4. URBAN DIFFUSION

4.1. INTRODUCTION

This chapter makes an attempt to analyse the spatio-temporal patterns of the spread or dispersal of urban centres in West Bengal during 1901-81.

The first step in such a study, obviously is to obtain an idea of the patterns of spatial distribution of urban centres in the state in the course of this century. This can be best revealed through a visual comparison of a series of maps showing the emergence of new urban centres during each decade of the period under review. Secondly an analysis of the variation in the number of urban centres in each district becomes relevant since this parameter provides an idea of the nature of urban spread over different parts of the state. A third aspect of analysis is a study of the shifts in the centre of gravity of urban population in the state so as to get a clear insight into the nature of the areal movements of urban population during the different decades.

This chapter also includes an analysis of the spacing of urban centres in the state, since the spread of urban centres over space may be said to bear a close relationship with the spacing factor. Again it is generally accepted that the spacing of settlements is dependent on their size. Therefore, a final aspect that has been included in this chapter is an analysis of the size-spacing relationship of urban centres.

4.2. METHODOLOGY

For a visual comparison of the spatial diffusion of urban centres in West Bengal a set of nine maps have been prepared in chronological order for each decade during 1901-81, each of which shows the location of new urban centres added during last census by solid dots, and those existing prior to that census by open ones.

To analyse the districtwise variation in the proportion of urban centres, the percentage share of the number of urban centres in each
district out of the total number of urban centres in the state has been calculated for each decade during 1901-81.

4.2.1. The mean point of urban population

The mean point of urban population is defined as a point on which the state concerned would balance if it were a rigid plane without weight and the urban population were distributed thereon, each individual being assumed to have equal weight and to exert an influence on the central point proportional to its distance from the point. The best use of the mean point is in the analysis of areal movements. In this study, the mean point of urban population has been located by the grid-coordinate method which employs the following procedure:

i) The areal centres of each of the districts of West Bengal are located by eye estimation.

ii) Two lines perpendicular to each other are drawn touching the western most and southern most points on the boundary. These two lines represent the X and Y axes with respect to which x and y co-ordinates of the areal centres are measured.

iii) The different x and y values obtained for each areal unit are then duly weighted with the population of that unit.

iv) Finally, the co-ordinates of the mean point of urban population is found by

\[
X_c = \frac{\sum x_i P_i}{\sum P_i}
\]

\[
Y_c = \frac{\sum y_i P_i}{\sum P_i}
\]

where \(x_i\) is the x co-ordinate of the areal centre of ith district;

\(y_i\) is the y co-ordinate of the areal centre of ith district;

\(P_i\) is population of ith district;

\(X_c\) is the x co-ordinate of the mean point; and

\(Y_c\) is the y co-ordinate of the mean point.
To analyse the shift of the mean point during the period under review, the mean point of urban population for each decade during 1901-81 has been calculated and located on a single map (Figure 4.4).

4.2.2. Spacing of urban centres

A central theme in geographical research has been the analysis of areal distributions. This is especially true in the study of urban settlements. The basic theoretical concepts of the central place theory as put forward by Christaller (1933) and Losch (1954) are generally accepted among geographers and have provided the basis for numerous empirical studies of relative location and spatial structure. Subsequently several techniques have been developed for settlement pattern analysis. Prominent among these is the technique of nearest neighbour analysis developed by Clark and Evans (1954). This technique gives the $R_n$ statistic which is a measure of point pattern randomness in terms of nearest neighbour distance.

Calculation of the $R_n$ statistic involves the following procedures

1) The observed average distance ($\bar{d}_o$) of all points from their nearest neighbouring point is found by

$$\bar{d}_o = \frac{1}{n} \sum_{i=1}^{n} d_i$$

where $d_i$ is the distance of the $i$th point to its own nearest neighbour.

and $n$ is the number of points in the pattern.

2) The expected mean distance between nearest neighbours ($d_E$) is found by

$$d_E = \frac{1}{2\sqrt{\lambda}}$$

where $\lambda$ is the density of settlements in the study area.

3) Finally, the nearest neighbour statistic is obtained from

$$R_n = \frac{\bar{d}_o}{d_E}$$
The $R_n$ statistic thus obtained provides a measure of the degree of randomness in a pattern. In a perfectly random pattern $R_n = 1$ and in a perfectly clustered pattern $R_n = 0$. The maximum possible value of $R_n = 2.149$ and this indicates a perfectly regular pattern when the points will be located on the vertices of a hexagonal grid. Thus use of this measure provides a broad threefold classification of settlement patterns into (i) random (ii) clustered and (iii) uniform.

