SETTLEMENT PATTERNS OF JAIPUR REGION

(A Geographical Analysis)

Dissertation submitted to the Jawaharlal Nehru University in partial fulfilment of the requirement of the Degree of MASTER OF PHILOSOPHY

by

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C O N T E N T S

I certify that the Dissertation entitled "Settlement Patterns of Jaipur Region (A Geographical Analysis)" submitted by Sarita in fulfilment of twelve credits out of the requirement of twenty-four credits for the Degree of Master of Philosophy (M.Phil) of the University is a bona fide work to the best of my knowledge and may be placed before the examiners for evaluation.

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(Sarita)

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CHAPTER I

INTRODUCTION

Jaipur city and its surrounding settlements are the subject matter of this study. A city's hinterlands is the area which is socially and economically linked to it. The links between the city and its region are developed and strengthened through the exchange of industrial goods and agricultural commodities produced within it or through the various central functions of the city. A city, therefore, by virtue of its intensified concentration of central functions commands an extensive tributary area of heterogeneous character. Within this tributary area or hinterland, the degree of influence decreases with increase in the distance from the city. It is necessary, therefore, to identify the spatial limit or regional boundary up to which the settlements fall within the direct impact of the city.

In Indian context, a larger city hinterland is rarely observed whereas smaller hinterlands are common. Thus development tends to accentuate into the urban pockets with their influence over a limited hinterland. Though every settlement has a personality of its own and is unique and each village and farm is a distinctive item in the landscape, and has no precise duplicate even among its near neighbours, the rural areas are relatively homogeneous and static as compared to urban areas

which are more heterogeneous in terms of occupation, social structure and mobility. Besides, the larger urban centres tend to command a certain area on the basis of the services which they render to their hinterlands which is known as their region.

An area within a radius of 100 miles around Jaipur has been selected for the delimitation of the Jaipur City Region. However, the focus of attention is on the first 20 miles' radius around Jaipur City, where the analysis has been done at village level. The entire region has 788 settlements of which 4 are towns namely Jaipur, Sanganer, Amber and Chomu. In the study area four villages have population more than 5,000, whereas 32 villages are uninhabited. The study is mainly based on the data from the secondary sources.

Review of Literature

There are several studies which have been conducted to delimit the metropolitan area because of its increasingly important form of organisation in modern industrial society. These metropolitan areas have gained importance because of the facilities and also because of the emergence of a highly integrated economy. Alam[1] in 1972 delimited the Hyderabad metropolitan area by clearly establishing the mutually interdependent complementary functions between Metropolitan Hyderabad and its

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1. Alam, S.M., "Metropolitan Hyderabad and its region" A Strategy for development. Asia Publishing House, 1972, pp. 90-99.

region which extends to a radius of 40 miles from the central city. While the region supplies to the metropolis such essential commodities of daily need as milk, vegetables, fruits, etc., whereas the metropolis performs educational, medical, cultural and commercial functions for its region which is supported by strong transport linkages. Berry,[2] in 1966 delimited the metropolitan area with the help of information regarding the social and economic trips of the people within a radius of 25 miles. This is on the assumption that a metropolitan city serves its hinterland with services and other facilities which necessitate people to make trips for social and economic purposes. Isard and Whitney in 1949 also delimited the metropolitan region by studying the commuting range around the metropolis through road services. This shows how the expansion of a metropolitan area is related to the transportation. Bouge[3] in 1963 explained that the metropolitan city itself acted as a factor in the size and location of its hinterland. Galpin delimited a metropolitan area by the primary community areas and described it with the help of daily movement of commodities to a city or by taking the trade zone of services received by rural families from the city. Nangia[4] in 1976 delimited the Delhi Metropolitan area by identifying the

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2. Berry B.J.L., "The impact of expanding metropolitan upon the Central place hierarchy", Annals of Association of American Geographers, vol.50 No.2, June 1960, pp.112-116.

3. Calvin F. Schind "Research techniques in human ecology". Scientific Social Survey and Research ed. by Pauline V. Young - 1968, pp.435-440.

4. Nangia, S., "Delhi Metropolitan Region" - A Study in Settlement Geography, K.B. Publication - New Delhi, 1973, P.3.

patterns and intensity of interaction within the radius of 25 miles between the metropolis and its hinterland by taking demographic, economic and other selected goods and services' indicators. Singh[5] in 1955 had detailed study of the character of Banaras. He delimited the Umland of Banaras by taking vegetable supply, milk supply, supply of foodgrains and other agricultural products, bus service and newspaper circulation. Thus the Umland of Banaras was determined about 250 miles from north to south and about 200 miles from west to east respectively. He again in 1964 determined the Umland of Bangalore by analysing its economic influence by taking the vegetable, milk and bus service zones. Under social and cultural influence he included the services rendered by the hospitals and newspaper whereas in political influence he deals with the administrative service of the city. He determined the Umland of Bangalore which was extended about 99 miles from north-southern and about 88 miles from east-western sides. Singh[6] studied Allahabad in 1966 and delimited its umland by several service zones such as milk and vegetable, grain and trade, Higher Secondary Schools and bus services. The city exercised its influence in all directions and its umland extended approximately 80 miles from east to west and 90 miles from north to south.

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5. Singh, R.L. (i) "Banaras" - A study in urban geography, publisher - Nand Kishore and Bros. Banaras, India 1955, pp. 116-136. (ii) "Bangalore" - An Urban Survey. Published by Tara Publications Kamachha, Varanasi-5 (1964), pp. 82-94.

6. Singh Ujagir - "Allahabad" - A Study in Urban Geography, Publisher - Banaras Hindu University, Varanasi-5 (1966), pp. 207-213.

The foregoing discussion of delimitation of city-hinterland has been attempted by geographers which can put under two categories. The first category of geographers is of those who have attempted its through an open ended approach to delimit the region (i.e. Singh's). Another category of geographers who have tried to achieve the same objective but through adopting a zone-wise approach of study. In this the researchers first decide about the different zones of distance from the metropolitan cities and then apply respective variables to test the radius of influence around them.

In the present study the influence of Jaipur City has been analysed up to a distance of 20 miles from the Jaipur City by taking the demographic, social, economic variables and the extent of social facilities present in the individual settlements, since these variables appear to restrict spatial response to the urban and economic development of the city. The city region has been observed to be as extensive as in case of Allahabad, Kanpur, Bangalore and Banaras.

Objective

The main objective of this study is to understand the relationship between the city of Jaipur and its region through variables like demographic, economic, social and infra-structural facilities during the year 1971. An attempt is made towards analysing the trends in areal distribution of demographic, economic functions by classifying the Jaipur City and its settlements around it, into functional types and also by describing

the social facilities available in the region. In fact, the study attempts to assess the influence of the Jaipur City on its hinterland so that some guidelines can be provided for its future planning.

Hypothesis

In this study, two hypothesis have been tested. First one is related to the distance decay function. Under this hypothesis, it has been tried to be proved that the demographic, economic and social variables decrease with every increase in distance from the city of Jaipur. The variables are as under:

(i) Population growth (61-71)
(ii) Density of population
(iii) Literacy
(iv) Dependency Ratio
(v) Secondary workers
(vi) Tertiary workers, and
(vii) Social Amenities

However, the remaining four variables should increase with every increase in the distance from the city:

(i) Sex ratio (female per thousand male)
(ii) Scheduled Caste population
(iii) Scheduled Tribes population, and
(iv) Primary workers.

The idea is to test whether a negative relationship exists between the distance and these seven variables, whereas a positive relationship exists between the distance and other four variables.

The second hypothesis is related to the development impact in the area under study. If Jaipur City and settlements show a development then (i) the population growth should increase because more people migrate to the city for education and job opportunities; (ii) high literacy rate because of the higher educational facilities available; (iii) non-agricultural workers should be higher as there are more industries and services and lack of availability of agricultural land; (iv) high social amenities as more facilities are available; and (v) high dependency ratio is due to the presence of higher educational and technical/professional training facilities. Consequently people have to depend on their guardians to pursue their technical and professional expertise.

Data Base and Maps

The data for this study have been taken from census records and District Census Handbook of Jaipur District for 1971. The following attributes have been chosen to delimit the Jaipur City Region:

I. (a) Demographic Aspects

(i) Population growth during the census decade (1961-71)

(ii) Density of Population (person per sq. mile)

(iii) Sex-Ratio (female per 1000 male)

(b) Socio-Cultural Aspects

(i) Literacy Rate - percentage of literacy to total population.

(ii) Scheduled Castes Population - their percentage to total population.

(iii) Scheduled Tribe Population - their percentage to total population.

(iv) Dependency Ratio.

II. Economic Aspects

(i) Primary Activities	:	
(ii) Secondary Activities	:	their percentage to total population
(iii) Tertiary Activities	:	

III. Social Amenties and Infrastructural Facilities

The hierarchy of settlement by Composite Score Index of Social amenities.

Thus with the above variables, the settlement patterns have been studied to see the influence of the Jaipur City and delimit the Jaipur City Region.

The outer boundary in the maps of this region have been prepared by compiling the parts of those Tehsils which fall within a radius of 100 miles and villages which fall within a radius of 20 miles from the Jaipur City. These maps were transferred into a common scale by enlarging and reducing them with the help of photo-technique.

Methodology

The following statistical techniques have been used to delimit the area of Jaipur influence: Under the statistical methods mean, quartil , percentage, ratio, simple correlation, tests of significance, c-test and Gini's co-efficient have been used for analysing the data. Among the quantitative techniques for the geographical analysis Nearest Neighbour Distance, Lorenz Curve and simple principles of graph theory have also been used for the identification and interpretation of settlement patterns.

Here the concentric approach has been used to delimit the region by taking into account the different characteristics of settlements and the different distance zones from the main city. The simple correlation Matrix has been prepared on the five-mile zone with the help of computer.

In Chapter III, the Nearest Neighbour technique has been applied to analyse the (a) Distribution of settlements (zonewise), (b) Classwise distribution of settlement within the zone, and (c) All the settlements in the Region.

For this, the following formula[7] has been used:

$$R = \frac{\overline{ra}}{\overline{re}}$$ whereas $\overline{ra}$ = mean of observed distance in a given region.

$$\overline{re} = 1/2\sqrt{P}$$

$$P = \frac{N}{A}$$

P = density of settlements.
N = No. of settlements.
A = Area of the region.

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7. Clark, P.J. & Evans, F.C. (1954). Distance to N.N.D. as a measure of spatial relationship in population, ecology, vol. 35, pp.445-453.

Here the assumption is that the settlements are ordinarily placed at the intersection points of rectangular grid and the figure to use for inter settlements spacing is equal to the square root of the number of settlements divided by the area of region. The ratio of observed mean distance ($\overline{ra}$) to expected value ($\overline{re}$) is known as nearest neighbour statistic (R).

The 'R' values can range from zero (0) to 2.15. In random distribution the R = 1.0, under maximum aggregation R = 0 and under uniform spacing R = 2.1491. On the other words a pattern that is not random is either more uniform than random or clustered than random. Thus complete randomness is intermediate of a confirm spatial pattern, which can be extending from complete uniformity to complete clustering.

For showing the concetration of settlements by using the method of Lorenz Curve, two variables have been selected, namely, the Number of settlements in a zone and Area of the zone.

The percentage for both the variables has been calculated for the region, i.e., the percentage of settlements in the zone to the total number of settlements in the region and likewise the area has been calculated. These areal units have been arranged according to the descending percentage order. The cumulative percentage of settlements has been plotted on x-axis and cumulative percentage of area is plotted on y-axis.

The Gini's Coefficient is the method for measuring the concentration of the settlements which expresses the area on the

graph between the Lorens Curve and the diagonal as a proportion of the total area below the diagonal.[8] This is the further step of the Lorens Curve method. Here the x_1 and y_1 value of the cumulative percentage are crossed multiplied and then calculate the sigma for these values by the following formula:

$$G = \frac{1}{100 \times 100} \left| \sum_{i=1}^{n} xi\ yi + 1 - (x_i + y_i) \right|$$

where x_i = Cumulative %age of the total settlement in the zone.

y_i = Cumulative %age of the area of the zone

(See Appendix 2)

Application of C-test:

Clark, Evans and Nangia[9] have used the following formula for testing the significance of departure of $\overline{ra}$ and $\overline{re}$ by normal curve, if the R values are not random ($\neq 1$) :

$$C = \frac{\overline{ra} - \overline{re}}{\sigma\ \overline{re}}$$

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8. Clark John, I., Population Geography, IInd Edition (1972), pp.40-42.

9. Nangia, S., "Delhi Metropolitan Region" - A Study in Settlement Geography. K.B. Publication, New Delhi (1973), pp.66-67.

10. Where C is the standard variate of the curve $\sigma\ \overline{re}$ is the standard error of the mean distance to nearest neighbour in a randomly distributed population of the same density as that of the observed population $\sigma\ \overline{re}$ for a population of density P is $\frac{0.26136}{\sqrt{NP}}$
Where N is the number of measured distances made.

In Chapter VI, the Bhat's formula[11] has been used for giving the weightage and to calculate the centrality score of the settlement. Thus, the level of functional hierarchy is given numerical values by their relative importance in the region by using the following formula:-

$$W = \frac{\Sigma N}{\Sigma F_i}$$

whereas W = weightage

ΣN = total number of settlements in the given region.

ΣF_i = total number of particular social amenities or functions in the given region.

This weightage will reflect the centrality function of the given region. Therefore, if the function is equally distributed in the region then it shows a low weightage and vice-versa. Thus the region is identified by its centrality functions. The weightage calculated for each amenities are given in the Appendix 15. The composite index for Education, Health and Infra-Structural facilities has been calculated by multiplying each social facilities with its weight as under:

$$\text{Composite Index or } C = (F_1 W_1) + (F_2 W_2) + (F_3 W_3) + (F_4 W_4) + \ldots$$

(Here F = Function
W = Weightage)

The maps have been prepared by using various cartographic techniques to represent the statistical data,i.e., Choropleths, Isopleths and Circles.

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11. Bhat, L.S. & etc.: Micro-level planning: A case study of Karnal Area, Haryana - India. New Delhi. K.B. Publication, 1976, pp.59-61.

Limitations:

The present delimitation of the region is based on the secondary data from the Census Handbook of the District. The delimitation of this type of region, generally an extensive field work study and a larger number of variables are required. To measure the influence of the city, its direct distributive activities such as circulation of newspapers, vegetables, milk, fruits, textiles, general merchandise, drugs and pharmaceuticals and centralised services, chiefly education and medical should also be studied. The present study is dealt with secondary data only, due to time limitation the field work was not possible.

Scope and Plan of the Study:

The study has been divided into seven chapters, each dealing with different aspects of the region.

Chapter I - introduction - brings out the objective of the study, the nature of the region and scope, methodology, source of the data and the plan of the study.

Chapter II delineates the Region of Jaipur City on the basis of tehsil level data analysed within a radius of 100 miles around the Jaipur City. The analysis is based on 20 miles' interval depicting the changes in the pattern of demographic and economic variables during 1961-71 Census. This has been done with the help of maps and graphs to delimit the Jaipur region for the further micro-level study in detail.

Chapter III deals with the spatial patterns of distribution of settlements of the region. We have used Nearest Neighbour Distance, Lorenz Curve and Gini's Co-efficient by taking size-wise settlements as well as distance or zone-wise analysis.

Chapter IV brings out the detailed pattern of the demographic structure of the Jaipur City region of 20 miles radius with respect to distance of one mile or five miles intervals.

In Chapter V, the distribution of economic activities of the settlements in the region have been analysed graphically and through maps with respect to distance of one mile and five miles intervals.

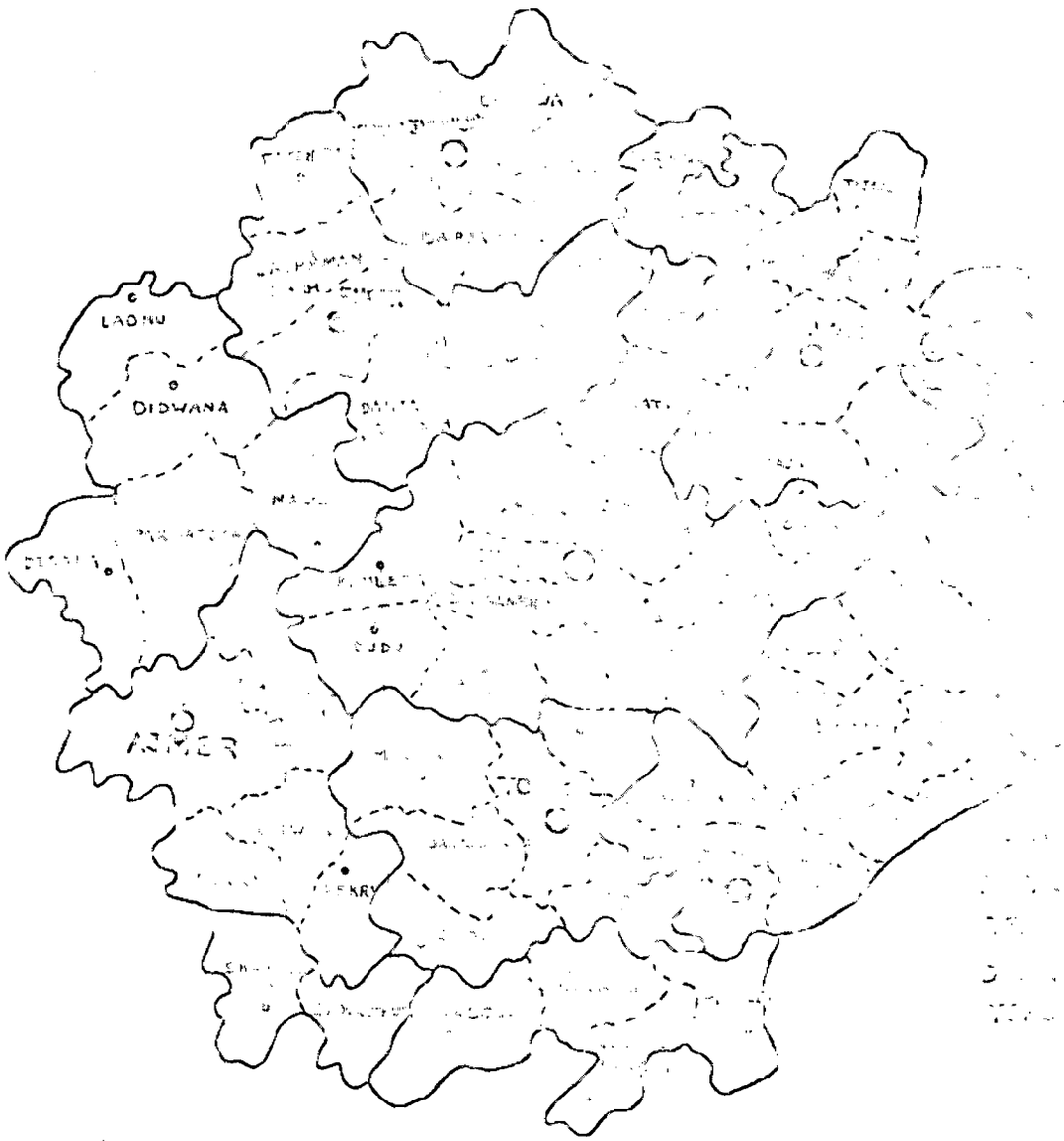
Chapter VI deals with the social amenities and infra-structural facilities which play a significant role in the central place functions. The hierarchy of settlements has been prepared by compositing social amenities index.

Finally, in Chapter VII, summary and conclusions have been presented.

Introduction to the Region (Physiography)

The Jaipur City region comprising 20 miles of radius, has an area of 1,267 sq. miles and a total population of 1,080,126 according to 1971 Census. The city region is situated between the latitudes of 27° 12' N to 26° 35' N and the longitudes of

[TEHSIL-WISE]

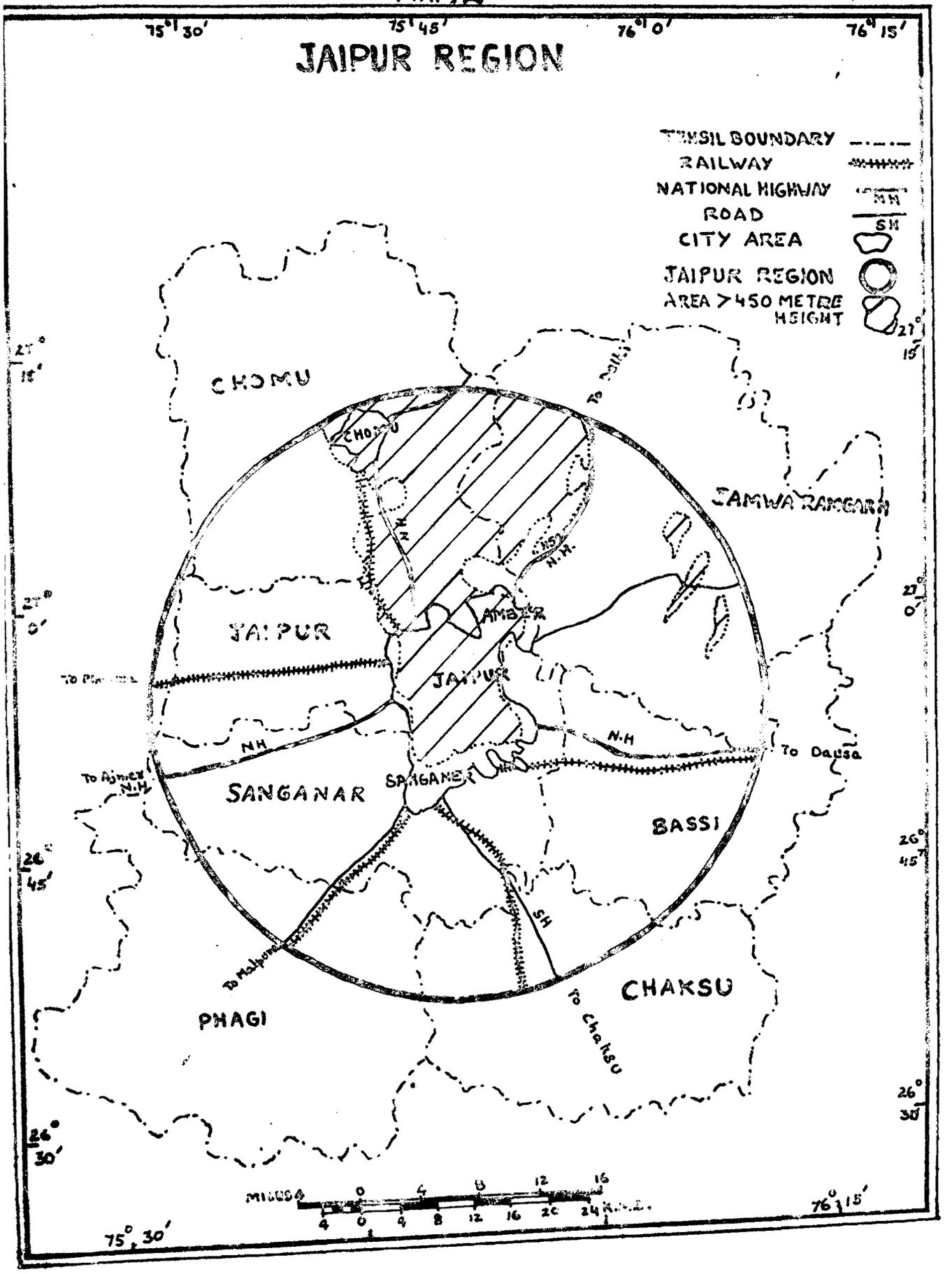


75° 30' W to 76° 08' W as shown in the map number 1.

The Jaipur City region lies among several hills which are more or less inter-connected. Sand dunes extend up to several kilometres beyond the Jaipur City. The most conspicuous physiographic feature of Jaipur region is the Aravallis, one of the oldest mountain system in the world. The hill tracts consist of many isoclinal ridges of rocks and precipitous hills in most parts of north-western Jaipur, as the highest peak in Jaipur is 1055 metres. The altitude of the entire region is between 300 and 600 metres except the ranges of the Aravallis. The region can be divided into two physiographic zones, one, the whole zone having height of 300 to 450 metres, and second, the Central North region from Jaipur City having a contour of 450 metres height up to the Chomu town (See Map No.2). Parallel to the Highways one running towards north-west to Sikar district and other towards north-west to Alwar district. Some hilly tract of Aravallis is found towards the North-Eastern region near Jamwa-Ramgarh village, where the highest peak is of 2074 metres. Throughout the region the soil is alluvial.

The drainage system is very poor which can be divisible into two parts, i.e., Eastern and Western. In the eastern region, there are three small streams of Banganga flowing to the north-eastern side and four streams of Dhund at south-eastern side, all of which are non-perennial except one which flows up to western side of Jaipur City and ends at Amber town. Again towards the western region, the same Banas river which is one of the

MAP. 2


JAIPUR REGION
75° 30'
75° 45'
76° 0'
76° 15'
TEHSIL BOUNDARY
RAILWAY
NATIONAL HIGHWAY
NH
ROAD
SH
CITY AREA
JAIPUR REGION
AREA > 450 METRE HEIGHT
27° 15'
27° 0'
26° 45'
26° 30'
24° 30'
CHOMU
JAMWA RAMGARH
JAIPUR
SANGANAR
BASSI
CHAKSU
PHAGI
AMBER
To Delhi
To Dausa
To Ajmer
To Malpura
To Chaksu
MILES
KMS.

Chambal river branches, flow from the south of Jaipur which is known as Bandi. There are three other streams from south-eastern and two at central, in which one stream rises upwards to the high land of the Chomu region.

Jaipur city region is characterised by extremes of temperature. The winter is quite cold and sometimes the temperature even falls below freezing point and frost occurs. On the other hand, the heat during the summer is intense and scorching. This is because of various factors like the dryness of the atmosphere, the sand dunes and want of vegetation. The change of temperature from day to night is sudden, very large and trying. The cold season lasts from December to February. January is the coldest month of the year. In the rear of some western disturbances which traverse Northern India cold wave occurs and temperature sometimes falls from 2° to 5°C below freezing point. Temperature starts rising by the middle of March and the hot season prevails from April to June. May is generally, the hottest month of the year. The mean maximum temperature in May is 40°c to 42°c. An occasional dust storm brings about a sudden fall in temperature and a few of the thunder-storms of the season are accompanied by rainswhich bring welcome relief from the scorching heat. Thus the maximum temperature is 44.9°c and minimum is 2.2°c for the region as a whole.[12]

The periodical occurrence of rain is very variable. If the eastern winds are strong they bring good rains from the

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12. V.C. Misra - "Geography of Rajasthan" - Climate (1971), pp.44-46.

Bay of Bengal, whereas if the south-western monsoon prevails the rain is comparatively late and light. Hence the Jaipur City region as a wet region enjoys an annual rainfall of 648.1 mm.

Transport Network:

The transport network consists of roadways, railways, and airways as shown in Map No.2. These play an important role in the development of the region. Jaipur City is a city of service-cum-industry. It imports foodgrains, cloth, sugar and soft iron and exports ball bearings, electrical goods, water-metres and finished precious stones. Thus, we may observe that the towns and large-size settlements are situated along the transport lines. However, as compared to urban regions in other states of India, the transport network has been less developed in this region.

CHAPTER II

DELIMITATION OF THE REGION

An attempt has been made in this chapter to delimit the Jaipur City Region. A radius of 100 miles from Jaipur city has been taken for this purpose. The study is based upon zone-wise analysis of tehsil-level data for the census periods 1961 and 1971. The region has been divided into 20-mile intervals, so that an analytical study of the influence of Jaipur City can be worked out. Cities are the centres of trade, transit and of financial transaction. They are also the centres of educational, cultural and administrative functions. These services and functions have their influence on the hinterlands of such urban centres. Jaipur is also one of the major cities in Rajasthan endowed with all these characteristics. To assess the influence on its hinterland, we, therefore, have to analyse its demographic and economic factors. The main objective of this chapter is to delimit the Jaipur City region by studying the demographic and economic variables of the region and also by setting them in relationship to the distance from Jaipur. The demographic and economic variables are as follows:

I. Demographic Variables:
   (a) Decadal population variation;
   (b) Density of population; and
   (c) Sex Ratio.

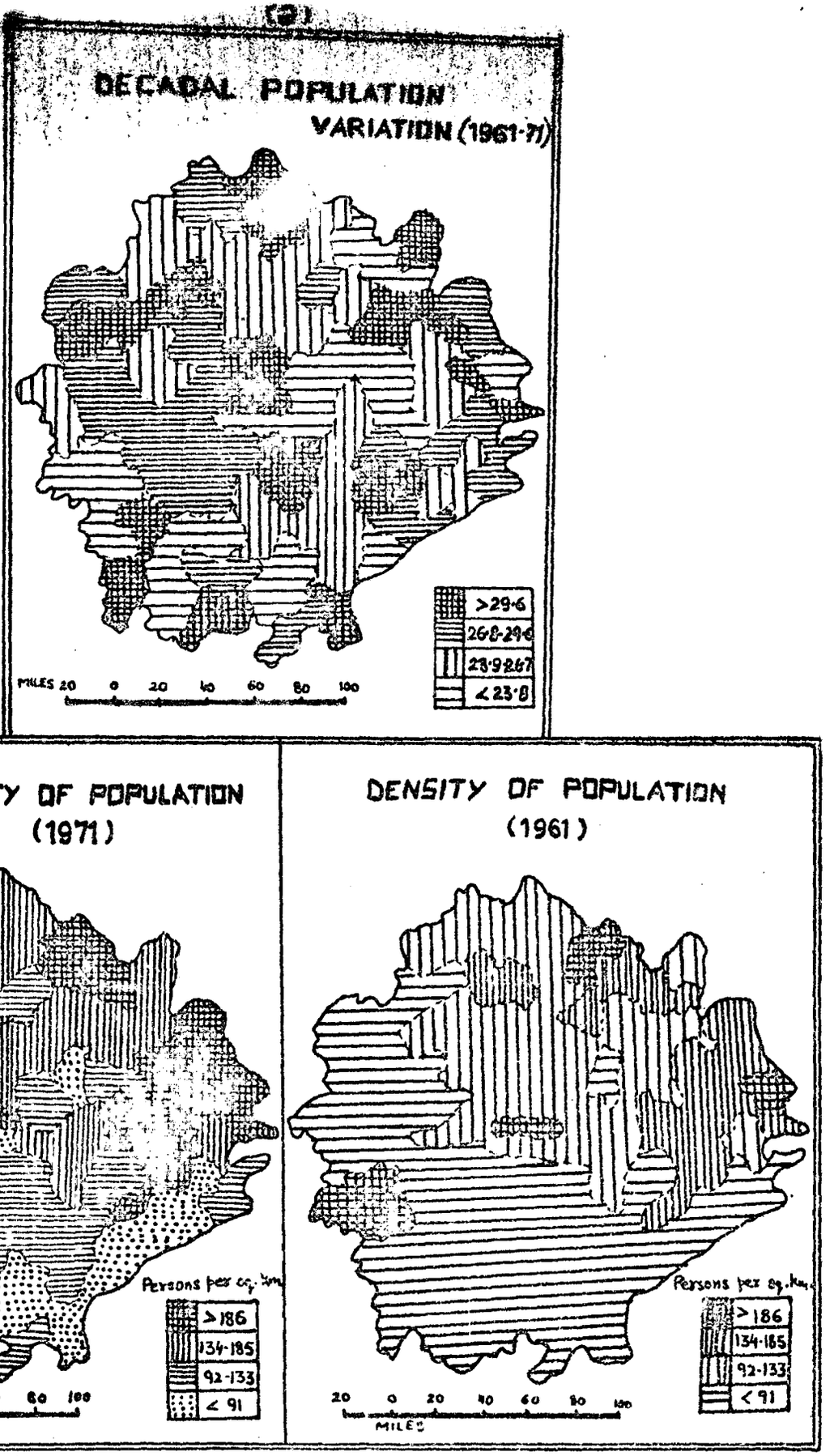
II. Socio-Culture Variables:
   (a) Percentage of literacy;
   (b) Percentage of Scheduled Caste to total population;
   (c) Percentage of Scheduled Tribes to total population.

III. Economic Variables:

(a) Percentage of primary workers;
(b) Percentage of Secondary workers; to total workers
(c) Percentage of Tertiary workers; and
(d) Percentage of Non-workers.

