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REGIONAL PLANNING
IN
INDIA

BY

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TO

MY FATHER

PREFACE

THE publication of this book is the fulfilment of a long cherished ambition. While I was at the London School of Economics preparing for the degree of Doctor of Philosophy during the years 1937 to 1939, I thought that some useful research could be done regarding the dynamics of industrial location in India owing to industrial growth and environmental changes. My appointment in the University of Madras gave me the unique opportunity for a detailed investigation of the problem. The atmosphere for research in the University of Madras has been so congenial that I was able to complete the work much earlier than I expected.

In the actual treatment of the subject certain significant changes have taken place in the idea as originally conceived by me. Even as World War II was in progress plans for the economic development of India were being expeditiously prepared. There was common agreement among them that the planned economy for India should be implemented on a regional basis. It occurred to me that the most scientific method of evolving a regional plan is by investigating the propensity of industries to locational changes. Hence a co-ordination of locational dynamics with economic planning has been attempted in this work to arrive at a suitable regional plan for the country.

After the book was sent to the press momentous political developments have taken place in the country. Certain areas of the country have seceded from the Indian Union. This may not materially alter the generalisations or reduce the usefulness of the conclusions drawn in the book. Throughout the book it has been assumed that economic

agreement can transcend political boundaries in the interest of planned development. So it may not be wrong to hope that there will be substantial agreement between India and Pakistan regarding economic problems. Hence it is not unlikely that the regional plan outlined in the book would be of some value in spite of the political division of the country. A Note has therefore been added to indicate the lines on which a collaboration of plans of the two Dominions may be attempted.

In the execution of this piece of research I am greatly indebted to the University of Madras for its atmosphere for original thinking and for the innumerable other facilities it offers for research workers. I would also wish to express my thanks to Mr. K. S. Sonachalam, who as a Research Fellow in the University, was of considerable help to me in going through the manuscript. My thanks are also due, in no small measure, to the Bangalore Press for executing the work so expeditiously.

R. BALAKRISHNA.

UNIVERSITY BUILDINGS,
CHEPAUK, MADRAS,
November 24, 1947.

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CHAPTER I

THE THEORY OF INDUSTRIAL LOCATION

A STUDY of the dynamics of industrial location, which ought to precede any attempt at regional planning, depends for its success to a large extent on the nature of the theoretical analysis that is brought to bear on it. The initial choice of a site by an industry for the commencement of its operations and the subsequent trends of its distribution with its growth are problems which are, in their ultimate analysis, traceable to certain fundamental economic causes. Therefore the objective of any scientific enquiry of the problem should be to determine certain uniformities in the behaviour patterns of different industries, both in their static and dynamic conditions, with regard to the choice of a particular form of location. Consequently a mere inductive survey of the changes in the distribution of industries among different regions is not likely to throw much useful light on the nature of the factors causing a particular locational pattern. No doubt such a factual study may have a certain verification value of the influence of the underlying economic forces. But in order to visualise the probable form of regional distribution with industrial growth it is necessary to arrive deductively at the essential economic forces which go to constitute a pure theory of location. Such a theory should be able to say where certain industries are likely to locate themselves and also indicate the type of their behaviour under two sets of dynamic forces, namely, a growth of the industry and a change in the environmental circumstances. Unfortunately such a pure theory bereft of all blemishes or a perfectly finished economic apparatus is not easily available for application.

CLASSICAL CONTRIBUTION

The contribution of the Classical Economists to the theory of location of industries is very meagre. Except occasional

references to particular aspects of it they do not appear to have devoted any special attention to the problem. Adam Smith treats of the division between town and country from the standpoint of economic development. Similarly, J. S. Mill speaks of the prevalence of high rents in Cheapside as compared with a small village.[1] So the classical treatment does not seem to have gone beyond considering rent as having a bearing on location. But even this approach was not carried by them to its logical conclusions. On the other hand it was left to Thunen later on to develop this mode of analysis. To the classical mind, however, it appeared foreign to see location as a problem needing any special explanation. Consequently they did not attempt to formulate a comprehensive theory of location. Neither did they wish to relate it to the problems of economic theory in general.

This theoretical deficiency was not made good to any substantial extent even by Alfred Marshall.[2] His chief preoccupation was the creation of a comprehensive body of thought in economics and was therefore not anxious to develop a particular problem like the theory of location. Marshall endeavoured to assimilate all differences in cost due to location to the equilibrium analysis that he was elaborating. Obviously a sectional approach did not appeal to his mind. No doubt he presented the rudiments of a theory of location by enunciating certain general principles determining the concentration of industries, but this was more an empirical analysis rather than a scientific treatment of the problem. Besides there is not even sufficient guidance in his writings for a fuller development by his successors of his contribution to the problem. In fact it may be said that English economic theory has been particularly deficient with regard to a systematic theoretical analysis of the problem of location of industries.

[1] S. R. Dennison : *The Location of Industry and the Depressed Areas*, p. 2.

[2] Alfred Weber : *Theory of the Location of Industries*, Editor's Introduction, p. xii.

It was not until the end of the 19th century that certain specific treatments of the subject were in evidence. It commenced more or less simultaneously in two different countries, namely, the U.S.A. and Germany. The studies in U.S.A. were more realistic and descriptive, whereas in Germany it was deductive and analytical. There were two important writers in U.S.A. approaching the subject from a realistic standpoint, namely, Ross and Hall.[1] Ross gives a list of factors which might be important in influencing location and shows that some of them have actually been so in certain cases. But he makes no attempt to formulate any general theory on the basis of these factors. In other words, he does not provide us with any systematic arrangement of the general principles governing location. Hence he failed to enunciate a theory of location of industries. The contribution of Hall is even less valuable as a scientific study. He indicates certain important reasons for the location of particular industries in certain places but over-emphasises the accidental character of most of the locations and the significance of the subsequent momentum of an early start. Hence the result of his inquiry was largely inconclusive from a theoretical standpoint.

The deductive and analytical approach in Germany was due to two important economists, namely, Thunen and Alfred Weber. Their attitude towards the subject was not in any way the logical outcome of a process of evolution of economic thought in Germany.[2] Hence their contribution stands out unique. Besides all subsequent contributions on the subject have been by English Economists excepting that of Andreas Predohl. Thunen in 1836 explained agricultural location in the light of the theory of rent. He assumes a fixed consumption centre with a flat country of uniform quality around it. Here the fixed consumption

[1] S. R. Dennison: *op. cit.* pp. 5-8.

[2] Andreas Predohl: Theory of Location and General Economics, *The Journal of Political Economy*, 1928, p. 372.

centre is a town which generally grows up in the vicinity of certain mineral deposits.[1] Basing his conclusions essentially on the cost of transport, he indicates that the rent of land is lower the farther the land is from the town in the centre. This mode of approach, though valuable in itself, was not capable of universal application due to the limitation of his assumptions. It was of special interest only for agricultural occupations and therefore a separate theory had to be worked out for manufacturing industries. This was undertaken and achieved with consummate ability by Alfred Weber. He has made the most significant contribution in recent years to the particular problem of industrial location. The original edition of his book was published in 1909 in the German language. It was not until 1929 that it went into English translation.[2] So, for a period of twenty years after its first publication it was not available for the non-German readers. Therefore all modern speculation about the theory of industrial location commenced only after 1929. The subsequent literature that has grown up about the subject is therefore limited to a period of about a decade and a half. The first part of this period was characterised by hyper-excitement on the discovery of a new theory, but it was soon followed by a period of disillusionment on account of its shortcomings due to its unreal and over-simplified assumptions. However, Weber's " pure theory " is the real starting point of all later approaches of an analytical character and as such a fuller presentation of the apparatus provided by him is essential.

WEBERIAN TECHNIQUE

Weber adopts a deductive method to discover certain general factors of location. He attempts to classify on the basis of costs of production in an industry, the influences which distribute industries regionally and those that do not.

[1] B. Ohlin : *Interregional and International Trade*, p. 184.

[2] Alfred Weber: *op. cit.*, English Edition by Carl J. Friedrich.

Among the costs of production of a firm depreciation and amortization are independent of geographical situation.[1] Similarly rates of interest do not manifest variations at different regions of the same country and therefore cannot be considered as a cause of regional choice of location. Cost of land is also omitted as a factor influencing location, as the normal differences in it based on population are negligible as its proportion on each industrial unit is small. No doubt as a result of an over-concentration of industries in a particular place rents may rise to an extent significant enough to influence location, but this is treated as part of a process of agglomeration where rent can codetermine location. Otherwise it cannot take the character of a general regional factor of location. On the other hand cost of raw materials and power have a geographical significance and can influence location. They vary regionally and have therefore to be reckoned with in choosing a place of location. Labour costs exert a similar influence. Weber assumes particular labour centres with differences in cost of labour. So if higher labour costs are entailed in an industry it would have a tendency to choose cheaper labour centres. Finally costs of transportation are considered to be of primary importance in determining location. In so far as total costs of transport for an industry would vary according to the place chosen, every industry would gravitate towards a point of minimum transport cost. Thus Weber arrives, on the basis of costs of production, at three general regional factors of location, namely, price range of deposits of materials, costs of labour and cost of transportation.[2] He simplifies them further by reducing the influence of material costs to that of transport costs by regarding costlier materials as of more distant origin. Thus the apparatus provided by him consists of only two regional factors, namely, transport costs and labour costs. The latter operates as a deviating

[1] Alfred Weber: *op. cit.*, p. 28.

[2] *Ibid.*, p. 34.

tendency of an industry oriented according to minimum transport costs. He recognises another deviating tendency in the economies that might arise from an agglomeration or concentration of an industry. Thus Weber in his pure theory provides us with an extremely simplified technique for the interpretation of facts.

The operation of each one of these factors may now be subjected to a more detailed examination. Transport costs, according to him, are a manifestation of two predominant factors, namely, the weight to be transported and the distance to be covered. In other words, he overlooks the influence of the type of transportation, the nature of road bed and the quality of goods. Such an abstraction is found necessary for the purpose of enunciating a pure theory and it is claimed that it will not distort the picture of reality very much. On the basis of these assumptions, he points out that every industry will have for itself a " Locational Figure " of least transportation costs consisting of the points of material deposits and consumption centre appropriate for its operations.[1] The exact place where an industry will orient itself within such a locational figure depends upon two conditions, namely, the type of materials used in the industry and the nature of their transformation in the process of production. Weber divides all raw materials into two groups, namely, " ubiquities " and " localized materials ". Ubiquities are those that are available everywhere. Brick clay, sand, water and such other commodities are relatively speaking available in all areas. Consequently they are supposed to have very little influence on location. On the other hand, localized materials like iron ore and coal are confined to certain regions and therefore exert a greater influence on location. Further the degree of influence exerted on location by the localized materials would depend on the way in which they may behave in the process of production. Some of them may impart their total weight to the product as in the

[1] Alfred Weber : *op. cit.*, p. 49.

case of raw cotton in the manufacture of cloth. Such materials are called by Weber as " Pure Materials " and they are not likely to attract production to their place of deposit, as the transport costs remain the same whether they are transported as raw products or as finished commodities. There are other commodities which may either add none of their weight to the product or only a part of it. Coal, for example, adds none of its weight, whereas iron ore adds only a part of it. These raw products are called "Gross Materials" and they are weight losing in character. The weight-losing raw materials exert a greater influence on location, as production at the place of their deposit would avoid all transport costs incurred in transporting that part of the raw materials which would get lost in the process of production.

The foregoing analysis provides us with an apparatus for the determination of location of an industry from the standpoint of transport costs. The apparatus consists of the relative weights with which the corners of the locational figure draw the location towards themselves. The weight-losing materials will pull with their own weight from the point of their deposits and the consumption centre will pull with the weight of their product. The ultimate victory in the case of each industry depends upon its " Material Index ", that is the proportion of weight of localized material to weight of product. The resulting conclusion is that industries with a high 'material index' are attracted towards material deposits and those with a low material index towards places of consumption. Ubiquitous materials may attract towards places of consumption when they add to the weight of the product. So the final place of location for each industry would depend upon the types of raw materials constituting the production function and consequently the degree of attraction of each of the components of the locational figure. All these static assumptions are subject to variation under the influence of any dynamic forces like changes in the

processes of production increasing the material index, or the substitution of a new variety of raw materials.

The equilibrium position attained in this manner on the basis of transport costs may be disturbed due to the attraction of cheaper labour centres. Wages of labour may differ as a result of the geographical distribution of population. The causes of such differences are a matter of indifference to the "pure theory" of location. The objective here is to study the influence of differences in labour costs on the distribution of industry. This part of the analysis entails certain assumptions which no doubt appear rather unreal, but they could be given up later for purposes of an empirical study.[1] It is assumed that unlimited labour supplies are available in these centres and that the level of wages are not supposed to react to an increase in demand consequent upon the migration of several industries to that centre. Besides the question of efficiency in relation to wages is also not taken into consideration. Permitting such assumptions a migration of an industry from a point of minimum transport costs to a cheaper labour centre may be construed as a deviation in location. Such a deviation is likely to occur only where the savings in the cost of labour are larger than the additional costs of transport which it involves. The theoretical solution provided by Weber for this purpose consists of a determination of points of equal deviation costs from the place of minimum transport costs. These are called "Isodapanes", that is, of equal cost. One of those points may touch a cheaper labour centre and may just correspond with the economies of labour on the one hand with additional cost of transport on the other. It is called the critical Isodapane.[2] If the actual labour centre lies within the area of such a critical Isodapane then migration of the industry takes place, because it will result in greater economy than the extra transport cost involved, but not

[1] Alfred Weber : *op. cit.*, p. 101.

[2] *Ibid.*, p. 104.

otherwise. In actual practice the industries which will yield in this manner are those with a high index of labour costs available for compression. Therefore in order to determine the behaviour of each industry in this respect it is necessary to calculate the proportion of labour costs per ton of weight to be moved. Weber calls this as the coefficient of labour and the higher the coefficient the greater is the tendency for labour locations. Besides these technical reasons certain environmental conditions may also function in favour of labour locations. Density of population and lower transport rates may operate in favour of labour locations, whereas greater mechanization and a consequent reduction in the percentage of labour compression will favour transport orientation to a greater degree.

Finally Weber treats the influence of another deviating factor from the minimum transport point, namely, agglomeration. This refers to an advantage or cheapening of production due to the concentration of an industry. Here the reference is mainly to external economies. The opposite tendency of deglomeration leads to a cheapening of production due to decentralization. This is essentially caused by a rise in land value as a result of concentration. These two tendencies influence in opposite directions and the final determination rests on the side of greater economy. Here the same technique of the Isodapanes is applied and agglomeration is supposed to take place whenever the saving in costs is greater than the extra transport charges involved.[1] If the deviation occurs from a point of lower labour costs the expected economy from pure agglomeration should more than outweigh the economy of labour and that of any accidental agglomeration at the labour centre. However the actual behaviour of particular industries would largely depend on the index of value added through manufacture. If we relate the index of value to the weight to be transported we obtain the 'coefficient of manufacture'. Whenever it is

[1] Alfred Weber: *op. cit.*, p. 134.

high an industry has a tendency to agglomerate. Thus the Weberian framework consists of three important factors influencing the location of any particular industry. The behaviour patterns of different groups of industries depend upon the variety and range of materials used by them and the proportions in which the different forms of value are embodied in their products. Therefore the empirical application of the pure theory consists only in an analysis of their productive processes. Hence it is largely a matter of technique in the production function that appears to determine location. This fundamental aspect of the Weberian analysis is subjected to much criticism and it will come up for examination at a later stage.

Weber considers next the possibility of more than one place of location for an industry. A split in location may occur if it is likely to result in a saving of ton-miles. This approach is the outcome of the surrender of an assumption held hitherto, that productive activity is indivisible. This is not technically always true. Very often the different stages of production could be carried on independently and at different places. When such a division of stages is technically feasible a split in location will always occur because the first stage of production is one of elimination of waste materials and the second of working up of a pure material.[1] Consequently there is no economic attraction for the second stage of production to be associated with the first. And similarly the first stage of production cannot economically move to the place that is appropriate for the second stage. Therefore the location of the first stage of production is near the raw materials and the later stages would be near the place of final consumption. The paper industry offers a suitable instance. The manufacture of pulp is undertaken near the raw material supplies and that of paper at the point of consumption.

Just as a split in location, a coupling of independent industrial processes in a particular place is also conceivable.

[1] Alfred Weber : *op. cit.*, p. 177.

A locational coupling may occur due to a material connection. If the raw material of an industry happens to be the by-product of another then the two industries may choose a single place of location. Distilleries are invariably located near sugar factories, as they utilize molasses which is a by-product of sugar manufacture. Similarly several raw materials may diverge from a common source and the industries utilizing them may choose the same place of location. For instance, dyestuffs manufacture and other industries using coke may be concentrated in the same area. Locational coupling may also be brought about through a market connection. If one place of production creates a place of consumption for another product a common market may be created. In other words, the two products may converge on the same market, in which case it is advantageous to have a common place of production. The preparation of wrapping materials at consumers goods manufacturing centres is an example of locational coupling due to a market connection.[1]

CRITICISMS AND ALTERNATIVE SUGGESTIONS

A detailed presentation of the theory of location elaborated by Alfred Weber was found necessary in view of the fact that much of the later contributions consist of an initial criticism of the technique provided by him. Hence in the absence of a full knowledge of the Weberian technique it is not possible to appreciate the alternative suggestions offered by the later economists. The chief criticism of most of the subsequent economists is about the assumptions in the analysis of Weber. They are said to be over-simplified and unreal.[2] They will be examined in their proper order with an offer of justification wherever they deserve. At the outset his treatment of transport costs in terms of weight and

[1] Alfred Weber: *op. cit.*, p. 197.

[2] P. Sargant Florence: "Economic Research and Industrial Policy," *The Economic Journal*, 1937, p. 622.

distance only is considered objectionable. It is more natural to consider it in terms of monetary costs than in terms of mere ton miles. Besides in actual life transport costs vary enormously with the type of transportation and the quality of goods, and as such the results of his analysis are extremely unreal. Even the requirements of a pure theory cannot warrant such a simplification of actual conditions. With regard to labour deviations Weber assumes fixed labour centres, but as Dennison points out location is not only the result but the cause of distribution of labour.[1] Further the assumption of unlimited supplies of labour in each centre and the maintenance of original wage levels irrespective of an inrush of industries to such a centre are contrary even to a theoretical reasoning of the situation. Unless such normal reactions are reckoned with the conclusions arrived at will not be of much practical value. With regard to agglomeration Weber makes no distinction between the growth of a firm and the development of a localized industry. Hence he thinks solely in terms of external economies. Probably there appears to be some justification for the exclusion of internal economies by Weber. They are not the resultant of a concentration of a number of firms at a particular centre. A single firm expanding in size may find certain economies accruing to it irrespective of the fact that other firms of the same industry may be situated elsewhere. Hence internal economies are not of much locational significance. Finally Weber's assumption of fixed points of consumption does not square well with the actual market conditions in a competitive structure. Austin Robinson points out that in reality there is a widespread market served by competing producers.[2] Besides a potential market is said to depend not only on the situation of consumers but on the situation of competitors. However it should be permissible to assume the existence of larger areas consisting

[1] S. R. Dennison : *op. cit.*, p. 17.

[2] Austin Robinson : *Economic Journal*, 1940, p. 268.

of potential consumers if not particular places, as otherwise the conception of a market becomes extremely indefinite. No doubt the existing competition has to be reckoned with but if the consumers are fully served by them the expectation of a potential market does not arise. It is only when on balance it is estimated that there is an excess of consumer demand that a potential market is expected. Hence the mere assumption of a consumption centre does not appear to be erroneous. Probably it has to be thought of in terms of wider areas.

Objections are also raised against the method of analysis of Alfred Weber. His division of raw materials into ubiquities and fixed materials is considered artificial by Austin Robinson.[1] He points out that in actual practice materials are drawn from a large number of alternative fixed points. However even then the difference in the nature of the materials does not cease to exist. The classification is done on the basis of certain essential differences in the character of the commodities and the basis is relevant for enunciating a locational theory. If such differences are not reckoned with, no criterion would be available for an analysis of the probable influences affecting location on the basis of factor combination. The next objection about the method of analysis is with regard to the selection of general cases like transport, labour and agglomeration as essentially influencing location. Dennison thinks that this is largely arbitrary.[2] No doubt there may be other similar factors which cannot be ignored, but these are emphasised as being of primary importance. It is certainly a limitation of the theory, but like every other deductive approach it is bound to have certain limitations.

The most important criticism about Weber's analysis is that it is lamentably removed from all considerations of costs and prices and it is formulated mainly in terms of

[1] Austin Robinson : *op. cit.*, p. 267.

[2] S. R. Dennison : *op. cit.*, p. 14.

technical coefficients.[1] As a matter of fact the investigations of an economist ought to be based mainly on consideration of costs and prices. While discussing labour deviations the saving of labour costs is measured in ton miles and this appears so unnatural in an economist's analysis. This is probably the result of the author's anxiety to simplify the issue and to reduce it to an easily comparable basis. However it must be admitted that the criticism is certainly weighty, but as no satisfactory alternative theory based purely on costs and prices has yet been evolved it appears to be the only feasible method of enunciating a general theory.

Among all the criticisms of the theory of Weber those of Andreas Predohl are the most significant in so far as they are constructive and appreciative of the limitations under which he was evolving a theory. He points out that the so called general factors in Weber's analysis are not found deductively but are the result of an empirical selection. He says that logically speaking even climate may be considered a general factor and found amenable to the same technical treatment applied to other factors. By selecting only certain factors the author is said to confine the theory to those manufacturing processes where the factors omitted are unimportant. Though this may be true of a majority of cases still it is incapable of an universal and unqualified application, as every pure theory ought to be. Hence Predohl says it is more a selective theory than a deductive theory. Weber, according to him, should have subordinated his theory of technical factors to general economic principles. In the absence of such an attempt the theory suffers from two major defects. In the first place, being reduced to a theory of technical factors it does not explain the location of industries that depend on other factors. The second defect of the theory is explained by Predohl with extraordinary ability as he reveals the exact circumstances under which the theory is likely to break down. He shows that in most of the cases

[1] S. R. Dennison : *op. cit.*, p. 15.

chosen by Weber the technical factors and economic factors have an approximately parallel relationship and hence the analysis in terms of the former yields satisfactory results. But whenever the relationship happens to disappear the theory would automatically break down.[1] This is certainly a serious limitation of a pure theory.

With regard to alternative suggestions and more refined technique of analysis it may be pointed out at the outset that though some have been offered since Weber, they too are not without significant defects. All the critics of Weber do not contribute alternative methods of analysis. Their criticisms therefore are of a destructive nature. Dennison belongs to this category of critics. Though his criticisms are sound he does not lead us further in the search for a faultless theory. This is because he belongs to that period of disillusionment that followed Weber due to the difficulty of a general application of his technique. Hence as Austin Robinson says Dennison's book is of a negative character.[2] In fact he deliberately disclaims any intention of trying to build a better theory of his own.

The contribution of Andreas Predohl is perhaps the best on the subject, though it is not amenable to any immediate practical application. His chief preoccupation was to correlate the particular theory of location with general economic theory, as he considered the isolation of the theory of location as unfortunate. So he directed his search for a general theory of economic activity in the hope that it might be made an organic part of economic theory. He discovered that every change in location involves a change in three groups of means of production, namely, land, capital and labour, and transport. Consequently every change in location may be conceived of as a change in the combination of the means of production. It follows therefore that location is only a variation of the commonly accepted theory of

[1] Andreas Predohl : *op. cit.*, p. 389.

[2] Austin Robinson : *op. cit.*, p. 267.

substitution.[1] The proper ratio between means of production is determined by the point of indifference as being the point of lowest cost.' This line of approach at the establishment of an equilibrium position for location has a strange resemblance to the technique of the Isodapanes developed by Weber. So Predohl feels extremely satisfied that while accepting the Weberian analysis he has been successful at assimilating his isolated theory with the general economic theory. An interpretation of Predohl's theory reveals the fact that whenever a more profitable substitution or a new combination of factors requires a change of place a locational significance is attached to the process of substitution. Otherwise substitution can proceed eternally without involving a change of place. Thus Predohl considers location as a special aspect of the general theory of substitution. Though this might satisfy our sense of symmetry it has not provided us with a new device for practical investigation. If we have to ascertain under what circumstances would a new combination of factors involving a change of place would be profitable we have to go behind the formal process of variation in proportions and find out the nature of the factors combined and their normal behaviour under a process of production irrespective of the industry in which it is employed. For such information of a general character therefore we are once again forced to fall back upon the analysis of Weber. Besides in the case of an altogether new industry for a country it would be difficult to visualize, merely on the basis of the substitution theory, the nature of location, unless a theoretical apparatus capable of universal application is available. We have therefore to conclude that on the deductive side no contribution has yet been made which is more satisfactory than that of Alfred Weber. In spite of its shortcomings it appears to be the only attempt in evolving a 'pure theory' capable of universal application.

[1] Andreas Predohl : *op. cit.*, p. 382.

On the inductive side Sargant Florence offers a mode of analysis which is of considerable practical significance. It has acquired extraordinary popularity during recent years on account of the very tangible results that it yields regarding the trends of industrial distribution. After elaborating the methods of Florence we shall appraise its value for a practical analysis of the problem of location. Sargant Florence has introduced two new concepts in the terminology of the theory of location, namely, " Location Factor ", and " Coefficient of Localization ". Location Factor is an index of the degree of concentration of an industry in a particular place. The index is arrived at by taking the percentage of all workers in a particular industry found in a certain region and dividing it by the proportion in that particular region of the total industrial workers in the country.[1] For all practical purposes the regions chosen would be the political divisions of a country since a division into industrial zones is not feasible even though it might be more scientific. The available data regarding the distribution of the total industrial workers and the concentration of workers in a particular industry are all with reference to the existing political divisions of the country. In other words, the underlying idea of such an index is that location should be construed as the degree of dissimilarity between the geographical distribution of the industry and the population of the country. Wherever an industry is evenly distributed over the whole country the location factor for each region would be unity, because the proportion of the total industrial workers of the region would be equal to the proportion of workers in a particular industry. Otherwise it will be either above or below unity. If it is above unity the region is supposed to have a higher share of the industry than what is legitimately due to it. On the other hand, if it is below unity the region is not supposed to have a sufficient share of the industry.

[1] Sargant Florence, *op. cit.*, p. 622.

The next concept of "Coefficient of Localization" is indicative of the propensity of each industry for concentration. Here, though the reference is to a particular industry, it is not in relation to a region but in relation to its tendency for localization anywhere in the country. The object of arriving at such an index is to classify industries according to their qualities of dispersion or concentration. This index is obtained by taking the mean deviation from unity of the industry's regional location factors.[1] It is an average of the degree of variation from unity in each of the several regions where the industry is located. In arriving at the average it is necessary to have a system of weightage according to the number of persons occupied in each of the regions. Therefore on the basis of the coefficient of localization all industries of a country could be divided into three categories of high, low, and medium coefficient industries. This would immediately indicate the locational significance of the industries and therefore the problem of investigation becomes easier. It is claimed that this kind of inductive approach is more reliable than the deductive and theoretical analysis elaborated by Weber.

An appraisal of the contribution of Sargant Florence could consist of two types of evaluation, namely, its adequacy as an independent method of investigation for determining the causes of location and its inherent weaknesses as a refined technique of analysis. From the standpoint of the former consideration it is doubtful if it could claim that privilege of finality in inquiry which a flawless pure theory could do. After all the indices provided by him can only reveal the existing state of distribution of industries in a particular country. They are incapable of assigning reasons for a particular form of concentration and much less throw any useful light on the question of a correct allocation of industries among different regions. As such it cannot serve as a guide in framing any policy for the future location of

[1] Sargant Florence, *op. cit.*, p. 623.

industries in a country. Beyond indicating the existing state of affairs, the location factor is incapable of enlightening us about the propriety of industrial location in any country. The coefficient of localization appears at first sight to serve as a useful guide in this respect, but on closer observation it reveals its deficiencies for this purpose. The coefficient is based essentially on the pattern of distribution in each country so that it would vary from country to country according to local conditions and may also vary within each country with further industrialization. For example, the coefficient of localization may be very high for coal industry in a country where coal deposits are highly concentrated, whereas it may be relatively lower in a country where coal deposits are scattered over a wider area. It would be difficult therefore to conclude, merely on the basis of the coefficient, whether an industry has a tendency for concentration. At best it can have only a verification value. The fundamental question of the inherent tendencies of industries for concentration should be examined only on theoretical grounds. But as a supplemental method and as a device for presenting a picture of the existing state of distribution the indices provided by Florence would remain unexcelled.

In addition to these shortcomings of a general character there are also a few inherent defects in the technique that is adopted. The 'Location Factor' is based on the number of industrial workers employed in each area, but a numeral reckoning of this nature is not always a sure guide of the degree of concentration of an industry. A better basis of comparison would be the output in each area, because differences in the efficiency of production might exist among the various industrial centres involving varying proportions of labour employed by them. In other words, a combination of a higher proportion of capital in the form of more up-to-date machinery and consequently a smaller proportion of labour might yield a higher output than another region with a larger proportion of labour. Under such circumstances

it would be difficult to say in which of the two areas is the industry more highly concentrated. From the standpoint of social repercussions no doubt the numerical basis may be more significant, but in terms of the degrees of industrial concentration the output basis would be more scientific. But it must be admitted that there are innumerable practical difficulties in reducing industries in different areas to a comparable basis on account of the variety of their products. Hence the number of workers employed remains as the only convenient basis of comparison, but its limitation should be recognized. So in conclusion it might be said that the method of analysis of Sargant Florence is helpful only for purposes of empirical investigation. It is at best a simple statistical device to be used in conjunction with a theory of location based on fundamental principles.

Finally a mention may also be made of a few suggestions of a non-scientific character available during recent years. The P.E.P. Report on the Location of Industry in Great Britain offers a number of useful suggestions as a guide for a proper location of industries and for avoiding the occurrence of distressed areas.[1] Similar suggestions are also made by the Barlow Commission and by Prof. Dennison. But the chief defect of these treatises is that they are so much obsessed by the idea of depressed areas that they are unable to transcend the immediate issues before them for formulating any useful theory. No doubt it is a pressing problem and one that might creep in and disturb the equilibrium of any economy. But it is only a symptom of a major malady which has to be diagnosed. The palliatives offered cannot permanently ward off the danger in future.

FORMULATION OF A SUITABLE THEORY

The formulation of a new theory bereft of all the shortcomings of the existing ones may be desirable, considering the important part that a proper location of industries is

[1] *P. E. P. Report on the Location of Industry in Great Britain*, p. 55.

likely to play in the schemes of post-war reconstruction which lay so much emphasis on regionalism. If the economic activities of each region is to be maintained at their optimum level a scientific allocation of industries among them is a basic necessity. But the formulation of an entirely new theory is neither feasible nor necessary. The endeavour in this direction need not necessarily be for evolving something entirely new so that it could be appreciated for its novelty. Even if such an attempt could meet with any success it is not likely to displace completely some of the theories that have already been evolved. Some of the existing methods are extremely useful as instruments of analysis and therefore it is not desirable to discard them. It would be more profitable to make an attempt to give up some of the unreal assumptions in the deductive theories so far evolved and combine them with a statistical device to estimate the validity of their reasoning. It might be obvious from the foregoing criticisms that for an objective of this nature the contributions of only two of the economists discussed hitherto may be taken, namely, those of Alfred Weber and Sargant Florence. The others have either not contributed anything new or have only extended the scope of the reasoning. The method of approach of Weber will remain unchallenged for a pretty long time and similarly the indices provided by Sargant Florence will serve as a useful guide. But both of them stand in need of certain adaptations to suit particular purposes. A few suggestions may therefore be offered regarding the lines of adaptation.

Weber's pure theory can yield very valuable results if some of the unreal assumptions in it are given up. The assumptions could be given up only to the extent that it will not deprive the theory of its universal character. The most important among the assumptions which has removed the theory too far from actual conditions is about transport relations. Two types of amendments may be introduced with regard to the transport factor. In the first place the

alternative means of transport in each area and the existing rate schedules according to the nature of traffic have to be taken into consideration instead of treating it merely in terms of weight and distance. Further the actual cost of transport for the alternative potential locational points may be substituted for the technical factors of ton-miles adopted in the theory. These two changes would render the theory more realistic and at the same time would not take away its deductive value.

The next assumption in the theory that stands in need of alteration is with regard to fixed labour centres. Here the assumption, in the first place, has to be tempered by the degree of mobility of labour in each area, because to that extent the attraction of the labour centre would be reduced. In actual experience it is found that particularly semi-skilled labour of the type that is generally required by the manufacturing industries is manifesting a high degree of mobility. So any results obtained on the assumption of fixed labour locations may not agree to any satisfactory extent with actual conditions. In this respect, however, no precise conclusions would be possible. From an observation of the migratory tendencies in different areas it is possible to arrive at some general conclusions regarding the pressure that is likely to be exercised by labour centres on location. The other two assumptions about labour are absolutely unjustifiable and should therefore be definitely given up. The availability of unlimited supplies of labour in any area is not true to facts and besides such an unreal assumption is not warranted by the theory. Therefore the potential supply in each area should be estimated and the attraction of the centre should be limited to the availability of labour and not left indefinite. It would lead us to erroneous conclusions if they are assumed to have indefinite powers of attraction. Then again the probable rise in wages in such areas due to the inrush of industries and the consequent weakening in the attractive capacity of the centre as a place of location cannot be

ignored. A calculation of wage rates on this basis would also bring the theory in line with the cost and price structure of a country instead of dealing merely in terms of technical factors.

In respect of fixed points of consumption the only variation that is desirable is that we have to think in terms of larger areas of consumption instead of particular narrow regions. Still in terms of each location centre there would certainly exist a particular area of consumption. A delimitation of these areas is necessary before finally deciding about the location on the basis of other criteria. Beyond a particular range, areas of consumption will not have any influence on any given place of location. If however subsidization of transport cost in order to supply the product at an uniform price throughout the country is part of the State policy, the consumption areas will have no influence on location. Location would then depend on other considerations like material cost and labour cost. But considerations of storage and loss of the intrinsic properties of the product due to delay in use are special features which would then enter the picture.

With regard to the method of analysis of Weber no substantial modifications are either necessary or desirable. His division of materials into ubiquities and localized materials is a very useful mode of classification from the standpoint of ascertaining their locational significance. The selection of certain general factors by him, though subjected to much criticism, is on the whole more in conformity with actual facts than any other selection. Even though it might appear like a selective theory it is so largely applicable to actual conditions that it has all the characteristics of a general theory. Lastly reckoning in terms of costs and prices has been suggested wherever feasible so that the stigma of calculation only in terms of technical coefficients may be removed. With these modifications the pure theory provided by Weber can be profitably utilized for the investigation of practical problems. For purposes of a deductive analysis we cannot conceive of a better theory.

The indices provided by Sargant Florence are of outstanding importance for observing the locational dynamics in any country. A preparation of those indices should therefore precede any application of theoretical principles for ascertaining the causes that underlie such dynamics. Hence even though they suffer from some limitations they are an invaluable guide for noticing the trends of development in any country. Further his coefficient of localization is extremely helpful in deciding about the types of industries that are amenable to dispersion under a scheme of regionalism. Industries with a medium coefficient can be scattered, by offering inducements, over a large area according to the factor equipment in each region. Thus in conclusion we may say that by a judicious combination of the pure theory of Weber, as altered above, with the indices given us by Florence it would be possible to enunciate a policy of scientific location of industries for any country. While accepting these techniques for purposes of practical application it must be emphasised that both of them are built on the basis of an unalloyed capitalistic structure. But a capitalistic structure of such purity does not exist now and will certainly not exist during future years. State intervention in various forms is envisaged. To that extent the sanctity of the conclusions reached with the help of the pure theory becomes questionable. Cost considerations may quite often be subordinated to welfare considerations and subsidization in various forms may come into operation. Capitalism may remain only in name, but most of its essential prerequisites may be displaced by social considerations. In fine there may be a radical change in the sense of values. Hence in the investigation of practical problems that follow we have to apply suitable correctives to the tendencies indicated by the pure theory according to the types of State policy which we could envisage under the schemes of post-war planning.

CHAPTER II

INDUSTRIAL EXPANSION AND LOCATIONAL DYNAMICS

THIS chapter is devoted to a general description of the progress of industrial development in India on modern lines after the close of the 19th century. For purposes of analysis of the factors inducing industrial expansion and for observing the locational trends the period of study is made to fall under three sections. The first period ends with 1919, as it comprises the initial efforts at industrialization and reveals the existing deficiencies in the country which have to be overcome. The second period which covers twelve years from 1919 to 1931 marks the beginning of a definite policy of encouragement consisting essentially of fiscal measures and the rise of the modern industrial structure. The third period, which is brought up to the outbreak of the present war, is a period which has manifested the full possibilities of the existing methods and has also revealed some of its shortcomings necessitating a radical change in the outlook of the State. Throughout this study the main emphasis will be laid on the correlation between expansion and the dynamics of industrial location. The chief interest will be confined to a portrayal of the general pattern of industrial distribution at the end of each of these periods and the detailed investigations of particular industries during these periods will be undertaken in order to determine the special conditions inducing a scatter in their concentration. The influence of the environmental changes providing a motive force for a change of location will be duly estimated wherever they are relevant.

FEATURES OF EARLY DEVELOPMENT

The first two decades of the twentieth century witnessed the slow fulfilment of a transition from an old to a new

economy. The disintegration of the old economic order had almost reached its completion and the genesis of the modern system of industrial production was in sight at the dawn of the present century. But the process was rather slow and painful as the requisite motive force for the purpose was lacking. Industrial leadership within the country was conspicuous by its absence and the State policy was far from being favourable to the application of any bold and sustained effort. But the country abounded with several industrial raw materials amenable for exploitation and so the result was the rise of a few large industries in certain important centres which came to be differentiated from the surrounding areas. They were essentially due to certain special circumstances in those areas and not the result of any comprehensive scheme of industrialization initiated either by private enterprise or by the State. The pace of progress might have been quicker if the initiative taken by some of the provincial governments like Madras and the United Provinces was allowed to be carried to its logical conclusions. But the unfortunate Minute of Lord Morley in 1910 not only disapproved the measures taken by these provincial governments but also left the future policy of the State vague and undefined. Even the reinterpretation of Lord Morley by his successor Lord Crewe did not inspire the provincial governments with much confidence. So there was a set-back in the progress and the subsequent change of policy could operate only after a lapse of time. Under the peculiar circumstances prevailing in India at that period the only available motive force was State impetus and the denial of it retarded progress and postponed the rise of the modern industrial structure to the next period. Therefore from the standpoint of a locational study the first period does not provide us with any data of a complicated nature involving problems of dynamics. It consists essentially of an analysis of the factors inducing the initial location of certain industries.

PARTICULAR INDUSTRIES—JUTE

The manufacture of jute was one among the industries that started developing rapidly at the beginning of the present century. The export of raw jute from Bengal commenced during the end of the 18th century and by the first half of the next century the handloom industry in jute had assumed considerable proportions. However it was not until the middle of the 19th century that machine spinning and power looms came to be established. The subsequent progress was very rapid and by 1917 there were 71 mills employing 260,199 persons. In 1919 there were 75 jute mills in India providing employment to 275,643 persons. The jute industry was highly concentrated in Bengal having in 1919, 71 mills out of a total of 75. Madras and the United Provinces were the only other centres having a share of the industry with three and one mill respectively.

The high degree of concentration of the jute industry in Bengal is essentially due to the large output of jute in the province. The only provinces where jute is being grown in India are Bengal, Bihar and Orissa, and Assam. The Indian State of Cooch Behar contributes a small quota. Even among these, Bengal including Eastern Bengal had the lion's share. The table given below will indicate the position upto 1919.

Therefore the high concentration of the industry in Bengal is caused primarily by the large output of jute in the province. The other technical reasons are however not so impelling. There is absolutely no loss of weight for raw jute even in the processes of cleaning and baling, as in the case of raw cotton. The Indian Industrial Commission say: "Much jute is despatched to Calcutta unbaled, comparatively little diminution of weight being caused by the necessary cleaning and baling processes, while cotton is usually reduced about two-thirds in weight by the removal of the seed."[1] Further in the process of production raw jute

[1] *The Indian Industrial Commission Report*, p. 22.

Area and Yield of Jute[1]

Province	1905		1910		1915		1919	
	Area	Yield	Area	Yield	Area	Yield	Area	Yield
Bengal	3,090,700	8,029.000	2,841,600	7,735,300	2,086,300	6,506,100	2,459,000	7,567,800
Bihar and Orissa ..	*	*	*	*	188,100	609,600	203,400	495,900
Assam ..	37,600	59,100	82,200	177,800	74,000	152,900	120,000	294,500
Cooch Behar State ..	..	52,800	14,000	18,900	27,500	72,300	39,200	69,800

Area : in acres
Yield: Bales of 400 lbs. each
* Included under Bengal.
[1] Data taken from *Principal Crops in India*, 1913–14, 1918–19.

behaves like a " pure material ", imparting its entire weight to the produce. So production need not necessarily be at the place of output of the raw material. In fact Dundee was the seat of manufacture and Indian raw jute was transported all the long way. Even with regard to other factors the position was not very favourable to the location of the industry in Bengal. Till 1854 even fuel on a large scale was not available and that accounts for the development of the handloom industry in jute till the middle of the 19th century in order to utilize the product. As Dr. Anstey says, conditions were altered after 1854 when the East India Railway's demand for coal led to the opening up of the Raniganj coal field.[1] This new fuel possibility led to the rise of the manufacturing industry. So the raw material attraction for the location of the industry was so great that it had developed in Bengal in an unmechanized form even prior to the discovery of power resources in the neighbouring area. Bengal did not even provide the necessary labour for the jute industry. It was mainly drawn from Bihar and Orissa, the United Provinces and Madras. Even as early as 1906 two-thirds of the employees in jute mills were immigrants and by 1918 nearly 90 per cent. of the labour was imported.[2] But Calcutta had advantages of situation particularly for an export industry like jute manufacture. Besides due to the historic connection of Calcutta with the West, European capital was largely available for the venture. It owes its origin and development mostly to Scottish enterprise and capital. The majority of the European staffs were of Dundee extraction and most of the experts in the managing firms were Scottish.[3] So the important factors which were decisive in the initial concentration of the industry in Bengal were the intimate agricultural connection of the industry, the long association of English investors with Calcutta and

[1] Dr. Vera Anstey : *The Economic Development of India*, p. 279.
[2] *Indian Industrial Commission Report*, p. 11.
[3] *Ibid.*, p. 10.

the good transport relations of the place for purposes of exportation. The consumption centres were essentially foreign. So long as the quality of the product was inferior it was mainly exported to Burma. Later when the quality improved it was largely exported to the United Kingdom. So the consumption centres could not influence location. The negligible scatter of the industry in 1919 in two other places, namely, Madras and the United Provinces, is not of much practical significance, because two of the mills in Madras undertook jute manufacture only in association with cotton and similarly in the United Provinces it was combined with a cotton gin.[1] The nature of concentration of the jute industry in 1919 may be observed from the table given below. The location factor in it is calculated on the basis of the workers in jute mills in the areas in relation to the share of each area of the total industrial workers in the country.

The Location Factor of the Jute Industry

1919

Province	No. of Mills	Percentage of total industrial population (1911)	Percentage of workers in jute industry (1919)	Location factor
Bengal ..	71	9·5	98·7	10·3
Madras ..	3	15·3	1·0	·06
U.P. ..	1	17·4	0·1	·005

COTTON INDUSTRY

The history of the cotton mill industry in India dates back to the second decade of the 19th century when the first cotton mill was erected at Calcutta. No further development, however, took place in Calcutta, but by the middle of the 19th century the industry grew up in Bombay which turned out later to be its place of concentration. Even in Bombay the progress was not very rapid till the last quarter

[1] *Large Industrial Establishments in India for* 1919, p. 8.

of the 19th century. During the first two decades of the 20th century the expansion was quite rapid and it could be observed from the table[1] given below:

Year	No. of Mills	No. of spindles	No. of looms	No. of workers
1877	51	1,244,206	10,385	Not stated
1900	193	4,945,783	40,124	161,189
1914	271	6,778,895	104,179	260,275
1918	262	6,653,871	116,484	282,227

From the standpoint of the initial location of the industry there are three important features for inquiry. In the first place the industry failed to develop at Calcutta where the first mill was erected. Secondly, the preference of Bombay as compared with Calcutta requires explanation. Thirdly, unlike the jute industry, the cotton mill industry showed signs of a wider distribution right from the beginning even though Bombay had a preponderating share. Speaking generally, from the standpoint of raw materials and power resources Bombay was in no way superior to Calcutta to warrant the initial concentration of the industry. As the Indian Industrial Commission say: "Calcutta is no doubt less favourably situated in respect of the cotton tracts generally than Bombay, although much of the cotton consumed by the latter reaches it from places as distant as those from which Calcutta draws its supplies, while Bombay is at a disadvantage in respect of fuel, a deficiency now to some extent supplemented by water power."[2] So it is factors other than power and raw materials which exerted a greater influence at Bombay than at Calcutta on the original concentration of the industry. Further even as early as 1877 the industry showed signs of a scatter which gained strength with the expansion of the industry. So the general conclusions that might be drawn from these tendencies are that the

[1] *Indian Year Book*, 1940–41, p, 762.
[2] *Indian Industrial Commission Report*, p. 15.

industry had no inherent qualities for concentration in a particular place. The overwhelming importance of Bombay in respect of the industry should have therefore been due to certain extraneous circumstances. Hence an expansion of the industry and a weakening, if any, of such extraneous circumstances ought to lead the industry to a scatter. Both these tendencies are amply evidenced by the subsequent history. The influence of raw cotton resources on the distribution of the industry may be judged from the table[1] given below:

Area and yield of Cotton in each Province, 1918–19

Province	Area (acres)	Yield (bales of 400 lbs. each)
Bombay ..	5,851,000	658,000
Central Provinces ..	4,211,000	789,000
Madras ..	3,118,000	633,000
U.P. ..	863,000	175,000
Punjab ..	1,541,000	493,000
Hyderabad ..	2,406,000	350,000
Mysore ..	124,000	21,000
Central Indian States ..	1,233,000	216,000
Rajputana States ..	250,000	55,000
Sind ..	299,000	108,000

In the table given above the output of raw cotton in Bombay refers to the whole Presidency including the States and as such the high concentration of the industry in the Bombay island is not warranted by the vicinity of the raw material as it has to be drawn from long distances. Therefore the extraneous circumstances referred to above were primarily responsible for the concentration. Bombay had an abundant supply of capital and credit due to the prosperity of the commercial community waiting for avenues of investment. She enjoyed good transport relations in the form of cheap and speedy means of communication. The demand for yarn from China was growing rapidly and Bombay had facilities for meeting it, being an important port. Thus

[1] Taken from *Principal Crops in India*, 1918–19.

there were no natural and permanent factors for the early concentration. With the weakening of those circumstances and the environmental changes in the form of railway development a wider distribution of the industry was inevitable. With an expansion, the industry therefore migrated to Nagpur, Ahmedabad and Sholapur which were in the vicinity of cotton-growing tracts and areas of labour supply. Market attraction for a dispersion of the industry was caused by the rise of the Swadeshi movement and the consequent emphasis on the weaving side of the industry which was taken up more readily by the up-country mills than by Bombay due to the dependence of the latter on the Chinese market.

So both negative and positive causes helped a dispersion of the industry. A weakening of the original factors of concentration are in the nature of negative causes. The loss of the Chinese market was the most definite among them leading the Bombay part of the industry to a radical change in its structure. With regard to the transport relations and capital resources of Bombay the weakening of the factors consisted not so much in a deterioration of the position in Bombay as a development of similar facilities elsewhere reducing thereby its relative importance. Among the positive causes, Bombay began to develop certain deglomerating tendencies in the form of higher rents, local taxation and labour costs reducing its original attractive power for concentrating the industry. In the matter of labour supply Bombay is not self-sufficient. Its workers were drawn mostly from Deccan and Konkan. Some of them were also drawn from Central India.[1] These factors led to an early dispersion of the industry and the nature of the distribution in 1919 could be observed from the table[2] given below:

[1] *Indian Industrial Commission Report*, p. 16.

[2] Data taken from *Large Industrial Establishments*, 1919 and *Census of India*, 1911. The percentages and location factors have been worked out by the author.

Table showing Distribution of Mills and Location Factors in the Cotton Mill Industry—1919

Province	No. of Mills	Percentage of total industrial population (1911)	Percentage of workers in cotton industry (1919)	Location factor
Madras ..	17	15·3	8·1	·5
Bombay ..	179	6·8	68·6	10·0
Bengal ..	12	9·5	3·8	·4
U.P. ..	17	17·4	5·2	·3
Punjab ..	3	10·1	·3	·03
C.P. ..	13	4·5	4·7	1·0
Ajmer-Merwara ..	2	·2	·3	1·5
Delhi ..	3	*a*	·4	*a*
a No province of Delhi in 1911 Census.				
For Indian States				
Hyderabad ..	3	5·6	1·2	·2
Mysore ..	2	·8	·7	·8
Baroda ..	4	·6	·6	1·0
Central Indian States ..	7	3·4	2·2	·6
Madras States ..	1	2·2	·1	04
Bombay States ..	7	2·2	·5	·2
C.P. States ..	1	—	·6	—
French Settlement	4	—	1·4	—

From an observation of the above table it is obvious that in spite of a wide scatter of the cotton mill industry in 1919 most of the centres did not have a due share of the industry as compared with their share of the proportion of total industrial workers. Their location factors are below unity. The Central Provinces, Ajmer-Merwara and Baroda are the only exceptions whose location factors are either at or above unity. Bombay had still a high proportion of the industry as indicated by its location factor. With a further expansion of the industry at the existing centres the relative proportions are likely to alter. It will be observed during the next two periods.

IRON AND STEEL INDUSTRY

There were only two large iron and steel manufacturing companies in India during the first period of our study.

The Bengal Iron and Steel Co. at Kulti grew up gradually, having started originally in 1875. It was not until the end of the century that she began to make some progress. By the second decade of the twentieth century the company became a commercial success. The other was the Tata Iron and Steel Co. formed in 1907. Its progress was very rapid after 1912 and the last war gave a great fillip to its development. The vicinity of the Bengal coal-fields was the chief attraction for the location. Iron ore deposits also existed in the Singhbhum district. Only for magnesite deposits the Tata Co. had to depend on Mysore State.[1]

Distribution and Location Factor–Iron & Steel–1919

Province	No. of Mills	Percentage of total industrial population (1911)	Percentage of workers in iron & steel industry (1919)	Location factor
Bengal ..	1	9·5	29·7	3·1
Bihar & Orissa	1	7·7	70·3	9·1

WOOLLEN MILLS

The handloom part of the woollen industry was scattered all over the country due to the ubiquitous character of the animal sheep. But the mill industry was concentrated in a few places. Cawnpore was the most important centre where the first woollen mill was started in 1876. The last war gave an impetus to the industry and a few new mills were floated in Bombay. The position in 1919 was as follows:—

Province	No. of Mills	Percentage of total industrial population (1911)	Percentage of workers in the woollen industry (1919)	Location factor
United Provinces	1	17·4	51·3	2·3
Punjab ..	1	10·1	27·3	2·7
Bengal ..	1	9·5	2·5	·2
Bombay ..	3	6·8	11·1	1·6
Mysore ..	2	·8	7·4	9·2

[1] *Indian Industrial Commission Report*, p. 20.

The location factor for most of the centres is above unity and it indicates that wherever it is concentrated its share is fairly high.

SILK INDUSTRY

The sericultural industry in India has a hoary antiquity. But the development of silk-weaving mills and filatures on modern lines has been rapid only during the past two decades. In 1919 there were only four silk-weaving mills, one at Bengal, two at Bombay and one at Indore. Bombay had 83·3 per cent. of the total workers engaged in it with a location factor of 13·1. Bengal had 8·9 per cent. of the workers with a location factor of ·9 and Indore had 1·7 with ·5 as its location factor. Silk filatures were found only in two places, namely, Bengal and Kashmir. The industry has an intimate agricultural connection, as the requisite conditions for it are an adequate supply of mulberry plants and ample labour.

SUGAR INDUSTRY

The Indian sugar industry did not attain its present prosperity till the grant of protection. An earlier development was hampered by various factors in spite of the large output of sugarcane in the country.[1] The low yield of the cane and the difficulty of securing a large supply in one area prevented

Distribution of Factories and Location Factor : Sugar Industry–1919

Province	No. of Mills	Percentage of total industrial population (1911)	Percentage of workers in sugar industry (1919)	Location factor
Assam ..	2	—	7·1	—
Bengal ..	2	9·5	7·2	·7
Bihar and Orissa	8	7·7	24·8	3·2
United Provinces	13	17·4	24·8	1·4
Punjab ..	1	10·1	·9	·09
Madras ..	9	15·3	32·8	2·1

[1] C. N. Vakil & Others : *Growth of Trade and Industry in Modern India*, p. 59.

the growth of the factories. The method of extracting the juice was crude and the competition of foreign imported sugar was severe. So by 1919 the number of sugar factories in India had increased to only 35 and their distribution was as given above.

LEATHER WORKS

With regard to leather works Cawnpore in the United Provinces has been the most important centre since the Mutiny. In 1860 the Government Harness and Saddlery Factory was started there and it became a success within a few years. Its success was soon followed by the rise of private enterprise and the Government Boot and Army Equipment Factory was started in 1880. The subsequent progress was very rapid and by 1919 there were five large leather works and a number of tanneries in Cawnpore. There was also a plentiful supply of labour in the surrounding districts of Cawnpore which easily moved into the town. Besides the labourers were originally workers in leather and

Distribution of Works and Location Factor: Leather Industry–1919

Province	No. of Mills	Percentage of total industrial population (1911)	Percentage of workers in leather industry (1919)	Location factor
United Provinces	5	17·4	91·0	5·2
Bengal ..	2	9·5	1·3	·1
Madras ..	2	15·2	3·1	·2
Central Indian States ..	1	3·4	4·4	1·3
		Tanneries–1919		
Bengal ..	6	9·5	19·0	2·0
Bihar ..	1	7·7	4·9	·6
Bombay ..	1	6·8	6·0	·8
Madras ..	3	15·3	33·7	2·2
United Provinces	4	17·4	21·7	1·2
States				
Mysore ..	1	·8	3·8	4·7
Central Indian States ..	1	3·4	10·5	3·0

they had only to take to the factory form of work which was made available to them by the rise of the industry. The two other centres where leather works developed were Bengal and Madras. The tanneries were however more widespread due to the scattered nature of the sources of raw hides and skins.

CHEMICAL INDUSTRY

During the first two decades of the twentieth century India depended mainly on foreign imports for its chemicals. The chief reason for this was that the demand for the different varieties of chemicals from Indian industries was small and units of efficient size could not be set up for them. Therefore only certain heavy chemicals could be manufactured as the aggregate demand for them was fairly large. Besides they had a natural protection in the form of high sea freights. Even these depended on imports for their raw materials in spite of rich internal resources which remained unexploited. During the subsequent periods of our study much leeway in this respect was made up. The position however in 1919 was not very satisfactory as could be observed from the table given below:—

Chemical Industries–1919

Province or State	No. of Mills	Percentage of total industrial population (1911)	Percentage of workers in chemical industries (1919)	Location factor
Bengal ..	5	9·5	79·2	8·2
United Provinces	1	17·4	1·6	·09
Bombay ..	2	6·8	14·8	2·1
Baroda ..	1	·6	43·0	7·1

The allied industries of soap manufacture and match industry did not make much progress during the first period of our study. The greater part of soap manufacture was confined to Bengal having four factories out of six with 81·6 per cent. of the workers engaged in it. The location

factor of Bengal was 8·4. The other two centres were the United Provinces and Mysore with one factory each. The United Provinces had 9·8 per cent. and Mysore 8·3 per cent. of the workers with location factors of ·5 and 10·3 respectively. The high location factor of Mysore was due to the relatively undeveloped industrial condition of Mysore in 1919. Similarly the manufacture of matches did not commence on a commercial scale in India before 1921. Hence there were only three match factories in India in 1919, two in Bombay and one at Central Provinces and Berar, with 76·6 per cent. and 23·3 per cent. of the workers respectively. The location factors were 11·2 and 5.1 for the two places.

OTHER INDUSTRIES

Among the other industries in India the most important are Paper, Cement and Glass. Paper manufacture had an early beginning and a few important mills were started during the latter part of the 19th century. The Baly Mills and the Titaghur Paper Mills at Bengal, the Upper India Cooper Mills at Lucknow, the Deccan Paper Mills of Poona and The Bengal Paper Mill Co. of Raniganj were all started during the latter part of the 19th century. In fact the first two decades of the 20th century witnessed only the development of these and not the creation of any new ones.

The development of cement manufacture dates from 1914. Though a few companies were floated during the first decade of the century in Madras and Central Provinces they did not commence production on a large scale till the large rise in its demand during and after the last war. This was the position of the industry in spite of the large importation to satisfy the local demand.

With regard to glass making the beginning of the century marks not only the decline of all previous attempts but the commencement of a new era. But even the progress of the new attempt was none too promising as there were only three factories in operation in 1914, though the indigenous

method of bangle-making was widespread. But the posiuon seems to have improved slightly by 1919 though the real progress of the industry took place much later.