To analyse the pattern of spacing of urban centres in West Bengal the $R_n$ values have been calculated for the state for each decade during 1901-81 as well as the six size classes of urban centres during the same period (Table 4.2).

4.2.3. Size-spacing relationship of urban centres

It is generally accepted that small settlements are closely spaced and larger settlements are widely spaced. Research has shown this proposition to be valid, at least for specific areas. Christaller (1933) examined in detail the hierarchy of small towns and villages around five great regional capitals of southern Germany and showed that the regional capitals were 178 km. apart, the small provincial capitals were 108 km. apart, the county seats 21 km. and the village 7 km. apart. Similarly, Losch's (1954) study on Iowa, in the mid-western USA shows a close connection between size and spacing of urban centres.

A somewhat different approach has been used to study the relationship between size and spacing of urban centres in West Bengal. In the first place the mean distance of urban centres has been obtained from a symmetrical matrix of distances of urban centres from each other, for each of the six size classes of urban centres. Next, the mean distances thus obtained have been correlated with the average population size of urban centres in the different size classes. To get an idea of the temporal variations of the relationship during the present century correlation coefficients have been found for the above mentioned variables for each decade during 1901-81.
WEST BENGAL

SPATIAL DIFFUSION OF URBAN CENTRES

1901

1911

Haldiban

Old Maldah

EMlnh^Bazar

Dhut

Asansol

Kandi

Asansol

Kandi

1921

1931

Chaptampa

Patna

Near Patna

Patna

KEY TO INSET

1 North Barrackpur Cantonment
2 Patna
3 Khurda
4 Rajshahi
5 Bara
6 Kamruka
7 North Dum Dum
8 Baranagar
9 South Dum Dum
10 Garden Reach

Figure 41
4.3. ANALYSIS

4.3.1. Spatial diffusion of urban centres

A study of figures 4.1 to 4.3 reveals that since 1901, the Hugli Industrial Belt comprises the most urbanised zone in the state, the towns being located on either bank of the river Hugli, with Calcutta as their focus. At the turn of the present century this zone contained 26 urban centres out of a total of 78 in the state. This is not surprising since modern urbanisation in West Bengal is based upon the history of European colonisation of the Indian subcontinent. Out of an old system of a predominantly rural economy based on agriculture and traditional handicrafts rose a new system based on the British political economy of capitalistic trade and industry, as a result of which there developed the Hugliside conurbation. Originally, the main attraction of this region was the navigability of the river Hugli, since many of these towns were historical trade centres of the Dutch, the Portuguese, the French and the British during the 16-18th centuries, like Calcutta, Serampore, Hooghly Chinsurah and Chandannagar. During the subsequent decades, development of various industries as well as intensification of commercial activities resulted in a further increase in the number of towns.

It is interesting to note that in the earlier decades the number of urban centres increased very slowly even within the Hugli Industrial Belt. In 1911 there were only three new urban centres in West Bengal, out of which one, Halisahar is located in the Hugli Region. In 1921 and 1931 number of new urban centres in this zone increased by 4 and 2 respectively. In 1941 there were no new urban centres in this belt while 5 new towns were added in 1951. The picture changed dramatically in 1961, when out of a total of 64 new urban centres in the state, 37 were located in the Hugli Industrial Belt. Even in 1971 this trend continued and as many as 28 new urban centres were recognised here. By 1981, the Calcutta Urban Agglomeration contained 107 out of a total of 291 urban centres in the state indicating that eight decades later this zone has retained its status as the most important and most intensely urbanised zone of the state.
Figure 4.2
It may be noted however, that another zone of urban concentration, though much smaller in magnitude, has been emerging slowly during the last few decades, namely, the Asansol-Durgapur region in the western part of Barddhaman district. Urban development in this region is associated with the coal resources of Raniganj area, the importance of which began to be felt during the later half of the 18th century. Impetus was provided to the coal mining industry of this region by two factors; increased demand for coal in the jute mills and other industries of Calcutta and its neighbourhood and the construction of railways around the middle of the 19th century. As a result this zone began to be transformed into an important mining-cum-industrial area of the state. In 1901, this zone had only two urban centres, namely Raniganj and Asansol. Since then mining, as well as the establishment of heavy and allied industries has led to a multiplication in the number of urban centres, especially during the last two decades and at present this subsidiary urban complex contains as many as 39 towns and cities.