I (a) Decadal Population Variation (1961 to 1971): Jaipur city has the highest population growth of 52.50% (Table 2.1). Analysis based on 20-mile band shows that the IVth Zone has the highest population growth of 30.06% and Ist Zone has the lowest population growth of 23.58%. The high population growth in the IVth Zone is due to the existence of three towns namely, Alwar, Sawai Madhopur and Sikar. The remaining zones show a fluctuating trend. It means that the growth of population of the region has not been influenced by the increasing distance from the city.

Map No.3 (a) depicts that there is a distinct variation in the pattern of population growth in the different parts of the region. The tehsils of very high category of population growth are observed in the north-western and southern parts of the Zone I. In the eastern and southern parts constituting the peripheral zones, the rate of growth has been low. However, the dispersed pattern of the tehsils of very high category is observed throughout the Zone V. The peripheral zones show that there exists a cluster of tehsils of high category in the middle-western parts. Therefore, the map as a whole does not give a clustering pattern. In brief, we can say that very high category of population growth is observed in the inner-most as well as outer-most zones only.


(a)
DECADAL POPULATION VARIATION (1961-71)
MILES 20 0 20 40 60 80 100
>29·6
26·8-29·6
23·9-26·7
<23·8
DENSITY OF POPULATION (1971)
Persons per sq. km
>186
134-185
92-133
< 91
MILES
DENSITY OF POPULATION (1961)
Persons per sq. km
>186
134-185
92-133
< 91
MILES
(b)
(c)

Map. 3

(b) Density of Population: Table 2.1 shows that there exists a very high density of 2,986 persons per sq. km. in Jaipur City (for 1961 see appendix 1). On zonewise analysis, we find that there exists a maximum density of 386 persons per sq. km. in the Zone I, beyond which there is a sharp break off point and one observes a declining trend with a minimum density of 124. After this, a steady increase in the density up to 143 persons per sq. km. is observed in the Zone V which includes the tehsils of Ajmer, Bharatpur and Jhunjhunu.

Map No.3(b) shows that a very high category of density is clustered in the middle-northern tehsils in Zones IV & V. The same category is observed in Jaipur tehsil in the Zone I and Ajmer, Behror and Karnal tehsils in the Zone IV. The entire southern and western tehsils of the outer zones show a low as well as a medium category.

Maps No.3(b,c) show that there exists the same pattern of the density in the southern and western tehsils in the year 1961 and 1971. In the middle-southern parts of the tehsils, there exists a change of density from the low to the medium category. In the entire middle-northern parts all the tehsils show a shift from the medium category to the high category except Jaipur tehsil. Likewise a changefrom high to very high category is also observed in the eastern tehsils.

On the whole, Jaipur City's influence is observed only up to the Zone I, after that no such relationship is observed which can be explained by the distance decay function.

Table 2.1

AVERAGE VALUES (ZONEWISE 1971)

	Density per sq. Km.	Population growth 1961-71	Sex Ratio	Percentage of literacy	Percentage of scheduled caste population	Percentage of scheduled tribe population	Percentage of primary workers	Percentage of secondary workers	Percentage of tertiary workers	Percentage of non-workers
Jaipur City	2986	52.50	857	48.32	9.62	1.63	3.72	30.91	65.30	73.12
Upto 20 miles	386	23.58	888	22.25	16.84	17.08	63.29	14.29	22.43	66.84
20-40 miles	124	27.90	903	14.99	18.84	14.43	80.95	7.90	11.15	67.49
40-60 miles	127	26.07	906	15.52	17.40	12.57	81.86	7.39	10.74	61.30
60-80 miles	138	30.06	894	17.56	19.85	12.77	79.59	7.01	12.45	68.15
80-100 miles	143	27.56	900	19.62	16.66	6.03	80.36	6.60	13.15	70.10

(c) Sex-Ratio: Table No.2.1 reveals that the lowest sex ratio of 857 female per thousand male is observed in Jaipur City (see appendix 1 for 1961). The zonewise analysis shows that there exists a minimum sex ratio of 888 in the Zone I and maximum of 906 in the Zone III. Here the sex ratio shows an increase in the trend up to Zone III, beyond which a fluctuation is observed. The consistency is affected due to the existence of these earlier stated towns in the Zone IV.

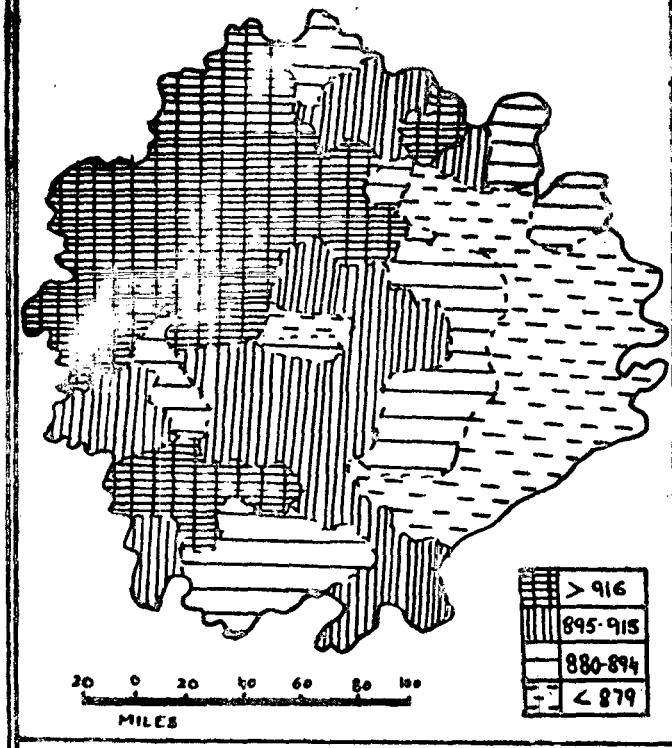
Map No.4(a) shows that there exists a very low sex ratio in the Zone I and in the eastern, north-eastern and southern tehsils of the Zone V. But just near Jaipur tehsil towards its western side, the tehsils show a high category. The very high category of the tehsils is found in the entire north-western and middle-western region and small patch in the southern-western region.

Maps No.4(a,b) show that there exists almost the same pattern of sex ratio during the years 1961 to 1971 respectively. However, most of the tehsils show a decrease in sex-ratio from the high to the low category. These tehsils are observed in southern, middle-western and two tehsils of the northern regions. An increase in sex ratio is observed in six tehsils only. These tehsils are in the north-eastern and the middle-eastern region.

In brief, we can say that the low category of sex ratio is observed in Zone I and the entire eastern region of the outer-zones. Jaipur City, therefore, does not show any influence after a radius of 20 miles.

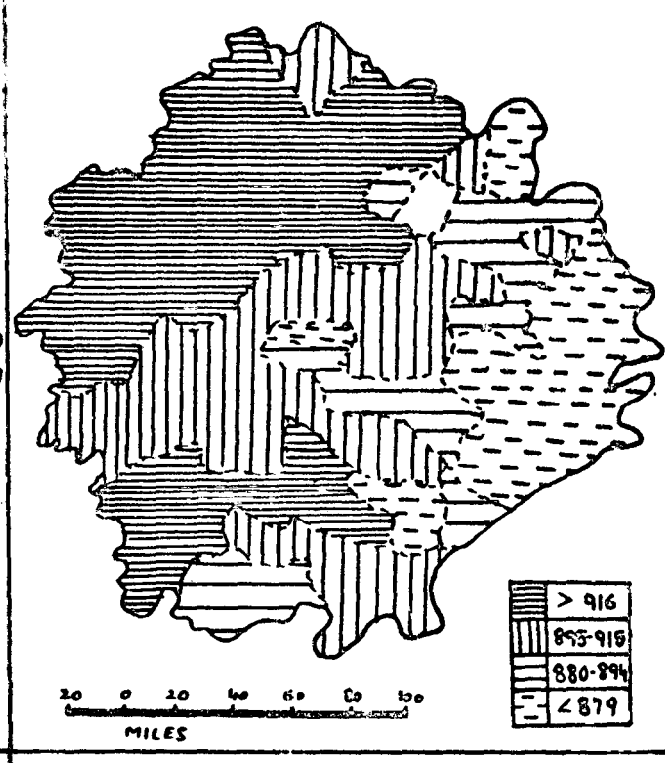
(a)

SEX RATIO - 1971.

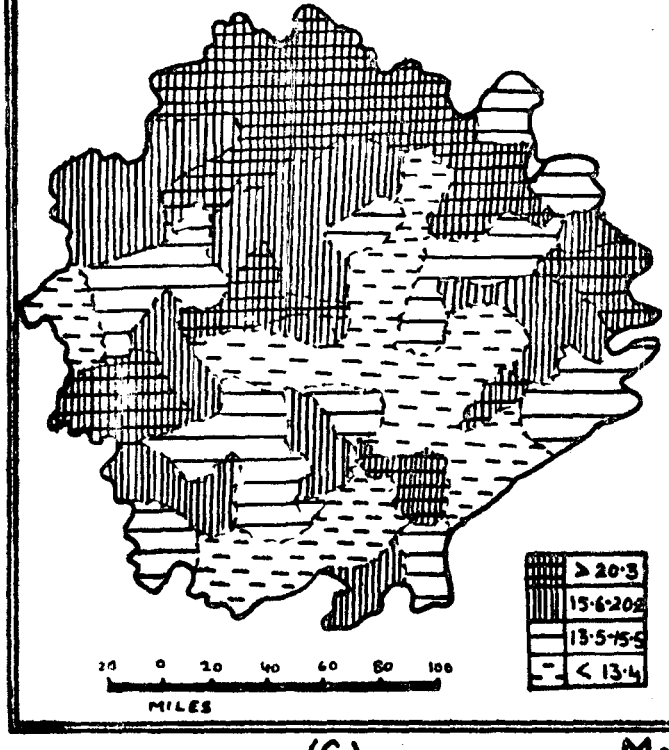


(b)

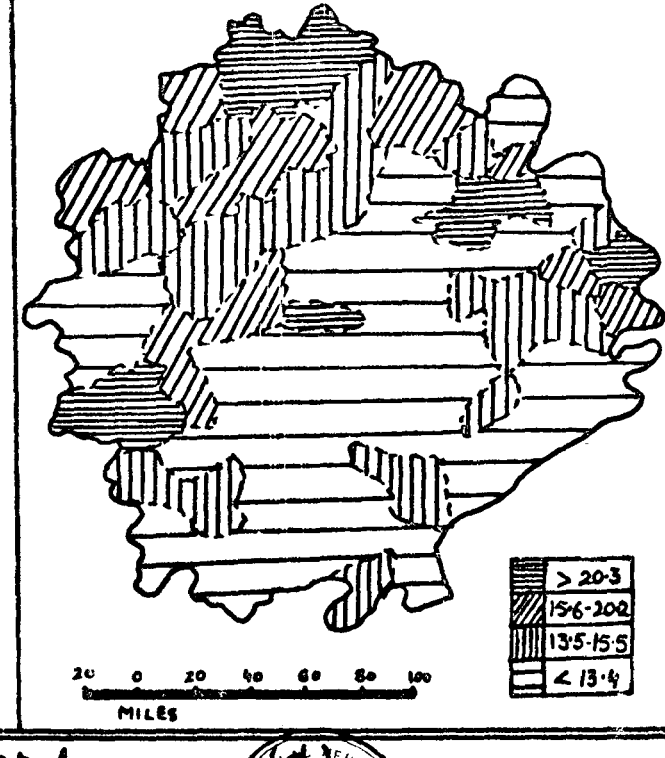
SEX RATIO - 1961.



PERCENTAGE OF LITERACY
1971.



PERCENTAGE OF LITERACY
1961.



(c)

(d)

Map. 4

II. Socio-Cultural Variables

(a) Percentage of literacy: The highest literacy rate of 48.32% is observed in Jaipur City (Table No.2.1 and appendix 1). The zonewise analysis reveals that there exists a highest literacy rate of 22.25% in Zone I, beyond which there is a sharp decline in literacy rate to 14.99% which is observed in Zone II. After that a gradual increase in literacy rate is noticed.

Map No.4(c) shows that there exists a very high literacy rate in tehsils of the northern parts of Zones IV & V. Near these tehsils, the high literacy rate is observed in a clustered form in the northern parts and in a dispersed form in the southern and eastern parts. The tehsils of southern and eastern regions show a low and medium category of literacy rate.

Maps No.4(c,d) depicts that all the tehsils show an increase in the percentage of the literacy rate during the period 1961 to 1971. The tehsils of Zone I show a higher increase in literacy rate in comparison to other zones. A very high increase has been observed in a clustered patch towards the northern tehsils in Zones IV & V, whereas no change is observed towards southern and eastern tehsils.

The overall impression is that Jaipur City has its influence towards western tehsils only beyond 20-miles, it does not seem to have any remarkable influence.

(b) Percentage of Scheduled Castes: Jaipur city shows the lowest proportion of scheduled caste population of 9.62 per cent (see Table 2.1 & appendix 1). Zone V has the minimum of 16.66 per cent and Zone IV has the maximum of 19.85 per cent. However, the scheduled caste population does not show any decrease or increase in the trend with an increase in the distance from the city - though a fluctuating trend is observed in the zones.

Map No.5(a) depicts that a clustered patch of very low category of the proportion of scheduled caste is observed in the entire northern and middle-western tehsils. The entire southern-western region shows a clustered patch of high category. The longitudinal clustered patch of a high category is observed from Zone I to Zone V in the eastern parts. A low and very low categories are observed in the remaining regions.

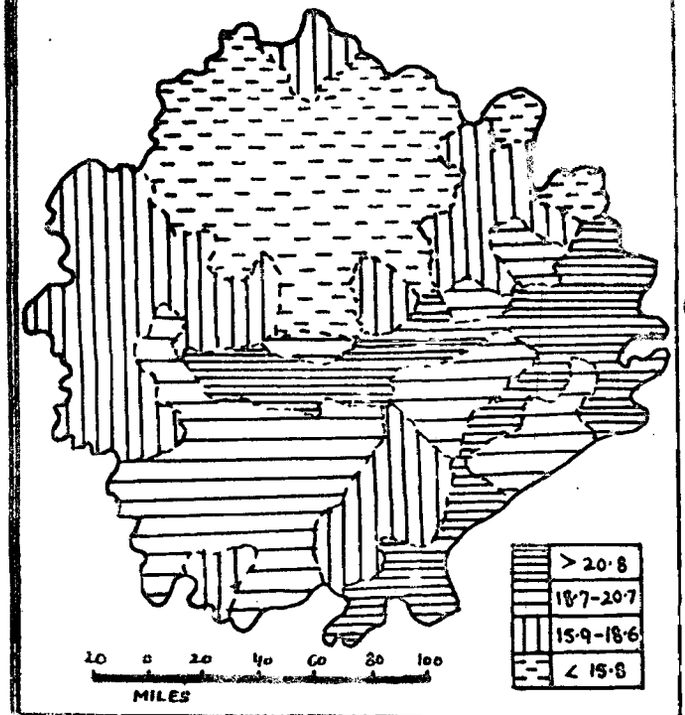
Maps No.5(a,b) depict that the entire south-western and middle-southern tehsils show a decrease in the proportion of the scheduled caste population. Only two tehsils show an increase in the proportion of the scheduled caste population, one at the north-western part and the other at the southern part in Zone V.

In brief, we can say that Jaipur City does not show its influence beyond the Zone I.

(c) Percentage of scheduled tribe population: The city of Jaipur shows very low proportion of scheduled tribe population of 1.63 per cent only (Table 2.1 & appendix 1). Zone I has a maximum of 17.08 per cent and Zone V has the minimum of 6.03 per cent.

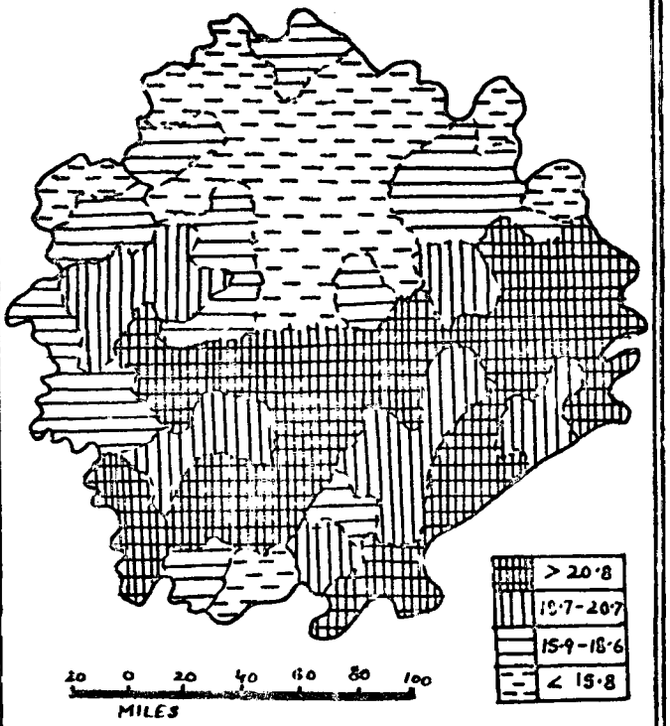
(a)

PERCENTAGE OF SCHEDULED CASTES
1971.

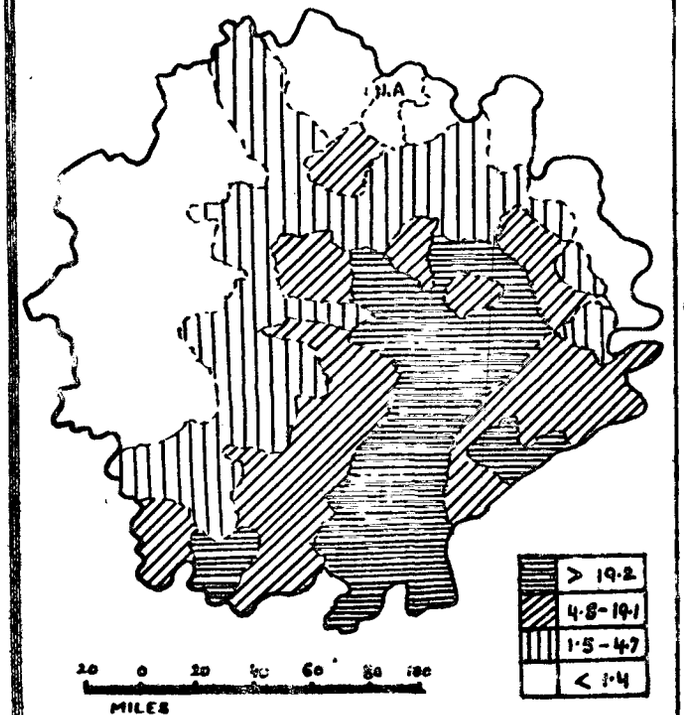


(b)

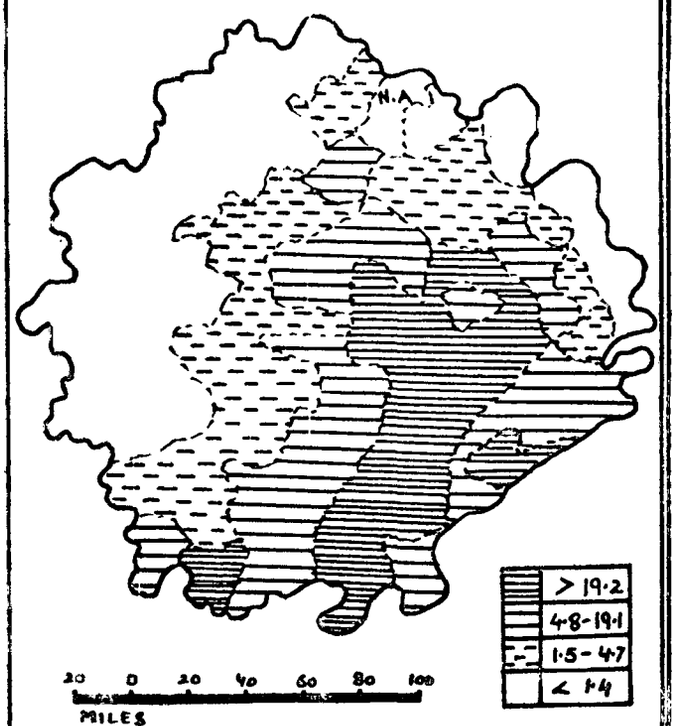
PERCENTAGE OF SCHEDULED CASTES
1961.



PERCENTAGE OF SCHEDULED TRIBES
1971.



PERCENTAGE OF SCHEDULED TRIBES
1961.



(c)

Map. 5

(d)

The highest proportion of scheduled tribe population in Zone I is due to the more scheduled tribe population towards the eastern tehsils of Chaksu, Bassi and Jamwaramgarh. A sharp decline in the trend is observed beyond the Zone I. However, Zone I has characteristics which distinguish it from the other zones.

Map No.5(c) depicts that tehsils of low category of the percentage of scheduled tribe population exist in the entire western and north-eastern parts of all the zones. These are found in a clustered form towards the western parts of the Zones IV & V. Tehsils of very high category are clustered towards the middle-eastern, which is extended up to the south-eastern parts. The entire western and north-eastern tehsils show a low percentage of scheduled tribe population as compared to the eastern tehsils.

Both the maps of No.5(c,d) show that there exists a similar pattern of the proportion of scheduled tribe population during the period 1961 to 1971. There are only three tehsils which show an increase in the percentage of the scheduled tribe population. Two of these three tehsils are observed in the Zone V; one at the north-western part and the other at the south-eastern part. The third one is observed in Zone IV. Only two tehsils in middle northern part show a decline in the proportion of the scheduled tribe population, one at the Zone II and the other at the Zone IV.

III. Economic Variables:

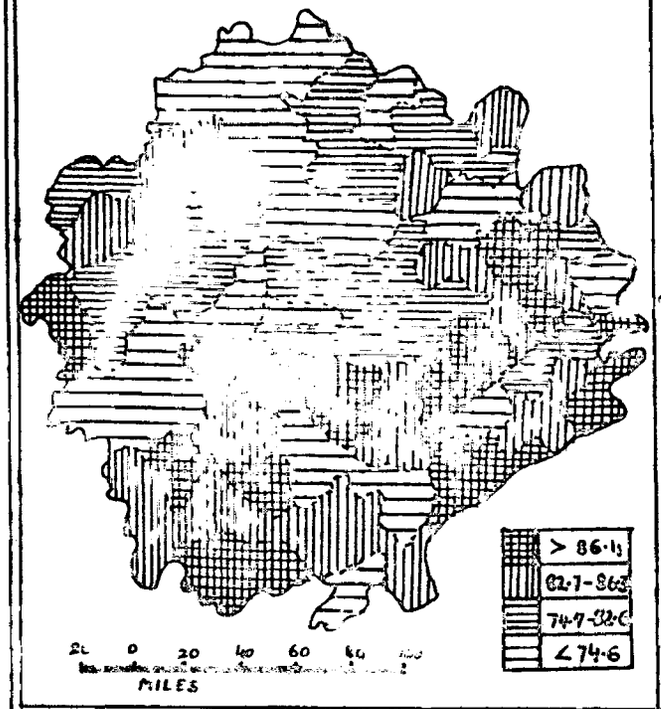
(a) Percentage of Primary Workers: Jaipur City shows the lowest proportion of primary workers, i.e., 3.72 per cent only (see Table 2.1 & appendix 1). On the basis of zonewise analysis the proportion of primary workers vary from 63.29 per cent to 81.86 per cent in the Zone I & III respectively. A sharp turning point is observed beyond the Zone I. After the Zone III, the fluctuation starts which may be due to the existence of the tehsils of Alwar, Sawai Madhopur and Sikar having the urban centres.

The low category of primary workers is clustered around Jaipur tehsil [Map No.6(a)]. This is further extended up to the entire northern and western region in all the zones. The entire southern and eastern region shows that there exist a high and very high categories in a clustered-form except the tehsils of Tonk, Sawai-Madhopur and Keshoraipati in southern region and Bharatpur, Gangapur and Alwar in eastern region.

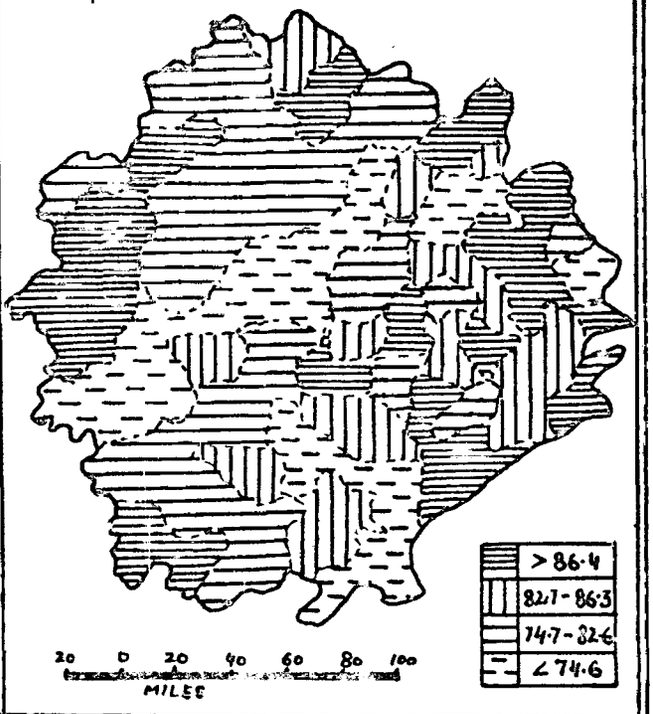
Both the maps No.6(a,b) reveal that most of the tehsils show a decline in the proportion of the primary workers whereas a few tehsils show an increase during the period 1961 to 1971. The entire middle-southern tehsils of the outer zones show that there exists an increase in the proportion of primary workers. The north-western, middle-northern and middle-eastern tehsils of the outer zones show that there exists a decrease in the proportion of the primary workers. Therefore, Jaipur City does not show any influence beyond Zone I.

(a) (b)

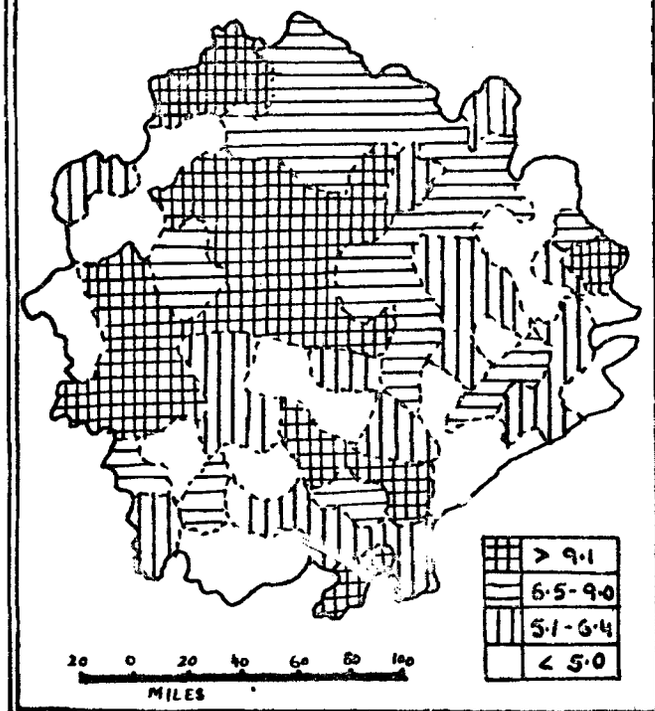
PERCENTAGE OF PRIMARY WORKERS
1971.



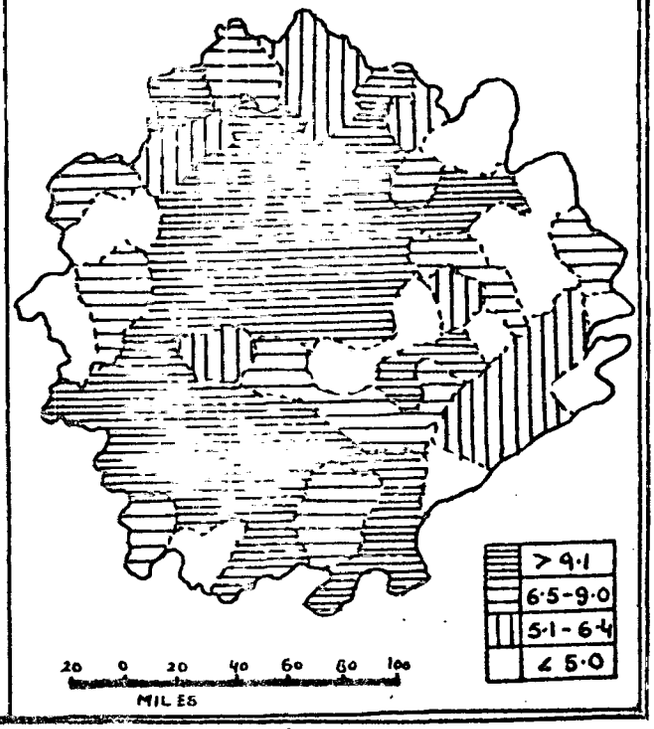
PERCENTAGE OF PRIMARY WORKERS
1961.



PERCENTAGE OF SECONDARY WORKERS
1971.



PERCENTAGE OF SECONDARY WORKERS
1961.



(c) (d)

Map 6

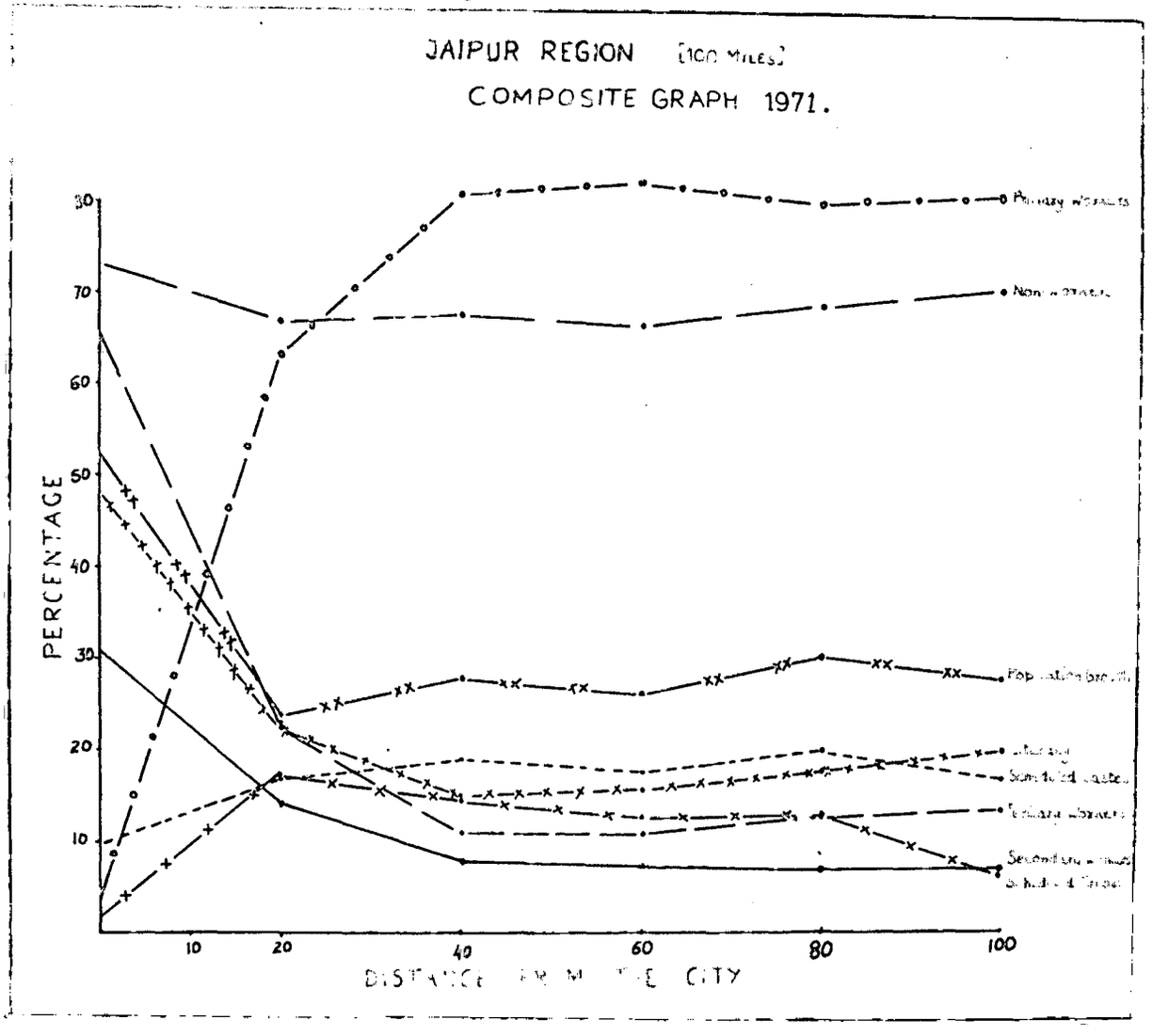
(b) Percentage of Secondary Workers: Jaipur City shows the highest percentage of secondary workers of 30.91 per cent (Table 2.1 & for 1961 see appendix 1). This is due to the service-cum-industry character of the city. Analysis based on zonewise, shows that Zone I has the maximum of 14.29 per cent and Zone V has the minimum of 6.60 per cent. Beyond the Zone I, there exists a very low percentage of the secondary workers, i.e., 7.9 per cent only. A steady declining trend is observed while moving away from the centre. Therefore, there exists an inverse relationship between distance and secondary workers. But Jaipur city does not show its influence beyond Zone I.

