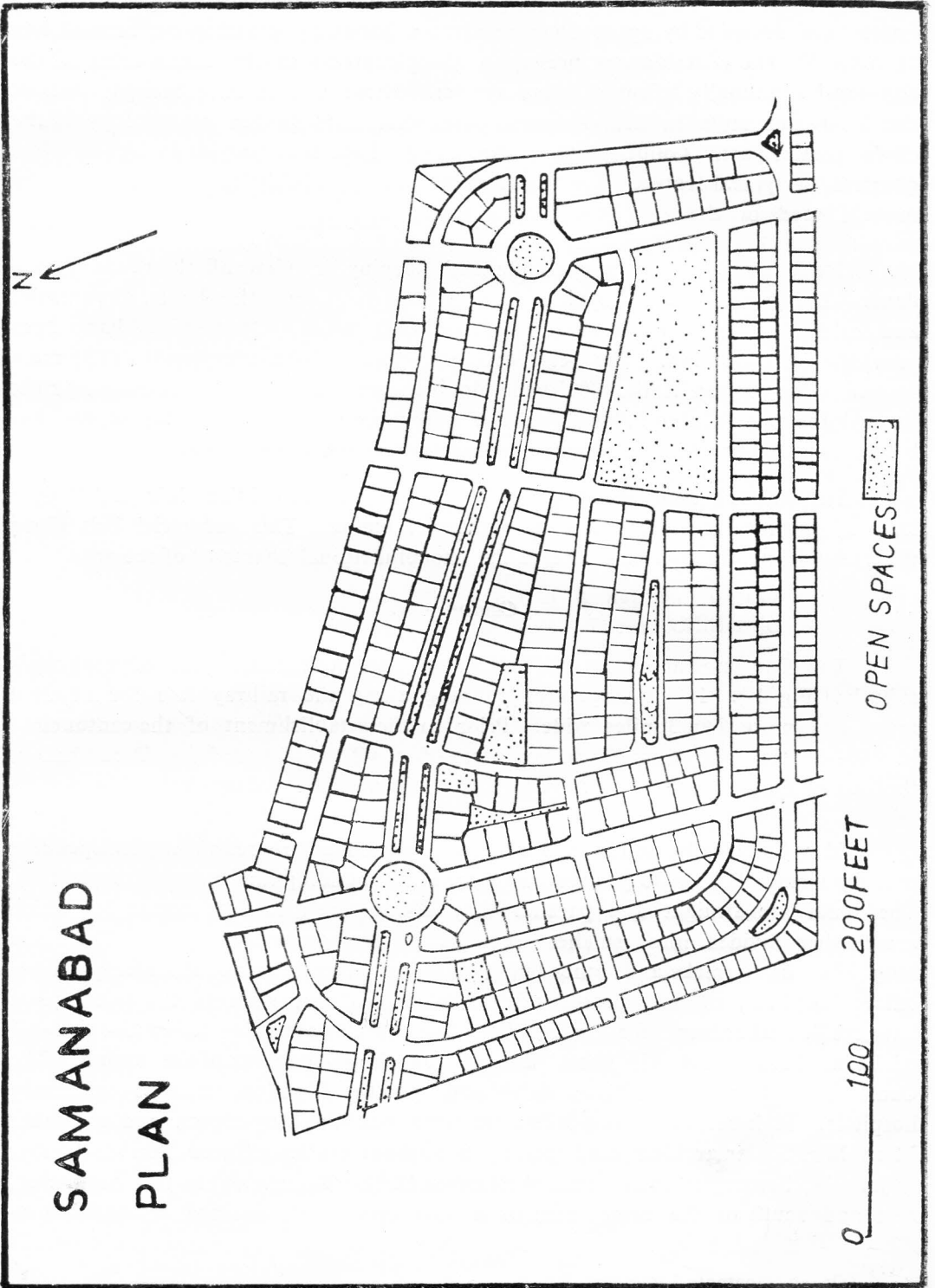


FIGURE 4

Gulberg estate is comprised of six parts covering an area of 3418 acres. The estates are occupied by upper class residences generally covering an area of 1 to $1\frac{1}{2}$ acres.⁶ These residences present a sharp contrast to the other areas of the city—an-intentionally 'planted' class system. These estates have brought distinct classificational units in the otherwise somewhat homogenous morphology of the city's greater part. Gulberg estates No. 2 and 3 have been provided with low class quarters, a typical feature in a fashionable area, probably keeping in view the manual needs of the high class inhabitants.

These estates are very well planned keeping in view all the needs of residents. Every unit has a shopping area of its own along with schools, dispensaries and cultural centres. The roads are wide and well paved. Open spaces have been provided for recreation. The residences are closed by boundary walls. The main feature of the region is the 200' wide double carriaga-way boulevard running right through the area, joining the Gulberg and Ferozepur roads. The water supply has been assured by providing a seventy feet high water tank in each unit.

The belt of land along the railway line, between Mian Mir and Walton Railway Stations is reserved as an industrial region. This industrial belt along the railway line, in fact has altered the monofunctional character of the area.

Cantonment.

The Cantonment covers the south and south eastern part of the city's suburbs (Fig. 1). It is a large area running along the railway line for about 4 miles and more than 3 miles wide. Prior to the establishment of the cantonment in 1851-52, the area formed the property of a village donated by Dara Shakoh, the son of Emperor Shahjahan, to Mian Mir his religious preceptor.

Morphologically and functionally the cantonment represents an independent unit by virtue of its road pattern, the form of its buildings and its isolated position. The roads are straight and parallel they divide the area into rectangles which are further divided into smaller sections by the transverse roads. There are long lines of barracks and other buildings. The central part of the area possesses offices, hospitals, officers messes and official bungalows, whereas the outer parts have residential barracks for lower ranks. There are two civilian residential enclaves of Sadar Bazaar and Air Force Bazaar, the shopping areas of the region. The Cantonment possesses its own dairy and poultry farms as well as veterinary hospitals. It is served by two railway stations, one the Moghalpura and the other Mian Mir. Shalamar Link road passes throughout its length and extends further to join the Ferozepur road as the Wellington Mall. The region to the north-east, east and south of the cantonment is a vast open place covered by agricultural

⁶*Op. cit.*, footnote 3 (Gulberg Scheme).

land dotted with villages. The irrigation is provided by the distributaries from the canal.

Suburb south-east.

South-east occupies the area between the Grand Trunk road and the Lahore-Attari railway line. This area is separated from the city by the railway workshops. It is a partially built-up area with open tracts of cultivated land between the blocks of buildings. On the Wheatman road are situated the Criminal (nomadic) Tribes settlement, Artisans quarters and new railway quarters. The built-up area is confined to the corner made by the Shalamar Link road and Grand Trunk road. It extends along the Grand Trunk road on both sides to the east and west.