Paper, Cement and Glass Industries-1919

Province	No. of Mills	Percentage of total industriai population (1911)	Percentage of workers in the industry (1919)	Location factor
Paper				
United Provinces	1	17·4	10·4	·5
Bengal ..	3	9·5	75·1	7·6
Bombay .	3	6·8	10·0	1·4
Gwalior ..	1	3·4	4·3	1·2
Cement				
C. P. & Berar ..	1	4·5	20·9	4·5
Madras ..	1	15·3	10·8	·6
Rajputana States	1	5·0	68·1	13·6
Glass				
Bengal ..	1	9·5	2·8	·2
Bombay ..	3	6·8	21·3	3·1
United Provinces	2	17·4	41·5	2·3
Central Provinces	1	4·5	11·5	2·5
Punjab ..	1	10·1	6·3	·6
Baroda ..	1	2·2	6·0	2·7
Rajputana States	1	5·1	10·4	2·0

LOCATIONAL PATTERN IN 1919

In this section certain general features of the locational pattern in 1919 may be considered without analysing in detail the factors influencing the location of particular industries. During the period 1900 to 1919 industries on modern lines may be said to have commenced though some of them might have had their initial start some time earlier. So the places of their establishment were chosen mainly on the most significant and compelling factors. Wherever raw materials were highly concentrated and not found advantageous to move, the appropriate industries were started at or near the material deposits. With regard to materials which were more easily amenable to such movement like raw cotton or wool there was a wider dispersion even at the initial stages, but it operated only within limits due to the undeveloped

nature of the environmental conditions such as the lack of hydro-electric power resources and efficient means of transport.

Besides location of industries during this period does not seem to have received a full consideration of all aspects of the problem. An exploitation of the entire potential market of the country does not seem to have influenced the early entrepreneurs either because foreign imports were already in possession of distant markets or because they were supplied by indigenous methods of production. In other words, markets were mostly localized and there was no unification of the country in the sense of a single market. Therefore readily available markets close at hand influenced location to a large extent. So wherever resources were overwhelming and enterprise available, industries were established with the aim of catering to a consuming area within a reasonable radius or exporting to a foreign market. Similarly from the standpoint of raw materials no exhaustive survey of the available resources in the country was yet available. Consequently the initial decisions of location were based not on the competitive attraction of all areas for selection, but were based only on the fully surveyed areas. In other words, a fuller knowledge of the alternative sources of material deposits would have yielded different locational figures from those conceived of by them. In fact the dynamics of location is largely governed by a discovery of fresh sources of deposits and by changes in the arts of production. Therefore the range of vision of private entrepreneurs was limited to a reasonable radius of their operations both with regard to raw material resources and market conditons.

Further the lack of entrepreneurs in certain areas might have impeded the rise of industries in those places even though other factors might have been favourable. Entrepreneurial ability was very scarce in the country at the beginning of the century and the managing agency houses were mostly confined to North India. This was one of the reasons

for the lack of development in the south. Other limiting factors in such areas were the lack of industrial finance due to the slow growth of the banking structure and the want of facilities for importing capital goods which some of the large cities and ports in particular enjoyed. It is also true to say that in India instead of the rise of industries creating large cities, industries were started at centres which owed their importance to other reasons, such as commercial or financial. Calcutta and Bombay prove this fact to a certain extent. No doubt the good transport relations that they enjoyed was an attraction to locate certain industries, but they were primarily organized for trading facilities. So in respect of the initial location of several industries extraneous circumstances, though temporary in character, have exerted a greater influence than natural and permanent causes. The existence of entrepreneurs, the availability of finance and the general economic atmosphere were the deciding factors in the case of several industries. The cotton industry and the silk mills of Bombay, the leather works at Cawnpore, and the paper mills of Bengal are instances of such influence.

Lastly, perhaps the most important reason for the lack of a wider vision in planning location was the absence of any comprehensive plan of economic development for the nation as a whole. The efforts of private enterprise were mostly piecemeal and there was no policy or measure of an All-India basis like the tariff policy which played an important part during the second period of development. The utmost that was available from the State was encouragement on a provincial basis and even that was denied. The recommendations of the Indian Industrial Commission and the Fiscal Commission took shape only after 1919. Perhaps the Indian Munitions Board was the only consolidating and co-ordinating organization, but it had a specific objective. Hence in conclusion it might be said that industrial location during this period was not the result of a full consideration of all possible alternatives but was influenced mostly by existing

limitations in certain cases and an exaggeration of unimportant factors in others.

GENERAL FEATURES: 1919–31

Several significant factors contributed to a rapid growth of industries in India during the decade after the last war. Changes in environmental conditions and the acceptance by the State of the responsibility of encouraging industries in various ways led to an era of expansion. The Industrial Commission presented its report in 1918 insisting on the government the advisability of taking an active part in the industrial development of the country. Most of the recommendations of the Commission were accepted in principle by the government though much could not be achieved immediately. Still it led to a significant change in outlook and the Provincial departments of industries rendered valuable aid to the development of industries. Special acts were passed in various provinces for regulating the giving of grants and organising research and demonstration.

In 1921 the Secretary of State accepted the principle of fiscal autonomy for India and the Indian Fiscal Commission was immediately appointed. This was an important event as it marked the beginning of a definite policy of protection for Indian industries. Whatever may be the shortcomings of the policy of "Discriminating Protection" enunciated by the Commission, it accelerated the growth of industries in the country. With lapse of time and by gaining experience its limitations came to be noticed, but all the same it has rendered its initial service by providing the necessary impetus for development. Under the stimulus provided by it the existing industries expanded their operations and a few new industries came to be established.

In respect of power resources, India's dependence on coal and oil, which are not economically available all over the country due to their extreme concentration in certain areas, has been made good to a large extent by the development

of hydro-electric power. Barring the pioneer scheme of the Mysore State, there was no hydro-electric power available on a large scale for Indian industries till 1915 when the Tata Hydro-Electric Works at Lonavla started supplying power to Bombay. Subsequently several such schemes in various provinces and States have attained fruition.[1] With the development of hydro-electric projects, there has been a strong tendency for dispersal simultaneous with an expansion of industries under the policy of discriminating protection.

The mineral wealth of the country was not fully exploited before the last war. The last war gave an extraordinary stimulus to the production of several minerals and the total mineral output of the thirties was very much higher than the pre-war average.[2] The coal output increased enormously between 1917 and 1921. Other important minerals like iron ore, mica and monazite increased in output to a considerable extent after the second decade of the century. This factor had important repercussions on the expansion and dispersion of industries.

Lastly industrial expansion during this period was due in no small measure to the enlightened policy of development in some of the Indian States. Under the influence of State encouragement several new industries were started within the political borders of the States. Here locational problems operated within a limited sphere and therefore while it caused a dispersion of the industries considering the country as a whole it was primarily decided on the basis of factors influencing within the borders of the State.

EXPANSION AND DISPERSION

The history of the jute industry was one of steady and continuous expansion till the time of the Great Depression. The progress was remarkable particularly during and after the last war due to the necessity of substituting Indian jute

[1] Dr. Vera Anstey: *Economic Development of India*, pp. 29–35.
[2] Jathar & Beri: *Indian Economics*, Vol. II, see Table on p. 23.

for Russian flax whose supplies were cut off during the last war. Bengal took over a large part of the jute trade originally held by Dundee. The number of jute mills in India increased from 75 in 1919 to 100 in 1931. This expansion did not involve much dispersion of the industry. Bengal still held 93 among the 100 mills in existence and employed 96 per cent. of the total workers in the industry. She had a high location factor of 10·5 as compared with 10·3 in 1919. The rest of the mills were shared by Madras, the United Provinces, Bihar and French Settlements. Among these Madras was the only place with a location factor of 2·2. For the others the location factor was negligible, being very much below unity. So in the jute industry no fundamental change in the nature of location was brought about by an expansion.

COTTON INDUSTRY

Unlike the jute industry the decade under reference was a critical period for the cotton industry. After the post-war boom which ended by 1923 the cotton industry, and particularly the Bombay section of it, was caught in the throes of a severe depression. The percentage of the dividend paid by the Bombay cotton mill industry fell from 40·1 per cent. in 1919 to 16·4 in 1922 and 4·9 per cent. in 1923.[1] But all the same the expansion of the industry in the country as a whole was not arrested. The total number of cotton mills increased from 275 in 1919 to 351 in 1931. This is because the serious decline in the output of Bombay mills was fully compensated by an expansion of mills in the up-country and other areas. So the depression was largely localized in Bombay. "Thus", as Dr. Anstey says, "what has to be explained and if possible remedied is not so much a depression in the Indian cotton industry as a whole, as the depression in Bombay."[2] From the locational standpoint

[1] *Report of the Tariff Board (Textile Industry)*, 1927, Appendix V.
[2] Dr. Vera Anstey: *op. cit.*, p. 267.

the depression in Bombay and the simultaneous dispersion of the industry to other areas is an evidence of the weakening of the extraneous circumstances which were originally responsible for a high concentration of the industry in Bombay. The table given below indicates the degree of dispersion:

Distribution of Mills and Location Factors: Cotton Mill Industry—1931

Province	No. of Mills	Percentage of total industrial population (1931)	Percentage of workers in cotton industry (1931)	Location factor
Madras ..	25	15·41	8·7	·5
Bombay ..	208	6·8	57·1	8·4
Bengal ..	16	9·1	4·3	·4
United Provinces	22	18·2	7·0	·3
Punjab ..	7	10·4	·6	·05
C. P. & Berar ..	16	4·2	5·2	1·2
Bihar and Orissa	1	7·2	·1	·01
Ajmer-Merwara..	5	·4	·6	1·5
Delhi ..	5	·5	2·4	4·8

The Indian States

States	No. of Mills	Percentage of total industrial population (1931)	Percentage of workers in cotton industry (1931)	Location factor
Hyderabad ..	4	3·6	1·0	·2
Mysore ..	4	1·4	2·0	1·4
Baroda ..	14	·8	2·5	3·1
Central Indian States ..	10	2·0	4·6	2·3
Rajputana States	1	4·5	·09	·02
Madras States ..	1	2·9	·1	·003
Bombay States ..	8	·8	·7	·8
French Settlements ..	3	—	1·2	—

From a study of the tables given above two observations may be made. As compared with the position in 1919 the location factor for Bombay has fallen by about two points indicating the smaller share that Bombay has had in the

expansion of the industry. But what she lost has not been taken up by other British Indian provinces as their location factors remain more or less the same in spite of an increase in the number of mills in certain cases. On the other hand it could be observed that the share of the Indian States has relatively increased. The location factors of Mysore, Baroda and Central Indian States have increased substantially. So there is a migration of the cotton mill industry from British India to the Indian States. This proves the usual allegation that the laxity of labour legislation and low income-tax in the States induce a migration of the industry towards them.

IRON AND STEEL INDUSTRY

The iron and steel industry was the first recipient of protection under the scheme of discriminating protection and during the period under consideration protection was granted twice. So under the stimulus of protection there was an expansion of the industry and an increase in output. Besides, the extension scheme of the Tata Company mooted in 1917 reached its completion only in 1924. Further additions to the old plant were also made and the increase in output between 1917 and 1922 was 80 per cent. in pig iron and 27 per cent. in steel.[1] The number of firms also increased from two in 1919 to six in 1931. The new companies brought into action were the Indian Iron and Steel Co. at Bengal and the Eagle Rolling Mills and the Tinplate Co. at Bihar. The other was the Mysore Iron Works. From the standpoint of locational dispersion Bihar had 64·4 per cent. of the workers with a location factor of 8·9 and Bengal had 20·5 per cent. of the workers with 2·2 as its locational factor. Mysore had 14 per cent. of the workers with 10·2 as its location factor. The high location factor here is due to the relatively less advanced character of industries in the State. These indices show that there has not been any substantial

[1] *Report of the Tariff Board on the Steel Industry* (1924), p. 9.

dispersion of the industry in spite of its expansion. This is due to the high weight losing character of the raw materials and the concentration of ore deposits in the Singhbhum and Orissa iron belt which is situated close to the coal deposits. The Tata Company gets its ore from a distance of 50 miles and its coal from a distance of about 100 miles. In no other part of India, and not even in Europe or America, do these advantages of resources exist. The Mysore Iron Works has been a feasible proposition because it has a charcoal blast furnace.[1]

WOOLLEN AND SILK INDUSTRIES

The rate of expansion of the woollen industry has been slow due to the limited internal markets for the woollen goods. The high demand during the last war gave a great stimulus to the industry and the subsequent development has also been fairly steady. The number of woollen mills increased from eight in 1919 to 15 in 1931. The increase in the number of mills is to be seen specially in the United Provinces and the Punjab. But the number of workers employed has fallen, so that their relative proportions and locational factors are likely to be lower. The share of the Indian States has increased slightly.

Woollen Industry—1931

Province or State	No. of Mills	Percentage of total industrial workers (1931)	Percentage of workers in the industry (1931)	Location factor
Bombay ..	2	6·8	17·3	2·5
Bengal ..	1	9·1	2·2	·2
United Provinces	4	18·2	25·9	1·4
Punjab ..	3	10·4	24·3	2·3
Bihar & Orissa ..	1	7·2	12·2	1·6
Mysore ..	3	1·4	12·6	9·0
Baroda ..	1	·8	5·2	6·5

[1] For further details see author's book on *Industrial Development of Mysore.*

With regard to the sericultural industry there has been an increase in the number of silk mills and filatures from four in 1919 to 19 in 1931. The increase has been more or less even, in the original provinces except for the addition of Madras. But the expansion in the States of Mysore and Kashmir has been high. The location factors have been high only in Bombay and Mysore, being 4·0 and 8·0 respectively. Kahsmir's location factor is very high, as it has no all-round industrial development.

SUGAR INDUSTRY

The phenomenal growth of the sugar industry in India was only after 1931 due to the grant of protection. However, due to the steady increase in the area under sugarcane, the number of factories did increase to a certain extent in the intervening period between 1919 and 1931. The data in the table given below is taken from the Return of Large Establishments for 1931 and it includes relatively small and seasonal factories also. Hence the total comes up to about 81; otherwise the number of large perennial factories was only 31 in the year 1931.

Sugar Industry—1931

Province	No. of Mills	Percentage of total industrial population (1931)	Percentage of workers in sugar industry (1931)	Location factor
Madras ..	4	15·1	12·7	·8
Bombay ..	1	6·8	1·9	·2
United Provinces	58	18·2	55·1	3·0
Punjab ..	3	10·4	3·1	·3
Bihar & Orissa..	13	7·2	26·3	3·6
Baroda ..	1	·8	·5	·6
Bombay States .	1	·8	·1	·1

LEATHER WORKS

The leather industry did not progress much during the post-war period because the nature of protection adopted in 1919 by the Government in the form of an export duty was

fallacious in principle. The Fiscal Commission and the Taxation Enquiry Committee condemned it later and it was gradually abolished. So the number of leather works remained almost stationary during the period and the workers employed declined actually by about 50 per cent. The highest location factor was 4·5 for the United Provinces. As compared with 1919 there was a slight decline in it due to the fall in the number of workers relatively to other areas. The number of workers fell from 4,898 in 1919 to 2,079 in 1931.

CHEMICAL INDUSTRIES

The influence of protection was available for the chemical industries only after 1931 and so the progress was tardy during the second period of our study. There was a slight increase in the number of mills and the workers employed. Bengal continued to have a significant share of the industry with 68·7 per cent. of the workers, having a location factor of 7·5. There was no significant dispersion of the industry except for the fact that some of the Indian States had a better share of it in 1931.

There was an improvement in the manufacture of soap as the number of factories increased from 6 to 13. There was a wider dispersion, but Bombay and Bengal continued to be important centres with locational factors of 3·2 and 2·9 respectively. Among the other centres Mysore was an important place.

The match industry developed very well due to the imposition of an import duty in 1922. The protection was continued by the subsequent Act of 1928. So by 1931 the industry had progressed very well and there were 44 factories as compared with 3 in 1919. There was a wide dispersion of the industry both in the provinces and in the States, though Bombay and Bengal manifested a relatively higher degree of concentration. The position could be observed from the table given below:

Match Industry—1931

Province	Location factor	State	Location factor
Madras ..	·4	Hyderabad ..	·4
Bombay ..	4·6	Mysore ..	·7
Bengal ..	3·8	Baroda ..	2·0
United Provinces ..	·3	Kashmir ..	·8
Punjab ..	·07	Madras States ..	1·0
C.P. & Berar ..	·2	Bombay States ..	8·8
Assam ..	—		

OTHER INDUSTRIES

The Paper Industry received protection in the year 1925, but there was no perceptible increase in the number of mills during the period under review. As compared with the previous period the number of mills increased by only one, but two new mills were added in place of one that was closed down. The Gwalior mill was closed down in 1922 and the Karnatic Paper Mills was started in the Madras Presidency in 1927. Another small paper mill was started during the period in the Travancore State. The Tariff Board of 1925 observe that the Hooghly area was the most important seat of the industry.[1] Bengal had 73·6 per cent. of the workers with a location factor of 8·0. Even Bombay was not very important, though its location factor was above unity.

Immediately after the last war the boom period commenced for the Cement Industry and a number of new companies were floated. As compared with 1919 the growth by 1931 was phenomenal and the number of factories increased from 3 to 35 in the latter year, in spite of the fact that protection was denied for the industry. There was a very wide dispersion of the industry due to the availability of the raw materials in many parts of the country. Still Central Provinces and Berar continued to have a high proportion of the

[1] *Indian Tariff Board on Paper Industry*, 1925, p. 3.

workers, namely, 25·6 per cent. and Bengal came next with 16·4 per cent. The States also had a fair share of the industry. With regard to the location of the industry Central Provinces and Berar among the provinces had the highest location factor of 6·0 and among the States, though the Bombay States had the highest location factor of 11·2, all other States where the industry was found were above unity.

The glass industry expanded to an appreciable extent during the period in spite of the struggle against competition from imported goods. The number of factories increased to 29 and the total number of workers employed more than doubled. United Provinces continued to have a large share of the workers and Bombay and Bengal came next. The degree of concentration of the industry was also high in these provinces with an average location factor of about 2·5.

FEATURES OF DISPERSION IN 1931

The period under review was one of general expansion of industries in the country. It was due either to the stimulus provided by tariff protection or to changes in environmental conditions such as a more intensive exploitation of mineral resources, an increased output of agricultural raw materials, an improvement in the means of transport or a development of hydro-electric resources. But there was neither an all-round expansion nor an uniform improvement among all industries. Some of them had a set-back and continued to be stationary even though they did not decline. Among those that expanded a high degree of dispersion is noticeable in some industries whereas a further degree of concentration is manifested by others. Wherever there is a dispersion there is also a tendency for the industries to move into the Indian States. This of course has to be explained in terms of certain non-economic factors which influenced migration into the States.

The Jute, and Iron and Steel industries did not yield to any scatter under expansion. On the other hand, cotton mill industry, matches and cement experienced a very wide scatter as a result of expansion. The other industries, while recording an expansion, have not tended to disperse to any considerable extent. The original places of concentration retained their importance in respect of those industries even though a few new places took a share in them. An observation of these tendencies can lead us to certain important generalisations. But a deduction of any definite conclusions will be postponed till they are tested in terms of the principles of pure theory at a later stage.

CHARACTERISTICS OF THE PERIOD 1931–37

This is the post-depression period and shows in what form different industries emerge from the effects of a world-wide blizzard. From the standpoint of fiscal protection there was a further intensification both on account of the fall in central revenues as a result of the depression and on account of the trade agreements entered into between India and other countries. In the year 1931 surcharges were levied on existing duties as a revenue measure. Subsequently the rates of existing duties were enhanced and several new items were brought under the protective schedule. Customs as a source of revenue became very important and it increased from 58·5 per cent. in 1929–30 to 63 per cent. in 1933–34.[1] Towards the end of the period customs revenue tended to decline, as the high protective duties on articles like matches, sugar, steel and cotton piecegoods kept out imports. These influences had their salutary effect on the expansion of the local industries.

This was also a period of greater stabilization of industries. Those of the industries which commenced under the impetus of tariff protection became well established and gave rise to further ramifications. They also influenced the

[1] Dr. Vera Anstey: *op. cit.*, p. 488 (XXI).

full exploitation of material resources for their benefit and thus laid the foundation for greater self-sufficiency. Several new industries, though of a minor nature, also sprang up, such as electric lamps and appliances, rubber tyres, asbestos, etc. In fact the nature of industrial distribution in 1937 is representative of Indian conditions, as it is the culmination of a long period of endeavour to build up the industrial structure. Besides the data available is also authentic only upto that year.[1] The outbreak of the second world war during the middle of 1939 introduced certain special factors influencing industrial distribution and thus prevented the free play of economic forces. To a certain extent those factors are likely to operate for some time even after the war. So it is deemed appropriate to stop our study of locational dynamics with the year 1937 and then to estimate the probable influences of non-economic forces on the pattern of post-war industrial distribution.

JUTE AND COTTON INDUSTRIES

The jute industry was very severely affected by the depression and therefore there was only a negligible increase in the number of mills in the year 1937. There was some increase in the number of workers employed, but most of it was outside Bengal. This was a period of crop restriction and sealing of looms to avoid a threatened overproduction. From the standpoint of distribution the same centres as in 1931 continued with a slight improvement in the locational factors of the United Provinces and Bihar. Bengal continued to be the chief place of concentration with 10·2 as its locational factor and with 93·2 per cent. of the workers.

The cotton industry was the recipient of a large degree of protection after 1930. The Indian Finance Act of 1931 and the subsequent Tariff Board enquiries gave a large measure of protection to the cotton industry. The output

[1] The publication of the reports on Large Industrial Establishments and on Joint-Stock Companies in India were suspended subsequently.

of piecegoods in India reached record figures by 1934–35 and Indian mills supplied no less than 78 per cent. of the home demand. The chief factors responsible for the improvement were greater efficiency of the mills, protective tariffs and the Swadeshi movement. No doubt the Bombay section of the industry never completely recovered from the depression which started in 1923, but the up-country mills with their greater efficiency and low costs were instrumental in the expansion of the industry. The position in 1937 was as follows:—

Cotton Mill Industry—1937

Province	No. of Mills	Percentage of total industrial population (1931)	Percentage of workers in cotton industry (1937)	Location factor
Madras ..	47	15·4	11·0	·7
Bombay ..	205	6·8	53·0	7·8
Bengal ..	26	9·1	4·8	·5
United Provinces	24	18·2	7·2	·4
Punjab ..	11	10·4	·8	·08
C. P. & Berar ..	19	4·2	3·6	·8
Bihar ..	2	7·2	·2	·02
Ajmer-Merwara..	4	·4	·7	1·7
Delhi ..	5	·5	1·7	3·4

The Indian States

State	No. of Mills	Percentage of total industrial population (1931)	Percentage of workers in cotton industry (1937)	Location factor
Hyderabad ..	6	3·6	1·3	·3
Mysore ..	23	1·4	2·4	1·7
Baroda ..	16	·8	3·4	4·1
Central Indian States ..	14	2·0	6·1	3·0
Rajputana States	1	4·5	·2	·04
Madras States ..	2	2·9	·3	·1
Bombay States..	14	·87	1·4	1·6
French Settlements ..	3	—	·9	—

f locational factors the position of
: more in 1937. The other British

Indian provinces have not undergone any substantial change. There is only a negligible improvement all round except in Delhi. On the other hand, the Indian States have improved their position as compared with 1931.

IRON AND STEEL INDUSTRY

As compared with 1931 the number of firms in the industry increased from six to thirteen in 1937. Three new firms were started but all of them were of a small size. Bihar and Mysore retained their original *status quo*. Madras and the United Provinces were new entrants, each with two small firms. There was a relative decline in the number of workers in Bihar and an increase in Bengal. The proportion of workers was 40 per cent. in Bengal and 53 per cent. in Bihar. The location factors of Bengal and Bihar was 4·4 and 7·3 respectively. Mysore's share of workers was 5·5 per cent. with a location factor of 3·9. The proportion of the other two provinces of Madras and the United Provinces was negligible. So there has not been much change in the original concentration of the industry except for the share of the Mysore State.

WOOLLEN AND SILK INDUSTRIES

There was a considerable improvement in the woollen industry and the total number of workers employed exceeded the totals of the two preceding periods. There has been an improvement in the proportion of workers among all the centres but the relative positions have not been disturbed. The most important among the centres are the United Provinces, the Punjab and Bombay having about 80 per cent. of the total workers. The location factors of some of the important places are as follows:—

Location Factors of Woollen Industry—1937

Bombay ..	3·0
United Provinces ..	1·6
Punjab ..	2·7
Mysore ..	4·8
Baroda ..	2·0

There was a phenomenal increase in the number of silk mills and filatures during the intervening period between 1931 and 1937. In 1937 there were 69 mills and filatures as compared with 19 in 1931. This is largely attributable to the grant of protection to the industry on the recommendation of the Tariff Board appointed in 1933. However the industry was not in a prosperous condition at the end of the period. The Tariff Board in 1938 pointed out that the industry had experienced in an acute measure the consequences of dumping and depression. Between 1931 and 1937 production declined by 22 per cent. and imports of silk and silk yarn increased by 64 and 36 per cent. respectively. Though consumption increased during the period, Indian industry's share of the home market fell from 64·8 to 46·6 per cent.[1] From the standpoint of distribution Bombay and Mysore had the greatest increase in numbers but the number of workers employed in Bombay remained almost stationary. The Punjab and Hyderabad were the two important new entrants. The only places with location factors above unity were Bombay (2·2), Bengal (1·8) and Mysore (12·1). Hence there was not much scatter of the industry consequent to its growth.

SUGAR INDUSTRY

The Sugar Protection Act of 1932 had a miraculous effect on the growth of the sugar industry and within a few years the industry has come to occupy a prominent place in India. The total import duty was raised to Rs. 9–1–0 per cwt. in 1932 and it continued to be more or less at that level till 1939 when it was lowered to Rs. 8–12–0. The industry has fulfilled most of the expectations of the Tariff Board of 1931 and has attained the ideal of self-sufficiency of sugar supply for the country. In spite of several difficulties such as the low yield of cane per acre, the low extractive efficiency and the utilization of by-products the

[1] B. P. Adarkar: *The Indian Fiscal Policy*, p. 187.

industry has made considerable progress and is now one of the major industries of the country. There is still great scope for further improvement if the original intention of primarily benefiting agriculture is revised in order to improve the competitive position of the sugar industry.[1] Between 1931 and 1937 the number of sugar factories in India increased from 81 to 175 and the number of workers from 17,328 to 79,078. Sugar factories were established in a number of places during the period but the proportion of the total number of workers continued to be relatively higher in the United Provinces and Bihar. The growth of the industry therefore did not alter the original degree of concentration. Those places which have a location factor above unity are given below:

Sugar Factories—Perennial 1937

Province or State	Proportion of workers in the industry	Location factor
Madras ..	26·0	1·6
United Provinces ..	39·6	2·1
Mysore ..	25·9	18·1
Baroda ..	8·5	10·3
Sugar Factories—Seasonal 1937[2]		
United Provinces ..	56·8	3·1
Bihar ..	24·3	3·3
Bombay States ..	2·1	2·5

LEATHER WORKS

The export duty on raw hides and skins was abolished by the year 1935 in order to help the revival of the export trade. This seems to have had a salutory effect on the industry and by 1937 there was an improvement in the

[1] B. P. Adarkar: *op. cit.*, p. 231.

[2] Data taken from the Return of Large Industrial Establishments for 1937. There are eight other places where sugar factories exist, but the proportion of workers employed by them is negligible and their location factors are below unity.

position. Though there was no increase in the number of leather works the workers employed more than doubled during the period. There was no change in the places of location except that Bengal improved its position considerably. The United Provinces and Bengal shared the major part of the industry and had 2·9 and 4·9 as their location factors respectively. The number of tanneries increased from 28 to 38 in 1937. Still there was very little change either in their places of location or their relative positions. Madras continued to be the most important centre with 42·2 per cent. of the workers and 2·9 as its location factor. The United Provinces and Bengal come next in order of importance. Among Indian States Hyderabad maintained an important place.

CHEMICAL INDUSTRIES

The Chemical Industry received protection in 1931 for a period of about two years even though the Tariff Board of 1928–29 had recommended a longer period. Besides under the Indo-British Trade Agreements preferential duties were allowed on chemicals imported from the United Kingdom and the British colonies. None of the other recommendations of the Tariff Board such as a revision of the freight rates or the payment of a bounty on supersulphates were accepted. Consequently the encouragement offered was not commensurate with the national importance of the industry. However the number of firms in 1937 increased to 28 as compared with 15 in 1931 and the number of workers by about 50 per cent. Bengal had the largest share of the increase and it retained its prominent position by having 75·6 per cent. of the total workers. Mysore and Kashmir were the two new places where the industry was started. The two places with a high location factor were Bengal and Baroda with 8·3 and 9·0 respectively.

There was a further increase in the number of soap factories during the period and the workers employed in the industry more than doubled. But from the standpoint of location

Bombay and Bengal continued to maintain their supremacy. They had between them about 86 per cent. of the workers. Mysore came next in importance with 8·7 per cent. of the workers. The location factors of Bombay and Bengal were 5·5 and 5·1 respectively.

The expansion of the match industry during the period was phenomenal. The protective duties imposed in 1922 and 1928 were primarily responsible for the growth of the industry in the country. But the full benefit of the tariff protection did not accrue to the Indian industrialists as the Swedish Match Company had gained a firm foothold with three large factories in Bengal, Bombay and the United Provinces. However, the number of factories increased enormously by 1937. Though the largest share of the increase goes to the credit of Madras still most of the factories there, were small and hence the proportion of the total workers was only 19·2 per cent. Bengal retained its place of pride but Bombay declined relatively. The proportion of workers and the location factors of some of the important centres is given below:—

Match Industry—1937

Province or State	Proportion of workers in the industry	Location factor
Madras .	19·2	1·2
Bombay ..	16·4	2·4
Bengal ..	29·5	3·2
United Provinces ..	6·4	·3
Hyderabad ..	8·3	2·3
Bombay States ..	6·7	8·3

OTHER INDUSTRIES

The progress of the paper industry was not very spectacular in terms of the number of factories but the output increased enormously by 1937.[1] The original impetus of tariff protection was continued by the Bamboo Paper Industry (Protection)

[1] B. P. Adarkar, *op. cit.*, p. 274.

Act of 1932. In 1937 there was no further dispersion of the industry except for the addition of Punjab with 8·5 per cent. of the workers. The proportion of workers in Bengal declined slightly, but still Bengal had the largest proportion of workers with a location factor of 7·0.

The progress of the Cement industry was steady in spite of the denial of protection. The internal competition was acute and but for the organization of the cement merger in 1935 in the form of the Associated Cement Companies Ltd., the internal difficulties could not have been overcome. There was a wider scatter of the industry in 1937 but the pre-eminent position of Central Provinces and Berar was not disturbed. Among the other British Indian Provinces, Bengal, Punjab and Bihar figure prominently. The Indian States have a fair share of the industry with about a third of the total workers. Rajputana and Central Indian States are the most important with location factors of 2·2 and 4·9 respectively. Central Provinces and Berar had a location factor of 6·8.

The Tariff Board of 1932 recommended protection for the glass industry but the Government refused to grant protection on the ground that soda ash, one of the raw materials, was not available in the country. This was a great disappointment to glass manufacturers and the industry necessarily failed to get the incentive for further development. However there was an increase both in the number of factories and the workers employed during the period between 1931 and 1937. But from the standpoint of locational dispersion the relative positions of 1931 remained intact. The United Provinces was the most important and Bengal came as a good second. Between them they had about 76 per cent. of the total number of workers. They were the only two places having a location factor above unity.

EXPANSION AND DISPERSION IN 1937

Indian industry expanded considerably during the intervening period between 1931 and 1937. This was largely due

to the imposition of protective tariffs on the basis of the policy of discriminating protection. Several industries grew beyond all expectations and even to a degree of self-sufficiency in certain directions. As a corollary there was certainly a spreading of the industry over a wider area. But from the standpoint of locational dynamics most of the industries remained loyal to their original places of concentration. This is explained by the fact that the original places of concentration were more active than others and took a proportionately larger share of the expansion of the industry. No doubt it implies that they had the requisite factor equipment for the purpose. Hence in spite of expansion there was no disturbance in the *status quo*. There was not even a relative decline in their importance except in the case of Bombay with regard to the cotton industry. Thus simultaneously two features are observable, namely, an expansion accompanied by a scatter and the maintenance of the original relative positions from the standpoint of location.

EVOLUTION OF THE LOCATIONAL PATTERN

From an observation of the above inductive study it is feasible to make certain generalizations about the behaviour patterns of different industries in respect of their locational trends with expansion and changes in the environment. There are three types of trends, and Indian industries may be made to fall into three groups on the basis of these trends. Certain industries have had no significant dispersion in spite of expansion in terms of an increase in the number of mills, employees and output. To this first group belong jute and iron and steel industries. They exhibit a remarkable degree of concentration undisturbed either by external forces or by virtue of growth. The comparative statements of the three periods chosen in this study, given in the appendix will reveal the fact. In the case of the jute industry the pre-eminence of Bengal with its 93 per cent. of the workers in 1937 is maintained intact even though a few places of

negligible importance have attempted to share it. Similarly in the case of the iron and steel industry Bengal, and Bihar and Orissa had between them 93 per cent. of the workers in 1937 and the rest of the places could claim only the balance. The change in their relative positions need not be attached much significance as in locational problems a zonal study is more important. Thus these two industries have not yielded to any dispersion in spite of forty years of growth.

The second type of trend manifests a significant dispersion with expansion accompanied by a decline in importance of the original places of concentration. In other words industries have tended to choose new places more suitable for their purpose and to the neglect of places originally chosen by them. There are a large number of industries belonging to this second group, such as the cotton industry, woollen industry, silk manufacture, soap, matches and cement. A perusal of the relevant tables given in the appendix will reveal the development. It is obvious that in the case of these industries either the initial choice of site was not fully based on scientific principles, or environmental changes have created better opportunities elsewhere. In the case of the cotton industry there has been a progressive decline in the share of Bombay as compared with other areas. If we take the Bombay island alone exclusive of Ahmedabad and other centres in the presidency the fall is even greater. Another feature of its dispersion is the migration to Indian States due to various extraneous factors, such as a laxity of labour legislation among them. In 1919 the proportion of the workers in the Indian States was 7·3 per cent.; it increased to 12·1 per cent. in 1931 and to 17·0 in 1937. Thus the industry has been amenable to dispersion under various circumstances. Such dispersion appears to be true also in respect of other industries belonging to this group. Hence this group of industries was obviously seeking opportunities for development elsewhere and when they arose there was a migration. There was nothing impelling to make

them stay where they started and there was not even a force of gravity making them lean to a greater degree on the original areas of concentration. So an important conclusion that could be drawn from this tendency is that in a scheme of regionalism these industries should be the first to be given a chance for development if the requisite factor equipment is available in the areas.

The third type of trend is also in the direction of a dispersion but unaccompanied by a decline in the importance of the initial places of concentration. This may be accounted for by the fact that the economic and non-economic forces inducing the initial concentration have not lost their potency and hence continue to wield a sway on the industry. No doubt these industries were developed in other centres as well but a more than proportionate share of the growth has been maintained by the original centres. Therefore any deliberate expansion of such industries under a scheme of regionalism should be based on a careful consideration of the favourable circumstances available at places where they are already located. It is also necessary to judge market conditions in terms of the aggregate output lest there be a glut in the market. These considerations should form part of the policy of co-ordination which is a concomitant of regionalism. There are a few industries in India manifesting the above tendency and thus belonging to the third group according to our classification. The sugar industry is the most important among them. The United Provinces and Bihar have actually improved their position of pre-eminence in spite of the phenomenal growth and dispersion of the industry. In 1919 they had between them 49 per cent. of the total workers, but in 1937 they commanded as much as 82 per cent. The other industries belonging to this group are Leather works, Tanneries, Chemical industries, Paper and Glass. In the case of all these industries there has been no relaxation in the grip of the initial centres consequent to an expansion. A perusal of

the relevant tables given in the appendix will bear testimony to this tendency.

APPLICATION OF PURE THEORY

The results so far obtained by means of the inductive inquiry may be tested in terms of the pure theory enunciated in the previous chapter. The jute and the iron and steel industries are the only two which exhibit a high degree of concentration and do not indicate any evolution in their locational pattern. In the case of jute the intimate agricultural connection and consequently the raw material availability is an essential condition. But since raw jute behaves like a " Pure Material " in the process of production it is not incumbent that the industry should be located at the raw material centre from the standpoint of transport costs. Hence its present concentration is explicable only in terms of other conditions favourable for the purpose. Labour also does not seem to influence its location as the proportion of labour compression in the product is low and besides Bengal depends on imported labour to a large extent. Hence availability of capital and enterprise at the initial stages at Calcutta and the facilities that the place offered to cater to an export market appear to have been the determining influences. Subsequent growth elsewhere has not occurred due to the efficient organization and great competitive capacity of the existing industry due to its predominant European management.

In the case of the iron and steel industry a combination of circumstances has favoured its concentration in a particular zone. It is an industry with a high " Material Index ", as iron ore and coal are weight losing in character and hence " Gross Materials ". Consequently the material deposit has an attraction, on the basis of transport cost. Labour deviations are not likely to occur as the existing centres are not inferior in that respect to other potential centres and besides the " Coefficient of Labour " is not high for the product.

The extreme concentration of coal deposits in India and the consequent high cost of transport to distant centres have prevented the exploitation of ore deposits anywhere except in their vicinity. The Mysore Iron and Steel Works, which marks the most important deviation, has substituted charcoal for coal. The other concerns are mostly rerolling mills using local scrap with imported billets. So the only chance of a dispersion for the industry depends upon a discovery of other coal deposits in the country, which is remote.

Industries that evince the greatest degree of scatter, even to the extent of cutting away from their original moorings, are cotton, woollen and silk manufacture, soap, matches and cement. As raw materials, cotton, wool and silk are " Pure Materials " imparting their entire weight to the finished product. Hence the corresponding industries need not necessarily be located at places where the raw materials are available, as there is no resulting economy in transport cost. Consumption centres therefore exert an important influence. But since consumption for these finished products is widespread it can only influence in combination with other factors. It is however obvious that high concentration is not profitable, as the transport costs to reach distant consuming centres have to be avoided. So while scatter is warranted by the nature of the circumstances the choice of exact places of location would depend upon labour, power, and enterprise. The development of hydro-electric power in South India has been responsible for a wide scatter of the cotton industry. Hence wherever power, enterprise and labour are available these industries have developed.

In the case of the cement industry its raw materials are mostly " ubiquities " available anywhere and hence location is mobile. But due to the considerable weight of the finished product and the consequent high transport charges it is invariably market localized. Hence with an increase in demand for the product in any area there is a tendency for the industry to develop so that it could cater within a

reasonable radius. The manufacture of soap requires vegetable oils and caustic soda. There is a certain percentage of loss of weight in the process of production, but not to such an extent as to outweigh the advantages of location at a place which is otherwise more favourably situated. Hence the industry has developed amidst important consuming centres, but all the while being careful to avoid cross freights on the transport of raw materials and on the finished product. Lastly the match industry has undergone the greatest dispersion. This is because Indian forests provided wood for splints and match boxes to a considerable extent and therefore wherever it was available the industry could develop. Besides Indian labour in almost all parts of the country acquired the required efficiency very soon and hence even labour at any particular area was not a determining influence. As regards consumption, the demand was widespread and thus the product had not to stand the strain of high transport cost. So with regard to most of the industries in this group the initial commencement was merely a historical accident and therefore the subsequent migration was the outcome of a process of natural growth.

The third group of industries consists of sugar, chemicals, leather works, tanneries, paper and glass. While there is a visible dispersion with growth among them it is not at the cost of the original places of location. Generally speaking this may be due to a more scientific initial location based on permanent and natural factors. Hence, with environmental changes, even though there is a growth of the industries elsewhere the original places have not lost their importance. In the case of the sugar industry, wherever controlled irrigation was possible sugarcane cultivation increased under the impetus of tariff protection. Consumption centres being widespread and the cost of distribution heavy, sugar manufacture developed at various centres. But none of the new centres being overwhelmingly superior in their factor equipment as compared with Bihar and the

United Provinces, a deprivation of the importance of the original centres was not possible.

The Indian chemical industry depends entirely on imported sulphur and therefore the raw material connection for location has been absent. Hence location must depend on a consideration of other facilities for manufacture, such as power and the difficulties of distribution. Sulphuric acid is corrosive involving expensive packing and heavy cost of transport. Therefore consumption centres have a high attraction for location and when it is combined with power resources it is a sure sign of the suitability of the place for location. The importance of Bengal in these respects has not waned with environmental changes in the country.

With regard to leather works, tanned hides and skins, which are its major raw materials impart their total weight to the product and hence the industry would get market localized. In the United Provinces, which has been the most important centre, the initiative for starting the industry was taken by the Government in order to supply the army requirements. The economies of scale and external economies developed at that centre were greatly responsible for the maintenance of its importance. Bengal subsequently developed as an important centre due to the increase in the home demand for civilian purposes. Tanneries on the other hand are more widespread because raw hides and skins should be collected from a wide area and tanned within a reasonable time. However even here certain places like Madras and the United Provinces have maintained their importance as they are convenient centres for collection.

The history of the Indian paper industry explains the very moderate rate of dispersion that has occurred during the past four decades. The original dependence on ' sabai ' grass as its raw material was responsible for its concentration in the Bengal area. The subsequent encouragement through tariff protection offered for the utilization of bamboo pulp has led to a slight scatter. But since the bamboo pulp

industry is not yet fully developed in the country Bengal holds its important position. In paper manufacture the first stage of production, namely, the making of pulp will always be at the place of the raw material. So if the manufacture of bamboo pulp increases in the country, paper mills will be established at all centres where bamboo is available and thereby reduce the importance of Bengal. Lastly the glass industry in India uses as its raw materials either "ubiquities" which are available everywhere or imported materials. Soda ash is the most important imported material and all other raw materials are available in many centres. Nevertheless the expansion of the industry has not deteriorated the importance of the original centres. This may be accounted for by the necessity of skilled labour in the industry. The existence of trained labour in the old centres has stood them in good stead in maintaining their position in spite of a growth of the industry.

The next question for examination is to see whether the pattern of location that has evolved itself in India is in conformity with the principles of pure theory. The position in 1919 was far from satisfactory. With industrial development and environmental changes the picture has undergone a change tending more towards a natural pattern. This is particularly evidenced by the second group of industries in our classification. A decline in the importance of the initial places of location is a test of the unscientific character of the original concentration. However, even the present position is not fully borne out by theoretical principles. There are quite a few oddities requiring deliberate correction under planning. One such feature is the attempt on the part of Bombay to try its hand at as many industries as possible simply because she commands capital and enterprise. The result has been an unhealthy development at one centre to the detriment of others. Certain non-economic forces have triumphed over natural economic tendencies and thus distorted the picture of reality. These issues would be

gradually unfolded in the study of the other phases of the problem.

The foregoing analysis has a relevance to the study of planning and regionalism. The conformity of actual conditions to a theoretical ideal may not always square with welfare concepts visualized from a national standpoint. The social cost of an erroneous location from the perspective of maximum social welfare is not always borne by individuals who are responsible for it. Hence in order to minimise human suffering and enhance the aggregate social welfare a judicious intervention by an external agency to vary the pattern seems justifiable. A variation of the existing pattern of location, wherever it is lopsided may be desirable, provided the new pattern is based as far as possible on scientific principles. Even though welfare considerations may loom large in any centrally directed plan, scientific principles are the *sine quo non* of a healthy economic progress. Hence a balance should be held between these two conflicting claims and neither of them should be made to triumph to the utter neglect of the other. Therefore the State has to deliberately decide and maintain the scheme of industrial distribution for the nation. No extraneous factors other than national policy should be allowed to disturb the natural centre of gravity of a country's industries. The full implications of such a policy would be evident only on a thorough examination of the features of regionalism which is the subject-matter of the next chapter.

CHAPTER III

REGIONALISM IN PLANNED ECONOMY

THE idea of a regional development of industries under planned economic reconstruction has received a large measure of emphasis in current literature. It has been accepted as the basic principle on which plans of economic reconstruction for India have to be drawn up. The social and economic potentialities of planning on a regional basis are considered to be immense and the future economic order is envisaged on the lines of a zonal development of the country to be ultimately co-ordinated on a national scale. It is claimed that this method of approach is of much significance particularly for countries having a vast area. In the case of India, therefore, a regional method of approach appears to be the *sine qua non* of sound economic planning. Hence, in view of the great emphasis that has been placed on regionalism it is germane to inquire into the full implications of the problem and determine the nature of the process and the type of technique appropriate for the purpose.

GENERAL PRINCIPLES

The connotation of the term regionalism has to be sought in the attempt at a sectional approach to the national economic planning of a vast country. When the area of a country is large it should necessarily be presupposed that the distribution of its economic resources will not be uniform over the entire territory. The mineral, agricultural and power resources for industrial exploitation would be unevenly distributed; some areas being relatively richer than others. Under the profit motive of free enterprise the more attractive among them from the standpoint of successful exploitation may receive priority for exploitation to the neglect of the rest. As a result there may either be a lopsided development or a duplication of plant with a consequent

waste of effort to be ultimately redressed by competitive rivalry. The restoration of a balance by such means is a long drawn and painful process. To avoid the national loss incidental to such a process the device of a regional approach in planning is recommended. So the initial step under regional planning is the delimitation of areas which may be considered by reason of the nature of their resources to be economic units irrespective of whether they are subject to one or more political authorities.[1] The actual and potential resources of these areas or regions have to be assessed and made the basis of the pattern of economic structure to be evolved for each region.

The object of such a sectional approach is to ensure that the potentialities of each region are given their due consideration. In a national approach the planning of productive activity would be pursued merely with the object of producing a predetermined volume of output. The attainment of such an object need not necessarily lead to an equitable distribution of the aggregate amount of socially necessary work among the regions into which a nation is divided. It may be inferred thereby that regional planning has a complementary relationship to national planning. Though national planning may achieve the wider objectives of full employment and an increase in national wealth, a territorial balance in respect of economic progress is not well within its reach. Besides the unit cost of production will not be at its minimum unless there is a correct regionalisation of industries. Therefore economic planning ought to provide for interprovincial justice and unless that is assured the distributive aspect of planning cannot be made to function smoothly. The purchasing power of the people in the country ought to be increased uniformly as far as possible throughout the country. Therefore productive occupations should be made available for all, and should be spread out evenly over all the regions. The only

[1] *Indian Finance*, January 13, 1945, p. 36.

limiting factor for the attainment of such an ideal may be a paucity of economic resources in certain regions which would naturally keep them at a lower level of economic progress. Otherwise, there is no justification to ignore the dormant resources of a region thus denying an increase in the welfare of the area. A neglect of this consideration has caused glaring differences in the industrial progress of different provinces which are not always warranted by their natural conditions. Very often fortuitous circumstances have caused an over-development of industries in certain areas and have thereby precluded, under the capitalistic system, other areas from utilizing their own natural resources for the production of commodities required in the region. Inter-regional trade as much as international trade should be based on the principle of comparative costs. Hence inter-provincial trade could be justified only on the basis of their relative factor equipment.

Regionalism does not however mean provincialism. The notion of self-sufficiency as applied to the provinces of a country is theoretically unjustifiable and practically unsound. The aim of a regional development should be to secure maximum efficiency in the utilization of available resources rather than the adjustment of rival claims of different areas to achieve their own aims and ambitions. Hence inter-provincial jealousies are detrimental to the execution of a regional plan. Provincial plans ought to be considered as integral parts of a common plan for the whole country. They ought to function as correctives of a national plan wherever it results in differences of economic development not fully justified by differences in natural resources. Therefore in a sectional approach the idea of an integration of regional plans is always implied. Under such an integration the regional and national standpoints are regarded in essence as mutual correctives. In this respect there is bound to be a certain degree of conflict between regions, but such conflicts have to be harmonized on wider

considerations of national progress. A co-ordination of productive activity throughout the country initially organized on the basis of the distribution of resources is the integrative aspect of a national plan. Trade between them would be determined on their relative productive efficiencies and would therefore be of mutual benefit to the regions. Hence there should be a regional plan in each area superimposed on, and becoming part of, a national plan. As Bellerby says, the regional plan must conform to the larger plan and add to it by devising special industrial schemes for the reduction of local depression.[1] So the technique to be employed for the execution of the idea would consist of a preliminary investigation of the industries in each region, their course of development and present position. The capital invested among them and their sources should also form part of the enquiry. Then the factor equipment of the region for the sustenance and expansion if possible of the existing industries have to be assessed. Finally, the potentialities of the region from the standpoint of material resources, skill, and transport relations should be estimated, so that the feasibility of starting other industries in the area may be ascertained.

Regional planning requires for its success certain ancillary measures the most important among them being the transport system of the country. Therefore it is necessary at the outset to examine whether the existing transport system and its rate structure hinders or modifies the cause of a regional development. Wherever the rate policy is evolved entirely on commercial principles to the wholesale exclusion of national considerations it is likely that the resulting pattern of industrial distribution may not accord with a rational allocation in the interest of national progress. Therefore a modification of the rate structure should be the initial concern of the planners. Such a modification need not necessarily involve the transport system in a financial loss

[1] J. R. Bellerby: *Economic Reconstruction*, p. 287.

except in rare circumstances.[1] Whenever such exceptional conditions arise the State could go even to the extent of subsidizing the transport organizations in order to approximate towards the ultimate ideal of a balanced economic development. It may also be necessary sometimes to go beyond a mere reshaping of the rate structure. The entire future development of a country's transport system may have to be examined and refashioned to make it co-operate in the execution of a regional plan. (The problem of distributing the finished products over the entire territory of the country would be one of the most important issues under a regional development of industries.)

In fine, the idea of regional planning is conceived on lines similar to the division of economic activity throughout the world on free trade principles. Since national sovereignties and their differing ideologies have frustrated the achievement of a free trade millennium it could at least be realised within national limits. It should not be however tantamount to national self-sufficiency. A closed system of however wide a magnitude is detrimental to human progress. International relationship for exchange of goods and ideas should proceed unhampered. But it will be more rational in a planned economy and a regional approach will have a greater degree of realism in the execution of the schemes approved by the planning body.

LESSONS OF THE T.V.A.

Any discussion of regionalism would be incomplete without a reference to the prototype of such schemes, namely, the Tennessee Valley Authority. An appraisal of the peculiar economic and political circumstances under which the Authority was created will teach us a few invaluable lessons for a wider application of the principle. The Tennessee Valley is a river basin including portions of a

[1] *Vide* Author's article on "Transport Rates and Industrial Distribution," *Indian Journal of Economics*, Conference Number, 1945–46.

number of States and endowed with a substantial amount of primary resources and skill. But from the standpoint of human welfare there was very little progress, as the resources were either left unexploited or allowed to go to waste. Consequently the standard of living was extremely low and in direct contradiction to the resources available. The measures necessary for making the area prosperous were a conversion of its potential into actual resources and a preservation of the existing resources from a steady depreciation. Private enterprise failed to execute these changes. So the chief lacunæ were a spirit of enterprise and a form of administration appropriate for the purpose.[1] The Valley was endowed with vast resources of water power, minerals and agricultural land, but most of them were potential. Private enterprise attempted to make use of some of them, but their endeavours were mostly unco-ordinated. The capital resources of the area were meagre and the region was divided in political jurisdiction among a number of States. It was therefore not within the competence of either any single State or private agency to take a comprehensive view of its requirements and much less to execute it. Further, the motive force required for its execution was a spirit of solicitude for the suffering population rather than the profit-making purpose which might incidentally show signs of benevolence. These higher objectives are beyond the purview of capitalistic enterprise. So the United States, by an Act of the Congress, set up a special agency called the Tennessee Valley Authority and made it responsible for the economic improvement of the area and for enlightening the local population for self-help at a later stage. The creation of the Authority was the culmination of a number of factors tending in the direction of a recognition of the necessity of State intervention for economic rehabilitation. The experience of the Great Depression and the subsequent measures

[1] Herman Finer: *The T.V.A. International Application*, p. 2.

in the form of the National Recovery Administration were stages in the culmination of the idea.

The character of the mechanism and its purpose are unlike those of mere *ad hoc* bodies created occasionally to achieve special purposes. It is a multi-purpose development organization entrusted with the task of an integrated exploitation of various resources available in the specific area suffering at the time from retarded development. Envisaged in its entirety it transcends mere particular fields of exploitation and gives life to all forms of human well being. So it was entrusted with the broadest duty of planning for the proper use and conservation of the natural resources of the Valley. The most crucial decision of the United States government was with regard to the form of organization to be created for the purpose. As President Roosevelt suggested in his message to the Congress it had to be a corporation clothed with the power of government but possessed of the flexibility and initiative of a private enterprise.[1] Accordingly it was established in the form of a corporation with three directors with a local responsibility over a given area and locally resident in the territory of its administration. It enjoys a considerable freedom of action though not entirely free. It is responsible to the Federal authority for its activities particularly in matters of finance. It is enjoined to co-operate with local institutions and people.

The object of creating a corporate body was to treat the problems of the area as integrated and hence a territorial decentralisation or regionalisation became incumbent. Secondly, it had to be endowed with certain specific powers so that it could have the freedom and elasticity of a private business corporation. In fine, it had to be detached as far as possible from the traditional controls of administrative agencies. The most significant feature of the Authority is its multi-purpose character. It is a means created by the government for an integrated resource development. The

[1] Herman Finer: *op. cit.*, p. 15.

underlying idea is to develop resources not only for their own significance but to estimate their supplemental value for other resources.) These are objectives which for their realisation are not within the competence of the traditional modes of organization of either capitalism or socialism. The T.V.A. is not a socialistic institution in the strict sense of the word. As Herman Finer says, it is not in the position of an absolute practical governor over the area but it is in the position of a leader of thought.[1] Economic progress is achieved through research, technical assistance and preservation of resources through a collaboration with existing public agencies and the people. The T.V.A. on the other hand cannot be thought of as purely a capitalistic institution imbued by the motive of making a profit. Unlike private business corporations it is a corporate authority vested with special powers from the Federal government in order to enable it to transcend the political boundaries of independent States. But at the same time it has all the flexibility of a capitalistic institution. The one cardinal principle which guides its activities, namely the improvement of the welfare of the people, elevates it above any form of capitalistic mechanism however public spirited it might be. So the device is a happy compromise of the traditional modes of operation on the institutional side and the novelty of its approach consists in taking an area as its field of activity instead of taking any particular line of production. The achievements to its credit are so many that the form of organization adopted for the purpose has proved a thorough success. (In the words of Herman Finer, the spirit of enterprise in which this venture has been undertaken challenges the belief so persistently voiced that public authorities cannot be expected to show initiative, inventiveness, persistence and the technical capacity to master the problems involved in industrial and commercial undertaking.[2]

[1] Herman Finer: *op. cit.*, p. 79.
[2] *Ibid.*, p. 17.

The financial aspects of the T.V.A. may be examined to ascertain the degree of latitude enjoyed by the organization in the furtherance of its plans. Incidentally it may also be observed whether the scheme is being worked on commercial lines or if there is any element of state subsidization in the execution of the plans. There were two methods of financing the T.V.A. One of them was by means of empowering the Authority to borrow the necessary funds to be repaid gradually out of earnings. The other was by means of annual Congressional appropriations. The latter method was adopted though some power for issuing bonds to raise loans for specific purposes was allowed. The decision was based on various considerations such as a reluctance on the part of the Congress to allow excessive latitude to the T.V.A. and the social importance of the activities which should more appropriately be financed out of tax revenue. Further, it was thought that the investment market may not favourably react to the bonds issued until the fruits of the work of the T.V.A. began to materialise. So the T.V.A. has to approach the Congress annually for funds. The grants are in the form of lump sums so that financial flexibility prevails in the actual allocation. However the financial programme of the Authority is subject to scrutiny by the Congress. So the freedom that is allowed to the T.V.A. is only conditional. In addition to the Congressional appropriations and issue of bonds to the public the T.V.A receives contributions from other public agencies operating in the area, such as the Public Works administration. This record of its financial position reveals the fact that the scheme is operated on strictly commercial principles, but the yield is bound to be gradual on account of the nature of the investments. Otherwise there is no further evidence to show that there is any deliberate State subsidization of the scheme.

From the foregoing study a few inferences can be drawn regarding the general adaptability of some of the principles

on which the T.V.A. has been created and made to operate. At the outset it has to be emphasised that it cannot serve as a model in its entirety for universal application under all circumstances. An adaptation of the model is necessary to suit particular circumstances. The basic idea of the T.V.A. is to increase the welfare of an under-developed area. Such under-developed areas exist in most countries and their development has an important reaction on the welfare of the whole nation. So the primary task in national planning is to ascertain the existence of such regions. A migration from the area though feasible may not be as healthy a solution as a development of its own resources. But such a development may not be within the capital resources of private enterprise. In the case of the T.V.A. there has already been an investment of about $ 600 millions. Besides, even if it is feasible it is not always wise to entrust it to private enterprise as the entrepreneur's reward may form an excessive share of the resources developed. So some form of State agency has to be created for all such purposes. A State agency is also appropriate as it might guard against a conflict of interests either among different regions or with vested interests within the region.