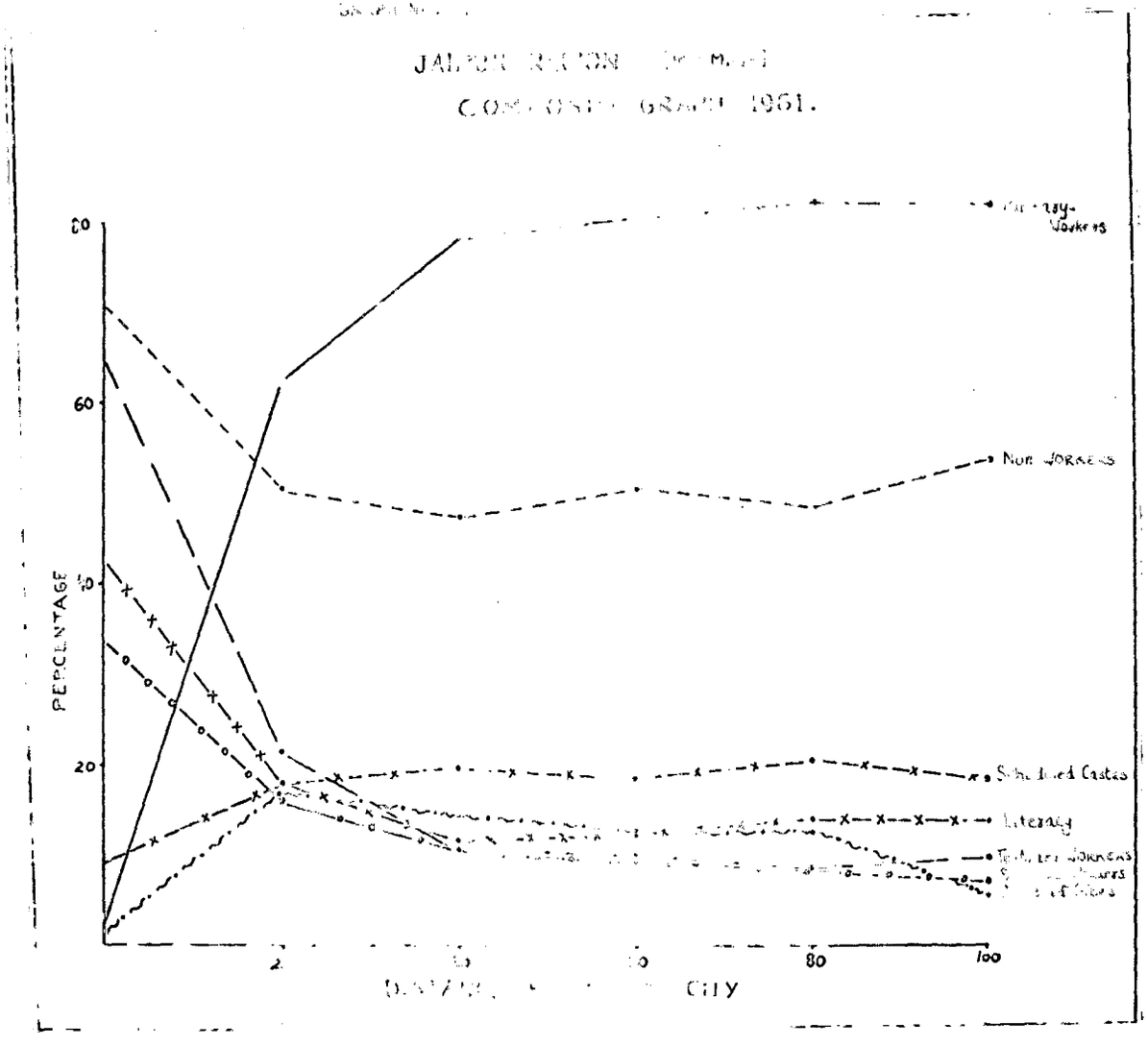
The reverse pattern of primary workers is depicted in this Map No.6(c). There exists a very high category of secondary workers in Zone I, which is extended up to the northern and western tehsils of the outer zones in a clustered form. The low category of the secondary workers is observed in the tehsils of the southern and eastern regions of the outer zones in small clustered-form.

Maps No.6 (c,d) show that there exists an increase in the percentage of secondary workers towards the northern tehsils of Zone V during the period 1961 to 1971. Most of the tehsils show that there exists a decline trend in the percentage of secondary workers throughout the region, in all the outer zones except Zone V.

(c) Percentage of tertiary workers: A very high proportion of the tertiary workers is observed in Jaipur City, i.e., 65.30

Graph No. 1


JAIPUR REGION (100 MILES)
COMPOSITE GRAPH 1971.
PERCENTAGE
80
70
60
50
40
30
20
10
10
20
40
60
80
100
DISTANCE FROM THE CITY


JAIPUR
GROWTH 1961.
80
60
20
PERCENTAGE
Non Workers
Literacy
2
80
100
CITY

per cent (See Table 2.1 & appendix 1). Zone I has the maximum of 22.43 per cent and Zone III has the minimum of 10.74 per cent. A sharp decline in the trend is observed beyond the Zone I, followed by a fluctuating trend. Zone V also shows a high proportion of the tertiary workers, which is due to the presence of Ajmer, Jhunjhunu and Bharatpur tehsils.

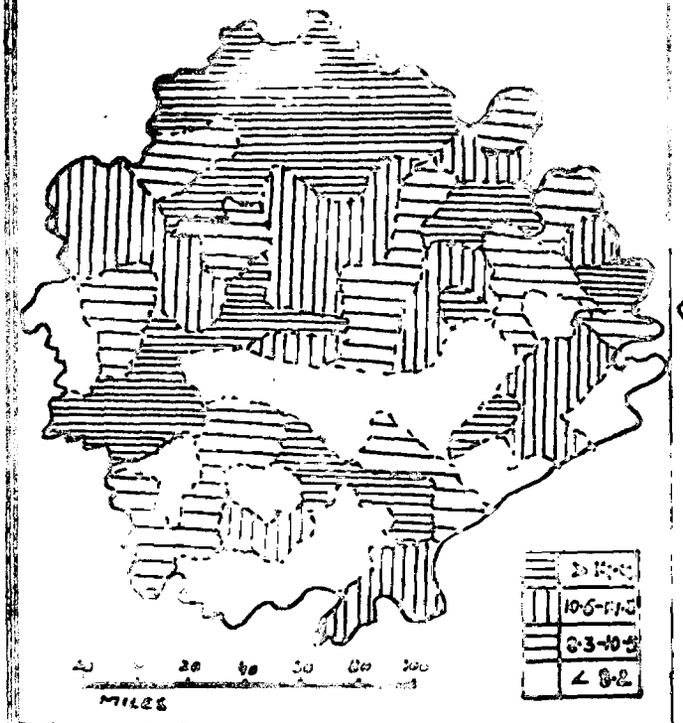
Map No.7(a) shows that there exists a very high category in a clustered-form in the northern tehsils of Zones IV & V. It also exists in the form of longitudinal narrow belt from Ajmer to Jaipur tehsils. It is observed in a dispersion form in the main tehsils and throughout the region. Most of the low category is observed in the southern and eastern tehsils in the form of dispersion.

Maps No.7(a,b) show that there exists an increase in the percentage of tertiary workers in most of the tehsils during the period 1961 to 1971. The entire northern, middle-western, south-western and middle-eastern tehsils show an increase in the percentage of tertiary workers. Most of these tehsils are observed in Zone V. Only five tehsils in Zone III show a decline in the percentage of the tertiary workers most of which are observed in Jaipur district.

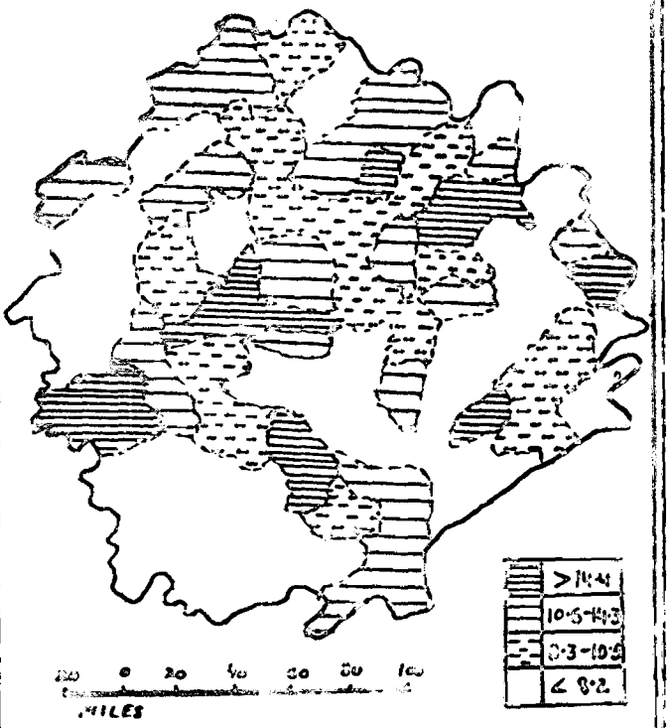
(d) Percentage of non-workers: Jaipur City shows the highest percentage of non-workers of 73.12 per cent (Table 2.1 & appendix 1). On the basis of zonewise analysis Zone V has a maximum of 70 per cent and Zone III a minimum of 61.30 per cent. There exists a positive relationship between distance and non-workers except in Zone III.

(a) (b)

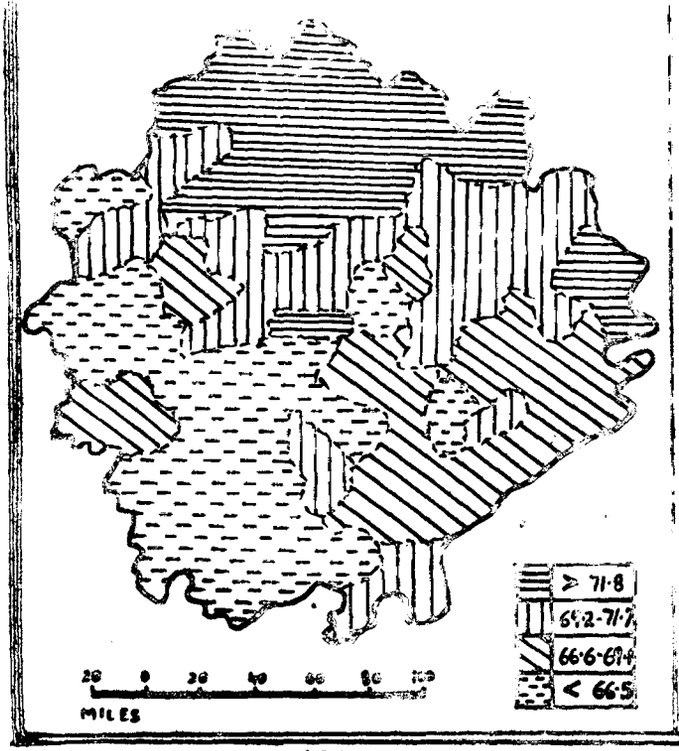
PERCENTAGE OF TERTIARY WORKERS - 1971.



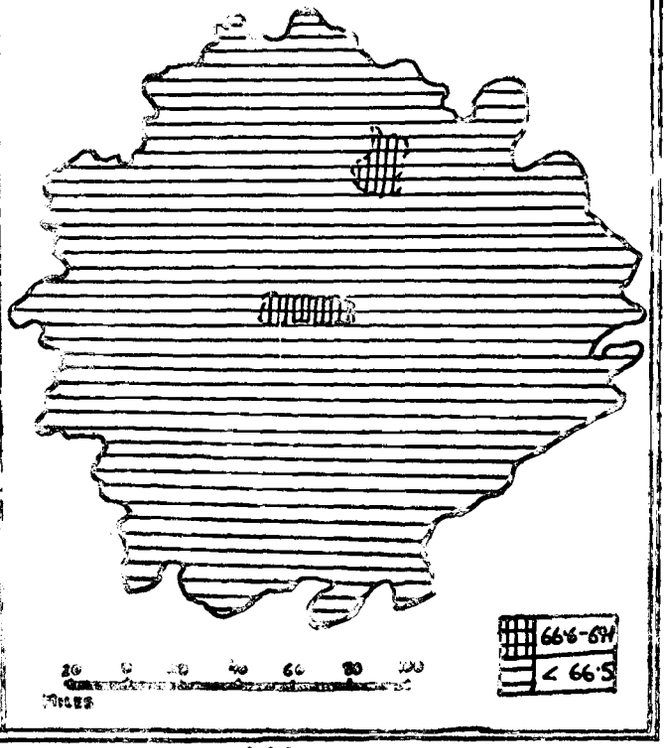
PERCENTAGE OF TERTIARY WORKERS - 1961.



PERCENTAGE OF NON-WORKERS 1971.



PERCENTAGE OF NON-WORKERS 1961.



(c) Map. 7 (d)

Map No.7(c) can be divided into two parts, the entire northern part on the one hand and the entire southern part on the other hand. The very high and high categories of non-workers in the entire northern tehsils are observed in the form of a cluster, whereas low and medium categories are found in the entire southern tehsils in the form of a cluster.

Maps No.7(c,d) reveal that almost all the tehsils show an increase in the proportion of the non-workers during the period 1961 to 1971. The south-western tehsils however, do not show any change except the tehsils of Ajmer.

The concluding observation on this chapter can be made in the following paragraph:

The study reveals that the city of Jaipur influences the demographic and economic variables of its hinterland only up to Zone I. The graphs No.1 and 2 show that there exists a sharp declining trend at the distance of 20 miles in all the variables. But there are variables like primary workers, scheduled caste and scheduled tribes, where an increasing trend is observed. We can say that a sharp turning point is observed at the distance of 20 miles for all the variables. The influence of Jaipur city, thus, is distinctly observed up to the radius of 20 miles. Beyond this, the observation is not uniformly maintained. This is because of the existence of the cities like Alwar, Sawai Madhopur and Sikar in Zone IV and Ajmer, Bharatpur and Jhunjhunu in Zone V. These towns also have their own hinterlands and thus limit the influence of Jaipur.

CHAPTER III

DISTRIBUTION OF SETTLEMENTS IN SPACE

In this Chapter, an attempt has been made to study the distribution pattern of the settlements within the radius of 20 miles around the Jaipur City. The significance of this type of study lies in the fact that it can offer a guide line to handle the problems of regional development. A profile of the spatial distribution of settlement can help to provide the suitable social amenities and infrastructural facilities for the region in future planning.

For the study of the spatial distribution of settlements the following methods have been used:

(i) Lorenz Curve;
(ii) Gini's Concentration Ratio; and
(iii) Nearest Neighbour Techniques.

These methods have already been discussed in the previous chapter.

Before going into the details of this study, the distribution of settlements in different size-groups with respect to distance from the city has been described. A five-mile-zone analysis has been adopted. This study reveals that 1.9 per cent of settlements are located within a distance of five-mile distance from the Jaipur City, 23.1 per cent between 5 to 10 miles zone, 36.7 per cent between 10 to 15 miles-zone and 38.3 per cent between 15 to 20 miles-zone (Table 3.1).

TABLE 3.1

CLASSWISE NUMBER OF SETTLEMENTS

Distance from the City	Uninhabited Settlements	Settlements with Population: Less than 200	200-499	500-999	1000-1999	2000-4999	5000 and above	Towns	Total number of settlements	Inhabited settlements	Percentage of total settlements in the zone
Upto 5 miles of distance	-	3	7	3	1	-	-	1	15	15	1.90
5 to 10 miles of distance	3	54	68	39	9	7	-	2	182	179	23.10
10 to 15 miles of distance	16	88	102	51	27	4	1	-	289	273	36.68
15 to 20 miles of distance	13	72	117	64	18	14	3	1	302	289	38.32
Jaipur region	32	217	294	157	55	25	4	4	788	756	100.00
Percentage of total settlements of Jaipur Region in a particular size group	4.06	27.54	37.31	19.92	6.98	3.17	0.51	0.51	100	95.94	

While analysing the density of settlements in different zones, it is observed that IInd zone has the highest density of 0.79 per square mile, followed by IIIrd , IVth and Ist zones with density of 0.68, 0.53 and 0.15 respectively. The Ist zone shows a lowest density of settlement, i.e., per settlement occupied 6.67 sq. mile followed by 1.89, 1.47 and 1.27 sq. mile in IVth, IIIrd and IInd zones. The IInd zone shows a very high density of settlements because large number of smaller settlements are observed just near the City of Jaipur. However, low density of settlement can be observed away from the main city.

The entire settlements of the study area have been grouped into the following population size groups:

(i) below 200
(ii) 200 - 499
(iii) 500 - 999
(iv) 1000 - 1999
(v) 2000 - 4999
(vi) 5000 and above

From the Table No.3.1 , it is apparent that there are 4.1 per cent of uninhabited settlement in the whole region. The whole Jaipur Region has four towns forming 0.51 per cent of the total settlements. Jaipur City covered almost the whole of first five-mile-zone. Another two towns are Amber and Sanganer in the second zone, one at north-eastern and the other at

Southern region. The fourth town, i.e., Chomu town is situated at the outermost zone at north-western region. Likewise, the settlements in the size-group of more than 5000, form the same 0.51 per cent. The settlements in the size-group of 2000-4999 form 3.2 per cent followed by 7.0 per cent in the size-group of 1000-1999, 19.7 per cent in the size-group of 500-999, 37.3 per cent in the size-group of 200-499 and 27.5 per cent in the size-group of less than 200. Thus the higher size-group settlements are seen to be clustered more towards the outer zone rather than the inner zones. The reverse situation can be observed in the small size settlements.

Measures of Concentration of Settlements

1. Lorenz Curve

The degree of concentration of settlements reflects their uneven distributional pattern. The degree of concentration will be higher, if the settlements are assembled in a particular region and least, if the settlements are evenly spaced. The concentration also indicates the nature of economic development in different parts of the region. Therefore, to study the degree of concentration; Lorenz Curve has been used.

Generally, two extremes are found through this Curve. First, if the curve follows the diagonal, then a uniform distribution of settlements may be observed; and second, if the curve coincides with the x-axis then the settlements are concentrated at a particular part in the given region. In between these two

extremes, the degree of uneven distribution of settlements is depicted, by the degree of departure of the curve from the diagonal.

Now from graph 3, the curve reflects that the concentration of settlements is neither at one place nor they have their uniformity. It depicts that in 51 per cent of area only 40 per cent of settlements are concentrated, whereas in the remaining 49 per cent of area 60 per cent of settlements are distributed. This shows a tendency towards the uniformity because it coincides or follows the diagonal (see appendix 2).

2. Gini's Co-efficient

Another method, i.e., Gini's coefficient has been used to calculate the spatial distribution of settlements. Putting the values in the formula, we get:

$$G = \frac{1}{10000} \left| 11136.5818 - 12478.8865 \right|$$

$$= \frac{1342.3056}{10000} = 0.1342$$

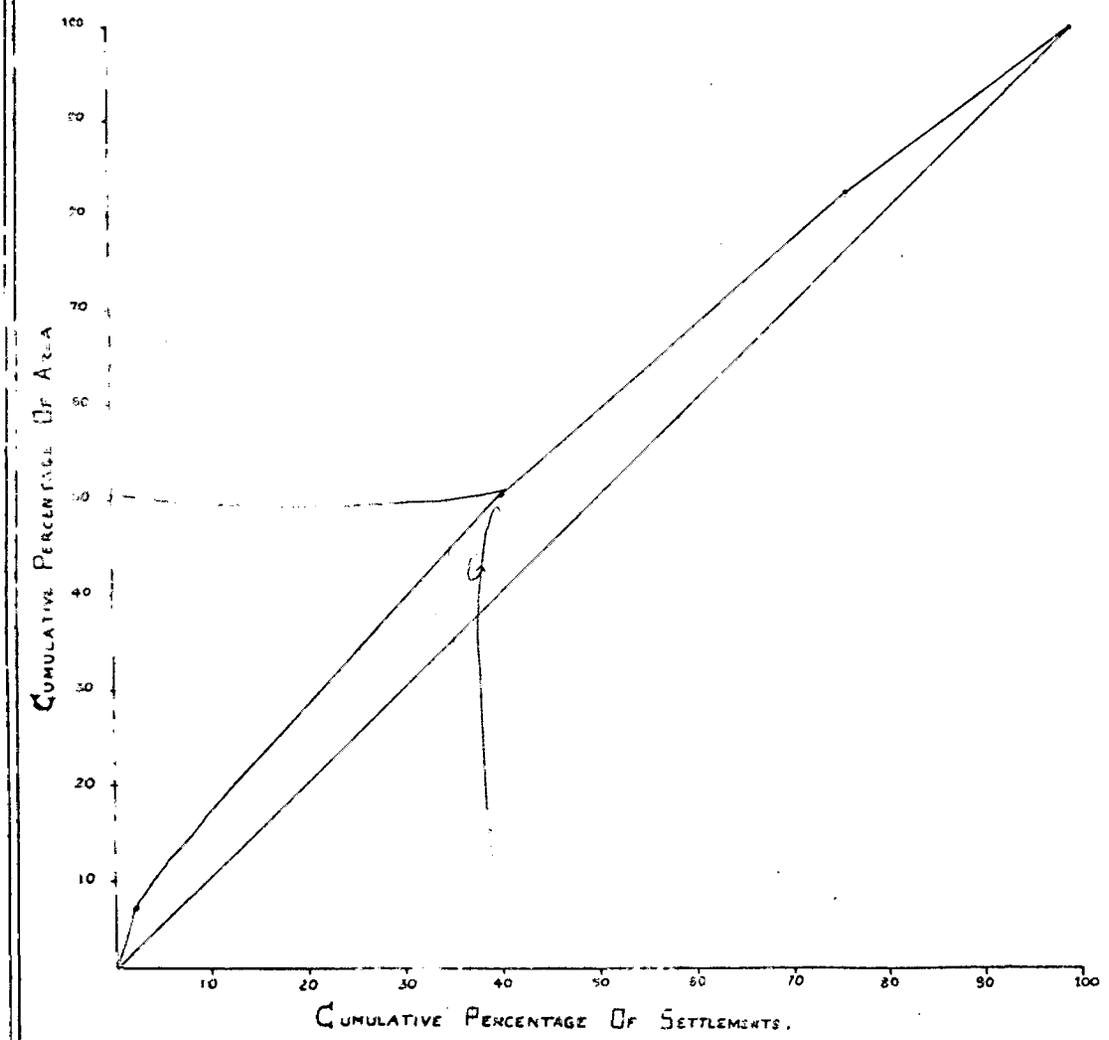
Thus, from this method the G = 0.13, explains that the settlements in the Jaipur Region have negligible concentration which, in other words means, that there exists an even distribution pattern.

3. Nearest Neighbour Technique:

This technique is an effective device for quantifying the distribution of any kind of attributes, which are located

GRAPH NO 3.

DISTRIBUTION OF SETTLEMENTS BY LORENZ CURVE.



as points on the map; under this technique, the study has been done at three levels:

(a) Distribution of Settlements zonewise.

(b) Classwise distribution of Settlement within the zone.

(c) Distribution of Settlements in the Region as a whole.

(a) Distribution of Settlement zonewise

Table 3.2 clearly depicts that all the zones show a random distribution. Though there are variations within the zones as indicated by 'R' value which varies from 1.3249 in Ist zone to 1.4581 in the 2nd zone. In all the zones, the distribution is random, but the departure from the random is higher in all the three zones as compared to the Ist zone. The 2nd zone shows a significant departure from the random distribution towards even. From the significance of R test or C test we may observe that in all the zones, the distribution of settlements are almost approaching uniform. The Map No.8 depicts that more settlements are found towards the southern region as compared to the northern region. In almost all the zones, we may observe that the settlements are randomly distributed.

(b) Classwise Distribution(zonewise analysis - see Maps No.9 to 12)

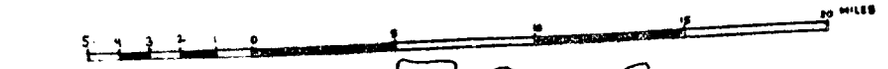
The Appendix Table No.3 depicts that the settlements of size-group less than 200 population show R_n values ranging from 1.7063 to 0.8879. The 1st zone shows a significant departure from the random distribution approaching towards the less regular than even as R value is 1.7063.

Map. 8

JAIPUR CITY REGION

NEAREST NEIGHBOUR DISTANCE

ZONE-WISE. (1971)



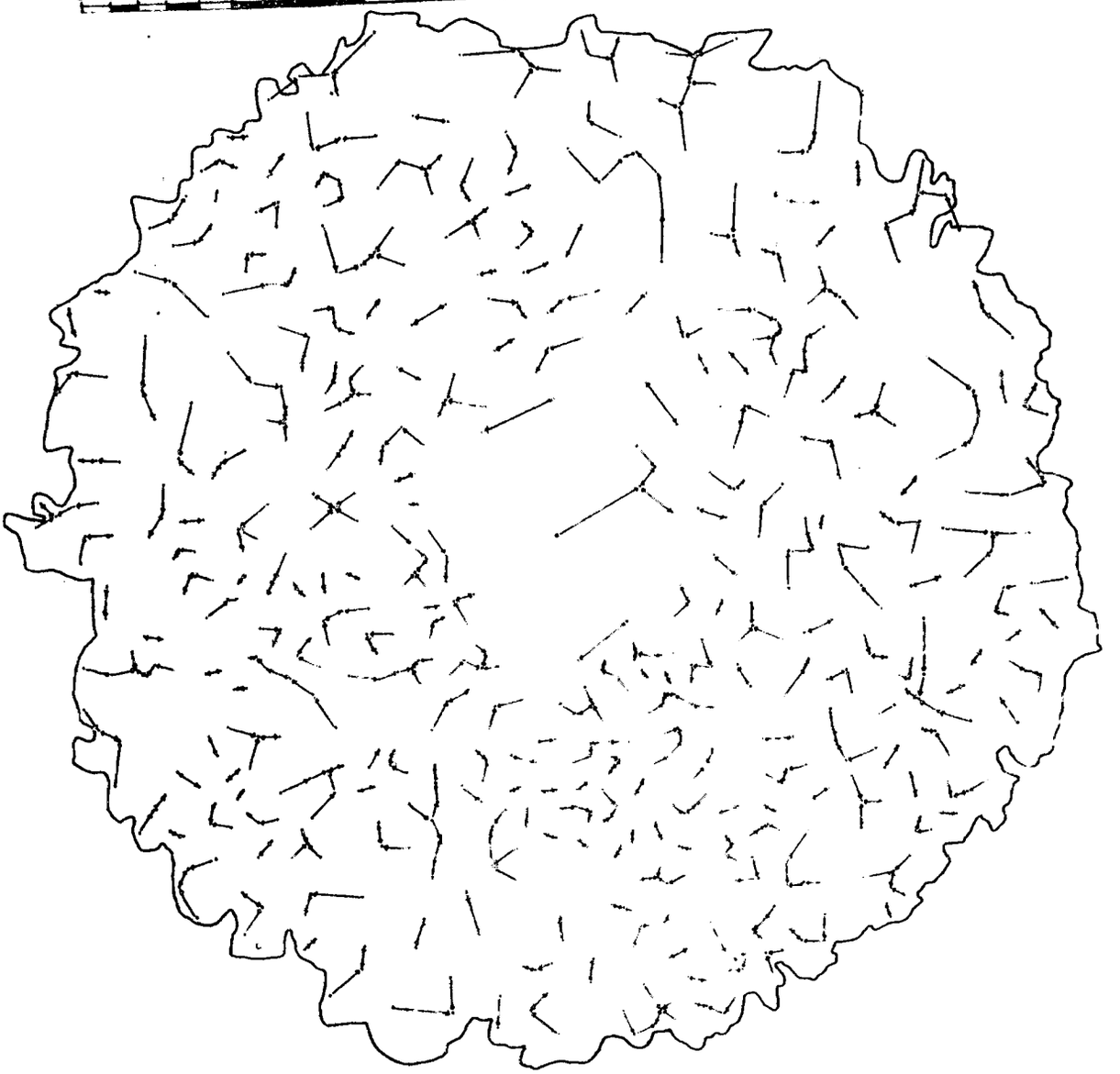


TABLE 3.2

DISTRIBUTION OF SETTLEMENTS IN JAIPUR REGION (ZONEWISE)

Distance from the city in miles	N	Σr	$\bar{r}a = \frac{\Sigma r}{N}$	A	P	$\bar{r}e$	$R = \frac{\bar{r}a}{\bar{r}e}$	Significance of R* $C = \frac{\bar{r}a - \bar{r}e}{\sigma_{\bar{r}e}}$	Remarks $\sigma_{\bar{r}e}$ equals $\frac{0.2613}{\sqrt{NP}}$
Up to 5	15	25.46	1.6973	98.49	.1523	1.2811	1.3249	2.4072	Significant at .005 level
5 to 10	178	144.02	0.8091	224.17	.8119	0.5549	1.4581	10.9953	Significant at .001 level
10 to 15	273	217.55	0.7968	400.79	.7211	0.5868	1.3532	34.1215	Significant at .001 level
15 to 20	289	280.63	0.9710	543.03	.5561	0.6705	1.4481	12.8109	"
Jaipur Region	756	641.63	0.8487	1266.49	.6222	0.6339	1.3388	15.2881	"