The area to the east of Shalamar Link road, *i. e.* between the road and the Shalamar escape, is occupied by the localities of Ganj, Ramgarh and Sahowari. Across the canal, to the south, is the Amritsari Mohalla. The Shalamar Drain on both sides is occupied by hutments all along its length between the Grand Trunk road and canal. These localities belong to the poor class of people. The residences are poor and are a mixture of single and double storeyed buildings. The streets are wide but not a single one is paved. There are open gutters on both sides of the streets full of stagnant water. In dry season, which is almost the rule, the streets are dirty, but if it happens to rain the conditions become bad with plenty of choked water in them. These localities do not present a healthy environment. The northern section houses historic garden surrounded by a wall, called Anguri Bagh. The Improvement Trust has planned a housing scheme around this garden. The total area is fifty-six acres, providing sites for twenty-eight bungalows.⁹ There is a line of larger factories across the Shalamar drain along it and the Grand Trunk road to the east. The built-up areas on the whole is very small and the region is covered with cultivated fields all around. The villages like Fatehgarh, Salamatpura, Harbanspura etc., are purely rural in character.

The north-east and east of Lahore is comprised of a large area enclosed by the Mahmud Booti bund to the north and east, the Grand Trunk road and the Lahore-Shahdara railway line to the south west. This is a low lying area traversed by the deserted bed of the Ravi river in which patches of water are still found. The built-up area lies in the road railway line arm.

The eastern side of the region is occupied by a concentration of old villages of Baghbanpura, Bhogiwal, Singhpura, Begumpura and the new settlement of Shalamar Town. It is mostly a residential area with all the old urban characteristics. This part, on the whole, gives a rural appearance due to the presence of cultivated fields and orchards in the surroundings. The eastern side of Baghbanpura is occupied by Shalamar garden.

⁹Lahore Today and Tomorrow. *Op.* Anguri Bagh Scheme.

To the west of the villages are situated the Engineering University and Old Railway Stores. The University has a large campus with several blocks of buildings and open grounds. Further to the north lies the major built-up area of the region. Here are clustered residences intermixed with factories and mills separated by open spaces. It includes the localities of Nawan Pind, Khui Miran, Naulakha, Sultanpura, Faizbagh, Mirishah, Wasanpura, Kot Khawaja Saied and Badamibagh. The localities of Faizbagh, Mirishah and Wasanpura, have fairly high densities of houses and population whereas the other localities are open in appearance. The houses are a mixture of two or three storeyed buildings but poorly laid out. Further to the north, near the embankment, is situated the modern developed residential area of Shadbagh. It is semicircular in shape with a radial roads leading from the centre of the locality. The houses are situated in curved rows separated by wide streets. The locality is provided with its own schools and all the other essential amenities. The Badamibagh railway station is surrounded by extensive goods sheds, mills, factories and fuelwood stacks. The rest of the area is covered by fields.

These localities belong to labouring classes of population and have poor houses. They are small and are a mixture of single and double storeyed building. The roads and streets are well laidout but only a few of the streets are paved and therefore, have untidy conditions. In the rainy season they often become muddy and a source of inconvenience.

These localities have no problem of movement within them, but the railway line being more than 20 ft high, is a great obstacle in the way of free movement between this region and the city. The railway line here, in fact, presents a physiographic feature of its own as the high embankment looks like a wall separating the two areas from each other.

(The study of the city shows that there does not exist a zone that shows the characteristics of both urban and rural landuses, a common feature of the cities of the highly urbanized countries of Europe and the United States of America. In these countries motor transport and the provision of other facilities have caused the cities to expand beyond their administrative limits into the countryside. In Lahore, on the other hand, rural areas become dominant where the urban zone of the city ends. This is due to the fact that industrial development in Pakistan is not much advanced yet. There are obvious signs of such a region coming into existence to the north and south-west. Such a region of mixed uses will definitely appear on the south west as is clear from the Kot Lakhpat Industrial Township. On the whole at present the rural urban fringe has a predominantly agricultural use.

The city's expansion has followed the 'higher' land line reflecting the repulsive effect of the river valley. At present the high embankment around the city has minimised the effect of the river and this has made the expansion of the city possible to

the north, east and west. Further the cross-section of the city reveals that there is a distinct segregation of the socially high class areas on high and firm ground from the low class localities in the lower regions. It is also interesting to note that almost all the roads and railways converge to a point before crossing the river.

The city's built-up area shows clear differences in development. The land in the old city is used intensively whereas in the suburbs its use is extensive. As a matter of fact the suburban development shows two distinct categories according to the density of building. (The new colonies developed according to predetermined plans, have very low density. Large areas are devoted to wide roads and large plots. In the high class colonies the plots are so big that houses put on them seem disproportionately small.) The other areas, on the eastern and western flanks of the city, have grown more or less in a natural way by individual development. In other words development here was according to ones own means and not according to rigid plot sizes. (Therefore intensity of development in areas of the city is greater than the planned colonies, although relatively low in relation to the old city.

There is thus a contrast between the densities of newer residential areas and the old congested part of the city. The intensive use of land in the old part shows (all kinds, functional and otherwise), congestion and overcrowding which signifies a deterioration of living conditions. On the other hand the Anglicized parts have an open out look and are not overcrowded. The bungalows in the high class residential areas of the city are definitely under occupied.

The growth pattern also shows clear distinctions between planned and unplanned development. The unplanned development broadly reflects the absence of rigid controls during the 19th century. Developments became increasingly coordinated in the 20th century. Planners upto the present, generally, have been concerned in the planning of individual parts of the city area. An overall plan for the city appears to be urgent necessity to guide the future growth.

SOCIO-ECONOMIC DEVELOPMENTS IN CHITRAL STATE

ISRAR-UD-DIN

WITH the achievement of Pakistan's independence considerable changes were set in motion in Chitral. The principal landmarks have been the reform in administrative system, the abolition of 'thangi', 'ashimat', and 'corvee', the spread of education, the termination of duties on class basis, all achieved within a very short time. But at the same time, unfortunately, things such as premature publicity of certain proposals which never materialised because of unstable governments produced a state of frustration and disappointment among the people. In such circumstances the coming of the Martial Law regime in Pakistan in 1958 was widely welcomed in the country. Soon after the long needed Administrative Council for the development of the Frontier Regions was formed in Peshawar. The Council formulated its programme with the following considerations¹:

- 1) Planning must aim at a harmonious adjustment between various social and economic goals since excessive growth in one field often leads to immobility and loss of initiative in another.
- 2) All aspects of social and economic life are inter-related. In certain selected areas, therefore, it is necessary to group together different schemes in such a way that the impact of development should be felt on all aspects of life and measurable results should be achieved in a short time through the concentration of co-ordinated efforts.
- 3) A substantial proportion of resources was earmarked for peripheral development which meant taking educational, medical, and other welfare services to those remote and neglected parts of a tribal country which had never before enjoyed such benefits. This part of the programme, it was believed, would serve to establish closer contact between the administration and those tribal communities who had hitherto remained isolated from the main stream of national progress.
- 4) In assigning priorities to different sectors of development the regional peculiarities of the social and economic pattern were professedly kept in mind.