In taking the T.V.A. as a model, a possible misconception against which regional planners have to guard against is that there is no inviolable sanctity about its multi-purpose character. Under the peculiar circumstances of the Tennessee Valley a multi-purpose development became necessary. But in other regions there may be only a single purpose to be achieved and on that score the attempt need not be given up as it does not conform to the T.V.A. model. Then again the choice of an area depends upon the character of the resources and therefore it need not always resemble a valley region geographically as in the case of the T.V.A. An intensive survey of resources should precede a delimitation of the country into areas as that is the basis of a regional development. A unified development plan for each region

has to be drawn up showing the priority and magnitude of the requirements and its financial implications before the State can organize its rehabilitation.

In the matter of finance it is not possible to draw any definite lessons from the experience of the T.V.A. A dependence on the annual grants of government may not be suitable under all circumstances. A basic necessity for any development authority is a feeling of certainty that the requisite funds would be forthcoming as and when required. It is doubtful whether the method of annual appropriations is the best for the purpose. Hence a variation of the methods of the T.V.A. to suit particular circumstances is the only possible remedy. With regard to the scope of powers of a development authority no general code of laws can be laid down. The powers can be defined only with reference to the specific necessities of each region. It depends largely upon the political character of the area and the nature and influence of the local institutions. If the economic unit falls within one political authority many of the complications which the T.V.A. had to face would vanish. Then the most weighty consideration would be the extent to which the State would respect the capitalistic structure. If the capitalistic institutions have to be preserved the newly created authority should be made to function in collaboration with them.

At this juncture a passing reference may be made to the relevance of the above inferences to conditions in India. A survey of resources and a delimitation of economic areas is the primary task to be undertaken in India. The existing knowledge with regard to resources is far too meagre. In India the problem is not one of existence of definite under-developed areas but it is a case of a general under-development in most of the provinces except a few. So the method of approach and the nature of the authority to be created for the purpose would vary according to the needs of each province. This also shows that it is not one or two authorities that the country stands in need of but as many as there

are economic regions. Of course, the authorities may exercise control over the contiguous territory of another political authority if it falls within their economic jurisdiction. Some of them may have a multi-purpose and others a single purpose development objective according to circumstances. Private enterprise should be allowed freedom of action but only to a limited extent. It will be made to function according to a general plan of development determined by the regional authority. Direct action by the authority may be necessary wherever private enterprise is either not forthcoming or not quite appropriate for the purpose. With regard to financial arrangements the method would vary according to local circumstances. Details of the issues raised here will be expounded in the succeeding pages.

CLAIM FOR REGIONALISM IN INDIA

In India the claim for a regional development is based on several considerations. Geographically the country comprises a vast area with significant variations in its natural endowment. Climatic and soil differences are very pronounced in different parts of the country demanding different patterns of economic development. From the economic standpoint the factors of production are not equally distributed. Capital and enterprise are available in a large measure in certain provinces enabling them to steal a march over the others in exploiting the available resources. There are also glaring differences in respect of social welfare, as the total quantum of the socially necessary work is not equitably distributed over the entire country due to the unevenness of its economic development. Therefore a regional approach seems to be the only device for redressing the oddities as far as nature would permit.

Taking the country as a whole there is an under-development of productive activity in many of the provinces. A solution of this issue should take precedence over the ascertainment of entirely undeveloped areas which would serve

as potential regions for economic exploitation. The percentage of total industrial population in different provinces in India varies enormously. According to the Census of 1931 the United Provinces had 18·28 per cent. of the total industrial population. Madras and Punjab came next with 15·41 per cent. and 10·41 per cent respectively. Bengal had 9·10 per cent and Bombay 6·89 per cent. Bihar and Orissa had 7·29 per cent. The Central Provinces were relatively undeveloped and had only 4·25 per cent. of the total industrial population. The percentages in other provinces were negligible. Among the Indian States in 1931 the Rajputana Agency had the lead with 4·52 per cent. and Hyderabad came next with 3·69 per cent. The other States were relatively undeveloped.[1]

Taking the proportion of workers in large industrial establishments alone, the differences among the provinces are even more pronounced. Bengal and Bombay lead the rest of the provinces with 38·1 per cent. and 28·7 per cent. respectively. They have therefore between them about 66·8 per cent. of the total workers employed in large industrial establishments in British India.[2] Madras is the only other province which has a reasonable proportion, namely 11·3 per cent. Among the other provinces the United Provinces and Bihar have 7·4 per cent. and 5·1 per cent. respectively. The Punjab has 3 per cent. and Central Provinces and Berar 2·5 per cent. All other provinces, such as Orissa, Sind, North-West Frontier, Assam and Delhi, have less than one per cent. of the total workers employed in large industrial establishments in British India. Among the Indian States the distribution of workers employed in large industrial establishments is not so ill-balanced as among the British Indian Provinces. Even though some of the States are more advanced industrially most of them have a fair proportion of the aggregate

[1] *Census of India*, 1931, Vol. II, Table 3.

[2] It includes all factories which come under the operation of the Factories Act (XXV of 1934) as amended by Act XI of 1935 excepting those in which the average number of workers employed daily is less than twenty.

workers in Indian States. Hyderabad leads the others with 18·6 per cent. of the workers. Central India States come next with 18.2 per cent. Mysore is a good third with 15·2 per cent. Madras States and Baroda are close to each other with 12·4 and 11·7 per cent. respectively. Bombay States and Rajputana States are more or less close to each other with about 8 per cent. Kashmir comes last with 4·2 per cent.[1] The object of giving the above proportions is to point out the degree of industrialization in different parts of the country taking the number employed in large establishments as a criterion. Of course, this naturally excludes those who are employed in small scale and cottage industries. A comparison of these proportions with the percentages of total industrial workers given above will give a rough indication of the nature of industrial occupations in different provinces. Those that have made rapid strides in industrial development on modern lines show a higher percentage under the analysis based on the returns of the large industrial establishments. Bombay, for instance, has only 6·89 per cent. of the total industrial workers as given by the Census Report, but it has 28·7 per cent. of the workers employed in large industrial establishments. So even though the share of the total industrial workers is small most of them are employed in large-scale industry. Similarly in Bengal the disparity between the two proportions is very pronounced. Whereas the share of the total industrial workers is only 9·10 per cent. the proportion of the workers in large industrial establishments in Bengal is as high as 38·7 per cent. Obviously in these two centres industrial activity on a small scale basis has had no incentive to develop. These disparities may be explained to a certain extent by the industrial opportunities available in those centres. But still they may also be due to the lacunæ in industrial progress in other provinces.

[1] *Large Industrial Establishments in India* (1937)—(Publication temporarily suspended after that date).

A study of the proportion of agricultural workers in different provinces will throw further light on the nature of economic activity among them. If we take cultivation as the principal occupation the provincial distribution of earners throughout British India shows wide variations.[1] The percentages given here are calculated by taking the total earners for British India and States separately. Hence the proportions refer to their respective totals. Among the provinces in British India the foremost place is taken by the United Provinces with 22·5 per cent. of the total earners having cultivation as their principal occupation. Next come Bihar and Orissa and Madras with 17·6 per cent. and 16·5 per cent. respectively. Bengal has a fairly high proportion of the total cultivators in British India in spite of the pre-eminent position occupied by it with regard to its share of the workers in large industrial establishments. About 13·8 per cent. of the cultivators belong to Bengal. This may be explained on two grounds. Firstly, the natural advantages of soil and water resources in Bengal render it particularly suitable for agricultural production. Secondly, jute cultivation whose processing is partly responsible for the high proportion of industrial workers, is also the cause of the fairly high proportion of cultivators in the province. Bombay has perhaps the lowest proportion among the important provinces reflecting truly the bias towards large industrial establishments. Bombay has only 6·8 per cent. of the total cultivators in British India. The proportions in the Punjab and the Central Provinces are 7·2 per cent. and 7·8 per cent. respectively.

With regard to Indian States the percentages of some of the important States have been calculated taking the total number of cultivators among the States in India. The first group of States having a high proportion of agricultural cultivators are Hyderabad, Rajputana States and Central India States. Hyderabad and Rajputana States have about

[1] *Census of India*, 1931, Part II—Imperial Tables, p. 221.

14 per cent. of the aggregate cultivators. Central India States have 12·7 per cent of the total. The next group of States having a fair proportion of the cultivators are Mysore, Madras States and Bombay States. Mysore leads them with 9·3 per cent. The other two groups of States have a little over 5 per cent. of the cultivators in Indian States. The third group of States comprising Baroda and Kashmir in our classification give a poor account of themselves. Each of them has just a little over 3 per cent. of the aggregate cultivators in Indian States.

With the help of these proportions two types of comparisons can be made. By comparing the proportion of agricultural workers with those employed in large industrial establishments it is possible to get an idea of the predominant type of economic activity in each area. Secondly, by comparing the proportion of cultivators in each area with the yield of similar crops among them the marginal efficiency of output may be determined. This knowledge may be useful in recommending a redistribution of workers between manufacturing industry and agriculture in each province. On a comparison of the proportions of agricultural and industrial workers in large establishments it is obvious that Bombay and Bengal have a disproportionately large bias towards industrial development. The proportions are 38·1 per cent. for industry and 13·8 per cent. for agriculture in Bengal and 28·7 per cent. for industry and 6·8 per cent. for agriculture in Bombay. The degree of disparity is wider in the latter case than in the former. The arguments for their justification is deferred to a later section. Only a factual study is attempted in this place. With regard to Madras the disparity is not very pronounced. With an agricultural proportion of 16·5 per cent. it has 11·3 per cent. of the workers in large establishments. In the United Provinces there is a wide variation and is therefore predominantly agricultural. The proportion of cultivators in the United Provinces is 22·5 per cent. but the percentage of industrial workers is

only 7·4. Bihar is another instance of a province having a high agricultural population with a low proportion of industrial workers. The Punjab and Central Provinces are both poor on the industrial side though the disparity is relatively not as great as in the case of the United Provinces and Bihar.

Among the important Indian States taken here for study the proportion of workers in large industrial establishments as compared with the proportion of cultivators is invariably higher except in the case of Rajputana States. Hyderabad has 14 per cent. of the cultivators with 18·6 per cent. of the industrial workers. The difference is even greater in the case of Mysore. With an agricultural population of 9·3 per cent. Mysore has 15·2 per cent. of workers in large establishments. In Baroda the proportion of cultivators is 3·4 per cent. and that of industrial workers is 11·7. Relatively speaking the Madras States are more industrialized than Bombay States. In Rajputana States the proportion of workers in large establishments is only 8·1 per cent. whereas her proportion of cultivators is 14·8 per cent. which is the highest among States. One obvious conclusion from this study is that the leading Indian States are more advanced industrially than the others.

As already observed a comparison of the proportion of cultivators in each province with the yield of similar crops among them will throw some light on the need for a diversification of occupations. Among the important agricultural provinces like Bengal, Madras, United Provinces and Bihar the cultivation of rice occupies an important position, but the yield per acre is highest only in Madras being 933 lbs. per acre.[1] It is as low as 586 lbs. in the United Provinces and in spite of it a large area is under rice. There is a justification therefore for a diversion of population to industrial occupations in the United Provinces so that the marginal yield might improve. Conversely in Bombay the yield of rice

[1] *Estimates of Area and Yield of Principal Crops in India*, 1938–39.

per acre is 893 lbs., but still the area under rice cultivation and the proportion of agricultural workers is very low. Hence there is a strong case for a redistribution of population between industry and agriculture in Bombay. Then again there is not much justification for the enormous total yield of sugarcane in the United Provinces and Bihar considering the relatively low yield per acre in those provinces. The yield of sugarcane per acre in the United Provinces is 3,005 lbs. and that of Bihar 2,204 lbs. But the highest yield per acre is in Madras, namely 6,263 lbs. and in spite of it the total yield of sugarcane in the province is relatively low. There are a number of other provinces in India whose yield of sugarcane per acre is much higher than that of the United Provinces and Bihar. In Bombay, for instance, the yield is as high as 5,584 lbs. per acre but the total output of sugarcane there is insignificant. Among the States Baroda has the highest yield per acre but the area under sugarcane is negligible. The yield per acre is 6,253 lbs. and the area under sugarcane is only 2,000 acres. Mysore has the highest acreage among the States though the yield there per acre is only 2,887 lbs. Further details of such inconsistencies regarding other crops will be found a little later in the sections on agricultural raw materials of India. So much emphasis has been laid in the foregoing discussion on this aspect of the problem because agricultural specialisation in India does not always appear to be a matter of choice. It has often been carried to great lengths even at the cost of the efficiency of the marginal output because the opportunities for developing manufacturing industry have been limited. As Cohen observes, " The most profitable distribution of the labour force would be that which resulted in an equal marginal productivity of labour and its simple tools on all land worked ".[1]

The foregoing discussion about the relative proportion of industrial and agricultural workers held by various

[1] R. L. Cohen: *The Economics of Agriculture*, p. 27.

provinces and States should naturally lead us to a determination of their degree of dependence for consumers' goods on other provinces. Such mutual interdependence is by no means harmful in itself unless it is countenanced without any regard to the natural resources in each area. Regional specialisation and the consequent inter-provincial trade is always assumed under regional planning. But inter-regional trade arising out of inconsistencies in the economic development of different regions will impoverish them as the terms of trade will be against them. No doubt those regions which have stolen a march over others in industrialization due to certain fortuitous circumstances might benefit by such inter-regional trade. But it should not be permissible within regions belonging to a single nation State though it has been the order of the day among independent sovereign states. No region should be left undeveloped in a nation merely on the score of a lack of suitable accelerating circumstances for the exploitation of existing resources. There are several instances of such uneconomic dependence of provinces in India for essential consumers' goods. The province of Madras, for example, depends on other provinces to the extent of nearly fifty per cent. of its sugar requirements, though from the standpoint of natural endowment it is in a much better position to produce its own needs than most other areas. Similarly the extreme dependence of most of the industrial areas on other provinces for their food supply is not always in harmony with their natural background. Such a process of development has both a positive and a negative evil effect on the general tenor of economic development in the country. The industrialization of a province beyond its efficiency limit and the deprivation of others of their opportunity by means of its own earlier start are the positive and negative aspects of the evil effects. These regional deficiencies could be redressed only by the intervention of the State. The main objective to be achieved by such intervention is to make the general nature of occupations

in different provinces reflect as truly as possible their natural endowment. In this respect the present position in India is far from satisfactory.

Some further light on the problem could be thrown by making a rough estimate of the provincial variations in the *per capita* income of the people in India. If such variations are supported by the nature of economic activity among them, it is a clear evidence of the injustice done to those provinces which have been left to remain in a state of retarded development. Even though its ultimate repercussions on national income may be overlooked for the moment the sufferers in the first instance are the people inhabiting the region. To alleviate their position and raise the *per capita* income, industries suitable for each province should be started even if it be by means of an external stimulus. Ever since 1867 when Dadabhai Naoroji made his pioneer attempt, various estimates have been made of the national income of India, but none of them attempted to assess the differences in the provincial *per capita* income, though wide variations among them should have been expected. The differences in the nature of crops grown among them, such as commerial and food crops, and the degree of industrialization in each is bound to be reflected in the *per capita* income of each province. No doubt evolution in all those directions may in the aggregate be evidenced by a slow improvement in the national and *per capita* incomes of a country computed at different periods of time, as it has been in the case of India, but it can neither give an indication of the provincial contributions to the net increase nor reveal the extent of economic progress among them. But it must be accepted that the purpose of the enquiries has all along been merely to estimate the aggregate and individual income of the country as a whole and to make international comparisons in order to impress the relative and absolute poverty of the country. But now that the device of regional development has been recognized as a measure of economic

improvement, not only of the parts but of the whole country, it is necessary to proceed on the basis of existing differences in the *per capita* incomes of given regions.

The *per capita* income of India was estimated by Dadabhai Naoroji in 1867 at Rs. 20. In 1882 Sir (then Mr.) David Barbour estimated it at Rs. 27. Shah and Khambatta put it at Rs. 74 in 1922. The latest estimate is by Dr. V. K. R. V. Rao for the year 1931–32. According to Dr. Rao, the *per capita* income of British India is about Rs. 65. The lower figure here as compared with the previous is due to greater accuracy in calculation and should not therefore be interpreted as showing a decline in national income. The provincial variations pertaining to some of these estimates is given by Vakil and Muranjan.[1] The table given below will indicate the position of the provinces and the nature of their improvement at different periods of computation.

Provincial variations of per capita *incomes*
(in Rupees)

	1867–70 Dadabhai Naoroji	1882 Sir David Barbour	1922 Shah and Khambatta	1931–32 Dr. V.K.R.V. Rao*
India ..	**20**	**27**	**74**	**65**
Bombay ..	36	20·2	110	102·7
Punjab ..	27	17·1	93	53·0
Central Provinces	18	20·9	58	56·4
United Provinces	14	14·8	48	49·9
Bihar and Orissa	15	15·1	46	44·7
Bengal ..	15	15·1	40	52·1
Madras ..	14	17·3	36	63·4

These figures are not very reliable, but give only a rough indication of the relative differences. It is obvious that those provinces which cultivate commercial crops or have a fair degree of industrialization are having a higher *per capita* income. There is however one vitiating factor which

[1] Vakil and Muranjan: *Currency and Prices in India*, p. 357.

* The provincial figures for 1931–32 are calculated separately on the basis of the data given by Dr. V. K. R. V. Rao.

might impair the value of such comparisons, namely, the differences in the population of provinces in relation to their resources. Even if such differences are not altogether ignored, these figures would still throw some light. Wherever low incomes are borne out by retarded economic development there is a strong case for regional development depending of course on the nature of resources in each area.

Provincial Distribution of Industrial and Agricultural Workers—British India

Province	Percentage of total population 1931	Percentage of total industrial workers 1931	Percentage of workers in large industrial establishments 1938-39	Percentage of agri-cultural cultivators 1938-39	*Per capita* income of Provinces 1931-32 Rs.
Bengal ..	18·4	9·10	38·1	13·8	52·1
Bihar & Orissa .	13·8	7·29	5·3	17·6	44·7
Bombay ..	8·0	6·89	28·7	6·8	102·7
C. P. & Berar ..	5·7	4·25	2·5	7·8	56·4
Madras ..	17·2	15·41	11·3	16·5	63·4
Punjab ..	8·6	10·41	3·0	7·2	53·0
U. P. ..	17·8	18·28	7·4	22·5	49·9

Distribution of Industrial and Agricultural Workers—Indian States

States				
Hyderabad ..	17·6	3·69	18·6	14·0
Mysore ..	8·0	1·48	15·2	9·3
Baroda ..	3·0	·82	11·7	3·4
Kashmir ..	4·9	·56	4·2	3·2
Central India Agency ..	8·1	2·07	18·2	12·7
Rajputana States	13·8	4·52	8·1	14·3
Madras States ..	8·3	2·90	12·4	5·3
Bombay States ..	5·4	·87	7·4	5·5

DISTRIBUTION OF NATURAL RESOURCES

After having observed, in the previous section, the nature and distribution of the socially necessary work among the various provinces in India, it is relevant to investigate the industrial resources of each province so that the pattern of economic activity that has evolved itself in the country may be verified in terms of their respective resources. The study

of natural resources may be dealt with under three sections, namely, mineral wealth, agricultural raw materials and power resources. India is generally rich in its mineral wealth. An attempt will be made here to mention some of the useful minerals and to briefly describe their occurrences. Coal is one of India's most valuable mineral products, but its occurrence is limited to a narrow zone. The coalfields of Bengal, Bihar and Orissa have accounted for 90 per cent. of the 530½ million tons raised in India between 1900 and 1932.[1] The remaining output is scattered in small proportions over different areas the most important among them being Hyderabad which accounts for about 3·65 per cent. of the Indian total. The result of such concentration has been the extraordinary difficulty experienced by potential industrial areas far distant from the coal zone. All other provinces of India, except perhaps Central Provinces, have to depend on this narrow coal zone for their supplies.

Among metals gold ore is practically the monopoly of the Mysore State. The only other places where it occurs are Hyderabad and Chota Nagpur. Silver is generally found with other metals. It is a by-product in the mining of gold and lead-zinc ores and hence its occurrence is associated with places where those ores are available. Iron ore is concentrated in the provinces of Bengal, Bihar and Orissa, which together account for about 97 per cent. of India's total output. In Central Provinces, though it is available, it is not systematically worked. In the Mysore State iron ore occurs in fairly large quantities and it is converted into pig iron and steel at the Mysore Iron and Steel Works in Bhadravati.[2] Among the other deposits of iron ore the most important area is the Salem district in the Madras Presidency which is a potential source available for future exploitation.

Manganese is an important metal chiefly used in the Bessemer and open-hearth steel making processes in order

[1] J. Coggin Brown: *India's Mineral Wealth*, p. 13.

[2] *Record of the Geological Survey*, Vol. 70, p. 307 and Table 108.

to supply carbon and remove oxygen and sulphur. With the development of the iron and steel industry manganese is having an increasing importance. In India about 70 per cent. of the total output is from the Central Provinces. Madras comes next with about 14·9 per cent. The other places in order of importance are Bombay 6·1 per cent., Mysore 4·0 per cent., Bihar and Orissa 3·9 per cent. and Central India 1·0 per cent.[1] Nickel is available in small quantities in Bihar and Orissa in the north and the Travancore State in the south. Chromite is an important mineral. It is the source of ferrochrome and as a refractory material it furnishes a neutral lining for steel furnaces. India produces about 14·75 per cent. of the total world output of chromite. The most important places where chrome ore occurs are Baluchistan, Mysore, Bihar and Orissa and in the Salem district of the Madras Presidency. Nearly 50 per cent. of the Indian output is contributed by the Mysore State. Tungsten is an important ingredient of the high speed cutting steels. It is also used in the preparation of the metallic filaments of incandescent electric lamps. The chief places of its occurrence in India are the Singbhum districts of Bihar and Orissa, the Nagpur district in the Central Provinces and in Rajputana.

The chief mineral raw materials of cement manufacture are limestone and clay. The two together should contain 75 per cent. of calcium carbonate and 25 per cent. of clayey matter.[2] These are available in Porbandar, Kathiawar, Central Provinces, Rajputana, Bihar and Orissa, Gwalior and Rawalpindi. Limestone is also used as a flux in the smelting of iron ore. It occurs in the Sahabad district of Bihar and Orissa, which is the chief source of supply to the Tata Iron and Steel Co., Ltd., in Central Provinces, Punjab and Rajputana. China-clay suitable for the development of the

[1] For actual quantities see tables in the *Record of the Geological Survey of India*, Vol. 70, pp. 200–01.

[2] J. Coggin Brown: *op. cit.*, p. 164.

pottery industries is distributed among a number of places. The chief among them in the order of importance are Central Provinces having 27·3 per cent. of the total, Bihar and Orissa 24·6 per cent., Mysore 15·3 per cent. and the Burdwan district of Bengal 14·8 per cent. The balance of 8·2 per cent. is found in Central India, Gwalior, Rajputana and Madras. Magnesite has several uses; the chief among them is as refractory lining for steel furnaces. The chief place of its occurrence is the Salem district of the Madras Presidency, which accounts for about 93 per cent. of the total Indian output and the remainder is from the Mysore State.[1]

Among the minerals used in agriculture, Potassium nitrate is invaluable as a fertilizer in addition to its use in the manufacture of explosives. It is available in Bihar, United Provinces and Punjab. Ammonium sulphate is another important fertilizer which is particularly valuable for the Indian soil. It is produced mostly in Bengal, Bihar and Orissa. Sulphur is one of the principal raw materials for the manufacture of sulphuric acid. It is also used in a number of other industries such as the preparation of woodpulp for paper manufacture and the rayon industry. The mineral occurs in Assam, Punjab, Sind and Rajputana. In the south it is found in Hyderabad and Mysore. Bauxite is essentially used in the manufacture of metallic aluminium. The rich Bauxite areas of India are Central Provinces, Kashmir and Kohlapur State. Asbestos is an important material for modern civilization on account of its fire resisting properties. It is available in the Mysore State, Central Provinces and the Madras Presidency. Lastly, mica is now mainly used in the electrical industry as an insulating medium. This important mineral is obtained mostly from Bihar. About 80 per cent. of the Indian output is from that area. The remainder comes from the Nellore district of the Madras Presidency.[2]

[1] For further details, vide *Records of the Geological Survey of India*, Vol. 70, pp. 179–82.

[2] *India's Raw Materials*—Government of India, 1945, p. 22.

This brief survey of the mineral resources in India reveals two important features. In the first place, even though India is rich in its minerals its distribution between North and South India is not proportionate. In the second place, even among the north Indian provinces there appears to be a concentration of several important minerals in some of the provinces. It may also be observed that even though South India is rich in certain minerals they are not adequately used for local industries due to the absence of a combination of minerals, of the required type. Besides, among North Indian provinces there appears to be a tendency for the minerals to move to neighbouring provinces where other facilities for their utilization are available rather than serve as a basis for any local industry. These general observations may be substantiated with the help of a few definite illustrations. Among the provinces in India, Bihar and Orissa appear to be the richest in mineral wealth. A large variety of minerals claim their origin from that area, but still its degree of industrialization is low. It is obvious therefore that some of the minerals migrate from that area to the neighbouring provinces where other favourable circumstances for their utilization exist. Central Provinces are by no means an unimportant area in respect of mineral wealth, but its industrial progress is not considerable. Bengal has had the advantage of having some of the heavy minerals within its borders and of being the neighbour of a rich area like Bihar and Orissa. Madras, in the south, possesses several important minerals but its metallic industry is of a very low order. This may be accounted for by the important fact that she lacks the combination of all the essential materials in their required proportions. Particularly the absence of coal resources within its boundaries is an important handicap. Mysore is by far the most important among the Indian States with regard to its minerals and its industrial progress is largely due to it. The foregoing observations therefore prove that under the regime of unplanned free enterprise

the pattern of industrial development in the provinces do not exactly reflect their mineral resources. A study of the other economic resources necessary for economic development will reveal better the causes of the discrepancy.

Among agricultural raw materials there are four important products serving as the basis of large industries in India. They are cotton, jute, sugarcane and oilseeds. The provincial distribution of these products may be studied to observe the development of the corresponding industries. Cotton is one of the most important agricultural raw materials of India and from the standpoint of provincial yield Punjab takes the first place. The annual output of raw cotton in the Punjab is 1,104,000 bales of 400 lbs. each and the area under cotton is 2,902,000 acres with an yield of 152 lbs. per acre.[1] The acreage is higher than that of Punjab in three other provinces, namely, Bombay, Central Provinces and Berar, and Hyderabad, but the yield per acre being low the aggregate output in each of those places is smaller. The highest yield per acre is in the Kairpur State. It is about 169 lbs. per acre but the total yield is insignificant. Therefore the most important areas for cotton production, apart from Punjab, are Bombay, Central Provinces, Berar and Hyderabad. The output in each of these places is higher than 500,000 bales. Apart from such relative differences in the places mentioned above it must however be observed that cotton cultivation in India is widespread. Though the aggregate output may be small it is grown in almost every province and in most of the States in India. Among the other provinces and States those that have a fairly large volume of output are in their order of importance Bombay States, Madras, Punjab States, Sind and Baroda.

Jute is another important agricultural raw material which is the basis of a major industry in India. With regard to its output the province of Bengal is of outstanding importance. From many a standpoint, namely, acreage under cultivation,

[1] *Estimates of Area and Yield of Principal Crops in India*, 1938–39, p. 17.

yield per acre and total yield, Bengal is superior to every other area where it is cultivated. About 2,504,000 acres are under jute cultivation in Bengal with an yield of 1,315 lbs. per acre. The total yield is 8,232,000 bales of 400 lbs. each.[1] The only other places where jute is grown to any appreciable extent are Assam and Bihar, but the output among them is only a small fraction of that of Bengal. Unlike cotton the cultivation of jute is not widespread but confined to a few places.

Sugarcane, as an industrial raw material, has assumed great importance in India during the past decade. In respect of acreage and output United Provinces is the most important province for the cultivation of sugarcane. It has an acreage of 1,610,000 and a total yield of 2,160,000 tons of raw sugar. No other area can be considered as a good second to the United Provinces, though the provinces next in importance are Bengal and Bihar. Their output individually is only a small fraction of that of the United Provinces. The other provinces which have at least a fair proportion of the aggregate output in India are Punjab, Madras and Bombay. But the entire situation of sugarcane cultivation will not be fully portrayed by such data. It is the yield per acre which should be the guiding factor in either adjudging the present development or planning for future progress. The yield per acre in the United Provinces is none too high. It is only 3,005 lbs. per acre compared with 6,263 lbs. in Madras, 6,253 lbs. in Baroda and 5,584 lbs. in Bombay. There are several other places with a higher yield per acre than that of the United Provinces, though not as high as the yield in the three places mentioned above. The obvious conclusion from this is that either the United Provinces is not eminently suited for cane cultivation or that it is overstrained and hence the marginal output is low. With regard to Punjab though the aggregate output is fairly large, the yield per acre is low. Therefore the prospects of future development

[1] *Ibid.*, p. 19.

seem to be in the direction of a definite increase in the Madras Presidency and to a certain extent in Bombay. In both these provinces the existing acreage under sugarcane is rather low. Particularly for a province like Madras, which is agricultural to a large extent, there is not much justification for the present state of development.

In respect of oilseeds India produces a large variety, the chief among them being groundnut, castor, sesamum, linseed, rape and mustard. Madras occupies an unique position with regard to groundnut. It has the largest total yield with corresponding acreage and yield per acre. The other places of importance are Bombay and Hyderabad, but the output in each of them is just about a third of the Madras total yield. Hyderabad and Madras again loom large in the production of castor seeds, the former having double the output of the latter. All other places are of minor importance. The production of sesamum is fairly widespread but still an overwhelmingly important share of the output belongs to Madras. A few other provinces also have a fair proportion of the output. Therefore with regard to the above-mentioned varieties of oilseeds Madras and Hyderabad occupy a predomin[illegible] place. Madras is conspicuously absent in the li[illegible]ces producing other varieties of oilseeds. Lins[illegible] produced in Central Provinces and Berar. The oth[illegible] importance are Bihar and the United Provinces. Bo[illegible]al and Central Provinces and Berar are the leading producers of rape and mustard. It is mostly grown in North Indian provinces.

POWER RESOURCES

Among the various resources necessary for economic development power plays a very important part in modern industry. The mechanized character of the modern productive processes require in a large measure some form of power from an external agency. Mechanical methods are no longer confined to large-scale industry. Even among

small-scale and cottage industries the introduction of mechanical methods are feasible requiring power for their operation. There may be a difference in degree in the demand by large and small units, but in the aggregate there may be an enormous need for power by the small-scale units when they are adequately mechanized. Even in agriculture there is a great scope for the utilization of power particularly for lift irrigation. So every nation has to ascertain, exploit and conserve its power resources.

There are various sources of power and the chief among them for purposes of modern industry are coal, oil, hydro-electric power, charcoal and power alcohol. The coal resources of India, as already observed, are concentrated in a narrow zone and as such it is not available at economic prices for industrial areas which are at a great distance from the coal zone due to the heavy cost of transport. Besides neither the estimated quantities available are commensurate with the needs of industry nor is the quality of the Indian coal of a high order. It is estimated that at the present rate of consumption in India the life of the best coal fields in the country would be limited to about 40 years.[1] Consequently much reliance cannot be placed on coal resources for the achievement of [illegible] for industrialization in India.

The position of India [illegible] sources is even worse. With the separation of Burma, India is mainly relying on foreign sources of supply to satisfy its oil requirements. The only sources of oil supply in India are Assam and Punjab, but the quantum of home production is negligible. So generation of power on any appreciable scale for use in industry on the basis of either coal or oil is not feasible in India. The possibilities of utilizing power alcohol holds out a great promise for the future. The sources from which alcohol can be cheaply manufactured are molasses

[1] George Kuriyan: *Hydro-Electric Power in India—A Geographical Survey*, p. 6.

and the starch content of products like potatoes, rice, etc. It may not be advisable to divert food products like rice or potatoes for industrial uses, particularly in a country like India whose present food position is not very encouraging. Molasses on the other hand is a by-product of sugar manufacture which would go to waste if the alcohol is not recovered from it. So molasses appear to be the chief raw material at the present moment in India for the manufacture of power alcohol. The enormous increase in the size of the Indian sugar industry will assure a large supply of molasses for the purpose. Alcohol is already being recovered from molasses in small quantities in certain parts of India and blended with petrol. But no accurate estimate has so far been made either of the actual amount of molasses available in the country or the potential amount of power alcohol that could be produced with it. However it is a profitable line of approach for the future, for relieving the power situation at least partially. The merits of the process are that apart from the cost of recovery it does not involve any expense for acquiring the raw material and there is no diversion of resources necessitating a calculation of its opportunity cost. Lastly, the prospects of utilizing charcoal as a source of power on any large-scale are limited. The scientific process of producing charcoal is by means of the destructive distillation of wood. The success of this process would depend upon various factors. Unless the by-products are scientifically recovered and profitably sold it is not economical to undertake the process.[1] The chief by-products of wood distillation are acetate of lime, methanol and wood tar; none of which has an export market ever since the advent of cheaper synthetic products. Hence it is not an economic proposition even if we do not consider the far-reaching effects of the measure on the position of wood supply and the preservation of forests in the country.

[1] For further particulars see author's book on *Industrial Development of Mysore*, pp. 21–22.

HYDRO-ELECTRIC POWER

So the only other source of power of any considerable magnitude available for the industrialization of our country is hydro-electric power. Till 1918 there was very little knowledge about the extent to which electric energy on the basis of water power could be produced in the country. Acting on the suggestion of the Industrial Commission which reported in 1918 that a hydrographic survey should be conducted in India, the Government appointed Messrs. G. T. Barlow and G. W. Meares to conduct the survey. Due to the demise of Mr. Barlow some time later, the survey had to be completed by Mr. Meares who presented a report in 1919 known as the " Preliminary Report on the Water Power Resources of India ". Subsequently he presented another report in 1922 known as the " Triennial Report ". Even though these reports are now out-of-date still they contain a wealth of information and a useful forecast of the potential resources of water power in the country. It was estimated in these reports that India was capable of producing about 5½ million kilowatts of electric energy taking all areas and sites, whether investigated or not investigated into consideration.[1] In spite of this enormous potential power the actual power developed at the time of the report, namely, 1922 was only 138,780 kilowatts calculated on the basis of the plant installed.[2] The report also attempted to take a census of the known power in use in various industries and localities. It was found that in 1917 the industries in India consumed more than a million horse power out of which only 285 thousand horse power was electric energy produced out of coal, oil or water. The proportion of power obtained from water out of this total was only 36 per cent. or about 50 thousand horse power.[3] Obviously the remainder of the energy produced with the installed plant must have been

[1] Meares, *Triennial Report*, p. 55, Table 8.
[2] *Ibid.*, p. 56, Table 10.
[3] *Ibid.*, pp. 36–37.

utilised for lighting or other purposes. These proportions indicate that even as early as 1917 there was a large demand for power and at the same time there existed enormous potential resources of water power but the actual amount of power generated was negligible. With the growth in industrialization during subsequent decades the demand for power has increased enormously and it is therefore germane to inquire whether hydro-electric power development has kept pace with it.

ECONOMIC CONSIDERATIONS

Some economic aspects of hydro-electric power generation may be considered before attempting a regional survey of the actual and potential water power resources in the country. At the outset it is necessary to dispel a common misconception that hydro-electric energy is invariably cheaper than electric energy produced with some fuel like coal or oil. In making an analysis of the relative costs of the two processes it is necessary to distinguish between capital or fixed costs and variable or running costs. The initial cost of construction is invariably higher in the case of a water driven plant as compared with a steam or oil driven plant. On the other hand, the variable cost essentially determined by fuel that is used is higher in the case of the thermal stations. Other items of cost, generally composed of salaries to staff and depreciation, are common to both. So the real criterion for ascertaining the relative cheapness of hydel power is the extent to which the higher capital charges of a water driven plant is less than the cost of fuel used by a thermal station. Of course, cost of transmission may be an additional capital expenditure in the case of a hydraulic plant, as it could be set up only where water power is found. But this aspect of the capital cost cannot be exaggerated as even thermal stations cannot be located wherever they are required. Their location depends not merely on the availability of coal but on the presence of a

very large supply of condensing water. Most of the Indian coalfields lie in zones where water supply is inadequate.[1] So even if power is to be generated and used in the area of the coal fields the cost of civil works in providing adequate condensing water has to be calculated and compared with the cost of transmission of hydel power. To avoid such an expense coal may be transported to a place where condensing water is available; and this will be more economical, as a thermal station requires almost 500 times as much water as it does coal. Such a location would necessarily involve cost of transportation of coal which should be matched with the cost of transmission of hydel power, the former being certainly higher than the latter. Further, if by chance the industry requiring the power is away from such a location, transmission lines have to be laid for thermal power also. Hence in respect of the cost of transmission of power the two are not directly comparable; they must be further investigated before attributing it solely to the hydraulic plant.

In respect of running costs, on the other hand, the hydraulic plant is at a decided advantage, as it involves no fuel. Hence the cost of generation does not increase *pari passu* with an increase in the number of units generated. There is a fixed total cost of generation irrespective of the units generated and therefore increasing returns operate as the volume of production increases resulting in a fall of unit cost. The conditions are otherwise in a thermal station. As the generation of every extra unit involves the consumption of a definite amount of fuel the aggregate running costs increase; and even though the unit cost may fall slightly due to a larger volume of production it is by no means in proportion to the total units. It is on the basis of this difference in the cost structure that a decision could be taken as to whether a hydro-electric plant or a thermal

[1] Government of India: *First Report on the Progress of Reconstruction Planning*, pp. 28–29.

station is more economical in a given area assuming that facilities for starting either of them is available. Since the difference in running costs has a determining influence the cost of coal in the area is the decisive factor. The extent to which the excess capital cost of a hydraulic plant would be absorbed by the cost of fuel of a thermal plant would depend upon two factors, namely, the price of coal and the number of units of energy generated. The number of units generated is an important factor, because with a lower price of coal unless the quantity of power generated is large, the excess capital cost will not be absorbed. On the other hand, when the quantity generated is small unless the price of coal is very high the excess cost cannot be absorbed. This immediately leads us to the conclusion that the competitive capacity of the water power station improves as the load factor rises, approximating as much as possible to the optimum limit of output. On the basis of these tendencies Meares has calculated in his report that with coal at Rs. 10 per ton a thermal station may be at an advantage and with coal at Rs. 30 per ton water power would be cheaper.[1] The upper limit of coal price is sometimes put down at a lower level of about Rs. 20 per ton.[2]

Before we pass on to a consideration of the differences in the prices of coal at various centres in India it would be profitable to indicate the circumstances under which the hydro-electric plant can approximate towards the optimum size in order to compete with a thermal plant. The hydro-electric generating plant is an indivisible factor[3] and therefore unless there is a minimum demand which should be fairly large it cannot be installed. It can never be economical if it is made to cater to small and scattered industries. Therefore to assure the base load to such a plant suitable industries should be started at or near the power station

[1] Meares: *op. cit.*, p. 40.
[2] George Kuriyan: *op. cit.*, p. 16.
[3] Benham: *Economics*, p. 137.

sites. The most appropriate for the purpose are the plants for the fixation of atmospheric nitrogen required for the production of inorganic fertilizers. They could be conveniently located at hydro-electric power station sites, as the raw materials required, namely, water and electricity, are always available among them. Large-scale electro-chemical ammonia plants situated in close proximity to the main power station are capable of providing the necessary base load of secondary power.[1] Sometimes electro-chemical and electro-metallurgical works may be located near a generating station to provide the base load of the station. With these ancillary measures it is quite possible for a hydro-electric station to reach its optimum size of output and thus fortify itself against the competitive inroads of a thermal station. The incidental advantages of such industries in the vicinity of a hydro-electric power station to irrigation and rural industries are immense.

Reverting to a consideration of the scope of thermal and hydro-electric plants in the various regions of India on the basis of prevailing coal prices it is found that except in Bengal and Bihar the competitive position of coal is considerably weak. Though the pit-mouth price of coal from Jharia and Raniganj is incredibly low, being in 1935 only Rs. 2–8–0 and Rs. 2–9–0 per ton respectively, the cost of transport is so high due to the distances to be traversed that the prices soar up at the industrial centres. During the decade and a half between 1920 and 1935 the average prices of coal in some of the important ports were Rs. 23–5–0 per ton at Calcutta, Rs. 21–8–0 at Bombay and Rs. 14–7–0 at Karachi.[2] The price variations from year to year are so great that there has been absolutely no stability during the period under study. At Madras the price of coal is about

[1] Economic Adviser to the Government of India: *The Location of Industry in India*, p. 67.

[2] *Report of the Coal Mining Committee, India*, 1937, Vol. I, p. 235, Table V.

Rs. 17 per ton.[1] These port prices would be proportionately higher at industrial centres in the interior of the country. Though the price of coal is only one among the several factors determining the relative competitive position of the two types of electric power generation it is profitable to notice that it is an extremely limiting factor in India due to the concentration of the coal resources in a narrow zone. These considerations lend weight to the argument that in India there is a great necessity for the development of water-power resources wherever they are available. A calculation of all alternative possibilities in every region should no doubt precede the installation of a water-power plant in any area.

EXISTING AND PROJECTED HYDRO-ELECTRIC WORKS

There are several power station sites in India and the most important among them is in Bombay. The Tata Sons, Ltd., have developed three schemes in Bombay, namely, the Tata Hydro-Electric Power Supply Co., Ltd., started in 1915, the Andhra Valley Power Supply Co. started in 1922 and the Tata Power Co., Ltd., on the Nila-Mula river started in 1927. These three schemes have a combined normal capacity of about 246,000 H.P. and provide energy for most of the industries in Bombay and for the electrified railways. According to the estimate of Meares the water-power resources of Bombay is 644,310 kilowatts of continuous power and therefore the present output is not even a quarter of the available power.

With regard to hydro-electric generation in India, Mysore State has the unique honour of being the pioneer. Even-though Meares emphasises in his preliminary report that the plant at Darjeeling preceded the Mysore venture by five years it was of a very small magnitude and hence not of much commercial value. The first installation of Mysore was inaugurated in 1902 at Sivasamudram. This has a normal capacity of about 69,000 E.H.P. The next one at Simsha

[1] George Kuriyan: *op. cit.*, p. 17.

falls having a capacity of 23,000 H.P. was completed in 1940. The third one at Jog Falls is under erection at present with a capacity of 24,000 H.P. at the first stage of its development. These installations supply power to the Kolar Gold Mines and to the industries of the State in addition to urban and rural electrification.

In the Madras Presidency there are three hydro-electric undertakings. The Pykara Hydro-Electric Scheme in the Nilgiri district was completed in 1932 and its installed capacity is about 40,000 K.W. The next installation was at the Mettur Hydro-Electric Scheme which commenced operation in 1937. The Mettur Dam, one of the largest of its kind in the world, was primarily meant to impound water for irrigation purposes. The generation of electricity was a subsequent measure. It has an installed capacity of around 37,500 K.W. The third scheme in the Presidency is the Papanasam Hydro-Electric Scheme which commenced operation in 1944. It has a capacity of about 21,000 K.W. Each of these three schemes is capable of further extensions. In the Travancore State the Pallivasal Hydro-Electric System was completed in 1940 and by 1942 it had a connected load of over 6,000 K.W. The power developed at present in South India is not even a fourth of the estimated potential resources.

In the United Provinces the Ganges Canal Hydro-Electric Grid supplies power for domestic and agricultural purposes. But the total power generated is just about 20,000 K.W. which is only a very small fraction of the potential power in the United Provinces as estimated by Meares. In fact the amount of thermal power generated in the region is much higher. In the Punjab the Mandi Scheme has an initial installed capacity of 48,000 K.W. The scheme is capable of further development. In the Kashmir State there are three hydro-electric schemes; one near Baramulla and the other two at Muzafferabad and Jammu. These works have a capacity of about 20,000 H.P.[1]

[1] Economic Adviser : *Location of Industry in India*, p. 69.

The Hyderabad State in the Deccan is favourably placed for the development of electric power due to the large rivers flowing in its territories. It is estimated that by harnessing the large rivers and their tributaries flowing in the State it is possible to generate nearly 4,21,500 K.W.[1] Besides these there are a number of other schemes capable of development in Hyderabad.

In Bengal and Bihar the presence of large quantities of coal has prevented the development of hydro-electric power as it cannot effectively compete with thermal power in regions of cheap coal. In the Central Provinces and the premier Indian State of Hyderabad the presence of coal has exercised a similar influence. Non-availability of water power in Assam and Orissa has necessitated their dependence on thermal power. So these five provinces and the State of Hyderabad depend exclusively on thermal power. It is interesting to observe that thermal power is being generated in almost all provinces of India, but the only difference is that its proportion is smaller wherever hydel power is generated. In the United Provinces however the proportion of thermal power is much higher than hydel power even though both exist. In fact, it is strange to find that the total quantity of thermal power generated in India is much higher than hydro-electric power in spite of the paucity of coal resources in the country and the need to conserve them.[2]

On the basis of the present water power development in India the country may be divided into regions of adequate hydro-electric power supply required for the far-reaching plans of industrialization. Taking 250 miles as the radius within which transmission is possible from a water power site in India, we find that southern and western India have adequate power resources. From Bombay downwards to Travancore on the West Coast hydel power can be supplied

[1] *Ibid.*, p. 69.

[2] George Kuriyan: *op. cit.*, see Table on p. 59.

from the existing plants. On the east coast the northern parts of the Madras Presidency are beyond the reach of the existing power plants. The central and north-eastern provinces of India have at present practically no developed water power sites. They are depending mostly on thermal power which is precarious considering the acute shortage of coal that was experienced during this war. The northern and north-western parts of India have a fairly large supply. Though the United Provinces is not so well developed the Punjab and Kashmir have sufficient resources to cater to potential industries. The future policy in the well-supplied hydel power areas of India should tend in the direction of the establishment of interconnecting grids in large definable power regions transcending provincial and political boundaries. For instance, there should be one grid for South India inter-connecting the Mysore, Madras and Travancore schemes. Similar grids for Bombay and north-western India are feasible. The power position of the areas in India described in the foregoing sections will be useful for the delimitation of the country into regions, which will be attempted after noticing the position of capital and labour resources in the provinces.

CAPITAL RESOURCES

An attempt to determine the distribution of capital resources in the various provinces of India bristles with difficulties. Most of the available data are with reference to India as a whole and hence unless it is specially calculated it is difficult to know the proportion of its distribution among the provinces. But the data are not always amenable to such calculation and hence only a rough approximation of the actual distribution is possible. The paid-up capital and the deposits of various banking institutions is one of the sources of information regarding the potential capital resources of a province for industrial development. But such information is not readily available for all types of

banking institutions in India. The Imperial Bank of India, for example, had in 1939 a total paid-up capital and reserve of 11,28 lakhs of rupees and deposits amounting to 81,00 lakhs of rupees for the whole of India. But their respective proportions for the various provinces is not furnished in their published balance sheets. The only possible clue to the information is perhaps the number of branches in the provinces, but it cannot be a sure guide. In the Madras Presidency there are about 35 branches of the Imperial Bank with about fifty sub-offices. This is about the largest number among the provinces, but that is no indication of its share in the total deposits. In Bengal, for example, even though there are only 13 branches with 4 sub-offices, a much higher proportion of the total deposits is concentrated. The Bengal Provincial Banking Enquiry Committee point out that according to the evidence given before the Hilton Young Commission in 1925 the Bengal circle was responsible for more than half the aggregate current deposits and nearly half of the fixed deposits of the Imperial Bank.[1] So the other two circles, namely, the Bombay and the Madras circles, had only the balance of fifty per cent. So beyond giving a rough indication the calculation on the basis of the number of branches is not of much avail. However the relative importance of the provinces in this respect may to a certain extent be ascertained on the basis of the number of branches among them. There are five provinces in India with a fairly large number of the branches, namely, Madras 35, Bombay 24, United Provinces 24, Punjab 18 and Bengal 13. The other provinces have a relatively smaller number, the highest being about 10 branches in the Central Provinces and in Bihar. Hence so far as the resources of the Imperial Bank are concerned the five important provinces mentioned above have a greater opportunity for utilization. The extent to which the deposits in one province are advanced for employment elsewhere is very difficult to

[1] *Report of the Bengal Provincial Banking Enquiry Committee*, p. 39.

determine. The question of inter-provinceal migration of capital is not in the least amenable to calculation.

With regard to the joint-stock banks and loan companies registered according to the Indian Companies Act the determination of the provincial distribution of their paid-up capital and deposits is not so very difficult. Some of them are purely local with very few branches outside the province. The resources of such banks may be said to be entirely provincial in character. But there are some large joint-stock banks like the Allahabad Bank and the Central Bank of India which have several branches outside the provincial boundaries. In their case, as in the case of the Imperial Bank, it is difficult to determine the proportion of deposits obtained from places outside the province in which the head office is located. Such deposits are usually shown to the credit of the province in which the head office is located. In Bombay, for instance, among the total joint-stock banks functioning, about 37 were registered in the province and about 16 outside the province.[1] In other provinces the number of banks domiciled in the province is much larger than those having their headquarters elsewhere. In Bihar and Orissa, out of the ten joint-stock banks only three have their head offices outside the province.[2] In the Punjab there are 18 joint-stock banks and among them only one, namely, the Central Bank of India, has its headquarters outside Punjab.[3] In the United Provinces there are 33 joint-stock banks out of which only 7 have their head offices outside the province.[4] So in order to get a rough idea of the provincial distribution of the paid-up capital and deposits of the joint-stock banks, if we take the effects of the branches outside the provinces as neutralising each other

[1] *Report of the Bombay Provincial Banking Enquiry Committee*, p. 29 (1930).

[2] *Report of the Bihar and Orissa Provincial Banking Enquiry Committee*, p. 16 (1930).

[3] *Report of the Punjab Provincial Banking Enquiry Committee*, p. 10.

[4] *Report of the U. P. Provincial Banking Enquiry Committee*, p. 67.

and calculate on the basis of the origin of the banks we may not be far wrong. On the basis of the provincial distribution of banks given by the Central Banking Enquiry Committee[1] the capital resources of the important provinces are calculated and given below in a tabular form.

Provincial Distribution of Paid-up Capital and Deposits of Joint-Stock Banks, 1931

(000 omitted)

	Paid-up Capital	Reserve Fund	Deposits
	Rs.	Rs.	Rs.
Madras ..	2,16,21	29,70	4,77,98
Bombay ..	4,35,35	1,93,12	26,26,49
Bengal ..	1,95,78	73,38	15,23,74
United Provinces ..	63,12	16,40	1,37,90
Punjab .	97,00	57,16	12 09,07
Bihar and Orissa..	7,49	8,47	86,17
C.P. and Berar ..	3 11	2	3,10

A perusal of the above table shows that Bombay leads all other provinces with regard to capital and deposits of joint-stock banks. Next in order of importance are Bengal and Madras. The remaining provinces are rather poor in comparison. As already observed this estimate overlooks the vitiating influence of the branches of the large banks. Such banks however are small in number. Again, the inter-provincial migration of the resources of the joint-stock banks is not easily amenable to calculation. But such migration is necessarily limited as compared with that of the Imperial Bank, as only the large joint-stock banks are capable of it and they are few in number.

Another source of information regarding the capital resources of the provinces is the share capital and deposits of the various types of co-operative institutions in existence. The Indian Central Banking Enquiry Committee give separate data relating to the different forms of co-operative institu-

[1] *Report of the Indian Central Banking Enquiry Committee*, 1931, Appendix II.

tions in India.[1] Figures that are relevant for our purpose are given below in the table with reference to different provinces.

Provincial Distribution of Share Capital and Deposits of Co-operative Institutions—1931

(in lakhs of rupees)

	Agricultural Credit		Non-Agricultural Credit		Non-Credit		Central Banks & Banking Unions	
	Share Capital	Deposits	Share Capital	Deposits	Share Capital	Deposits	Share-Capital	Deposits
Bengal ..	1,27	34	74	1,75	23	7	78	2,64
Bihar & Orissa ..	42	8	*	*	58	21	36	1,52
Bombay ..	77	1,16	91	2,29	34	36	36	1,93
Central Provinces	31	7	6	6	1	1	48	1,77
Madras ..	1,27	9	88	65	8	2	76	3,53
Punjab ..	2,57	70	25	44	41	9	63	5,75
U. P. ..	40	2	1	*	*	*	35	53

* Indicates less than one lakh of rupees.

The above table presents a picture different in some respects from the one presented by the previous table regarding the joint-stock banks in India. In respect of the resources of the co-operative institutions the pride of place does not necessarily belong to the provinces which loom large in respect of joint-stock banks. Provinces like the Punjab and Madras have mobilised greater resources through the co-operative form of effort than the other provinces. This is also true to a certain extent of Bihar and Orissa whose co-operative banking has made greater progress than joint-stock banking. The Provincial Banking Enquiry Committee point out that as if to make up for the backwardness of joint-stock banking, co-operative banking has made relatively greater progress in the province.[2] But some provinces like the United Provinces and the Central Provinces are poor even with regard to co-operative effort, showing thereby the relatively

[1] *The Indian Central Banking Enquiry Committee Report*, pp. 114–15.

[2] *Bihar & Orissa Provincial Banking Enquiry Committee Report*, p. 17.

meagre capital resources of those provinces. In the United Provinces, as the Provincial Enquiry Committee point out, co-operation as compared with other provinces has to a large extent failed.[1]

Some light may also be thrown on the subject by a consideration of the deposits in the Post Office Savings Banks of the various provinces. It may be construed as so much potential capital available for economic development in the different regions of the country. Figures for such deposits are available for the year 1931 which is the year under review regarding resources of joint-stock banks.

Post Office Savings Bank Deposits—1931[2]

Post Office Circle	Amount of Deposits (in lakhs of rupees)
Bengal and Assam ..	8,99
Bihar and Orissa ..	2,55
Bombay ..	5,64
Central Provinces ..	2,10
Madras ..	2,56
Punjab & N. W. F. ..	6,76
United Provinces ..	5,90

There are two more sources of information regarding the provincial distribution of capital resources which so far have not been considered, namely, the exchange banks and the Reserve Bank of India. The resources of the exchange banks are mostly utilised for foreign exchange business and as such are not available for local needs, but still the total deposits with them is an indication of the potential capital resources of the area. It is however very difficult to estimate the Indian proportion, not to speak of the provincial proportion, of their deposits. Still a considerable part of the deposits appear to be of Indian origin. It is said that the National Bank of India has half of its deposits in India. Similarly the Lloyds Bank does not find it necessary to import funds

[1] *United Provinces Provincial Banking Enquiry Committee Report*, p. 69.
[2] Figures taken from *Census of India*, 1931, Part I—Report, p. 9.

from outside for its business in India and the Chairman of the Bank stated that its Indian branches are self-contained.[1] It is therefore necessary to bear in mind that in such of the provinces where there are large branches of the exchange banks capital resources may be considered to be greater than in other provinces even though the exact proportion of their contribution to their total deposits is not amenable to computation.

With regard to the Reserve Bank of India the only information that may be of interest to us in this connection is the manner in which its shares are distributed over the different areas. The small table given below shows the preponderating importance of Bombay and Calcutta in this respect reflecting truly the larger resources of those two areas as compared with others. The question of private deposits does not arise in connection with the Reserve Bank of India, as it is a central bank.

Distribution of the Reserve Bank Shares—1939[2]

Areas	Distribution of Shares	Number of Shareholders
Bombay ..	2,07,367	19,945
Calcutta ..	1,21,335	13,187
Delhi ..	92,764	14,193
Madras ..	60,109	8,377
Rangoon .	18,425	1,493
Total ..	5,00,000	57,192

Lastly, the existence of considerable quantities of indigenous capital is not a factor to be ignored in estimating the resources of the provinces. But it is difficult to compute the exact volume of indigenous capital in any province. Still on the basis of income-tax returns a rough estimate of it has been made by some of the provincial banking enquiry committees. In United Provinces, for instance, it is estimated

[1] *The Bengal Provincial Banking Enquiry Committee Report*, p. 45.

[2] Reserve Bank of India: *Report on Currency & Finance*, 1939-40, p. 35.

that the total capital invested in indigenous banking is in the neighbourhood of about two crores of rupees.[1] In the Punjab an income-tax officer estimates it at about 1,28 lakhs.[2] In Bihar and Orissa it is estimated that about 11 crores of rupees is sunk in money-lending.[3] Thus even though an exact computation of it is not possible, rough estimates of the provincial quotas of indigenous capital are available.

This survey would be incomplete without a reference to the volume of capital invested in the Insurance Companies in the various provinces. Its importance is looming large at present due to the widespread faith in this form of saving. In the table given below the provincial distribution of the paid-up capital of banking and insurance companies are shown separately.[4]

Provincial Distribution of Capital Resources of Banking & Insurance Companies, 1938–39

Paid-up Capital (000 omitted)

Province	Insurance Companies	Banking & Loan Companies
	Rs.	Rs.
Madras ..	35,13	5,01,67
Bombay ..	1,80,51	7,88,42
Bengal ..	1,00,30	7,64,30
United Provinces ..	5,91	56,75
Punjab ..	17,34	68,13
Bihar ..	3,67	58,72
C. P. & Berar ..	4,42	5,32
Orissa ..	—	92

So far an attempt has been made to estimate the available capital resources for industrial investment in the various provinces. The actual amount of capital invested at present in various industries in the provinces may throw further light on the disparity in industrial progress achieved so far.

[1] *The United Provinces Provincial Banking Enquiry Committee Report*, p. 267.