Even over the remaining parts of the state urban centres appear to be distributed unevenly. It might be noted that many of the urban centres which existed prior to 1901 had riverside locations. Many of these centres had a long historical background and were either old capitals like Murshidabad, religious centres like Nabadvip or port towns like Tamluk. Again in the early decades, that is during 1901-51, new urban centres emerged slowly. The 1961-81 period has, however, seen a rapid spread of urban centres in the state. Significant additions may be seen in the case of Nadia, Jalpaiguri and West Dinajpur districts. An interesting development in the recent decades is that the beginnings of a zone of urban concentration is perceptible on the borders of Malda and Murshidabad districts where a number of urban centres have come into being following the alignment of the river Bhagirathi. This growth has been noticeable since the construction of the Farakka Barrage. Another small subsidiary urban complex comprising the towns of Chapari, Adra, Arra and Raghunathpur may be seen to be developing in the northern part of Puruliya district.
4.3.2. Variation in the proportion of urban centres in the districts

A study of table 4.1 shows that Twentyfour Parganas recorded the highest proportion of urban centres in the state throughout 1901-81. In 1901, the figure was as high as 32.05%. This share has been declining over the decades and has come down to 25.43% in 1981, showing that this district still contains slightly more than one quarter of the total number of urban centres in the state. The second place is occupied by Hugli district which contained slightly over 10% of the urban centres of West Bengal till 1941. Haora, another district with a high level of urbanisation shows a very small share (around 2 to 3%) till 1951 showing that urban population in this district was concentrated in a few urban centres during the period. Actually there were only 2 urban centres till 1941 (figures 4.1 and 4.2). In 1961 the figure increased to as much as 12.5% and this district came to occupy second place after Twentyfour Parganas during 1961-71.

Barddhaman district shows a remarkable increase in the proportion of urban centres during the last decade and the figure increased from 9.87% in 1971 to 16.84% in 1981 so that the district occupied second rank in this respect in 1981. Prior to 1971 the percentage was generally less than 10%.

Among the remaining districts Koch Bihar, West Dinajpur, Maldah, Puruliya, Bankura and Birbhum each contain less than 5% of the state's urban centres and generally show a declining trend in the recent decades. Jalpaiguri and Darjiling districts also contain less than 5% each but these show an increasing trend in the recent decades. Maldah too, belongs to the less than 5% category but it shows a slight increase in its share of urban centres during the last decade. The three remaining districts of Nadia, Murshidabad and Medinipur, each with a history of urbanisation that goes a long way back generally contain 5-10% of the urban centres of the state. It may also be noted that in all the three districts, the figures show an overall decline during the period under review.
### Table 4.1

Percentage variation in the proportion of the state's urban centres in the districts, 1901-81