¹*Development Plan for Frontier Regions*, Part 1 (Peshawar : 1961) p. 2.

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During the years 1958-63 the Council planned a number of considerable schemes and has so far supervised the execution of the majority of them.

The achievements of the state government itself, despite its limited resources, have been considerable. Before the reforms there were no accounts of state expenditure, the budget tending to be of restricted scope—such that concern for the common people entered only marginally into the consideration of the ruler. Besides paying various taxes they were forced to labour on the construction of bridges, roads, forts and bungalows for the rulers and their favourites. They now pay only their share of tax and are paid for any work they do on state projects. Most of the people were paid for the first time for their labours at the beginning of the present era. So the state government spends its income on various local schemes *i.e.* building roads, repairing and constructing channels, education and school buildings, aiding flood victims and the destitute. There follows a consideration of certain development projects financed both by the state government and by the central government on the recommendations of the council.

AGRICULTURAL DEVELOPMENTS

The Project covers the following fields :

- 1) To increase the per capita yield of food crops by introducing better seed, fertilizers, and more efficient farming methods.
- 2) To increase the volume and variety of fruit production and to widen the use of preservative processes.
- 3) To control insects, pests and fungal diseases in crops.
- 4) To reclaim cultivable wastelands for agriculture.
- 5) To provide cattle care and better cattle breeding facilities.

The plan has led to the establishment of the Agricultural Department together with the Nursery and Fruit Drying and Processing centre at Chitral Town, to the construction of irrigation projects, and the opening of veterinary dispensaries in various parts of the country.

The Agricultural Department and Fruit centre was established in 1961. Here one agricultural officer and eight fully trained assistants carry out the following tasks :

- a) To obtain the maximum advantage from the land and water resources by educating the people to use correct farming methods. The Agricultural Assistants reside in the different parts of the country and carry out demonstration work in the farmers' fields. They also tell them how to use artificial fertilizers and seeds which are provided by the government.

- b) The fruit nursery centre is established to produce fruit plants every year for free distribution. The people are told how to produce good fruit and what benefit can be derived from doing so.
- c) Another task of this department is to save the crops and fruit from diseases, pests and insects. This is done by educating the people to know the causes and type of problems and then helping them in solving the problems by spraying insecticide or in other ways.

The department is not yet fully established nor does it get full co-operation from the people who often regard it with indifference. However, the first two years show encouraging results. In 1961-62 it distributed only three thousand fruit plants but in the second year the figure reached 200,000. By 1964 they were planning to produce a considerable amount of canned fruit, jam and orange squash besides distributing 400,000 plants.

The following table shows the activities of the department during the years 1961-62 and 1962-63 :

TABLE 1—ACTIVITIES OF THE AGRICULTURE DEPARTMENT, CHITRAL

	1961-62	1962-63
1. Crops sprayed :		
Wheat	25 acres	144 acres
Barley	4 „	27 „
Paddy	12 „	165 „
Maize	Nil	235 „
Fodder (Shaftal)	30 acres	71 „
Fruit crop (orchards)	43 „	46 „
Vegetables	5 „	57 „
2. Rodent and Borers .		
Area of orchard and crops cleared from rats ...	600 acres	1200 acres
Weight of seed of Maize treated with gramosane for the removal of fungal and soil borne diseases	90 maunds	148 maunds

Source : Agricultural Department Chitral.

The increase in the acreage of land sprayed suggests that the people are becoming aware of the importance of the Agricultural Department and so using it more and more.

The second phase of development regarding agriculture, is bringing more land under irrigation. As has already been mentioned there is a well established pattern

of irrigation in the state. Such works are executed largely by the local villagers on communal labour. Such labours as repairing the channels, construction of super passages etc., have been supplemented by financial assistance from both the state government and the central government in recent years. At the same time many channels are completed or under construction in various parts of the state, financed by the governments. The following table shows the progress and importance of these projects.

TABLE 2—PROGRESS OF THE GOVERNMENTAL PROJECTS

No.	Name	Location Tehsil	Date of commencement.	Estd. lands to be irrigated	Date of completion	Length
1.	Tajian lasht	Torikhow	1960	1,500 Chak	1962	15 mls.
2.	Buni lasht	Mastuj	1961	500 „	1962	3 „
3.	Gram lash	„	1961	1,000 „	1964	10 „
4.	Gocharkhu	Chitral	1958	3,500 „	1966	15 „
5.	Katchhorini	„	1960	1,000 „	?	10 „
6.	Bakarabad	„	1963	350 „	1966	10 „
7.	Mori lasht	„	1963	450 „	?	10 „
8.	Gorda lasht	Torikhow	1960	1,000 „	1962	15 „
9.	Upper Parwak	Mastuj	1960	500 „	1962	3 „

Source : Development Plan of Chitral State.

As regards the third phase of agricultural development *i. e.* animal husbandry, three veterinary dispensaries have started work in Chitral, Drosh and Mastuj *tehsils*. Three more dispensaries in the remaining *tehsils* will be opened soon. The work in these dispensaries is in its early stages at present because of lack of equipment and lack of popular co-operation.

COTTAGE INDUSTRIES

‘Shu’ (A Chitrali made woollen cloth), rugs and carpet manufacturing, wool weaving, and silk worm rearing are common in Chitral. In 1958 the Government of Pakistan established a sericulture centre and wool weaving centre in Chitral Town but due to “some basic defects in planning” these centres as in pre-independence times, could not make progress. Then the development of industry in Chitral was reviewed and it was realised that such industrial projects should, instead of being self-contained units, form the link between the village craftsmen

and the market on the one hand and the source of raw material on the other. Their functions were formulated as follows:⁴

- 1) Training of whole-time stipendiary students.
- 2) Supplying basic tools and equipment on a subsidy-hire-purchase system.
- 3) Maintaining depots for buying finished goods and selling new materials.
- 4) Providing low-cost for such phases of production which cannot be carried on economically by the craftsman himself (*e. g.* finishing, polishing, dyeing and carding).
- 5) Imparting knowledge concerning better methods of production through 'on-the-spot' demonstration.
- 6) Improving designs and tools advising on market trends and business methods.