[2] *The Punjab Provincial Banking Enquiry Committee Report*, p. 131.

[3] *The Bihar & Orissa Provincial Banking Enquiry Committee Report*, p. 20.

[4] Data taken from *Joint-Stock Companies in British India*, 1938–39.

In the table given below the paid-up capital of some of the groups of industries in a few important provinces and States is indicated.

Paid-up Capital of Some Groups of Industries, 1938–39

(000 omitted)

	Trading & Manufacturing	Mills & Presses	Mining & Quarrying	Breweries & Distilleries	Sugar
	Rs.	Rs.	Rs.	Rs.	Rs.
Madras ..	6,58,45	4,27,36	3,64	10,96	43,57
Bombay ..	38,58,78	26,97,32	11,34,45	—	1,06,65
Bengal ..	45,42.45	27,39,81	7,78,51	22.04	2,74,11
U. P. ..	3,32 18	2,96,72	—	2,20	3,96,79
Punjab ..	2,23,57	42,29	1,76	20.10	68,51
Bihar	2,65,16	49 97	59,65	11,54	1,20,25
C. P. & Berar..	38,09	43,42	12,30	—	—
Orissa ..	8,12	—	—	—	6,04
Hyderabad ..	24,54	78,62	64,65	—	29,92
Mysore ..	51,54	90.78	21,73	—	21,79
Baroda ..	26,48	1,38,12	—	—	6 00

In reviewing the brief account given above of the various types of computation for ascertaining the capital resources we are forced to the conclusion that capital has been a limiting factor of industrial progress in some of the provinces. However arbitrary may be the methods of computation employed herein, it is obvious that there are glaring differences in the capital resources of the provinces. Further, it is also obvious that on comparison with the statistics of industrial progress given in the earlier sections of this chapter it is found that there is a striking parallelism between the volume of capital resources available and economic progress in the provinces. In fact, it is even true to say that in some provinces like Bombay which are in possession of large capital resources industrial development has gone far beyond their competence in respect of other types of factor equipment. Conversely some provinces like Central Provinces and Bihar and Orissa, due to their limited capital resources, have been unable to make sufficient industrial progress as might have been justified by their mineral resources. Hence

there is a strong case in favour of a central control of capital issues involving a compulsory redistribution of capital over provinces for purposes of investment. The ownership of capital may continue as it is, but its employment should be decided by a central authority on the basis of the requirements of other provinces. In other words, a rational migration of capital to other provinces should be encouraged and if necessary enforced by the State in the interest of a regional development of the country. Occasionally there should not be much objection even if such capital is accompanied by entreprenurial ability. This would depend upon the availability of such ability in the importing provinces.

In concluding this chapter a passing reference may be made to the distribution of population in the country and the regional supply of labour as a factor of production. There is no fear of a shortage of industrial labour in the country, because of the growing population, the exodus of agricultural workers from the rural areas on account of the pressure on land and the gradual improvement in factory conditions. The availability of such labour in all areas is particularly significant in respect of a policy of regional development. Generally speaking the smaller industrial centres are able to secure their supplies of labour either locally or from the surrounding rural areas.[1] It is only the larger industrial centres like Bombay, Calcutta and Jamshedpur that have had to depend on imported labour from neighbouring provinces. So in the execution of a plan of regional development in India labour may not turn out to be a limiting factor. In fact, there may be a better distribution of industrial labour throughout the country unlike the present concentration of about half of it in and around the two cities of Bombay and Calcutta.[2] It is quite feasible to secure adequate supplies of industrial labour for any of the backward provinces in the event of their development

[1] Mukerjee & Dey: *Economic Problems of Modern India*, Vol. II, p. 111.
[2] *Ibid.*, p. 110.

under schemes of reconstruction. Therefore except for purposes of choosing definite sites for location within a province the availability of labour need not be considered as a determining factor, particularly in the case of unskilled labour. Skilled labour, on the other hand, is relatively more mobile and as such could be easily imported to potential centres.

The factual study in this chapter of the distribution of resources in the country has provided us with the necessary background for envisaging the probable course of future development. The main objective of this endeavour at a detailed survey of the resources is to impart a greater sense of realism to the inquiry. With this knowledge there are greater chances of formulating in the succeeding chapters a more balanced policy of economic development on a regional basis.

CHAPTER IV
REGIONAL ALIGNMENT AND ECONOMIC ADJUSTMENTS

THE discussion in this chapter will be more analytical than descriptive. The factual details presented in the previous chapter will serve as the basis on which certain inferences will be drawn regarding the feasibility of a delimitation of areas which may be considered as economic units. An attempt will be made here to portray the characteristic features of each area chosen, and to emphasise their dissimilarity as compared with those of other regions. As a logical corollary the types of economic activity suitable for each region will be indicated and the measures appropriate for achieving the desired results will be suggested. Incidentally a critical examination will be made of the existing structure of economy against the background that has been set. In short, the idea here is to draw the outlines of a new picture of Indian economy the details of which will be filled in gradually with the unfolding of the other aspects of reconstruction planning in the subsequent chapters.

REGIONAL DELIMITATION

A study of the distribution of economic resources in the country reveals the fact that the provincial and state boundaries have not much economic significance. Even though we may not pause at this juncture to assess the negative influence exerted by it on the economic development of the country it could be asserted with confidence that much greater progress might have been achieved had there been some collaboration among the political authorities of an area which might be considered as an economic unit. Unfortunately the economic philosophy that has held sway over the country for the past half a century has been individualistic in the extreme and has lacked a proper comprehension of the value of a regional policy.[1] The circumstances that were

[1] All-India Manufacturers' Organization: *Development of Heavy Industries in Provinces*, p. 1.

most favourable for the genesis of such a philosophy were the provincialisation of industrial development subsequent to the publication of the Report of the Industrial Commission and the consequent competitive rivalry of the provinces to score a point over the others with regard to their respective achievements in that direction.[1] Obviously none of the provinces had reason to look beyond their provincial boundaries and it was by no means safe to do so as it might endanger their financial position and disturb their budgetary equilibrium. It is precisely to ward off such a danger that the Indian Industrial Commission had most thoughtfully recommended the centralization of certain aspects of economic development. Unfortunately those recommendations were not given effect to and the attitude of the Central Government ever since has been one of extreme apathy but for the grant of fiscal protection. Except during periods of stress like the outbreak of a war or a depression when measures were improvised to co-ordinate the economic structure of the country the State has been a passive onlooker. Once the emergency has been successfully circumvented the State policy has invariably relapsed to its original condition. In other words, the peace-time policy in India has been largely conditioned by the trust imposed in the competence of the provinces to exploit their own resources. While absolutely no kind of doubt is entertained regarding the competence of the provinces in this respect, it must be admitted that a greater degree of national progress may be possible if a policy could be laid down in terms of wider areas if they happen to be of economic significance.[2] Some such realisation seems to have dawned on economic planners in India at present due to the colossal magnitude of the improvisations during the recent war and the anxiety to conserve the

[1] Vera Anstey: *The Economic Development of India*, pp. 220–21.

[2] Some of the advantages of a balanced distribution of heavy industries among provinces is given by the All-India Manufacturers' Organization: *op. cit.*, p. 4.

progress achieved so far for future benefit. But the ideas are still at the crystallization stage.

So a great step in the direction of successful national planning would be a demarcation of the country into fairly large economic areas which are mutually exclusive in respect of their economic resources and to suggest the types of economic activity appropriate for them. On this basis the country could be divided into four broad regions inclusive of most of the provinces and States except a few which stand aloof due to the state of their economic development and the futility of including them in the regions that are contiguous. The first among them is the North-Eastern Region consisting of Bengal, Bihar and Orissa. The next would be the Central Region comprising Central India, Central Provinces and the State of Hyderabad in Deccan. The third would be the North-Western Region including Bombay, Sind, United Provinces and Punjab. Lastly, the Southern Region would include Madras, Mysore, Travancore and other contiguous areas. The economic characteristics of each one of these regions distinguishing them from the others will be dealt with presently. In the meanwhile a mention ought to be made of the areas not included in any of the regions and the reasons for their exclusion. The places that are excluded from the four regions are Assam, Baluchistan, North-Western Frontier Province, Kashmir State and the Rajputana States. As we will observe a little later there is no material benefit to be gained by including them in the regions contiguous to them. Their state of economic development is such that they could evolve their economic destiny in single blessedness. They are not likely to benefit much by association with their neighbours.

NORTH-EASTERN REGION

Taking at the outset the North-Eastern Region, we find that Bengal, Bihar and Orissa have among them an enormous amount of mineral resources capable of collective exploitation.

With regard to the iron ores of India the foremost place is taken by Bihar and Orissa. The rich hematite ores containing more than 60 per cent. iron content is concentrated in the Singhbum district and Orissa, which is commonly termed as the iron belt. There are also immense quantities of lower grade iron ore in this area which have at present not been under consideration due to the availability of superior ores. The reserves of hematite ores in this region is estmated to be in the neighbourhood of about 3,500 million tons. The position with regard to good quality coking coal is even better. Most of the important coal-fields of India are in Bihar or Orissa. The Giridih or Karharbari field, the Jharia field, the Bokaro field, the Karanpura fields and the Palamau group of fields are all in Bihar. A greater part of the Raniganj field which is the largest, is in Bihar and the rest of it in Bengal. The Talcher field is in Orissa. Thus almost the entire quantity of the coal resources of the country belongs to this region. Most of these fields have good coking coal. It is estimated that Raniganj has about 518 million tons of coking coal out of a total of about 22,000 million tons of coal, Jheria about 1,174 million tons of coking coal out of a total of 20,500 million tons and the Bokaro fields have about 485 million tons of coking coal out of a total of about 1,500 million tons. The claim of Bengal in these resources is obviously very little but still its association is necessary for other reasons.

With regard to materials that are generally used as fluxes in the smelting of iron ore such as limestone and dolomite, their occurrence in India is not always at favourable centres. The best deposits are situated at a great distance from the manufacturing centers.[1] Still limestone occurs in the Sahabad district of Bihar and Orissa. Besides modifying metals such as chromium and manganese are available in fairly large quantities in Bihar and Orissa. In

[1] Cyril S. Fox: *Iron & Steel Industry of India*, pp. 121–6; *Transactions of the Mining & Geological Industries of India*, Vol. 20, 1926.

fact, manganese is one of the most essential metals in the manufacture of steel and it is available to the extent it is required within the district. Lastly the position with regard to refractory materials is quite encouraging in the area. The chief preoccupation of the industrialists in respect of refractory materials has been to discover a single substance which would remain undamaged under all conditions of furnace temperature. Such a substance is sillimanite and the recent discoveries of it in Orissa is an extremely favourable factor. Kyanite and sillimanite deposits occur in two places in the district and both of them are equally good as refractory materials. One other place where they occur is in the neighbouring province of Assam near Shillong. Kynamite has not been used much in India and the country has not had the benefit of it. The greater part of it is being exported to England.[1]

Thus with regard to the iron and steel industry the North Eastern Region, according to our classification, stands in a unique position. There is an excellent combination of all the minerals necessary for the industry and it could be self-contained with regard to the operation of India's most important key industry. This area may very well be called the "Black Country" of India. The location of the iron and steel industry should necessarily be at the place of its material deposit and as such there is no economic reason for disturbing the habitat of the industry in this region. Hence this region will be in sole possession of the iron and steel industry of India. None of the other regions can lay claim to it as they lack this combination of circumstances.

The scope for developing other metallic industries in this region is rather limited. After all the only other metallic products that could be recovered in India are copper and aluminium, the ore resources for which do not occur in this area. All the other mineral resources are capable of only

[1] Mineral Resources and Industries of India: *Transactions of the Mining, Geological and Metallurgical Institute of India*, Vol. 39, 1944, p. 65.

contributing their quota in the process of manufacturing iron and steel and not in yielding any final products. Among the non-metallic mineral resources of the area are limestone and China clay which could be the basis of cement manufacture and pottery industries. Among the minerals used in agriculture, potassium nitrate and ammonium sulphate are available in Bihar, Bengal and Orissa and they are of immense value for the agricultural industry. Lastly Bihar has practically the monopoly of mica resources and its exploitation will continue to be an important mining industry of the area. It ought to lead in due course to the development of the electrical industry in which it is largely used and also for the manufacture of various kinds of micanite. Mica is at present the most vital mineral exported from India for the world's industry.

From the standpoint of agricultural raw materials available in the area a few more industries would find a place in this region. Jute is practically the monopoly of Bengal and as such the jute industry will have the North Eastern Region as its home. Some of the oilseeds like linseed and rape are grown in Bihar and Bengal. So there is a limited scope for an oil industry and for the manufacture of certain finished products based on it. Apart from these no other important agricultural raw materials like cotton exist in the area. In respect of power resources this area is conspicuous for its lack of hydro-electric energy. This is largely a thermal power area. Of course there is a possibility of hydro-electric energy developing here if the Damodar Valley scheme fructifies. Until then the area has to depend on coal for its power. In this connection it might be profitable to suggest that low grade coals of a non-coking character should be utilized as far as possible for thermal power generation and for other industrial uses which do not require good quality coal, as the coal scarcity in India is only with reference to the superior grades of it.[1]

[1] *Mineral Resources and Industries of India, op. cit.*, p. 53.

Therefore on the basis of the factor equipment of the area the chief industries that could be developed are Iron and Steel, Jute, Chemical and allied industries, Cement and Potteries, Oil and Soap manufacture and Electrical industry on the basis of the mica produced. Among these the jute industry should be its exclusive monopoly and the steel industry can develop to its utmost capacity having a forward integration with the manufacture of structural steels, wagons and other final products. The manufacture of special steels may be reserved for other areas where the circumstances for the manufacture of ordinary steel on a large scale are not available. The chemical and other allied industries like match manufacture have to be undertaken on account of the mineral resources; but they need not be developed beyond the limits set by these favourable factors. Other industries like cement, potteries, oil and soap manufacture are to be treated like balancing factors to restore any disparity in equilibrium as compared with the other regions. Therefore their development should be strictly controlled on the basis of comparative costs in relation to other regions. The resources for those industries are neither too pressing here nor are they entirely absent in other areas. Lastly the development of the electrical industry in the area is a future possibility and the scope for it is great here due to the mica reserves.

Having observed the nature of industrial development appropriate for the area on the basis of its resources we may examine the character of the existing industries and the justification for their growth. A major part of the jute industry has always been in Bengal and the locational dynamics with an expansion of the industry has not in any manner disturbed the position. With regard to the iron and steel industry Bengal and Bihar had between them about 93 per cent. of the workers in 1937. So in respect of both these industries the actual development is in conformity with the resources of the region. In the manufacture of chemicals and matches Bengal has always had a lead among other provinces which

may continue to some extent even in future. But there is some justification for a dispersal of the industries to Bihar and Orissa under the regional scheme as the resources belong to them and also for reducing the over-crowding of industrial population in Bengal. The same argument holds good with regard to soap and cement industries. There are greater opportunities for their development in Bihar and Orissa rather than in Bengal. The raw materials for them are now evidently being taken to Bengal for manufacture which becomes unnecessary under the regional scheme. Bengal now leads the rest of the provinces in soap manufacture and stands only second to Central Provinces with regard to cement. There are two other industries in Bengal in which it has made great strides. They are leather works and paper industry. Any further development in these ought to go to Bihar or Orissa, because Bengal is not in possession of any extraordinary advantages for location which they do not have except perhaps capital and enterprise which should be perfectly mobile within the region chosen. The textile industries have not developed much in this area which is but right. Bengal and Bihar have a very small proportion of the cotton industry and there is absolutely no justification for its further development. Even though locational theory may not come in the way of its development there are other industries here which are more appropriate for the restoration of regional equilibrium. Sericulture has however been an important industry in Bengal and the natural conditions in the province may justify the maintenance of its present development, though no further progress is justifiable. In Bihar the sugar industry has developed to a fairly satisfactory extent and it can bear further increase according to its agricultural circumstances. In all this discussion about the North Eastern Region it would have been noticed that the province of Orissa does not figure prominently in respect of any of the industries. Its industrial progress is very meagre and hence stands in need of a large share in the scheme of redistribution of

industries within the region suggested above. In the foregoing brief survey of the characteristics of the region and the industries appropriate for it we have shown to what extent there is a justification to consider the area as one economic unit. Further it is also made clear how the overdevelopment of industries in Bengal could be redressed to a certain extent by the adoption of the regional method. The nature of the measures necessary for executing the idea with reference to the various regions will be taken up at a later stage.

CENTRAL REGION

The Central Region consisting of Central India, Central Provinces and Berar, and the Hyderabad State is relatively poor in its industrial progress. The share of Central Provinces and Berar in the workers employed in large industrial establishments in British India is only 2·5 per cent. Though Hyderabad and Central India States have a fairly high proportion of industrial workers as compared with other Indian States their progress is not much in comparison with some of the British Indian provinces, particularly in view of their economic resources. With concerted action the three politically independent areas are capable of much economic expansion. The reason for putting them together is not merely their contiguity but the existence of certain resources which would be of mutual help in developing certain industries. The coal resources of the region are quite promising, even though no coking coal is available. In Central Provinces there are three important places where coal reserves exist, namely, Korea, Satpura region and the Wardha Valley. The Rewa State in Central India and the Singareni mines of Hyderabad have fairly large deposits of coal. In the Central Provinces there are several occurrences of hematite iron ore in Chanda and Drug districts. The chief difficulty of producing iron and steel here is the absence of coking coal, but in view of the other favourable factors it is possible to utilise it. Cyril Fox says: "In view of the proximity of cheap coal, good

iron ore and limestone in the district and the occurrence of manganese ore in the adjoining district of Nagpur there are certain features which render this region worthy of attention."[1] Even if the importation of coking coal is avoided it is possible to smelt the ore either electrically or with wood fuel for the manufacture of special steels with the help of the large deposits of manganese available in the province. About 70 per cent. of the manganese output in India is from the Central Provinces. It should be converted into ferro-manganese and either utilised for making special steels locally or exported in that form.[2] That is preferable to the present form of exportation. There are large deposits of limestone and clay in Central Provinces which can serve as the basis of a large cement industry and for the manufacture of ceramics. There are good deposits of bauxite in the Central Provinces; but, for the manufacture of aluminium a large supply of hydro-electric energy is essential. Central Provinces and the State of Hyderabad depend at present only on thermal power. With the fruition of the schemes of hydro-electric development in Hyderabad and the Rewa State there might be a possibility of recovering aluminium from the bauxite deposits in the region and also for the manufacture of special steels by means of electrical smelting. There are some sulphur deposits in the Hyderabad State which indicate a scope for the manufacture of sulphuric acid.

The agricultural raw materials of the region are promising. The cultivation of cotton is fairly large in Central Provinces and in Hyderabad. Hence there is a great scope for the development of the cotton industry in this region. The Hyderabad State has a plentiful supply of oilseeds which might lead to a very large oil industry with all its ramifications, such as the manufacture of soap, lubricants, etc. Thus even though the resources of the region do not raise much hopes about the feasibility of having a variety of industries, still

[1] Cyril S. Fox: *op. cit.*, p. 111.

[2] Mineral Resources and Industries of India: *op. cit.*, p. 58.

there is great scope for developing those that are appropriate for the area, so that industrial occupation and the welfare of the region might be improved.

Taking next the industries actually in existence in this area, we find that no mention is made of iron and steel industry in this region. The neglect is probably due to the impossibility of developing the industry here on lines similar to those in Bihar or Bengal. As it has been pointed out already, the line of approach here should be different and the initiative for it should necessarily come from the State. Not much progress is observable in chemical industries except for some match manufacture in Hyderabad. It is a surprise that the soap industry has not developed much in Hyderabad in spite of its enormous supply of oilseeds. In the manufacture of cement this region leads the rest of India. The Central Provinces occupy a pre-eminent position with regard to cement and the Central Indian States have the largest share of it among the States. The cotton industry has made some progress in the area but it is not commensurate with the resources available. The proportion of workers in cotton industry in Central Provinces is small as compared with other provinces. In Hyderabad and particularly in Central Indian States the proportions are much better, but still there is great scope for further development. The only other industry of importance are the tanneries of Hyderabad.

This brief survey about the Central Region shows that there are several unfilled gaps in it and only a regional authority can devise measures for improving the existing conditions. The chances of improvement are greater if the three politically independent areas are brought together under one economic authority on account of certain common features among them. They are relatively less developed but resources are not entirely absent. The minerals of Central Provinces and the potential hydro-electric supplies of Hyderabad can combine to lay the foundation of certain special industries. The tungsten deposits can be used for the manufacture of

high speed cutting steels. There are greater advantages of combining these places together to form a region than in including them in any of the other regions, as they are not likely thereby to lend much help to them.

NORTH-WESTERN REGION

The third among our divisions is the North-Western Region comprising the provinces of Bombay, United Provinces, Punjab and Sind. The economic progress attained here so far is certainly much higher collectively as compared with any of the other regions. Here, unlike the North-Eastern Region, there are two important provinces, namely, United Provinces and Punjab, associated with Bombay which is industrially well advanced like Bengal. The region has a varied collection of resources but with not much repetition of the fundamental raw materials of India. Coal is entirely absent in this large area except for some occurrences in the Punjab, but there has been an enormous development of hydro-electric energy to more than make up for the deficiency of power for industry. The absence of iron ores in the region has also relieved us of much of the embarrassment which it might have caused due to the absence of coking coal. Other metallic minerals useful in the manufacture of steel do not exist in any appreciable quantities. The small proportion of manganese in Bombay cannot play any useful part independently. Similarly, the limestone occurrences in the Punjab are not of much industrial value. Hence there exists no scope for any development of metallic industries in this area. The rich bauxite deposits of the Kolhapur State is the only hope of the genesis of a metallic industry, namely, aluminium. The manufacture of alumina and aluminium in India should not be difficult in the future.[1] On the other hand, the presence of minerals used in agriculture, such as potassium nitrate in the United Provinces and Punjab, can be of much benefit to those provinces in

[1] Mineral Resources and Industries of India : *op. cit.*, p. 50.

the region which are already largely agricultural. Similarly, the manufacture of sulphuric acid from the sulphur deposits of Punjab and the neighbouring province of Sind is feasible. In the Punjab area the only minerals of importance are salt, coal, gypsum, limestone and clays. So cement manufacture is feasible with the poor quality coal available locally. The ceramic industry can grow on the basis of the good quality clays in the region. Otherwise the only industries of importance in the Punjab are salt manufacture and petroleum.[1]

With regard to agricultural raw materials the area is very rich indeed. The output of cotton is highest in the Punjab and the aggregate yield in the Bombay Presidency and Bombay States is considerable. The largest output of sugarcane is in the United Provinces; and Bombay too has some share of it. So naturally this region can be the seat of the cotton and sugar industries. But in neither of them can an exclusive monopoly be claimed, as locational theory does not confine those industries to particular regions. In the cultivation of oilseeds Bombay claims a small share, but not enough to justify the maintenance of a considerable oil industry. The raw materials from the animal kingdom being plentiful in this area a maintenance of industries based on them is quite likely. Thus it is obvious that industries which are native to this region are cotton and sugar manufacture, paper and sulphuric acid, woollen and leather industries. There is however a future possibility of the manufacture of aluminium.

Sind was originally a part of the Bombay Presidency but its claim on the mineral resources of the area is meagre. Its future is bound up with a development of the agricultural industry with the aid of the large irrigational schemes in the province. The cultivation of special varieties of cotton can

[1] B. R. Gee : Economic Geology of the Northern Punjab: *Transactions of the Mining, Geological and Metallurgical Institute of India*, Vol. 33, 1937–38, p. 344.

be encouraged. Therefore the only feasible proposition for the province would be a development of the cotton textile industry. Otherwise there is not much scope for industrialization in Sind. The economic integrity of the North-Western Region is not likely to be disturbed much by the exclusion of Sind from it but the absence of geographical contiguity of Bombay with the other two provinces of the region necessitates its inclusion.

As against this picture we find a long array of industries started in the region; particularly in Bombay. The cotton industry is the most important among them and in the year 1937 there were 240 cotton mills in the region out of a total of 342 mills in British India with about 51 per cent. of the workers employed in it. Two observations are however possible in this connection. In the first place there has been a scatter of the industry to other areas for the past few years which cannot be arrested as other regions have also to develop it if the necessary facilities are available. Secondly, the share of Punjab in the cotton industry of the area is rather poor in spite of its being the most important cotton growing area. The manufacture of sugar is another important industry of the area particularly in the United Provinces. The woollen industry has had its greatest progress in the three provinces of Bombay, United Provinces and Punjab. Then again the United Provinces share with Bengal a major part of the leather industry of India. Though the paper industry has not made much progress in the area Bombay and Punjab have a small share of it. So far the achievements have been in conformity with expectations based on the resources of the area. But in a few other directions there has been an unexpected growth without much justification; particularly in the Bombay Presidency. No doubt, this is to be accounted for by the presence of large supplies of capital and entrepreneurial ability in the province, but under a strict policy of regionalism such extraneous circumstances should not be allowed to have an influence

on industrial distribution. The large share of Bombay in the silk industry is not easily explicable. The finished products of the material should as far as possible be encouraged to be obtained at centres where raw silk is produced rather than allow its exportation to other areas for manufacture. The supremacy of Bombay in the manufacture of soap is another feature which is not fully supported by the existing objective conditions. Then again Bombay has a considerably large share of the match industry which could have been with greater justification started elsewhere and incidentally relieved the pressure of industries in Bombay. These are only a few instances of some of the industries which have gained a foothold in Bombay on account of certain fortuitous favourable circumstances. Under the process of inter-regional adjustments these industries will therefore be subjected to further scrutiny.

SOUTHERN REGION

The Southern Region, according to our classification will comprise the Madras Presidency, Mysore and Travancore States and other adjoining territories. The characteristic feature of this area is its low achievement relatively to its immense possibilities. Another feature within the area is the immense progress achieved by the Indian States of Mysore and Travancore as compared with Madras in spite of the fact that the British Indian portion of the area is none too poor in its economic resources. The reason for this difference is certainly the superior initiative and drive of the statesmen at the helm of the Indian States. It is to supply this lacuna that a regional authority has to be created so that the necessary planning and impetus may be provided. While one has to admit the lack of entrepreneurial ability in this area as compared with North Indian provinces one has also to take note of the fact that some of the industrial possibilities of the area are such that they are not directly amenable to any straightforward exploitation, but require

special care and external aid which only a central authority vested with delegated powers can bestow. The object here of grouping together the industrially more advanced Indian States with a British Indian province which has not yet achieved all that it can is neither to make Madras share the progress attained by the States nor to deprive the States of the scope for further development. On the other hand, the existing economic resources among them are such that through concerted action a much greater progress is possible in the region and each of its parts could be of mutual benefit to the rest. This can be achieved without prejudice to the political independence of the States. That aspect of the matter will be dealt with in the section dealing with the constitution of the regional authority to be created for the purpose.

The Southern Region has no coal resources but from the standpoint of power for industry the hydro-electric development of the region holds out a great promise and all that is required is to interconnect the existing installations by means of a grid. The iron resources of the region are by no means small. The largest deposits of magnetite ores having 55 per cent. iron content are in the Madras Presidency, Salem being the most important district. It is estimated that the reserves in this area is about 360 million tons. The Mysore State has considerable reserves of hematite iron ore which is already being smelted with charcoal. The output of manganese in Madras is about 14·9 per cent. of the Indian total which is next only to the Central Provinces and the output in Mysore is about 4 per cent. Chromite is available in the Salem District of the Madras Presidency and in the Mysore State. Practically the entire magnesite deposits of India is in the Salem district. The limestone deposits of the Mysore State can be used as flux for the steel industry. Thus the Southern Region is in possession of almost all the ingredients necessary for the steel industry except coking coal. The absence of coking coal is no doubt a serious gap but on that account the existing minerals need not be

left unutilized. The rise of any large-scale iron and steel industry in the Salem area is however not feasible on account of the absence of coking coal and the limited reserves of iron ore. Hence the production of special steels is the obvious line of development and there is a great scope for it. The iron ore may be either electrically smelted or smelted with the help of wood fuel. There is likely to be a great demand for such special steels in India when the reconstruction programme begins to operate. Among the other mineral resources mention may be made of the mica deposits of the Nellore district in the Madras Presidency. It could serve as the basis of an electrical industry.

Among the agricultural raw materials cotton is grown to a certain extent in Madras, though the quantity is not considerable. The cultivation of sugarcane is fairly large in Madras and in the Mysore State, but considering the high yield per acre the output in Madras is not sufficiently large. There is a great scope for a further increase in the cultivation of sugarcane and the development of the sugar industry. In respect of oilseeds Madras figures very prominently. The output of groundnut, castor and sesamum is considerable in the Presidency and there is a great scope for the development of a large oil industry. The manufacture of soap and vegetable oil products on a large scale is feasible with such enormous oil resources. The materials available from the animal kingdom are also considerable and the large tanning industry of the Presidency is based on it. Thus the industries suitable for the region are the manufacture of special steels, sugar, oil and its finished products, and tanneries and leather works. These are the major industries which are particularly suitable for the region though a number of other industries may also be started as in the Mysore State as balancing factors to restore occupational equilibrium as compared with other regions.

The actual progress so far achieved in the region is not entirely in consonance with the possibilities indicated. The

progress of the cotton industry is by no means negligible. Taking the whole region the percentage of workers employed in the cotton industry is about 13·6. It is not possible however to make any emphatic statement about its further development. Its extension should depend upon the scale to which other industries particularly suitable for the area are developed. With regard to the iron and steel industry but for the share of the Mysore State the resources are practically unexploited. The sugar industry in Madras and Mysore State has about 51 per cent. of the workers in the perennial factories, but there is still a great necessity for its further improvement particularly in Madras. In respect of tanneries Madras occupies the most important place but its share of the leather industry is negligible. The match industry has made good progress in the Madras Presidency and with regard to the proportion of workers employed, it comes next only to Bengal. In Mysore the silk industry occupies an important place. There are a number of other industries in the Mysore State such as chemicals, soap manufacture, paper and cement. In the Travancore State tea and rubber estates and the coir industry occupy an important place.

This brief account of the existing structure indicates the fact that while a number of industries have grown up particularly in the Indian States, the basic industries appropriate for the region are left undeveloped. So a teritorial reallocation within the region of appropriate industries and their development should be the lines on which the future policy ought to be based. In the Madras Presidency the development of an oil industry and the production of soap and vegetable oil products is a great necessity. Similarly, the development of large leather works is essential to absorb the tanned hides and skins and to avoid their exportation to other provinces. A further growth of sugar factories is another pressing necessity. All other industries should be spread out throughout the region to distribute equitably

the socially necessary work. Among all the regions considered so far the Southern Region has therefore the greatest scope for further development.

EXCLUDED AREAS

The areas that have been excluded from the four regions into which the country has been divided are Assam, North-Western Frontier Provinces, Baluchistan, Kashmir and Rajputana States. Assam is not rich in its mineral deposits. There are some sulphur deposits and sillimanite in the province which cannot be of much local use. They have therefore to be exported to the neighbouring region for utilisation. Thus there is not much scope for industrial development in the area and neither is there any material benefit by including it in the neighbouring region. Its economic future could proceed on the lines of plantations, agricultural development and industries based on forest resources, with a judicious combination of small-scale industries. The manufacture of wood pulp and matches are the only future possibilities. The North-Western Province is extremely poor in its mineral wealth. It can never be the seat of any important metallic or textile industry. Its inclusion in the North-Western Region would be more a liability than an asset to it. Hence the province has to evolve an economy for itself which would necessarily be poor in terms of modern industrial organization. In Baluchistan there are large deposits of chromite but a modifying metal of that kind in isolation cannot be of much industrial value. Besides its distance from the steel industry centres in India prevents its utilization for the Indian industry. Further as there are other deposits of chromite more conveniently situated for the needs of the Indian industry, unless some new use for it is discovered such as the manufacture of chromium chemicals for use in dying, calico printing and tanning, it can only be exported to foreign countries.[1] Such exportation of some of the minerals in

[1] Mineral Resources and Industries of India: *op. cit.*, p. 51.

India need not necessarily be considered as a national loss as the Indian requirements of the metal is a small proportion of the existing reserves considering the purposes for which it is now being utilized. So the exports from Baluchistan are likely to persist.[1] There are no other resources of any importance in Baluchistan. If the North-Western Region had any use for the chromite resources of Baluchistan there might have been an advantage in its inclusion in that region.

The Kashmir State is a leading producer of raw silk due to its natural advantages. Its position in this respect is likely to continue unimpaired and the future line of development should be to increase the production of finished fabrics of silk. In fact the Bombay share of the silk industry should legitimately go to Kashmir. There does not appear to be much scope there for any other large-scale industry. A few medium-sized industries based on forest resources such as match manufacture may develop to a certain extent. The Rajputana States claim a share in some of the minerals in India. There are some deposits of tungsten, limestone, china clay and sulphur. But none of them can be the basis of any large-scale industry. Still the Rajputana States claim a large share of the industrial workers among the Indian States. The manufacture of cement and glass appear to be important in the area. There is also some evidence of the existence of the cotton textile industry. However this group of States will have to evolve their economic destiny by themselves through a widespread organization of small-scale industries. There does not appear to be much economic justification for including them in either of the contiguous regions.

INTER-REGIONAL ADJUSTMENTS

The foregoing analysis of Indian industries with reference to particular areas of the country provides us with a picture

[1] *Ibid.*, p. 66.

of the existing pattern of industrial distribution. This pattern is juxtaposed with the type of pattern that is warranted by the economic resources of the selected regions. A comparison of the two namely the actual and the ideal pattern indicates the degree of correlation that exists between the industries in each region and its natural resources.[1] It is found that industries have not always found a habitat which is appropriate under the circumstances. There are a few instances of an inappropriate location. So far as the heavy industries are concerned the regional location is more or less correct except that there is still much scope for adjustment within the region. But the growth of certain light industries in some regions is not fully warranted by the natural resources within the area. Further the relative claims of other regions on such industries are greater. The circumstances causing such inappropriate habitat of industries are the capital resources of the area and the presence of entrepreneurial ability. When such factors which are relatively more mobile are brought under control and made available for use everywhere their pull on industries will cease. Another inference from this study is that in some of the regions there are potential resources capable of development but which have not so far been attempted by private enterprise. This is because they require a line of departure from the normal capitalistic process which would be feasible only under a method of planned regional specialisation with central control. For instance, the exploitation of iron ores in Madras Presidency and in Central Provinces for the manufacture of special steels would be feasible only when the other areas of steel manufacture are made to refrain from it. Thus there is much scope for inter-regional adjustments among the areas chosen in order to bring about an equitable distribution of the socially necessary work.

The actual process of inter-regional adjustment may be effected either by means of a transfer of industries from one

[1] All-India Manufacturers' Association: *op. cit.*, see Appendix II.

region to another or through a gradual growth of new industries in regions lacking adequate development but possessing the necessary resources. The suggestion of an adjustment by transfer might appear at first sight a little fantastic, but on closer examination it will be found to be not entirely impracticable. Of course the scope of such transfer is certainly limited. The method of transfer would consist largely of a conversion of an inappropriately situated industry into its nearest alternative that is technically feasible. For instance, a factory engaged in the manufacture of silk fabrics can convert itself into a cotton mill and a corresponding silk weaving mill may be established in the region which is more appropriate for the purpose. Similarly in the manufacture of steel, certain types of finished products may be reserved for each area according to the nature of their factor equipment. Thus the implication of transfer is not a physical transport of equipment from region to region but merely a conversion at one point and the starting of a new firm at another. The scope of this method would however depend upon the extent to which plant and equipment is specific for the production of any particular commodity. If it happens to be highly specific the industry may be allowed to continue, but a further development of it in the region should be positively checked.

An adjustment through growth is naturally a slower process but during periods of industrial expansion its pace is accelerated. Under the programme of economic reconstruction in India at the present time there is much scope for inter-regional adjustments through a growth of new industries at their appropriate centres. But such growth unaccompanied by a restriction of production at less appropriate centres might result in an excess of output in relation to the existing demand for it. The probable outcome of it may manifest itself in one of two ways. Either there may be an increase in demand due to an all round increased economic activity in the country and a consequent absorption of the surplus output or the less appropriately situated firms

whose cost of production ex-hypothesis would be higher would lose in the competitive struggle and close down ultimately. In a planned economy the latter reaction which is characteristic of the capitalistic system is out of place. Hence the process of transfer as suggested above has to be combined wherever possible with an orderly programme of expansion based on regional requirements.

Having established the necessity for inter-regional adjustment and having indicated broadly the methods of adjustment, we have next to determine the industries that are amenable to such dispersion. The technique provided by Sargent Florence is useful for the purpose. The concept of "Coefficient of Localization," enunciated by him indicates the propensity of each industry for concentration.[1] On the basis of this coefficient industries could be classified according to their qualities of dispersion or concentration. The coefficient is obtained by taking the mean deviation from unity of the industry's regional location factors.[2] Therefore the data for calculating the coefficient of localization of Indian industries are the location factors given in an earlier chapter in connection with a study of localisational trends resulting from industrial expansion.[3] So in order to arrive at the coefficient of localization of any industry in India we have to calculate the mean deviation from unity of the industry's location factors. Then instead of getting a simple average of it, it is preferable to have a system of weightage according to the proportion of industrial population in each region. Such a weighted index is likely to give a more accurate picture of the degree of concentration of an industry. The coefficient of localization can vary from 0·00 for no localization to 2·00 for extreme localization.[4] To illustrate the method followed for calculation the data pertaining to the woollen industry in India is given below. Here the

[1] See *Supra* Chapter I, p. 17.

[2] *Sargant Florence, op. cit.*, p. 623.

[3] See *Supra* Chapter II.

[4] *Sargant Florence: op. cit.*, p. 623.

weightage given is the proportion of industrial population of each province to the total industrial population of the country. The last item in the table namely Rest of India has a location factor of 0·00 as the industry does not exist in it. It has consequently a deviation from unity of 1·0 which has to be multiplied by the proportion of industrial population belonging to it. It is, in other words, the proportion of industrial population not affected by the woollen industry.

Woollen Industry

	Location Factor	Mean Deviation	Weightage	
Madras	·04	·96	× 15·4	= 14·78
Bombay	3·0	2·0	× 6·8	= 13·60
Bengal	·2	·8	× 9·1	= 7·28
United Provinces	1·6	·6	× 18·2	= 10·92
Punjab	2·7	1·7	× 10·4	= 17·68
Bihar	1·2	·2	× 7·2	= 1·44
Mysore	4·8	3·8	× 1·4	= 5·32
Baroda	2·0	1·0	× ·8	= ·80
Rest of India	0·0	1·0	× 30·7	= 30·70
			100	102·52

$$\frac{102 \cdot 52}{100} = 1 \cdot 02 \text{ Coefficient of localization}$$

On similar lines the coefficients for other industries in India may also be calculated and the industries classified into three groups according as the coefficients are high, medium or low. Such a classification would be helpful in indicating the industries which would be amenable to dispersion under a policy of regionalism. Among fourteen industries of India, chosen here for study, there are five industries with a high coefficient of localization. They are jute (1·71), iron and steel (1·76), chemicals (1·50), soap (1·54) and paper (1·32). The remaining nine industries may be said to have medium coefficients. The industries belonging to this group are cotton (1·07), woollen (1·02), cement (1·11), glass (1·14), sugar (1·17), leather (1·26), silk (0·96), matches (0·99) and tanneries (0·86). In this

selection of fourteen industries there are none with a low coefficient of location. Generally industries like aerated waters and baking of bread have a very low coefficient. Such industries are not taken into consideration here as they are not likely to be of much value for purposes of inter-regional adjustments. It would be more advantageous to consider them under medium and small-scale industries. Here for purposes of classification coefficients upto 1·26 are considered medium and the rest as high. In the medium group given above there are three industries with coefficients below unity. Even though their coefficients are below unity they are not comparable with the very widely scattered medium scale industries whose coefficients are likely to be as low as 0·12 with probably a maximum of about 0·25.

Industries with high coefficients of localization have a tendency for concentration in particular areas. Some of them may be more highly concentrated than others, but all of them are relatively less amenable to dispersion than those in the medium coefficient group. Under Indian conditions however one important inference in this connection is possible and that is whether the high coefficients of certain industries are inevitable. The state of underdevelopment of industries in the country is responsible for the high coefficients in certain instances. The coefficients of such industries are likely to go down when those industries are developed in other areas where potential resources exist but have not been exploited so far. It is also possible that their development elsewhere may require some special conditions which have to be created. In other words even those industries that have a high coefficient are amenable to some degree of dispersion because industries in general are not yet fully developed in India. For instance, the manufacture of soap, paper and leather goods are capable of development in places other than those where they are now concentrated. In the southern region of our zonal division of the country there is a great scope for the development of all these three industries. So for

purposes of inter-regional adjustment some of these industries may have to be taken into consideration even though they may be having a high coefficient.

The medium coefficient industries are particularly suitable for dispersal and hence very useful for inter-regional adjustments. Most of them exist already in all the four regions into which we have divided the country. Woollen industry is the only one which has not made sufficient progress in the Central and Southern regions. But these industries have different degrees of deviation from unity in different areas. In some places there is a greater degree of concentration than in others. The reasons for such concentration have to be examined in order to encourage a dispersal to other regions. For instance the match industry has a coefficient of only 0·99 but Bengal claims nearly 30% of the workers employed in it. So unless there are sound reasons for such large shares by any province the medium coefficient industries should be equitably distributed.

In an earlier section of the chapter it was pointed out that in certain provinces like Bombay and Bengal a few industries had grown up without much justification from the standpoint of resources. If these industries are of a medium coefficient type they must be amenable to development at other centres as well and hence should loom large in a scheme of inter-regional adjustments. It was indicated that in Bombay the progress of three industries in particular, namely, silk, soap and matches, was not fully warranted by objective facts. Among these, match and silk industries have medium coefficients and as such they are easily amenable to development in regions which are in need of greater industrial occupation. With regard to soap manufacture the high coefficient is misleading and is largely due to the undeveloped economic conditions in India. Hence it is possible to develop it in other regions utilizing local resources for the sake of inter-regional adjustments. Similarly in Bengal the growth of the match and cement industries has to be arrested. Both of

them have medium coefficients and hence useful for redressing unequal regional developments. Of course in all such readjustments it is necessary to consider not only the superfluity of certain industries in certain provinces but the existence of appropriate resources in the areas where they have to be encouraged. The mere possession of a middling coefficient is of course not enough to cast an industry for development in a depressed area.[1] So a transfer from overdeveloped areas can be effected only to such of the underdeveloped areas which are competent to receive them. Though the medium coefficient industries are more mobile in their location still the existence of some of the basic factors for their development is necessary.

One more point that needs elaboration in this connection is the dynamics of location of the medium coefficient industries in India under the stimulus of industrial expansion. The purpose of this enquiry is to establish a justification for a policy of dispersion of those industries under regionalism. The method of estimating the degree of dynamics of such industries is by calculating their coefficients of localization at the end of each of the three periods chosen by us in an earlier chapter to study their evolution.[2] Among the medium coefficient industries cement, matches, tanneries and sugar have manifested the greatest tendency towards dispersal with growth. The fall in the coefficients of these industries may be observed from the table below:—

	1919	1931	1937
Cement	1·53	1·23	1·11
Matches	1·75	1·15	0·99
Tanneries	0·83	0·94	0·86
Sugar	0·90	1·12	1·17

The successive falls in their coefficients indicate their locational dynamics under conditions of growth. Hence the

[1] *Sargant Florence, op. cit.*, p. 624.

[2] *Vide* Chapter II, *supra.*

policy of dispersion would be in harmony with the natural tendency. All that is required is to direct them to regions which are appropriate to receive them and which stand in need of further industrial employment. When the policy coincides with the normal dynamics of the industry the process of acceleration becomes easy. There is however one freakish manifestation in the table given above which has to be explained. The sugar industry increased its coefficient in 1931 as compared with 1919 and maintained itself more or less steadily even in 1937. This is due to the overwhelmingly large share of United Provinces and Bihar in the expansion of the industry that occurred under the stimulus of tariff protection. There was however no further increase of the coefficient in 1937 as the industry spread itself to a few more centres with its growth.

Some among the medium coefficient industries have however reacted in a more static manner. They have not manifested the same normal dynamics of location as other industries belonging to their group. The woollen and glass industries for instance have not spread themselves out with growth to the same extent as other industries having medium coefficients.[1] This has been due probably to a lack of favourable circumstances. Hence with a certain amount of central guidance it would be quite feasible to encourage the growth of these industries in backward regions. With a slightly greater degree of external stimulus than what might be required by the other medium coefficient industries they would be just as useful in serving as balancing factors in the process of inter-regional adjustments.

The classification of industries according to their propensities for dispersion that has been attempted in this section is a very useful line of approach to the problem of inter-regional adjustments. So long as there is an unequal development of industries in the various regions there will always be a necessity for allocation and reallocation of industries

[1] See *Infra*, Appendix to Chapter II.

among them in order to attain equilibrium conditions in industrial employment. The choice of appropriate industries for the purpose would depend upon their inherent characteristics as revealed by their coefficients of localization. Here the coefficients have been determined only for some of the important industries in India. Similar coefficients can also be calculated for other industries as occasion arises. The regional authorities have to make a detailed survey of resources and industries in each region before recommending methods of adjustment. Apart from utilizing existing industries for redressing discrepancies in the distribution of employment the regional authorities have also to investigate the potential industries that could be developed in each region. The two processes, namely adjustment through redistribution and exploitation of new possibilities have to go on simultaneously. The greater the opportunities for developing new industries the easier is the task of establishing inter-regional equilibrium.

REGIONAL AUTHORITY

In the preceding sections a few suggestions have been made regarding the delimitation of economic areas, the type of industries appropriate for each of them and the nature of adjustments among them for establishing an equilibrium in employment opportunities in the country. The method of approach in this scheme is to consider each region as an independent economic area capable of exploiting its resources through concerted action by the political units, composing it. It implies therefore that economic activity among them cannot be based entirely on the capitalistic principle of free private enterprise. A large degree of guidance and control have to be exercised by an authority especially constituted for the purpose and having jurisdiction over the whole area of a well-defined economic region. In other words, the country will stand in need of as many Regional Authorities as it could be divided into economic regions. The constitutions

and functions of these regional authorities have to be very carefully determined lest their onerous responsibilities undermine their efficiency. A description of their functions may serve as a guidance for the nature of their constitution. Their primary task is to assess the economic potentialities of the region and arrange for their orderly exploitation. In doing so it has to determine the extent to which private enterprise could be entrusted with the task and also the circumstances under which public control and operation are necessary. Further the onerous task of reconciling the conflicting political jurisdictions within the economic region is one of its most responsible functions. In view of these varied functions its constitution can neither be of a purely administrative character nor of a commercial nature. Besides the independent political entities comprised in the economic region should find adequate representation on the Authority so that a plan of action forged out by it may meet with the approval of all interests concerned. Still it has to be free from political pressure emanating from any direction and relieved of all responsibility to government for matters of detail. The authority has also to be vested with some amount of financial independence for executing directly such of the activities which legitimately fall, under the circumstances, within the scope of public operation.

There are two models available in this respect for adoption in India, namely, the Public Corporation as developed in Great Britain and the Tennesse Valley Authority in the U.S.A. The constitution and functions of the Tennesse Valley Authority have already been described in an earlier chapter and therefore only appropriate references will be made to it in this connection. The Public Corporation of Great Britain on the other hand has to be described here in some detail in order to examine its propriety for our purpose. It is an important innovation in political organization for the operation of any great industry or public utility. The necessity for it arose out of a desire to escape the excessive

control of a government department and to have a more flexible type of organization for conducting some of the socialized undertakings. These corporations have been vested with a substantial amount of financial independence and they have virtually been in possession of a monopoly in the provision of certain services. The British Broadcasting Corporation, the Central Electricity Board, the Port of London Authority and the London Passenger Transport Board are without rivals in their respective areas of operation, even though they are subject to competition from alternative services.[1] The appointment of the board of the public corporation rests with the government and the selection of the chief executive is done on non-political lines, merit being the main consideration. These public boards are entirely relieved of parliamentary control over details of their administration. This is largely responsible for the initiative and efficiency of the public corporations in England. It is however desirable, as Robson thinks, that there should be a searching enquiry at periodic intervals in place of the right for frequent interference over details which has now been relinquished.[2]

The economic policy of these undertakings consists in relegating the profit motive to a subordinate position. They should neither make any profits nor expect any direct subsidy from public funds. The stock holders of a public corporation are all creditors and not partners in the undertaking. The amount and disposition of its earnings are strictly limited by statutory provision.[3] The safeguarding of the consumers' interest should be their primary consideration. In actual practice, however, this has not been achieved to any appreciable extent. This important innovation in constitutional practice and the attempt to place certain types of

[1] W. A. Robson: *Public Enterprise*, p. 365.

[2] W. A. Robson: *op. cit.*, p. 378.

[3] Marshall E. Dimock: *British Public Utilities and National Development*, p. 45.

services in a distinct category are on account of the social importance of those services and the monopolistic privileges which they enjoy.

This modern institution as also its organization in England is not however without defects. There is no central planning machinery with a common plan of action on the basis of which the activities of the various boards may be co-ordinated and harmonized. The activities of most of these Corporations are inter-related and useful to each other. Consequently they ought to be co-ordinated and made to conform to a general policy. This is a weakness which is entirely due to the empirical manner in which these boards have evolved in Great Britain. They were not based on any clearly defined principle. However with adequate safeguards and controls the public corporation is capable of much good. They are ideally suited for the operation of socialized undertakings. So the semi-independent Public Corporation is a method by which State participation in the social and economic affairs of a nation may be organized.[1]

In an appraisal of these two types of authorities, namely the Public Corporation and the Tennesse Valley Authority from the standpoint of their suitability for Indian requirements, there are some important points of difference between them which merit consideration. Though both of them along with others in the U.S.A. like the Federal Reserve Board and the Inter-State Commerce Commission are typical forms of 'government by commission', the scope of their activities differ widely. The Public Corporation is entrusted with a single industry or the provision of a uniform service even though its scope of activities may be co-extensive with the entire nation. On the other hand, the Tennesse Valley Authority is responsible for a multitude of activities within a given region. Nextly, the TVA can choose any form of economic organization for the exploitation of particular

[1] Terrence H. O'Brien: *British Experiments in Public Ownership and Control*, p. 300.

resources. In other words, it can enlist the co-operation of private enterprise to whatever extent it deems it necessary. Thus it is the region and its development that are essential in the case of the TVA and not the character of the institutions constituted for particular purposes. In fact, the TVA is enjoined to invite the co-operation of private enterprise for achieving its objectives. On the other hand, the Public Corporation is a definite form of organization especially created for conducting a particular economic activity for which other forms are considered unsuitable. Hence the emphasis here is on the nature of the enterprise and the types of industries for which it is appropriate.

Of these two types therefore the T.V.A. model appears to be more suitable for Indian conditions. The Regional Authorities that are contemplated here are expected to have as their objectives the economic development of particular areas to the full extent of the resources available to them. Consequently the form of enterprise for each purpose has to be determined by them on independent lines. They have to plan, initiate and aid the economic development of the regions. Private enterprise should have an important part to play limited only according to the discretion of the authority. This does not however exclude entirely the application of the public corporation principle by the authority. Wherever private enterprise is considered unsuitable it can act as a public corporation for conducting the enterprise. Thus there is a need in India, according to the scheme elaborated in the foregoing sections, for four regional authorities on the T.V.A. model, entrusted with the task of developing each one of the regions into which the country is divided. Practically all of them will have multi-purpose objectives on account of the varied resources among them. Some of the regions like the Southern and Central regions will have greater leeway to be made than the others which are industrially more advanced.

Among its most important functions is the discovery of new industrial possibilities in the area. They have to lay

down the technique and the form of economic organization for each purpose and supervise its execution. They have also to decide the most appropriate location of industries within the region. If they consider any industry either over-developed in the region or inappropriately located they have to bring it to the notice of the co-ordinating authority whose constitution will be discussed a little later. The resources in the region have to be developed by them both for their direct as well as for their supplemental value. Finally they have to estimate the excess of output in certain directions and the shortage in others. This information would be the basis on which the co-ordinating authority would determine the volume and the direction of inter-regional trade. Similarly the need for any importation from abroad in the form of capital goods or consumer goods has also to be indicated.

With regard to the constitution of these authorities no uniform standards can be laid down. It depends upon the character of the units constituting a region. In some of the regions important Indian States have to be combined with British Indian provinces. So the primary consideration with regard to its constitution is to have adequate representation for all the important units composing the region. Representation here should not be interpreted as political but it should be purely from the standpoint of the economic interests of each unit. In other words, it should be a sort of a planning body for an area wider than that of any of the constituent units but at the same time safeguarding the interests of each of them. As the regional authority has to function not merely as a planning body but as an executive organ it has to be vested with some delegated powers and financial independence. In these matters it is not possible to go beyond laying down a few general principles. After approving the blue prints of regional planning prepared by the authority the concerned political units may give it full latitude for applying it according to accepted standards reserving for themselves only the right of periodic inspection.

In actual practice it may not after all mean much intervention in the internal affairs of any of the politically independent areas by outside interests. Quite often the Regional Authority may only lay down the type of industries to be developed in each independent area. If it could be developed by their own financial and entrepreneurial abilities to the extent expected by the regional authority there will be no need for external factors to interfere. It is only with regard to such of the schemes which may require concerted action by all or any two of the parties concerned that the regional authority may have to suggest the principles on which they could co-operate. The only feasible manner in which such common projects could be undertaken is to entrust it to the regional authority having determined in advance the degree of financial commitment of each of the participating units. The degree of financial commitment may be based upon the area, population and revenues of the sovereign authorities.

With regard to the financial position of these regional authorities there is need for a greater degree of independence than what the T.V.A. has been having because it would be more difficult here to get the approval of a number of independent sovereign powers if they depended upon annual appropriations. Hence it may be suggested that their revenues should consist of an initial proportionate grant by each of the participating units and a power to raise loans upto a definite maximum laid down by common consent. The responsibility for the loans raised by them may be shared by each of the constituent units in proportion to their degrees of commitment determined in advance. The earnings from such common undertakings would naturally accrue in the same proportions to the participating parties. It is implied throughout this discussion that within a region the transcending of political boundaries should be permissible on the recommendation of the concerned regional authorities.

The establishment of four such independent Regional Authorities in India would naturally lay claim to the creation

of a co-ordinating authority. This would be in the form of a National Planning Body co-ordinating the activities of the regional authorities. Its chief pre-occupation would be to arrange for inter-regional adjustments on the recommendations of the different regional authorities. The work of co-ordination would also consist of an elimination of a duplicating of plants among regions and an adjustment of regional outputs to national demand. All extra-regional problems should be referred to it by the regional authorities for solution. It is of course presumed here that this National Planning Body has laid down the outlines of a national plan on the basis of which the regional authorities have worked out the details for their own respective areas. Hence the process of co-ordination should also consist of a reconciliation of instances of conflict between the regional and national plans.

Lastly, the National Planning Body has to directly interest itself with the problems of the excluded areas in our division of the country. None of them is large enough to have its own regional authority and besides there are no independent sovereign authorities constituting them, except in the case of the Rajputana States. Hence through local committees the Central Authority can get information about them and guide them in their future development. In fact they may be considered as undeveloped regions and to the extent that there are resources among them they could be developed with financial help from the central government if necessary. The existence of undeveloped areas elsewhere should be discovered and reported by the respective regional authorities. It is their responsibility to develop them.

These are in broad outlines the features which the regional authorities in India should possess. Much will depend however on the nature of the national plan drawn up for application. The functions and the powers of the authorities would depend largely on how far-reaching are the aims of the plan. In the subsequent chapters some attempt is also

made to indicate the correct lines on which planning, regionalism, and the dynamics of industrial location may be harmonized with one another. So the details of the character and constitution of the regional authorities could be filled in only with the unfolding of the other aspects of reconstruction planning. The broad outlines indicated here are given on the assumption of a fair degree of State intervention in economic matters which is likely to be largely characteristic of future economic policy.

SMALL-SCALE INDUSTRIES [1]

In the foregoing sections our attention has been mainly concentrated on the distribution of large-scale industries. But occupational opportunities are not confined entirely to a development of large-scale industries. The role of medium and small-scale industries in creating employment is of no less importance particularly for a country like India where the scope for the growth of large-scale industries is rather limited. Consequently a judicious development of small and medium scale industries should form a part of regional planning.

There are four standpoints from which the usefulness of the small and medium scale industries may be judged, namely, the social,[1] economic,[2] industrial[3] and agricultural[4] aspects. The social aspect[1] consists in rectifying the unevenness of occupational opportunities in different regions. In other words, they can successfully cover the voids left by the unfilled gaps in industrialization. If the resources of the regions are such that large-scale industrialization cannot be carried beyond a limit an attempt may be made to develop small and medium scale industries appropriate for the region in order to provide occupation locally and prevent an uneconomic exodus of working population. Here the role of these industries would be purely of a social significance with the main objective of maintaining the employment equilibrium among regions.

The economic aspect[2] of small-scale industries derives its significance from a technical necessity to organize certain industries on a small-scale basis for efficiency of exploitation. Some industries continue to function on a small-scale not because they are unable to grow but because the optimum scale of operations for them is small. The nature of their products, the methods of manufacture among them, and the conditions of demand for their products are such that their operative efficiency is at its maximum when conducted on a small scale.[1] The regional authority therefore has to ascertain the appropriate industries in each region which should be conducted on a small-scale basis and provide the necessary stimulus for their maintenance. In doing so they have also to determine their relative competitive position with large-scale industry and the nature of the demand for their products. In respect of inter-regional adjustments the small and medium scale industries would thus play an equally important part with large-scale industries. They would therefore be developed not because of a social necessity but on purely economic grounds.