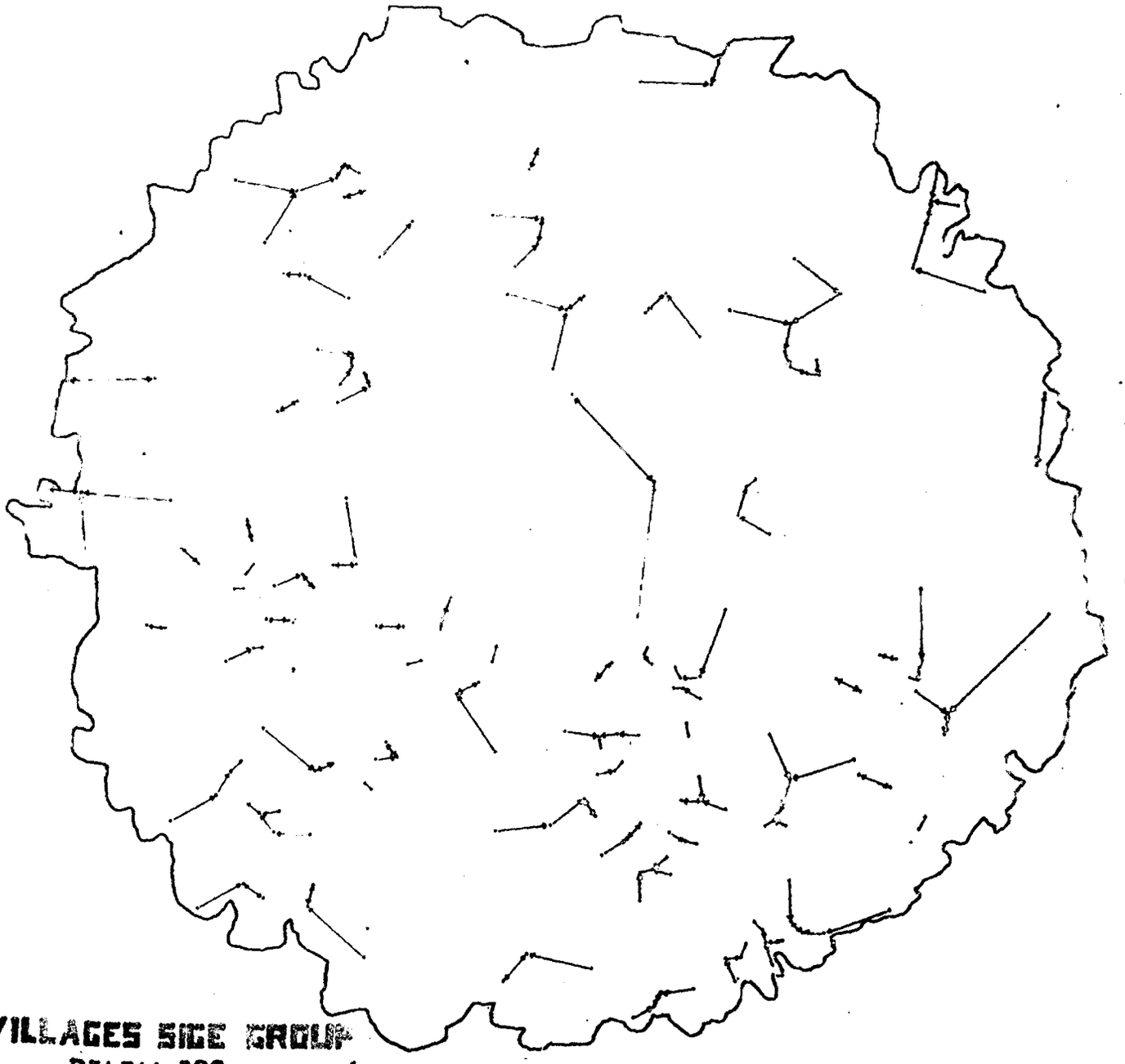
Hence approaching Uniform distribution

* C values have been calculated to see if there is a significant departure of the observed mean distance ($\bar{r}a$) from the expected mean distance ($\bar{r}e$)

JAIPUR CITY REGION

NEAREST NEIGHBOUR DISTANCE

ZONE-WISE (1971)



VILLAGES SIZE GROUP
BELOW-200

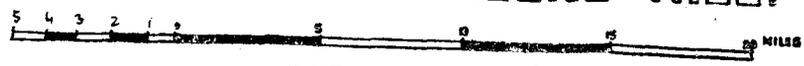
Map No. 5

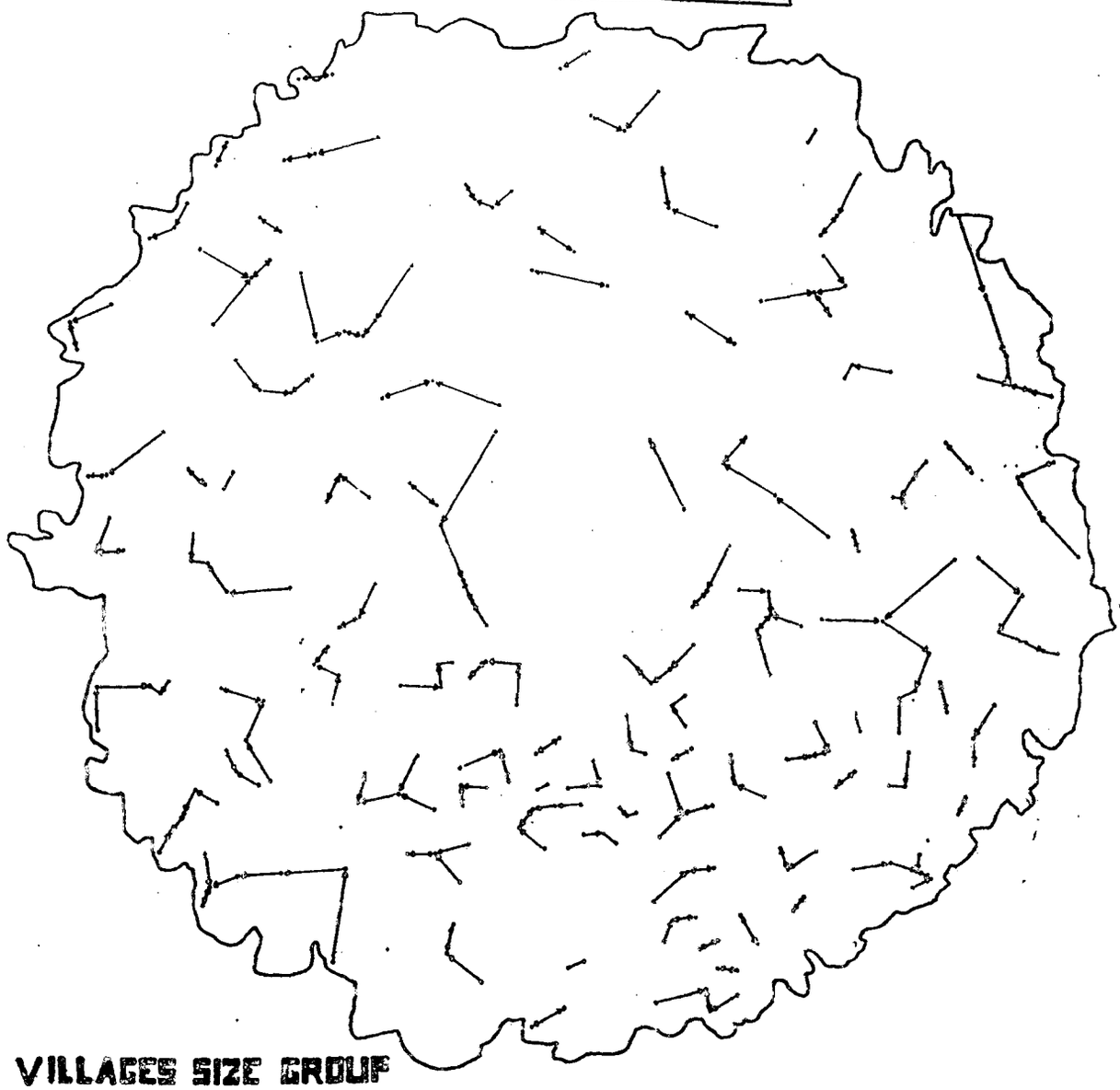
Map.10

JAIPUR CITY REGION

NEAREST NEIGHBOUR DISTANCE

ZONE-WISE. [1971]





VILLAGES SIZE GROUP

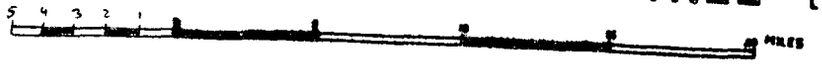
200 - 499

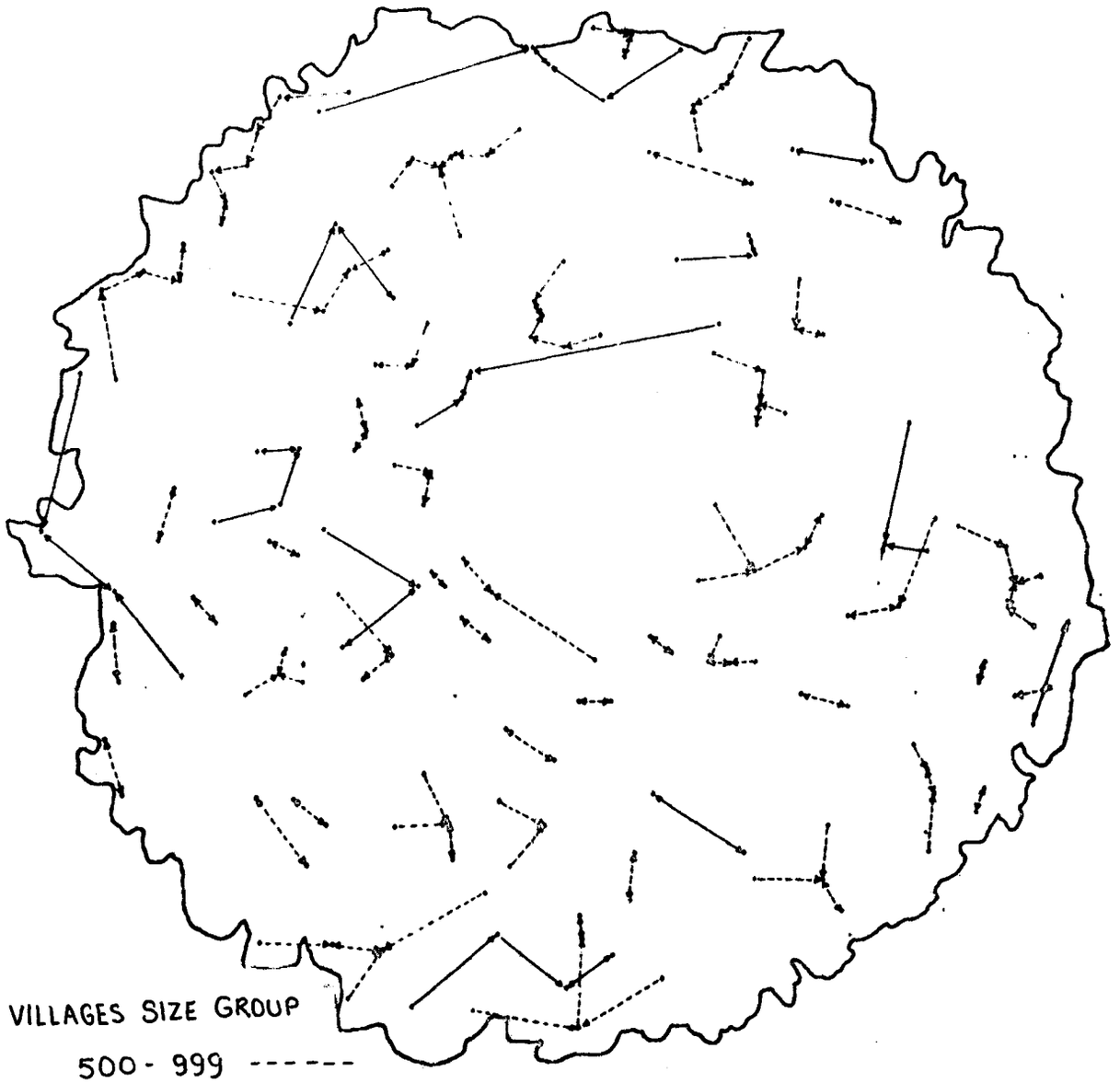
Map. 11

JAIPUR CITY REGION

NEAREST NEIGHBOUR DISTANCE

ZONE-WISE [1971]





VILLAGES SIZE GROUP

500 - 999 ------

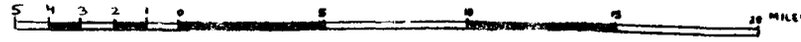
1000 - 1999 ——————

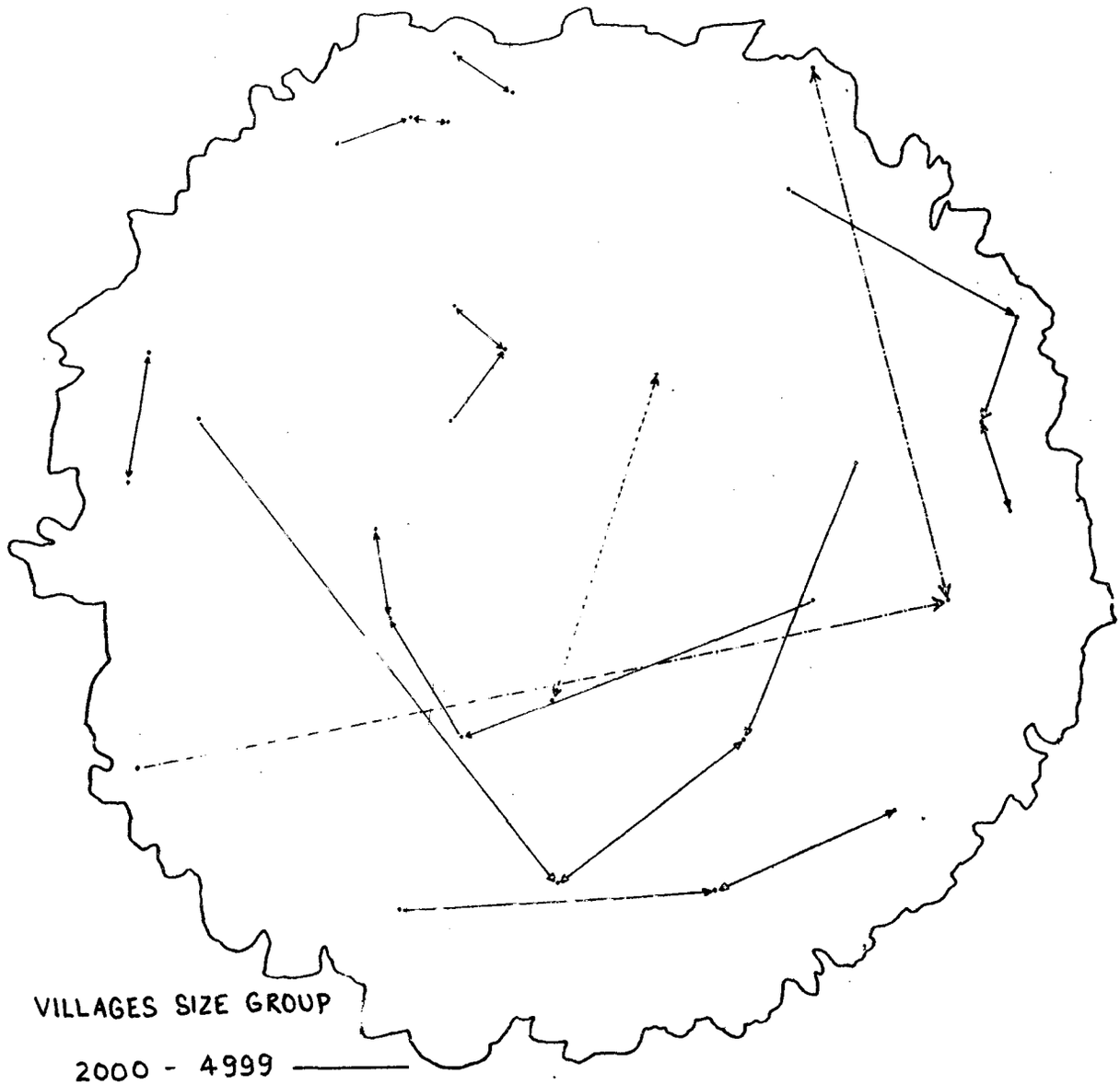
Map .12

JAIPUR CITY REGION

NEAREST NEIGHBOUR DISTANCE

ZONE-WISE [1971]





VILLAGES SIZE GROUP

2000 - 4999 ——————

5000 - Above —.—.—.—

TOWNS --------

The Appendix Table 4 depicts that the settlements having range of 100 - 499, show almost the random distribution in all the zones. The R values vary from 1.1296 to 1.4066. But in the 2nd zone the settlements shows a significant departure from Random as compared to the other zones. The settlements are more concentrated at the southern region than northern region.

Appendix Table 5 shows the exact Random distribution in size-group of 500 to 999 population. The R values vary from 0.9755 to 1.2877.

Likewise the Appendix Table 6 shows the Random distribution in the size-group of 1000-1999 population, the R values vary from 1.2618 to 1.3420. It shows an insignificant departure from the random distribution. (Since only one settlement is located in the 1st zone, no Nearest Neighbour Distance exercise is possible for this zone).

According to the Appendix Table 7, it is clear that the settlements of size-group of 2000-4999 population have significant departures from a Random towards a uniform distribution but the third zone shows a uniform spacing. The R values vary from 1.6206 to 2.1377.

The settlements of size-group more than 5000 population are distributed uniformly in the IVth zone only, which shows an exact uniform or even distribution, i.e., the R value is 2.1408. Appendix Table 8 depicts that there is no

settlement in the zone I and II. While the zone III has only one settlement, therefore, no nearest neighbour distance exercise is possible for these zones.

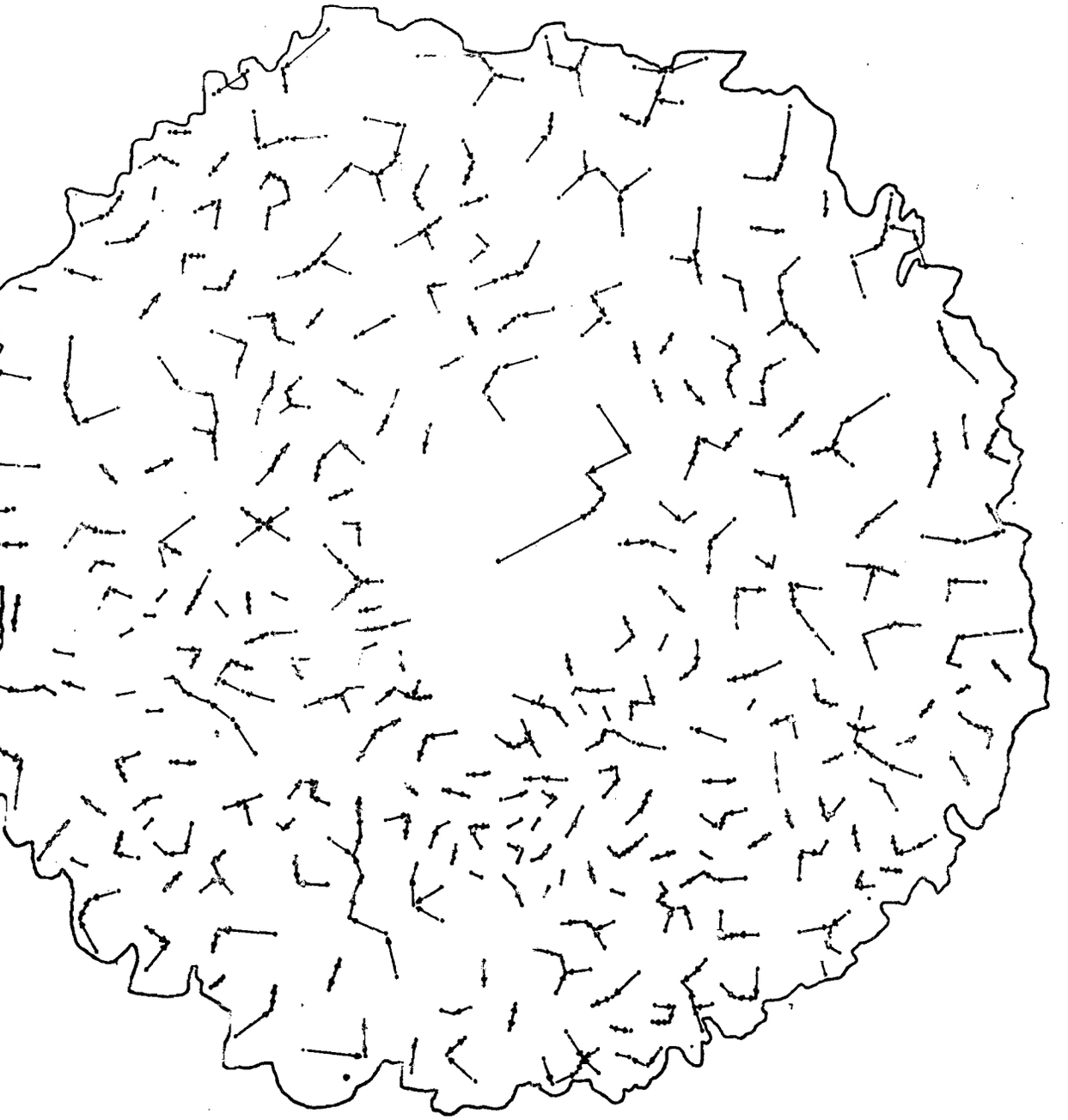
The large settlements are few in number and have a uniform distribution in the zones, whereas the smaller settlements are large in number and have Random distribution. Hence, the smaller Settlements are located around the larger settlements; may be due to the fact that these larger settlements serve the smaller settlements with the socio-economic facilities.

The Appendix 9 depicts that there is no town in the 3rd zone. There is one town each in 1st and 4th zone, therefore, it is not possible to calculate the R value in these zones. There are two towns in the 2nd zone, i.e., Sanganer and Amber, which shows an exact uniform distribution because the R value is 2.1417. These towns are located just opposite to each other in the zone as can be seen from Map No.11. Therefore, one may say that these towns play a significant role in the region development of the Jaipur City Region.

The classwise distribution of the settlements, therefore; shows that the smaller settlements, i.e., less than 2000 population size-group have a Random distribution within its zones. With an increase in the size of the population, the settlements, i.e., more than 2000 population show a departure from Random distribution approaching towards

JAIPUR CITY REGION

NEAREST NEIGHBOUR DISTANCE



Map No. 15

the uniformity. The settlements with population more than 5000 (including towns) show a uniform distribution pattern.

(c) Region as a whole (Map No.13)

Lastly, the R value for region as a whole is 1.3388 (table 5.2), which explains that the distribution of settlements has a tendency towards uniformity in Jaipur Region. Thus moving from smaller size settlements the distribution acquires a tendency from Random towards the uniform or even distribution.

Hence from all the three techniques applied here, we conclude that the distribution of settlements in the Jaipur Region shows a uniform distribution. It is only when the distribution analysis is done classwise, the smaller-size Settlements show a Random distribution pattern where as the larger size settlements again shows the uniform distribution.

CHAPTER IV

DEMOGRAPHIC STRUCTURE OF THE REGION

In this chapter, the relationship between the distance zones and the demographic structure of the settlement patterns has been analysed. Since the distance is an important factor in influencing the settlement structure of a city region, it has been tried to assess the influence of Jaipur City together with the degree of its interaction with the city region with distance from the city, taking demographic variables into consideration. This attempt is based on the hypothesis that the demographic variables specially, the population density, population growth, sex ratio, dependency ratio, literacy rate and the presence of people belonging to scheduled castes and tribes have an impact on them because of the city and its socio-economic activities. The detailed hypothesis related to these demographic and social variables has already been given in Chapter I.

I. Demographic Variables

(a) Population Growth: Population growth in a region is determined by three components, namely births, deaths and migration. Excess of birth over deaths tends to increase in population and vice-versa. Again the effect of migration is either to increase or decrease population, depending upon whether the net migration is positive or negative. Here, we only concentrate upon the net increase or decrease of the population during the decade 1961-1971. During the period

1961-71, the mean population growth of the Jaipur Region was 30.78 per cent. This is high as compared to the mean population growth of 25 per cent for the country as a whole.

Table 4.1 depicts that the mean population growth varies from 38 per cent in the 1 to 2 mile zone and 25 per cent in the 16 to 17 mile zone. When we analse on the five-mile-zones, we find that the first five-mile-zone has the maximum of 36.80 per cent and the third five-mile-zone has the minimum of 32.27 per cent. Then in the fourth five-mile-zone, it shows a slight increase in percentage of 33.17. Graph No.4 shows that there exists a gradual decline in the trend up to 5 miles of distance and beyond that fluctuating trend is observed. However, the sharp break point is observed at a distance of 5 miles, which shows the city's influence region.

In Zone I, the population growth shows a very low correlation* with other variables (Appendices No.10 to 14). The values of correlation vary from 0.251 with tertiary workers to -0.228 with primary workers at insignificant level.

In Zone II, the correlation values vary from 0.198 to -0.114 with the same variables as in the case of Ist Zone, but at 1 per cent of significance.

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* Here the r values with +ve sign means that the two variables are positively correlated whereas the -ve sign means that they are negatively correlated with each other.

GRAPH NO. 4

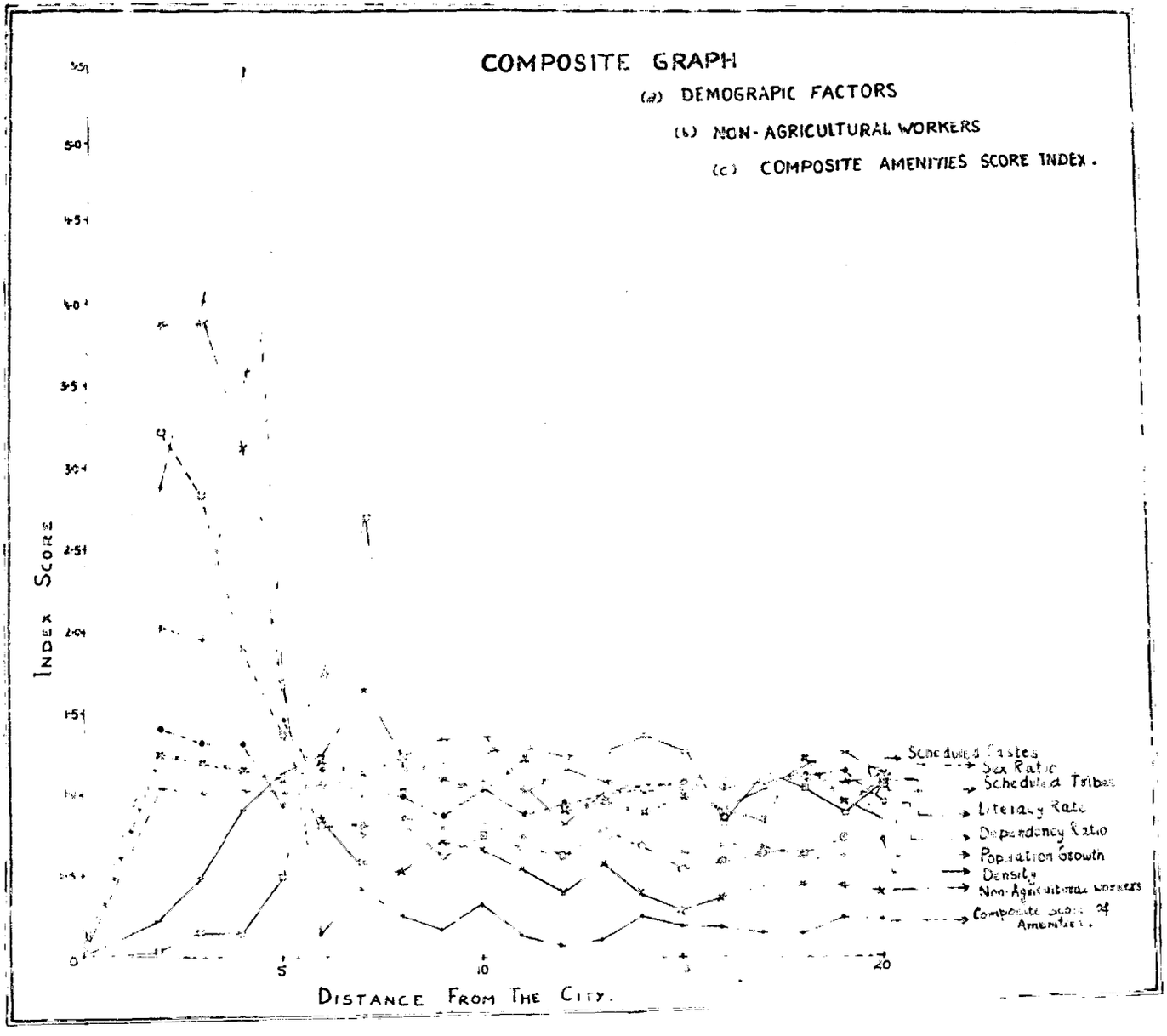

COMPOSITE GRAPH
(a) DEMOGRAPIC FACTORS
(b) NON-AGRICULTURAL WORKERS
(c) COMPOSITE AMENITIES SCORE INDEX.
INDEX SCORE
DISTANCE FROM THE CITY.
Scheduled Castes
Sex Ratio
Scheduled Tribes
Literacy Rate
Dependency Ratio
Population Growth
Density
Non-Agricultural workers
Composite Score of Amenities.

Table 4.1

MEANS IN EACH MILE OF DISTANCE FROM JAIPUR
(Demographic Aspects)

Distance	Density per sq. mile	Population Growth	Sex Ratio	Dependency Ratio	Literacy	Scheduled Castes	Scheduled Tribes
Upto 1 mile	-	-	-	-	-	-	-
1-2 mile	1023	38.30	868	2.88	55.70	3.37	0.47
2-3 mile	985	36.50	846	2.67	49.06	7.31	2.25
3-4 mile	1832	35.20	864	2.67	32.30	13.52	2.15
4-5 mile	735	32.80	847	1.89	23.63	17.03	7.86
(I Five Miles)	(1120)	(36.80)	(863)	(2.52)	(30.44)	(12.60)	(4.32)
5-6 mile	531	36.75	884	2.35	13.82	18.56	27.86
6-7 mile	380	34.08	860	2.08	13.93	24.77	43.36
7-8 mile	431	37.35	867	2.02	14.19	18.59	18.54
8-9 mile	397	33.49	868	1.78	10.81	20.07	19.17
9-10 mile	422	31.62	894	2.1	12.98	20.22	20.25
(II Five Miles)	(435)	(36.63)	(877)	(2.10)	(13.11)	(20.07)	(25.87)
10-11 miles	376	37.48	859	1.82	11.65	15.64	20.80
11-12 miles	317	27.41	972	1.91	10.63	12.03	19.85
12-13 miles	356	28.52	894	1.99	13.06	14.96	20.21
13-14 miles	408	26.58	870	2.10	11.65	15.58	21.64
14-15 miles	319	29.64	905	2.10	9.11	15.70	20.26
(III Five Miles)	(352)	(32.27)	(899)	(2.00)	(10.68)	(14.98)	(20.61)
15-16 miles	341	26.67	859	2.11	10.14	13.45	13.29
16-17 miles	335	24.83	972	2.22	10.87	15.28	17.87
17-18 miles	309	37.03	894	2.24	10.91	17.83	16.65
18-19 miles	311	28.50	870	2.30	12.58	18.76	14.06
19-20 miles	363	32.79	905	1.93	18.56	16.83	16.74
(IV Five Miles)	(326)	(33.17)	(899)	(2.17)	(11.48)	(16.61)	(15.16)
Jaipur Region	(509)	(30.78)	(844)	(2.07)	(17.98)	(14.98)	(16.16)

In the IIIrd Zone, the population growth shows a very low correlation with other variables. The values of correlation vary from 0.046 with secondary workers to -0.068 with population size of settlements. The reason behind such a relationship seems to exist because more of the existence of industrial opportunities, which promote the migration.

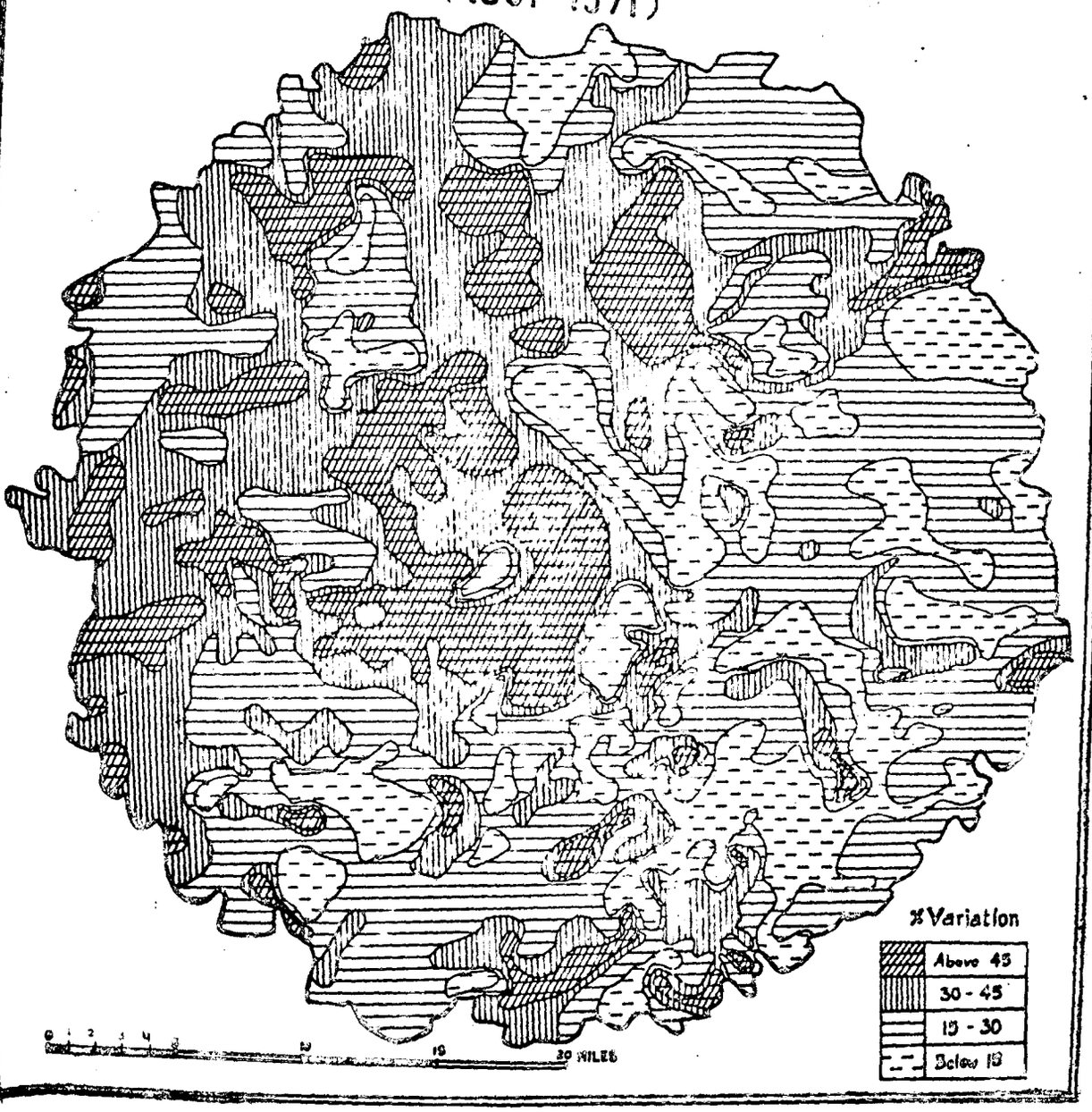
The IVth Zone shows a very high correlation between the population growth with the other variables, the values of which vary from 0.852 with educational facilities to -0.083 with dependency ratio. This is, in fact, due to the existence of the dominating Chomu town towards the north-western part, which shows a high educational facilities.