With these objects in view, the following technical training-cum-production centres have been opened in Chitral town:

Woollen Cloth Manufacturing Centre Chitral

The local woollen cottage industry itself is a thriving one with an annual output of more than 1,000,000 yards. By establishing this centre the intention of the Government is, reportedly, not to interfere with the techniques of the present industry, but to facilitate improvements in the carding, spinning and washing processes mentioned earlier. These are suggested in order to increase the commercial value.

The centre started functioning in 1961. It has been fully equipped with improved type of looms and free demonstrations are given to those local weavers who wish to learn new techniques and to the trainees who are on stipendiary basis. In the first year the centre produced 2,350 yards of woollen cloth and in the second year 6,000 yards. The target is to manufacture between 150—200 yards per day by the end of 1965. By 1963 the centre had also produced thirty trained weavers who were going to start work on their own. Also there are great opportunities, the centre claims, for those skilled weavers and spinners in mills in other parts of Pakistan.⁵

Silk Centre

Chitral State abounds in mulberry trees and there is a great scope for develop-

⁴Development Plan, *op. cit.* p 23-24.

⁵Woollen Training and Manufacturing Centre, Chitral.

ment of silk. A centre was first established in 1959, and was reorganised in 1961. Reeling machines have been set up as previously most workers sold the cocoons at a price below half of reeled silk. There is a plan for installing machines for spinning and weaving in the near future.

Under this scheme ten trainees are trained annually on a stipendiary basis in the silk industry. The response from the people has so far been very encouraging and year by year their interest is increasing. If this scheme succeeds it would help considerably in improving conditions of the people.⁶

COMMUNICATION SYSTEM

The lack of good communications inside and outside the state has been a dominant breaking factor on the economic and social progress of the country. Before 1953 the only road negotiably by vehicles was between Chitral Town and Ashrat Village—a distance of forty miles. The rest of the state had only mule tracks or paths. But now the total mileage has increased five times. The most important is the Loari road which connects the state to other parts of Pakistan. This road is open for jeeps and lorries for three or four months in summer and has been helping a great deal to export timber and other commodities to other parts of Pakistan, and to import essential commodities on a less expensive and easier basis than before, and to bring tourists into the state.

The 'jeepable' road with the upper parts of Chitral has brought the two parts much more nearer to each other. It is hoped that the roads will be broadened for heavy traffic and be extended to other areas of the state. The following roads have been constructed or under-construction during the last ten years :

1. Chitral-Shandur road	(91 miles long)	$\frac{2}{3}$ completed
2. Chitral-Petch Utc,	(31 ,, ,,)	$\frac{2}{3}$,,
3. Birir road	(3 ,, ,,)	completed
4. Arandu road	(15 ,, ,,)	,,
5. Loari road	(20 ,, ,,)	,,

A plan for tunnelling the Loari is being considered by the central government, but no final decision has yet been taken. All the above roads have been financed by the Government of Pakistan. The main existing roads are maintained by the Central Government through the Public Works Department. The mule tracks which link the other parts of the country and a few other roads are under the management of the State Government.

⁶Silk Centre, Chitral.

Besides improvements in the road system a civil airport has also been constructed in Balach, two miles north of Chitral town. Three weekly air services have been started since 1962, which have placed the people and the country less than an hour's journey from the capital of Pakistan, Islamabad.

There are three post and telegraph offices in Chitral, Mastuj and Drosh. A wireless station has been installed in Chitral Town recently. There was already a wireless station in Drosh for civil and military uses.

ELECTRICITY

The supply of power to Chitral from Warsak Power Station, Peshawar, has been proposed by the council. It is hoped that the plan will be finalised soon. At present there is no electricity except for a small power house which lights the ruler's palace.

HEALTH SERVICES

There were only two hospitals before independence one of which was in Drosh and the other in Chitral town. The rest of the country had no medical facilities whatsoever. During the last ten or fifteen years medicine has made considerable progress. Both the state and the central government have built new dispensaries in the remotest parts.

At present there are twenty two dispensaries in all. The government believes that due to the local terrain which hinders communication it will be impossible to provide speedy medical facilities from a few centralised places. In view of that, the establishment of a large number of dispensaries widely spread over the whole state has been preferred to a few large size hospitals serving limited areas.⁷

One ten bedded hospital at Buni is under construction. Two child welfare centres at Chitral and Drosh. have been completed. One T. B. Clinic has also been opened in Chitral town. Moreover, the government has also appointed four state nurses to handle maternity cases and vaccination to check epidemic diseases. The World Health Organization has been doing anti-malaria work since 1960.⁸

EDUCATION

Very considerable progress has been made in the education field since 1947. The state has been spending 350,000 rupees, which is more than twenty per cent of its total expenditure, every year on free education for children, school buildings, scholarships and in distributing books to deserving students. But there were two

⁷Development Plan, *op. cit.*, p. 32.

⁸Agency Surgeon Office, Drosh, Chitral State.

problems which demanded satisfactory solutions. These problems have been summed up by the Council as follows :⁹

- 1) "The poor quality of instruction in tribal schools leads to a large percentage of failures in examinations. If this state of affairs continues for any length of time there is no doubt that most tribesmen will begin to feel that sending their children to school is a waste of time, energy and money".
- 2) "The educational pattern is too formal in character, placing all the emphasis on academic content and not on practical work related to the environment of the students. It is a system designed primarily for boys who intend to proceed to college for higher education. Those who lack ability or the means to pursue their studies beyond the matriculation stage fail to derive any benefit from it and become misfits in community life".

The following objectives have been proposed to solve the above problems :

The main object is that the schooling which the tribal boys receive, should make them "fully equipped for competing with others in all fields of social and economic activity : their failure to give a good account of themselves will lead to a shattering disillusionment and bring the entire experience to an abrupt and final close". That is why a greater emphasis was given to "qualitative improvement in instructional standards by up-grading existing schools, providing facilities for technical education and providing a large number of qualified and trained teachers".

No degree or intermediate colleges for the region were recommended keeping in view the "cramping effect on social outlook". On the other hand tribal students were provided with greater opportunities in colleges and universities outside the region, by offering ample scholarship funds.

RESPONSE

On the whole these projects have earned the gratitude of the people. However, many cultural factors have produced reservations in the initial response of the people to a number of programmes. For example, the improved varieties of wheat and maize seed promoted by the agricultural department were not enthusiastically received because of their flat taste, and because of the difficulties women experienced in using flour from them to make the conventional type of unleavened bread.