The industrial aspect of small-scale industries consists in ascertaining the feasibility of dovetailing them with large-scale organizations wherever it is technically advantageous to do so. It is necessary to realise that the role of small-scale industries is not confined merely to the appropriation of a few less advanced manufacturing processes but they could also be conveniently fitted into the structure of modern industry by discovering the optimum scales of production at different stages of the manufacturing process. On an analysis of the stages of manufacture in some of the industries it is apparent that at certain stages it is more economical to adopt the small-scale organization.[2] In the textile industry for instance it is an error to consider the entire

[1] *Vide* author's book on *Industrial Development of Mysore*, pp. 56–58.

[2] *Vide* author's Memorandum on *Finance & Structure of Industry*, submitted to the Consultative Committee of Economists, 1944.

handloom industry as a small-scale industry. The various processes of the industry are amenable to different scales of production and as such they should be conducted at their respective optima. Some of the processes like winding, warping and sizing of yarn have to be undertaken on a large scale as the optimum scale of operations at those stages is large. The actual weaving may on the other hand be undertaken by small establishments as their optimum size is likely to be small. Therefore on the basis of the optimum scale of operations for each process of production there should be a stratification of firms in each industry; some being on a large and others on a small scale. A dovetailing of the two types of units will lead to a greater efficiency of the industry in general.

With regard to the question of inter-regional adjustment the industrial aspect of the small-scale industries can throw some useful light. In this respect the chief preoccupation of the Regional Authorities should be to determine the different size groups and make each one of them function at their respective optima. This would involve a significant change in the existing structure of modern industry and incidentally give rise to an increase in the volume of employment. Here of course the habitat of such small-scale industries will be contiguous to the large-scale ones with which they are associated. Consequently they will be confined to the regions of the parent industries of which they are off-shoots. Hence in respect of the industrial aspect of the small-scale industries the leeway that could be made in the direction of inter-regional adjustments is limited to the extent to which appropriate parent industries exist in each region. In other words the small units emanating from considerations of industria expediency and technical necessity cannot be grafted on any soil for attaining occupational equilibrium between regions. They could be of use only to the regions to which they belong.

Lastly the agricultural aspect of small-scale industries is of significance in providing subsidiary occupation to the

rural population. It is unnecessary to expatiate in this context on the general features of such industries and their contribution towards the relief of the chronic underemployment in agriculture. What is relevant to the issue under consideration is the determination of the scope for their development in each region and the extent to which occupational opportunities could be extended. Since agricultural pursuits are bound to exist in every region, there will be opportunities for developing rural industries everywhere but in regions which are essentially agricultural the scope will be greater. Their role in the fruition of the regional scheme will consist in providing full employment to the agricultural sector of the economy and thus preventing the seasonal exodus after a balance has been attained in each region between agriculture and manufacturing industry.

It is therefore obvious that from the standpoint of each of the foregoing considerations the small and medium scale industries can play an important part in the maintenance of occupational equilibrium between regions. They are by nature regionally more widespread than the large-scale industries but what is of significance in a regional scheme is to determine the appropriate types for each region. Much care is however necessary in selecting the industries and in defining their functions under particular circumstances.

In India there is a large variety of small and medium scale industries spread out throughout the country according to favourable factors existing in each area. A brief account of their regional distribution and their survival value would be of help in measuring their contribution to a regional scheme. The most important among the small-scale industries in India is the handloom weaving industry. It provides occupation for about four-fifths of the total number of workers employed in the textile industry. According to the Fact Finding Committee there are about two and a half million workers engaged in handloom weaving and there

are about two million looms in the country.[1] The industry maintains altogether a total population of about ten million people. Although handloom weaving provides only about 30 per cent. of the cloth consumed in the country it employs more than 85 per cent. of the textile workers. The mill industry no doubt provides about 68 per cent. of the cloth consumed but it employs not more than a fifth of the workers in the textile industry. It is therefore not correct to consider handloom weaving as a decaying industry. The industry is of considerable importance in correcting the unequal distribution of purchasing power in the country over and above what could be achieved by an extension of factory industries. This is because of the relatively high proportion of the wage bill to the total cost of production among them. Whereas in the mill industry the proportion is only 25 per cent. it is as high as 40 per cent. in hand-weaving with mill yarn and 75 per cent. in hand-weaving with hand-spun yarn.[2] Thus for purposes of an equitable distribution of the socially necessary work an extension of the handloom industry would be of great potential power.

With regard to the provincial distribution of the handloom industry in India it could be maintained that there is no province in the country where handloom weaving does not exist. But its importance varies largely from province to province. On the basis of the annual consumption of cotton yarns by handlooms the relative importance of the various provinces and States with regard to the industry has been determined. The pride of place in handloom weaving belongs to the Madras Presidency. In this province the annual consumption of yarn by the handlooms is 82·13 million lbs. which is about 22·86 per cent. of the total. Next in order of importance are the provinces of United Provinces with 14·25 per cent., Punjab with 13·60 per cent., Bombay

[1] M. P. Gandhi : *The Indian Cotton Textile Industry* (1943 Annual), Appendix B, p. 37.

[2] *Ibid.*, p. 39.

with 13·02 per cent. and Bengal with 8·25 per cent.[1] The proportions in other centres are lower than the percentages given above.

By calculating similar proportions for the regions into which we have divided the country at the beginning of this chapter it would be possible to envisage the influence that it is likely to exert on the problem of inter-regional adjustments. In the North-Western Region comprising Bengal, Bihar and Orissa the annual consumption of yarn by handlooms is 63·32 million lbs. which is 17·63 per cent. of the total consumption. In this area the development of the cotton mill industry is very insignificant and as such there is a good reason for offering more encouragement to the handloom section of the textile industry. It now occupies only the third place among the four regions. In the Central Region the concerned data for Central India is not available. Taking the Central Provinces and Hyderabad the total consumption of yarn comes to about 39·49 million lbs. with a proportion of about 11 per cent. of the total. This area has the lowest percentage among the regions chosen by us. Being a cotton growing area there is not much justification for this low proportion. There is thus much leeway still to be made in this region. Besides as the region has not yet advanced much industrially there appears to be a necessity for developing such small and medium scale industries. The North-Western Region comprising Bombay, the United Provinces, the Punjab and other adjoining States, has the largest absolute consumption of yarn and the highest proportion among the regions selected. It has a consumption of 152·52 million lbs. being 42·45 per cent. of the total. Two favourable factors seem to be responsible for this development, namely the large amount of cotton grown in the region and the vicinity of the textile mills for supplying yarn to the handlooms. In view of the proposed reduction of large-scale industries particularly in Bombay there is a necessity

[1] M. P. Gandhi: *op. cit.*, Table on p. 25.

to maintain the present tempo of the handloom industry in order to provide occupation for the displaced workers. Lastly in the Southern Region consisting of Madras and the leading Indian States of Mysore, Travancore and Cochin the consumption of yarn is about 94·93 million lbs. being 26·41 per cent. of the total. This area comes second in importance regarding the handloom industry. There is a great justification to maintain its present growth here and if possible even to increase it because the progress of large-scale industry is rather limited in this area as compared with other regions. Thus the foregoing study reveals the potentialities for inter-regional adjustments of the largest of the small-scale industries in India.

The other small and medium scale industries may also be briefly considered according to their provincial distribution. In Bengal there are a few medium sized industries such as rice mills, mills for pressing oils, hosieries, match factories and tanneries. In Bihar and Orissa there are a large number of small establishments engaged in producing lac, mica, leather and oil. There are also a few jute presses, saw mills, rice mills and soap factories on a small scale. These are however of considerable importance for Bihar and Orissa because as the Provincial Banking Enquiry Committee point out the industrial population in these provinces is made up very largely of the workers in the traditional village occupations.[1] Therefore the position of these industries has to be greatly strengthened if a social dislocation is to be avoided.

In the Central Provinces the manufacture of shellac, oil mills, glass factories and flour mills are on a small scale. The brass and bell-metal industries are also important in the province. Bidi making is one of the most promising forms of subsidiary industries that can be further developed in the province as some of the raw materials can be had in abundance locally. In the United Provinces there are several

[1] *Bihar & Orissa Provincial Banking Enquiry Committee Report*, Vol. I, p. 89 (1930).

urban industries on a small scale such as blanket weaving, embroidery, carpet making, calico printing, gold and silver thread wiring and brass and copper work. Toy making, the manufacture of oils and scents and poultry farming are some of the other avocations on a small scale which are in a flourishing condition.[1]

In the Punjab there are a number of small-scale industries such as the manufacture of sports gear, cutlery, tanning and shoe-making, hardware, ice-making and flour-milling. They have a specific location within the province as for instance the sports gear industry at Sialkot and the cutlery industry at Wazirabad, Nizamabad and Bhera. Most of them are in the hands of poor but skilled workers. They are given employment by middlemen and sometimes by firms of manufacturers. An interesting account of the internal organization of these small-scale industries is given by the Punjab Banking Enquiry Committee.[2]

In Bombay, leather handicrafts, metal handicrafts such as brass and copper ware and gold thread industries are some of the surviving small-scale industries. It is said that the others such as paper-making, dyeing and calico printing are in a decadent condition.[3] In Madras tanning is an important small-scale industry. There are a few others such as jaggery-making, oil-crushing, groundnut decortication and the grinding of bones. Silkworm rearing is another important small-scale industry existing in some of the provinces like Madras, Bengal, Bihar and Orissa.

This brief study of the provincial distribution of some of the important small and medium scale industries indicates the scope for further development in that direction for purposes of adjustment of occupational differences between regions. But in order to get a definite idea of their potentialities in each region it is necessary to conduct detailed

[1] *The Indian Central Banking Enquiry Committee Report*, Vol. I, p. 246 (1930)

[2] *Punjab Provincial Banking Enquiry Committee Report*, Vol. I, Note, p. 274 (1929-30).

[3] N. M. Joshi: *Urban Handicrafts of the Bombay Deccan*, p. 132.

regional surveys incorporating information regarding the number of workers employed among them and the value of their aggregate output. It is also desirable to inquire into the powers of survival of each one of them in a reconstructed industrial society so that only those that evince a high survival value need be encouraged. This is a piece of responsibility which should be vested in the regional authorities which are proposed to be created.

AGRICULTURAL ADJUSTMENTS

The part that agriculture can play in the adjustment of regional disparities in occupational opportunities is by no means insignificant. In fact it is the basic industry of the country and as such much reliance can be placed on it for making up the necessary leeway in industrially backward areas. But though it is universally practised there are wide disparities among provinces in respect of the area under cultivation and also the net food position. So a brief consideration of the normal agricultural position of the provinces will give some guidance for future policy. In respect of the area under cultivation and the cultivable waste available in the provinces the table given below will be informative.

TABLE[1]

Area under cultivation and cultivable waste in each Province, 1937–38
(000 omitted)

Province	Total area Acres	Area sown Acres	Current fallow–Acres	Cultivable waste–Acres
Bengal ..	49,258	24,728	4,683	5,753
Bihar ..	44,314	19,323	6,966	5,123
Bombay ..	48,721	28,715	5,059	888
C. P. & Berar ..	63,004	24,537	3,805	13,992
Madras ..	79,808	32,032	9,450	10,537
Punjab ..	61,001	27,296	3,695	14,164
United Provinces ..	67,848	36,171	2,637	9,988

A comparison of the provinces in respect of the data given above shows that there are wide variations in the areas culti-

[1] *Agricultural Statistics of India*, 1937–38, Vol. I, p. 4.

vated to the total among provinces. In some of the provinces like Central Provinces and Punjab, the proportions are rather low. Besides the area of cultivable waste in relation to the area actually cultivated is high in certain provinces. It is as high as about 50 per cent. in Central Provinces and Punjab and it is about a third in Madras. This area is a potential source for agricultural development.

With regard to the area under different crops Bengal takes the first place in rice followed by Madras and United Provinces. In the cultivation of wheat, Punjab comes first with United Provinces as a good second. In millets Bombay occupies an important place and Madras and the United Provinces come next in order of importance. With regard to other foodgrains and pulses Madras and United Provinces claim importance. Generally speaking the United Provinces has a good distribution of its cultivated area over a variety of crops. In oilseeds Madras takes the lead with Bombay and Central Provinces following at a distance. As regards fibre crops Central Provinces, Bombay and Punjab are important producers of cotton and Bengal has the largest area under jute. Thus there are important differences in the nature of the agricultural products abounding in each province. The position with regard to the agricultural raw materials has already been considered in some detail elsewhere. So the only relevant observation about them in this context would be to develop such of those raw materials which would serve as the basis of the industries to be developed in those areas. No doubt their position at present would be responsible in laying the foundation of the appropriate industries but a further development of them would strengthen the industries to be created and at the same time provide increased occupation to the people outside the industrial sphere.

The position of the provinces with regard to foodgrains is of equally great importance in affording guidance about future policy. By a calculation of the net imports or exports of foodgrains of provinces it could be seen whether they

are surplus or deficit provinces. Bengal is a net importer of foodgrains to the extent of about five lakhs of tons annually and is hence a deficit province. Wheat is the most important foodgrain imported into Bengal? The imports do not however form a very large proportion of Bengal's total foodgrains which has an average of about 75 lakhs of tons. Bihar is another deficit province and imports on an average about 275,000 tons annually. Both rice and wheat are significant items in her imports. But even in the case of Bihar the imports do not represent a large percentage of her total production of foodgrains. Bombay imports on an average 7,64,000 tons annually consisting mainly of rice and wheat. The deficit in the case of Bombay is fairly large as compared with its internal production. As the province has to support a large urban and industrial population the shortage is felt acutely. The imports of foodgrains into Madras is in the neighbourhood of about 8,48,000 tons with rice and gram as the most important items. Even though the total internal production is high, the degree of deficit is certainly considerable.

The remaining provinces are surplus provinces. The Punjab has a net export surplus of 754,000 tons of foodgrains, the chief among them being wheat. The United Provinces has an average export of 69,000 tons a year. The surplus is not much in consideration of her all-round agricultural development. There is a fairly large import of rice into the province, but her export surplus is due to gram. The export from Sind is to the extent of 3,28,000 tons. In the case of Sind the exports form a substantial proportion of the total provincial yield even though they may be absolutely small in relation to the total Indian consumption. Central Provinces and Berar is another surplus province with a net export of 234,000 tons of foodgrains. There is a large quantity of rice exported from this area. Similarly Orissa exports a very large quantity of rice and has a net export surplus of 182,000 tons of foodgrains annually.[1]

[1] *Report of the Foodgrains Policy Committee*, 1943, pp. 13–18.

A few observations can be made on the basis of this useful information about the position of provinces regarding foodgrains. It will not be very convincing if it is merely pointed out that the deficit provinces should increase their agricultural output. No doubt endeavours are necessary for an all-round increase of production in the country by the adoption of scientific methods. But the particular problems of each area have to be considered separately and the most advantageous methods of crop planning for the whole country have to be devised. For this purpose an analysis of the foodgrains position in respect of the regions into which we have divided the country might be useful. In the North-Eastern Region there are two deficit provinces, namely Bengal and Bihar. The surplus province of Orissa cannot adequately compensate for the deficiency of the region. Hence importation of both rice and wheat from other regions appears to be absolutely necessary. In the case of the Central Region there is a good export surplus of rice and it is not unlikely that it can manage without much help from other areas. In the North-Western Region Bombay stands in need of a good deal of help. There is a deficiency of almost all foodgrains in Bombay. There cannot be much help for it from the United Provinces in respect of rice but jawar and bajra may be available. Punjab may be able to supply all the wheat required by Bombay but the rice export of Punjab is rather inadequate. Even the exportation of rice from Sind may be insufficient to meet the requirements of Bombay. In the Southern Region Madras as well as the Indian States are deficit areas. The chief requirement of the area is rice and the different parts of the region are unable to help each other in this respect.

One of the important conclusions from this analysis is that it is difficult to expect regional self-sufficiency in foodgrains under the existing circumstances of agricultural production. It is however not necessary to attain any such rigid self-sufficiency. The only advantage of doing so would

be to avoid unnecessary transport expenses. But crop planning should depend upon natural factors and hence inter-regional trade in foodgrains cannot be altogether eliminated. However the food position in India is such that through a mere adjustment of a deficiency of a particular foodgrain with a surplus of it elsewhere it will not be possible to equate the supply-demand position.[1] This is particularly so in the case of rice. Hence there are two alternatives available to meet the situation, namely a substitution in consumption and an increased production of the foodgrains in which there is an absolute deficiency. This brings us to the crux of the problem of the role of agriculture in inter-regional adjustments. Crop planning and improvement in agriculture should serve a dual purpose. There should not only be an endeavour to produce in the country all that can be produced in the most economical manner, but agricultural progress must be so adjusted in each region as to cover the lacunæ caused by the limitations in industrial development in particular areas. It is a dependable measure for supplementing occupational opportunities created by a general progress of the manufacturing industries.

In conclusion it might be emphasised that the crucial problem of this chapter has been to suggest the nature of the measures to be adopted and the type of mechanism necessary for co-ordinating the economic activities of different regions. The ultimate purpose of a regional approach in planning is to approximate as nearly as possible towards an equitable distribution of the socially necessary work throughout the country. This objective has to be attained in spite of wide variations in the patterns of economic development in different parts of the country on account of their natural resources. Therefore an equilibrium between regions has to be sought through a multitude of measures of which a few have been suggested in this chapter. One of the signs of the attainment and the maintenance of such equilibrium

[1] *Report of the Foodgrains Policy Committee*, p. 18.

is the absence of any tendency for a disorderly movement of factors of production from area to area. Under reconstruction planning adequate provision should therefore be made to watch such tendencies and keep them in check, not by means of artificial controls but by the creation of such opportunities which would deprive those tendencies of their motive force. The extent to which these underlying principles are incorporated in the plans for economic development drawn up in India will be examined in the succeeding chapters.

CHAPTER V

WAR-EXPANSION AND PLANNED CONSERVATION

In the preceding chapters a study has been made of the expansion and locational trends of the important industries of India over a period of about forty years. The salient features of the locational pattern of Indian industries at the outbreak of World War II have been depicted and their shortcomings have also been noticed. Incidentally suggestions are also offered for a reallocation of industries in the interest of regional planning. But for purposes of future constructive planning in India the momentous changes that have occurred during the war period are also of considerable importance. Hence in this chapter attention will be concentrated mainly on the changes in industrial structure that have been brought about under the stress of war.

The war period in India has witnessed not only a sudden expansion of industrial production but also the appearance of new products emanating from old industries and the genesis of a few altogether new industries. These organic changes in the structure and organization of industry are bound to have their influence on the locational pattern of the country. The two main considerations which are likely to have exercised decisive influence on the regional aspect of industrial development during the war period are strategic and empirical. Areas vulnerable to enemy attacks would have been avoided whenever either an expansion or an establishment of a new industry was contemplated. No doubt this factor has played a more important part in countries like Germany and the U.S.S.R., but even in India it might have contributed its share to the type of industrial dispersion, if any, that is noticeable at the end of the war period. A more important factor, particularly in India, would have been the empirical consideration of expediency in accelerating output to further the war effort rather than the ascertainment of the most scientific

locations for the war-expanded or war-born industries. Such expediency consists of measures for the most economic utilization of existing favourable factors for obtaining quick returns within as short a time as possible, as time is the most important factor in mobilising industry for war purposes. This argument is further reinforced by the fact that cost considerations during a war period are relegated to a subordinate position particularly when the Government through its Supply Department is the chief purchaser and prices are fixed by the fiat of the State. Consequently industrial location of a country during an abnormal emergency like a war has chances of getting distorted under the influence of non-economic considerations. It is therefore necessary to assess in the first place the geographical tendencies of war-expansion in industries.

The cessation of war generally gives rise to two problems, namely an enforced contraction in its magnitude and an endeavour to conserve that part of the expansion which might be of lasting benefit to the nation. The latter problem gains further strength if it synchronises with a national aspiration to launch a campaign of constructive planning for increasing the productive capacity of the country as in India at the present time. So the chief preoccupation of countries emerging from a war is to determine what part of the war-expansion can be successfully conserved and to dovetail it with the salient features of their reconstruction planning. In doing so the effects of the influence of non-economic factors during the war period have to be neutralised in order to establish a sound peace-time economy. This economic battle has to be waged on several fronts chief among them being the regional aspect of industrial development. A reallocation of industries on regional principles is essential and it is particularly so in a country like India where even the normal pre-war economy was extremely unbalanced from a regional standpoint. The social dislocation caused during the war has to be redressed; and the absorption of the

demobilized men for smoothening the transition would also warrant a wide dispersal of industries. Among the other fronts where the economic battle has to be waged, cost considerations for peace-time production is one of the most important. Apart from technical and fiscal measures for achieving it the choice of appropriate places of location is also necessary for reducing the unit cost of production. Hence in the following sections the war-time changes in the magnitude and structure of Indian industries will be studied with particular reference to their locational trends and an endeavour will be made to fit in the prospective changes in the Indian economy envisaged in the Reconstruction Plans into the regional plan for India elaborated in the earlier chapters.

INDICES AND METHODS OF EXPANSION

The four general indices normally available for estimating industrial expansion in all directions are the increase in aggregate output, in employment, the degree of urbanization, and the quantity of power used. These criteria give independent evidence of the accelerated productive activity and when estimated regionally throw further light on the geographical distribution of the aggregate expansion. During the war period there has been a considerable increase in the industrial output of the country. According to the estimates made by the World Economic Survey the index number of industrial activity rose from 100 in the year 1938–39 to 122·7 in 1941–42. This was the peak year of activity and the index number fell to 108·8 in the subsequent year. There was also a corresponding increase in the number of workers employed during the war years. The total number of workers employed in some of the most important industries rose from about 11·5 millions in 1939 to nearly 13 millions in 1940, to 14 millions in 1941 and to 16·5 millions in 1942. This increase in industrial employment reflected itself in greater urbanization. Towns with a population of over one

million persons increased from 7 in 1939 to 9 in 1941 and to 19 by 1944. There were also corresponding increases in the number of towns having populations over 100,000, but less than a million. Incidentally it might be observed that this expansion of urban population has been mostly in the highly industrialised cities of India, accentuating thereby the pre-war excessive concentration of industries. There has also been an enormous increase in the consumption of electric energy for industries during the war years. As compared with 1938–39, there was an increase in consumption of 500 million units in 1942–43.[1] There was an increase in almost all provinces except in Sind, Assam and Orissa. The highest percentage of increase was in Bombay and there was also a considerable increase in Bengal. All these indices therefore show that industrial activity was given an extraordinary fillip during the war. It manifested itself in an increase in the absolute quantum of industrial output and also in the manufacture of new products necessitated by war conditions.

Several measures were adopted for expanding industrial output. A few new industrial firms which might not have been started but for the exigencies created by the war were established. Some of them were meant essentially for supplying war needs and others for catering to civilian needs articles which ceased to be available due to the cessation of imports. A larger part of the productive expansion consisted of an increase in output among the existing industrial firms. This was achieved by an addition of extra plant in existing factories. In certain industries the increased output was obtained through activising plant which had remained inactive due to an inadequacy of demand. The working of extra shifts was another device applied in certain industries where it was not already being done. Several technical improvements were also effected as a measure of piecemeal

[1] *The Location of Industry in India*: Economic Adviser to the Government of India, p. 71 tables.

rationalization being impelled by a sudden increase in demand. Occasionally industries were also better organized to yield greater output. Lastly a few new industries which were started just before the war received a fillip and commenced production on a considerable scale during the war years. A few important new products were also manufactured to fill the essential gaps in the structure of Indian industry revealed by the abnormal circumstances created by the cessation of imports. The impelling forces for all these transformations were therefore the necessity to satisfy the enormous war demand and the improvisation of methods for filling the voids created by the sudden cessation of imports. At the initial stages there were certain favourable conditions for accelerating industrial development, such as the organization of the Eastern Group Supply Council and the assurance of the Government of India in their Notification of 1940 that protection will be granted in the post-war period for industries newly established during the war period. The visits of the Roger and Grady Missions also gave much impetus to India's war-time industrialization.

However, as compared with other countries, the progress in India has not been very spectacular. It is even feared that in spite of India's enormous war expansion she might come out of the war still lower on the list of the industrial countries of the world.[1] In the U.S.A. the total volume of production nearly doubled between the years 1939 and 1944. In 1944 U.S.A. had two economies, one for war and the other for civilian community and each of them was practically equal in size to the entire pre-war economy.[2] Consequently the country was able to manage without any reduction in its civilian consumption. In its war production U.S.A. encountered three important bottlenecks and circumvented all of them. At the outset there was a shortage of industrial plant and equipment and at later stages there was a deficiency

[1] Balgit Singh: *Our Economic Condition*, p. 84.

[2] World Economic Survey: 1942–44, *League of Nations*, p. 15.

of materials such as metals and man power. In Canada there was an increase of 80 per cent. in its national income in spite of a shortage of man power. Among other countries the increased production has been effected either by a reduction in civilian consumption or by a fall in private investment. In the United Kingdom there was a considerable reduction in civilian consumption and she had also to draw heavily on capital assets at home and abroad. In Australia though there was an enormous increase in production there was a cessation of private investment and a reduction of 20 per cent. in civilian consumption. The scarcity of coal was an important limitation on Australia's industrial expansion. In India, industry as a whole has not expanded much after 1942. The index number of general industrial activity fell from 122·7 in 1941–42 to 108·8 in 1942–43. The outputs of steel and paper decreased slightly after 1943 owing to shortages of coal, man power and transportation facilities.[1] There was a fall in the production of coal in 1943 due to a shortage of labour. In India the supply of consumer's goods decreased considerably as internal production has not been able to compensate for the greatly reduced imports of such goods from abroad. Besides the Government was also taking away substantial portions of the output of various industries. It was taking away practically the whole output of the woollen industry and the iron and steel industry. About 60 per cent. of the output of the cotton mills and about a fifth of the production of the jute mills went to the Government. It was also taking away 70 per cent. of paper production and a major part of the output of the leather industry. Hence drastic cuts had to be effected in civilian consumption. Therefore judging from the standards of countries like U.S.A., Canada and Australia, the progress of India's industrialization is not considerable. However, much leeway has been made in several directions and a careful conservation of it should be the main preoccupation in future planning.

[1] *Ibid.*, p. 92.

METALLURGICAL AND ENGINEERING INDUSTRIES

The Iron and Steel industry was kept feverishly active during the war period. The production of pig iron reached its peak in 1940–41 and that of steel in 1941–42. The output of finished steel during 1941–42 was at least 50 per cent. more than in peace time.[1] This was achieved by a considerable expansion of the Tata Iron and Steel Works and the Mysore Iron and Steel Works. Besides several new producers including the Steel Corporation of Bengal came into operation during the war period. The Steel Corporation of Bengal is a very large concern having a capacity of about 600,000 tons per annum. Among the small concerns six re-rolling mills manufacturing steel by the electric process have been started since the war. Two of them are located in Cawnpore and the rest are in Bengal. In addition to these concerns which undertook the manufacture of steel there came into existence a large number of re-rolling mills manufacturing steel products and working in a complementary relationship with the larger steel manufacturers. Their number increased from about 3 in 1935 to about 150 by the end of the war period. They are divided into three categories according to their size and materials used.[2] There are about 4 concerns belonging to the first category and except one among them which is located at Negapatam the others are in the Bengal zone. In the second group there are about 12 concerns having a fairly wide distribution. Two of them are in Cawnpore, two in Lahore and two in Bombay. The rest are in Bengal. In the third category there are a large number of small concerns distributed very widely over the country. From the standpoint of regional distribution it is only the first two groups that are of importance. The slight scatter among them from the Bengal-Bihar area is due to the use of imported billets before the war and the attraction

[1] *Review of the Trade of India*, 1941–42, p. 65.

[2] The Engineering Association of India: *Post-War Industrial Development*, pp. 43–44.

of Scrap in different areas during the war period. This scatterhas to be encouraged as the finished products of these concerns have a widely distributed demand and besides they can also utilize the locally available scrap. The third category of small and scattered concerns stands in need of some rationalization. They are likely to be an uncomfortable competitive element to the other re-rollers and the main steel industry as they have no overhead expenses and large quantities of cheap scrap would be available hereafter. The Government may have to exercise some control over them to effect a zonal distribution of the units and to standardize their products.[1]

Apart from the increase in the quantity of output, the most important feature of the industry during the war period was the manufacture of special steels. Alloy steels contain in addition to carbon or carbon and manganese one or more other elements to impart specific useful properties. Such elements include aluminium, silicon, manganese, chromium, etc. This imparts greater strength, greater resistance to heat and ability to cut other metals at high speeds.[2] Alloy steels are of two types, namely low alloy steels and high alloy steels, the former being useful in engineering and the latter for making tools. Acid steel was produced in India with imported hematite pig iron during the pre-war period. This was obviated by the installation of the Perrin Plant by the Tatas and the manufacture of wheels, and axels of wagons was thereby rendered possible. Several varieties of alloy steel were also produced for the manufacture of armour plating. High speed steels suitable for the manufacture of machine tools were also successfully produced. Most of these special steels were however manufactured by the existing large concerns except to a certain extent by the important re-rolling mills. So from the standpoint of location their

[1] *Ibid.*, pp. 45–46.

[2] K. N. Prahlad Rao : Development of Alloy Steels in India: *Journal of Scientific and Industrial Research*, August 1945, p. 85.

development has not caused any significant change in the pre-war pattern. But there are possibilities of regionalisation in this direction as recommended in an earlier chapter. In areas like Central Provinces and the Salem district of the Madras Presidency there are favourable opportunities for the development of the alloy steel industry. If cheap electric power is made available in those areas and a pilot plant installed it will not be difficult to produce alloy steels of the required specification. The rise of the alloy-steel industry during the war has created a demand for ferro-alloys, such as ferro-manganese, ferro-chrome, and ferro-silican. These are essential for alloy steel manufacture and have been successfully made from indigenous raw materials during the war period.[1] These industries can conveniently develop in appropriate places among each of the regions into which we have divided the country according to the type of mineral in existence among them and the availability of cheap electric power. In the Mysore State two ferro-alloy electric furnaces were installed during the war, one for ferro-chrome and the other for ferro-silicon. Both of them were however utilized for the manufacture of ferro-silicon due to the exigencies of war. This industry therefore is amenable to regional distribution under reconstruction planning.

Simultaneously with the expansion of the main steel industry there has also been an increase of about 30 per cent. in ancillary industries like refractories and an increase of about 40 per cent. in associated industries like tinplate manufacture. With regard to refractories the major part of the development seems to be in Bengal except for some share by the Central Provinces. The development of the tin plate industry was at Tatanagar. For steel castings several new foundries were set up during the war and there is a fairly wide provincial distribution of them. The most important places which have a share of it are Bombay, Lahore, Cawnpore and Bhadravathi. With regard to bolts, nuts and rivets all the

[1] *Ibid.*, p., 88.

producers are in Bengal except for a small share by Lahore. In the manufacture of wire and wire products also the Bengal and Bihar area has had the greatest development though a large number of producers are scattered widely.

From the foregoing brief account of the expansion of the steel industry and its products during the war period it is obvious that from the regional standpoint the North-Eastern Region of Bengal, Bihar and Orissa has had the bulk of it. The locational factors have been in favour of such a development and are likely to be so in future planning as well, but it will not be without benefit to encourage the subsidiary and supplemental parts of the industry in other regions where facilities are available. The development of alloy-steels and ferro-alloys in particular can be more widely scattered. These are specialised industries depending essentially on cheap electric power. In areas where there are limited deposits of iron ores the manufacture of alloy steels is the most profitable direction of exploitation as they could also cater more easily to the local demand for such metals. It will also give rise to the development of ancillary industries in the neighbouring areas. The ferro-alloy industries should necessarily be widely distributed according to the existence of the required mineral deposits like manganese and chrome. With regard to steel castings and other products regional planning ought to encourage their development in areas where some of the large re-rolling mills have newly come into existence so that their products may be locally consumed avoiding transportation expenses from places of concentrated production.

NON-FERROUS METALS

With regard to non-ferrous metals like aluminium, copper, lead, zink and tin there has been a grave deficiency in India from the outset. This has been a serious gap in the industrial structure of the country. The war has given a fillip to the development of some of these non-ferrous metals in

India. An important feature of the non-ferrous metal industries in India is that its development will be regionally more widespread than the iron and steel industry, as its raw material deposits are more widely scattered. In India copper ore deposits are meagre and besides there is no electrolytic refining plant. So the copper produced at Ghatsila in the Singhbhum district of Bihar is inadequate for the Indian demand. Similarly in antimony, lead and tin, either the deposits are meagre or inaccessible. Even in the refining of non-ferrous scrap there has not been much progress in India. There has however been some progress in the production and processing of non-ferrous metal alloys. The manufacture of brass and copper wire, sheet and strip, rods and bars, etc., is undertaken in a number of places chief among them being Calcutta, Aligarh, Bombay and Jaipur. In spite of this development the non-ferrous metal industry in India is still in its infancy and unless there is a high level of technical knowledge its development will be difficult, because of the paucity of the raw materials.

During the war period the most significant progress among non-ferrous metals is with regard to the manufacture of aluminium. The chief requirements of the industry are bauxite, caustic soda, cryolite and cheap electric power. There are large and widespread deposits of bauxite in India. With the development of the alkali industry there will be no dearth of caustic soda. As for hydro-electric power great strides have already been made in different parts of India. Hence the prospects for the industry are bright but the progress so far has been very little. With the impetus of the war two companies have been established in India for the manufacture of aluminium.[1] The Aluminium Corporation of India, Ltd., is located at Asansol in Bengal. It extracts alumina from raw bauxite transported from Bihar and depends on thermal power generated in the neighbouring

[1] The Engineering Association of India: *Post-War Industrial Development*, p. 20.

colliery. Obviously the location of the industry does not appear to be very scientific. Cheap hydro-electric power should certainly be preferable to thermal power for the purpose. Besides since the bauxite of Bihar is utilized a site in Bihar could have served the purpose as there is no paucity of coal deposits there if thermal power is to be utilized. Further as bauxite ore is widely scattered it would have been more economical to exploit such of the deposits which are within a hydro-electric generating area. Under the circumstances it is difficult to see the underlying reasons for its location in Bengal unless it be that Bengal is a large consuming centre.

The other concern started during the war is the Aluminium Production Company of India, Ltd., now known as the Indian Aluminium Company, Ltd. Its location is even more unconvincing than that of the previous concern. It is expected to have three plants, one at Ranchi in Bihar to produce alumina from bauxite ore deposits of Ranchi, the second at Travancore for the conversion of alumina into aluminium ingots by utilising the hydro-electric power available there, and a third plant in Calcutta to roll the ingots into various shapes. The logic of these split locations appears to be one of ore attraction in the first instance, power attraction in the second and market attraction in the third instance. Even if it is conceded that the Ranchi deposits are the best for the purpose, hydro-electric power would certainly be available nearer at hand than Travancore. The cross freights involved in this three-cornered arrangement could have been easily avoided if some other power centre was chosen. If Travancore electric power has to be used for the purpose of the aluminium industry any one of the innumerable bauxite deposits in South India could have been most profitably linked with it. Finally more than one split in the location of the aluminium industry appears economically unsound. Only such of the ore deposits which are in the neighbourhood of the hydel power plants should be

exploited and the aluminium ingots may be sent to a good marketing centre for being rolled into various shapes. Even this split may be unnecessary if the marketing centre is not too far removed from the ore deposits because the extra cost of transport on the finished product will not be as great as the expenses involved in maintaining a dual establishment. In India therefore the future development of the aluminium industry must be in areas where bauxite deposits and hydro-electric power are in proximity to each other. An appropriate location for the industry is very necessary as cost considerations are of vital importance to it in view of the international situation. Any prospective aluminium industry should be fully aware of the potential dangers from the World Combine and also the enormous increase in its production in Canada, Japan and America during the war period.[1]

THE ENGINEERING INDUSTRY

In India the engineering industry is fairly old but till the outbreak of war it consisted of only a small number of firms mostly concentrated in Calcutta. The Indian Engineering Association had a membership of 58 firms in 1939. The membership rose to 87 by 1943. Another association known as the Engineering Association of India has been recently started with a membership of about 45 firms. Altogether there were about 600 engineering workshops before the war and the number rose to 1,500 by 1943.[2] The main sections of the engineering industry consist of the manufacture of machine tools, mechanical, structural and electrical engineering, ship-building and welding work. There was no machine tool industry in India before the war. The machine tools were either imported or made at the important engineering workshops. Importation was relatively more

[1] *Ibid.*, p. 22.

[2] Dr. P. S. Lokanathan: *India's Post-War Reconstruction and its International Application.*

important and the bulk of it came from the United Kingdom. The war not only suspended the importation but created an enormous demand for machine tools on account of the growing industrialization. Special steps had to be taken by the Government to encourage the manufacture of machine tools. A technical mission was invited from the United Kingdom to advise on rationalisation and selection of firms for the purpose. The output increased from about 100 tools in 1939 to 4,500 tools per annum in 1944. About twenty-four concerns were engaged in the newly fostered industry. Except one among them which was specially started for the purpose, the others were primarily engaged in different productive activities of the engineering industry. Of the total number of concerns about ten were in Bengal, five in Bombay, seven in the Punjab, one in the United Provinces and one in Mysore. The scheme of the lay-out of the industry is entirely governed by the fact that the manufacture of machine tools was taken up by the large engineering concerns that were already in existence. In other words, it was not an independent industry freshly started and hence seeking appropriate places of location. The future development of the industry, for which there is a large scope, should be associated with the new centres where the manufacture of special steels has been recommended. There should be a forward integration of the smelting of special steels with the manufacture of machine tools. The consuming centres for these machine tools is likely to be more widespread with the growing industrialization of the country. Hence it is inadvisable to have it concentrated in any particular area. The firms manufacturing small tools may be even more widespread so that the local requirements may be catered to more appropriately.

In the mechanical section of the engineering industry there has not been much progress during the war period due to want of technical knowledge and equipment. This section comprises the manufacture of pumps, oil engines, manufacturing machinery, road making machinery, etc. A large

majority of concerns engaged in these lines of manufacture are concentrated in Bengal except for the small share enjoyed by Bombay, Punjab and Madras. The only significant war development in this group is the inauguration of a new company for the manufacture of textile machinery. Its factories are located at Gwalior and Bengal. There ought to be a greater development of the industry in future and its location should be at important centres of cotton mill industry. The structural engineering section has increased its capacity greatly during the war. Its future prospects are bright in view of the extensive schemes of bridge and building constructions that are envisaged. The firms engaged in the industry are concentrated to the extent of 75 per cent. in the Bengal and Bihar area, the remaining 25% being shared by Bombay, Karachi and Madras. Its present location is likely to continue on account of the favourable circumstances in respect of raw materials and port facilities available in that area. The construction of wagons and armoured vehicles increased appreciably due to the impetus of the war. It was undertaken entirely by the existing firms in the Bengal area.

In electrical engineering there has been an increase in production in electric fans, incandescent electric lamps, batteries, transformers, electric motors, etc. There are about ten firms manufacturing incandescent electric lamps in India and two of them were started during the war period. The majority of these concerns and the bulk of the total production is in Bengal—the other places having a small share are Bombay, the United Provinces, Bangalore and Karachi. As the industry in its present stage consists merely of assembling imported component parts there is not much justification for its heavy concentration in Bengal. Its first line of departure should be towards areas where the glass blowing industry is in existence. One of the concerns started during the war appears to have chosen United Provinces for its location on that ground. The demand for electric fans increased enormously during the war and several new

concerns came into existence. The industry is shared by three provinces, namely Bengal, Bombay and the Punjab, but among them Bengal has an overwhelming importance. Since the industry depends largely on imported materials a wider distribution on the basis of the availability of skilled labour would be desirable. In the manufacture of batteries there has been some progress. The industry is shared by Bengal and Bombay. Electric transformers were being produced before the war only in the Mysore State. The war brought into existence two new concerns, one in Bengal and the other in Bombay. The demand for electric motors was met before the war mostly by importation except for some production in the Madras Presidency. The war gave rise to a few new firms distributed between Bombay and Bengal. From the regional standpoint one important observation that could be made about the electrical engineering industry is its over-concentration in Bengal. There is no compelling necessity for its concentration in Bengal and so its future development may be regionally distributed.

The war gave an impetus for some progress in ship building and ship repairs. The Scindia shipyard at Vizagapatam which was planned sometime before the war, commenced operations with the encouragement offered by the State. The progress however was not much due to enemy action on the east coast. Ship repair work was active at most of the ports in India. Lastly welding and press work in engineering also made considerable progress during the war. The manufacture of containers was undertaken on a large scale to meet the Indian demand. The Indian tin plate industry was able to supply them with the necessary raw material. The firms engaged in it are for the most part in Bengal. Bombay, the Punjab, Karachi and Madras have also some share of it. The peace-time demand for these containers is likely to expand with the progress of industries like vegetable oils, paints, fruit canning, etc. So the future location of the industry must be coupled with such industries which are likely to offer

a demand for their products. As it is not impossible to organize the industry on a cottage basis, it should be widely distributed among all the regions and they should be as near as possible to the places of demand for their products.

On the eve of the outbreak of war three new companies were established in India for the manufacture of bicycles. They were the Hind Cycles, Ltd., Bombay, The Hindustan Bicycle Manufacturing and Industrial Corporation, Ltd., Patna, and the India Cycle Manufacturing Co., Ltd., Calcutta. The first two concerns were interested in the manufacture of cycles and the third concentrated its attention on the manufacture of accessories and the assembly side of the business. These had several initial difficulties due to the outbreak of war but were able to start production by 1942 and meet part of the Indian demand. Given proper facilities for the importation of equipment their capacity can be raised to a maximum of about 120,000 cycles per year.[1] Most of the parts are made in India except some, such as rims, mudguards, bright bars, etc. Even these can be locally made when the output of special steel increases in India. The imported strips can also be replaced by Indian strips in course of time. The industry in its present form is in need of much rationalization and collaboration among the three concerns. With regard to the regional location of the industry there is much to be said in favour of a wider scatter. Even though proximity to the main steel industry may be an argument in favour of its concentration in the Bengal and Bihar area the market attraction should also be given due weight. In areas where special steel is to be manufactured in future or where large re-rolling mills already exist the manufacture of bicycles can start as an associated industry so that particular zones of consuming centres may be supplied by such plants. It is also worthwhile to make experiments in running the industry on a cottage basis as in Japan.

[1] The Engineering Association of India : *Post-War Industrial Development*, p. 29.

The various parts of the bicycle may be made in cottage concerns and they could be assembled in a central institution.

Attempts at the manufacture of aircraft in India was purely a war-time development. In 1940 the Hindustan Aircrafts Ltd., established a factory in Bangalore for the manufacture of planes from imported parts. As a war measure the manufacturing programme was given up and the establishment was maintained purely for servicing and repairs of American aircraft. A few more civil maintenance units were established in different parts of India for the repair and servicing of British aircraft operating in India. The future production policy of the Hindustan Aircrafts is still under contemplation, and as such, an alternative location for the plant cannot be considered at this juncture. The prospects of the industry do not appear to be very bright in the immediate future as the industry has to depend entirely on the internal market which has yet to develop. On the other hand, there is a greater scope for the development of the automobile industry in India. Much anxiety has been felt by the industrialists in India for inaugurating the industry and some progress is already noticeable but there is still much leeway to be made. This is one of the potential industries which has probably suffered on account of the outbreak of war. The Government of India was not willing to offer any facilities for its inauguration during the war period on the ground that it might impede the war effort by drafting away skilled technicians, of which there was already a scarcity, from essential war work. Among the other reasons for not sponsoring the scheme were the anxiety to conserve foreign exchange, the scarcity of essential materials like steel and the unwillingness of the army department to buy its products on account of technical reasons. There is however no such impediment for its future development. Sir M. Visvesvaraya in his scheme of heavy industries in provinces has suggested Bombay and Bengal as suitable places of location.[1]

[1] Development of Heavy Industries in Provinces: *The All-India Manufacturers' Organization*, Appendix II.

Lastly, a word or two may be said on the potentialities of plastics as substitutes for the products of the metallurgical industries. The latest stage in industrial development appears to be the substitution of non-metallic substances like plastics for alloy steels. Plastics are artificial products of industrial chemistry which bid fair to be competitors of the metallic industries.[1] These modern synthetic substances will behave just as artificial indigo did towards the Indian natural indigo. The possibilities of developing the plastics in India have to be fully explored. This is an industry that will be easily amenable to regional distribution on account of the nature of its raw materials. The manufacture of some of its finished products can be organized on a cottage basis in and around the centres where plastics are made. There are various types of plastics, such as casein, urea, bakelite and synthetic glass. Casein plastics are made from the curd of milk and the product known as erinoid is used for making buttons, umbrella handles, etc. In India some casein plastic is being made in Bombay and part of it is also exported. The possibilities of developing it in other places have to be investigated. Urea plastics and bakelite are produced synthetically by the utilization of chemicals. With the growing chemical industry of India the prospects of these synthetics may be examined.

CHEMICAL INDUSTRIES

The heavy chemical industry is constituted by two important groups of chemicals, namely the acid and the alkali. In the acid group of chemicals the most important item is sulphuric acid. It is the basic chemical for a number of industries such as the textiles, iron and steel, leather tanning, non-ferrous metallurgy, etc. The highest percentage of its consumption during the war was by the steel

[1] Some Aspects of Chemical and Mineral Industries : *Transactions of the Mining, Geological and Metallurgical Institute of India,* 1941, Vol. 37, p. 104.

industry and the textile came next in importance. In addition to its use in industrial production sulphuric acid is also required for the manufacture of other chemicals such as hydrochloric acid, nitric acid, bichromates, etc. During the war period the output of all acids in India more than doubled itself and that of sulphuric acid in particular increased by nearly three times the pre-war production. Before the war there were 23 factories producing sulphuric acid and among them seven were in Bengal, six in Bombay, five in the Punjab, two in the United Provinces, one each in Delhi, Madras and Mysore. The output capacity of the concerns in the Bengal area was much higher than that of any of the other provinces where the concerns were located. So both from the standpoints of the number of concerns and their capacity, the industry may be said to be concentrated in Bengal. During the war period six new concerns were established. Three of them at Delhi, two in the United Provinces and one in Sind. The war addition to the industry, has only introduced a little more scatter in the industry but has not disturbed the original balance in favour of Bengal.

The location of the sulphuric acid industry is governed by two important factors. In the first place the finished product, namely sulphuric acid, is three times in quantity to the amount of sulphur used as raw material. In other words, its " material index " in Weberian terminology is very much less than unity. That means the industry by the nature of its transformation in production should have a market attraction. From the standpoint of transport costs it is economical to produce it in the regions of its consumption. In the second place, being highly corrosive, sulphuric acid requires careful and elaborate packing. This increases its weight and space requirements for transport and this fact has so far given a natural protection to India against importation. Even between regions in India it is a factor to be taken into consideration in deciding the future regional development of the industry. There is still great need for a

further development of the industry as even the present enhanced output capacity of the Indian industry falls short of the country's requirements. Hence new plants may be installed in future at important existing or potential industrial centres where the supply of sulphuric acid is deficient. Since the raw material, sulphur, has to be largely imported, the consuming centres for sulphuric acid would be the most economic places of location for the industry. India's sulphur deposits are meagre and the supplies from Baluchistan during the war may not be an economic proposition for peace-time purposes, as they are poor in quality and costly for transportation. The future development of the industry should therefore take place in the central and southern regions. The high concentration of the industry will however continue to be in the Bengal and Bihar area on account of the existence of the large steel industry in that region.

During the war there was also an appreciable increase in the production of nitric acid, copper sulphate and bichromates. The output of nitric acid was nearly ten times the pre-war figure of production and copper sulphate and bichromates were produced in India only under the stimulus of war. As imports ceased at the outbreak of war, the production of bichromates had to be accelerated by an offer of protection by the Government. There was a great need for it in important industries like textiles, match and tanning. Most of the raw materials for its production were available in India. Chrome ore which is its most important raw material is available in large quantities in Bihar, Mysore and Baluchistan. The other materials, namely soda ash, lime and sulphuric acid are also available for the industry in different areas. The bichromate industry has developed in several centres to meet local demand but its important places of production are the Mysore State, the United Provinces and Bombay. Its present output capacity is higher than the peace-time needs of the country and so there is no problem of any further development of the industry.

THE ALKALI GROUP

In the alkali group of chemicals the most important are caustic soda, bleaching powder, chlorine and soda ash. This group has been particularly deficient and is one of the chief gaps in the Indian economy. For a healthy industrial superstructure both the alkali and the acid industries should be well developed simultaneously. During the past few years there has been some progress in the acid industry but the production of alkali has been neglected and the present manufacture is very much below the country's requirements either for the sustenance of its existing industry or for its further progress.

Caustic soda is the most important in the group of alkalis and it is the raw material of numerous industries such as soap, textiles and paper. These three industries are likely to consume about 90 per cent. of the total estimated demand of 50,000 tons per annum in India.[1] The other industries where it is essential are vegetable oil refining, metal cleaning, paints, etc. Even the acid industry depends to a certain extent on an adequate supply of alkalis. In fact the production of caustic soda is generally taken as a measure of industrialization in a country. Before the war the production in India was insignificant due to cheap imports from abroad as there was no import duty on caustic soda unlike sulphuric acid. Even the natural protection enjoyed by sulphuric acid on account of the difficulties in its packing was not available for caustic soda. Another reason for the slow development of the industry was the absence of cheap hydro-electric power in suitable places.

There were three concerns before 1939, one of them having started in that year, producing caustic soda. The war restricted the importation of caustic soda to 25,000 tons per annum and this gave a stimulus to the local concerns to increase their output. The three existing concerns in India

[1] *Indian Finance*, January 23, 1946.

are the Alkali Chemical Corporation of India, Bengal, The Mettur Chemical and Industrial Corporation, Madras, and the Tata Chemicals, Kathiawar. In addition to these, a few textile and paper mills produced caustic soda for their own use. The ultimate capacity of all these concerns is about 10,000 tons or 20 per cent. of the internal demand.[1] If the rayon industry develops in the country it is said that it will require for its expansion in ten years about 100,000 tons of caustic soda.[2] Hence there is great scope for a further development of the industry. A few more concerns of an optimum size may be started in different parts of India according to the expansion in different regions of consumer's goods industries requiring caustic soda. The raw materials of the industry are very few and available in a number of places. They are salt, lime stone, fuel and cheap electric power. The industry presents no difficulties of packing or transport and does not depend upon imports as in the case of sulphuric acid. Hence its development is a feasible proposition provided the new units are scientifically located and the industry receives protection. The alkali industry falls within the category prescribed for investigation by the newly constituted Tariff Board unlike the Tariff Board Enquiry of 1932 which confined itself to sulphuric acid and the chemicals derived from it.

The location of the industry is influenced by two important factors, namely the availability of cheap electric power and proximity to important consuming centres. The raw material attraction is not very great as they are available in several places. Therefore in each of the regions into which we have divided the country there should be two more concerns according to the power centres existing in them. In thermal power centres they may be undertaken if the raw materials are available within easy reach. The location of the existing concerns may be considered sound as they may be made

[1] *Ibid.*

[2] *Eastern Economist*, February 8, 1946.

in future to cater to the requirements of the regions in which they are situated. The Bengal area may even require an extra plant to supply the needs of the large number of paper mills and soap factories that exist there. The Tata Chemicals at Kathiawar may not be adequate for the needs of the industries in the Bombay area. The new plants for this region may be located in the Punjab for two reasons, namely the availability of raw materials in large quantities in that province and to avoid further industrial congestion in Bombay. Cheap hydro-electric power is also available in the Punjab. The Mettur Chemicals in the Madras Presidency can supply the growing needs of the large textile industry in Coimbatore. But this in itself may not be sufficient for the Southern region comprising Madras, Mysore, Travancore and other States. The future development of the soap and vegetable oil industries that we have recommended for the Madras Presidency may require a few more plants. The best location for them would be the States of Mysore and Travancore. The enormous power supply in Mysore can be used for the industry and its products can be utilised both for the needs of the various industries within the Mysore State and for the future demands of the Madras Presidency. Travancore is already contemplating the installation of a plant. Lastly, the central region of the Central Provinces and Hyderabad may require one or two plants for the textile industry of Central Provinces and the soap and vegetable oil industries of Hyderabad. With the completion of the projected Tungabhadra scheme Hyderabad should certainly have a plant in the vicinity.

However the future development of the alkali industry depends upon its capacity to reduce costs of production. During the war the prices of both caustic soda and bleaching powder compared very unfavourably with imported prices. The pre-war prices of imports were even lower. No doubt the costs of production in the existing concerns can be brought down still further.[1] But without protection the

[1] *Ibid.*

industry may not be able to withstand foreign competition particularly on account of the Chemical Combine in England. There is ample justification for such protection.

Bleaching powder and chlorine are by-products arising out of the manufacture of caustic soda. In the manufacture of caustic soda chlorine is produced as a by-product and it is subsequently converted into bleaching powder. Bleaching powder is used in paper mills, textile industry, for public health and in the manufacture of organic chemicals. The amount of chlorine that will be produced by the contemplated caustic soda plants will be much greater than what might be required for conversion into bleaching powder to satisfy the Indian requirements. The surplus chlorine can find other uses such as the manufacture of fine chemicals. The fine chemicals industry received a great fillip during the war. India was able to manufacture nearly 60 per cent. of the drugs required in the country.[1] Since these two are by-products no independent location for them need be considered. They should be developed at places where the main industry is located.

Another important chemical belonging to this group is soda ash. It is used largely in the manufacture of glass, textiles and paper. Under the war stimulus three new concerns have come into existence. Two of them are in Kathiawar and one in the Punjab.[2] Their total output capacity falls short of the estimated consumption in the country and hence there is scope for some more new concerns. The raw materials required are common salt, limestone and ammonia. The Punjab may be an appropriate place for its further development to satisfy the needs of the glass industry in the United Provinces. The Bengal area may probably be in need of a plant to supply the requirements of its paper mills.

[1] Dr. P. S. Lokanathan: *India's Post-War Reconstructiou and Its Internatinnal Aspect*, p. 18.

[2] *Indian Finance, op. cit.*

THE FERTILIZER INDUSTRY

The manufacture of fertilizers is closely associated with the heavy chemical industry. Improvement of Indian agriculture depends largely on a liberal use of chemical manures as the soil is deficient in nitrogen and phosphates due to soil erosion. Ammonium sulphate is the most important fertiliser for India and before the War it was obtained almost entirely from abroad. The indigenous production was not even a fifth of the imports. The scarcity of foodgrains experienced during the War consequent to the loss of Burma brought to the forefront the immediate necessity to increase the production of fertilizers in the country. The Food Grains Policy Committee laid down that at least 350,000 tons of ammonium sulphate per year should be made available. The chief raw materials of the industry are ammonia, gypsum and coke. The only plant producing synthetic ammonia by the fixation of atmospheric nitrogen is the Mysore Chemicals and Fertilizers. The rest of the ammonium sulphate was produced in the coke oven plants of the Tatas, the Indian Iron and Steel Co., and a few other concerns.

Important developments have recently taken place with regard to the future production of ammonium sulphate in India. On the invitation of the Government of India a technical mission from the United Kingdom came over to India to examine the prospects of developing the industry. The two important alternatives before them regarding the structure of the proposed industry were either to have one large factory with the most appropriate location or to have a few independent plants regionally distributed. If the former alternative of a single factory for the whole country is to be preferred the most appropriate place according to them would be Harduaganj, near Aligarh, in the United Provinces. If, on the other hand, a larger number of factories are to be started the appropriate places would be Dhanbad, Moghalsarai, Amritsar, Bombay, Trichinopoly

and Bezwada. For making a choice between the two alternatives the Goving Technical Mission estimated the capital and recurring expenditure involved in either of the schemes. They found that to have a single factory with a capacity of 350,000 tons per annum would be economical both from the standpoints of capital and recurring cost. The capital cost would be 10·1 crores and the manufacturing cost per ton would be Rs. 114 ex-factory and Rs. 126 at the distributing centre. These two costs, it was pointed out, would rise proportionately with an increase in the number of manufacturing units. If two factories are to be set up the capital cost would be 12·7 crores and the cost per ton at the distributing centre would be Rs. 135. With three factories the capital cost would be 15·7 crores and the corresponding cost per ton being Rs. 144. According to the calculations the most uneconomical proposition would be to have six factories regionally distributed. The costs in that case would be 21 crores of capital costs and Rs. 167 of unit cost per ton at the distributing centre.[1] Obviously their preference was in favour of establishing a single factory at Harduaganj near Aligarh which is the best site for the purpose. The method of manufacture recommended is that of employing water-gas made from coke to produce the necessary ammonia followed up by conversion to sulphate by gypsum. The coke required for the purpose is to be obtained from Bihar and gypsum from the Punjab.

The government decision on this matter has been more or less on the lines indicated by the Technical Mission. It has been decided to establish one factory with a capacity of 350,000 tons per annum at Sindri near Dhanbad in Bihar.[2] The factory is to be government-owned and managed, and would be run on a no-profit basis. The cost of Rs. 125 per ton at the distributing centre is considered fair in comparison both with the pre-war and the present landed cost.