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Darjiling</td>
<td>2.56</td>
<td>2.47</td>
<td>2.25</td>
<td>6.38</td>
<td>5.71</td>
<td>3.33</td>
<td>2.17</td>
<td>1.79</td>
<td>2.41</td>
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<tr>
<td>Jalpaiguri</td>
<td>2.56</td>
<td>2.47</td>
<td>2.25</td>
<td>1.06</td>
<td>0.95</td>
<td>1.67</td>
<td>3.80</td>
<td>3.59</td>
<td>4.12</td>
</tr>
<tr>
<td>Koch Bihar</td>
<td>5.13</td>
<td>4.94</td>
<td>4.49</td>
<td>4.26</td>
<td>5.71</td>
<td>5.00</td>
<td>3.26</td>
<td>3.14</td>
<td>2.41</td>
</tr>
<tr>
<td>West Dinajpur</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.95</td>
<td>2.5</td>
<td>3.26</td>
<td>3.14</td>
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<td>2.13</td>
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<td>1.67</td>
<td>1.09</td>
<td>0.90</td>
<td>1.38</td>
</tr>
<tr>
<td>Murshidabad</td>
<td>6.41</td>
<td>7.41</td>
<td>7.87</td>
<td>7.45</td>
<td>6.67</td>
<td>5.00</td>
<td>4.89</td>
<td>4.93</td>
<td>4.47</td>
</tr>
<tr>
<td>Nadia</td>
<td>7.69</td>
<td>7.41</td>
<td>6.74</td>
<td>6.38</td>
<td>5.71</td>
<td>5.83</td>
<td>6.52</td>
<td>5.83</td>
<td>5.50</td>
</tr>
<tr>
<td>24 Parganas</td>
<td>32.05</td>
<td>32.10</td>
<td>31.46</td>
<td>28.72</td>
<td>27.62</td>
<td>27.5</td>
<td>26.63</td>
<td>31.39</td>
<td>25.43</td>
</tr>
<tr>
<td>Calcutta</td>
<td>1.28</td>
<td>1.24</td>
<td>1.12</td>
<td>1.06</td>
<td>0.95</td>
<td>0.83</td>
<td>0.54</td>
<td>0.45</td>
<td>0.34</td>
</tr>
<tr>
<td>Haora</td>
<td>2.56</td>
<td>2.47</td>
<td>2.25</td>
<td>2.13</td>
<td>1.91</td>
<td>3.33</td>
<td>12.5</td>
<td>12.11</td>
<td>12.03</td>
</tr>
<tr>
<td>Hugli</td>
<td>11.54</td>
<td>11.11</td>
<td>12.36</td>
<td>11.70</td>
<td>10.48</td>
<td>10.00</td>
<td>8.70</td>
<td>7.62</td>
<td>8.94</td>
</tr>
<tr>
<td>Barddhaman</td>
<td>7.69</td>
<td>7.41</td>
<td>6.74</td>
<td>9.57</td>
<td>9.52</td>
<td>11.67</td>
<td>10.33</td>
<td>9.87</td>
<td>16.84</td>
</tr>
<tr>
<td>Birbhum</td>
<td>1.28</td>
<td>1.24</td>
<td>3.37</td>
<td>2.13</td>
<td>4.76</td>
<td>4.17</td>
<td>3.26</td>
<td>2.69</td>
<td>2.41</td>
</tr>
<tr>
<td>Bankura</td>
<td>3.85</td>
<td>3.70</td>
<td>4.49</td>
<td>4.26</td>
<td>3.81</td>
<td>4.17</td>
<td>2.72</td>
<td>2.24</td>
<td>1.72</td>
</tr>
<tr>
<td>Puruliya</td>
<td>3.85</td>
<td>3.70</td>
<td>3.37</td>
<td>3.19</td>
<td>4.76</td>
<td>4.17</td>
<td>2.72</td>
<td>3.14</td>
<td>2.75</td>
</tr>
</tbody>
</table>
WEST BENGAL

LOCUS OF THE MEAN POINTS OF URBAN POPULATION
1901-81

Figure 4.4
4.3.3. Shifts in the centres of gravity of urban population

The mean centres of urban population throughout the decades have been located in the district of Hugli in the southern part of the state. During 1901-41 there was no definite trend in the shift of the mean centre of urban population. An interesting feature of this period is the southeastward movement of the mean centre between 1931 and 1941. This was probably an effect of the large increase of population of Calcutta during the same decade.

Since 1951, a general northward movement of the centre of gravity in seen. It may also be noted that between 1951 and 1961 the shift also had a slight westerly component which may be related to the emergence of the subsidiary urban complex in the Asansol-Durgapur region. During 1961-71, though the general northward movement is maintained, there is also a slight eastward trend. However it may be noticed that the magnitude of the shift is very small compared to 1951-61. This, as well as the easterly component may be related to the fact that the number of urban centres in Twentyfour Parganas increased from 49 in 1961 to 70 in 1971 resulting in an increase of the district's urban population by 972363 during this decade, thus overcoming the effect of the Asansol-Durgapur zone where the volume of urban population added during this decade was comparatively smaller. During 1971-81, however the trend of movement is parallel to that observed during 1951-61 since this decade saw the addition of as many as 24 new urban centres in the Durgapur-Asansol area.

4.3.4. Spacing of urban centres

Results of nearest neighbour analysis indicate that there is a significant random element in the spacing of urban settlements over the state as a whole. The \( R_n \) value for West Bengal shows little variation over the decades. A maximum value of 0.87 in seen in 1981 and the minimum value of 0.65 in 1911.