There was no response from the Gowari and Damali tribes to the tree-crop planting programme because they are not accustomed to it, while the Khow, who are fond of gardening and horticulture, co-operated with great interest.

⁹Development Plan, *op. cit.*, pp. 27-28.

The people generally showed interest in the application of artificial fertilizer but as the amount distributed was only a fraction of the demand, many were disappointed. Again the realization that because of its high cost they would not be able to buy it, is disheartening for them in future. The government's policy on this centre is not clear. Though it was designed to "form the link between the village craftsmen and the market on the one hand and the source of raw material on the other . . ." yet the increasing annual production of woollen cloth by the centre is a real menace to the local artisan.

The people, with a few exceptions, value education highly and, therefore, school building projects get appreciable support from the villagers. But during the last two or three years the unemployment of many students who have got their matriculation certificates, is becoming a problem as well as a cause of disillusionment for the people. The low educational standards produce half-educated men with pretensions far beyond their capacities, 'would be civil servants' who disdain to help their parents in the fields and who, otherwise unemployable, become a burden on them. The government's policy of shifting the emphasis on . . . "qualitative improvement in instructional standards by upgrading the existing schools, providing technical education....." has not been put in full practice.

The Kalash, Damali, Arandui and Gojur tribes are not interested in educating their children. The Kalash, a pagan tribe, are afraid of being converted to Islam; the Damali and Arandui do not like their children to 'waste' their time in school instead of grazing kids or helping the parents in the fields; and the Gojur are unable because of their nomadic nature of life. The majority of the population in the other tribes cannot afford the expenses of schooling their children however much they may desire it.

For its novelty value women's education is supported but fears are often expressed that as a result of this education village girls may become 'modernised' like urban ones and may become 'misfits' for the traditional domestic role.

Concern for health is dominant theme among the villagers. This helps in gaining their support for public health measures. But at the same time they cannot discard their faith in amulets and charms made by the Imam or Khalifa (religious leaders). The Kalash hold festivals and offer sacrifices to their numerous gods and goddesses "to avoid their furies which come in the form of diseases and destruction to themselves, to their crops and stock".

The communication system has improved greatly over the last ten years, but remote and isolated areas like Yarkhun, Upper Torikhow, Arkari, Upper Lotkuh, Upper Shishikuh and Tirish valleys, still face the problem of bad roads. One depressing fact is that the tracks and roads to these parts are built or repaired only when some high government official is on a tour of the area. These improvements are short lived, and soon, under floods, snow, avalanches and landslides these roads

are destroyed and the people face again the same problems. The situation understandably leads to certain misgivings about such projects. One might hear the opinion expressed that the roads are built "not for the poor public but for the officers who tour around to justify their travelling allowances". Minor officers of the state administration and the various workers for different projects are reasonably suspected of receiving an income higher than their salary for less work than is stipulated.

Certain other attitudes and tendencies of the people are worth noting. The dependency of the people on the government aid for such problems which were and could now be solved by the individuals or villagers themselves is growing more and more. Such cases are not only creating a great burden on the state economy but are also severely hindering other works of priority. This also endangers the long established system of communal labour and self-help which would thus die its unnatural death and the country would have to pay a large price for that.

Although much verbal idealization of traditional patterns of their own life is found and a general suspicion and distrust of city ways is shown by the people, nevertheless there is a definite, if covert, desire to turn to urban people as a model for many things and to immitate their ways. This shows a strong and previously unsuspected disposition towards innovation among the Chitralis.

ABSTRACTS OF GEOGRAPHY THESES COMPLETED IN WEST PAKISTAN UNIVERSITIES DURING 1966

TRENDS OF SUBURBANIZATION IN LAHORE

Shamuna Khan

(M.A., University of the Panjab, Lahore)

Through the history, the city of Lahore has undergone several formal and functional changes which have strongly influenced its areal pattern. Today, Lahore is a heterogeneous and diverse combination of residential, business and public buildings which are the cultural expression of the people who built them. In the thesis titled, "Trends of Suburbanization in Lahore," the author has discussed historically the cultural forces which have worked toward establishing this heterogeneous and diverse settlement pattern. Within this context, the areal structure of Lahore city elements has been divided into three major parts. First part is devoted to the discussion of Lahore city organization as it was before the British Occupation. Second part investigates the formal and functional elements that the British culture interjected into the Lahore landscape. Third section is the discussion of the newly emerging suburban and satellite communities which are the product of the post-Independence era. The retrospective view of these major cultural eras points out that the seeming heterogeneity and irregularity of Lahore's settlement pattern is actually an understandable and logical patchwork of diverse culture groups who built different city elements according to their needs and technical capabilities.

CLIMATES OF WEST PAKISTAN AND THEIR RELATIONSHIP WITH CROP PATTERN

Nasrullah Khan

(M.A., University of the Panjab, Lahore)

The objective of this study is mainly to present a rational classification of the climates of West Pakistan and to show how climate affects vegetation and to bring out the relationship

between various climates and their corresponding natural vegetation and crops. In order to present a rational classification of climates of West Pakistan Thornthwaite's latest concept of potential evapotranspiration has been adopted as basis.

A survey analysis of potential evapotranspiration has been presented in the beginning. It has been attempted to present an analysis of the conditions of water deficiency and water surplus and finally the province has been divided into various climatic types both on thermal and pluvial bases. The utility and practical use of the method has also been discussed from time to time.

In the later half of the thesis an attempt has been made to find out the relationship between various climates and their corresponding natural vegetation and crops. It has been tried to show how vegetation and crops change and give place to others, more suitable, with change in climate and how they disappear completely where climatic conditions are inhospitable.

In the end utility of the system and its advantage over others have been given briefly.

FORMAL AND FUNCTIONAL CHANGES IN LAHORE : CASE STUDIES

Mohammad Moazam

(M.A., University of the Panjab, Lahore)

A very advanced type of research work has been done on this element of settlement geography in the European and American countries. After the World War II, increasing emphasis is being laid on organizing and systematising settlement geography. Hence much change in geographic ideas and methodology has been brought about in the last two decades in grouping this subject.

But in our country comparatively very little research has been done on similar lines. Particularly on the study of form and function of the urban complexes, which could yield better results for our further planning. The area selected for study is Lahore city, which has passed through a succession of cyclic changes. These cultural phases have left strong imprints in the general fabric of the settlement. The Brahmanical, Afghan, Mughal, Sikh, British and Pakistani culture have all given a distinct form and function to different sections of the city.