[1] "*Hindu*", Nov. 5, 1944: *Technical Mission's Report.*

[2] *Great Britain and the East*, July 1945.

Another significant development in the industry during the war period is the inauguration of a scheme by the Travancore State to produce fertilizers. A plant is under erection at Alwaye in Travancore for the production of 50,000 tons of ammonium sulphate per annum. The services of an American expert have been secured and the installation of the factory has been entrusted to an American firm. This scheme differs in some respects from the proposed scheme of the Government of India at Sindri and it has been designed to use charcoal instead of coal.

The essential problem in the proposed development of the fertilizer industry consists of a choice between extreme concentration and moderate dispersion on a regional basis. The findings of the Technical Mission indicate that the optimum size of the firm for the industry is fairly large and hence the immediate target of 350,000 tons per annum could be most economically produced in a single unit. On this basis, which of course is of primary importance for the cultivator, it has been decided to have a single large concern. But it is doubtful if cost of manufacture alone should outweigh all other considerations. In the first place, the part that transport costs are likely to play under a scheme of concentrated production should be given due consideration. In the case of ammonium sulphate the cost is so low in proportion to its weight that transport costs are an important factor. In the estimates of the Technical Mission the price per ton at the distributing centre is given. It is difficult to see how this can be uniform in all areas of consumption which are placed at different distances from the manufacturing centre unless there is subsidization by the central or provincial governments. That means the actual cost at the consuming centres is concealed. If the subsidization has to be done by the provincial governments those provinces which are relatively distant from the manufacturing centre are placed at a disadvantage. Hence if the scheme is to be equitable to all the provinces the subsidization has to be

done by the central government. We have no knowledge whether the cost of such subsidization has been reckoned with and included in the recurring costs of the scheme. Further unless it is assumed that the demand for the product is uniform throughout the country a centralized organization for production may not be economical. The advantages of low costs of output may be more than neutralised if a very large proportion of the product is to be transported over a great distance for reaching the consuming centres.

Apart from these considerations a regional development of the industry may be advantageous in exploiting available resources in different areas. In spite of the fact that the regional approach in planning has been accepted by the Government of India, the fertilizer industry is to be concentrated in one area. This decision is probably to be tempered by the hope that more factories are to be established in different places to reach the ultimate national target of two million tons per annum. However under the present circumstances a compromise could have been effected by having two factories, one at Sindri and the other at Trichinopoly. The plant at Trichinopoly could have adopted the electrolytic process for obtaining hydrogen instead of the water-gas process, obviating thereby the necessity to import coke from Bihar. It will be possible to obtain the required electric energy from the Mettur hydro-electric plant. Even though the electrolytic process may involve a larger consumption of electric energy it might be relatively cheaper than the expense involved in importing coke for the water-gas process. Though the costs of production, according to the estimates of the Technical Mission, might have been slightly higher it would have been worthwhile from the standpoint of other considerations. Even with regard to the scale of manufacture there is no definite proof that a smaller scale than the one contemplated by the Technical Mission would be uneconomic. The plant under erection in Travancore by the American experts,

which is on a much smaller scale, is expected to operate economically.

TEXTILE INDUSTRIES

Among the textile industries of India manufacture of cotton fabrics has always occupied the most important position. It is the premier industry of India and will continue to hold its supremacy in the textile group. During the war period the cotton industry has increased its output from about 4,000 million yards to about 5,000 million yards contributing thereby its quota to the war effort. But the behaviour of the cotton mill industry under the stimulus of war has been rather unique.[1] Unlike other industries it has not attempted any type of structural or organizational adaptations to fall in line with the changing industrial environment in the country. The industry has not undergone any changes either in its plant capacity or in its technique.[2] The war has not contributed to any substantial increase in the size of the cotton mill industry. The total number of looms and spindles have remained more or less steady during the war years as compared with the pre-war year of 1938. So the plant capacity has not had any expansion commensurate with the war demands made on the industry. But there are definite indications of an improvement in the proportion of active spindles and looms as compared with the total. Along with this change there has also been an increase in the number of operatives in the industry by means of working multiple shifts. At Bombay and Ahmedabad a large number of mills started working night shifts to meet the increased demand. It is essentially by these two methods that the cotton mill industry has been able to produce the extra output necessitated by war requirements. The increase in the paid-up capital in the cotton mill industry appears to be due in the main to improvements

[1] See Author's *Future Prospects of War-Expanded Industries*, pp. 11–15.
[2] *The Indian Textile Journal*, November 1945, p. 127.

and replacements as there is no corresponding increase either in spindles or in looms. No doubt there has been a remarkable degree of adjustment in the productive processes as a result of which a much varied type of products more useful for war purposes have emerged from the industry. Some 168 different items of cotton textile materials required for defence services are obtained from cotton mills and handlooms out of which about 30 new types of fabrics are manufactured.[1]

There was an abnormal increase in the demand for the products of the industry under the war emergency. An interesting feature of this enhanced demand has been the opening of the new export outlets and the stabilization of the older ones. The Indian cotton industry has now practically a monopoly of the home market and the adjoining markets known as the Eastern Group of Nations. The exports to Australia increased from 3 million yards during the pre-war year to 75 million yards by 1942.[2] Thus there has been an enormous increase in exports and a corresponding fall in imports from Japan and the United Kingdom. This drain on the available supplies of piecegoods rendered an adjustment to home demand more and more difficult in each succeeding year of war. With the depletion of accumulated stocks the position became worse. The large war demand of the Supply Department had to be met and in consequence a drastic reduction in civilian consumption had to be enforced. The cotton mill industry had to reserve 35 per cent. of its production capacity to provide for war orders.

It is obvious from these facts that the manner of adjustment in the supply-demand position of the cotton mill industry is different from that of other similar large industries. The margin of increase in supply has been obtained merely by accelerated production and the increased demand

[1] *Industry Year-Book and Directory*, 1943.

[2] *Review of the Trade of India*, 1941–42, p. 48.

from the government and from abroad have been met at the expense of the local consumer. It may appear curious that a premier industry of the country like the cotton mill industry has not reacted in the direction of an increase in its output capacity in spite of the enormous rise in the demand for its products, while others of lesser importance have done so. The only probable reason for this might be that it was feared that any excess capacity created may have grave consequences when normal imports are revived. This is a legitimate fear as there are still uncertainties regarding India's future tariff policy and the industry was perhaps not prepared to have the experience of the depression of the twenties repeated. Its reaction is therefore to be interpreted as a frank recognition of the purely temporary character of the enhanced war demand. Having been extremely vulnerable to external factors the industry could not have taken any other alternative course.

It must be evident from the foregoing description of the behaviour of the industry during the war that it should have emerged from the war period with no disturbance in its pre-war locational pattern. It is quite likely that the output proportions of different production centres might have undergone a change due to the adoption of the multiple shift method to a greater degree at certain centres than at others. Corresponding to this difference there should have also been an increase in the number of employees in the industry at certain centres. This fact no doubt can be interpreted as an increase in the concentration of the industry in such centres because that has been the basis hitherto for calculating the location factors of the industry at different centres. But this is purely a temporary phenomenon even though it might have had its incidental effects on over-crowding and unhealthy living conditions. With the cessation of extra shifts the original locational pattern will automatically revive. Hence the cotton textile industry presents no permanent war-time problems of location for

examination. Its future however is not without significance. As suggested in an earlier chapter,[1] it is an industry whose location is mobile and hence easily amenable to policies of regionalization. Therefore when endeavours are made to reach higher targets of production a scatter of the industry has to be encouraged according to the needs for its products and the factor equipment of different regions.

WOOLLEN TEXTILES

The woollen industry is another section of the textile group but of very much lesser importance as compared with the cotton mill industry. The most significant war-time feature of this industry is the appropriation by government of its entire output capacity for war purposes. The industry was not allowed to produce anything for civilian consumption. It was only towards the end of the war that about a fourth of its capacity was released to be utilized for civilian needs. Such wholesale appropriation of the industrial capacity did not however cause the same amount of privation to the civilians as the shortage in cotton fabrics. The reason for this difference is that in pre-war days the Indian Woollen Mill industry has always had an excess capacity. The woollen mills in India never worked throughout the year but were busy only during the summer months to execute orders for the winter. The Indian demand was fully satisfied by this part-time operation. Importation from abroad was just a fourth of the indigenous production. During the war years however the mills were worked throughout the year and some of them had multiple shifts. But no substantial additions were made to the existing plants except certain adaptations of them to meet war requirements. It is therefore evident that no further expansion of the industry in the immediate future can be contemplated. On reversion to its peace-time purposes the industry will once again experience excess capacity.

[1] See *supra*, Chapter IV.

The war no doubt contributed to an accelerated activity not only in the mill section of the industry but also in the handloom and the small-scale knitting sections. But the war also caused some stagnation in certain other sections of the industry such as the worsted power-loom industry concentrated at Amritsar. As this section of the industry was depending on cheap imported worsted yarn its activities had to be suspended on the cessation of imports. Even the attempts on the part of the government to activise the looms for their own purpose was not fully successful due to other deficiencies. With the complete reversion of the mill industry for peace-time needs the handloom section is likely to suffer a setback. It is doubtful whether the powerlooms for worsted fabrics can once again revive their pre-war activity since the importation of cheap worsted yarn as in early days is problematic. The small-scale knitting machines may find the off-take of their fancy goods not adequate to keep them fully employed. Thus there appears to be an all-round excess capacity in the woollen industry in India.

It is obvious therefore that a further expansion and the consequent search for suitable locations may not be a pressing problem under economic reconstruction. Still there is a great need for some internal adjustments such as an increase in the plant capacity for worsted yarn in order to keep the worsted weaving and knitting sections active. So the locational problem of the industry may be confined to an assessment of the pre-war pattern. The industry consists of two sections, namely, the woollen section utilizing indigenous wools for producing blankets and rugs and the worsted section utilizing imported wool for making cloth for apparel. The locational factors influencing the two sections would therefore necessarily vary. The use of the indigenous raw material may have some influence on location. Theoretically speaking wool is a "pure material" imparting its entire weight to the product and thus having no raw material attraction for location. This fact should not however lead

us immediately to the conclusion that the industry should be located at the consuming centres. It depends upon other favourable factors. As between the raw material areas and consuming centres if there is very little difference in other factors the choice of location should be in favour of the raw material centres. In India there are a larger number of woollen mills using indigenous materials in North India than in the south. This is but natural, as in the north the raw material resources are relatively more abundant and consumption is also greater due to climatic conditions. With regard to the worsted section there is no pressing necessity for its location at the ports even though it depends on imported wool. The consuming centres are the best places for its location unless they are particularly deficient in other respects. The claim of the ports for the industry should therefore depend on their ability to offer other facilities cheaply. This is not likely, as other industries for which ports are more appropriate centres would have already been located there and the deglomerating tendencies will begin to operate. Hence from either of these standpoints it is difficult to reconcile oneself with the heavy concentration of the woollen industry in Bombay. Any further development of the worsted spinning section, which is a significant gap in the structure of the Indian woollen industry, should be at Amritsar where the power looms for using the yarn are heavily concentrated.

THE SILK INDUSTRY

The silk industry of India has undergone an enormous expansion during the war period. When it was decided by the Government of India to manufacture parachute cloth a necessity arose for augmenting the supplies of genuine silk for the purpose as the available quantity of it in the country was meagre. So a scheme was inaugurated by the Government of India to increase the output of filature silk by the installation of 3,500 new basins. Three important

centres were selected for the purpose, namely Bengal, Madras and Mysore. The Kashmir State was not included in the scheme as it had already a large silk reeling industry. Of these three centres Bengal and Mysore were expected to instal about 1,500 basins each and the remaining 500 basins were to be erected in the Madras Presidency. Thus the war has contributed to a substantial increase in the size of the filature section of the industry. A reversion of the industry to peace-time purposes may not be difficult from a technical standpoint. In fact the parachute cloth may be capable of a direct use for civilian needs. But from an economic standpoint the maintenance of the industry on its present scale may be a doubtful proposition. On the outbreak of War the Indian silk industry was almost on the verge of collapse and so it is very difficult to reconcile oneself with the idea of a profitable operation of this enormously expanded industry with the disappearance of the war demand. Even on the assumption of a complete prohibition of importation it is doubtful if the entire output would be absorbed in the country. The future development of the synthetic fibre industry within the country may be a serious rival to it. Unless the standard of living of the Indian masses increases severalfold as envisaged by the planners there may not be an adequate demand for it. Thus by no stretch of our scientific imagination can we foresee a peace-time off-take of its present rate of production. In comparison with this contingency the locational problem pales into insignificance. None can dispute with the choice of regions for its development by the Government of India. But everyone will anxiously look forward to the measures that the government is likely to devise for its maintenance. Having initiated the development of the industry the government cannot leave it to its own resources for future conservation. In the case of such developments which are likely to fill essential gaps in the industrial structure, such a policy may be economically justifiable. But wherever developments are

in the nature of excrescences in the industrial structure a greater degree of circumspection is required for adapting them for peace-time purposes.

SYNTHETIC FIBRES

In looking ahead at the future development of the textile industry it is necessary to assess the importance of synthetic fibres which have been making rapid strides during recent years. The rayon panel which is one among twenty-nine panels appointed by the Planning and Development Department of the Government of India have come to the conclusion that the rayon industry should be started in India. The importation of rayon alone, excluding other staple fibres, into India was to the tune of 37·5 million lbs. in 1939–40. This was exclusive of 54 million yards of rayon piecegoods valued at Rs. 2·1 crores. The total Indian consumption of both rayon yarn and fabrics was 48·3 million lbs. valued at Rs. 4·74 crores.[1] The future target of the prospective industry for India has been fixed by some at 2,000 million yards or 330 million lbs. on the basis of the 30 yards *per capita* of clothing laid down by the planners.[2] The target is determined on the assumption that at least one-sixth of the *per capita* consumption could be in rayon goods, the rest being made out of natural fibre. For a large majority of the Indian population silk fabrics may not be within reach and hence rayon products will be a good substitute.

During recent years there has been a tremendous increase in the world production of artificial textile fibres. The output of rayon nearly doubled between the years 1934 and 1942, it being 650,000 metric tons in 1942.[3] The increase in the production of staple fibre was even greater during the period. In the production of rayon, U.S.A. occupies the

[1] *Indian Finance*, January 26, 1946, p. 169.
[2] *Commerce*, July 14, 1945, p. 71.
[3] *Ibid.*, September 29, 1945. World Production of Artificial Textile Fibres.

first place accounting for nearly one-third of world production. In the U.S.A. the consumption of synthetic fibres increased from 87 million lbs. in 1920 to 6,562 million lbs. in 1943.[1] During the same period the increase in the consumption of natural fibres in the U.S.A. was less pronounced. The proportion of cotton to the total fibre consumed in U.S.A. declined from 87 per cent. to 80 per cent. between 1925 and 1942 and that of rayon increased by 10 per cent. It is estimated that the total world production of rayon in 1942 was equivalent to $8\frac{1}{4}$ million bales of cotton, which represents about 27 per cent. of the average consumption of cotton during 1935 and 1939.[2] In staple fibre Germany occupied the most important place, being responsible for nearly half the world output. Since 1942 there have been further increases both in rayon and staple fibre in the U.S.A.

There are different varieties of synthetic fibres the chief among them being rayon, nylon, vinyon and protein fibres. The most important feature of these synthetic fibres, as compared with natural fibres, is their adaptability in respect of length, fineness and gloss. Rayon is made from cellulose as the base though there are different processes of making it, the chief among them being the viscose process which is responsible for about 85 per cent. of the world output of it.[3] The competitive character of these synthetic fibres to natural fibres like cotton, wool and silk depends upon the differences in price and physical properties. The rayon is in a very favourable position with regard to price as there has been a substantial reduction in its price with an advance on the technological side. In respect of quality however it has not been able to displace silk. The world output of silk has remained stationary though rayon production has increased enormously during recent years. But rayon may be a keen competitor to cotton. Staple fibre which is nothing but

[1] *Indian Finance : op. cit.*

[2] *Journal of Scientific and Industrial Research:* December 1945, p. 332.

[3] Dr. L. Thoria : Progress and Prospects of Synthetic Fibres, *Commerce*, September 15, 1945.

rayon cut into fibres of definite length may become a formidable rival to long-staple cotton. The present price of it is the same as that of cotton yarn of similar quality.[1] This is a matter of vital economic importance to India at a time when she is endeavouring to increase her output of long-staple cotton. It is suggested that as a part of the national planning, attempts should be made to transform India's short-staple cotton into high tenacity staple fibre thus relieving her from the necessity of exporting short-staple cotton and importing long-staple cotton.[2]

Nylon cannot be a competitor to cotton due to its high price but it might displace silk as it is more akin to it than rayon and better in quality. With a fall in its price it will be a serious rival to silk in the near future. Vinyon due to its qualities cannot displace cotton but on the other hand it might create new uses for cotton in union fabrics. The Protein Fibres are derived either from milk or from vegetable products like soya-beans or groundnuts. These fibres are more akin to wool than cotton but in their present development they do not threaten to displace natural wool to any considerable extent. But with regard to all these synthetic fibres it is difficult to envisage their future development. With further advance in research they may become serious rivals to natural fibres. At their present development the position of cotton seems to be most vulnerable due to the development of the staple fibre.

With this background of the world development of synthetic fibres the decision in India to establish the rayon industry acquires particular significance. Its repercussions on the well established cotton industry have to be fully recognized lest the latter be undermined in a manner similar to the natural dyestuffs industry of India. However it has come to stay and though it might cause some initial dislocation in the old order of things it must find its proper place in

[1] Nazir Ahmad: *Journal of Scientific and Industrial Research*, p. 331.
[2] Dr. L. Thoria : *op. cit.*

our national economy.[1] But its development will not be without some benefit to the country in certain respects provided it is carefully planned. As observed already it can obviate India's dependance on other countries for long-staple cotton and can more easily achieve the national target of 30 yards of cloth *per capita* fixed by the planners. A beginning has already been made in India with regard to rayon manufacture. With the flotation of the Travancore Rayons, Ltd., recently, a new era in textile industry has been inaugurated. The concern is sponsored by the Travancore State and has an authorized capital of two crores of rupees. There is scope for a few more such factories in India if the envisaged programme of expansion is to be carried out. With regard to the location of these concerns there are two important factors which are likely to influence the final decision. It will depend upon the nature of the raw material used and the chemicals required for its manufacture. Those fibres which depend on the animal or vegetable kingdom for their raw material may be influenced by their availability to some extent. Otherwise it might be advantageous to locate it at centres where the chemical industry has developed because it is considered uneconomical for the rayon factory to have its own chemical plants. The fibres may be used either directly for producing fabrics or as mixtures with natural fibres. Either way consuming centres are not likely to exert much influence on their location.

OTHER INDUSTRIES

Apart from the three large groups of industries considered in the preceding sections there have also been appreciable expansions in some of the other industries of the country under the war stimulus. The most important among them are leather, glass, cement, paper, and timber. There has been a considerable expansion in the output of leather

[1] Nazir Ahmad, *Presidential Address*: *Indian Science Congress, Agricultural* Section, 1942.

industry to cope with the increased demand of the army. The tanning section of the industry increased its production by an acceleration of the tanning process and also by the addition of a few new tanneries working on a small scale. The original location of the tanning industry was however not disturbed by the war-time developments. In the manufacture of footwear the increased supply was obtained almost entirely by working extra shifts and by better organization. There was no addition either to plants or to the existing firms. In the harness and saddlery section there was a phenomenal increase in output. The Harness and Saddlery Factory at Cawnpore increased its output enormously to meet the war requirements. But as even this expansion was not commensurate with the demands made on the industry a new organization known as the Industrial Production Organization was established for enlisting the services of a large number of contractors for the fabrication of materials issued from the main factory. This organization consisted of five branch factories established in Cawnpore, Amritsar, Calcutta, Madras and Bombay. This organization is purely a war-time measure and will not be continued hereafter as the normal demand for its products can never be on that colossal scale. Therefore from the standpoint of location there will not be much disturbance in the original pattern. Grindery which is an important subsidiary industry to footwear manufacture was the chief bottle-neck for its expansion, as India depended for it entirely on imports. It consists of heel and toe tips, eye-lets, etc., and its indigenous production during the war reached colossal proportions. However its future development may not be an economic proposition as the technical optimum size of the industry is too large for Indian peace-time requirements. It is obvious that hereafter there must be a considerable shrinkage in the Indian leather industry. But the demand for footwear in India is likely to increase and as suggested elsewhere the footwear section of the industry may have to be

developed in some of the existing tanning centres in South India.

The glass industry in India has also undergone significant transformations during the war. The cessation of imports and the increased local demand gave it a great fillip for expansion. The industry has always been localised in the United Provinces due to its skilled labour and the availability of the few raw materials required for it. The war-time developments have not disturbed the importance of the United Provinces for the industry. Almost all sections of the glass industry increased their output involving in certain instances even the creation of a few new firms. The output of sheet glass in India has increased five times after 1938 and a new factory for the purpose was also set up at Kandra. The increased output in glass hollowware has been secured mostly by an improvement in the processes of production in the existing firms. New factories were set up for the manufacture of bottles at Ghaziabad and in the Benares State both being in the United Provinces. Glass fancy goods are now being made with Government assistance in a number of small-scale establishments in the United Provinces. The war has also provided an impetus for the manufacture of glass bulbs. The existing firms in Bengal and the United Provinces expanded their output and a new firm was started in the United Provinces with the assistance of the Supply Department through the provincial government. Most of the improvements and developments of the war period will have to be conserved for civilian use even by means of a large measure of protection. The United Provinces will continue to be the chief home of the glass industry as even the war-time developments have been mostly within that province.

The manufacture of cement in India is controlled by five important firms, two of which are in Calcutta, one in Bombay, one in Dalmianagar in the United Provinces and one at Bezwada in the Madras Presidency. Under the control of

these firms there are a large number of cement factories scattered all over India. The output of cement in India increased by about 25 per cent. to meet the war demand. The civilan consumption was very severely restricted. The increased output was obtained by an expansion of plant in the existing cement factories, as they were working even before the war to their full capacity. No appreciable increase seems to have taken place during the war period in the number of factories producing cement so that the original locational pattern has been left almost undisturbed. But the future of the industry is bound up with an inevitable expansion to meet the increased demand arising from the schemes of road development and bridge construction envisaged in the reconstruction programme. A large number of new factories may have to be started in different parts of the country. The location of the cement industry has greater tendencies for dispersion than concentration. This is due to two important factors, namely, the market attraction on account of the cost of transport of the finished product and the availability of its raw materials in a number of places. Its most important raw material is limestone having a material index above unity. In other words, to manufacture one ton of cement 1·6 tons of limestone are required. Therefore being a weight losing material it will attract the industry to its place of deposit. But as limestone is available in several places in India the industry can be dispersed. The other raw materials required are gypsum and coal. Of these coal may have a greater attraction to particular centres due not only to its presence in a high proportion in cement but also to its non-availability in several parts of India. On the other hand, gypsum deposits occur in several places and also its proportion in cement is negligible. So in determining the future location of the industry the demand for the product in different areas of the country and the existence of limestone deposits should be the two primary considerations.

The paper industry of India has worked to capacity to fill the gap in imports caused by the cessation of trade, on the outbreak of war, with Sweden and by the fall of Norway and Denmark. Even though raw materials like sabai grass and bamboo are available in the country, there has been an acute shortage of machine clothing, replacement parts and chemicals during the war period. In spite of these handicaps the production in the paper industry increased from 27,000 tons during the year 1939 to 71,300 tons in the year 1944. Though this is a substantial increase in output the significant gap in the Indian paper industry is the absence of the newsprint manufacturing section. So the chief preoccupation of the Government of India Panel for Paper constituted by the Department of Planning and Development has been to investigate the possibilities of manufacturing mechanical wood pulp and newsprint in India. There are already some projects under the consideration of the Government of India for the establishment of newsprint mills in the Kashmir State and in the Tehrio-Gharwal States in the United Provinces employing local fir and spruce.[1] The difficulty in this connection seems to be in devising economic methods of transporting the abundant raw materials from the forests to the places of manufacture. Surveys are already being made of the supplies of raw materials; and the methods of transporting them are also being explored. It is very necessary that India should have its own newsprint industry so that the present dependence on imports may be avoided to a certain extent.

There is also a necessity for a further expansion of the paper and board section of the industry to meet the anticipated future increase in its consumption. The starting of new paper mills and the expansion of existing ones may be necessary for the purpose. These problems along with the future location of the expanded industry are also under the consideration of the Paper Panel of the Government of

[1] *Commerce*, September 8, 1945, p. 316.

India. In regions where there are abundant supplies of suitable wood and bamboo the future paper industry can develop. There seems to be a great scope for the development of the paper industry in Assam and the Kashmir State. As the industry is amenable to a split in location the manufacture of wood pulp may be undertaken near the forest areas and the subsequent processes may be done at places near the consuming centres if they offer any special advantages for location.

The war has also witnessed a considerable expansion in the timber industries of the country. The saw milling section had not made much progress before the war and to meet the war requirements three new saw mills were erected by the Government. Two of them were erected in the Central Provinces and one in the Bombay Presidency. The greatest war development of the timber industry was in the plywood section. The demand was specially for the construction and repair of aircraft. The number of plywood factories increased from three in pre-war days to about thirty during the war. Originally the plywood industry was confined to Assam, due to its forest resources and the requirements of the tea plantations, and the Malabar coast. Among the new factories brought into existence Assam and Malabar had some share but most of them were distributed over a wide area including the Punjab, the United Provinces, Bengal and Mysore. There is bound to be a considerable shrinkage in this industry hereafter as the peace-time off-take of it cannot be commensurate with its present increased capacity. The factories that are wrongly located, such as those that are in and around Calcutta, would be the first to suffer in this process. Nearness to forest resources is the chief desideratum of this industry. The development in Assam can be profitably conserved as it is the most suitable area for the industry.

The foregoing description of industrial expansion in India in various directions under the stimulus of war would be

incomplete without a mention of some of the industries that have not expanded in either plant or output. The chief among them is the sugar industry. Though of recent origin the industry occupies a predominant position in the country. The progress from 1931-32 to the peak year of 1936-37 was spectacular. There was a setback in the next year when the low watermark of production was reached. The year 1939-40 was again abnormal as the output in that year was the highest ever attained in India. It exceeded by 12 per cent. the output of the peak year of 1936-37 and by 91 per cent that of 1938-39 which had the lowest recorded volume of output.[1] So there was a restriction of output in subsequent years showing a drop of 12 per cent. in 1940-41 and 29 per cent. in 1941-42. These indices show that the vicissitudes of the sugar industry were governed by causes entirely independent of the war. Even the total output has not grown steadily under the impetus of war as a fall is indicated in several of the war years as compared with the pre-war period.

A mention may also be made of certain industries in India that have actually suffered a shrinkage due to the war. It has been due mainly to a shortage of certain essential raw materials. There are not many industries that have experienced such a shrinkage. The only industry of a fairly large size which had to reduce its output is soap manufacture due to the shortage of caustic soda. In 1943 the output of caustic soda in India was 17,500 tons and the imports amounted to 25,000 tons. As already observed the chief gap in the Indian Chemical Industry was in the alkali group and caustic soda being the most important among them was deficient in the country. Even though the production of it was stepped up during the war the demand for it from the textile, paper and vegetable oil industries was so great that soap manufacture could not get it to the full extent of its requirements. Caustic soda had therefore to be rationed and hence all soap factories

[1] *Industry Year-Book and Directory*, 1943.

in the country could not maintain their output upto the level of their productive capacity. The established soap makers were rationed at 50 per cent. of their pre-war off-take of caustic soda, while no supplies were made to new concerns.[1] With the proposed development of the alkali group of industries in India such a contingency is not likely to arise in future. Besides, there is a great need for a further development of soap manufacture in India among the regions growing oil-seeds in large quantities like the Madras Presidency and the Hyderabad State.

CONCLUSIONS AND POLICY

A few main conclusions may be drawn from the detailed study of the impact of World War II on Indian industries undertaken in the preceding pages. There has been an all-round expansion of industries in the country and except in very few cases this has had an influence in changing to a certain extent the pre-war locational pattern of the country. In a war period considerations of expediency are likely to outweigh the normal scientific principles determining location. Administrative convenience and quickness in returns as compared with cheapness in cost of production would be the guiding principles in choosing sites for the establishment of new concerns. Consequently war-time changes in the locational pattern may not always be sound for peace-time purposes. Under regional planning an allocation of industries to particular regions would be the primary consideration. Therefore a reconciliation of war-time locational changes with the outlines of the regional plan evolved for India ought to be an important preoccupation in economic reconstruction.

The purpose of the study of war-time changes in location is two-fold. In the first place, it has to be ascertained to what extent the much needed development of industries which has occurred during the war period is in consonance with the regional demands of the country. Secondly, how best

[1] *Eastern Economist*, November 3, 1944, p. 489.

could those industries which have accidentally developed in appropriate regions be conserved for the future. There are greater chances however of an unhealthy growth of industries at centres which were already over-concentrated due to the external economies available among them. This is obvious by the increase of urbanization particularly at the important industrial centres. Provinces like Bombay and Bengal appear to have had the largest share in the war expansion of industries. From a social standpoint, this is a feature to be viewed with alarm in peace-time. Instances of industrial expansion in appropriate regions are few and far between and it goes without saying that they stand in need of all conceivable measures for conservation.

The future policy should therefore consist of two types of measures, namely, curative and developmental. The curative measures would consist of a rectification of the pattern of unscientific locations evolved during the war period. The importance of it has increased with the anxiety for a regional development of industries under post-war reconstruction. There are certain inherent factors aiding the curative process. Those developments which are in the nature of either excrescenses or of an abnormal nature judged from peace-time standards would automatically contract. The policy with regard to such contraction should consist of an elimination of those firms which have come to occupy wrong regions under the exigencies of war. The free play of economic forces may themselves bring about the desired result, but it might be a long-drawn process. The present impatience to secure a regional balance in industrial development may not accord with this *modus operandi*. Hence a conscious choice of the survivors among the firms should be made and indicated to the parties concerned. But the whole curative process cannot be worked out in co-operation with this inherent tendency for post-war contraction. There may be certain lines of war development which might show healthy signs of survival for peace-time needs.

It is relatively more difficult to deal with such expansions if they have occurred in inappropriate regions. In their case there is no other choice but to deliberately encourage their transfer to places or regions which are deemed more appropriate from the standpoint of economic or social considerations. Technically this suggestion may not be entirely impracticable as several such transfers occurred in the U.S.S.R. as a war measure.

The other measure of future policy may be considered as the developmental method. This method has reference to the new industries of the future. Some of them may be the outcome of the essential gaps in the structure of Indian industry revealed during the war period and others may be the result of the advance in scientific research. To the category of essential gaps will belong the non-ferrous group of metals and the alkali group of chemicals Similarly, to the category of industries arising out of advance in scientific research will belong the synthetic fibres and plastics. Some beginning has already been made in respect of a few of them but their full stature is yet to be reached. The manufacture of aluminium, caustic soda and rayon fibres have been initiated and they may be classed in the group of war-born industries. Under developmental policy their regional propriety should be re-examined and they should be fitted into the general scheme of regionalisation elaborated in the reconstruction plans. As there is still a great leeway to be made in this direction it provides us with an opportunity to explore the regional possibilities for their development. Herein lies the special advantage of India, as compared with countries which are more advanced industrially, for an effective realisation of her aspirations for a regional development of industries. The future expansion in these directions should be made to fall in line with the general principles of regionalisation. This is much easier than the curative process already examined.

So the two guiding principles of future economic policy are the conservation of the essential elements of expansion

and a judicious allocation of them to particular areas according to the regional claims. One great service that the war has done to India in the sphere of industries is the discovery of the mutual interdependence of important industries and the vital gaps in this respect in our country. For instance, the finished products of the Iron and Steel Industry depend for their success on adequate supplies of sulphuric acid, tin and oils. Similarly, the industries built around the natural vegetable raw materials like wood or cotton require a steady supply of sulphuric acid, caustic soda and other acids emanating from a fully organised heavy chemical industry. The manufacture of glass stands in need of an assured supply of soda ash. The success of the iron and steel industry itself depends upon the availability of requisite amounts of modifying metals and refractory materials. This important fact of inter-dependence was not fully realised until some of the vital supplies were cut off during the war. War expansion of industries has therefore been to a certain extent in the direction of filling up the essential gaps in its industrial structure. This has to be conserved and developed further. Plans of economic reconstruction have to assess the extent of industrial growth during these critical years and merge them with their long-range schemes of expansion. The war has left a heritage of a few war-born industries, some war-wounded industries and a large number of war-worn industries. Each of these three groups require appropriate treatment and economic planning cannot work *in vacuo* overlooking their claims. There is no dearth of Economic Plans in India to-day, but it is problematic if any one of them can lay claim to a comprehensive investigation of the progress so far attained which should be the starting point of the future schemes of development. Very few of them seem to view the problem from the correct perspective. As the entire new economic order of India depends upon the nature of these plans a critical analysis of some of them should be our next task.

CHAPTER VI

CONSTRUCTIVE PLANNING IN INDIA

IMPLICATIONS OF PLANNING

THE essentials of planning may be discussed at the outset to provide a theoretical background to an appraisal of some of the plans drawn up for the economic reconstruction of India. In its broadest sense any purposive economic activity with a definite objective involves planning. Therefore in its wider interpretation there is no distinction between social and economic planning. The special feature of economic planning consists of a choice between alternative means of attaining an objective which has been predetermined. It involves therefore an adjustment of scarce means to yield the greatest satisfaction. The actual technique of adjustment warrants a subordination of individual wills to a common plan of action. A complete negation of individual initiative is not however a condition precedent of successful planning. But a deliberate central control of the degree of individual freedom in economic decisions is an essential attribute of the machinery of planning. Economic planning always implies social readjustments because it has to be conducted within the social framework which cannot possibly escape its influence. In other words, the whole social structure is transformed by centralized effort in order to subserve certain predetermined ends. As a corollary it is expected that there would be a better adjustment between supply and demand reducing thereby the cyclical amplitude; and commodities would be produced at minimum costs per unit through a concentration of manufacture in optimum producing units.

The ultimate object of planning is to maintain human satisfaction at the maximum level consistent with the resources available in each nation. Generally under the

free price mechanism, satisfaction is expressed in a heirarchy of values. This may not always be the best scale of values judged from objective standards. Therefore the chief pre-occupation of a planning authority is the determination of a scale of values probably different from the one that normally prevails in a society. This initial step in planning is of outstanding importance, as the complexion of the whole economy depends upon it. The nature of the quantitative allocation of economic resources for different purposes and the extent of development in each direction depends largely upon the initial decision regarding relative values. In fine, the accepted scale of values imparts a new tone to the entire economic system. To give effect to the new scale of values it is necessary to produce either a different assortment of goods or the same assortment in different proportions. For this purpose the entire resources available within a sovereign political power have to be harnessed. It implies therefore that the State should be the agency for executing the plan. The role of the State here would be all-embracing unlike piece meal interventionism generally indulged in by modern States. Such interventionism may modify the market system to a certain extent but will leave the ultimate result indeterminate by allowing it to be governed by individual decisions. Planning therefore stands for a deliberately rationalized co-ordination of the various parts of the economic machinery instead of leaving it to the free play of economic forces to evolve by themselves some order out of chaos. Hence the aims of planning should be publicly defined and expertly approached. They should not be left to be achieved by the profit motive of private enterprise. Private money-making ventures may be efficient in executing certain parts of the plan for which they may be enlisted, but the entire scheme of economic life should be designed on a rational basis instead of leaving it to be shaped by an unknown hand. Planning therefore involves the direction of the economy of the State towards certain ends considered desirable from an

objective standpoint even though those ends may not be considered desirable by all.

The next issue is the economic constitution or the fundamental basis on which the planned economy should rest. The economic constitution of the capitalistic system consists of the private ownership of means of production. The individual's power of disposal over them is protected by legal order and enforced by the State. Can such a constitution subserve the aims of planning? In other words, is planned economy compatible with the economic constitution of capitalism? Opinion on this point is divided. Some economists are of opinion that without a central control of means of production planning will cease to be effective. Others feel that such a control need not be a vital part of planning. Before seeking a final answer to this controversial issue it may be advantageous to resolve another complication arising out of a desirability to control means of production. It is contended that ownership of means of production or a control over the power for their disposal tantamounts to the creation of a socialist economy. Reserving our judgment for the present over the relative merits of the socialistic or the capitalistic economy for the furtherance of the ends to be achieved we may emphasise that it is erroneous to consider planning and socialism as identical. They are two different entities though one of them, namely planning, has been an essential instrument in the attainment of the socialist order. Central planning is only a means adopted by socialism to attain certain ends. The same means with equal cogency may be used for ends other than those that are contemplated by socialism. Hence a control over resources implied in central planning need not logically develop into a socialistic system.

Reverting to the main issue under consideration it has to be categorically stated that a control by the State over the resources that are subject to the plan is an essential prerequisite of planning. A collective control has to be substi-

tuted for individual decisions regarding the disposal of resources. It would necessarily imply an abolition of the private ownership of means of production. But it need not involve either a control of the entire resources of a nation or the complete abolition of the institution of private property. Only such of those resources which are essential for the plan enunciated need be subjected to such control. The others may continue to be under private ownership until such time that either an extension of the national plan or a discovery of inconsistencies in the execution thereof warrants a further limitation on the scope of individual freedom in the allocation of resources. It is conceivable therefore that there can exist simultaneously two types of juristic ownership of means of resources under planning, namely, a State sector and a private sector in the ownership and control of means of production.

Strictly speaking it is doubtful if even this dilution of the forces undermining the economic constitution of capitalism can save capitalism from a large degree of mutilation judged from orthodox standards. But a fundamental consideration is whether capitalism by its achievements deserves to be maintained in all its purity. In putting capitalism to the acid test for this purpose we may subject it to three types of examination, namely, political, moral and economic. On political grounds capitalism is the economic counterpart of democracy. Democracy aims at the full development of individual personality by affording to everyone freedom to contribute what is best in him to contribute. But then such freedom is possible only on a basis of social justice which is unattainable under economic inequality; a significant bye-product of capitalism. The chief weakness of liberal democracy seems to be its failure to establish economic liberty or equality. This failure is largely attributable to its economic counterpart, namely, capitalism. It has greatly curtailed the right of self-expression of those that

are economically weak.[1] Though a complete equality of income is unthinkable it is not unreasonable to hold that something like an equality of opportunity is an essential part of a true democracy. A country is certainly more democratic if in addition to its political democracy it has a considerable measure of economic justice with social differences reduced to their minimum. Obviously economic liberalism in its achievements has fallen short of the expectation of political democracy. Therefore if the democratic ideals have to be fostered capitalism stands in need of significant modifications. Thus it has lost its support on political grounds.

There has also been a weakening in the faith imposed in the perfection of capitalism from a moral standpoint. The equity of the nature of distribution of national wealth that results from a system of free private enterprise is questionable. In terms of social values the distributive justice of economic liberalism is of doubtful validity. The pattern of distribution of wealth in any community is conditioned by the nature of the economic system that prevails in it and if the pattern is disapproved on moral grounds the economic system necessarily stands in need of correction. Besides the system of free private enterprise has proved itself incapable of achieving any social ideals, such as full employment or a national minimum, as the profit motive may not always square with welfare concepts. Therefore with a shift of emphasis to moral considerations, such as an improvement of the welfare of the community, the inherent weaknesses and the unsuitability of the capitalistic system is becoming increasingly apparent. Consequently capitalism is not entitled to lay claim to a moral support for its existence in all its pristine purity. Actually it is the application of the moral criteria that has revealed most glaringly the inequitable character of the system; and the

[1] The Rt.-Hon. C. R. Attlee: *Economic Justice under Democracy: Constructive Democracy*, p. 117.

critical attitude developed against it is largely attributable to it.

From the economic standpoint, which is perhaps the most appropriate test for judging its perfection, there are innumerable reasons for doubting its efficiency. The recurrent periods of depression and the endemic form of unemployment generally prevalent under the capitalistic regime have inculcated a feeling of disappointment about the propriety of the mechanism. In its actual operation the system rarely conforms to its basic assumptions. It is hardly justifiable to assume the existence of perfect competition as a regulator of either consumers' choice or producers' preference. Consumers never have a full knowledge of the various alternatives available to them and producers have realised that the mobility of factors has never been perfect being impeded by the large size of production units and the consequent inability of a new unit to enter business.

Apart from the operative inefficiency of capitalism there are grave doubts about its survival for the future even if it is not tampered with under the process of planning. It threatens to break down not so much by its economic failure but by its very success.[1] Its success has gradually undermined the social institutions which have protected it. Capitalism is an evolutionary process and the impulse which infuses life into it is the creation of new methods and new things and the destruction of old. It is a process of creative destruction. There are several achievements to its credit, the most tangible among them being the increase in the total quantum and the rate of output. But it requires for its success an incessant flow of objective opportunities for exploitation. But such opportunities are not inexhaustible. There appears to be a gradual diminution among them and it is problematic whether without them capitalism will be equally successful in the future. Investment opportunities are vanishing due to a stationary or declining population

[1] Joseph Schumpeter: *Socialism, Capitalism and Democracy*, p. 61.

in some of the Western countries; and the modern technological methods are mostly capital saving. There are no doubt new opportunities for investment even now, but they are mostly spheres for public rather than private enterprise.

Further, in the course of its evolution, capitalism has generated a few forces of a self-destructive character. Capitalism by its achievements has automatised progress, thus rendering itself superfluous. The entreprennial function has itself become obsolescent as economic progress is getting more and more depersonalized. The corporation form of business organization with its absentee and disinterested shareholders have dematerialized and defunctionalized economic activity. In other words, the institutional framework of capitalism is being gradually destroyed and the social position of the entrepreneur undermined. Then again the cultural complement of capitalism in the form of the middle class intelligentsia is a product of the capitalistic process. But it has turned hostile to capitalism by the rationalistic attitude developed by it. It has become extremely critical of the institution of private property because of its higher education and inadequate employment. Thus having created the intellectual sector, capitalism has been unable to control it. Finally, capitalism has also been responsible for the disintegration of the bourgeois family leading to the genesis of an anti-saving theory among them. The rationalistic outlook of the capitalist era alters the mode of life and weakens the family ties. Thus what was once the essential motive force of the capitalist order is now contributing to its decomposition. The corporation form of business has largely socialised economic activity and the scope of capitalist motivation has been narrowed. Thus capitalism has generated forces of self-destruction and may break down under their pressure even if it is severely left alone. No doubt, all these components of the tendency, though discernible everywhere, have not yet fully revealed themselves.

The only apologia for this long digression is to establish on a firm basis the claim for State intervention implied in planning, which would necessitate fundamental changes in the economic constitution of capitalism. From the political standpoint a State control of means of production is virtually a limitation of individual freedom and thus undemocratic, but it will be instrumental in bringing about a greater degree of economic equality which is a necessary condition of sound democracy. This is preferable to the Communist or Fascist alternative where individual personality has much less scope for development. Thus a collective control over resources implied in planning is conducive to the establishment of a sound political democracy. On moral grounds the only method of scaling down inequalities of income is by means of exercising control over means of production. In the economic sense capitalism could be saved for the future only through State intervention at certain crucial points. The justification for saving it rests on the belief that there is still much potential good that capitalism is capable of but its evils have to be eschewed. We can therefore tentatively conclude this controversial issue by stating that even though the existing economic constitution of capitalism is incompatible with planning, capitalism as such need not vanish from the picture of planning. It may continue to function with a change in its constitution.

Having discussed in detail the case for a collective control of resources in place of individual decisions, some space may be devoted to a consideration of the objectives of planning. Planning is always done for some purpose and consequently an evaluation of ultimate ends is a necessary concomitant of it. The assumption here is that instead of the individuals deciding the proximate and ultimate ends the State does it and imposes it on the community. Hence without a discussion of the ends of planning the means lose much of their significance. So far as economic theory is concerned it makes no difference whether the ends in the form of a

scale of values is laid down by the consumers or the State. In the choice of the aims of planning, however, certain incompatibilities are likely to arise. If, for instance, maximum *per capita* production is adopted as an aim it might involve the ruin of certain industries vital to life. Similarly, if absolute equality is aimed at it might involve a loss of incentive to work and a consequent fall in the production of wealth. Hence a compromise between ends considered essential has to be effected. This is quite feasible as planning may be done for several ends instead of one. There need be no extreme planning in any one direction. People may prefer to be poor rather than be planned beyond a point.[1]

The next problem for consideration is the freedom of choice of the consumer under planning. The very fact that a scale of values determined by the State is to be imposed on the community implies that the consumer's freedom of choice is largely restricted. But it is pertinent to inquire its reactions on the people. It is contended by some that the consumer does not always know what is best for him. Even if we do not go to that extreme point, but credit the consumer with ample judgment we have to reckon the social costs of a free choice. Such costs are not fully justified for a purpose of doubtful efficacy. As a matter of fact there is more of consumer's preference than consumer's sovereignty even in an entirely free society. So some restriction of consumers' freedom is an implied condition of planning. But to ascertain the consumers' demand the pricing mechanism and the market system are necessary under planning. It is a means of allocating goods and services. It should however be borne in mind that planning would provide for a large amount of communal consumption.

The most vital problem of a planned economy is the organization of production. As we have already observed, the

[1] Claude David Baldwin: *Economic Planning: Its Aims and Implications*, p. 63.

initial step in planning is the determination of the needs and the extent to which they should be satisfied. Among them an order of priority has to be fixed as between goods yielding the highest satisfaction and those that satisfy wants that are less intense. Having decided about priorities a given quantity of resources is to be divided among different uses in certain proportions. This is the quantitative problem in planning and perhaps the one that is not easily amenable to a solution. This process of allocating the factors of production for different predetermined purposes according to their order of importance is known as Economic Calculation. In a competitive society the allocation of resources is governed by the profit motive. Under the normal market mechanism, just as the variation in prices of consumers' goods indicate their relative scarcity similarly the variation in costs indicate the relative scarcity of resources. Thus the interaction between prices and costs determine the direction of productive activity in the uncontrolled capitalistic system. Here even though the solution may not be absolutely perfect it has the merit of being automatic. In a planned economy, the basic mechanism for such an allocation does not exist, as the private ownership of the means of production and an established market for the same would disappear. So it has given rise to grave doubts whether rational calculation would be possible to equalise consumers' demand in a planned economy. There are two schools of thought on this vital issue. Some economists like Pareto, Barone and Schumpeter among others feel that economic calculation is theoretically soluble in a planned economy. Others like Mises, Robbins and Hayek are of opinion that without a free market and price mechanism economic calculation is inconceivable. There is however a consensus of opinion among several economists that economic calculation is after all not an impossible task in a planned economy provided certain conditions are observed. It is suggested that factors of production may be allocated by means of a process of

successive approximation.[1] Values have to be imputed to factors from time to time until a full employment of factors is attained. In this manner the accounting costs of factors can be determined. Thus the absence of private ownership of resources in a planned economy does not entirely deprive us of the criteria for directing productive activity.

So far several important issues concerning planning have been examined in some detail. At this stage the various threads in the foregoing discussion may be gathered and a synthetic picture of planning presented. Incidentally a note of warning may be struck about the limited potentialities of planning so that all exaggerated notions of its probable contribution to human welfare may be dispelled. Some indication may also be given of the extent to which planned economy may have to borrow the apparatus of capitalism even though it might adapt it for its own purpose. At the outset it is necessary to emphasise that planning implies not State intervention but full State control. Unless the State has the power of disposal over all the resources to be planned it cannot plan economically. In simple language planning means the utilization of available resources in the most efficient manner to attain certain predetermined objectives. But so long as resources are scarce, planning cannot lead to plenty. Planning cannot increase resources; at least not to the extent of relative over-abundance. If such a stage is reached there would be no economic problem and no need for planning. So long as scarce means have to be allocated to alternative uses according to the intensities of wants, some wants will always remain unsatisfied. Hence planning is not a magic word, it can only economise resources to increase the aggregate satisfaction.

The primary purpose of planning is to attain certain ends which have to be publicly defined. Hence under planning, Economics cannot disinterest itself in the nature of ends. Ends, however, should neither be conflicting nor out of

[1] Claude David Baldwin: *op. cit.*, p. 126.

relation to resources available. When they happen to conflict a compromise is the solution and when they are out of relation to resources they should be pitched low. The disappearance of the free market mechanism need not necessarily checkmate the allocation of resources. It could be done through a process of successive approximation by imputing values to the factors of production. Planning may have to borrow some of the apparatus of capitalism or in other words planning may have to modify the existing machinery of capitalism to suit its own purpose. For instance, money will come in as a measure of relative values and categories of land and capital or their counterparts rent and interest will appear as costs of production in a planned economy. In respect of wages strict equality is difficult to attain. Differential incomes and occupational choice may be necessary in the interest of efficiency of production. It is doubtful whether planning can completely eliminate unemployment and the trade cycle which are characteristic features of capitalism. Some degree of unemployment due to technological progress is bound to exist. There is no consensus of opinion about the control of the trade cycle through planning.

Economic theory offers no resistance to planning. Planning offers no resistance to Democracy. A heterogeneity of ends is consistent with sound planning. Therefore one of the ends of planning may be the retention of Democracy and even the elevation of it through the attainment of greater economic justice. As the ultimate purpose of all planning is to secure greatest human happiness the retention of Democracy through a compromise of ends is worth while. Extreme planning may have a tendency to undermine the basis of liberal democracy and create an atmosphere favourable for the development of a Dictatorship. Planning needs no dictators.

AN APPRAISAL OF RECONSTRUCTION PLANS

With an exposition of the theoretical basis of planning the stage is set for a detailed examination of some of the

important reconstruction plans drawn up for India. Among most of these plans practically all aspects of human well-being including social and cultural reorganizations of society are taken into consideration. In this work however only such of those recommendations among them which impinge on the industrial aspects of development are examined. No doubt the economic well-being of a society depends to a large extent, though indirectly, on social and cultural transformations. The exclusion of those aspects in this work is to be justified purely on the ground that the scope of our enquiry has been deliberately narrowed down from the outset in order to present a more detailed picture of one of the segments of planning and perhaps the most important. The other segments which contribute towards the formation of a comprehensive plan have been assumed to be evolved in due course as they depend to a considerable extent on the increase of national income by a development of economic activity.

Another feature of our treatment in the following pages may stand in need of an explanation at this stage. No attempt is made here either to appraise the details of the financial estimates given in the plans or offer alternative estimates based on independent calculation. This is deemed unnecessary in a work dealing mainly with the formulation of policy about regional planning and hence interested essentially in relative magnitudes rather than absolute estimates. Further the main theme of this work has been to ascertain the natural dynamics of industries in order to harmonize the tendency with a policy of regional planning. For a theme of this nature estimates based on regional potentialities are more relevant than generalised evaluations based on past record on the one hand and future desired targets on the other. Finally the most important argument against any such estimates is that no individual planner due to serious limitations regarding the availability of data and want of expert knowledge is competent enough to make any

reliable estimates. That part of the plan may therefore be left more advantageously to the regional and national authorities. The academic nature of the suggestions of economists will not be impaired by this omission.

The reconstruction plans may be subjected to two types of approach. At the first stage their common features and their differences in approach may be ascertained. At a later stage they may be examined critically on the basis of the essentials of planning as enunciated in the previous section. There are some elements which are common to almost all the plans. These elements are assumptions that are sometimes based on facts. The starting point of almost all the plans is the poverty of India and the necessity to improve the standard of living in the country. The Bombay Plan envisages a doubling of the *per capita* income of the people. The Gandhian Plan emphasises at the outset the abject poverty of the people and the necessity to raise the material and cultural level to a basic standard of life. Similarly the Peoples' Plan aims at a rise in the standard of living though it is considered futile to calculate the probable rise in the *per capita* income during the period covered by the plan. Similarly the second report on Reconstruction Planning by the Government of India emphasises that the ultimate object of all planning is to raise the standard of living of the people. The universal agreement on this obvious fact implies that a plan for India is to be primarily developmental in character. There is also a consensus of opinion among the plans that the poverty in the country is due to low productivity. So the essential difference between planning in the West and in India is that whereas they plan for full employment in the West, planning in India should be for improving the standard of living through an increase in productivity. Nevertheless there is an implicit assumption of full employment among the Indian Plans. The low productivity in India is attributed to certain factors on which there is a large measure of agreement among planners. In

the first place it is attributed to a certain organizational flaw in the economic system. Though this is interpreted differently by different groups of planners it is felt by all that a change in the economic system is warranted. Nextly, the low productivity in certain directions is traced to the nature of the legal framework that governs the economic machinery. For instance all planners are conscious of the fact that the system of land tenures, the laws of inheritance, the managing agency system, etc., are factors retarding economic progress in the country. There is also a feeling, explicit among some plans and implicit among others. that some sort of exploitation prevails in the country. While some plans consider it as foreign exploitation others accuse certain sections of the society as responsible for it. However all plans lay stress on the desirability of establishing greater equity in the distribution of national wealth.

Low productivity is also attributed to a few non-economic factors such as illiteracy, low vitality due to ill-health and insufficient food, etc. Measures for the increase of literacy and improvement of health are therefore suggested by all planners. There is also a universal recognition that the distributive system has to undergo a thorough reorganization to undo the glaring inequalities of income existing in the community. Though the measures for achieving the desired results may be different it is felt by all that it must form an important feature of planning. Another common feature of most of the plans is the colossal amounts of expenditure that is envisaged for purposes of reconstruction. Though the degree of importance attached to finance as such varies among the plans it is accepted that a mobilization of resources, whether monetary or real, on a stupendous scale is necessary. Lastly, practically all the plans take a comprehensive outlook by including all aspects of economic and social life within their purview of planning.

There are however some significant differences in their method of approach to the problem. The most essential

difference is with regard to the form of economic organization on which the planned economy should rest. It is obvious that this is a question of vital importance, as the entire tone of the economy depends upon a decision regarding the nature of its organization. The Bombay Plan and the government report on reconstruction planning envisage the continuance of the capitalistic system though with a large degree of central control over some of its vital parts. This view is not without support from other quarters as well. The fostering of individual initiative is upheld ever since the idea of planning dawned in India. In his "Planned Economy for India," Sir M. Visvesvaraya points out that the basic policy of Indian plans should be to encourage collective effort without interfering with individual initiative.[1] Similarly N. R. Sirkar in his "Economic Planning" asserts that though planning may mean a greater degree of State initiative it should not mean a rigid delimitation of the scope for private enterprise.[2] The same view is expressed in a negative manner by some economists. For instance, Dr. Mukherjee says that Socialism and Communism is not the *sine quo non* of planning.[3] Similarly P. C. Jain says that planning is possible under every system of political organization. He also expressly states that planning may not be inconsistent with private property and inequality of income.[4] Thus these views support the thesis that planning within the capitalistic structure is quite feasible provided suitable modifications in its operation are incorporated.

There is however a very strong view that planning and capitalism are inconsistent with each other. The Peoples' Plan is in favour of a socialistic reorganization of our society. According to the Plan the raising of the standard of living does not depend merely on planning but upon the kind of

[1] M. Visvesvaraya: *Planned Economy for India*, p. 8.

[2] N. R. Sirkar: *Economic Planning: Economic Problems of Modern India*, Mukherjee & Dey, p. 195.

[3] R. K. Mukherjee: *A Preface to Planning*, Mukherjee & Dey, p. xxxvi.

[4] P. C. Jain: *Economic Planning: Industrial Problems of India*, p. 294.

plan that is evolved. The Soviet experiment is taken as the model for India and it is categorically stated that a change in the motive of production is not possible on the basis of the existing unrestricted private ownership of resources. Obviously the Plan is not content with the type of central control over the capitalistic machinery that is envisaged in the other plans. According to the spirit of the plan capitalism is to be eschewed as an undesirable evil. The profit motive and private enterprise are considered incompatible with the ideal of production for well-being. A similar view is held by B. C. Ghose in his " Planning for India ". According to him a full development of a planned economy is possible only under a socialistic form of Government though he admits in another place that Capitalism is still possible in India.[1] He does not agree with a combination of State control with capitalism as the latter cannot function in the straight jacket of controls. He fears that when the various aspects of economic motivation, such as wages, interests and profits are controlled there cannot be much incentive left for private initiative. By inference we can conclude that according to him planning in the full sense of the word would be successful only in a socialistic form of organization.

In the Gandhian Plan the approach to the whole question of the economic constitution is different from the two alternatives given above. It has no faith either in Capitalism or Socialism for achieving the Gandhian ideals. Both of them are likely to come in conflict with one or other of the Gandhian principles. The Soviet Plan is discredited on the basis of its extreme centralized control and large-scale planning. It is contended that individual liberty is bound to be crushed and liquidated under such an extreme form of control. The evils of it are manifesting themselves in the form of a powerful Dictatorship developing into imperialism particularly after its return to nationalism. Finally the Plan states that even though the Soviet plan may satisfy the

[1] Bimal C. Ghose: *Planning for India*, pp. 3–5.

principle of livelihood unlike the Nazi or American plans it provides no scope, in the absence of freedom, for the development of the individual. So the solution, according to the Gandhian plan, lies in simplicity, decentralisation and cottage industrialism. It is hardly necessary to say that the plan is not in favour of the retention of capitalism in any form. Talking of the American 'New Deal' and British Planning the author of the Gandhian Plan states that they are mere attempts to set capitalism on a firm basis so that it could exploit the poor. Hence the economic constitutions of either Capitalism or Socialism are considered unsuitable for the purposes of the plan. A revival of village communities with adequate emphasis on agriculture and subsidiary industries is suggested as the basis for the unfolding of the plan.