The region as a whole shows that there exists a weak correlation between the population growth with other variables, the values of which vary from 0.470 with tertiary workers to -0.041 with primary workers at 1 per cent level of significance.

Map No.14 shows that there are four categories of the population growth: (i) very low, (ii) low, (iii) high, and (iv) very high (i.e., less than 15 per cent, 15 per cent to 30 per cent, 30 per cent to 45 per cent and more than 45 per cent). In Zone I, there exists a very high population growth in the core area, which is extended towards south up to Sanganer town and then upward in the entire western part of Zone II. The entire northern and eastern parts fall in very low category of less than 15 per cent. The main reason for the very low population growth is the rugged topography and high proportion of the scheduled tribes' population.

Map 14

JAIPUR CITY REGION
GROWTH OF POPULATION
(1961 - 1971)



The second zone shows that there exists a very high population growth in the entire middle-western part which is extended up to the Sanganer town in the southern part. There exist two patches belonging to high category, one in the south-eastern end the other in the north-eastern part. In-between these trends, there exists a very low category in the form of small patches. The entire southern and eastern parts fall in the category of low population growth.

In the third zone, there are four small patches of very high population growth, two towards the northern part and the other two towards the middle-western part. Some very small patches exist towards the south-eastern part. All these patches are observed along the Railways and National highways. The entire eastern and southern parts, followed by some portion of north-eastern and a patch towards the middle-western part, fall in the low category of 15 per cent to 30 per cent of population growth. In-between these trends there exists an area belonging to very low category of less than 15 per cent, which is extended up to the outermost zone. The entire northern and the middle-western part shows population growth of the high category of 30 per cent to 45 per cent.

The fourth zone shows that there exists a dominance of the population growth between 15 per cent to 30 per cent (the National Average). However, there exist very low and very high categories in the form of small patches. A big patch of very high category exists towards the north-western part and a

small patch towards the Chomu town. Likewise small patches can be observed along the transport network. The entire north-western and south-western part shows that there exists a low category.

In brief, the map depicts that there exists a very high population growth around Jaipur City which is extended towards the western and northern region. There exists a high population growth in the western region than the eastern region. Nearly 90 settlements show the declining trend in population during the 1961-71 decade in the Jaipur Region. Many of them, which are uninhabited during the decade, are located in the forest, rugged, sandy and hilly areas. The settlements showing high population growth also have high social facilities and high infrastructural facilities. For example, the Jaipur City, Chomu town, Sanganer town and large population size settlements, are situated along the transport network.

Both the hypotheses get justified, firstly there exists an inverse relationship between the distance and population growth, and secondly the development takes place in towns and also in those settlements where the population growth is high. The overall conclusion is that the population growth is dominant in the core area and in the western region. The city does not show any dominant characteristics and its influence is confined within its area only.

(b) Density of Population: The mean density of population in the Jaipur Region is 509 persons per square mile. This is high as compared to the 425 persons per sq. mile of the Nation.

Considering mile to mile density, there exists a maximum density of 1832 and minimum density of 311 in the zones of 3 to 4 and 18 to 19 miles respectively. Likewise on five-mile-zone analysis, the density values vary from 326 to 1120 persons per sq. mile in Zones I and IV. All zones except the first one show that there exists a density of less than National Average (Table 4.1). Graph No.4 shows that there exists a high density up to the distance of 7 miles, beyond which the fluctuation continues up to 15 miles and after that a constant trend is observed. The zone of the city's influence is, therefore, extended up to a radius of 7 miles only.

There exists a highly significant correlation between density with size of population, social amenities, literacy rate and tertiary workers (Appendices No.10 to 14). The values of the correlation very from 1.00 with social amenities to -0.443 with primary workers. The reason of high positive correlation with the above stated variables is the existence of the Jaipur City, which is the service-cum-industrial city.

Zone II shows a low correlation of density with other variables, the values of which vary from 0.334 with secondary workers to -0.124 with total workers.

Zone III shows a very low correlation of density with other variables, the values of which vary from 0.213 with literacy to -0.169 with primary workers.

Zone IV and the Region as a whole show a corresponding pattern as found in the earlier zones.

Map No.15 depicts that there exist three categories of the density of population in the Region, i.e., the low category of less than 288 persons per sq. mile, the high category of 288 to 480 persons per sq. mile and the very high category of more than 480 persons per sq. mile. The entire Zone I shows that there exists a very high category of density, except the northern part, which shows a low category.

In Zone II, there are three compact patches of very high density. This is an extension of Zone I in Amber, Sanganer and north-western part along the railway line. These patches are further extended up to Zone III along the National highways. In the eastern part, a low category of density is observed.

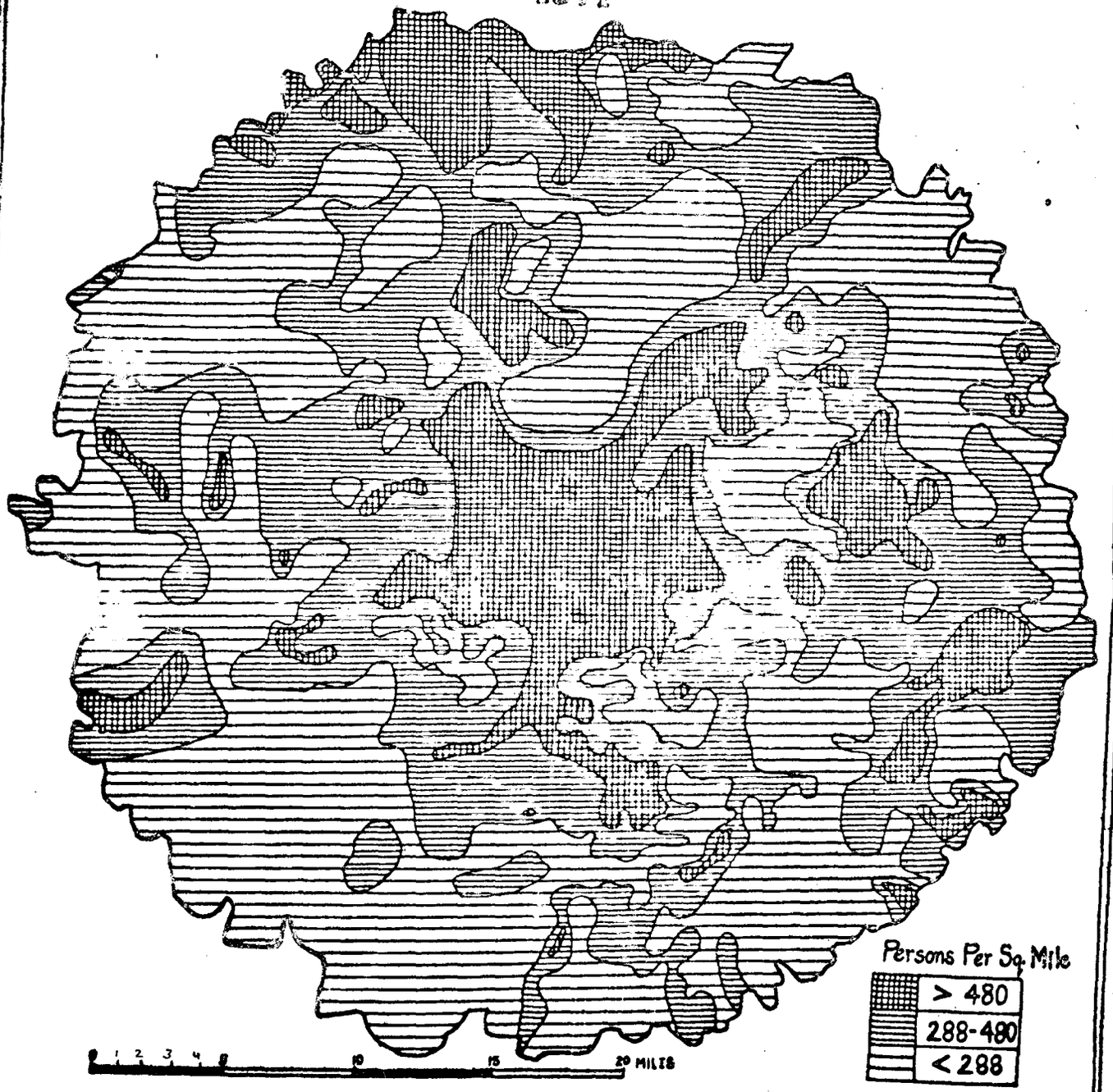
The entire Zone III shows that there exists a low density except the north-western and middle-southern parts, where a high category of density is observed. There exists a very high category of density in the north-western part in the Chomu town and its surrounding area. Again a very high category is observed in the middle-eastern part in a big patch and in a form of small patches throughout the zone.

The entire IVth Zone experiencing a low density of less than 288 persons per sq. mile, except the northern and south-eastern parts, where the high category is observed.

The map depicts that the density of more than 480 persons per sq. mile is compact around the city which is further extended up to south-western part of Sanganer town, up to north-eastern part of the Amber town and along the transport network.

Map 15

JAIPUR CITY REGION
POPULATION DENSITY
1971



This is observed in the form of patches. The hypothesis is, therefore, justified that there is an inverse relationship between the distance and the density of population. The overall analysis reveals that the Jaipur City shows its influence up to a radius of 7 miles only.

(c) Sex-Ratio: The sex composition of a population has some demographic and socio-economic implications. The demographic implications result from the relationship between the sex composition and the fertility potential of the population studied. The socio-economic implications result from the fact that the two sexes differ considerably with respect to their participation in gainful work. The sex composition around the city region suggests that there exists unevenness, near the city than away from it. This is mainly due to the male migration from the rural areas to the city in search of employment. Since their place of work is city and place of residence is the suburban part of the city, which increases not only the growth and density of population in the villages nearby city but also disturbs the sex ratio. However, as the distance from the city increases, less and less inmigration takes place and sex ratio increases.

In Jaipur region there are 844 female per thousand male population, which is lower than the average of 930 for the country as a whole. Analysing this on one mile zone basis, the values of sex ratio vary from 846 to 972 in the two zones of 2 to 3 mile and 11 to 12 mile respectively (Table 4.1). On the other hand on 5 miles zone basis, the result indicates that Zone III has a

maximum sex ratio of 916 and Zone I has a minimum sex ratio of 863. Graph No.4 shows that there exists a uniform trend up to the distance of 5 miles followed by fluctuations, which continue up to the distance of 12 miles where this ratio becomes the highest. Beyond this the same uniform trend is observed as before.

The sex-ratio does not show any significant correlation with variables like literacy rate, total workers and social amenities. In almost all the zones, there exists a very weak correlation. It reveals that these variables are inversely related with the sex-ratio. This is because of the fact that the low sex ratio is observed in the towns and large settlements which have high literacy, social amenities and tertiary workers (Appendices 10 to 14).

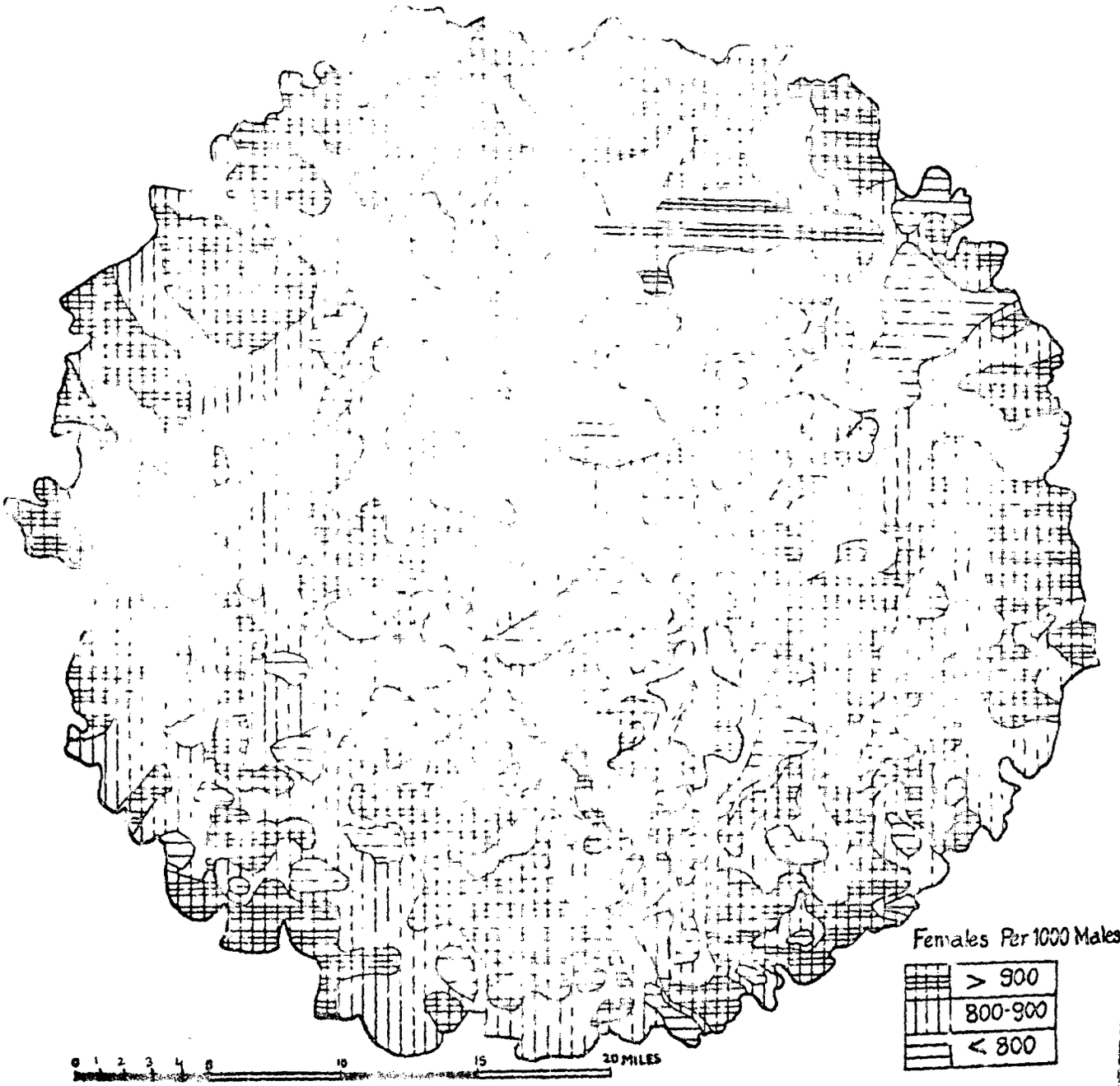
There are three categories of sex ratios as have been shown on Map No. 16. These categories are: low category of less than 800 female per 1000 male, the medium category of 800 to 900 females per thousand male and the high category of more than 900 females per thousand male. The Ist Zone shows that there exists low female ratio towards the southern and northern parts in the form of big patches and also towards the north-western area in a small patch. In the middle-eastern part, there exists a high category of sex ratio because of the dominance of the Scheduled tribes population in those areas. The rest of the area shows the medium sex ratio.

The IInd Zone shows that there exists a large belt of the medium category in the northern part and throughout the zone.

Map 16

JAIPUR CITY REGION

SEX RATIO 197[illegible]



In-between them there exists a low category in the form of small patches. There is a high category of sex ratio in the north and middle of the western part in two patches. It also exists in small patches in the southern part. In the north-east, it exists in the form of continuous patch which is extended up to the south-eastern part except in between them small patches of low category are observed.

The IIIrd Zone shows that there exists a high female ratio in the northern and middle-eastern part. The middle-eastern part is the contiguous belt of the IInd Zone. Another contiguous belt exists in the south-western part which is extended up to the outmost zone. It also exists in the form of small patches in the southern, middle-western and north-western parts. A low sex ratio is observed in the north-eastern part, which is extended up to the outermost zone. Southern part has small patches of this category. The rest of the area enjoys the medium category but most of them are observed in the western part.

The IVth Zone shows that there exists medium category of the sex ratio in the entire southern, eastern and north-eastern parts, which is the contiguous patch of the IIIrd Zone. Again the entire northern part shows the existence of the two isolines one after the other of 800 and 900 in a simultaneous belt throughout the zone, excluding the Chomu town.

In brief,the table, the graph and the map depicts that the low sex ratio is observed near the city which increases with every increase in the distance. This shows the positive relationship between the two. Our hypothesis, therefore, comes out

to be true.

II.(a) Literacy Rate: Capital and manpower are essential for the exploitation of national physical resources. In other words, efficient manpower can make the best use of capital and natural resources of the country. One of the factors for economic development, therefore, is that the country must have competent manpower. Instrument in human agent through education is a necessary precondition for rapid economic development. In a country like India, where a large proportion of the population is still illiterate, the expansion of literacy would go on long way in promoting economic development of this country. Here, we are concerned with the literacy rate of the region only; in which a person with an ability to read and write is defined as literate.

In Jaipur region the literacy rate is 17.28 per cent only. This is very low as compared to the all India literacy rate of 29.45 per cent (Table 4.1). The values of literacy rate vary from 9.11 per cent to 55.70 per cent in the two zones of 14 to 15 mile and 1 to 2 mile. The variations, however, are very large between the city zone and the rest of the zones. This is because of the high level of educational facilities available in the cities in comparison to the rest of the region. The mean literacy rate for five-mile-zone, shows that the highest literacy rate is 30.44 per cent in the Ist Zone and lowest literacy rate is 10.68 in Zone III.

In graph No.4, the curve shows a declining trend up to a distance of 6 miles, followed by the steady trend up to 8 miles and beyond that, a fluctuating trend up to 15 miles. After that, there is a steady increase in the successive distance up to 19 miles and a rapid increase in the trend at 20 mile radius, which in fact is due to the presence of the Chomu town. The city influence is observed up to the distance of 6 miles only.

The correlation matrix (Appendices 10 to 14) shows that there exists a high correlation between the literacy with the other variables, like population size, social amenities, density at 1 per cent level of significance. The values of the correlation vary from 0.811 with population size to -0.363 with primary workers.

In Zone II we find a low correlation between the literacy with other variables, the values of which vary from 0.383 with educational facilities to -0.218 with sex ratio.

The IIIrd Zone shows the same pattern. The values of the correlation in this zone vary from 0.429 with tertiary workers to -0.478 with primary workers.

Zone IV shows a low correlation of literacy among the other variables, the values of which vary from 0.374 with tertiary workers to -0.577 with primary workers.

The Jaipur city Region as a whole shows the same correlation as in the fourth zone. The correlation values vary

from 0.346 with tertiary workers to -0.176 with sex ratio. The literacy rate, therefore, show the positive relation with social amenities, population size, secondary workers, tertiary workers and density. On the other hand, a negative correlation is observed with sex-ratio and primary workers.

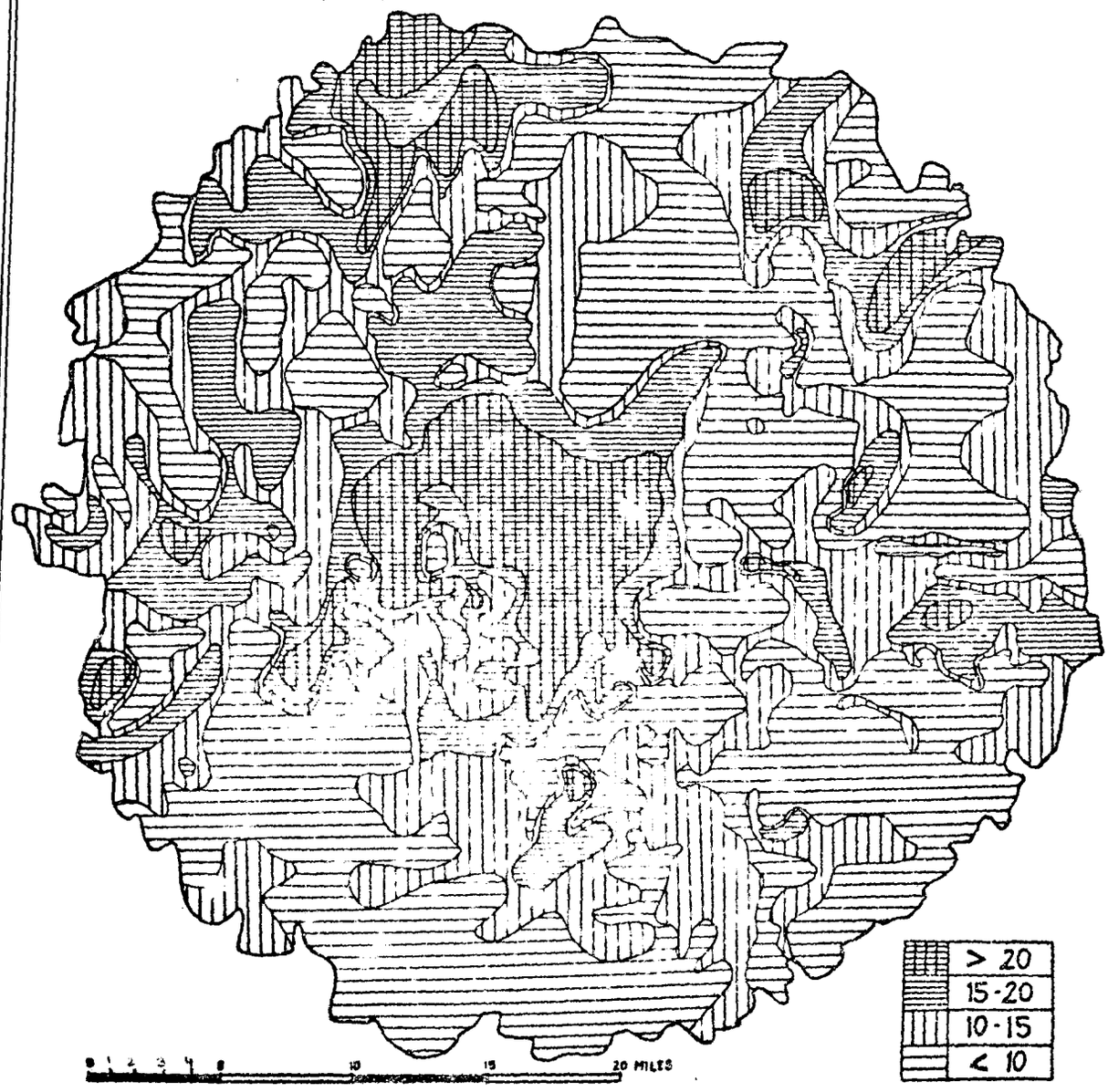
Map No.17 depicts that there are four categories of the literacy rate, i.e., the very low category of less than 10 per cent, low category of 10 per cent to 15 per cent, high category of 15 per cent to 20 per cent and very high category of more than 20 per cent. Zone I shows that there exists a very high category of literacy rate which is extended up to Zone II in the north and south-western parts of Amber and Sanganer town.

Zone II shows that there exists a high category of literacy rate in the western part. The very low category of literacy rate exists in this zone in the entire southern and eastern parts.

Zone III shows that a very high category of literacy in the form of small patches is observed here and there throughout the zone. The high category of literacy is observed in the north-western part in the form of big patch and also in the north, south and eastern parts in the form of small patches. The rest of the parts are covered with the 10 to 15 isolines. Most of the eastern part shows that there exists a very low category of literacy rate, because of the lack of transport network and social amenities.

Map. 17

JAIPUR CITY REGION
PERCENTAGE OF LITERACY 1971



Zone IV shows that there exists a very low category of literacy rate as compared to other inner zones. The entire southern part shows that there exists a very low category. While moving upwards the northern areas, the low category of literacy is also observed. There exists a high category of literacy towards middle-western, middle-eastern, north-eastern and entire north-western parts. The very high category exists towards the north-western in the Chomu town, also exists in three small patches, one toward the south-western and another two towards the north-eastern part.

In conclusion the map depicts that there exists a very high literacy rate in the centre which is extended towards the western region. Likewise, it exists in other towns and in the large settlements. The high category of literacy rate exists along the transport network. The map also depicts that it is western region which has a high literacy rate rather than the eastern region. The graph, the table and the map, therefore, indicate that there exists an inverse relationship between the distance and the literacy rate. Likewise the development takes place in the towns and other large settlements where more literate people are available. Both the hypotheses are, therefore, confirmed.

(b) Scheduled Caste: The mean scheduled caste population of the Jaipur Region is 14.98 per cent. This is equal to the mean scheduled caste population of the Nation as a whole, i.e., 14.60 per cent. State as a whole has a higher proportion of 16 per cent, most of which live in the rural settlements.

The proportion of the Scheduled Caste population vary from 3.37 per cent to 24.77 per cent in the zone of 1 to 2 mile and 6 to 7 mile respectively. Analysis based on the five-mile-zone reveals that the proportion of Scheduled caste population vary from 12.60 per cent to 20.07 per cent in the Ist Zone and IInd Zone respectively. Graph No.4 reveals that the scheduled caste increases with an increase in the distance from Jaipur which is the reference point in our analysis. The lowest point is observed at the distance of 2 mile which increases up to the highest point at the distance of 7 miles. Then a sharp turning point is observed, which is followed by a fluctuating trend up to the distance of 16 miles. Beyond this, again an increase in the trend is observed which is noticed up to the distance of 19 miles. Then a slight decline in the trend is observed at 20 miles, which may be due to the occurrence of the Chomu town. We, therefore, can say that near the city the Scheduled Caste population is present because of the opportunities of work available in the city.

The correlation matrix (Appendices 10 to 14) depicts that in Zone I, the correlation between scheduled caste and other variables is very low, except sex ratio, total workers, tertiary workers and secondary workers. The correlation values vary from 0.441 with secondary workers to -0.347 with primary workers. The correlation with secondary workers is high because in the city area, most of the scheduled caste population is engaged in the secondary workers.

Zone II has a different picture. There exists a significant correlation between the scheduled caste with other variables, the values of which vary from 0.362 with primary workers to -0.185 with tertiary workers. The reason is that in the rural settlements the primary activities are the dominant occupations of the scheduled caste population.

In Zone III, there exists an insignificant, very low correlation, between the scheduled caste with other variables. The correlation values vary from 0.109 with density to -0.246 with scheduled tribes population.

Likewise in the IVth Zone, the correlation values vary from 0.169 with secondary workers to -0.152 with scheduled tribes population, but at 1 per cent with the secondary workers is due to the occurrence of the Chomu town.

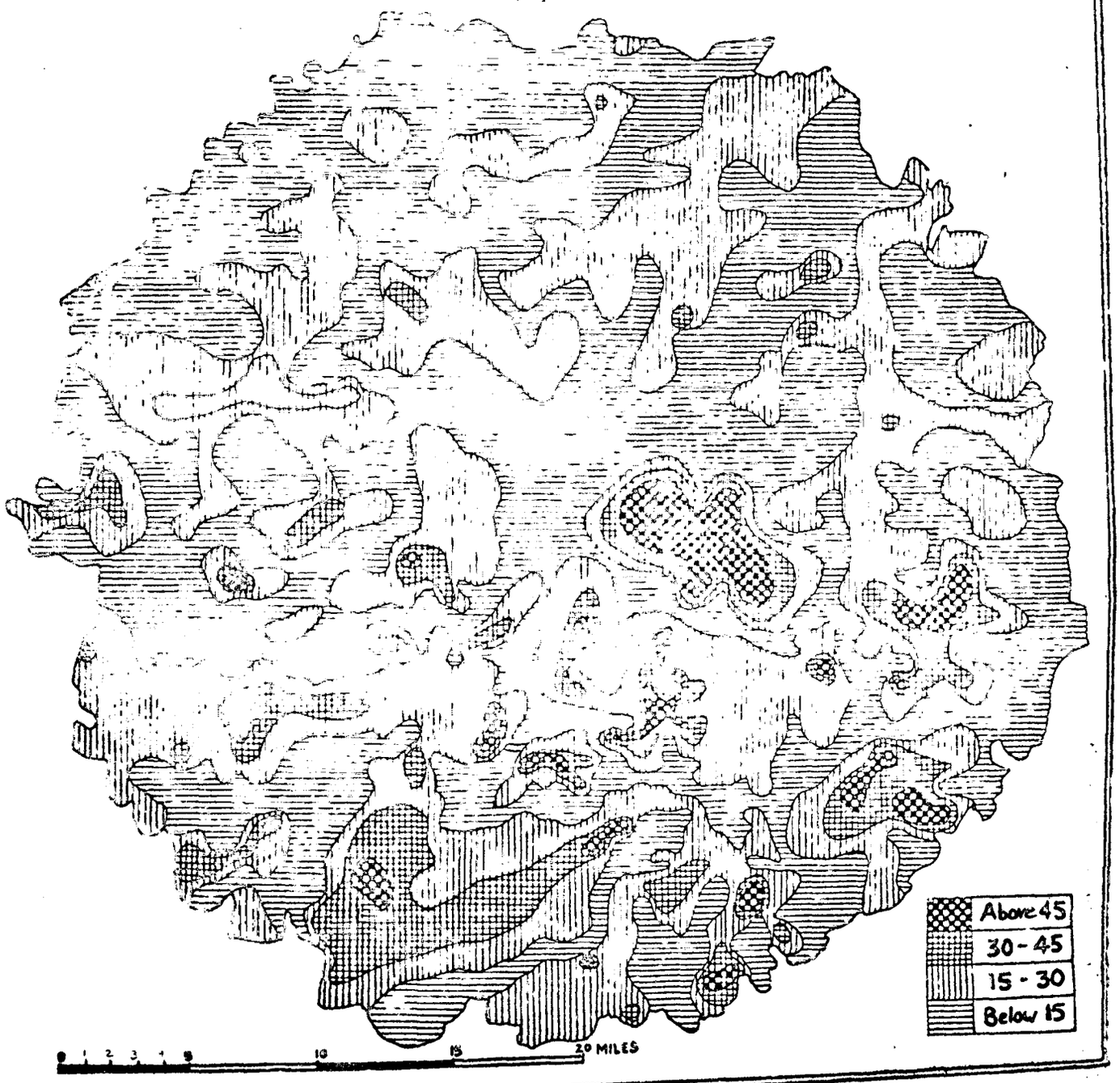
The Region as a whole shows that there exists a significant correlation of scheduled castes with primary workers, secondary workers, population size and infrastructural facilities. The values of the correlation vary from 0.142 with primary workers to -0.086 with the scheduled tribes population. The scheduled caste population, therefore, shows a positive relationship with primary workers, secondary workers, population size, sex ratio and total workers and a negative relation with educational facilities and literacy rate.