Different structures typical of the time they were brought up stand in different sections of the same city of Lahore.

It is really disappointing that a city with such a rich cultural heritage as Lahore, has very meagre work to its credit.

The object of this research work is two fold :

- 1) To examine the historical processes which have lead to the evolution and modern set up of different parts of Lahore.
- 2) To examine the formal and functional aspects of the two selected areas in different sections of Lahore.

The first case study is that of medieval city, i.e. the walled city, which reflects the attitude

and technological ability that the dwellers had acquired up until the start of the 18th century.

The second case study is that of Gulberg colony which proves the changing outlook motivated by technology and needs of a particular culture group. Different factors which gave rise to such a colony are discussed.

The functional study of the selected areas is done in accordance with the following recognised functions :

- a) Residential
- b) Commercial
- c) Industrial
- d) Educational
- e) Recreational and
- f) Administrative.

The forms of different elements of structure in the two parts are discussed and needs for their existence is also imagined.

In the end some suggestions are made as regards :

- i) the space utilization in the newly developed colonies to provide more housing facilities to the rapidly growing population.
- ii) the walled city which is cultural heritage of the past, parts of it should be preserved with its traditional ways of life.
- iii) the need for joint effort by different authorities concerned with development and planning of new schemes.

A PROPOSAL FOR AN ALTERNATE RAIL LINK BETWEEN KARACHI AND THE UPCOUNTRY

A report appeared in the *Dawn* dated January 25, under this caption.

'New Rail Line to Link Karachi with upcountry'

According to this report the Karachi Port Trust has proposed to the West Pakistan Railway Board a second railway line linking Karachi with the upcountry through Uthal, Bela, Khapri, Goth Batal Khan, Manchhar Lake and Dadu.

The need for an alternate link has since long been felt. There can be no controversy about it. As early as the Second World War the British Government was considering to connect Karachi with Quetta by another rail track passing through Gadap, Hab Valley and Khuzdar and joining the existing Zahidan line at Mastung Road Station. A party with a geologist was actually sent to survey the alignment of the track. Similar considerations forced the Pakistan Government later to convert the Jacobabad-Kashmore track into broadgauge, with a view to extend it further upto Kot-Addu across the Indus at Taunsa Barrage. The project has not yet been completed.

In the lower part of the country there could be a number of alternatives. All these alternate alignments need careful consideration. Taking first the proposal of Karachi Port Trust, the section upto Bela, though not so simple as it appears on small scale maps, may not present any unsurmountable difficulties. The real difficulties will be met in the second section, from Bela to Dadu. The straight distance between these two points is about 120 miles, with over 60 miles of rugged mountains, all running north-south. There are six high ranges with intervening river valleys. The ranges in the middle reach heights upto 5,000 feet and even the passes in these ranges are 3,000 feet high. All routes in this area run north-south for long distances before crossing through a pass

from one linear valley to the other. Therefore, all east west routes are very tortuous and zigzag. Leaving aside all other considerations economic or otherwise and the fact that the distance from Karachi to Dadu along this track will be much longer than that along the present track, the laying out of this track will be so difficult and costly that the whole project would be totally unrealistic. If the extension of rail track upto Sonmiani or even upto Bela is found feasible on some other grounds it may be alright, but the link between Bela and Dadu is out of question.

Second alternate route is along the Hab Valley to Khuzdar and to Quetta. The findings of the investigations about this project might be in the knowledge of the Railway Board. Whatever the benefits of this track to the area crossed by it, it will fail to provide an easy and economical alternate route to the northern parts of the country.

Third alternate route, here proposed is along the old Sehwan Road. It may run upto 40th mile along this road, then going straight to Karchat, keeping west of the Kambhu Range and bypassing Thana Bula Khan, it may run up the valley of the Suk Nai and enter the valley of the Bandni River. Through this valley it will emerge from the Sind Kohistan in the vicinity of Jhangara, south of the Manchhar Lake and ten miles further will join the old track at Sehwan or it may run north from Jhangara to join it at Bhan, the next station.

The entire route is along the longitudinal valleys between hill ranges, without any obstruction of any transverse range. Its total length between Karachi and Sehwan is about 135 miles against the present track of 192 miles thereby shortening the distance by 57 miles, the distance between Karachi and Bhan is 139 miles as com-

pared to 205 miles along the present track, with a shortening of 66 miles. If the track starts from the proposed Central Station on the University Road, the length of the new track to be laid would be about 125 miles upto Sehwan and 129 miles upto Bhan.

The fourth alternative still shorter could be from Central Station through Gadap area, Khar Nai gap into Hab Valley ; then along the left bank of the Hab upto Hinidan, then through Bailithap gap and areas Gaz hills into the Baran Valley. From Baran Valley crossing the Kirthar Range through Sai Lak, 1893 feet above sea, and crossing the Badhra Range through Darang Lak the track will enter the valley of the Bandni River and join the Third proposed track on way to Sehwan or Bhan. It is somewhat shorter than the third one. Detailed surveys will show which one is more advantageous.

The section from Central Station to Malir

Cant in case of the third alignment and from Central Station to the planned Songal Residential Area and New Karachi in case of the fourth one are already being planned to serve the Karachi suburbs. The area crossed by the third alternate track is promising. The natural gas has already been discovered in good quantity, and prospects of finding oil are also good. Other minerals like silica sand, celestite, good quality limestone and fuller's earth are also abundant. Both these proposed tracks shorten the distance from Karachi to Sehwan and also the upper areas considerably. After the completion of Kashmore-Kot Addu section, this track will not only provide a safer and alternate route from Karachi to Pindi and Peshawar but it also promises to become the main route to these places and relieve the Steadily growing pressure of passenger and goods traffic on the present main track appreciably.

ABDUR RAUF KHAN

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LAURENCE DUDLEY STAMP, 1898—1966

Perhaps, no foreign geographer's name is so familiar to the educated community in Pakistan as that of late Professor Dudley Stamp. Ever since Dudley Stamp joined the London School of Economics, the development of geography in the United Kingdom and her former colonies has been very much directed by him through his text books and personal influences. Thus the present generation of Pakistani geographers as well as those who have read geography at any level, ranging from high school to University, know Stamp either through his writings or through personal contacts as former students, friends or acquaintances. He had also been associated with almost all the Universities in Pakistan as a referee in matters of promotion of the university lecturers in geography. In this capacity he was extremely generous and obliging. He also remained on the list of patrons of the East Pakistan Geographical Society, from its inception, until his death. Keeping in view his associations, it is correct to say that Pakistani geographers have lost in him a great friend and a sympathetic advisor.