Thus there are radical differences in the approach to the problem of planning in India on the vital issue of the economic constitution which has to serve as the edifice on which the superstructure is to be constructed. A reconciliation of such extreme views is not an easy task. So it may be more beneficial to examine the underlying reasons for such divergence. Those that are opposed to capitalism in any form because of their admiration of the achievements of Socialism feel that any form of private vested interests is in contradiction to true planning. But so long as there are no inherent incompatibilities between planning and capitalism it may be worthwhile to examine whether the good features of Socialism and Capitalism cannot be combined in judicious proportions. As N. R. Sirkar says, in the formulation and execution of a plan for India we shall have to rely on the combined efforts of the State and private enterprise. He further emphasises that certain parts of the plan are perhaps best left to private enterprise.[1] When the opposition to Capitalism arises out of a desire to recast the entire framework

[1] N. R. Sirkar: *Economic Planning: Economic Problems of Modern India*, Mukherjee & Dey, p. 208.

of our society, as for instance in the Gandhian Plan, Capitalism has no defence as it will certainly be incompatible with such ideals. But in that case the propriety of the new model for modern society may itself have to be examined before any of the familiar economic constitutions could be dismissed as unsuitable for the purpose.

Another important difference among the plans is with regard to the degree of emphasis placed on various types of economic activities to be developed in the country. In the Bombay Plan the manufacturing industry receives greater emphasis than agriculture though an all-round development is contemplated. This is implicit also in the reconstruction planning of the Government of India. Sir M. Visvesvaraya has always placed great emphasis on the industrial development of the country. But in two important plans there is a shift of emphasis to agriculture. In the People's Plan agriculture is considered to be the basis of the planned economy and consequently should receive greater attention than the development of industries. Similarly in the Gandhian Plan there is a great emphasis on the development of agriculture and subsidiary industries. As a corollary there is also a difference in the priorities for the production of economic goods. In the Bombay Plan and the Gandhian Plan basic industries such as power, mining and the manufacture of capital goods are given greater priority. But in the People's Plan consumers' goods industries receive a priority next only to that of agriculture as it is necessary to meet the increasing purchasing power of the rural community. The basic industries have to be developed a little slowly. In the Gandhian Plan it is contemplated that most of the consumption goods would be supplied by cottage industries and since the latter have to receive the greatest attention, by inference we can conclude that consumption goods industries will have a priority over basic industries. With regard to cottage industries the views held by the plans are again divergent. The Bombay Plan and the Government Plan fully recognize

the important role that the small-scale industries can play in any scheme of planning for India but they do not go to the same extent as the Gandhian Plan in exalting its importance almost to the point of eliminating large-scale industries. The People's Plan goes to the other extreme of not being in favour of much development of small-scale industries as they are against the spirit of their plan. A similar attitude is discernible among those who believe that cottage industries are incompatible with mechanization.[1] It may also be observed incidentally that there is no general agreement about the detailed methods of developing either industries or agriculture. These differences are traceable to some extent to the conception of the authors of the plans about the economic constitutions governing the community.

There also appears to be a difference in outlook regarding international trade relations. Though all the plans provide for such relations some of the plans contemplate a closed system to a greater degree than others. Comparatively speaking, the People's Plan is less conscious of such relations than either the Bombay Plan or the Government Reconstruction Plan. The Gandhian Plan definitely states that international trade should be controlled. Taking next the problem of war and the transition all plans are not uniform in their recognition of its implications on future planning. The Government of India Reconstruction Plan is perhaps the only one that is conscious of its repercussions on future planning. Consequently measures are suggested for dealing with them and merging them with a long-range policy. In the Bombay Plan it may be inferred that the transitional problem is implicit to a certain extent. But it is conspicuous by its absence in the People's Plan and in the Gandhian Plan. There may be an important justification for its absence in the Gandhian Plan. Since the whole structure of the economy is to undergo a radical change according to the plan the remnants of the war economy should disappear along with

[1] A. C. Chakravarthy: *Bengal Plan*, p. 11.

the old order. But there is no similar justification for its absence in the People's Plan. Measures for conserving or reconverting the war economy should naturally find a place among plans which contemplate the erection of a superstructure on the existing framework.

There is no consensus of opinion about the methods of financing the schemes. In the first place, there is a difference in the aggregate sums to be expended. Even with regard to the sources of finance there are differences among the plans. In the People's Plan a greater emphasis is placed on the self-financing character of the scheme. The item of created money which looms large in the Bombay Plan finds no place in the People's Plan. In the Gandhian Plan there is a provision for internal borrowing and created money but there is no mention of external finance; as an export surplus is not contemplated in the scheme unlike the other plans. Lastly, a mention may be made about the freedom of consumers' choice permissible under the plans. There appears to be a general agreement on the necessity to impose certain restrictions on consumers' choice. This of course is implicit under any variety of planning. With regard to the provision of communal consumption there is an acceptance of its necessity by almost all plans except the Gandhian Plan which ignores it as unnecessary under its scheme. Thus there are significant differences in the standpoints of the plans drawn up in India. This examination has revealed the fact that there are more points of dissimilarity than resemblance in the angles of approach of the various plans. Some of these plans may now be individually subjected to a detailed criticism so that the correct principles of planning for India may be evolved in the course of such discusssion.

CRITICAL STUDY—THE BOMPAY PLAN

The object of making a critical examination of the plans individually is to lay bare some of their shortcomings which are evident when tested in terms of the essentials of planning

enunciated in an earlier section. A knowledge of such defects would be helpful in the formulation of the correct principles of planning. The Bombay Plan is taken first for this purpose as it can easily claim to have acquired the greatest popularity during recent years. Though other important plans have preceded it the publication of the Bombay Plan synchronized with a period when the whole nation was much agitated over the enunciation of an appropriate policy for the future. This partly explains the impatience with which the general principles of the plan were accepted without subjecting the details to a critical examination. It is the spirit of the plan, so far as it goes, that really counted at such a time rather than its defects on the technical side. At a later stage however on a closer scrutiny some of its shortcomings became more obvious.

The initial criticism that should be levelled against the Bombay Plan is that it is more a statement of aims than a working model. What India needs is a working model ready for immediate application rather than the statement of a few ideals however desirable they may be. The starting point of the plan is the national and *per capita* income of the country. According to their aim the *per capita* income should be doubled within a period of fifteen years. When the growth of population at the existing rate is taken into account it implies that the national income should be trebled for the purpose. This mode of approach is not always the best for planning the economic reconstruction of a country. It is not the existing or the desired *per capita* income that could be the basis of reorganization. A more scientific approach is to assess the actual and potential resources of the country on the basis of which further development could be estimated. Sufficient research in this direction seems to be absent and hence the plan lacks an objective approach. The planners should have made a detailed estimate of the resources for each industry and their regional distribution before launching on the difficult campaign of drawing up

a plan. No realistic plan can proceed on such assumptions regarding fundamentals. It is no doubt a fact that the existing surveys of mineral and other resources are not quite exhaustive, but still they provide ample information about existing and potential resources and their distribution, which could serve as a basis for drawing up a workable plan. A close scrutiny of the data provided by the available official surveys shows that there are serious limitations to be overcome before the productive capacity of the country could be indefinitely multiplied. To ignore altogether this aspect of planning merely on the charge that the published data is unsatisfactory is to ignore the essential basis of planning. A thorough investigation of the factor equipment of the country ought to precede any attempts at planning either on a national or a regional basis. Further exploitation of resources may proceed simultaneously with the execution of the plan but the initial plan ought to be based on existing knowledge. Plans are at best tentative and when more information about resources is gathered they could be suitably altered. This lack of objectivity in the Bombay Plan has led the authors to the fixation of several unattainable targets. As B. C. Ghose says, the essential weakness of the Bombay Plan is the yawning gap between its far-reaching objectives and the means and machinery proposed to reach them.[1]

There is a large degree of arbitrariness in pitching aims and fixing proportions for the development of different economic activities. There does not appear to have been much research into the practicable degree of expansion either in industry or agriculture. The proportions in which the different parts of the economy could be developed depends largely on the potentialities of each country. It is impossible to go in any direction beyond the technological possibilities of the country and hence under a scheme of reconstruction the resulting pattern of industrial structure could be varied

[1] Bimal C. Ghose: *op. cit.*, p. 63.

only within limits. It does not depend upon the aspirations of the planners. No doubt within a certain margin it may be possible to vary the pattern but the cost of such variation should also be reckoned with. Therefore it is futile to fix aims and proportions without a bearing on the economic potentialities. The Bombay planners have not convinced us, even with regard to a single industry, whether the resources are adequate for the realisation of the aims pitched by them. Another serious defect of the plan is that the different phases of the plan appear disjointed and therefore do not present an integrated scheme each of whose sections is an organic part of the rest. An economic plan is comparable to a living organism and the functioning of its parts must be related to each other. Therefore the planners should have studied the development of the various phases of their scheme according to their appropriate time sequence and merged them with each other. Such a synthetic treatment is not only absent but the aims fixed in different directions are such that they would conflict with each other and refuse to yield to any co-ordinated development. The extent of increase in each type of industry would necessarily depend on the aims of other industries. As we will see at a later stage, the target fixed for the *per capita* consumption of cloth is likely to come in conflict with the food policy of the plan. Lastly, there does not appear to be much correlation between basic and consumers' goods industries. The extent of the basic industries depends on the aims of the consumers' goods industries which in their turn depend ultimately on resources.

One more serious lacuna, to be least expected in a plan drawn up by industrial magnates, is the paucity of information and guidance on the methods and technique of production to be employed to achieve their objectives. The manner in which the resources should be exploited and the measures for improving the existing equipment are matters on which they alone are competent to pronounce a verdict but guidance in this respect is unfortunately lacking. The scarce and

abundant factors in the country and the optimum proportions in which they could be combined have not been indicated. If this had been done we could have gained an insight into the technological possibilities on the basis of the actual and potential resources of the country. If many weak links in the chain of planning processes were discovered the aims should necessarily be altered. Incidentally. it would have thrown very useful light on the probable increase of national income and would certainly have been a surer guide than the imaginary assumption that it could be doubled within a period of fifteen years. On the technical side another serious omission is the absence of any suggestion about the method of economic disposal of excess output in any particular direction resulting from an approximation to optimum production. A feeling of necessity for such a provision would have dawned on the planners had they taken a synthetic view of the entire plan. Technically it may not be always feasible to adjust output in any one direction exactly to the requirements of the other parts of the plan. Hence to absorb the excess output wherever they arise supplemental measures may be absolutely necessary. Finally there is no indication of much thought having been devoted to the possibilities of importing resources to make good the deficiencies within the country. So long as a closed system is not contemplated this is a matter of vital importance for the furtherance of the plan. Planners are under an obligation to clearly indicate the extent to which the economic structure that they envisage is dependent on external resources. Further on the basis of their requirements they should also give appropriate direction to national effort for the exploitation of further resources within the country.

In the Bombay Plan there seems to be an implicit assumption of static conditions. Planning does not mean merely a reorientation of past effort. Neither can it be worked out *in vacuo* assuming static conditions. The only dynamic factor taken into consideration in the plan is the growth of

population. But there are several other dynamic factors which have also to be reckoned with before evolving a practicable scheme. The industrial readjustments during the transitional period and their consequential deadweights have to be merged with long-range plans. Of equally great importance are the probable changes in the composition and the direction of international trade in the future. The pattern of the future world economy and the type of adjustment that it might require are some of the dynamic factors which should influence the technique of the planners. It is against these and with these dynamic factors that plans ought to be formulated. The planners should therefore set out the nature of the governmental policy for keeping some of the disturbing factors in check, in the interest of the plan.

The phenomenon is also dynamic in another sense. The various parts of the developmental scheme set out in the plan may mature at different rates and hence on different dates. They will certainly not mature according to the convenience of the planners. Hence the plan must expound the measures it proposes to apply for merging the schemes in proper sequence according to their rates of growth. In the Bombay Plan the rates of maturity of the different phases of their scheme have not been correctly estimated and dovetailed. For instance, the consumers' goods industries have to depend on production of raw materials and release of capital goods. Similarly the capital goods industries would depend on the release of trained personnel from institutions. So the interdependence of various parts on their mutual rates of maturity is an essential attribute of a truly dynamic plan. It is a non-recognition of this fact that has made most of the plans in India still-born. It is obvious therefore that it is unscientific to have a clear-cut division of five-year periods for purposes of planning. Planning is a dynamic process and the transitional character of it at every stage should be recognized. This is particularly important for a country like India which is not economically

as advanced as some of the Western countries. Since every part of the economic machinery of India has to be geared up, the rates at which they will mature should be estimated and made part of the plan. This is a matter on which very little thought appears to have been devoted in the Bombay Plan.

The Bombay Plan also steers clear of essential difficulties on a few important problems, such as the scope of small-scale industries, the delimitation of public and private sectors, the extent of development of each of the important industries and the exact sphere of State operation. While emphasising the importance of small-scale industries as a means of affording employment and of reducing the need for capital they are chary of giving concrete suggestions regarding the choice between large and small industries under particular circumstances. Even if particular industries could not be examined, a few general principles governing the choice, under the peculiar circumstances in India, could have been laid down. In the absence of them, the growth of the two types would be largely influenced by non-economic factors. With regard to the delimitation of public and private sectors they evince a certain amount of unwillingness to set down a definite formula. The compromise formula suggested by them, namely, that in all cases of doubt certain units of the industry may be owned and managed by the State and others left to private enterprise, is not in the least scientific. The choice between industries should be based on certain fundamental principles which are not impossible to evolve. When once the choice is made there is no further point in allowing some of the units to be managed by private enterprise and others by the State. The hope that each of them might emulate the methods of the others is in direct contradiction to the fundamental principle on which public and private sectors ought to be divided. The object of State ownership and management is neither to learn from nor teach private enterprise the most efficient methods of operation.

Besides their division of industries for State control as distinct from ownership does not appear to be quite satisfactory. According to their classification, except manufacture of war materials and post and telegraphs, others need not be owned by the State. Vital industries like public utilities, monopolies and industries using scarce raw materials are to be subjected only to a State control. On the other hand, these are the most important among the industries to be nationalized at the very outset. The National Planning Committee is emphatic in its statement that public utilities should be owned by some organization of the State.[1] Even with regard to new industries it would be much more advantageous to lay down that only those having a national importance should be started and owned by the State for ever. The question of a subsequent transfer to private enterprise should not arise in their case. These are not akin to pioneering factories. In the case of others however encouragement in the form of financial help may be afforded. That is a policy falling in an entirely different category. Therefore the failure on the part of the planners to lay down the fundamental principles that should govern the delimitation of the two sectors has left the exact sphere of State action rather vague and undefined. From the little that they have said about the sectors of economic activity it could be gathered that the public sector is too narrowly circumscribed. Their views about the nature of State control are no doubt acceptable in the main but it should apply only to a narrower field than what is envisaged by them. Lastly, they give us no guidance about the extent to which each of the important industries should develop. Giving priorities between different types of industries is not an answer to the extent of development in the individual industries within each group. Guidance on this issue would be influenced by two factors, namely, the aims in other directions and resources for each industry. As such a related study is conspicuous

[1] *Handbook of National Planning Committee*, p. 57.

by its absence in the plan this aspect of the problem has also been conveniently ignored.

THE PEOPLE'S PLAN

Many of the general criticisms in the foregoing sections based on the fundamental principles of planning are also applicable to the People's Plan. So a repetition of those general criticisms may be avoided here and our attention may be concentrated on some of the special features of the People's Plan. The main emphasis of the plan is placed on the importance of developing agriculture in order to increase the purchasing power of the community. It is said that the chief difficulty of developing large-scale industries in the country is the meagre purchasing power of the people. According to the plan improvement in this direction could be effected only by concentrating on agriculture, as it is the main source of employment. But in doing so the Plan is unwittingly advocating the maintenance of the present *status quo* of occupational distribution. The present proportion of agricultural population is too high and involves a large amount of under-employment. With scientific agriculture a larger volume of produce ought to be secured with a smaller proportion of agricultural population. Consequently, the existing pattern of occupational distribution should be expected to undergo a radical change. It follows therefore that an increase in the purchasing power of the community should be secured by developing other economic activities. Hence a disproportionate reliance on agricultural development for the purpose of increasing the purchasing power of the community appears unscientific. The note of warning struck in the plan that a neglect of such an emphasis on agriculture will lead to a consolidation of a Fascist Economy is not well founded.

With regard to industrialization the general attitude of the Plan is towards a restriction of the private ownership of resources. Production should not be for profit and hence a

change in the motive for production is recommended; as production for well-being is incompatible with profit motive and private enterprise. So far the ideals are laudable but the measures suggested for achieving the same are not free from defects. It is suggested that consumption goods should be sold at a price which would be within the reach of a large majority of people. As this may not be feasible under a system of private enterprise, since the return on capital would be meagre, they should be financed entirely by the State. It is a matter of doubt whether all consumers goods industries could be undertaken by the State. In deciding the public and private sectors the criteria chosen should be such that the national interests are safeguarded wherever they are likely to be undermined by the influence of the profit motive. Therefore an indiscriminate appropriation of all consumers' goods industries by the State may be futile. The field of activity permissible under the Plan for private enterprise is among those industries where capital has already been invested. They have to be brought under control and the prices of their products should be fixed by the State. It is suggested that to compensate them for the low prices there should be an assurance by government of a revenue of 3 per cent. on privately invested industrial capital. Such a guarantee, we are afraid, might give rise to a lack of incentive and consequent inefficiency. Even if subsidization of general consumption in a community is to be approved as a practicable measure it is a matter of extreme doubt whether the method suggested by the Plan is the best. It would be much more scientific to reduce the profit margins in every individual case to an extent that is safe from the standpoint of incentive for enterprise and leave the prices to find their own level in relation to such margins. Lastly, the idea of a reinvestment of profits in industry seems to be based on wrong expectations, as there may not be a sufficient margin for investment when prices are fixed very low deliberately. When a 3 per cent. guarantee on privately

invested capital is contemplated it must be obvious that no margin for reinvestment would be available.

THE GANDHIAN PLAN

This Plan is based essentially on the Gandhian principles of simplicity, non-violence, sanctity of labour and human values. The details of the plan could be appreciated only when these basic ideals are retained as the background. It should be obvious that a reconciliation of these principles with the modern methods of industrial organization is difficult. Hence the entire economic structure and the institutional framework of society have to be reordered. A revival of the village communities with adequate emphasis on agriculture and subsidiary industries is therefore contemplated in the plan. These changes in the institutional framework are considered incumbent to achieve the spirit of the plan. Now the most important consideration is whether the economic organization designed on such lines would be capable of adequate output to raise the standard of living of the people. This could be judged by examining a few details of the plan. To a certain extent the plan contemplates the retention of some parts of the existing economic organization as it has proved inevitable. The consequence of it is that there are a few gaps in the proposed plan due to the irreconcilability of the two patterns. For instance, all consumption goods are expected to be produced by the cottage industries, but at the same time a development of the basic industries is also envisaged. Now the question is whether the basic industries can operate efficiently if they have only to cater to the limited needs of cottage industries. There is very little guidance in the plan about the manner of their development. Nextly, while international trade is to be controlled some amount of importation from abroad appears to be implicit in the plan. But it is not suggested what the export commodities ought to be and under what conditions they should be manufactured. Lastly, there are no concrete suggestions

regarding the manner in which the public utilities and other key industries should be operated.

These omissions in the plan are the natural outcome of the difficulties to reconcile the concurrent and parallel development of two types of economic organization. Besides the system contemplated is difficult to work particularly when dealings with the outside world are expected to continue. It may probably be feasible in a completely closed system. It is also difficult to decide whether the existing equipment on modern lines should be completely scrapped. So even though the plan is highly idealistic it may be rather difficult under the present circumstances to work it in practice. Two important conditions may be necessary for its success. In the first place it may require no less than a social revolution unlearning all that has been learnt about economic activity for over a century. Secondly, it may require for its success an entirely closed system, but in that case it is doubtful whether all the necessary resources could be found within the country and whether the resulting standard of living will be fairly high. The standard of living is bound to be low as the extreme reliance on cottage industries implies a smaller amount of capital equipment per worker. In the absence of such favourable circumstances it is not wise to be optimistic about its success. The plan no doubt embodies some of the highest ideals which reflect the cultural heritage of India, but the people with their present outlook may not be capable of rising to that idealistic level which is necessary for such an extreme transformation of their institutions. Further the system even when achieved may not fit in quite appropriately with the structure of the world economy.

GOVERNMENT RECONSTRUCTION PLANNING

The Government reports on reconstruction planning are certainly more comprehensive than most of the plans so far drawn up in India. They incorporate an extensive consideration of almost all aspects of planning. But the chief

defect is that they only indicate the lines on which planning should be done rather than being a plan in itself. In other words, what the Government have given us is not a blue print for immediate execution but only the outlines of a vague policy. Even in this none of the theoretical implications of planning and their adaptations for Indian conditions have received adequate consideration. The primary assumption in these reports is the maintenance of the *status quo* with regard to the political and economic organization except for a greater degree of State interference in economic matters. But the exact nature of State intervention has not been defined. In its absence it is difficult to infer the repercussions of State intervention on the market system. No doubt there has been some clarification of this issue by the Planning Member in his statement of Government's Industrial Policy, but even that is not as comprehensive and revealing as it could have been.[1]

Though the reports are comprehensive in the sense that all important issues have been given a place there is no intensive analysis of any of the important problems; particularly the manner of reorganizing the industrial structure. The general lines of development have been indicated but this is to a considerable extent common knowledge. A few details about the reshaping of the industrial structure envisaged by the Government would have been extremely valuable in giving a lead to the others concerned. There should have also been a more definite statement of policy on vital issues like the delimitation of public and private sectors, the degree of nationalization and the sphere of private enterprise. It is but natural to expect such information particularly from a government. The country would be anxious to know not only what the State is likely to do but also what it will not do in a planned economy. The absence of this guidance is primarily responsible for the limited private response that

[1] *Statement of Government's Industrial Policy*, Planning and Development Department, 1945.

was forthcoming for the call from government for co-operation in the reconstruction of industry. There could also have been a more definite statement about the fiscal policy of the government. The Tariff Board can only work out the details of the policy and hence its findings need not have been awaited for the pronouncement of the basic policy. An unequivocal statement on that issue would have indicated the nature of the atmosphere in which reconstruction planning had to be carried on.

However the Government Plans are much more realistic than others as they are alive to the transitional problems which are likely to have an important bearing on future planning. They lay a greater emphasis on transitional measures than the other plans. For instance, the transitional policy of the government has been defined regarding important issues like the orderly disposal of war equipment and stores and the absorption and reconditioning of demobilised personnel. But the government are certainly in a position to give more information about the exact degree and direction of divergence in industries during the war period and the future policy regarding them. This should have been quite easy for the government, as a special enquiry was conducted about industries catering for war needs. Planning in the transitional period would depend to a considerable extent on this knowledge and the policy appropriate for it. No doubt the reports refer to the planning of conversion of the war-time economy for peace purposes, but there is absolutely no indication about the methods of conversion that are likely to be adopted. The reports should have enlightened the public about the conversion policy that is formulated and the machinery to be set up for the purpose. This is certainly the primary step in industrial planning which follows a war period.

The priorities for the development of individual industries have not been laid down on the ground that it would be feasible only as the plan develops. Except power development

which receives a high priority the others have not been given any definite rate of expansion. But it is necessary to realise that power cannot develop economically unless there is a minimum base load and therefore it is absolutely necessary to plan for a co-ordinated development of all the vital parts of the economic machinery deciding their probable rates of maturity. In other words, the integrated character of power and industrial development is not fully recognized in the plan. The constitution of the Central Technical Power Board is no doubt a step in the right direction, but its functions could have been more clearly defined. One of their important functions ought to be to determine the type of power and the extent of its development for each area in relation to the existing and potential industrial demand in it.

Finally, the Government reports say occasionally that planning in India should be on a regional basis, but no further interest is evinced in that direction for the amplification of that idea. The Government would have rendered a great service if they had demarcated the regions and specified an industrial policy for each of them. Such an attempt by them would have had the claim to call itself a blue print of reconstruction. By being vague on this important issue the Government reports have surrendered their right to lead the country on perhaps the most essential feature of planning. This could have been very conveniently done by the Government, as they have been in exclusive possession of all the valuable data about regional resources collected during the war period. In conclusion, it might be said that for purposes of drawing up detailed blue prints ready for application no other private body is in as unique a position as the Government. Being in possession of all information regarding economic changes during the war period and having all the concerned departments under its control, the Government could have produced a detailed blue print of planning. From this standpoint the two reports published by the Reconstruction Committee of Council are rather disappointing. As

the transitional policy of reconversion depends to a considerable extent on the nature of the long-range plan, the longer the detailed plan is delayed the more uncertain will be the mode of reconversion. In view of these facts, by no stretch of imagination can the reports on reconstruction planning be considered as detailed blue prints of future policy.

ESSENTIALS OF AN IDEAL PLAN

The discussion has now reached a stage at which the offer of a few constructive suggestions is incumbent lest the work be considered negative in its contribution. It would be convenient to give the suggestions in two sections. In the first section an outline of the fundamentals of planning appropriate under modern conditions may be given. This will be based largely on the theoretical implications of planning, but the details of the picture will receive adequate emphasis. These fundamentals are expected to be universally applicable. In the second section the Indian application of these fundamentals will be attempted. Here there is no intension of going beyond indicating the correct approach to planning. Detailed estimates of the financial implications of the various parts of the plan are outside the purview of this work. An estimate of real resources is however made in order to substantiate the position taken in the unfolding of the plan.

AN OUTLINE OF FUNDAMENTALS

There are four important general factors influencing the organization of an orderly economic development of a country. In the first place, the aims of the proposed development should be specified. Secondly, the resources available within the country should be carefully assessed. Thirdly, the methods or the technique to be employed for achieving the aims should be laid down. Lastly, the means, that is, the plant and equipment available for the purpose have to

be indicated. An important consideration with regard to all these four factors is that they are closely interrelated. The aims should not be out of proportion to resources, actual and potential. The method to be followed would depend upon the type of resources in the country in relation to the aims to be achieved. Then again the means would depend on the methods to be applied and the aims to be realised. A recognition of the interrelated character of these four inevitable factors in planning would give us a warning that an independent approach in any one direction is not likely to yield satisfactory results. While proceeding with each of them the probable influence on it by the rest of them should be retained in the background. Further in the case of each one of these factors the development in any single direction is likely to be considerably influenced by the progress envisaged in other directions. For instance, the aims fixed for different objectives cannot be entirely independent of each other. This is because the resources available for broad categories of economic activities have to be further allocated, due to their limitations, in certain proportions among them. This is the rationale of prescribing priorities within each category of economic development. Similarly with regard to methods and means the claims of all activities within each broad group have to be assessed before finally deciding the type of technique and the nature of plant and equipment appropriate for any single purpose.

The next fundamental decision is with regard to the nature of the economic constitution in which planning has to function. A verdict can be given even on that extremely controversial issue without much fear of contradiction. From the discussion in the foregoing sections it must be obvious by now that a carefully modified capitalistic structure would be the most appropriate form of economic constitution for planning. The justification for this conclusion is the experience of Russia which having commenced with an entirely socialized structure had to relapse gradually to the capitalistic

organization to a considerable extent.[1] If the evils of capitalism are eschewed, as indicated earlier, it is the only economic structure *par excellence* which would yield the best results. It implies therefore a large measure of State control of economic activity. The consequential changes in the economic structure are a delimitation of public and private sectors of production. It would also involve a change in economic policy and procedure. The economic policy of *laissez faire* must give room to a strict vigilance and control by the State of the private sector. The economic procedure of allocation of resources within the public sector would be by the process of successive approximation. Lastly, the economic machinery for operating the system would be largely capitalistic with all its normal manifestations. The price mechanism, the market system, differential incomes and occupational choice would all find a place in the planned economy.

This technique of planning when unfolded in its geographical setting gives rise to the concept of regionalism. When the general aims and methods of planning are determined the execution in parts on the basis of economically determined geographical areas yields the best results. These results are efficient in two respects, namely, lowest unit costs and maximum human welfare. Costs are bound to be at their lowest when resources are exploited at their most appropriate places. In other words, locational theory should find an application in the regional approach to planning. The actual locational tendencies of industries in relation to regional resources have to be determined at the outset and any desired readjustments in the interest of a balanced regional development should be effected. Any lacunæ in mobile economic resources in certain regions may have to be provided from other regions under central guidance. So industrial planning on locational lines is the ideal to be sought under the device of regionalism. From the stand-

[1] N. R. Sirkar: *Economic Policy and Programme for Post-War India*, pp. 8–9.

point of human welfare a regional approach to planning assures a more even distribution of occupational opportunities. National planning may increase the total quantum of output, but regional planning distributes widely its origin and hence its appropriation. Incidentally it might be pointed out that planning should necessarily lead to a better distribution of the national wealth so that there will be a greater aggregate social welfare. Hence the methods of distribution should be correlated to the aim of increase in national wealth. Therefore in a planned economy even though the freedom of choice of the consumer may be curtailed to a certain extent the scope of communal consumption will considerably increase. Lastly, co-ordination is the key word in planning. There should not only be regional co-ordination but also technical co-ordination. The regional activities should be co-ordinated in the interest of the national plan. Technical co-ordination consists of measures for adjusting the outputs in different directions and for the economic disposal of excess output in certain directions necessitated by technical considerations.

INDIAN APPLICATION—TARGETS

The adaptation of the fundamentals of planning enunciated in the previous section for Indian conditions will be the next task. The aims of planning in India are only statements in concrete terms of the requirements of the population. These requirements are based on objective standards wherever they are available and on relative standards when such objective criteria are absent. In the case of food supply, for instance, the existing shortage may be estimated on the basis of nutritional standards determined by experts. In the case of clothing, on the other hand, the requirements in the country may be estimated on the basis of the *per capita* consumption of cloth in other countries making suitable provision for the differences in climatic conditions. Thus the aims are generally fixed in India on the basis of the requirements of

its population. But in fixing aims in all directions it is of enormous importance to relate them with the resources in the country. If that is done the relative inadequacy of the resources in the country would at once reveal itself. Hence the fixation of aims is not such an easy task, as it is generally imagined. Particularly when targets are fixed in different directions independently of each other they are of not much practical significance. Therefore targets based on requirements cannot be definitely fixed. Plans for India can only broadly specify aims. They may be more definite in their assessment of material resources and the methods and technique to be employed for their exploitation. This important truth about the fixation of targets is realised by very few among the authors of plans in India. In support of this view a quotation from N. R. Sirkar may be appropriate in this connection. He says: "Although targets are necessary in the plan itself, I do not propose to suggest any for the simple reason that they cannot be finally fixed until the fullest possible consideration has been given to the resources on hand and the additions thereto which are immediately possible".[1]

In the general criticisms levelled against some of the plans it has been indicated that there appears to be a large degree of arbitrariness in the fixing of some of the targets to be reached. It has already been emphasised that targets should as far as possible be related to the actual and potential resources available for the purpose. Otherwise neither the targets nor the plans will have a sense of realism which is so necessary to infuse confidence in the minds of the public. No doubt a high target and an assurance to reach them is heartening, but vague assurances cannot carry conviction for long. Either at the stage of preparation of the blue prints for planning or when the executors of the plans actually come into grips with realities the untenable assumptions of the planners would get exposed. In order to illustrate one such vulnerable position of the Bombay Planners,

[1] N. R. Sirkar: *op. cit.*, p. 25.

a few details about the Indian cotton industry are given below so that the reader may form an opinion about the futility of fixing targets without adequate inquiry into either the existing position or the potential resources of the country. A comprehensive inquiry of all industries and their respective resources on these lines is necessary to judge any plan in its entirety, but as such a study is not practicable within the compass of this work only one industry has been chosen to serve as an illustration.

THE COTTON INDUSTRY

The cotton industry is selected for the purpose as it is one of the most widespread among the industries and consequently more amenable to development in a number of places. This characteristic facilitates the reaching of a target more easily as the favourable factors available in each area may be fully exploited so that the industry might approximate towards its optimum from the national standpoint. Further it is an industry yielding a product which is directly helpful in raising the standard of living of the masses. It should therefore be of particular concern to the planners. In what follows the position of the cotton industry in India in the year 1939–40 is depicted. The year chosen may be considered normal in several respects and the disturbances due to the war had not yet commenced to exert their influence on it. Besides by that time the industry had attained its full development which even the war has not been able to improve upon as the increased output under the stress of war was largely due to a more accelerated production through multiple shifts and by bringing inactive looms into active operation.[1] In other words, there was no substantial increase in the capital equipment of the industry after the year 1939–40.

In the year under review there were 355 mills in British India and 65 mills in the Indian States. Among the

[1] *Vide* Author's Book on "Future Prospects of War-Expanded Industries" pp. 11–12, 1945.

provinces in British India, Bombay had the largest number and Madras came next with about a fourth of its number. Bengal and United Provinces were the only other provinces of some importance, though insignificant in comparison with Bombay. Among the Indian States Baroda had the largest number. The other States of importance were Mysore, Hyderabad and Gwalior. In respect of looms and spindles, Bombay obviously occupied the foremost place. In Bengal and U.P. there were a larger number of looms individually as compared with Madras. But Madras had a spindleage which was much higher than that of Bengal and U.P. taken together. This is probably explicable on the basis of the enormous development of handloom industry in the province and the consequent absorption of local mill yarn by them. Among the States except for Baroda there was no significant difference in the position of looms and spindles among the leading producers.

The total quantity of yarn and cloth produced in British India was 1,031 million lbs. and 710 million lbs. respectively. The contribution of the Indian States in yarn was 203 million lbs. and in cloth 166 million lbs.[1] The provincial contributions in respect of yarn and cloth to the Indian total varied enormously. Barring Bombay whose output of yarn was about half the aggregate and whose output of cloth was about three-fourths, Madras and United Provinces were important producers of yarn and U.P. and Bengal were important in respect of cloth. The total amount of Indian cotton consumed in various provinces was about 3,120 thousand bales of 400 lbs. each. Madras and U.P. were the only significant consumers coming after Bombay.[2]

The position of the handloom industry is by no means unimportant judging from the fact that about 25 per cent of the total cloth was estimated to be contributed by them

[1] *Statistical Abstract for British India*, 1942, pp. 626–28 (Taking 4·3 yards per pound the total woven goods was 3,782 million yards).

[2] M. P. Gandhi: *The Indian Cotton Textile Industry*, 1941, p. xi.

in the year 1939–40. The estimated handloom production in that year was 181 crores of yards out of a total of 616 crores of yards available for consumption. The total cotton consumed by the handlooms is estimated to be 450,000 bales by the Indian Central Cotton Committee.[1] With regard to the importance of handloom industries in different provinces, judging from the annual consumption of yarn, Madras occupies the foremost place and U.P., Punjab and Bombay come next in order of importance.

Analysing the export and import position of cotton cloth in India we find that in the year 1939–40 about 221 million yards of cloth was exported and about 579 million yards of cloth was imported. It is thus estimated that out of the total of 616 crores of yards available for consumption in the country about 65 per cent. was supplied by indigenous mill production, about 26 per cent. by handloom production and about 9 per cent. by imported piecegoods.[2] So the *per capita* consumption for the year 1939–40 worked out at 16·65 yards.

The picture so far drawn will not be complete unless some information is also given of the inter-provincial movement by rail and river of raw cotton and piecegoods. Such information is necessary to study the position of each region with regard to the industry and to ascertain the degree of their dependence on other provinces for cloth. For purposes of a regional approach in helping the development of an industry an idea of the existing inter-regional trade is necessary. The inter-provincial movements of raw cotton indicate the sources where it is available and the places which are in need of it for conversion into yarn or cloth. The largest importers are Bombay, Madras and U.P. indicating the growth of cotton industry among them. Among the exporters of raw cotton Punjab is the most important

[1] *Estimates of Area and Yield of Principal Crops in India*, 1940–41, p. 17 (foot-note).

[2] M. P. Gandhi: *op. cit.*, p. xxi.

province as its output of raw cotton is enormous, but the development of the cotton industry is not commensurate with it. Among others Sind, Central Provinces and Berar and the Nizam's territory are fairly prominent clearly indicating the undeveloped nature of their cotton industries. The movements with regard to piecegoods will throw some light on the inter-provincial dependence for cloth over and above what is locally manufactured either by the mills or the handlooms. The largest net importers of cloth are Punjab, U.P., Bihar and Bengal. Among other important importers there is a fairly large export of cloth and consequently the net deficit is not much. The chief exporters of cloth are Bombay, Madras and Delhi. The exports and imports at the chief port towns indicate the foreign trade which has already been considered. This indicates the deficit provinces with regard to cloth and the necessity for developing the industry in those regions if other favourable circumstances are available.[1]

So far the industrial aspect of the problem has been considered. We may next take up the agricultural aspect in order to assess the resources on which the edifice has been constructed. The total area under cotton cultivation in India was about 21,580 thousand acres in 1939–40. The provincial distribution of this total though widespread is prominent only in certain provinces like Bombay, Central Provinces, Hyderabad, Punjab and Madras. The output of raw cotton is however largest only in Punjab due to the high yield per acre. The others in order of importance are Central Provinces, Bombay, Hyderabad and Madras. The total output of raw cotton for India was 4,909 thousand bales of 400 lbs. each.[2]

So far a cross section of the Indian cotton industry has been taken to examine the regional contribution to its component parts. Now we have to make an attempt to superimpose a new pattern on it based on the targets fixed by the

[1] *Statistical Abstract for British India*, 1942, p. 86.

[2] *Estimates of Area and Yield of Principal Crops in India*, 1940–42, p. 17.

planners for the future development of the industry. The Bombay Planners consider that an average consumption of at least 30 yards should be attained within a period of about fifteen years.[1] In other words, the *per capita* consumption of 16·65 yards of the year 1939–40 should be nearly doubled. Actually at the present time the *per capita* consumption is much lower than what it was in 1939–40. The Supply Member in giving some figures concerning cloth production pointed out at the Central Assembly that the *per capita* for the year 1944–45 was only 13¼ yards.[2] However a doubling of the output may be taken roughly as the target aimed at in the plan.

In examining the prospects of its success a few important considerations are necessary, the chief among them being the possibility of increasing the cotton output within the country to about twice its present volume. In the year 1937–38 for which reliable statistics are available there were about 197 million acres under food crops and about 49 million acres under non-food crops.[3] The proportion between the two was 74·4 per cent. for food crops and 25·6 per cent. for non-food crops. Out of the total area under non-food crops cotton cultivation was responsible for about 31 per cent. If therefore there should be a doubling of cotton output there should be a further increase of 8 per cent. in the area under non-food crops leaving the new proportions at about 34 per cent. for non-food crops and 66 per cent. for food crops. While it is already being felt that commercial crops ought to be discouraged in view of the precarious food position in the country it would be rather difficult to reconcile oneself with such an increase. Further, during periods of stress it is the area under cotton that suffers due to a substitution of paddy. During the recent war under

[1] *A Plan of Economic Development for India*, Part I, p. 9. In the People's Plan about 50 yards of cloth is considered as the minimum requirement, p. 40.

[2] *The Hindu*, January 30, 1946.

[3] *Agricultural Statistics of India*, 1937–38, p. 3.

the " Grow More Food Campaign " grants were made from the Cotton Fund to assist the cultivators in diverting their lands from cotton to food crops.[1] Hence any attempt at an extraordinary increase in the area under cotton at the expense of food crops cannot be of much success.

The other alternative measure is to bring new land into cultivation for cotton. But even though it is estimated that about 10 million acres of culturable waste exists in the country it is doubtful if much of it would be available for cultivation and particularly for cotton cultivation as there is no information as to what part of it consists of soil suitable for cotton cultivation. The Food Grains Policy Committee have categorically stated that it is a mistake to consider that the cultivable waste could be easily brought under cultivation.[2] If supposing endeavours are made to reclaim such land under a long-range policy of reconstruction, the foremost claim on it would be by the food crops, as the existing situation in this respect is most vulnerable. Consequently there does not appear to be much ground for any convenient supposition that the increased output of cotton could be obtained by bringing new land under cultivation.

An increase of output through intensive cultivation is therefore the only available alternative, but the scope for such increase also appears to be rather limited. Through intensive cultivation of the existing area under cotton the yield may be increased. But in this respect Dr. William Burns does not lay down any target. He thinks that the production of 1940–41 may be taken as the maximum production of cotton for peace-time conditions.[3] That means no direct increase from the present area under cultivation should be expected. It is possible however that by means of an intensive cultivation of cereals a larger quantity may be obtained from a smaller area and thus some land may be released for other

[1] *Report of the Food Grains Policy Committee*, 1943, p. 20.
[2] *Ibid.*, p. 25.
[3] *First Report on the Progress of Reconstruction Planning*, 1944, pp. 40–41.

purposes, such as cotton cultivation. Dr. Burns considers that there can be an increase of about 30 per cent in the yield of rice through intensive cultivation.[1] But in view of the deficiency of protective foods in India all such available land would primarily be requisitioned for its cultivation rather than be allowed for cotton cultivation. It is obvious that the present food policy of the Government is likely to collide at several points with the target fixed by the planners for cloth production. When relative weights are given to these objectives the food requirements would certainly outweigh the claim for an increased consumption of cloth. It should be quite evident by now that a non-recognition of some of the salient factors would render the fixation of targets absolutely futile. The Bombay planners do not seem to have taken all relevant factors into account while fixing this target. No estimates seem to have been made either of the existing position with regard to area and output of cotton or the extent of potential development. Targets will not be of much practical importance unless they are scientifically related to the available resources. In their first report on Reconstruction Planning the Government of India have expressed in most emphatic terms that in formulating the targets of production it will be necessary to keep in view the technological possibilities of agricultural production in the country.[2] Further, if the Bombay Planners had taken a synthetic view of all aspects of planning they would have devoted some consideration to a possible conflict of their target in one direction with the shaping of national policies in other directions. This is exactly what is discovered in the analysis that is attempted in the foregoing sections. Hence it is essential to realise that targets are at best relative and can never be absolute.

There is another perspective from which the problem could be viewed, namely, the regional standpoint. The best results

[1] *Ibid.*, p. 40.

[2] *First Report on the Progress of Reconstruction Planning*, Government of India, 1944, p. 39.

in planning could always be expected through a sectional approach to it. Therefore the position in the provinces may be examined further with the help of the data already provided about their output of raw cotton and piecegoods. By looking at the provinces individually we might be able to discover the unfilled gaps in each area so that attempts could be made to develop in those directions. Two types of enquiry are necessary in respect of provinces, namely to find out where more cotton can be grown without disturbing the food position and which are the places where the cotton mill industry should develop further. Among the good producers of cotton two of the important places, namely Bombay and Madras, are deficit provinces in food supply and as such any further development of cotton cultivation is not advisable. Therefore the Punjab and the Central Provinces are the only places with perhaps Sind on which we have to rely for the entire increase of raw cotton. But, as we have already seen in an earlier place, Bombay depends to a very great extent on Punjab and Sind for its food supply.[1] Hence it is very difficult to determine to what extent those two provinces could take up cotton cultivation at the cost of cereals or protective foods. Thus with regard to the development of the cotton mill industry the Punjab, the Central Provinces and the United Provinces are potential areas judging from their raw cotton output. But even though it may not be difficult to instal plant in those places for the purpose, we must take into account the extent to which other areas of cotton industry are depending on them for their raw material. Hence considered from any standpoint the existing and potential resources of raw cotton appear to be a serious limitation on any exaggerated hopes of its future possibilities.

We are therefore driven to the conclusion that if the target is somehow to be reached the country has to depend on imports. The imports may be of raw cotton or cloth, but

[1] See *supra*, Chapter IV, p.

either way the ideal of self-sufficiency through internal development to reach the target may have to be given up as impossible. It is also a matter of doubt if the enormous amount of raw cotton required to reach the target could be imported from abroad. Obviously some scope should be available for large importation of cloth in order to increase consumption, but the planners have not indicated the type of export products that India should produce to meet the imports. In fact, the Bombay Plan never takes into account seriously the foreign trade aspect of the reconstructed economy. Over and above all these difficulties it is maintained by some that the export position in textiles acquired by India during the war period should somehow be retained in order to be in possession of adequate foreign exchange.[1] It is difficult to see how this aspiration could be reconciled with the enormous requirements of cloth within the country for doubling the *per capita* consumption.

So far a very pessimistic note has been struck about the possibilities of reaching the target fixed by the Planners. The main idea of presenting the other side of the picture in all its darkness is only to indicate the inherent dangers in fixing very definite targets with inadequate data. Even when complete data are available the fixation of particular targets should always be relative to targets in other directions which may acquire a prior claim on resources in a new orientation of national policy. This does not mean however that no further improvement in the textile industry or in the *per capita* consumption of cloth is possible in the country. Improvement is certainly possible in various directions such as an increase in cotton cultivation to some extent and an increase in the output of cloth by the installation of new plant or increase in efficiency. It is also possible to ban the exportation of raw cotton which was about 526 thousand tons in 1939–40. All this would certainly increase the net

[1] Economic Adviser: *Note on Indian Trade Policy in the Post-War Period*, 1943.

available cloth for consumption but it is problematic whether the arbitrarily fixed target of 30 yards *per capita* could be reached by it without other drastic methods, such as a large importation of piecegoods from abroad. The decision on that point would rest on the available quantum of surplus export products from the country. Hence, while it is certainly necessary to fix targets in a plan, it is not wise to make them too definite particularly when they are not based on an adequate knowledge of existing resources.

STRUCTURE AND ORGANIZATION

The next important problem in the application of the fundamentals of planning to India is with regard to the nature of its future economic structure. As has already been shown, there is a large volume of evidence in favour of the retention of the capitalistic structure in India. Capitalistic production under private initiative should be accepted and retained as the only method *par excellence* for a healthy industrial development. But a large modification of the system through State intervention may be necessary to eschew some of the undesirable features of capitalism such as the insularity of industrial concerns and consequent competitive rivalry, which frustrate a comprehensive survey of resources and their exploitation in the interest of national progress. Capitalism should therefore be the basic framework of industrial structure in India. The object of State intervention should only be to enliven it and energise it. No form of authoritarian control of the productive machinery is desirable. It is pernicious to indulge in an undiluted regimental control of all economic activity by the State, setting at nought all the implications of private property and economic freedom, as under the totalitarian regime of the Fascist organization. It is not even necessary in India to bring all resources under State ownership as in a Socialist organization. Only such of those resources and industries which are necessary for the furtherance of its plan need be

brought under State control. As N. Das says, industrial planning does not necessarily imply State ownership and even State control of all industrial undertakings.[1] The industrial resources of the country are to be envisaged as a whole, they should be executed in parts with the co-operation of private enterprise, and harmonized ultimately with State guidance. The benefits of such a scheme for India would be that a well-planned and co-ordinated industrial organization is achieved without impairing private enterprise. Thus, as the National Planning Committee points out private enterprise has certainly not been ruled out but it has to be strictly controlled and co-ordinated to the general plan.[2]

This modification of the capitalistic structure involves the creation of two sectors in production, namely, the public and private. The public sector would include the defence industries, such as the armament and munitions factories, the public utilities, such as the supply of electricity, transport services, water, etc., key industries using scarce raw materials, such as the coal mining industry and industries of national interest which are not sufficiently profitable for private enterprise, such as the manufacture of ammonium sulphate. In the case of all these industries State ownership is absolutely essential in India. But management directly by the State may not be necessary among all of them. Except in the case of the defence industries, a direct management by the State may not be necessary. In any event the management of none of these industries belonging to the public sector should be transferred to private enterprise. Their management should be entrusted to a public corporation. The regional and national authorities envisaged by us should create appropriate public corporations for each area for the operation of these industries. All other industries, whether manufacturing capital goods or consumers' goods, may be owned and managed by private enterprise. This group

[1] N. Das: *Industrial Planning: Why and How*, p. 24.

[2] *Handbook of National Planning Committee*, p. 150.

would however consist of a larger number of consumers' goods industries than capital goods industries, because a large number of the latter will go to the public sector either on account of their being key industries or using scarce natural resources. But here the role of the State will be to exercise a certain amount of control over their operation. The degree of control will depend upon the manifestations in each industry either in regard to monopolistic tendencies or their resources becoming relatively scarce in the course of operation. The nature of State control would consist largely of determining the location of plants, fixation of dividends and a prescription of conditions of work and wages. The question of priorities among industries will have to be decided on the basis of the aims broadly specified in the national plan. There is a consensus of opinion in India that the consumers' goods industries should not be made to come too far behind capital goods. If this is maintained as a working formula it will not be difficult to give effect to it in the two different productive sectors. It will be comparatively easy in the public sector to execute production according to the pre-determined scale of priorities. In the private sector the maintenance of priorities should be attained through a control over capital issues both for erection and development purposes. This should in essence be the character of the reconstructed capitalistic structure for planning on sound lines in India. Most of the evils of capitalism would be eschewed thereby.

Apart from these structural changes planning should also interest itself in the technique of production in order to maintain efficiency. The technical aspect of planning is common to both the sectors of production. But the most efficient technique varies from country to country according to the nature of resources available in each of them. In India some factors of production are scarce and others are abundant. Capital is relatively scarce to labour. Skilled labour is scarce as compared to unskilled labour. Efficient

capital equipment is scarce as compared to inefficient capital equipment. No doubt most of these scarce factors are mutable, but it will take time. So planning on the technical side should, in the first instance, commence on the existing scheme of factor equipment. Therefore, the adoption of a technique appropriate for India would also incidentally determine the nature of its industrial organization. This is the rationale of the plea that India should have an industrial organization which consists of a large proportion of small and medium scale industries. But some industries are by nature more easily amenable to large-scale than small-scale production. It is obvious therefore that the degree of development of each type of industry is largely conditioned by the existing and potential factor equipment. A body of technical experts should decide the optimum proportions in which the factors available should be combined in each industry. This decision will yield an organizational pattern that will be most suitable for Indian conditions. This is a matter on which conclusions from *a priori* principles would be untenable.

This reconstructed economy has to operate in a slightly modified market mechanism. The scope of the free market will be limited but its existence is assured. Products of the public sector of production will be canalised by central authority. Products of the private sector will pass through the normal free market. This differentiation will necessarily involve the provision of communal consumption on a large scale. Thus our analysis of the scheme of planning is drifting gradually towards its distributive aspects. A simultaneous restriction of consumers' freedom and an extension of communal consumption is to bring about greater distributive justice. This is of extraordinary importance in a poor country like India. Factor prices and factor allocation will have to proceed in India on two different lines. In the public sector they have to be deliberately controlled, but in the private sector the price-cost interaction on factor allocation will continue to function, though its influence may be

limited to a certain extent due to the existence of the public sector. With regard to labour employment, differential incomes and occupational choice will continue to exist in India, but with adequate checks and balances to avoid competitive bidding by the public and private sectors.

REGIONAL PLANNING

So far the salient features of planning and the inter-relationship of its parts have been considered in some detail. But the picture would be incomplete unless the manner in which the actual application of the plan should be effected is also given adequate consideration. All plans, however sound they may be theoretically, have to be ultimately planted on the existing social and economic structure. In doing so industrial planning receives its geographical setting without which it will be absolutely unreal. This geographical aspect is what is generally implied in the regional approach to planning. In India the urge for a regional approach is very great indeed on account of two important reasons, namely, its continental dimensions and the consequent dispersion of its resources, and the unevenness of the distribution of its occupational opportunities. Hence there is both an economic and a social justification to plan India's industrial development on a regional basis. National planning should provide only the broad principles of reconstruction. The actual exploitation of the resources of the country should be done on regional lines. Therefore planning in India cannot be fruitful unless all the details of its regional aspect are fully expounded.

In this respect all the plans so far drawn up in India are extremely deficient. Most of them no doubt make a passing reference to it indicating thereby that they are cognizant of its importance. But none of them seem to have devoted the attention that it deserves. They have neither investigated the resources of various regions nor have they defined the principles governing a regional development of industries. In

the Bombay Plan the possibility of a regional grouping of provinces and States as an intermediate link in a federal organization is envisaged. It also assures that such a regional grouping will not disturb the economic unity of India provided the authority of the central government is not impaired.[1] The Bombay Plan also prescribes a regional distribution of industries to achieve a more widespread distribution of the shares of the joint-stock companies. While talking specifically about regional planning, the chief preoccupation of the Bombay Planners seems to be the balance to be brought about between British India and the States with regard to industrialization.[2] But the problem of regionalism does not concern itself with such political delimitations of the area of the country. Within British India itself different economic regions may exist and it is also probable that some economic regions may have to include different political entities. This shows that the Bombay Plan has not recognized the full implications of regional planning which is so necessary for India. Apart from emphasising the general desirability of an even development of industries throughout the country, the Plan has made no further attempt to investigate the problem.

The second report of the Government on Reconstruction Planning reveals a greater realisation of the importance of regional planning in India and they also indicate the type of machinery that might be appropriate for the purpose. But they do not go beyond making a few generalized statements. The report says at the outset that one of the fundamental principles of the plan is regionalisation so that the different parts of the country benefit in as equal a measure as is compatible with the physical features and natural resources of each part.[3] It goes even further and makes a categorical statement that industrial development cannot proceed according

[1] *A Plan of Economic Development of India*, Part I, p. 2.
[2] *Ibid.*, Part II, pp. 21–22.
[3] *Second Report on Reconstruction Planning (Government)*, p 1.

to artificial governmental boundaries but it must depend upon the geography of raw materials, power and markets.[1] It is also encouraging to find that the Government envisages the creation of regional authorities extending over the territory of neighbouring provinces and States on the lines of the T.V.A. So far as they go these statements certainly indicate a very clear recognition of the fundamentals of regional planning. But none of them are in the shape of concrete proposals. A delimitation of economic regions, the type of industries to be developed in each of them, the nature and functions of the regional and co-ordinating authorities and the guiding principles for the allocation of industries and the maintenence of inter-regional equilibrium are matters on which the govrnment report on Reconstruction Planning is disappointingly silent.

Regional planning in India ought to proceed on the basis of two important considerations, namely, the existing distribution of resources in the country and the locational trends of its industries. On the basis of the first criterion a delimitation of economic regions should be made and this is the primary task in regional planning, nay in planning itself. The regions being based on economic considerations can conveniently transcend the political boundaries. The size of these regional areas should be fairly large so that adequate resources may be available within the regions for the needs of the industries selected for development among them. It is in this important respect that the Gandhian Plan drawn up by S. N. Agarwal is defective. Even though there is an inkling of the regional method in the plan, the self-sufficient village communities which are the geographical units in the scheme would be too small for a scientific development of the regional idea.

The second criterion of regional planning is the locational trends of the industries in the country. The dynamics of the existing industries over a certain number of years have

[1] *Ibid.*, p. 27.

to be determined to discover their natural tendencies in finding an appropriate habitat for themselves under changing environmental conditions. This will be an infallible guide for allocating the industries to particular regions. Speaking of location of industries, N. R. Sirkar says that it is concerned with the balancing of economic facts from a regional or geographical point of view.[1] Thus planning, and particularly regional planning, should derive its inspiration from locational tendencies. We could go even so far as to say that regional planning is only another name for locational planning. But in placing so much reliance on locational tendencies as a guide in regional planning it is necessary to go behind the existing pattern of location and to find out to what extent it is caused by artificial factors. Such artificial factors should be brought under control so that industries may be enabled to thrive in their natural setting. In the case of new industries to be started in the country however, no information on such lines can be expected. Their allocation to regions should therefore be based on the theoretical principles of location in conformity with the regional resources.

But regionalism may also be influenced by a few non-economic factors having a social significance. In other words, whenever a very strict conformity to locational principles is likely to lead to social evils such as an unbalanced development due to excessive concentration in certain regions they should be made to give place to other considerations. As N. R. Sirkar says, such considerations should be tempered by other factors, such as an even distribution of income, development of backward areas, etc.[2] But in the case of India as it has been shown in an earlier chapter,[3] the existing excessive concentration in certain provinces is due more to the influence of certain artificial factors than to

[1] N. R. Sirkar: *Economic Policy and Programme for Post-War India*, p. 67.
[2] N. R. Sirkar: *op. cit.*, p. 70.
[3] See *supra*, Ch. III.

a scientific conformity to locational principles. Therefore particularly in India even the social and strategic objectives of regionalism are likely to be achieved by regularising location of industries through a control of such of the artificial factors which have so far influenced the concentration. It is the lack of entrepreneurial ability and capital resources that have been responsible for the slow development of industries in certain areas which are otherwise potentially rich. It must however be borne in mind that even in the social interest an uneconomic development of industries in any region is not advisable. Only such of those industries whose location in the region is appropriate should be developed. In India this process by itself is likely to lead to a much wider distribution of occupational opportunities than what prevails at present. If however it falls short of the regional requirements in terms of socially necessary work, adjustments must be made, as indicated elsewhere,[1] by means of a development of small-scale industries and agriculture A strict equality among regions with regard to occupational opportunities is impossible to reach. It will be as unnatural when reached as the existing conditions in the country

In brief, constructive planning in India should have a few broadly specified aims estimated on the basis of the requirements of its population. Before projecting these aims in the shape of definite targets of a plan the resources of the country in men and materials should be thoroughly assessed. Inadequacies in this respect in any direction have to be pointed out and methods of supplementation should be suggested. For the actual fulfilment of the objectives of the plan certain structural and organizational changes in the economy may be warranted. The scheme of industrial development should have a bearing on the geographical distribution of the country's resources. Hence a regional approach to national planning is the most scientific from the standpoint of efficiency in output. Incidentally, it will also

[1] See *supra*, Chap. IV.

give rise to a wider diffusion of the productive function. Locational principles are the guiding factors in the regional distribution of industries. Hence this book is mainly devoted to a study of the influence of locational tendencies on regionalism in planning. In the preceding chapters various aspects of regional planning in India have been investigated. Other ancillary measures contributing to its success will be taken up hereafter.