As far as the spacing of the different size classes of urban centres is concerned, the following facts may be noted.
Table 4.2 Results of nearest neighbour analysis of the urban centres in West Bengal, 1901-81

<table>
<thead>
<tr>
<th>Year</th>
<th>$R_n$ values</th>
<th>All classes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Class I</td>
<td>Class II</td>
</tr>
<tr>
<td>1901</td>
<td>-0.03</td>
<td>-</td>
</tr>
<tr>
<td>1911</td>
<td>0.03</td>
<td>0.26</td>
</tr>
<tr>
<td>1921</td>
<td>0.03</td>
<td>0.09</td>
</tr>
<tr>
<td>1931</td>
<td>0.03</td>
<td>0.41</td>
</tr>
<tr>
<td>1941</td>
<td>0.14</td>
<td>0.56</td>
</tr>
<tr>
<td>1951</td>
<td>0.35</td>
<td>0.45</td>
</tr>
<tr>
<td>1961</td>
<td>0.55</td>
<td>0.90</td>
</tr>
<tr>
<td>1971</td>
<td>0.43</td>
<td>0.84</td>
</tr>
<tr>
<td>1981</td>
<td>0.80</td>
<td>0.74</td>
</tr>
</tbody>
</table>
i) Class I urban centres (population over 100,000) came up with a clustered pattern in the earlier decades that is, during 1901-51. This is not surprising since there were only two Class I urban centres (Calcutta and Haora) in the state till 1931 located opposite to each other on the banks of the River Hugli. In 1941, a third urban centre, namely, Bhatpara was added to this category, which is again located within the Hugliside conurbation quite close to Calcutta. In 1951, the number of urban centres in this category went up to 7 but again, with one exception (Kharagpur), the others were all located within Hugli Industrial Belt, thus maintaining a tendency towards a clustered pattern. During 1961-71 a partly random, partly clustered spacing is seen as a result of the inclusion of urban centres like Durgapur, Asansol and Barddhaman, which are located outside the Hugli Industrial Belt and also comparatively further apart than nearest neighbours of the same size. However it may be seen that the tendency was still towards a clustered spacing till 1971. A significant change occurred during 1981 when the $R_n$ value increased to 0.8 showing that the random element has definitely become dominant. This is actually an effect of the inclusion of urban centres like Siliguri and Balurghat which are situated much further apart from their nearest neighbours of the same size class.

ii) Class II urban centres (population 50,000 to 99,999) also came up with a nearly clustered spacing in the initial decades. This may be related directly to the fact that all urban centres of this category were located close to each other within the Hugli Industrial Belt till 1921. During 1931-51 the $R_n$ value varied between 0.41 to 0.56 indicating a partly random, partly clustered distribution during this period. This was again the result of inclusion of urban centres like Asansol, Barddhaman and Baharampur within this class. Since 1961, however the distribution of urban settlements in this size class has become almost random. However it may be noted that the $R_n$ values shows a tendency to decline during the last two decades.
iii) Class III urban centres (population 20,000 to 49,999) shows a partly random, partly clustered distribution in the first two decades. Since 1921, however these urban centres have been distributed randomly over the state.

iv) Class IV (population 10,000 to 19,999) and Class V (population 5,000 to 9,999) urban centres show nearly random spacing throughout 1901-71. The most interesting feature about the spacing of urban centres in these two size categories is the definite decline of the $R_n$ values in 1981 which have fallen from 0.88 to 0.63 and 0.75 to 0.58 for Class IV and Class V urban centres respectively. This seems to indicate a tendency towards a clustered pattern of spacing in the last decade. It must be remembered that during this decade a number of new urban centres belonging to these two size categories have come into being in the western part of Barddhaman district, which show a definitely clustered pattern of location.

v) Finally Class VI urban centres (population below 5,000) showed an almost perfectly random pattern of spacing until 1951. During 1961 however the random element declined and the $R_n$ value fell to 0.65 and since then these small sized urban centres show a partly clustered, partly random distribution.

4.3.5. Size-spacing relationship of urban centres

The results of this analysing show that there is an inverse relationship between the spacing and population size of urban centres in West Bengal. This is in direct contrast to the generally accepted view which states that smaller settlements should be closely spaced and larger settlements should be widely spaced. After Christaller and Losch, later workers (House, 1953) have also studied spacing of urban centres and while the actual figures varied for different regions, a general trend of increasing distance with increasing population size was maintained. But in West Bengal it seems that the trend has practically reversed itself and it is seen that Class I urban centres, that is, urban centres with population of 100,000 and over are spaced most closely while Class VI urban centres (population below 5,000) are most
widely spaced. The inverse relationship also becomes clear from the correlation coefficients (Table 4.3) which show a negative relation between the variables. What is more interesting is that this trend has continued since 1901 and shows hardly any signs of change. A glance at Table 4.3. Relationship between size and spacing of urban centres

<table>
<thead>
<tr>
<th>Year</th>
<th>1901</th>
<th>1911</th>
<th>1921</th>
<th>1931</th>
<th>1941</th>
<th>1951</th>
<th>1961</th>
<th>1971</th>
<th>1981</th>
</tr>
</thead>
<tbody>
<tr>
<td>$r_{xy}$</td>
<td>-0.6520</td>
<td>-0.6324</td>
<td>-0.6564</td>
<td>-0.8275</td>
<td>-0.8002</td>
<td>-0.7346</td>
<td>-0.8469</td>
<td>-0.969</td>
<td>-0.8611</td>
</tr>
</tbody>
</table>

$x =$ average size of urban centre in each size category

$y =$ average distance of urban centre in each size category

the coefficients shows that the value of the coefficient has been increasing over the decades and has been statistically significant since 1931.