Dudley Stamp was born at Catford, a Kentish suburb of London, on March 9, 1898. He was the youngest son of a family engaged in provision merchanting. In the family his eldest brother Sir Josiah, who earned the title of Lord Stamp, though not a geographer, was the first to occupy the office of the President of Geographical Association.

For his schooling, Dudley Stamp was handicapped by ill-health. But that did not deter him from educational achievements. In his Senior Cambridge Examination he showed brilliant result and was admitted to King's College, London, at the age of fifteen. During his four years' stay in this college he managed to pass



Courtesy Bassano & Vandyk Studios
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the Intermediate Examination of the University of London in Arts, in Science and in Engineering. In addition he also completed the honours courses in both Geology and Botany. During the war in 1917 Stamp joined military service. He did not give up his academic pursuits however. He availed the first opportunity to take leave from Army for taking the honours examination in Geology in which he obtained a first class. When posted in France, as a commissioned officer in Royal Engineers Corps, Stamp successfully combined his military duties with his passion for geological work. He made a study of the tertiary deposits of northern France and Belgium which earned him, in 1919, the M. Sc. degree in Geology and an appointment in King's College as a lecturer in Geology. He continued his investigations on the geology of north eastern France which resulted into his

thesis on the tertiary sedimentation of Anglo-France-Belgium basin for which he was awarded a London D. Sc. degree.

His interest in geography was perhaps evoked by his friendship with Miss Elsa C. Rea, who later in 1923 became his wife (she died in 1962). Thus another achievement of Dudley Stamp during his two years' tenure in King's College was that he together with Miss Rea took the B.A. Honours geography examination of the University of London in 1921 standing first again. In sum his educational career was exceptionally brilliant.

In 1922 Stamp accepted an appointment as petroleum geologist in Burma. A year after, in 1923, he was appointed Professor of Geology and Geography at the University of Rangoon. He stayed there for three years and travelled extensively in Burma, Malaya, China and Indonesia and collected first hand information relevant to the fields of geology, botany and geography of these countries. In recognition of his meritorious works during his stay at Rangoon University Dudley Stamp was awarded bronze and the gold medals by the Mining and Geological Institute of India.

Dudley Stamp returned to London in 1926 as a geographer accepting the Cassel Readership in Economic Geography at the London School of Economics. In 1945, on retirement of Professor L. Rodwell Jones, he was elevated to the Chair of Geography. In 1949 a new chair of social geography was created and Stamp was transferred to that position from which position he retired at an early age of sixty in 1958 and was appointed Professor Emeritus and Honorary Lecturer.

With his wide background and training Stamp was destined to earn a name for himself. His writings cover a wide field of geography. Although he was "not a profound master of theory"¹ the significance of Dudley Stamp's contributions cannot be exaggerated. During the years 1920 and 1930, when the good texts were urgent-

ly needed, Stamp wrote a number of text books which were meant for the standards ranging from secondary schools to university. These books played an important part in raising the status of academic geography in the United Kingdom as well as overseas. His first contributions were in the field of geology which he made while in Rangoon and also wrote a text book on *Stratigraphy* (which appeared to the older generation of geologists so slick that one of them called it "The Deadly Stamp"). His first textbook in geography was *A Geography of Burma for Schools* (which is still in use.) This was followed by *The World, a General Geography for Indian Schools* in 1926. This book was later rendered into Urdu by Dr. I.R. Khan, then Principal of Teachers Training College, Allahabad, who after his retirement from the post of the Director of Public Instructions, Uttar Pradesh, India, joined University of Karachi in 1955 as Professor and Head of the Geography Department. His Intermediate commercial geography series (1928) are well known among the 1st year University students and those preparing for professional examinations in banking etc. His *Asia* appeared in 1929. His regional geography series and *Africa* (1952) have also served as popular text books, Stamp also wrote books of general interests, such as *Our Developing World* (1940), *Britain's Structure and Scenery* (1946), *Land for Tomorrow* (our underdeveloped world) (1952), *Man and Land* (1955), *The Geography of Life and Death and Applied Geography* (1960).³

It was since 1930 whence Dudley Stamp's great contributions to public service began in the form of land use studies. In that year he organized the land utilization survey of Great Britain and embarked on a project of detailed, large scale field mapping of every acre of land in Britain. This provided the basis for publication of a complete series of 1 inch to a mile maps fully coloured. His monumental book, *Land of Britain: Its Use and Misuse* manifests amply Stamp's

²S.H. Beaver, "Sir Dudley Stamp, C.B.E., D.Sc., D. Litt" *Geography*, Vol 51 (1966), p. 388.

³This does not provide a complete listing of his publications.

¹*London Times*, August 10, 1966.

dexterity and industry with which he was able to summarize the whole lot of land use maps and country reports into a coherently written analysis. This is certainly a landmark in British geography.

His great organizing capacity and the immense value of the land use studies made him well known, by the beginning of the second world war, in the official circles in U.K. In recognition of his worth Stamp became Vice-Chairman of Lord Justice Scott's Committee on Land Utilization in Rural Areas in 1941. Later in 1942 Stamp was appointed Chief Advisor on Rural Land Use to the Ministry of Agriculture. This service was afforded recognition in 1946 by the Government when he was awarded C.B.E. In 1947 Ministry of Town and Country Planning was formed, the genesis of which actually lay in the Report of Lord Justice Scott's Committee. Dudley Stamp was again offered the Chief Adversorship of this new organization. In recognition of his value to the Ministry of Agriculture Stamp was appointed official United Kingdom delegate to F.A.O.

During his long standing of about forty years as a geographer Dudley Stamp served the British geography in many presidential capacities: the Geographical Association (1950), the Institute of British Geographers (1956) and the Royal Geographical Society (1964-66) and as Chairman of the Organizing Committee for the International Geographical Congress of 1964 in London.

Dudley Stamp had earned an interational reputation and had widened the sphere of his admirers in number as well as in areal extent. He was greatly respected in academic circles. From 1952 to 1956 he served as the President of the I. G. U. He also edited the *History of Land*

Use in Arid Lands which was published by UNESCO in 1961. In 1965 Stamp was appointed Chairman of the Natural Resource Advisory Committee. In recognition of his services to the cause of geography he was awarded several honours by the univensities and geographcial organizations in various countries. They may be listed as follows : Founder's Medal, Royal Geographical Society (1949), Daly Medal, American Geographical Society (1950), Vega Medal, Sweden (1954), Tokyo Geographical Society Medal (1957), Scottish Geographical Medal, R. S. G. S. (1964); Honorary L.D., Clark University, U.S.A. (1955), Edinburgh (1953), Honorary Ekon D., Stockholm (1959), Honorary D. Sc. University of Warsaw (1962), Ereter (1965).