Map No.18 shows that there are four categories of scheduled caste population. The categories are very low, low, high and very high. These in terms of percentage are less than

Map 18

JAIPUR CITY REGION

PERCENTAGE OF SCHEDULED CASTE



15 per cent, 15 per cent to 30 per cent, 30 per cent to 45 per cent and more than 45 per cent respectively. The picture is more clear, when it is analysed in terms of the Region as a whole. The map reveal that there exists a very high category of scheduled caste population in the middle-eastern, south-eastern regions and just towards the east of Jaipur City also, in the form of small patches. In the south-western and northern region a very high category of scheduled caste population is observed in smaller patches as compared to other patches. The high category is found around these patches, which is more in the southern region rather than the northern region. Again the low category exists around these high patches, which is observed in a contiguous belt-form in the southern region. Likewise the successive region is covered by the very low category, but more toward the northern region. Towards the southern region the very low category is observed which is found in between the low category.

In brief from the map, graph and table, it depicts that the entire core area, most of the northern region, the southern and the outer-most zone shows that there exists a very low category. The very high category is observed in the south-eastern and south-western regions. The city's influence is up to the distance of 7 miles only. The highest proportion of scheduled caste population is observed in the primary activities. The hypothesis is justified that there exists a positive relationship between the distance and the scheduled tribes population.

(c) Scheduled Tribes: The mean percentage of scheduled tribes population of Jaipur Region is 16.16 per cent. This is higher as compared to the mean scheduled tribes population of the Nation which is 6.94 per cent only. The Jaipur State shows that there exists a low percentage of scheduled tribes population, i.e., 12 per cent only. The bulk of them reside in the rural areas, their proportion in the urban areas being only 1.49 per cent. The values of the percentage of scheduled tribes population analysed on the one mile zone basis vary from 0.47 per cent to 43.36 per cent in the two zones of 1 to 2 mile and 6 to 7 mile respectively. On the five-mile-zone analysis, the percentage of scheduled tribe population vary from 4.32 per cent to 25.87 per cent in the Ist Zone and IInd Zone. Graph No.4 shows that there exists a positive relationship between the distance and the scheduled tribes. The lowest population of scheduled tribes is observed at the distance of 2 mile and the highest at the distance of 7 mile. There is a sharp increase in the trend up to 7 miles followed by a sharp decline trend at 8 mile. The fluctuating trend is observed up to 20 miles. Between the 5 to 8 mile zone, a high proportion of the scheduled tribe population is observed. This is because when they migrate, they prefer to settle around the city area in the band of 5 to 8 miles of radius, so that they easily visit the city for daily work.

In the Ist Zone, the scheduled tribe population shows an overall picture of negative correlation with other variables. However, the highly positive correlation of 0.666 exists between

scheduled tribe and total workers and highly negative correlation of -0.502 between the scheduled tribe and dependency ratio (Appendices Nos. 10 to 14).

The IInd Zone shows that there exists a high correlation among the variables at 1 per cent level of significance. The correlation values vary from 0.802 with population size to -0.272 with sex ratio. Since most of the male scheduled tribe population are observed in this zone, so sex ratio is low. These scheduled tribe population are engaged in the primary activities and secondary activities, which shows a highly significant correlation.

The IIIrd Zone shows that there exists a weak correlation of scheduled tribe with the other variables except with primary workers, where a highly correlation is observed at 5 per cent level of significance. This is because most of them are engaged in the primary activities in this zone. The correlation values vary from 0.141 with primary workers to -0.260 with literacy rate.

The IVth Zone shows that there exists a weak correlation of scheduled tribe population with other variables. With the total workers, it shows a high correlation at 1 per cent level of significance. The correlation values vary from 0.153 with total workers to -0.152 with Scheduled Caste population.

The region as a whole reveals that there exists a very high correlation between scheduled tribe population with all other variables like primary workers, infrastructural facilities, population size, secondary workers and total workers. The values

of the correlation vary from 0.511 with the primary workers to -0.127 with sex ratio.

According to Map No.19 there are three categories of scheduled tribe population. These are (i) low category of less than 15 per cent, (ii) medium category of 15 per cent to 45 per cent and (iii) high category of more than 45 per cent. The map reveals that if the whole region is divided into two parts, i.e., (i) the entire western part on the one hand and (ii) the entire eastern part on the other hand, a clear cut pattern is emerged.

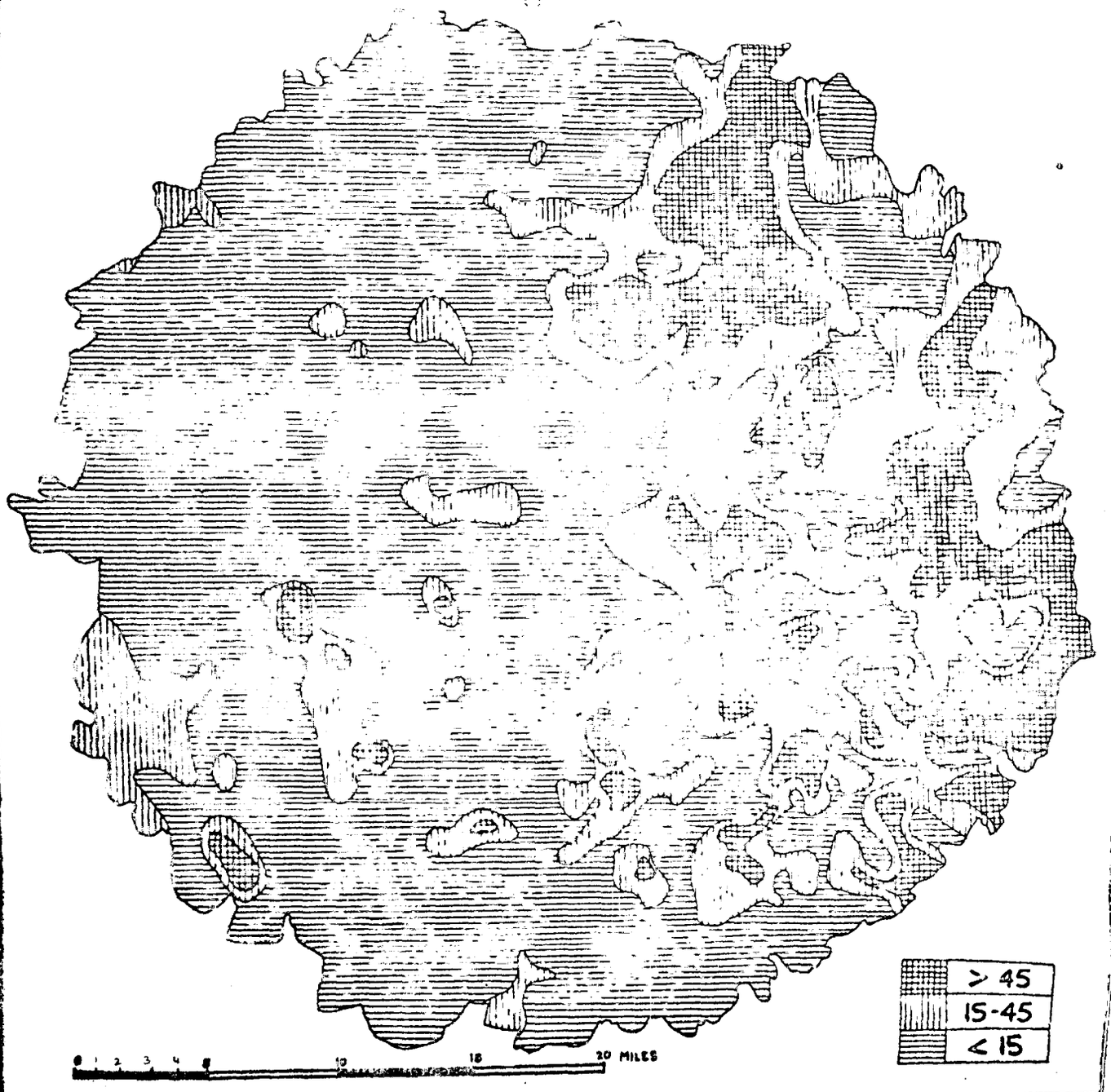
The entire western region shows that there exists a low category of scheduled tribe population except small patches of the high and medium categories which are observed towards the northern, south-western and middle-southern regions.

On the other hand, entire eastern region shows that there exists a high category of scheduled tribe population. But in between them there are four big patches of the low category. The first one exists towards the Jamwaramgarh village area in Zone III, which is extended northward in Zone IV. The second one is found in the middle-western area just near Amber and Jaipur City in Zone II. The third one is towards the Kasba Bassi village area in Zone III, which is extended longitudinally. Towards the south-eastern region, there exists a high category but in a discontinuous small patches which is surrounded by the medium category. It is observed at the north-eastern side from the IInd Zone in a form of narrow strip which is extended up the

Map 19

JAIPUR CITY REGION

PERCENTAGE OF SCHEDULED TRIBES



the southern part of the IIIrd Zone. Likewise, another narrow strip is observed in the IIIrd Zone along the north-eastern and is extended up to the south-western part. The third high category is observed in the IVth zone in the south-eastern part. However, in between these strips there exists a low category of the scheduled tribe population.

In brief, the map, shows that the scheduled tribe population is observed more towards the eastern region rather than towards the western region. They are mainly engaged in the primary activities. Most of them are observed in the IIIrd and IVth Zones, in the area which is undeveloped, where transport facilities are poor and which have rugged topography. The hypothesis, thus holds good that there exists a positive relationship between distance and scheduled tribe population.

(d) Dependency Ratio: Jaipur City region enjoys the dependency ratio of 2.07 which is almost the same of the country as a whole, i.e., 2.04. On milewise analysis, the dependency ratio values varies from 1.78 to 2.88 in the zones of 8 to 9 mile and 1 to 2 mile respectively. The inner-most zone gained the maximum increase in the dependency ratio of 2.52 whereas the third zone has the minimum dependency ratio of 2.00 only. Graph No.4 shows that with an increase in the distance the dependency ratio decreases up to 5 miles. Beyond the distance of five mile there exists a fluctuating trend up the distance of 11 miles. After that a steady increase in the dependency ratio is observed up to 19 miles and then the trend decreases. In

general, the dependency ratio exhibits inverse relationship with the distance. But there are exceptions beyond the distance of 11 miles, which shows a steady increase in the trend.

The Ist Zone shows that there exists a very low correlation between the dependency ratio with the other variables, the values of which vary from 0.335 with population size to -0.971 with total workers (Appendices 10 to 14). This is because of the fact that in the higher population size settlements the fertility and migration are high. Also because of the school going population is high in the city, which shows a perfectly negative correlation with the total workers.

In the IInd Zone, the correlation values vary from 0.327 with sex ratio to -0.906 with total workers at 1 per cent level of significance. This is due to the low participation rate of the female population.

In the IIIrd Zone, the correlation values vary from 0.083 with educational facilities to -0.920 with total workers.

In the IVth Zone, the correlation values vary from 0.039 with density to -0.720 with total workers.

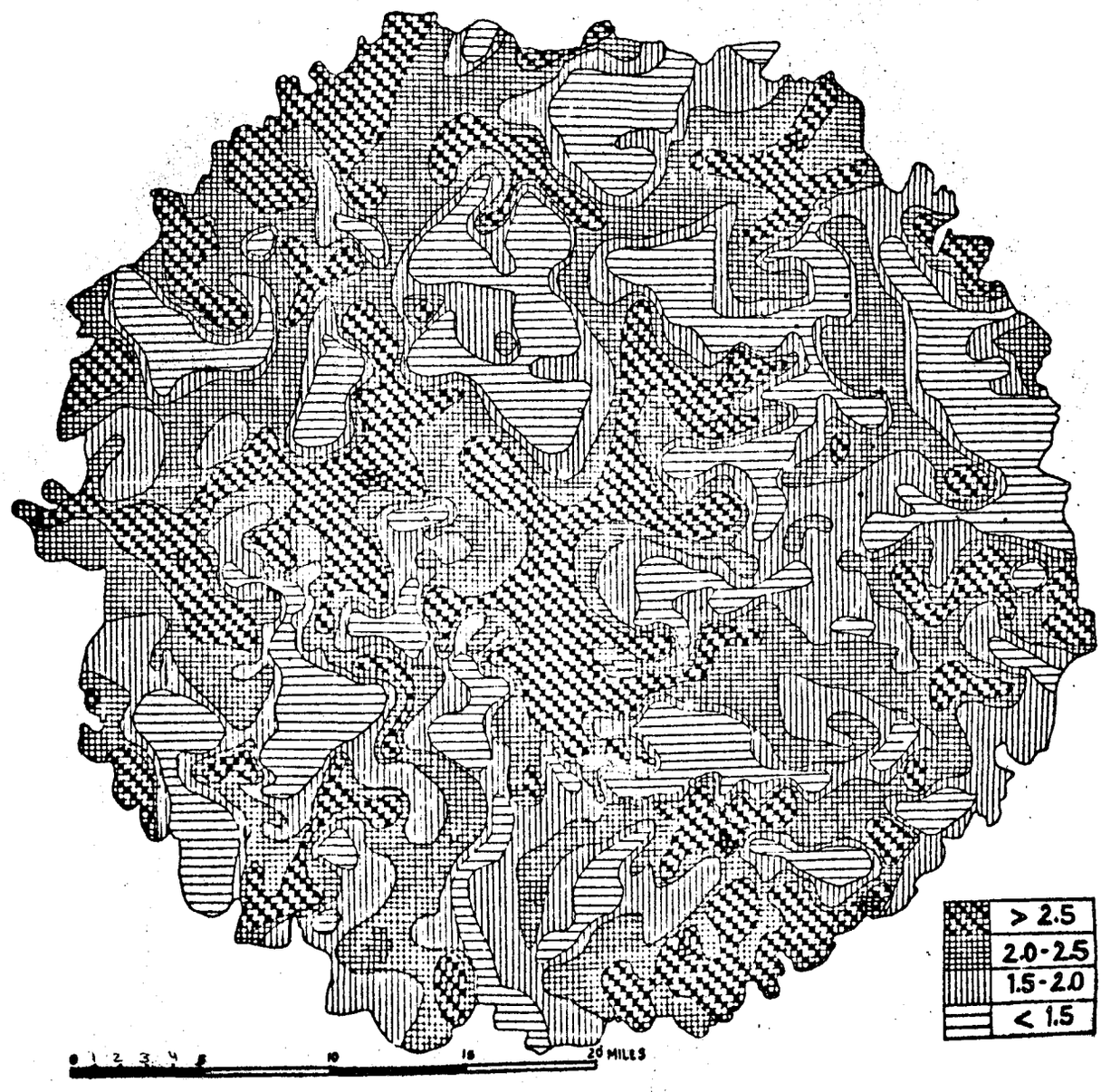
Similarly, the region as a whole shows the same correlation pattern, the values of which vary from 0.146 with sex ratio to -0.842 with total workers. The correlation matrix shows that there exists a positive relationship between the dependency ratio with sex ratio, population size, density and educational facilities and a perfectly negative correlation with total workers.

Map No.20 shows that there are four categories: the first very low category records less than 1.5 ratio; the second low category records the ratio between 1.5 to 2.0, the third high category records the ratio between 2.0 to 2.5 and the last fourth very high category records the ratio more than 2.5. The picture is not clearly depicted while analysis on five-mile-zone. Therefore, the region as a whole, shows that there exists a very high dependency ratio at the Jaipur City, towns, big settlements and settlements along the National and State highways. A continuous belt of very high dependency ratio is observed from the Amber town in the north-eastern part, which is extended up to the Sanganer town in the south-western part. Similarly another continuous belt is found just near the Jaipur City. This belt is observed in the IInd Zone in the north-western part, which is extended latitudinally up to the south-western part in the outermost zone. The western region show the higher dependency ratio in comparison to the eastern region. Since a large size of the scheduled tribe and scheduled caste population, undeveloped and rugged topography are observed in the eastern region, a major portion of population is engaged in the primary activities. Though these people face several seasonal unemployment, however, they are counted as independent because they are found working at the time of enumeration. This may be one of the reasons for low dependency ratio.

Again, due to the more developed area, a large number of dependent people can be afforded by one earning person. On the other hand, in the rural settlements, there exists surplus

Map. 20

JAIPUR CITY REGION
DEPENDENCY - RATIO 1971



labourers in the form of disguised unemployment. They may be counted as independent which further lowers down the dependency ratio. The graph also shows that the dependency ratio is low at 5 to 6 miles, whereas the scheduled tribes, scheduled castes population are more dominant.

Both the hypotheses get confirmed because (i) there exists an inverse relationship between the distance with the dependency ratio and (ii) the towns and the larger settlements have high dependency ratio because they are developing due to the availability of higher education, technical/professional training facilities. The existence of these facilities is an indication of the fact that the area concerned is not backward. These facilities together with other supporting facilities are definite reflection of the high level of development.

In conclusion taking some demographic variables, we find that there exists a positive relationship among the variables of population growth, density and literacy rate. These variables are inversely related to the distance. They are dominant in the core area and along the transport network.

On the other hand, these above stated variables are negatively related with the sex-ratio, scheduled caste, scheduled tribes and dependency ratio. These variables have positive relationship with the distance. Their trend is observed more towards the outer zones and in the eastern region rather than in the western region.

CHAPTER V

ECONOMIC STRUCTURE OF THE REGION

The type of economic organisation adopted by a community to produce its goods and services can be gauged from the statistics relating to the industrial composition of workers. In a predominantly agrarian society like India, a large proportion of workers is engaged in agricultural or primary sector. As the economy experiences industrialisation, there is a structural change in the pattern of employment, involving a movement from agricultural to non-agricultural pursuits. These statistics, therefore, are rough indicators of the economic progress achieved, the type of goods and services produced and the extent of division of labour and specialisation functions.

In this Chapter, we are mainly concentrating on the occupational structure of the region based on the Indian Standard Industrial classification of 1971 census data. The settlements play an important role in the economy of a human society, the towns and rural settlements have their different sets of economy. Therefore, the most important attribute is that, the impact of the city may show a remarkable change in occupational structure of the settlements. The tendency towards non-agricultural occupations measures the degree of city's influence on its region (hinterland).

The three broad categories of the workers analysed are as follows:

A. Primary Activities

(i) Cultivators,

(ii) Agricultural labourers, and

(iii) Workers engaged in livestock, forestry, fishing, hunting and plantation, orchards and allied activities.

B. Secondary Activities

Workers engaged in the following activities:-

(i) Mining and Quarrying,

(ii) Manufacturing, processing services and repairs, and

(iii) Construction.

C. Tertiary Activities

Workers engaged in the following activities:-

(i) Trade and Commerce,

(ii) Transport Storage and Communication,

(iii) Other services.

(i) PRIMARY ACTIVITIES:

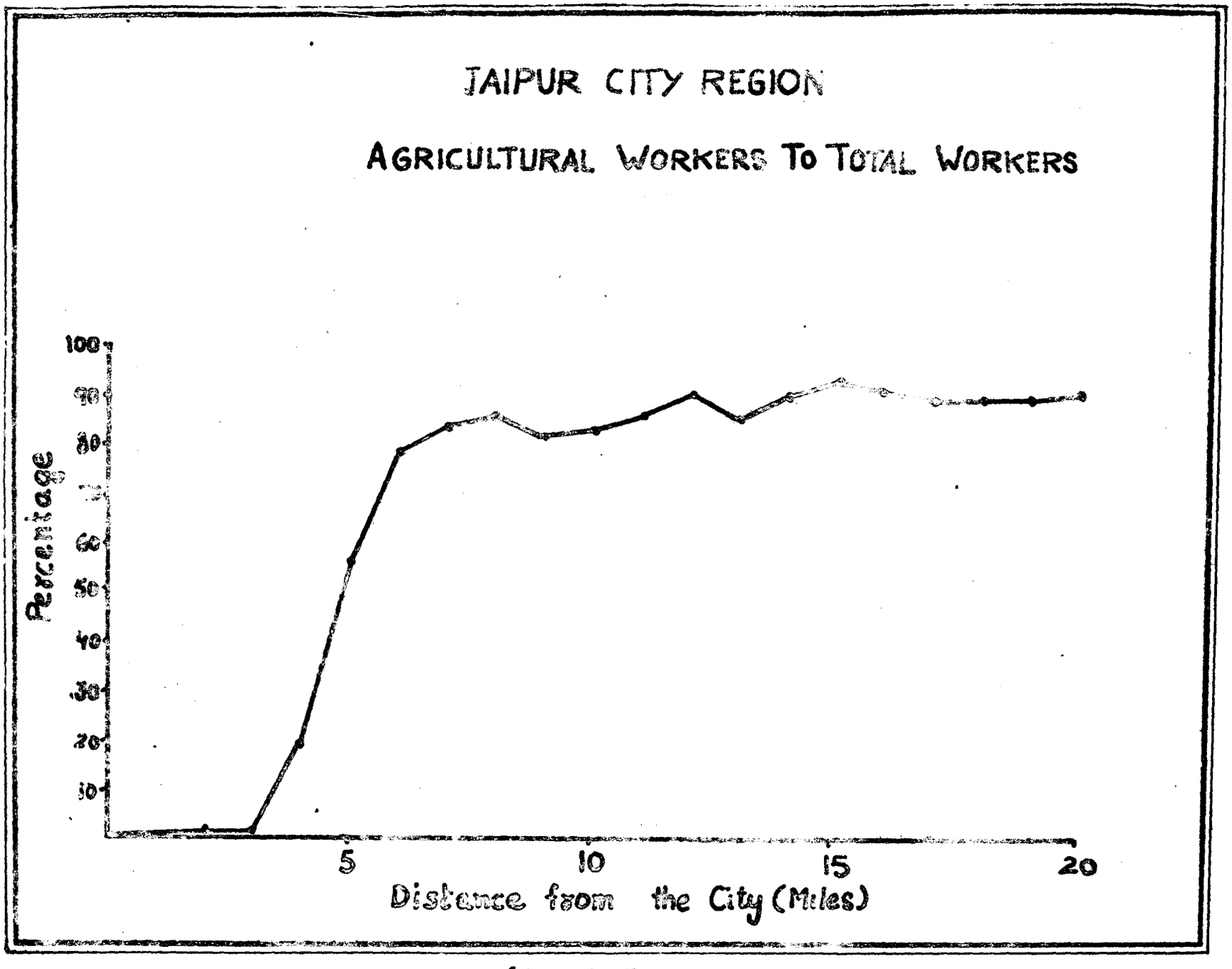
The Jaipur Region is mainly the agricultural region. The mean percentage of workers in Primary activities of the Jaipur Region is 71.28 per cent. This is lower as compared to the all India level of 72.05 per cent according to census 1971. Taking one-mile-zone analysis, the mean percentage of workers engaged in primary activities to total workers varies from 1.03 per cent to 93.23 per cent in the 2 to 3 mile zone and 14 to 15 mile zone respectively. It shows that there is a wide

range of variation. When we adopt five-miles-zones analysis, we find that there is an increase in the percentage with every increase in distance from the city. It establishes the positive relationship with the distance. The Table 5.1 depicts that the first-five-mile-zone has the minimum percentage of 16.50, and the fourth five-mile-zone has the maximum percentage of 89.56. Graph No.5 shows that there exists a positive skew as the distance increases from the city. The percentage of workers in Agricultural activities goes on increasing after 5 miles of distance from the city. The zone of the city's influence, thus, extends up to approximately a radius of six miles.

The correlation matrix (Appendices 10 to 14), in the first five-mile zone, shows that there is an insignificant positive correlation between primary workers with other variables. However, when primary workers are correlated with secondary workers, a highly negative correlation is found. The values of correlation vary from 0.407 with total workers to -0.814 with secondary workers. The reason behind such a relationship seems to be that Jaipur City falls in the service-cum-industry function category.

The reverse situation is observed in the 2nd zone. A highly significant correlation exists between primary workers on the one hand and other variables like population-size, social amenities, scheduled tribes, scheduled caste, literacy, total workers and secondary workers. The values of correlation vary from 0.953 with population-size to -0.412 with sex ratio. The negative correlation value with sex ratio is the result of the

GRAPH NO. 5



GRAPH No. 5

Table 5.1

MEANS IN EACH MILE OF DISTANCE FROM JAIPUR
(Economic Aspects)

	Percentage of primary workers	Percentage of Secondary workers	Percentage of Tertiary workers
Up to 1 mile	-	-	-
1-2 mile	1.04	29.75	69.83
2-3 mile	1.03	29.95	63.08
3-4 mile	19.80	31.40	48.80
4-5 mile	56.94	16.32	26.91
(I Five Miles)	(16.50)	(27.10)	(57.00)
5-6 mile	98.96	4.71	16.25
6-7 mile	84.44	6.52	8.70
7-8 mile	86.44	5.56	7.69
8-9 mile	81.81	6.60	11.41
9-10 mile	83.10	6.38	10.45
(II Five Miles)	(83.30)	(6.17)	(10.52)
10-11 miles	86.31	6.57	7.03
11-12 mile	90.23	4.09	5.50
12-12 mile	85.44	5.33	8.88
13-14 mile	90.28	3.96	5.50
14-15 mile	93.23	2.84	3.92
(III Five Miles)	(88.93)	(4.54)	(6.35)
15-16 mile	91.39	2.94	5.92
16-17 mile	88.83	5.15	5.62
17-18 mile	88.78	5.32	5.82
18-19 mile	88.98	5.35	5.61
19-20 mile	89.62	3.81	6.44
(IV Five Miles)	(89.56)	(4.86)	(5.85)
Jaipur Region	(69.28)	(9.09)	(19.44)

migration of male population from outer zones and settling down around the city region to work in the Jaipur City.

The third zone, which is composed only of rural settlements, does not show any high correlation. But with scheduled tribes, it shows a weak positive correlation of 0.141, significant at 5 per cent level, and with tertiary workers, highly negative correlation a value of -0.861. The entire zone have only rural settlements, therefore, the tertiary sector is weak.

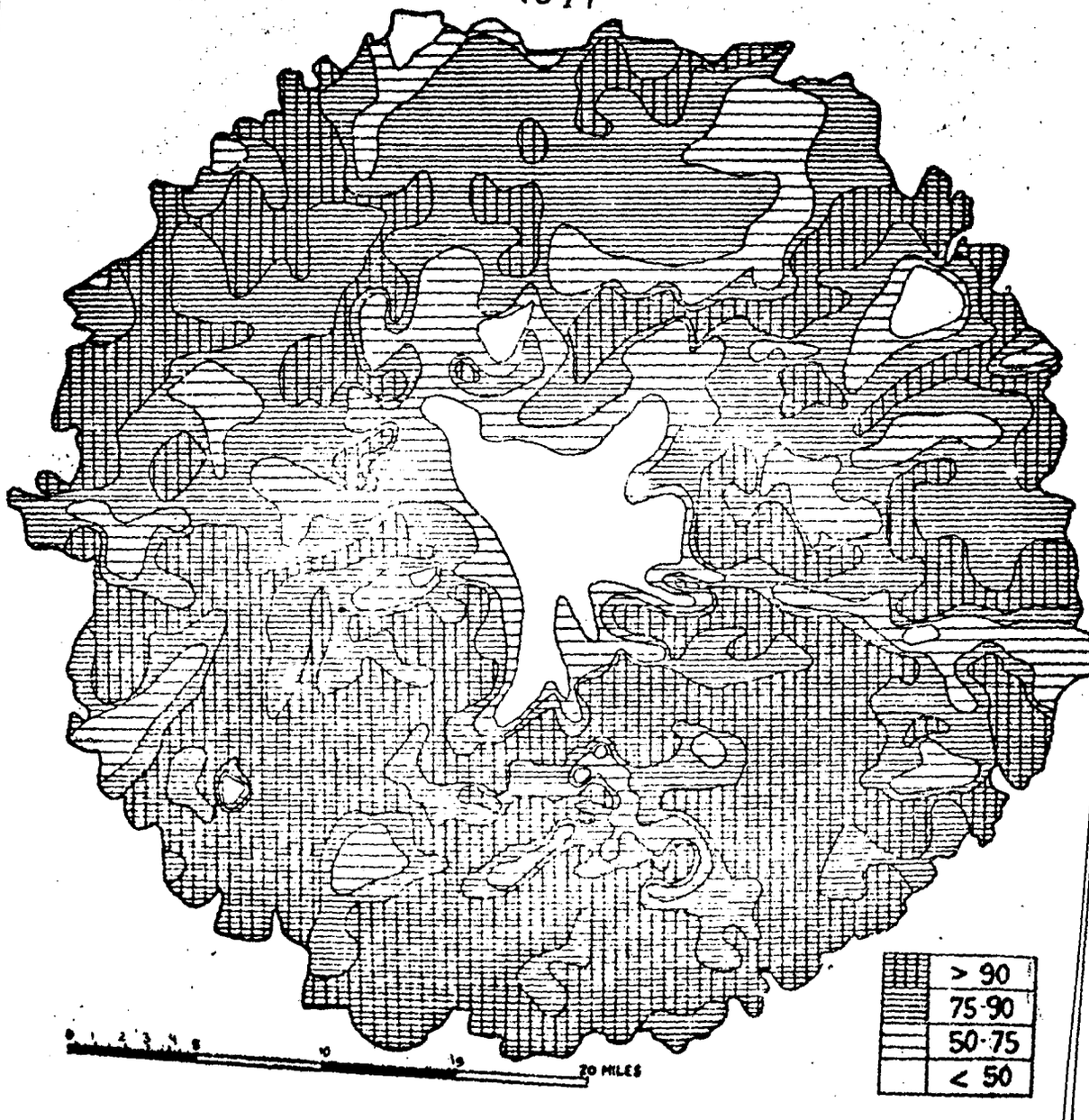
In the fourth zone a weak correlation exists, the values of which vary from 0.215 with sex ratio to -0.665 with tertiary workers but at 1 per cent level of significance. We, therefore, can say that in this region, most of the female population is working in the primary sector.

The region as a whole, reveals that there exists a positive correlation of 0.621 with population-size and a negative correlation of -0.342 with tertiary workers. We, therefore, say that most of the primary workers are observed in those settlements which have large-size population and constitute a higher proportion of scheduled tribes population, scheduled caste population, where the sex-ratio is high, and which are away from the Jaipur City.

Map No.21 depicts that there are four categories of primary workers, very low, low, high and very high (e.g. below 50, 50-75, 75-90 and above 90 in percentage). In the first five-mile-zone, there exists a very low category of the primary

Map. 21

JAIPUR CITY REGION
PERCENTAGE OF PRIMARY WORKERS
1971



workers, because of the service-cum-industrial functional city. Towards the north and south-western parts of the region, we can observe the high category of 75 to 90 per cent, but towards the southern areas, the lower category of 50 to 75 per cent are observed. The very low category, less than 50 per cent, is observed only in the central zone of the Jaipur Region.

The second five-mile-zone shows two very low patches one towards the northern part at Amber town and the other towards the south western at Sanganer town. These two together form a contiguous pattern of very low category from the Jaipur City. The primary activities are a dominant sector in the Ambar town. Of the total workers 51.08 per cent are engaged in primary activities followed by 26 per cent in tertiary sector and 22.81 per cent in the secondary industrial activities. The whole upper northern part shows a low category. A small patch of very high category, which extends up to the outer-most zone by a narrow strip-form exists towards the north-eastern part. The entire southern part shows a very high category. This extends up to the outermost zone, However, in between them, along the transport network, there exists a combination of the low and high category (50 and 75 isolines).