The above analysis thus clearly reveals the peculiar nature of urban concentration in the state. This negative relationship may be related to the fact that a large proportion of urban centres in the state are concentrated within the Hugli Industrial Belt. Besides, not only does this belt contain most of the urban centres of the state, it practically contains all of the larger sized urban centres as well. For instance in 1981 this zone contained 17 out of a total of 24 Class I urban centres in the state. However it may be noticed that the average distance between Class I urban centres has been increasing in recent decades reflecting the emergence of large urban centres like Durgapur, Kharagpur and Siliguri outside the Calcutta Urban Agglomeration. Similarly Class II and III urban centres also show increasing average distance during the last two decades while a declining trend is noticeable in the case of Class IV urban centres. It is interesting to note that average distance of Class V urban centres has remained more or less static during the last three decades while that of Class VI urban centres showed a considerable decline during 1951-71 but increased once again in 1981.

4.4. CONCLUSION

On the basis of the above analysis the following conclusions may be drawn regarding the spread and spacing of urban centres in the state.
i) Urbanisation in the state has been confined primarily to the banks of the river Hugli, an area comprising of Calcutta and parts of the districts of Twentyfour Parganas, Haora, Hugli and Nadia. Since 1901 urban growth in terms of emergence of new urban centres has been maximum in and around this zone. Further evidence of this is provided by the fact that the three districts of Twentyfour Parganas, Haora and Hugli ranked highest among the districts in terms of the proportion of urban centres of the state in each district. So far as the temporal aspect is concerned, urbanisation in this zone appeared to have gathered momentum in the post-independence period and maximum new addition are seen during 1951-61 and 1961-71 decades.

ii) Compared to the Hugli Belt, spread of urbanisation to the other parts of the state has been quite slow even during the post-independence period. One exception to this is seen in the western part of Barddhaman district where a zone of urban concentration has been emerging during the recent decades, centred around the cities of Asansol and Durgapur. The effect of the emergence of this zone of urban concentration may be seen in the northwestward shift of the mean point of urban population during the recent decade.

iii) Over the remaining parts of the state, the spatial diffusion of urban centres has been occurring very slowly and there are actually no other zones of urban concentration comparable to those mentioned above. However, during the last two decades and more especially during 1981 a slight tendency towards a more dispersed pattern of urbanisation seems to be perceptible. This seems to be reflected in the emergence of a number of new urban centres in the districts of North Bengal, especially in Jalpaiguri and Darjiling. Even Maldah district where the number of urban centres remained static throughout 1901-71 shows the addition of 2 new urban centres bringing the total to 4.

iv) Spacing of urban centres in West Bengal show a significant tendency towards a random pattern especially in the recent decades. Class I and II urban centres have moved from a
clustered pattern in earlier decades towards a nearly random pattern in the most recent decades. A reverse situation becomes noticeable in the case of smaller sized urban centres (Class IV and V). It seems that these urban centres began with an almost perfectly random pattern in the earlier decades and has been slowly moving towards a partly random partly clustered distribution in the recent decades.

v) In the context of the pattern of spatial diffusion and spacing of urban centres that have been found, it is only to be expected that there should be an inverse relationship between population size and spacing of urban centres in the state. Since urbanisation in the state is neither dispersed nor spatially balanced and since the tendency of the larger urban centres is to be located in close proximity to each other, the end result is that the largest urban centres are the most closely spaced ones. On the other hand, the smaller urban centres especially those with population below 5,000 or with population between 5,000 to 9,999 are found to be dispersed over the state resulting in a wider spacing. However, analysis has shown that the mean distance of the large urban centres has been increasing in the recent decades while that of smaller towns (Classes IV and V) have been decreasing during the last three decades. At the same time it seems extremely doubtful that there will be a reversal of the negative relation between population size and spacing of urban centres in the near future.

REFERENCES