Stamp had travelled far and wide and had visited all the continents. A large number of countries were very extensively travelled by him. The richness of his intimate knowledge about the areas he had visited and the keenness of his observation have been amply demonstrated in his writings.

To sum up, in Dudley Stamp we have lost an outstanding geographer who was so dedicated and full of enthusiasm. In Asia, particularly in Pakistan and India he leaves behind a good many geographers who have been associated with him directly or indirectly. They will always remember his extremely helpful attitude, affection and generosity of spirit.

A heart attack suddenly ended his life on August 8, 1966 when he was attending the Regional Latin American Conference of I. G. U. in Mexico city. He was sixty eight. May he rest in peace.

IQTIDAR H. ZAIDI

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BOOK REVIEWS

A Geography of World Economy. Hans Boesch. D. Van Nostrand Company Inc. Princeton, New Jersey, New York, Toronto, London, (1964) XVI-280 pp., maps, photographs, tables, index, bibliography, \$ 6.95.

The book offers a comprehensive course of advanced Economic Geography of the world in a lucid manner. It consists of three parts. Part one deals with primary occupations—agriculture, forestry, fisheries; part two is devoted to industrialization. Spatial organization of economy is discussed in part three.

The book, unlike most of the economic geography books, deals with case studies instead of full treatment on individual topics which quite often contain unnecessary details. Under the caption 'Tilling the Soil' the author deals with typical examples of land use in U. S. A., portraying the dynamic nature of American agriculture. The agrarian structure of the Old World has been discussed on comparative basis with the help of carefully selected examples of U. K., Italy, U. S. A., U. S. S. R. and the densely populated parts of eastern Asia. Southern Continents are given due importance in the agrarian economy of the world. Future expansion of the world's agricultural land has been well covered in the chapter on New Frontiers.

The chapter on world market products gives all the relevant information about the economy of production and the movements and marketing of various commercial commodities.

In the section on secondary industries, the author has selected few important industries and has depicted a clear picture of comparative developments and trends in some of the leading industrial countries of the world. The industrial development in some of the newly developing countries has also been treated in some detail.

Tertiary occupations are discussed in some detail in spite of the difficulties of availability of data. Functional character of the urban settle-

ments is well illustrated and the author also brings home to the reader the growth pattern of cities. World trade, its trends and structural changes are covered in relation to the world economic regions.

The book on the whole deviates from the classical treatment and topical approach. Details of elementary economic geography seem to have been avoided, as the book is meant for students of advanced economic geography. Nowhere in the book the author discusses in detail the physical requirements of crops and their distribution. The author is more concerned with the demographic and economic changes in the world regions than the physical factors regarding crop distribution and production.

The most impressive aspect of the book is its richness in illustrations. The world maps in each of the sections have been prepared with great care. These maps establish correlations between multiple geographic and economic factors. Regional maps are even more elaborate. Illustrations other than maps provide ample examples of well selected cartographic techniques.

The book contains a great deal of statistical information which has been used in a meaningful way to establish relative values. The comprehensive list of references at the end of the book and a few pages devoted to the method and techniques at various places serve as a very useful guide for researcher in the field of economic geography.

(MISS) MARYAM K. ELAHI

University of the Panjab.

Human Geography. Aime Vincent Perrillou, Trans. E. D. Laborde, Longman's Green and Co. London (1966) XX + 522 pp., maps, photographs, tables, index, bibliography. 50s

The book under review is perhaps the first of its kind, written by a French Geographer, which does not conform, entirely, to the long established French tradition in human geography. Ever since Vidal de la Blache made the classical statement propounding the thesis of possibilism,

rejecting environmental determinism, as Hartshorne observes, french geographers have shown remarkable degree of agreement on the basic concepts of the science of geography. The theme of possibilism recognizes man as an active agent in changing the face of the earth, and assumes that a human community exploits its habitat in accordance with its culture *i.e.*, beliefs, experiences, knowledge and technology. Hence the question which arises and would be considered appropriate is: How does a given cultural group interact with the physical environment of a given area?

In his book *Human Geography* Professor Perpillou genuinely endeavours to establish that human geography is the study of human communities in their relation to the environment and not that of individuals. The whole subject has been classified into three main themes.

- 1) Study of the size and distribution of human communities which are dynamic and make use of natural resources.
- 2) Study of occupancy units—settlements.
- 3) Study of the modes and extent of the exploitation of natural resources which incorporate the entire content of economic geography.

The author fully supports the idea that unfavourable climate and inadequate natural resources do create handicaps but they do not impose absolute limitations. He observes "nowhere does nature offer anything but possibilities, the use of which depends on human initiative." Fine. In the first, third and fourth parts of this book he maintains the same line of thought.

It is in the second part of his book where Perpillou appears to be deviating from the established French tradition. The section is entitled as "Forms of Adaptation to the Environment." He organizes the contents of this part according to climatic regions and discusses human life within the frameworks of 1) Cold regions, 2) Temperate regions, 3) The tropics, 4) Dry regions and 5) Mountain and coastal regions.

The author has very impressively attempted to explain the reasons for adaptation to a particular mode of life in different regions and the technology related with that kind of environment, but at many places in the book the author gets trapped in the jungle of environmental determinism. For example he states ".....there are the primitive civilization in the interior of Africa and south America, where nature controls man and in some cases makes him helpless." This is clearly Huntingtonian in approach, limited in scope and unrewarding in results. The very fact that in a given climatic region he discusses various modes of adaptations belies the logic of Professor Perpillou's scheme of understanding human activities in terms of climatic regions.

Other parts of the book have been titled thus: The first part deals with "Man and the Factors of Human Evolution." In this part the author presents the way and means by which man works with his natural environment (he particularly emphasises the biotic resources). In the third part he chooses to elaborate upon the "technical factors and human emancipation." Whereas in the fourth part he takes up "human settlements" as his topic for discussion. Each of the parts are divided into several chapters making eighteen in sum. The chapters on the whole have been very lucidly written and eloquently speak for maturity of the author's mind.

In conclusion one cannot help saying that Professor Perpillou appears to be obsessed with the idea of environmental control. In the third part again he uses the expression like "human emancipation" which suggests a deterministic influence of physical environment. However, innocent such expressions, including response, influence, control and a like, may be but it is an undeniable fact that they are misleading, rather quite damaging for a beginner. Thus the utility of such books becomes greatly limited as text for the undergraduate students.

The book is very well illustrated and has been nicely produced.

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.

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