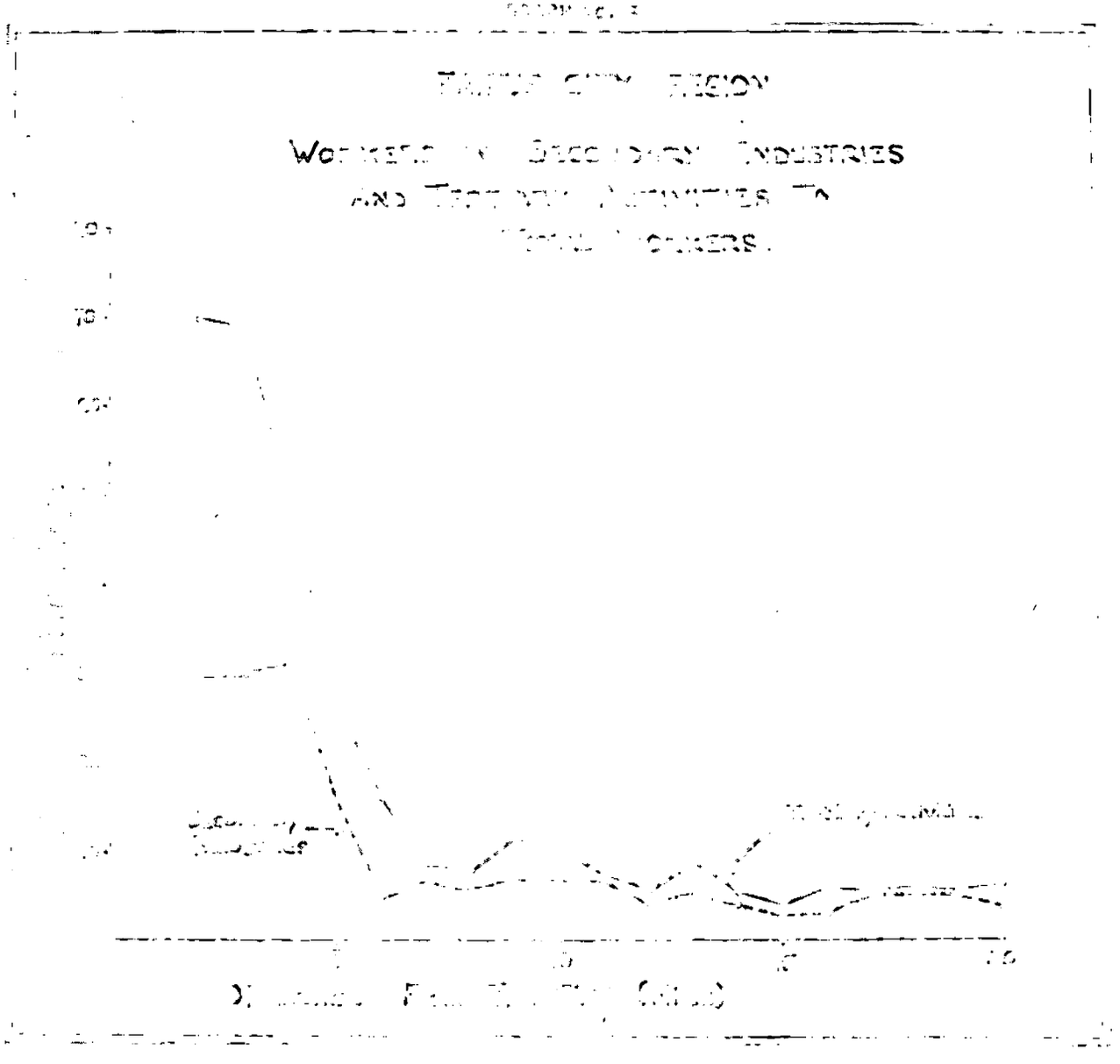
The third five-mile zone shows a high category, i.e., 75 per cent to 90 per cent, in the entire northern part. This extends up to the outermost zone excluding the north-western most part. For example, the Chomu town shows that there are only 36.64 per cent of worker in the primary sector. The entire region shows a very high proportion of the workers engaged in the primary activities.

In brief, we can say that the entire southern region shows the dominance of the Primary workers. The core area and the north-eastern part show that the proportion of the primary workers is the lowest. Thus a gradual increase in the proportion of the primary workers exists with every increase in the distance from the city, shown from the table and graph.

The hypothesis, therefore, get justified; that there exists a positive relationship between distance and primary workers.

(ii) Secondary Industries:

The mean percentage of workers engaged in the Secondary Industrial activities of Jaipur Region is 9.09 per cent. This is low as compared to the 11.20 per cent of the National Average. The mean percentage of workers engaged in the Secondary Industries vary from 2.64 per cent to 31.40 per cent in the 14 to 15 mile zone and the 3 to 4 mile zone respectively (Table 5.1). When analysed on five-mile-zones, the percentage of workers in the secondary activities varies from 4.54 per cent to 27.10 per cent in the 1st and 3rd zones respectively. Graph No.6 shows that there exists an inverse relationship between the distance and the percentage of secondary workers. A very high proportion of the secondary workers is observed up to the distance of 4 miles. Beyond that there exists a sudden decline in the trend up to a distance of 6 miles. ~~Beyond that there exists a sudden decline in the trend up to a distance of 6 miles~~. After that, fluctuation starts up to the distance of 17 miles, which is followed by a straight curve.



In the first five-mile zone, the secondary workers show low correlation with other variables except with primary workers, which shows a high negative correlation at 1 per cent level of significance (see appendices 10 to 14). However, a positive correlation of 0.441 exists between secondary workers and scheduled caste population and highly negative correlation of -0.814 between secondary workers and primary workers. Such a relationship seems to exist because of the fact that most of the industrial area have high proportion of scheduled caste workers.

The second zone shows that there exists a highly significant correlation among the variables, the values of which vary from 0.516 with educational facilities to -0.168 with sex-ratio. The low sex-ratio is due to the migration of male population towards the city region.

The third zone shows that there exists a significant correlation between secondary workers with other variables. The values of correlation vary from 0.303 with literacy to -0.690 with primary workers. This indicates a characteristics, which is inverse in nature between primary and secondary workers.

The fourth zone shows the same pattern. The values of correlation vary from 0.343 with population size to -0.617 with primary workers. We, therefore, can say that inthe large size settlements the literate persons are engaged in the secondary sector.

The region as a whole reveals that there exists a low values of correlation of secondary workers with all the other variables but with density, literacy rate, scheduled castes,

scheduled tribes, tertiary workers and infrastructural facilities, it shows a correlation at 1 per cent level of significance. The values of correlation vary from 0.356 with infrastructural facilities to -0.106 with primary workers.

Maps No.22 shows four categories of secondary workers. These are very low, low, high and very high, which in terms of percentages are less than 5, 5 to 15, 15 to 30 and more than 30 respectively. There exists a very high percentage of secondary workers towards the north-eastern and south-western parts, which extends up to Amber and Sanganer towns in a narrow strip. The high category of 15 to 30 per cent are observed towards the northern part, which extends up to the 2nd zone along the transport line to Chomu town. The same category is observed around the Jaipur city, the central eastern part and in the whole region in the form of small scattered patches.

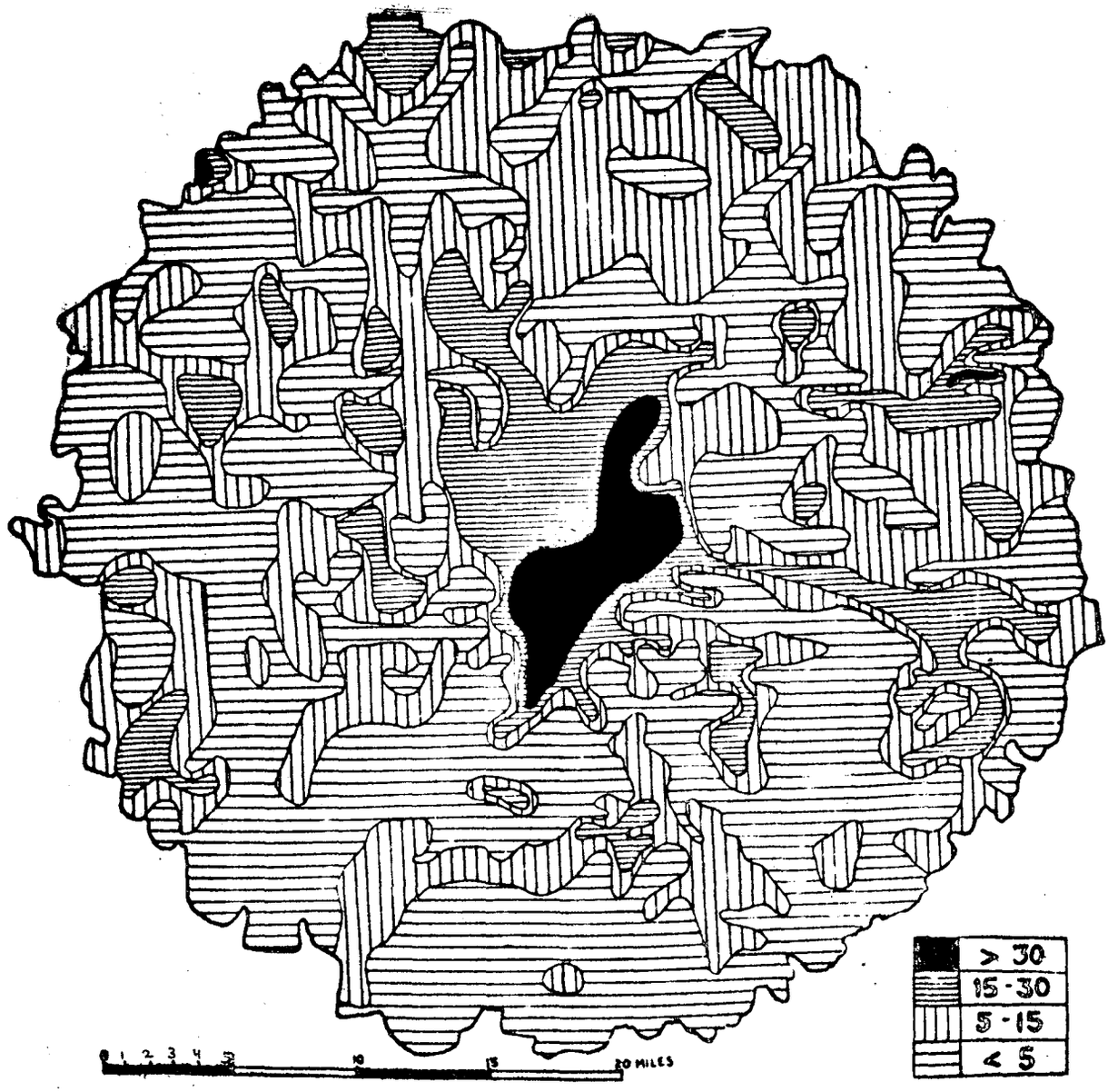
The picture is more clear, when analysed in terms of a region as a whole. On this basis, the low category of 5 to 15 per cent is observed throughout the region. This emerges near the Jaipur City and is extended up to the outer-most zone in a long narrow zig-zag form following the same transport network. Towards the north-eastern areas, it exists in the form of a big patch. Thus the entire region shows a very low category of less than 5 per cent of secondary workers.

Only in a few settlements and towns, we do observe the high proportion of the Secondary workers, e.g. , Manpura Sarwa 52 per cent, Kharkara 50 per cent and Sanganer 42.85 per cent. The highest proportion of Secondary workers is observed in the

Map 22.

JAIPUR CITY REGION

PERCENTAGE OF SECONDARY WORKERS 1971



core area which is extended up to north-western and south-western region along the transport network. This is also observed throughout the region but more towards the northern region in the form of small patches. However, the lowest proportion of the secondary workers is observed in the entire southern region. We, therefore, say that this reveals a reverse picture of the primary workers (Map No.21).

The two hypotheses get confirmed that is: (i) there exists a reverse relationship between the distance and the secondary workers and (ii) the towns and the settlements, which have high proportion of secondary workers are developing and vice-versa.

(iii) Tertiary Activities

The mean percentage of the workers in the tertiary activities of the Jaipur Region is 19.44 per cent. This is higher as compared to the all India level of 16.75 per cent according to the census of 1971 (Table 5.1). Analysis on mile to mile distance shows that the proportion of the workers vary from 3.92 per cent to 69.83 per cent in the two zones of 14 to 15 mile and 1 to 2 mile. Analysis based on 5 mile-zones shows that the first five-mile zone has the maximum percentage of 57.06 and the outermost zone has the minimum percentage of 5.83. Graph No.6 clearly depicts that there is a sharp decline in the trend up to the distance of 7 miles, followed by a fluctuation in the curve up to 16 miles, beyond which the pattern is the same. There exists a sharp break point just at the distance of 7 mile from the city.

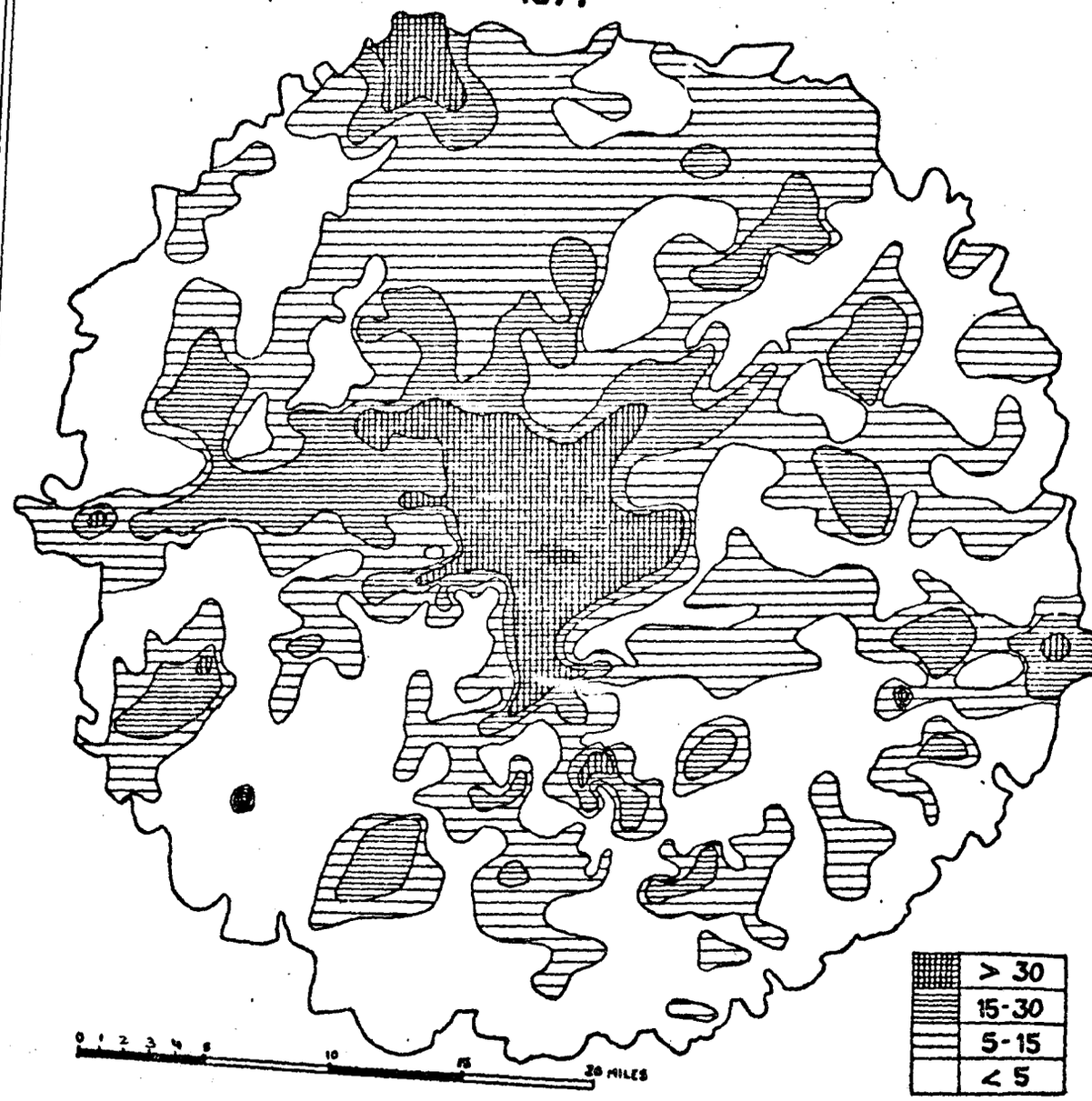
These exists a highly significant correlation between tertiary workers to other variables in the Ist zone. The values of correlation vary from 0.741 with educational facilities to -0.809 with primary workers (Appendices 10 to 14). The reason for high positive correlation between tertiary workers and educational facilities is due to the Jaipur city which is the main service centre.

The second zone shows that the correlation values vary from 0.403 with secondary workers to -0.185 with scheduled castes. Likewise in the third zone, the correlation values vary from 0.429 with literacy rate to -0.861 with primary workers. Again almost the same pattern is observed in the outer-most zone, the correlation values vary from 0.410 with population size to -0.665 with primary workers. The region as a whole reveals that there exists the same pattern, the values vary from 0.347 with secondary workers to -0.342 with primary workers. This is because of the inverse nature of the characteristics of the tertiary sector to the primary sector. The high proportion of the tertiary workers is observed in those settlements which have large size-population, high literacy rate and high educational facilities.

Map No.23 depicts that there exist four categories of tertiary workers in the Jaipur region, i.e., very low, low, high and very high. In the lst zone, there exists a highest percentage of the tertiary workers. It extends up to the north-western part at Amber town and up to the south-western at Sanganer town.

Map. 23

JAIPUR CITY REGION
PERCENTAGE OF TERTIARY WORKERS
1971



There is no clear-cut pattern while analysis is made on the basis of five-mile-zone. The study of the region reveals that there exists a very high category in the core and around it. The high category is observed beyond it, which is further extended up to the Amber town and towards the north-western area up to the third zone in a form of a narrow strip. The small patches are observed in Chomu town, in the north-western part and in southern part, all of them are belonging to the third zone. Similar patches are observed in the south-eastern and south-western parts in the fourth zone. The low category of 5 to 15 per cent is observed in the entire northern region, which is further extended up to the middle-eastern and western regions. The very low category of less than 5 per cent is observed in the entire southern region in a continuous belt.

The Jaipur city shows the highest proportion of the tertiary workers, i.e., 69.30 per cent, followed by Chomu town of 40.47 per cent. Dharmpura[1] and Bash-Hariharpura[2] villages have a very high proportion of the tertiary workers, i.e., 100 per cent and 69 per cent respectively.

In Jaipur tehsil, there are four villages where proportion of tertiary workers is very high and which have the bi-functional category of primary and tertiary activities. The percentage of tertiary workers vary from 42 per cent to 53 per cent in the following villages:

---

1. In Chaksu tehsil - have four workers only, all of them are engaged in the tertiary sector.

2. In Sanganer tehsil - have thirteen workers, out of which four workers are engaged in primary sector and rest of them are engaged in the tertiary sector.

(i) Mangal Jaisabohra,

(ii) Neenawala,

(iii) Murlipura, and

(iv) Gaj Singhpura.

Likewise, there are three villages in Sanganer tehsil and one village in Bassi tehsil which have the high proportion of the tertiary workers, the values of which vary from 39 per cent to 48 per cent. In these villages, the proportion of the Scheduled Caste and Scheduled Tribes is observed to be high. These villages are:

(i) Sitapura (scheduled caste population of 59 per cent)

(ii) Misar-ka-Bash

(iii) Nataniwala (scheduled caste population 31 per cent)

(iv) Bash Bhajoopura (scheduled caste population 100 per cent)

The whole Jaipur region reveals that there exists a very low proportion of settlements of tertiary sector, i.e., 2 per cent only. However, the settlements with a high proportion of tertiary workers are also observed to be having a high percentage of scheduled caste and scheduled tribes population. Therefore, it is apparent that the towns are growing as isolated pockets, without having any functional linkage with their hinterlands. The growth of population at village level, therefore, is observed in the sector of primary activities, which commensurates with the need of meeting the growing requirements of the urban population. Both the hypotheses get justified, that is, (i) distance and the proportion of tertiary workers are inversely related and (ii) the Jaipur City and the towns show a tendency

towards development because the proportion of tertiary workers is increasing.

We can thus conclude that the dominant influence of Jaipur City is up to the distance of 6 to 7 miles only, beyond which the transitional zone is observed up to 15 miles of distance. It can, therefore, be concluded that towns perform secondary and tertiary activities for their hinterland.

CHAPTER VI

SOCIAL AMENITIES OF THE REGION

It is necessary for the development of an economy that certain minimum social provided. The economic development can not take place unless and until the infrastructural facilities are induced in the region. Therefore, the first step for the Regional Development Programme is to provide the infrastructural facilities to the rural settlements. But in India the imbalanced development occurred because of the colonisation policy adopted by British in which the urban centres become the strategic points for colonial administration. Therefore, in spite of independence, India still enjoys the same trend of the development of urban centres because these are still the base of administrative set-up. The cities or the urban centres enjoy more and more social facilities. Though, the development induced by urbanisation, at times, fails to penetrate in the periphery, the case one finds in most of the city-centres of India. The failure to transmit the growth impulses to the hinterlands leads to the creation of spatial disparity which is the result of the lack of centres to the vast space of under-developed landmass surrounding them.

The development of social amenities and infrastructural facilities in settlements will help to improve the economic and cultural life of the people. This is because nearly 80 per cent of Indian population lives in villages. Thus by providing these facilities in the rural set-up the migration of the people to cities can be halted as well as the development of the rural economy can be initiated.

The main objective of this chapter is to analyse the spatial variation in the distribution of the social amenities among the Jaipur city and the settlements surrounding it. Here the social amenities and infrastructural facilities have been shown by a composite index of scores of the following social amenities and infrastructural facilities:

(i) Educational facilities:
  (a) Primary School,
  (b) Middle School,
  (c) High School,
  (d) Higher Institution including Colleges, and
  (e) University (Jaipur).

(ii) Medical facilities:
  (a) Dispensary,
  (b) Family Planning Centre,
  (c) Maternity and Child Welfare Centre,
  (d) Health Centre, and
  (e) Hospital

(iii) Infrastructural facilities:
  (1) (a) Well,
  (b) Tank,
  (c) Others,
  (d) Tube-wells, and
  (e) Tap.
  (2) Electricity.

(3) (a) Post-Office,

(b) Telephone, and

(c) Post and Telegraph Office.

(4) (a) Katcha Road,

(b) Pacca Road, and

(c) Train.

These facilities or functions have been allotted some weightage as per methodology stated in Chapter I. In this chapter, the analysis of the Composite Index for each settlement has been done to show the "Settlement Hierarchy" by using the Central place method (See Appendix No.15). The rank of a place depends upon the number of services it performs to its hinterland. A town serves its hinterland by providing the centralised services and functions. Therefore, for identifying the centrality of a settlement, a number of services have been taken which are elaborated below:

(a) Educational facilities:

The education is a very important factor for deciding the centrality of a place. There are several Colleges and a University located in the Jaipur City. Therefore, it serves as a centre of higher education. The Secondary Schools are located in the towns or villages whose size population is more than 5000. The places with middle or high schools have been taken as central places because they provide an educational service for their surrounding settlements.

(b) Medical facilities:

The services offered for the health of people form an important index of centrality. The general and specialised hospitals are of the higher order which are located in the Jaipur city and Chomu town. These towns play an important role in serving their surrounding settlements with this function.

(c) Infrastructural facilities:

The important services in this category are (1) postal and telephone services (2) electricity and (3) water supply. Postal services are offered by different post-offices according to the need of the people. Other facilities exist where transport linkages are present or near the urban centres. In Jaipur region most of the villages lack these facilities.

Table 6.1 reveals that the mean score of Educational amenities of the region is 124.10, followed by infrastructural facilities of 50.04 and Medical facilities of 34.08. Taking the analysis of each facility in one mile distance zone, the highest score is observed in the 3 to 4 mile zone and lowest in 1.53. Likewise, in the same zones, the other two facilities show the highest and lowest score index. For medical facilities, its value varies from 321.12 to 1.44 and for infrastructural facilities, its value varies from 302.61 to 6.25. On the five-mile-zone analysis, almost the same pattern emerges, i.e., the maximum score is observed in the Ist zone and minimum in the IIIrd zone

Table 6.1

MEANS IN EACH MILE OF DISTANCE FROM JAIPUR

(Social Amenities)

Distance	Educational facilities (composite score)	Medical facilities (composite score)	Infrastructural facilities (composite score)
Up to 1 mile	-	-	-
1 to 2 mile	221.00	101.00	195.12
2 to 3 mile	822.32	85.35	152.00
3 to 4 mile	1250.00	321.12	302.61
4 to 5 mile	105.15	79.23	89.98
(Ist Five Mile)	(489.01)	(118.20)	(147.96)
5 to 6 mile	4.72	2.63	16.93
6 to 7 mile	10.67	11.93	39.92
7 to 8 mile	8.24	13.70	15.59
8 to 9 mile	3.57	5.54	15.17
9 to 10 mile	4.70	4.68	37.96
(IInd Five Mile)	(4.61)	(7.39)	(26.25)
10-11 mile	4.91	5.12	10.12
11 to 12 mile	1.53	1.44	6.25
12 to 13 mile	2.06	2.52	8.77
13 to 14 mile	3.70	8.48	19.79
14 to 15 mile	3.94	7.43	14.89
(IIIrd Five Mile)	(3.12)	(4.76)	(11.29)
15 to 16 mile	1.65	7.74	13.79
16 to 17 mile	4.90	4.86	11.74
17 to 18 mile	4.52	6.47	9.07
18 to 19 mile	16.53	8.51	17.47
19 to 20 mile	7.92	3.83	23.57
(IVth Five Mile)	(7.36)	(6.59)	(15.50)
JAIPUR REGION	(124.10)	(34.08)	(50.04)

for all the three facilities. For the score of educational facilities, the values of which vary from 489.01 to 3.12; for medical facilities from 118.20 to 4.76 and for infrastructural facilities from 147.96 to 11.29. Now, graph No.4 depicts that there is an increase in the trend up to a distance of 4 miles, then there is a steep decrease in the successive miles up to a distance of 6 miles. A declining trend is observed from 16 miles to 20 miles of distance. Since a very sharp turning point is observed approximately at a distance of 5 to 6 mile from the city, it can be stated that the influence of the city extends only up to 6 miles of radius.

In the correlation matrix (Appendices 10 to 14), the first zone shows that there exists a perfect correlation between educational facilities on the one hand and medical, infrastructural facilities, population size and density individually on the other hand. It also shows a high correlation with literacy rate and tertiary workers at 1 per cent level of significance. The values of correlation vary from 1.00 with medical facilities to -0.578 with primary workers.

The second zone shows the same pattern as in the first one, but the values of correlation are lower. The correlation values vary from 0.812 with infrastructural facilities to -0.305 with sex ratio. The low sex-ratio may be due to the fact that a section of male population migrates towards the city for the purpose of education as is evident from the correlation between sex rate and literacy is -0.24. Likewise the third,fourth and

the region as a whole show the same pattern as stated above. The values of correlation vary from 0.701 to -0.277 in the IIIrd zone, 0.420 to -0.665 in the IVth zone and 0.754 to -0.041 in the region as a whole.

The medical facilities and infrastructural facilities also show the same pattern in all the zones as the pattern observed in the educational facilities. These three variables are, therefore, indicating a multicolinearity in character. The towns and large population-size settlements enjoy high education, medical and infrastructural facilities which have low sex-ratio and sizeable primary workers.

Here the hierarchy of settlements has been worked out on the basis of the Composite Index of Medical, Educational and Infrastructural facilities. All the settlements have been put in the following categories of the Composite amenities score index:-

(i) 1000 and above
(ii) 100 - 1000
(iii) 60 - 100
(iv) 30 - 60
(v) 5 - 30
(vi) Below 5.

Given these categories of scores the total number of settlements and their average population falling in each category of Composite Index, have been worked out, which are presented in Table 6.2.

Table 6.2

FUNCTIONAL HIERARCHY IN JAIPUR REGION

Composite Amenities Scores	Average population	Total number of settlements
1000 and above	318,169	2
100 - 1000	7,954	28
60 - 100	976	36
30 - 60	905	46
5 - 30	482	311
below 5	28	333

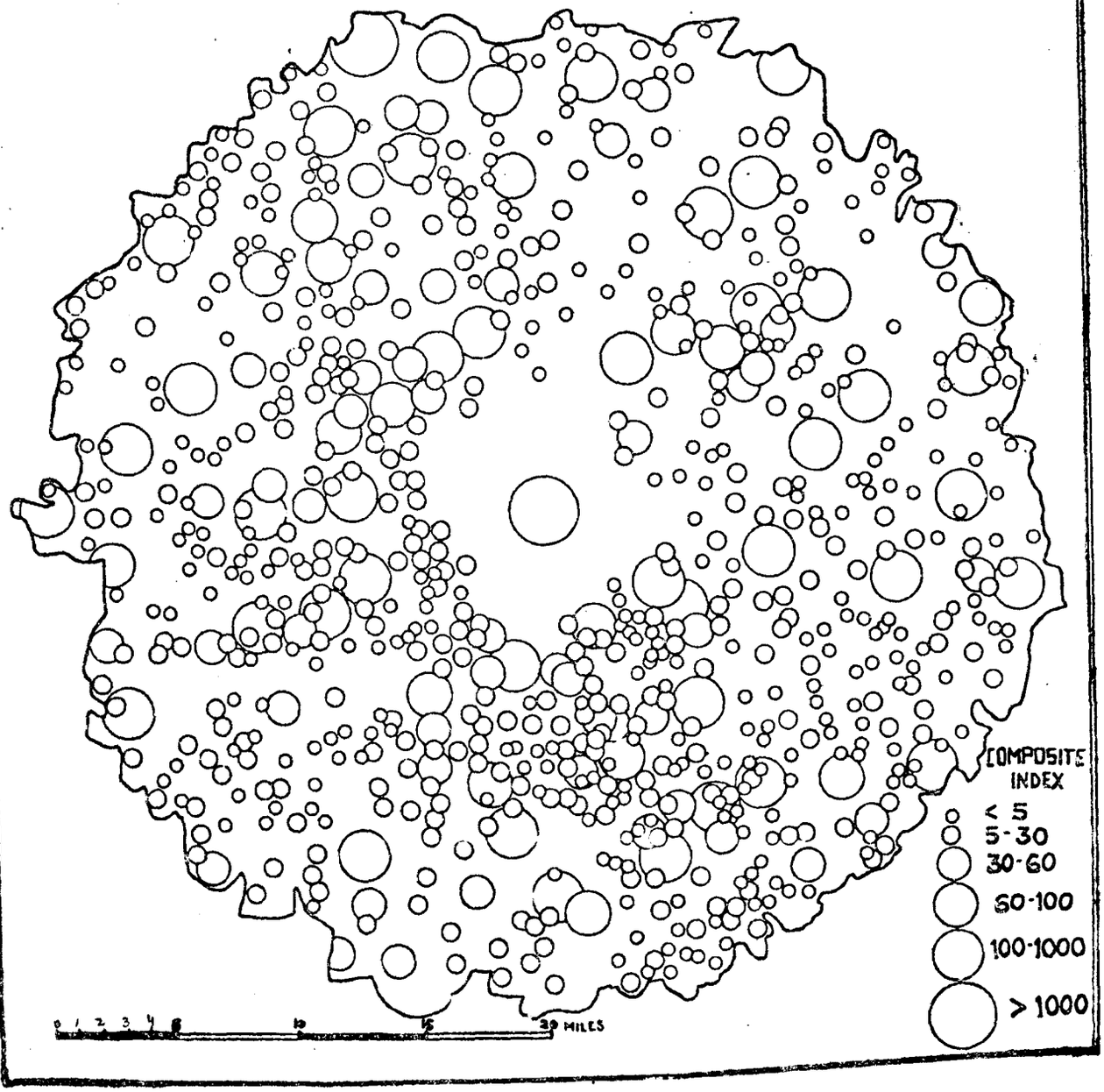
Table 6.2 reveals that there are two settlements with an average population of 318,169, show the higher amenities score of more than 1000, whereas 333 settlements with an average population 28, show the lower amenities score of less than 5 only.

Map No.24 depicts that there are two settlements of the Ist hierarchical order, i.e., Jaipur City in the Centre and Chomu town in the north-western part in IVth zone. The network of roads and rails play an important role in the distribution and location of central places. Jaipur city and Chomu town are the most important centres for economic, cultural,

Map 24

JAIPUR CITY REGION

SETTLEMENT HIERARCHY 1971



political and social life of the region. These are regional headquarters for administration, law and justice, finance, transport and communication. They act as powerful educational centres for the population since they have many colleges and one University (Jaipur). These cities have large built up areas with surfaced roads, have well established markets. Because of being a planned city the urban morphology is matured. There is a clear distinction between the commercial, industrial, residential-cum-commercial and residential areas in which the public utility services are available.

There are 28 settlements belonging to the IInd hierarchical order whose amenities score range from 100 to 1000. These settlements exist along the National Highways, State-Highways and railway lines. Most of these settlements exist at the towns and are clustered towards the north-western region which is more developed rather than the eastern region.

There are 36 settlements of the IIIrd hierarchical order with amenities score of 60 to 100. They exist sparsely throughout the region. However, they are seen towards the western region. Likewise the other lower order settlements with lower amenities score, exist more towards the western region than the eastern region. The entire lower order, with amenities score of less than 30 are found in 644 settlements. They exist in the form of a cluster in the middle-southern part between the distance of 7 to 15 miles. This is extended towards the north-western region up to the Chomu town. The major concentration of this

category exists around the settlements having higher hierarchical order and shows their occurrence in a decreasing trend towards all directions. The entire western region shows a more clustered pattern of the social amenities than the eastern region. The outermost part shows a low and sparsely distribution of social amenities.

Both the hypotheses get confirmed, that is, first there exists an inverse relationship between the distance and the social amenities and secondly the towns and settlements which have high social amenities are developed, i.e., in terms of high literacy rate, high non-agricultural workers and high dependency ratio.

We thus arrive at the conclusion that the Jaipur City has its influence up to the distance of 6 mile only, beyond which the settlements have low social amenities. The towns and large population size settlements have large number of centralised services. Higher the functions offered by any place, the more self contained it is. In the Jaipur Region, therefore, a small number of settlements, nearly 30 settlements show a high level of social amenities. For the development of the region, it is necessary that the basic social amenities should be provided. The whole region, except the towns and large settlements, shows a poor development of the medical, educational and infrastructural facilities.

The details of the scores indicate that wide functional gap exists between first ranking settlements which include Jaipur and Chomu with the second ranking settlements (see Table 6.2).

On the whole the structure of the ranking of settlements brings out a high degree of imbalance in the region. There are very few settlements enjoying a high level of social amenities and infrastructural facilities as nodal centres. Such a situation shows that there is a weak functional organisation among the rural settlements and there exists a dominance of two as the major regional nodes in the Jaipur Region.

CHAPTER VII

SUMMARY AND CONCLUSION

The idea behind the exercise done in this dissertation is to study the settlement patterns of Jaipur region. While analysing this, an effort has been made to observe the nature and distribution of the settlements in the region. The delimitation of the region was, therefore, the first requisite of such a study which has been done by identifying the influence of Jaipur in the hinterland around the city. This has been carried on through a number of approaches with a view to arrive at a definite conclusion. The main focus of the study is to assess the city influence on its rural hinterland by analysing its demographic, economic, functional and social amenities.

To attempt this exercise, first of all, a radius of 100 miles around the city of Jaipur has been chosen which has been divided in five equal zones of 20 miles each. This study has been done on tehsil-level data. Once this exercise was over, an intensive inquiry into the Ist zone, i.e., 20 miles around Jaipur was taken which again was divided in four zones of five miles each. The analysis has been carried on taking village-level data. In the subsequent paragraphs, summary and concluding remarks have been presented.

In Chapter II where the delimitation of Jaipur region has been done by undertaking a study of the area 100 miles in radius around the city, each zone has been subjected to analysis

separately by taking data on several factors like: (a) population variation, (b) density of population, (c) sex-ratio, (d) percentage of literacy, (e) percentage of scheduled castes, (f) percentage of scheduled tribes, (g) percentage of primary workers, (h) percentage of secondary workers, and (i) percentage of tertiary workers.

It has been observed that a definite change in the values of most of the variables occurs at a distance of 20 miles. This, in other words means that the impact of distance on these variables is substantial in the first zone. It is further noticed that away from the city (Graph 1, 2) high fluctuations exist up to the radius of 100 miles which may be explained by the intervening impact of other towns like Ajmer, Bharatpur, Alwar, Sikar and Jhunjhunun.

In Chapter III, the degree of concentration of settlements of the region under study has been estimated by Gini's co-efficient, Lorenz-curve and Nearest Neighbour technique. The Gini's Co-efficient (G = 0.13), shows that the concentration of settlements is very low. On the other hand, the Lorenz-curve (Graph No.3) reflects that the concentration of settlements is neither at one place nor it is uniform. The Nearest Neighbour Distance shows that there exists a random distribution pattern in all the zones. The classwise distribution of settlements show the settlements having less than 2000 population have a random distribution pattern while, the settlements having more than 2000 population indicate a departure from random distribution

approaching towards a uniform. The R value for the region as a whole is 1.3388, which explains that the distribution of settlements has a tendency towards uniformity in Jaipur region. Thus larger the size of population higher the uniformity whereas, lower the size of population lower the uniformity in the distribution of the settlements.

From the demographic variables, it has been established in Chapter IV that an inverse relationship exists between distance and the variables like: (a) density, (b) population growth, (c) literacy rate, and (d) dependency ratio, whereas in case of sex-ratio, scheduled caste and scheduled tribes, the distance shows a positive relationship.

The analysis of workers participation in different economic activities in Chapter V, shows a greater tendency of participation in agriculture (69.28 per cent) than in industry (9.09 per cent) and tertiary activities (19.44 per cent). About 95 per cent of the settlements are mainly agricultural. Most of the small settlements which have high proportion of scheduled castes and scheduled tribes, are engaged in the secondary and tertiary activities. In terms of distance from the city, the 14 to 15 mile zone (1 mile zone) has the maximum primary workers of 93.29 per cent whereas Jaipur City itself has only 3.10 per cent, i.e., due to the service-cum-industrial nature of the city. The relationship between distance and the three groups of workers

reveals that there exists a positive relationship between distance and primary workers. However, the same relationship is inverse when tertiary and secondary workers are taken for study. These secondary and tertiary activities are centred in the urban centres rather than spread to their hinterland. However, the towns and large settlements seem to be developing whereas, the rural settlements are still in the static-form.

The city influence can also be demarcated through infrastructure variables. In Chapter VI, this exercise has been carried out. It indicates that the region as a whole, has very low educational, medical and social facilities. In fact, these facilities are concentrated in the urban centres and in the large settlements whereas most of the small settlements do not have these facilities. If the entire settlement is put in an hierarchical order on the basis of the composite index of social amenities and infrastructural facilities, one finds that they can be broadly divided in three levels. Only 30 settlements fall in the higher hierarchical order whose composite index is above 100. There are 82 settlements which enjoy the medium hierarchical order having composite index between 30 to 100. The remaining 644 small settlements which have the composite index of less than 30 only and therefore are in the third level of hierarchy. It can, therefore, be said that the settlements with large population sizes enjoy the higher social amenities whereas the smaller settlements are lacking behing.

Finally, variables like demographic, economic and infrastructural facilities were taken to estimate the major influence of the Jaipur city in the hinterland. It was found that, in fact, the influence is concentrated only up to 7 miles and beyond which no uniform trend is observed. In other words, all the variables show fluctuating trends, beyond the radius of 7 miles from the city. This fluctuation may be attributed to the transitional stage of the region, which is under the partial influence of the city. Almost a steady or low fluctuating trend is observed from 15 to 20 miles of radius. It also shows a slight increasing trend after 19 miles of radius which is due to the existence of Chomu town in the north-western part of the outermost zone. Therefore, the impact of the city of Jaipur is up to the distance of 7 miles only. The total number of settlements falling in the influence area of 7 miles is only 72; in which 3 settlements in Amber tehsil, 26 settlements in Jaipur tehsil and remaining 43 settlements in Sanganer tehsil.

It is clear from the foreiging discussion that the influence of Jaipur City is pervasive within its region and spreads only up to 7 miles with all facets of the regional economy. A distinct pattern of demographic and economic development emerges within the region. The broad city region comprising settlements up to 20 miles of radius from Jaipur can be divided into three concentric zones depending upon the intensity of influence around the city: (1) The City Core; (2) The Transitional Zone; and (3) The Peripheral Zone.

1. The City Core: This zone extends only up to the radius of 7 miles from the heart of the city and is by and large urbanised. This is the zone of major influence which has been elaborately discussed in the dissertation. This is a zone of high density of population exceeding 846 persons per square mile. Other characteristics of this zone have been presented in Table 7.1. This reveals that the mean values of all the variables of the core area are high compared to the rest of the area, except variables like sex-ratio, scheduled castes, scheduled tribes and primary workers which have low mean values. The core area, therefore, exhibits the maximum values of population growth, density, literacy, dependency ratio, secondary workers, tertiary workers and social amenities. The variables with high values have positive relationship among themselves and negative relationship with low value variables.

2. The Transitional Zone: This zone extends between 7 to 15 miles of radius from the centre which can be marked by the following characteristics:

(a) The density of population is on an average low for the zone as a whole.
(b) In the areas having higher transport facilities, the density of population is relatively high.
(c) Development of large settlements in the western region with high social amenities.
(d) The settlements are predominantly agricultural.

Table 7.1

MEANS OF CORE AREA AND PERIPHERAL AREA

	Density per sq. mile	Population growth	Sex Ratio	Literacy Rate	Percentage of scheduled caste	Percentage of scheduled tribe	Dependency Ratio	Percentage of primary workers	Percentage of secondary workers	Percentage of tertiary workers	Composite Index of Social Amenities
Core Area up to 7 mile	846	36.78	874	22.13	17.10	14.09	2.45	32.25	22.43	44.97	225
Peripheral area 7-20 miles	362	31.14	955	12.22	18.12	20.19	2.01	87.79	5.04	7.04	27

3. The Peripheral Zone: This zone extends between 15 to 20 miles from Jaipur City. The variables taken in this study should normally have indicated low value and decreasing trend but it is not so in this zone because of intervening influence of Chomu town which lies in the north-western part at a distance of 19 miles of the zone. The result is that most of these variables on Graph No.4 give an impression of slightly rising trend.

From planning point of view this study has some relevance. As a city grows, its radiance in the hinterland increasses. And with every increase in its radius the boundary lines of the three zones; viz., city core zone, transitional zone and peripheral zone, get pushed further away from the city. In this context, the transitional zone becomes very important. It is because the development of city can bring transitional zone within the radius of influence. Any expansion of infrastructural and other technical, industrial facilities may bring the transitional zone within more direct influence of the city. Particular reference may be made here of the existence of an intervening city like Chomu. If both the cities - Jaipur and Chomu - develop the area lying between their influence will have a peculiar exposure of the situation. It may be possible that Jaipur City lose its importance or the contiguous area between these two cities may acquire the characteristic of city core zone. Thus the planning authority can take advantage of such a study as to what should be done so that the hinterland develops rapidly and also planning for proper development of different

areas exposed to different conditions can develop properly. Such a study, therefore, is very vital for making a developing planning of any city region.

Appendix Table I

AVERAGE VALUES ZONEWISE DATA 1961 (TEHSIL LEVEL)

Distance from Jaipur City (miles)	Density	Sex Ratio	%age literacy	%age of scheduled caste	%age of scheduled tribes	%age of primary workers	%age of secondary workers	%age of tertiary workers	%age of non workers
Jaipur City	6,207	856	42.46	8.84	1.16	1.64	33.53	64.81	70.90
Upto 20	301	887	17.86	17.74	16.75	62.69	15.89	21.41	50.67
20 to 40	99	903	11.69	19.62	14.36	78.30	10.10	10.42	47.63
40 to 60	102	907	12.28	18.49	12.59	80.88	9.04	10.01	50.93
60 to 80	109	900	14.00	20.92	12.51	82.96	8.18	8.87	48.88
80 to 100	113	902	14.10	18.47	5.60	82.86	7.12	10.01	54.19

Appendix Table II

LORENZ CURVE (ZONEWISE)

Distance from City (in miles)	%age of Settlement (X_1)	Cumulative percentage	%age of area	Cumulative percentage (Y_1)
Upto 5	1.90	1.90	7.76	7.78
5 to 10	38.32	40.22	42.88	50.66
10 to 15	36.68	76.90	31.64	82.30
15 to 20	23.10	100.00	17.70	100.00

Appendix Table III

NEAREST NEIGHBOUR DISTANCE

Settlements with Population < 200

Distance from the City (miles)	N	$\sum \gamma$	$\frac{\sum \gamma}{N}$	A	$P = \frac{N}{A}$	$\bar{re}$	$R = \frac{\bar{ra}}{\bar{re}}$	Range of Randomness
Upto 5	3	14.63	4.88	98.49	.0305	2.86	1.7063	Random towards uniformity
5 - 10	54	59.85	1.11	224.17	.2409	1.02	1.0882	Random
10 - 15	86	83.98	0.95	400.79	.2196	1.07	0.8879	Random
15 - 20	72	98.14	1.36	543.04	.1326	1.37	0.9927	Random

Appendix Table IV

NEAREST NEIGHBOUR DISTANCE

Settlements with population 200-499

Distance from the city (miles)	N	$\Sigma\gamma$	$\frac{\Sigma\gamma}{N}$	A	$P = \frac{N}{A}$	$\bar{\gamma}e$	$R = \frac{\bar{r}a}{re}$	Range of Randomness
Upto 5	7	15.30	2.19	98.49	.0711	1.88	1.1649	Random
5 - 10	68	87.21	1.28	224.17	.3033	0.91	1.4066	Random towards uniformity
10 - 15	102	118.75	1.16	400.79	.2545	0.99	1.1717	Random
15 - 20	117	142.69	1.22	543.04	.2155	1.08	1.1296	Random

Appendix Table V

NEAREST NEIGHBOUR DISTANCE

Settlements with population 500-999

Distence from the city (mile)	N	$\leq \gamma$	$\frac{\leq \gamma}{N}$	A	$P = \frac{N}{A}$	$\bar{\gamma e}$	$R = \frac{\bar{\gamma a}}{\bar{\gamma e}}$	Rank of Randomness
Upto 5	3	8.36	2.79	98.49	.0305	2.86	.9755	Random
5 - 10	39	53.01	1.36	224.17	.1740	1.20	1.1333	Random
10 - 15	51	80.56	1.58	400.79	.1272	1.40	1.1286	Random
15 - 20	64	120.16	1.88	543.04	.1179	1.46	1.2677	Random

Appendix Table VI

NEAREST NEIGHBOUR DISTANCE

Settlements with population 1000-1999

Distance from the City (miles)	N	Σr	$\frac{\Sigma r}{N}$	A	P	$\overline{re}$	R	Range of Randomness
Upto 5	1	-	-	-	-	-	-	-
5 - 10	9	29.45	3.27	224.17	.0401	2.50	1.3080	Random
10 - 15	27	69.92	2.59	400.79	.0674	1.93	1.3420	Random
15 - 20	18	62.51	3.47	543.04	.0331	2.75	1.2618	Random

Appendix Table VII

NEAREST NEIGHBOUR DISTANCE

Settlements with population 2000-4999

Distance from the city (miles)	N	$\Sigma\gamma$	$\frac{\Sigma\gamma}{N}$	A	P	$\overline{re}$	R	Range of Randomness
Upto 5	-	-	-	-	-	-	-	-
5 - 10	7	35.15	5.02	224.17	.0312	2.83	1.7739	Random towards uniformity
10 - 15	4	52.15	13.04	400.79	.0099	6.10	2.1377	Uniformity
15 - 20	14	70.49	5.04	543.04	.0258	3.11	1.6206	Random towards uniformity

Appendix Table VIII

NEAREST NEIGHBOUR DISTANCE

Settlements with Population > 5000

Distance from the City (mile)	N	$\Sigma\gamma$	$\frac{\Sigma\gamma}{N}$	A	P	$\overline{re}$	R	Range of Randomness
Upto 15	-	-	-	-	-	-	-	-
15 - 20	3	70.25	23.42	543.04	.0053	10.94	2.1408	Uniformity

Appendix Table IX

NEAREST NEIGHBOUR DISTANCE

Towns

Distance from the city (miles)	N	Σr	$\frac{\Sigma r}{N}$	A	P	$\overline{re}$	R	Range of Randomness
Upto 5	-	-	-	-	-	-	-	-
5 - 10	2	26.60	13.30	224.17	.0063	6.21	2.1417	Uniformity
10 to 20	-	-	-	-	-	-	-	-

Appendix Table X

CORRELATION MATRIX ZONE I

	I Density	II Population Growth	III Sex Ratio	IV Dependency Ratio	V Literacy Rate	VI Scheduled Castes	VII Scheduled Tribes	VIII Total workers	IX Primary workers	X Secondary workers	XI Tertiary workers	XII Educational facilities	XIII Medical facilities	XIV Infrastructural facilities	XV Population size
I	1.00														
II	0.186	1.000													
III	-0.073	0.149	1.000												
IV	0.308	0.028	0.180	1.000											
V	0.796*	0.238	-0.019	0.156	1.000										
VI	-0.142	-0.003	0.353	-0.133	-0.112	1.000									
VII	-0.081	-0.055	-0,058	-0.502**	0.055	-0.031	1.000								
VIII	-0.288	-0.055	-0.124	-0.971*	-0.105	0.075	e.666*	1.000							
IX	-0.443	-0.228	-0.117	-0.363	-0.337	-0.347	0.266	0.407	1.000						
X	0.043	0.132	0.213	0.280	0.054	0.441	-0.269	-0.330	-0.814	1.000					
XI	0.677*	0.251	0.009	0.311	0.502**	0.105	-0.150	-0.328	-0.809*	0.318	1.000				
XII	0.968*	0.178	-0.058	0.332	0.809*	-0.096	-0.079	-0.298	-0.578**	0.197	0.741*	1.000*			
XIII	0.968*	0.179	-0.055	0.328	0.809*	-0.097	-0.083	-0.293	-0.574**	0.195	0.738*	1.000*	1.000*		
XIV	0.968*	0.186	-0.049	0.332	0.809*	-0.113	-0.079	-0.296	-0.569**	0.193	0.731*	1.000*	1.000*	1.000	
XV	0.968*	0.176	-0.060	0.335	0.811*	-0.097	-0.080	-0.300	-0.574**	0.193	0.739*	1.000*	1.000*	0.999*	

* At 1 per cent level of significance

** At 5 per cent level of significance

Appendix Table XI

CORRELATION MATRIX (ZONE II)

	I Density	II Population Growth	III Sex Ratio	IV Dependency Ratio	V Literacy Rate	VI Scheduled Castes	VII Scheduled Tribes	VIII Total Workers	IX Primary workers	X Secondary workers	XI Tertiary workers	XII Educational facilities	XIII Medical facilities	XIV Infrastructural facilities	XV Population size
I	1.000														
II	0.159**	1.000													
III	0.011	-0.091	1.000												
IV	0.131	0.099	0.327*	1.000											
V	0.159**	-0.005	-0.240*	0.124	1.000										
VI	-0.075	-0.111	-0.128	-0.088	0.016	1.000									
VII	0.114	-0.032	-0.272*	-0.065	0.148**	0.052	1.000								
VIII	-0.124	-0.113	-0.239*	-0.906*	0.096	0.095	0.175**	1.000							
IX	0.016	-0.114	-0.412*	-0.121	0.299*	0.362*	0.750*	0.228*	1.000						
X	0.334*	0.081	-0.168**	-0.025	0.250*	0.023	0.390*	0.077	0.242*	1.000					
XI	0.319*	0.198*	-0.014	0.176**	0.180**	-0.185**	0.100	-0.172**	-0.158**	0.403*	1.000				
XII	0.287*	-0.056	-0.305*	-0,009	0.383*	0.236*	0.582*	0.093	0.708*	0.516*	0.190**	1.000			
XIII	0.327*	-0.004	-0.279*	-0.004	0.321*	0.164*	0.500*	0.085	0.615*	0.487*	0.186**	0.808*	1.000		
XIV	0.308*	-0.007	-0.250*	0.010	0.306*	0.213*	0.558*	0.084	0.628*	0.570*	0.177**	0.812*	0.708*	1.000	
XV	0.138	-0.056	-0.419*	-0.082	0.355*	0.307*	0.802*	0.193*	0.953*	0.467*	0.100	0.796*	0.699*	0.728*	1.000

* at 1 per cent level of significance

** at 5 per cent level of significance

Appendix Table XII

CORRELATION MATRIX (ZONE III)

	I Density	II Population	III Sex Ratio	IV Dependency Ratio	V Literacy Rate	VI Scheduled Castes	VII Scheduled Tribes	VIII Total Workers	IX Primary workers	X Secondary workers	XI Tertiary workers	XII Educational facilities	XIII Medical facilities	XIV Infrastructural facilities	XV Population size
I	1.000														
II	-0.019	1.000													
III	-0.018	-0.045	1.000												
IV	-0.087	0.016	0.063	1.000											
V	0.213*	0.030	-0.052	-0.027	1.000										
VI	0.109	-0.008	-0.088	-0.021	0.043	1.000									
VII	-0.037	-0.049	-0.070	-0.043	-0.260*	-0.246*	1.000								
VIII	0.078	-0.041	-0.053	-0.920*	-0.008	-0.031	0.074	1.000							
IX	-0.169*	0.014	0.035	-0.005	-0.478*	-0.035	0.141**	0.053	1.000						
X	0.158*	0.046	0.016	0.017	0.303*	0.095	-0.103	-0.057	-0.690*	1.000					
XI	0.119**	-0.050	-0.058	-0.008	0.429*	-0.021	-0.109	-0.027	-0.861*	0.259*	1.000				
XII	0.045	-0.032	-0.014	0.083	0.263*	0.092	-0.075	-0.103	-0.277*	0.171*	0.269*	1.000			
XIII	0.107	-0.032	-0.044	-0.001	0.240*	0.053	0.002	-0.011	-0.249*	0.095	0.279*	0.701*	1.000		
XIV	-0.011	0.026	-0.033	0.047	0.200*	0.036	-0.062	-0.060	-0.261*	0.086	0.299*	0.538*	0.501*	1.000	
XV	0.126**	-0.068	-0.042	-0.033	0.129**	0.040	-0.031	0.003	-0.166**	-0.169**	0.110	0.167**	0.129**	0.221*	1.000

* at 1 per cent level of significance

** at 5 per cent level of significance

Appendix Table XIII

CORRELATION MATRIX (ZONE IV)

	Density	Population	Sex Ratio	Dependency Ratio	Literacy Rate	Scheduled Castes	Scheduled Tribes	Total workers	Primary workers	Secondary workers	Tertiary workers	Educational facilities	Medical facilities	Infrastructural facilities	Population size
I	1.000														
II	-0.021	1.000													
III	0.098	-0.029	1.000												
IV	0.039	-0.083	0.119	1.000											
V	0.043	0.012	-0.262*	-0.083	1.000										
VI	-0.013	0.023	0.031	0.027	0.031	1.000									
VII	0.058	0.042	0.001	-0.087	-0.110	-0.152**	1.000								
VIII	-0.047	0.070	0.045	-0.720*	-0.172*	0.040	0.153**	1.000							
IX	-0.183*	-0.060	0.215*	0.087	-0.577*	-0.082	-0.025	0.124**	1.000						
X	0.248*	0.101	0.089	0.003	0.187*	0.169*	0.085	-0.018	-0.617*	1.000					
XI	0.225*	-0.005	-0.053	0.025	0.374*	0.088	0.030	-0.048	-0.665*	0.293*	1.000				
XII	0.243*	0.852*	-0.019	-0.042	0.152**	0.050	0.015	0.038	-0.210*	0.244*	0.181*	1.000			
XIII	0.241*	-0.018	-0.040	0.002	0.313*	0.093	-0.022	-0.011	-0.331*	0.285*	0.365*	0.303*	1.000		
XIV	0.447*	0.005	-0.004	-0.015	0.257*	0.040	-0.033	0.020	-0.287*	0.245*	0.319*	0.420*	0.513*	1.000	
XV	0.571*	0.005	-0.010	0.023	0.280*	0.039	-0.020	-0023	-0.376*	0.343*	0.410*	0.402*	0.606*	0.858*	1.000

* at 1 per cent level of significance

** at 5 per cent level of significance

Appendix Table XIV

CORRELATION MATRIX (WHOLE REGION)

	I Density	II Population	III Sex Ratio	IV Dependency Ratio	V Literacy Rate	VI Scheduled Castes	VII Scheduled Tribes	VIII Total workers	IX Primary workers	X Secondary workers	XI Tertiary workers	XII Educational facilities	XIII Medical facilities	XIV Infrastructural facilities	XV Population size
I	1.000														
II	-0.006	1.000													
III	-0.007	-0.018	1.000												
IV	0.024	-0.041	0.146*	1.000											
V	0.211*	0.009	-0.176*	-0.009	1.000										
VI	0.004	0.009	-0.058	-0.019	0.034	1.000									
VII	0.026	-0.010	-0.127**	-0.066	-0.043	-0.086**	1.000								
VIII	-0.028	0.032	-0.070	-0.842*	-0.100**	0.022	0.136*	1.000							
IX	-0.101	-0.023	-0.132**	-0.044	-0.054	0.142*	0.511*	0.140*	1.000						
X	0.217*	0.057	-0.021	0.007	0.231*	0.128*	0.151*	-0.009	-0.106**	1.000					
XI	0.322*	-0.003	-0.065	0.056	0.346	-0.007	0.027	-0.072	-0.342*	0.347*	1.000				
XII	0.615	0.470	-0.041	0.019	0.240*	0.038	0.065	-0.013	0.004	0.226*	0.273*	1.000			
XIII	0.608*	-0.007	-0.080**	0.023	0.312	0.060	0.130*	-0.010	0.090**	0.269*	0.343*	0.754*	1.000		
XIV	0.439	0.004	-0.099**	0.022	0.294*	0.099*	0.267*	0.014	0.301*	0.356*	0.302*	0.568*	0.508*	1.000	
XV	0.471*	-0.003	-0.165*	-0.014	0.245*	0.126*	0.451*	0.060	0.621*	0.287*	0.201	0.615*	0.678*	0.662*	1.000

* At 1 per cent level of significance

** At 5 per cent level of significance

Appendix Table XV

SOCIAL AMENITIES AND their WEIGHTAGES

Social Amenities	Weightages
1. Educational:	
Primary School: P	3
Middle School: M	30
High School: H	44.92
College: C	68.40
2. Medical:	
(a) Dispensaries: D	19
(b) Family Planning Centre: FC	45
(c) Maternity and Child Welfare Centre: MCW	60
(d) Health Centre: HC	87
(e) Hospital: H	98
3. Power Supply - E	14
4. Dranking Water:	
(a) Well: W	0.9
(b) Tank: TK	6
(c) Others: O	24
(d) Tubewell: TW	98
(e) Tap : T	153
5. Communications:	
(a) Kutcha Road: KR	4
(b) Pucca Road: PR	5
(c) Train: T	27
6. Post and Telegraphs:	
(a) Post Office: PO	9
(b) Telephone: TL	81
(c) Posts and Telegraph: PT Office	199

Appendix Table XVI

VILLAGE LEVEL DATA UP TO 7 MILES FROM JAIPUR

(City Core Area)

Distance from the City (Miles)	Tehsil/Village	Population Growth	Density (per sq. mile)	%age of literacy	%age of primary workers	%age of secondary workers	%age of tertiary workers
1	2	3	4	5	6	7	8
1 to 3	Nil	-	-	-	-	-	-
3 to 4	Jaipur						
	Kilangarh	10.38	134	20.00	89.13	4.35	6.52
	Sanganer						
	Sukhelpura	12.28	499	11.91	92.73	0.61	6.67
4 to 5	Jaipur						
	Murlipura	23.20	524	7.62	50.69	-	49.32
	Girdharipura	34.71	320	18.70	88.24	-	11.76
	Panchyawala	42.72	403	10.91	95.65	-	4.35
	Badarwas	117.18	473	15.01	76.28	-	23.72
	Heerapura	31.74	960	18.93	81.33	11.62	7.04

Continued....

Appendix Table XVI (Continued)

1	2	3	4	5	6	7	8
	Manpura Sarwa	59.11	550	17.55	31.97	51.64	16.40
	Jaisinghpura Khanr	35.95	576	11.82	77.85	12.54	9.61
	Ballorpura	13.53	761	6.66	5.13	60.26	34.61
	Sanganer						
	Nand Kishorpura	1.50	499	20.71	96.35	1.04	2.60
	Ganpatpura Chak I	48.84	1952	7.50	94.82	-	2.58
	Manoharpura	45.45	1043	10.33	84.91	7.09	7.98
	Udaipur Gilriya	20.38	1382	2.50	100	-	-
	Kho-Reburiyan	3.23	44	8.50	85.10	6.09	8.81
5 to 6	Jaipur						
	Mahapura	32.60	166	23.58	72.36	4.07	23.58
	Harnathpura	21.37	691	30.26	73.48	6.88	19.59
	Gokalpura	123.60	403	25.04	66.84	7.49	25.67
	Bishnawala	50.33	371	16.95	68.58	4.29	27.15
	Meenawala	31.22	704	17.55	47.89	7.37	44.74
	Sumel	1.61	345	14.26	99.42	-	0.58

Continued...

Appendix Table XVI (Continued)

1	2	3	4	5	6	7	8
	Lalarpura	34.67	294	9.40	87.69	-	12.31
	Dharwas	100.82	550	3.38	89.04	-	10.27
	Gajsinghpura	130.38	812	24.54	32.23	14.45	53.34
	Amber						
	Maila Bag	-21.91	25	1.56	88.88	-	8.10
	Sanganer						
	Asarpura	82.02	396	9.87	93.86	0.88	5.26
	Ganpatpura Chak 2	60.53	697	14.75	82.35	-	17.65
	Mangyawas	44.86	544	15.97	79.03	9.68	11.29
	Singarpura	48.72	236	5.17	93.33	-	6.67
	Ramsinghpura Dhaulai	48.15	364	6.07	93.12	5.81	1.16
	Manpura Deori	48.91	461	15.51	95.50	1.12	3.37
	Balrampura	110.94	204	8.14	89.13	6.52	4.35
	Kalyanpura	85.39	332	15.27	90.00	2.50	7.50
	Badh Mohanpura	70.89	465	17.03	100	-	-
	Chak Sawai-Getor	6.06	281	10.86	95.55	-	4.45

Continued....

Appendix Table XVI (Continued)

1	2	3	4	5	6	7	8
	Jagatpura	8.54	1203	20.90	58.89	12.32	28.75
	Badh Teelawala	10.77	723	6.94	75.00	-	25.00
	Teelawala	9.52	256	8.70	90.26	3.53	6.19
	Bhainroo Kerol	5.56	576	26.32	66.66	-	33.33
	Shri Govindpura	8.00	134	20.37	100	-	-
	Bhavgarh Bandha	1.25	339	7.38	100	-	-
	Looniyawas	0.62	883	12.53	93.27	4.02	2.68
	Hirapura	39.74	320	6.42	44.06	33.88	22.05
	Jaipura	17.65	806	15.19	60.14	21.73	18.10
6 to 7	Jaipur						
	Charan Nadi	24.71	1299	20.37	56.86	23.53	19.60
	Nangal Jaisabohra	45.00	966	26.71	41.63	14.20	44.18
	Bara Rama	33.66	416	25.18	71.56	4.59	23.86
	Kanakpura	67.74	217	29.32	92.46	-	7.55
	Rapa-ki-Nangal	15.25	172	3.33	93.02	3.49	3.49
	Mukundpura	41.41	204	3.54	87.88	1.52	10.61

Continued....

Appendix Table XVI (Continued)

1	2	3	4	5	6	7	8
	Malpura Chaur	21.88	108	-	100	-	-
	Bijaipura	-1.17	352	1.34	96.57	2.05	1.37
	Amber						
	Jesalyor	3.06	76	19.93	64.19	19.53	16.28
	Kishanpura-Lalpura	10.53	352	13.76	76.00	6.00	18.00
	Sanganer						
	Keshopura	42.65	768	23.55	89.86	7.25	2.90
	Ramsinghpura	38.29	320	20.00	100	-	-
	Ganpatpura	1.14	12	14.05	96.84	0.53	2.64
	Jaitpura	3.83	364	19.14	85.86	-	14.12
	Sukhiya	144.16	140	12.54	99.38	-	0.62
	Mohanpura	220.62	192	9.36	76.78	7.17	16.01
	Bambala	56.35	473	15.41	51.65	20.53	27.82
	Shyopur	29.57	928	29.48	92.99	1.39	5.58
	Laxmi Damodar-pura	29.75	403	7.16	83.14	16.86	-

Continued....

Appendix Table XVI (Continued)

1	2	3	4	5	6	7	8
	Jeelawala	26.48	288	15.38	93.33	1.90	4.75
	Ramnagariya	79.61	403	23.08	92.58	-	7.42
	Badh Koral	40.96	1120	4.78	94.10	1.17	4.70
	Khori	1.16	307	-	100	-	-
	Chak Govindpura	-28.17	19	7.37	76.57	11.34	12.04
	Govindpura	31.50	249	39.04	91.47	-	8.52
	Kalyanpura	60.90	204	30.19	94.44	-	5.56
	Chak Karol	35.90	313	29.23	95.00	0.82	4.18

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