CHAPTER VII

STATE REGULATION OF INDUSTRIAL LOCATION

THE essential inference of the discussion on planning in the preceding chapter is that the principle of industrial location is the guiding factor in regionalism. A realistic national plan has to be ultimately unfolded in relation to the geographical setting of the country. Hence economic development has to be deliberately related, by a central authority, to the distribution of the resources of the country in men and materials. By experience it has been found that unrestricted individual freedom in this respect has not always yielded the desired results. Consequently the exercise of some central control over individual freedom in respect of the spatial development of economic activity appears incumbent. Since a decision on industrial location is the *sine quo non* of success in regionalism a control over it should necessarily form a part of regional planning.

CONTROL OVER LOCATION

The chief desideratum of regional planning is therefore a control over industrial location. Regional planning is a device for achieving various economic and social objectives. Among the economic objectives it tries to establish occupational equilibrium and maintain full employment. It is also possible to have a maximum exploitation of resources through regional planning. From the standpoint of cost conditions it tends towards the lowest cost by reducing the divergence from the optimum pattern of location as much as possible. Most of these economic results have to be deliberately sought for by a full investigation of areas and opportunities. Under conditions of free economic enterprise these economic objectives are not always realisable, as they are not sought for by the individual since the benefits of all of them may not accrue to him. For instance, full employment and

occupational equilibrium are matters that concern the nation more than the individual. Similarly, the individual may be more interested in the exploitation of such of the resources which are most favourable for his purpose rather than in a maximal exploitation of the nation's resources. Consequently in so far as these economic objectives are of fundamental importance to the nation the exercise of some form of central control is imperative.

The social objectives that regional planning can achieve are an avoidance of emigration of labour, a prevention of the occurrence of depressed areas and an equalisation of the *per capita* earnings in different parts of the country by making available employment opportunties to all of them in an equal measure. The movement of the labour force even within a country is not always easy unless they are compelled by a paucity of employment opportunity. Such an exodus of the labour population is likely to cause a serious social dislocation. The appearance of depressed areas in highly advanced industrial countries has been a direct outcome of extreme specialisation in economic development. Such exploitation has its social counterpart both in its success and in its failure. The underlying idea of regionalism is to avoid such extreme specialisation so that its consequential social evils may be reduced to their minimum. Finally a lack of equality in occupational opportunities result in a disparity in the *per capita* earnings of people in different areas of the same country. From a sociological standpoint such disparities tend to undermine the integrity of the nation. The primary aim of regional planning is to provide for such equality and this is perhaps its most valuable contribution on the social side.

To achieve the economic and social objectives of regionalism mentioned above the chief instrument is a control over industrial location. It is in fact the cornerstone of regional planning. The State can limit the wider economic and social effects of private enterprise in industry and hence a co-ordination of State activities and an extension of State influence

on location is necessary. Apart from the money incomes of the individual every citizen is entitled to a common inheritance accruing from the environment in which he lives. The State has therefore to ensure not only the individual's personal income but also to enhance his social income by an improvement of the environmental conditions. This communal income consists mostly of the amenities available for human enjoyment. The State has to guard against the inroads of free economic enterprise on the existence of such amenities.

There is also inherent in industrial development a large measure of preventable waste which should not be given room to arise in the interest of the community. By a co-ordination of its activities the State can prevent such waste. National security and hence strategic requirements in industrial growth are matters that primarily concern the State. Hence individual freedom will be curtailed at this crucial point in the interest of wider national considerations. Then again even in a purely capitalistic community the State is the custodian of social capital as against individual capital. Therefore in the interest of the community the State may have to examine the survival value of any new enterprise in an area. Along with it the State has also to envisage, in the event of its decline, alternative employment for labour and social capital in order to avoid a local depression and social dislocation. Further, in a state of free competition the new entrants in a business owe no allegiance to the firms already established in it and as such are not responsible for undermining their economic basis. But the State, in the interest of the community, has to keep in check an excessive development in any direction or area in order to mitigate the social loss in men and materials. Finally, the system of free private enterprise provides sometimes a favourable atmosphere for what might be termed as economic piracy. At this juncture the individual private interest comes in conflict with the wider social interest warranting an intervention and control by the State. Thus there are various phases of

communal interest which are likely to be prejudicially affected without the exercise of a control by the State over the geographical aspect of industrial growth. Regionalism is a method of reordering economic society by means of which the evil social consequences of industrialization will no longer emanate. The essential basis of the new order is to bring about a triumph of dispersion over specialisation.

A control over industrial location has also another purpose to serve besides acting as the chief instrument in regional planning. It is often resorted to as a device for redressing the evil effects of an uncontrolled growth of industries in respect of their areas of development. In fact, it may not be far wrong to trace the origin of regionalism itself in the social and economic consequences arising out of a system of unregulated location of industries. But even in those countries where regional planning is not seriously thought of a control over location is considered essential for ameliorating the social conditions of the community. In Great Britain the problem of the depressed areas and their rehabilitation has brought in its wake the question of the feasibility of a State control over location. Besides as a solution of unemployment specially arising out of local depression it has been thought of as a potent measure. It is obvious therefore that a control over location is not necessarily associated with planning but it is a primary necessity of planning and particularly of regional planning.

So a State control of industrial location is introduced for two purposes, namely, for giving effect to regionalism in planned economy and for social amelioration in an unplanned economy. Thus the case for the control of industry in this respect is overwhelming whether on economic, social or strategic grounds. No doubt industrialists may resent it but a measure of control will help their selection rather than prejudice their efficiency.[1] At this juncture a word of

[1] Patrick Abercrombie and others: (*Barlow*) *Commission on the Distribution of Industrial Population*, p. 226.

caution is necessary about the interrelationship between regionalism and the control of location. The two mutually act and interact on each other. As the Barlow Commission points out the schemes for regulating location of industry would be materially assisted if regional areas are established.[1] But a demarcation of regional areas will not by itself bring about regional planning unless a control is exercised over the allocation of industries among them. Hence both of them have to be put into effect simultaneously. So far a case has been made out for a State control over location but the full implications of this policy cannot be appreciated unless the basis on which it rests and the effects of a system of free location of industries are examined.

POLICY OF UNFETTERED LOCATION

Under a system of free private enterprise the individual has the liberty of choosing any location for his concern which is most economic in the short run. The basis of his choice depends upon various economic considerations, such as raw materials, transport cost, labour, markets, etc. Each one of these will assume greater or lesser magnitude according to the nature of his industry. Some of them like markets are assuming greater importance during recent years and others like labour are getting more complicated due to the various degrees of skill required and the development of the Trade Union movement. The individual has also to consider linkages in location due to related technical processes or market connections. But in all these matters the individual concern has to depend on the meagre existing knowledge which might be available to it. Besides the individual entrepreneur could reckon with only the available facilities in different areas in the form of services. In other words, he could avail himself only of the existing public utility services in different places. Similarly, the external economies

[1] *The Barlow Commission Report, op. cit.*, p. 181.

on which he could depend are those that are already developed in the area. Thus the free choice of the individual is generally made under these limitations.

But it is a matter of doubt whether an individual always balances these factors before making the final choice. It is said that location is often fortuitous. Even if the individual is credited with the capacity to assess and balance the available factors influencing location there are a few tendencies which are likely to undermine his judgment. The most important among them is the instability of economic conditions. The individual has not only to make a satisfactory initial choice for his industry but should have the assurance that it would be the most suitable site in future also. But this sense of security disappears with unstable economic conditions. Conditions which might have been once favourable may cease to be so in course of time due to economic changes. A favourable supply of labour or transport rates may undergo a change in course of time and the individual may have no control over them. So the frequent technical and economic changes which occur at present may seriously interfere in the normal calculations of the entrepreneur. In modern industry these technical factors are too numerous and are of great significance due to the size of the business concerns and the amount of capital invested among them. This is a dynamic factor in industrial prosperity in relation to its place of location and the individual has lesser chances of coping with it successfully than the State.

There is also a further point to be considered with regard to the freedom of choice of the individual. The choice among sites is no longer entirely free as the State even in an unplanned community has influenced in favour of some as against others by means of its tariff policy, public utility policies, hydro-electric development, grants to local bodies, town planning schemes, etc. No doubt this is done unconsciously as the main objectives of such policies have no direct bearing on location. Still the individual's choice is

directed to particular areas. With every increase in the scope of Government intervention in such matters discrimination between areas has increased. Thus indirectly the State has also affected the background of individual choice.

Under these circumstances it would be untenable to assume that the pattern of location evolved under a system of free private enterprise is perfect. Therefore the statement of the Board of Trade that the industrialist has not incorrectly assessed the factors influencing location is not convincing.[1] This view is based on the assumption of perfect competition. But as it has been observed most of the automatic forces guiding location are either becoming ineffective or fast disappearing. As the P.E.P. Report observes there must be a large number of wrong locations in all countries and if there were a magic carpet to transport industries it would be largely in demand.

It is thus obvious that the individual's choice is based on short-term considerations of personal income and on inadequate data. Of late it is also being influenced by factors beyond his control, such as technical changes and State policies. But though the scope of his choice is circumscribed in this manner the implications of his policy are far-reaching. Even under a policy of *laissez-faire* the State has to provide certain services and facilities in industrial towns. The facilities are generally in the form of public utility services and their cost increases proportionately with the size of the industrial town. Public expenditure in providing facilities to industry is an argument for public control of location. In a system of unfettered location the industrialist commits the State to increased expenditure in this direction by the exercise of his freedom. It is the realisation of this anomalous situation that has made the geographical distribution of industrial population emerge as a major problem. The public cost of such private decisions may also increase on

[1] *P.E.P. Report on Location of Industry in Great Britain*, p. 212.

account of unemployment insurance grants and special grants arising out of local depressions.

The social consequences of unregulated location and hence economic concentration are congestion, ill health, high death rate and such other devitalising features. Extreme specialisation of industry in any area generally gives rise to depressed areas in the event of a failure of the particular industry. This has grave social consequences as the population of the depressed areas will be without employment opportunities. It is the responsibility of the State to tackle the problem and there are three alternatives before it for doing so. In the first place, population may be redistributed on the basis of flourishing industries. Otherwise industries may have to be brought to places where employment is needed. If neither of them is successful the people must be subsidized to remain where they are, which is perhaps the most demoralising among the alternatives. None of these alternatives is without serious implications. A migration of population usually takes away the best among the people and those that are unable to adjust themselves to the changing circumstances are left behind. The result is that the purchasing power of the region will progressively decline and the public utility services already established in the area become superfluous. With regard to the drift of industries to depressed areas for increasing the earning capacity of the people only those industries that are light and mobile would be amenable if suitable attractions are offered. But it is not always easy to determine the most appropriate mobile industries for each depressed area. It is evident therefore that individual decisions have serious repercussions on public policy. While being instrumental in causing such serious problems, the individual need have no responsibility under the present dispensation. Here there is even a stronger argument for some form of public control of location to prevent the social consequences incidental to an ill-balanced growth of industry.

The individual in making a choice is concerned more with his personal income than with the general pattern of industrial development of the country. As a consequence there may be a lopsided development of industry. The individual may not be mindful of it though he might feel its consequences indirectly in the long run. But the State as the custodian of national interest has to maintain a balance, in geographical terms, with regard to the growth of industry. The State must see that the divergence from the optimum pattern of location of industry is reduced to its minimum. Otherwise it would be uneconomic, as full employment cannot be achieved and a full exploitation of resources would be impossible. It would also be anti-social as the increased public expenditure on utility services is the direct outcome of the private decisions of a section of the community.

A policy of uncontrolled location therefore implies both economic and social consequences as affecting the wider interests of the nation. So the conflict between State regulation and freedom of individual choice is not based on social consequences emanating from the economic decisions of the individuals. Even from the economic standpoint the aims of the individual do not square with the objectives of the nation. As a matter of fact if the economic objectives of the nation could be achieved the evil social consequences will automatically disappear. Hence the real problem is between individual choice which is economic for him in the short-run and national choice which is economic for the community in the long-run. It is this long-run view that takes the shape of the regional approach. The location of industry from the regional standpoint aims at minimising national loss, economic or social, by maintaining a balance between the employment capacity of the industries and the population in a region. *Prima facie* this is a policy that is inconsistent with freedom of individual choice. The State has perforce to restrain individual liberty and allocate

industries according to the social needs and the economic limitations of each area.

FREE *versus* CONTROLLED LOCATION

On this issue of free *versus* controlled location opinion of interested parties is divided. There does not seem to be any consensus of opinion either among those who approach the problem from a practical standpoint or among those that have an academic approach. Then again those that differ from each other do not seem to have entirely distinguishable views about the future line of policy. In the evidence given before the Barlow Commission by the various representatives of institutions there is a bewildering variety of opinions expressed.

As already observed the Board of Trade expressed its views in favour of individual freedom in the choice of location. They have expressed their faith in the efficacy of a free choice by the individual based on economic considerations. According to the Board of Trade " individual choice on the whole placed industry where the individual has found it economically most advantageous to place it ". From the foregoing discussion about the serious limitations that are now being placed on the individual's choice it must be obvious that the validity of this statement is questionable. We may no doubt agree to a large extent with the view that the individual will place his industry where it will be most economical for him to do so, but the contention is that the term economic should be given a wider interpretation. What is economic to the individual need not necessarily be economic to the nation and what is uneconomic for the nation may generate social evils for which the State is responsible. Viewed from this perspective the position taken by the Board of Trade appears untenable. With a shift of emphasis to problems of national welfare the narrower interpretation held by the Board of Trade can no longer be convincing.

The London County Council, while admitting the enormous urban development of Greater London declined to express an opinion whether location should or should not be controlled by the State. The Manchester City Council expressed its view in favour of a free choice of location but was agreeable to some form of control to safeguard against strategical dangers and loss of public capital due to a transfer of industry or growth in the size of towns. Similarly representatives of several other city councils were in favour of some form of restriction by the sterilization of certain areas against industrial development. So the general opinion among the city councils was in favour of some form of regulatory action even though they believed in the efficacy of a free choice.[1]

The Federation of British Industries speaking on behalf of industry was opposed to compulsion on industrialists in the matter of location. But they were prepared to accept a policy of discouragement for location in certain areas and encouragement to others. A slightly stronger view on behalf of industry was expressed by the Chairman of Messrs. Stewarts and Lloyds. He said that if industrial progress is to be maintained the final decision must rest with the directorate responsible for the financial success of the business. But he was not averse to advice being given on location by an Industrial Development Commission. But according to him the Commission should not be vested with powers to issue licences for the erection of factories or for financing new enterprises in particular areas. In other words, its functions should be purely advisory.

The Trade Union Congress was in favour of setting up a national authority with powers to exercise both positive and negative control over the location of industry. The authority was also to be responsible for the collection of information and statistics concerning location of industries.

[1] *(Barlow) Commission on the Distribution of Industrial Population*, pp. 189–190.

On the other hand, there was also some evidence against any general control over location. The Association of Municipal Corporations expressed the view that as a general rule it would be undesirable to interfere artificially with the development of any industry. It is evident therefore that a variety of views were expressed in the evidence given before the Barlow Commission. A majority of the views were no doubt in favour of some form of regulatory action being taken, but even they did not approve of the idea of a rigid control.

The Barlow Commission viewed the problem of government control from two entirely divergent standpoints, namely, that of industry and that of the nation. From the perspective of the industry the Commission feels that private industry may not always be anxious to be guided by Government in spite of the fact that the Government may be in a better position to anticipate economic changes. Further the Commission also seems to be sceptical about the perfection of the State's choice. In the first place, it is doubted if an optimum pattern of location exists and even if it exists it cannot be considered as static, since economic factors are changing with increasing rapidity. In such a dynamic environment the State by assuming wide powers may not be able to acquit itself better in making an enlightened choice than private enterprise.[1] The intervention can at best have only a limited efficacy in the prevention for instance of a congestion occurring in an industrial town. But there are onerous responsibilities connected with a scheme of control. If a venture that has been thus controlled turns out badly the State may be held responsible for an adequate compensation. Besides a central direction should be accompanied by suitable arrangements for the provision of important economic factors required, such as an adequate labour force.

From the national standpoint the Commission viewed the problem in terms of its social consequences. While admitting

[1] *Ibid.*, p. 192.

the importance of industrial success for a nation a regulation in the interest of the community is necessary when the problem becomes social in texture rather than economic, particularly so when the State has to bear the burden of all social maladies. So the Barlow Commission was in favour of some definite action being taken to remedy the evils of industrial concentrations. But an unwillingness to establish a general control over all aspects of industrial location seems to be implicit in the recommendations of the Commission.

The Scott Commission on Land Utilization in Rural Areas appointed in England classified industries into different categories and suggested appropriate methods of regulation and control for each of them. In the case of extractive industries regulation had to be directed towards the lay-out and form of the works and to subsequent restoration. The rooted or heavy industries and those that are linked to a parent industry would have urban concentrations. They may not be amenable therefore to dispersion to rural areas. But mobile industries may be located in a variety of districts and the Scott Commission points out that under planned dispersion from towns into rural areas this class would be predominantly affected. So in the interest of the development of rural areas the Scott Committee was in favour of regulatory action even though it could be only with reference to certain categories of industries.[1]

The P.E.P. Report on the Location of Industry in Great Britain has made a comprehensive survey of the implications of an unfettered choice of industrial location. The main conclusion of the Committee is that a State regulation of location is essential in the interest of the community. The P.E.P. Report disagrees with the views expressed in favour of a free choice of location and asserts that if a balance has to be struck between the varied requirements of the community

[1] E. H. Bullock: *Planning To-morrow's Britain*, p. 32.
See *Journal of the Royal Statistical Society:* The Selection of Industries suitable for Dispersion into Rural Areas. By P. Sergant Florence.

and the requirements of the individual manufacturer a central control is essential. State intervention and control are likely to yield several salutory results and the P.E.P. Report emphasises among them the social or environmental income in the form of health and amenities which have to be safeguarded, the prevention of waste through a proper co-ordination of State activities and the preservation of national security. Finally the P. E. P. Report gives concrete proposals for the exercise of State influence over the question of location of industries. It is a report prepared essentially with reference to conditions in Great Britain but many of its general proposals are capable of universal application.

ACADEMIC OPINION

Among the views of academic economists those of Prof. Dennison are relevant to the issue, as he discusses the issue of the location of industry with special reference to State control. Further Dennison holds an opinion which is different from the views expressed by some of the Royal Commissions appointed to investigate the problems relating to industrial location. He concludes his discussions by saying that for the present the weight of argument is against the imposition of control. Coming as it does from an economist who has made notable contributions to the theory of location the view as it is presented has to be examined in some detail before a practical application of the principle of control can be attempted. The objection of Prof. Dennison to a policy of control is based essentially on the innumerable practical difficulties that are likely to arise during the course of its application. These difficulties are dealt with in detail at a later stage but at this juncture, it may be pointed out that there are means for obviating such difficulties and a policy which is sound otherwise cannot be discarded on that score. But he is also sceptical about the real advantages to be derived by State intervention in this respect. He feels that it is very difficult to assess the correlation between control

of location and industrial efficiency and says that against the gains that might accrue through control should be set the cost involved in the loss of efficiency due to bad situation. There are a few assumptions in these statements which appear untenable. State intervention need not necessarily mean an economically wrong location and a consequent loss in efficiency. Very often the State may be in a better position to make an appropriate selection than the individual, even though the State may be actuated by other considerations than mere monetary gain. Lastly, Prof. Dennison is doubtful whether in the case of a free choice the divergence of the actual pattern from the optimum is really as great as the advocates of a policy of control believe. The whole contention about location of industry is that the divergence from the optimum pattern and its social consequences are great and therefore to minimise the importance of divergence is to minimise the importance of the entire problem of control. Thus the advocacy of a free choice by Prof. Dennison is based either on the assumption that the choice of the State would necessarily be less appropriate from the efficiency standpoint or that the difficulties to be encountered in actual practice are too many to be easily circumvented.

Lastly, the pamphlet on Location of Industry in India by the Economic Adviser to the Government contains a few important suggestions relevant to the issue with particular reference to Indian conditions. According to the pamphlet, the two important objectives to be achieved are a more even distribution of industries as between regions and a planned development of industrial towns to eliminate social evils. In other words, a regional planning of industrial growth and an avoidance of excessive concentration in any one area are to be the implications of a policy of development. But it is felt that direct State action to secure these desiderata may not be successful. It is categorically stated that in a country like India it will be extremely dangerous for the State to

arrogate to itself the right to determine the location of individual undertakings.[1] In expressing this view the pamphlet seems to derive its inspiration mainly from the Barlow Commission Report. It is felt that a successful conduct of industry from the business point of view is important for industrial progress and since the factors that determine the conduct of industry are ever changing the State may not be in a position to assess them in as efficient a manner as an individual enterprise. Hence direct State action can, it is felt, be efficacious only in preventing an overgrowth of industrial towns, but for securing a better distribution of industry voluntary means may be more fruitful. In support of these views the Economic Adviser's pamphlet mentions a few special circumstances in India favouring voluntary effort in the distribution of industry. As it is a country of great distances a development of local industries is easier. Then the envisaged improvement of transport facilities should lead to a regional specialisation and industrialization in undeveloped areas. The raw materials of the country are widespread and there is no dearth of labour in any region. These are natural factors in favour of a decentralized development. The enormous development of hydro-electric power generation is another potent factor in favour of voluntary dispersion. Lastly, it is said that the attraction of the old industrial centres is diminishing and new centres are springing up. With these advantageous factors, it is felt, it may not be impossible to achieve the desired results merely by voluntary effort. Particularly in an undeveloped country like India the scope for achieving the desired pattern is greater and could be effected merely by an encouragement to new industries to develop in specified areas. In older countries a change in location might involve industrial transference.

While advocating voluntary effort in this manner the Economic Adviser's pamphlet is not averse to the adoption of a few measures of a positive nature for the encouragement

[1] *The Location of Industry in India: Economic Adviser*, p. 12.

of industrial development in specified areas with a view to dispersal and a few negative measures for the prevention of an excessive concentration in industrial towns. It is said that in India prevention of excessive concentration should not mean a diminution in urbanization, as there is need for further urbanization by the creation of towns of optimum size. So the policy implied in the pamphlet consists of two aspects, namely, an encouragement of dispersal of industry to the countryside though the actual achievement is to be in terms of voluntary effort and a direct State control of an overgrowth of industrial towns. No specific proposals are however to be found about either of the recommendations. While it is said that special encouragement should be given to particular industries suited to backward areas neither the nature of the encouragement nor the type of backward areas to be selected for the purpose is defined.

In a critical examination of the views expressed in the pamphlet it is not so much the ineffectiveness of the proposals put forward that will loom large but the statement that in a country like India it will be extremely dangerous for the State to arrogate to itself the right to determine the location of industrial undertakings. The subsequent argument does not in any manner explain the peculiar position of India in this respect and how it will be more dangerous in India than elsewhere for the State to assume such powers. The factors favouring voluntary effort mentioned in the pamphlet do not by any means indicate the dangers inherent in a policy of State control. On the other hand, they could as well be interpreted as factors in favour of a State control and direction. It will be much easier to make private enterprise accept State control when it happens to be in the direction which is most favourable and profitable. Further, as it is admitted in the pamphlet, in an undeveloped country like India the scope to attain the desired pattern is greater and hence the latitude for State action should be equally great. Besides while talking of a desired pattern the idea of a State

direction is implied as the individual entrepreneur never thinks in terms of general patterns but only in terms of the profitability of individual location. Therefore to evolve a general pattern through individual decisions with only feeble measures of State encouragement is far-fetched. Thus if at all there is anything peculiar in the circumstances obtaining in India it is in favour and not against a policy of State control over location of industries. From the economic standpoint there is therefore no ground for the supposition that it would be dangerous for the State to assume control over location. If the implication is about its political constitution there may not be much to be said in this treatise, as all issues except economic have so far been scrupulously avoided. However from no standpoint can there be much justification for the view held by the Economic Adviser in his pamphlet on Location of Industry in India particularly when it is admitted by him that industrial location is a matter of fundamental importance to the social structure, because it is only through a wise direction of industrial location can a better distribution of population be achieved. In spite of accepting the thesis that a wise central direction is essential in this respect, the pamphlet recommends the indirect method of helping the industrial development in backward areas as a means for the distribution of industry between regions. It is only as a means to prevent the further growth of large industrial towns that some form of direct State control has been felt to be necessary.

PRACTICAL DIFFICULTIES OF CONTROL

So far the views expressed by various parties on the problem of a control over location have been given. Before assessing these views and coming to a definite conclusion on the issue for the benefit of launching a regional plan in India it may also be advantageous to deal with some of the practical difficulties inherent in a scheme of control. Some of these difficulties are indicated by Prof. Dennison but they

appear to be magnified to a considerable extent.[1] In the first place it is pointed out that if a subsidy has to be given as a means of encouragement it will be difficult to determine the incidence of such a subsidy. If it is to be granted to new industries it will be difficult to define them and such a subsidy it is said may affect similar industries elsewhere. On the other hand, if the basis of the subsidy is to be area and not industry there will still be the difficulty of defining the area. The degree of unemployment in different areas may be the basis of the subsidy, but it is not a static factor and will change with the trade cycle. So with changing conditions a discontinuance of the subsidy may be warranted. In actual practical application it may be very difficult to determine these changing circumstances. So Prof. Dennison feels that these practical difficulties militate against a policy of encouragement through subsidy.

This practical difficulty is however not insurmountable. For purposes of a subsidy neither industries nor areas are considered in isolation. Industries are considered in relation to particular areas. If such industries happen to be old and already established elsewhere in the country there may be protests from the existing firms for subsidising their rivals who are to be encouraged. But such protests will not be well founded as the new rivals are to be subsidized only for establishing their concerns in specific areas which suffer from special handicaps. So the purpose of the subsidy is only to equalise the competitive position of the new rivals and the old established firms. Besides in making a choice for the subsidy it is not the new entrepreneurs who are the criteria but the new regions which are to be developed. That means even the old entrepreneurs in the industry can entitle themselves for the subsidy provided they are prepared to sink their capital in the new region chosen. It is only when local capital or local enterprise is to be subsidized that there can be any legitimate ground for protest by the already

[1] S. R. Dennison: *Location of Industry and Depressed Areas*, Chap. V.

established firms. In a policy of subsidization as a measure of encouragement of industrial distribution such regional differentiations are not present. In the case of new industries to be started the condition of the subsidy would be the choice of a specific area. So there can be no protests either on the basis of encouraging direct rivals or creating indirect potential competition, as even in their case the selection of an area with special handicaps is an implied condition.

The problem of the determination of areas is capable of a solution with much less difficulty. In an industrially advanced country the depressed areas are too prominent and do not require any special effort to discover them. The localized unemployment among them is not a phase of the trade cycle, but on the other hand they are the outcome of the changing industrial circumstances. The effect therefore in the form of the depressed area is a permanent feature incapable of improvement automatically with the revival phase of the trade cycle. In the case of countries which are relatively less developed industrially, like India, the problem is not one of depressed areas but of undeveloped areas. Such undeveloped areas are not susceptible to trade cycle influences to the same degree as the developed areas. The disparity among them between employment opportunities and the available labour force is a feature that is independent of the trade cycle. These are the features of the development areas in any country and it is not impossible to determine them. To relate the degree of unemployment caused by the trade cycle with the special problems of the development areas is to confuse the issues.

According to Prof. Dennison a policy of control as opposed to subsidization is better in many respects. It is more simple, more direct in its effect and has a wider scope for solving problems other than merely localized unemployment. But at the same time he feels sceptical about its practical utility due to the difficulties that have to be surmounted before it could be applied. The criterion for its

application would be the advantage of diversity over specialization, but he points out that there is no positive correlation between divergence and level of unemployment. At any rate it cannot be denied that depressed areas and localized unemployment are the direct consequences of extreme specialization. In the case of undeveloped areas lack of occupational opportunities and low *per capita* earnings are too glaring to be disputed. Consequently industrial dispersion on a regional basis cannot be said to be without advantages.

The next difficulty indicated by Prof. Dennison is with regard to the choice of industries for dispersion. This problem with reference to India has already been solved in an earlier chapter, on the basis of the criteria enunciated by Sargent Florence. Industries are classified into three groups on the basis of their coefficients for localization and those having medium coefficients are considered to be appropriate for dispersion. Prof. Dennison however feels that an entire dependence on this criterion is not advisable, as there is no realistic basis for choosing the medium coefficient industries for dispersion. According to him they are a varied and non-homogeneous group evincing both concentration and dispersion according to circumstances. This observation is no doubt largely true but does not entirely nullify the practical utility of the distinction. By medium coefficient industries we do not mean industries that are uniformly distributed throughout the country. Even the low coefficient industries do not manifest any such uniformity in relation to the distribution of population. On the other hand, what is implied about them is that they are not rooted to any specific area and they are more mobile. In a scheme of dispersion it is but natural to look to such mobile industries for the application of a policy of control. Further Prof. Dennison adds that it is not industries but firms that are important and for them location cannot be a matter of indifference. It is no doubt firms that constitute an industry

and therefore the application of control will, in the first instance, be in respect of firms. At no stage of the argument has it been construed that location for a firm belonging to an industry having a medium coefficient is a matter of indifference. If so the special benefits to be created in specific areas for such firms would not have been thought of. The policy of control necessarily means certain responsibilities and they are specially meant to equalise the objective factors in different regions in relation to such firms. Finally, his contention that a policy of control will lead to invidious distinctions between areas seems to be based on the individualistic outlook of industrialization. From the wider social standpoint there is nothing invidious in encouraging the undeveloped areas as the main objective is to attain greater national progress.

Lastly, Prof. Dennison strikes a note of warning about the results that might follow from State action in controlling location. In the first place, a diversion of enterprise to a new place might mean its refusal to develop. Secondly, supposing it is encouraged to develop in an area selected by the State and it proved later to be unprofitable then even though the cause of its failure cannot be definitely attributed to a wrong choice of location the State would be held responsible and would be liable for compensation. The Barlow Commission also seems to share this view to some extent. This fear is based on the contention that an assessment of industrial efficiency resulting from a control of location is difficult. It is almost taken for granted by some that a controlled location is always an uneconomic location and would necessarily involve a loss of efficiency outweighing the advantages. But this is not necessarily so, because the divergence from the optimum location can be deliberately reduced by bringing under control those factors which cause a changing optimum. Such control is now easier as location is influenced more by economic factors than by natural factors. Hence there is sufficient ground for the expectation

that a policy of controlled location is not likely to reduce industrial efficiency. Hence the question of compensation by the State is not to be construed as inherent in a scheme of control. Of course, a few such failures may occur occasionally. There can be no question of compensation from the State for such failures. On the other hand, the proportion of individual loss caused in this manner would be very much less than the social benefit of a balanced development achieved through control. It is only when control happens to be irrational that the degree of individual loss may be great. But the purpose of establishing State control is not to let it develop on irrational lines. The extreme apathy of Prof. Dennison towards a policy of control is manifested in his statement that even if control is perfectly exercised it would involve the imposition of a long-period remedy to short-period problems. He says that as the economic system is continuously changing the new problem is never exactly the same as the old and hence a long-period remedy would be ineffective. But it is to be realised that a wise application of a long-period remedy will prevent the appearance of the short-period problems. It is only the improvisation of measures under a scheme of free private enterprise that prepares the ground for the frequent occurrence of such short-period problems. When objective economic factors are brought under control the motive force for the causation of the short-period problems is rendered ineffective. So it is difficult to agree with Prof. Dennison that the weight of the argument is against the imposition of control.

TENTATIVE CONCLUSION

At this stage a tentative conclusion may be reached about the policy to be pursued by the State in the matter of exercising control over industrial location. As it has been observed in the preceding sections there is no consensus of opinion on this issue and it is difficult to enunciate a

policy out of such a medley of controversies. However one saving feature of the conflicting views expressed is that no one is in favour of an entirely free choice by the individual. But there is a wide range of views about the degree of control to be exercised. Some are in favour of reducing control lest private enterprise be crippled and others are afraid of increasing control for fear of the practical difficulties to be encountered and the responsibilities of the State. The entire issue can be simplified if a few misconceptions are cleared. In the first place, the faith in the infallibility of individual choice has to be tempered to a large extent. No doubt the financial commitments of the individual will actuate him to exercise his judgment in the best possible manner. But he is neither in possession of all objective data nor has he any control over factors which cause a change in the optimum pattern of location. Besides the disappearance of perfect competition has eliminated the machinery of automatic adjustment. Secondly, any form of State control is construed to be uneconomic as only social considerations predominate in public policy. But the real controversy is not between social and economic but between economic in the short-run and economic in the long-run. What is economic in the long-run will also yield favourable social results. No doubt some individuals may be denied the opportunity of exploiting quickly available resources for enhancing their personal income. They are in the nature of economic pirates and their interests are not to be safeguarded. Therefore State intervention in this sphere is to enhance the social as well as the economic well-being of the nation. Hence on *a priori* grounds there cannot be an objection to a policy of State control.

Next with regard to the degree of control to be exercised it might be categorically asserted that it should be either thoroughgoing or non-existent. There is no scientific justification for the view that direct control should be exercised only for preventing the further concentration at industrial

towns and a system of voluntary effort would be sufficient for effecting a dispersal of industries. Unless it is perfectly exercised and fully comprehensive it will be largely in the nature of improvisations. A regional plan would be absolutely ineffective in the absence of a thoroughgoing control over industrial location. Besides it is not impossible to avoid the rigidities of a system of control. The country could be divided into free zones, prohibited zones and neutral zones and as it should be obvious the degree of control to be exercised will vary in respect of each of them. Thus the latitude of the individual will not be unreasonably circumscribed unless it comes in conflict with the wider social objectives of national policy. So the system of control, while being comprehensive and thoroughgoing, will have a high degree of elasticity.

Under the peculiar circumstances in India a State regulation of industrial location is the *sine quo non* of economic reconstruction. Regional planning, as envisaged for India, will depend for its success on the assumption by the State of the power to control the distribution of its industrial establishments. Unlike Western countries India has its entrepreneurial ability confined to certain areas, whereas its natural resources and labour force are widely scattered. This state of affairs is inimical to a balanced development of industry regionally though not functionally. Therefore the assessment of resources in regions where entrepreneurial ability is scarce and an encouragement for their exploitation are responsibilities of the State. A control over location does not merely mean an indication of a site for an industry but it involves an assessment of resources and a creation of facilities by the State. Particularly in a country like India this aspect of control will loom large. It is in fact the most constructive aspect of regional planning. Further in a country like India the knowledge of the individual entrepreneur about economic facts is much more limited than that of his *confrere* in the West. The meagre statistical

information that is available and the paucity of private institutions to provide expert advice on related problems are the special handicaps of the Indian entrepreneur. Hence the individual choice of location in India should be even more fallible than that in the west. In other words, in India, the divergence of the actual from the optimum pattern of location should *prima facie* be greater. Consequently the case for a State control of industrial location is greater in India than elsewhere. The size of the country and its limited economic progress so far are further arguments in its favour. The larger the size of the country the greater is the susceptibility to a lop-sided development of its industries. A country that is less developed industrially offers a greater scope for the exercise of judgment by the State for a scientific distribution of its industries. So under the peculiar circumstances obtaining in India and in view of the regional development that is envisaged by the Government the exercise of a large degree of control by the State over industrial location is inevitable.

MEASURES FOR CONTROL

A policy of control of industrial location by the State will combine measures for encouraging industries to grow in certain areas and measures for discouraging them from developing in other areas. Of these two types of measures it would be more advantageous for the State to place greater emphasis on encouragements as it would proportionately reduce the odium of control to be exercised. Besides encouragements are more effective in getting a desired result than deterrents. However the adoption of these measures depends upon circumstances. If circumstances warrant, the State may be justified in applying a measure which is even more effective than either of them, as for instance, a complete prohibition of certain industries in certain areas. Among these measures it is found by experience that deterrents are perhaps the least effective.

When a regional plan of development has been evolved the State may induce private enterprise to conform to it by the offer of inducements. The success of this initial step will depend upon the nature of the inducements and the sincerity of the offer made by the State. The encouragements offered by the State may consist of a variety of favourable circumstances created for the benefit of the individual entrepreneur. It may consist of a creation of facilities in the selected area in the form of public utility services. Sometimes subsidies may be offered by the State to prospective concerns in a particular area. The creation of social amenities in selected industrial regions for the inducement of prospective industrialists is another form of encouragement by the State. The State can even go further and participate in a scheme of financing enterprises which have been advised to develop in specific areas. The State can also give an assurance to place its orders with concerns that have been developed at their instance in certain regions. Lastly, the creation of Trading Estates for the planning and provision of facilities for industrialists is an effective method of encouragement.

These types of encouragement may be offered in a variety of ways according to the local circumstances of each region and the requirements of the industries chosen for them. The purpose of establishing public utility services like electricity, water and transport is to counteract the deficiencies which certain areas may suffer from even though they may be otherwise quite suitable for certain industries. The inducements offered in this manner may be either to make certain areas generally attractive for all industries or to help certain firms specially to set up their business on particular sites. As a matter of fact, both general and special inducements are offered to encourage industrial development in a region. A certain measure of general inducements usually precede the offer of special inducements to particular industries. The creation of facilities would not be of much avail

without adequate publicity. Therefore simultaneously with the creation of facilities there should be an attempt at the collection and dissemination of information. Publicity may be either positive or negative. Under positive publicity the advantages of particular regions are made known and under negative publicity the undesirability of further development in certain areas is emphasised. In other words, the prospective industries should be enabled to be in possession of information regarding suitable areas and the services available among them. There should also be a continuous research by an institution of the State about the economic factors affecting the efficient operation of industries in a selected region. Any changes in economic circumstances, such as an emergence of a shortage of labour, have to be announced periodically for making suitable adjustments by the industrialists.

The offer of subsidies is one among the many financial measures that the State might adopt to encourage industries. The justification for the offer of a subsidy arises when the development of a particular industry in a certain region cannot happen without such assistance. Unless it is definitely ascertained that such financial assistance is inevitable for development it should not be offered, as it is a case of subsidizing a special section of the community at the expense of the others. Subsidization may be either direct or indirect. They may be paid directly to individual firms or to public utilities in the region to reduce their service charges. In the latter case the benefit accrues to all industries in the area. The indirect method may also take the form of subsidy to offset a particular factor in an area, such as a deficiency of water. Of these two types direct subsidization of individual industries is more sparingly applied as it is difficult to determine the industries that are eligible for it. So except in extreme cases subsidization generally takes the form of indirect financial assistance to reduce the cost of certain services or offset the influence of unfavourable factors.

Other financial measures of an indirect nature are the differentiation in income taxation between developmental and concentrated areas and the payment of local rates by the State for a new plant to be started in a selected region. Lastly, the State may go even further and make either direct loans to a prospective concern or guarantee the loans advanced by other financial institutions. These loans and guarantees are specifically related to industrial growth in particular regions. These financial measures are the most effective among the encouragements that are generally offered by the State.

The State can also offer encouragements through a few social measures, such as the creation of amenities for recreation, facilities for education and preservation of health. Opportunities may also be created for the stimulation of the cultural aspect of life. It is the absence of such features in areas outside the metropolitan towns that has dissuaded the dispersion of industries to the rural areas. Very often these factors weigh heavily on the individual entrepreneur in making a choice of sites for his industry. Most of the fortuitous locations may be traced ultimately to the influence of such social amenities. Hence social measures for the provision of such amenities are necessary to make the regions attractive and increase their amenity value. The logical evolution of such measures is to make the regions self-sufficient by the provision of certain ancillary economic facilities also, such as the offer of technical education for specific industries in the area and the establishment of appropriate types of marketing organizations for the benefit of the localized industries. In other words, the selected regions, to be sufficiently attractive, should be capable of offering all social and socio-economic facilities to the prospective industrialists.

The device of the Trading Estates has been a very potent factor in the United Kingdom for the encouragement of industrial growth in selected regions. The purpose of these

organizations is to provide on a communal basis the requirements of private industry. These Trading Estates may be either self-financed private organizations or they may be sponsored by the State in some manner. They acquire large areas in regions of potential industrial development and offer factory sites, buildings, services, etc., to prospective concerns. Such a collective provision of industrial facilities is superior to individual provision, as most of the required facilities are made available very economically. The Trading Estate relieves the industrialist of two difficulties, namely, the initial investigation for an industrial proposition and the investment of large amounts of capital on factory sites and buildings. They are provided by the Trading Estate and could be taken on a basis of rent by any individual concern. The areas selected by the Trading Estates are generally suitable for a wide range of industries and those industries which are appropriate for the region can become tenants. The Trading Estate usually discourages those industries which are not quite suitable for the area from becoming tenants. Apart from the provision of sites and buildings the other advantages available at the areas selected by the Trading Estates are a proximity to markets, social facilities and means of advertisement. In fine, they provide definite industrial centres and are likely to play an important part in determining the location of industry in future.

With regard to deterrents it may be observed that they are less effective in yielding results and more difficult in practice to apply. Being a negative method it cannot be expected to be as effective as the positive method of inducements. Further, it has to be noticed that every inducement for one region is in itself a deterrent elsewhere. So it is not advisable to devise any special deterrents for particular industries. A few general deterrents may be permissible if it is the considered view of the State to prevent any further industrialization in certain regions. As a matter of fact even without any deliberate measures such general deterrents already

exist in highly concentrated industrial areas in the form of deglomerating tendencies, such as a rise in the cost of land values and a scarcity of labour. But in addition to these the State can also introduce deliberately a few general deterrents such as a reduction in the block grants to certain areas or by abolition of derating to new factories in certain places. Conversely, the local rates or taxes may be enhanced for new factories in areas that are already highly industrialized. It is also theoretically possible to have a levy on established industries for the benefit of new concerns in selected regions. But this may not be sound as a practical measure. But in spite of all this, deterrents as a measure of control are not as reliable as either inducements or an absolute prohibition. The method of absolute prohibition is the most effective but it should be used only in extreme cases. Where the State is convinced that any further industrialization in an area is detrimental to the interests of the nation the method of prohibition can be applied. Thus the measures available for control have varying characteristics and differing degrees of effectiveness. The entire justification of a system of controls is based on the distinction drawn by Prof. Jones between the original forces or prospective advantages that first attract an industry to a region and the advantages subsequently created by deliberate effort to foster the growth of industry.[1] The latter are not a monopoly of any region and might overshadow the former in enabling an industry to flourish long after the former have lost their strength. Through measures of control the State can create advantages for fostering the growth of industry. By offering such advantages in advance the State can attract industries to desired areas, as it will weaken the original forces of attraction existing in other regions. This device would be particularly efficacious in the case of industries that are more mobile, as they generally seek such facilities to a greater extent than special regional characteristics.

[1] Barlow Commission: *op. cit.*, p. 253.

CONTROL IN INDIA

The suitability of these measures for adoption under the peculiar circumstances prevailing in India may next be examined. Encouragements are by far the most suitable for the purpose of regional planning in India. Mere compulsion without encouragement would cripple the growth of industry which is so essential for an undeveloped country like India. For the same reason deterrents of the type discussed in the preceding paragraph would be unsuitable for the purposes of our country, as industry is not in a strong position yet either to withstand them or to circumvent them. Besides private enterprise in India is not so enlightened as to interpret these deterrents as a means only to divert industry geographically. On the other hand, there are chances of its being interpreted as mere handicaps to industry created by the State. The consequence of it would be that several industrial propositions will be still born. The extreme measure of prohibition should have to be applied in India even more sparingly than in other countries. To deprive it of its destructive character and its crippling influence on industry every instance of prohibition must be accompanied by positive measures of encouragement to develop in another area.

Among the particular measures of encouragement there is a great need in India for the creation of utility services in undeveloped regions. It is the lack of such facilities in several regions that has determined the original location of industries in the country. Good transport relations and the availability of power have exerted a decisive influence on the earlier industrial concentrations. With the improvement in transport services and the development of hydro-electric generation there has been a scatter of the industry. There is still much leeway to be made in this direction. In fact, a greater part of the subsidization that may have to be undertaken by the State in India should take this form. The power generating stations may have to be heavily subsidized

to offer power for industry at a considerably low rate in undeveloped areas. Wherever power generation is directly undertaken by the State its operation should not be made to conform strictly to commercial principles. The financial loss, if any, may have to be borne by the general revenues. If the entire power generation of the country is nationalized the State should adopt a scheme of off-setting the loss arising in developmental areas by the profits accruing from the highly developed and concentrated industrial regions. Similarly the system of transport rates have to be radically revised even to the extent of State subsidization if the expected revenues threaten to fall short of expenditure.

There is nothing unorthodox or dangerous in the State introducing a differentiation in its scheme of taxation of industrial incomes on the basis of the areas from which they accrue. Here what is conceived of is a reduction in the basic rate for undeveloped areas and not an enhancement of it for developed areas. Indian industry is not in a position to bear any enhancement in income-tax even in the well-developed areas. For the same reason a levy on industry elsewhere for the benefit of new concerns in undeveloped regions is out of question. There is also a strong case for direct subsidization to individual industries in India. The criterion for it should hereafter be based not only on the nature of the industry but also on its place of location. In this respect the usual means of protection for selected industries through tariffs would be of no avail. Even in the absence of the special object of regional development the effect of tariff protection is not as direct as that of subsidies. So tariffs can help the national industries only in a generalised manner. They have therefore to be supplemented by subsidies with the important proviso that such subsidies should be related to particular regions chosen for development. To take a concrete example, the manufacture of special steels in India should receive tariff protection, but in addition to it subsidies should be paid to particular concerns operating in certain

potential industrial areas like the Salem district of the Madras Presidency or in the iron ore regions of the Central Provinces. The purpose of these two measures can be easily distinguished. Tariff protection enables the Indian industry to withstand foreign competition and the subsidy brings about a desired distribution of the industry and helps the exploitation of resources in undeveloped areas.

In the sphere of direct financing of prospective concerns the State in India has perhaps a more onerous responsibility than in Western countries. The investment habit has not developed much in India and there is also a great disparity in the capital resources of the different provinces.[1] So the backward areas cannot be expected to have either adequate financial resources or the courage to invest in untried and doubtful propositions. So the State has perforce to play an active part in financing the industries. The most healthy line of action in this respect would be a participation by the State in private enterprise by the contribution of a certain proportion of the total capital. This form of financial partnership is particularly suitable under Indian conditions because finance as well as enterprise would be lacking in the backward areas. This method would probably be more economic than a guarantee of loans to private concerns as the State can exercise a large measure of control over its operation by having its own representatives on the directorate of the concerns.

In India the social measures to be undertaken by the State need not be as far-reaching as the economic measures. The absence of adequate dispersion of industries in India is not due so much to the lack of recreational amenities in the undeveloped areas as the inadequacy of economic facilities. Relatively speaking, the Indian industrial population does not attach the same importance to the amenity value of different sites as the industrialists in the West. No doubt facilities for health and education will play a part, but they

[1] See Chapter III *supra*.

have not been the influencing factors in the concentration of industry in some of the metropolitan cities of India. Besides even in such industrial cities social conveniences like housing and sanitation for the industrial workers leave much to be desired. It is in spite of these deficiencies that industry has concentrated in such areas. Therefore if favourable economic conditions are created private enterprise would be ready to undertake industrial development in backward areas. Some of the essential social amenities like good housing, medical treatment, and facilities for education may follow in its wake. At the initial stages there may not be much necessity for large expenditure for the creation of recreational amenities. The needs and demands of the Indian population in this respect are simpler and less ostentatious.

Lastly, the propriety of the system of Trading Estates in India may be examined. In the first place, it is doubtful if private organizations for the purpose would come into existence. The return on capital on a proposition of that nature would be too meagre to attract private investment. A country which is on the eve of large developments in the industrial sphere will have so many avenues of more profitable investment that the scheme of Trading Estates may not prove to be sufficiently attractive. In a country like the United Kingdom the surplus available for investment is so great that capital will be forthcoming even for such ventures, but in India, with its meagre capital resources, it is doubtful if such propositions can expect sufficient capital. Further the rate of industrial mortality in India is so high that a Trading Estate in this country cannot reasonably expect a steady income from its tenants.

There appears to be another objection to the scheme from the nature of State control to be exercised over location of industry. It is envisaged that in India there should be a comprehensive control over industrial location by the State. It implies therefore that the discretion of the Trading Estates for the selection of its tenants is strictly limited. As a

commercial venture it will suffer seriously from this limitation. The provision of site and building facilities by it has therefore to be done in consultation with the State. For all practical purposes the State may have to issue detailed instructions regarding such facilities on the basis of its plan of regional dispersion. So it is only within that limited sphere can the privately organized Trading Estate act and operate for commercial profits. In the United Kingdom when the idea of the Trading Estate came into existence the State did not contemplate to exercise any control over industrial location. In fact, indirectly and unconsciously it was left to the Trading Estate to encourage or discourage the growth of certain industries in their area. But in India as the idea of State control over location has preceded the establishment of Trading Estates the full value of the latter cannot be available. Besides it is likely to involve a dual control under the envisaged policy in India if even a small discretion is left with Trading Estates. On the other hand, if they have to obey the behests of the State in every detail their presence is superfluous. So under the circumstances the method of the Trading Estate does not seem to hold out much promise for India.

The normal functions of the Trading Estates can be entrusted to a public corporation specially organized for the purpose and operating under the Regional Authority. As already observed several public corporations for various purposes have to be organized in each region to fill the voids created by a lack of private entrepreneurial ability. One among them can be for discharging the functions of what is generally understood as a Trading Estate. There will be scope for its operation in different areas of the same region. This would be carried out by the staff and out of the finances of the provincial branches of the public corporation organized by the region. This method of entrusting the function to a public corporation is preferable to direct State action as the advantage lies not only in a delegation of functions but

in reducing loss by running it on commercial lines even though the aim of making profits is avoided.

METHOD OF APPLICATION

So far the general measures of control and the manner in which they could be adapted for Indian conditions have been described. A few words may now be added about the actual means by which such measures could be applied. The fundamental requirement under a scheme of comprehensive control is the power to allocate definitely industries to particular regions. This could be effective only by means of a system of licensing. Every prospective concern has to apply to the regional authority for permission to locate itself in a particular area. That means the individual choice is indicated therein. In order to facilitate this initial choice full information must be made available through publicity about the relative merits of different regions. The individual choice will therefore be in itself more scientific than what would prevail in a system where the State practises absolute indifference. The State may or may not approve the individual choice. The State may disapprove in cases where there is a conflict between the wider social interests and individual interest. Alternative locations may be suggested by the State and ultimately the concern can start in a particular area only on the basis of a license issued by the State authority.

As a system of long-range policy the State has to take powers by legislation to license the starting of new factories and the expansion of existing ones. But there are also a few indirect means for achieving the allocation of industries in particular regions. These indirect means would be available during the present transitional period after the war when the system of war-time controls continue to be in existence. Under the Capital Issues Control Order the Government of India have been performing the task of industrial licensing.[1] Having fixed targets for each industry the Central

[1] *Eastern Economist*, March 22, 1946.

Government of India is allocating the applications for new concerns on a regional basis. But this transitional device cannot be as thoroughgoing as a direct system of licensing. So in due course this aspect of the function of a control over capital issues should be merged with a system of licensing. A control over capital issues may however be retained for another purpose, namely, to facilitate the migration of capital to regions where capital resources are meagre.

A similar indirect means of the transitional period is the system of building licenses in the United Kingdom. In the Board of Trade's Bill for the distribution of industry in England attempts are made for limiting development in congested areas. The Board of Trade can use its arts of persuasion though it will not be vested with powers either to approve or disapprove. In some areas however there is to be a right of prohibition as any further development among them would be detrimental to the proper distribution of industry. In this connection it is felt that the Board of Trade can also exercise influence through the war-time system of issuing licenses for erecting new buildings. But this will be effective only as long as materials and labour are in short supply. When building licenses are no longer needed a control over distribution of industries cannot be exercised by this means.[1] So these transitional measures have only a temporary value and therefore it is unwise to place much reliance on them. They have to be substituted by permanent measures involving a direct and effective system of licensing. In this respect the Bill for the Distribution of Industry in England does not seem to contain adequate powers for the prohibition of development in congested areas. By itself it will be incapable of securing a balanced distribution of industry in the country.

MACHINERY FOR CONTROL

Finally, the nature of the machinery for control awaits examination. The P. E. P. Report on the Location of

[1] *Economist*, March 3, 1945.

Industry in Great Britain has recommended the constitution of an Industrial Development Commission for guiding the location of industry. The purpose of the Commission is to avoid the undesirable social and economic consequences of uncontrolled growth. It has also to redress the lack of industrial balance giving rise to incomplete employment of men and resources in some areas and labour shortage and strain in others. It is expected to prevent the rise of derelict areas. Through a proper guidance of location the Commission can avoid the increased cost of living and loss of amenity due to excessive industrialization. From a strategic standpoint it could avoid the vulnerability during a war. Lastly, through a provision of information about various regions it has to guide the future location of industry.

The Industrial Development Commission is to be vested with the power to license factories in order to control undesirable developments. The interference is however to be reduced to the minimum by a declaration that the grant of licenses would be automatic in the case of certain industries or certain areas or in case of certain industries in relation to certain areas. The primary task of the Commission is to divide the country into economic regions and to indicate their needs for achieving industrial balance. It has to disseminate this knowledge for the benefit of the public. The existing distribution of industry and national resources in the country have to be ascertained. The Commission is to be responsible generally for the application of encouragements and deterrents. It is also to be empowered to advance money for the promotion of new concerns in desirable areas. Wherever necessary the Commission can set up Trading Estates. The Commission is to be made responsible for the preservation and restoration of amenities. While issuing licenses it has to attach a condition that the local amenities should be safeguarded. Finally though its functions will be to a certain extent restrictive in the sense that an unfettered choice of location can no longer exist, its primary task is to

be educational and informative rather than regulatory. Its success will depend upon keeping its licensing powers in the background.

The Barlow Commission recommend the establishment of a new national authority to be called as the National Industrial Board. The Board can establish regional bodies to study problems of industrial location in different parts of the country. The Board is to have a few advisory and non-executive functions, such as the collection and co-ordination of information relating to location of industry in the possession of the various Government departments. It has to conduct research about the various natural resources that may influence and be influenced by industrial location. It must advise government and industrialists about problems of industrial location. Finally, it should hold itself responsible for adequate publicity about all information concerned with location.

The Board should aim at a redevelopment of conjested areas and try to secure a decentralization of industries and industrial population. Various methods may be adopted for this purpose, such as the establishment of the Trading Estates and the development of undeveloped regions. In fine, it has to encourage a reasonable balance of industrial development throughout the country. As regards the highly congested industrial areas the Board is to be vested with powers to regulate the establishment of additional industrial undertakings. It can refuse to give consent in such cases unless it is convinced that the concern cannot be conducted on an economic basis elsewhere. As part of this regulatory power the Board should be enabled to attach conditions where consent is given and impose penalties for action contrary to the decision of the Board. Applications for the consent of the Board are to be made in a stipulated form. Public enquiries could be held by the Board about the applications from individuals for its consent. These negative powers of the Board are to apply in the first instance only to London and the Home Counties, but provision is to be

made for an extension of it to other areas, if necessary, in due course.

The fundamental difference between the recommendation of the P. E. P. Report and that of the Barlow Commission with regard to the machinery to be created for control of location is in respect of the scope of their powers. Though both of them contemplate the establishment of a national body to control industrial location, the Barlow Commission confines its powers of regulation of industrial location only to certain specific areas which are at present congested. The P. E. P. Report, on the other hand, invests the national board with wider powers of control through the system of general licensing of industrial establishments. That means, whereas the Barlow Commission leaves the dispersion and the regional allocation of industries to the discretion of private enterprise, the P. E. P. Report brings it also under central control. This difference in the nature of the powers of the machinery is due to their difference of opinion regarding the sanctity of individual choice of sites. As the Barlow Commission feels that the State cannot be wiser in its choice than the private industrialists under the ever-changing conditions of industry, it has limited the scope of action of the national authority. The P. E. P. Report has shown that the individual choice is not always infallible. Besides, as the State can envisage better the changes in economic circumstances and as it can also bring under control many of the forces determining location, it would be far more advantageous to have a comprehensive control over location. On other matters, such as research and publicity, there is not much difference in the recommendations of the two bodies. Both of them expect the national organization to investigate and disseminate knowledge for the benefit of the industrialists and the Government.

MACHINERY FOR INDIA

With regard to the type of machinery appropriate for Indian conditions there is reason to think that more inspiration

can be drawn from the recommendations of the P. E. P. Report than from those of the Barlow Commission. It would be futile to limit the powers of regulation of the machinery to be created in India on the lines suggested by the Barlow Commission for England. The recommendation of the Barlow Commission is only curative and not preventive. Further, if regional planning is to be successful in India and capable of quick execution, such a disproportionate reliance on private enterprise is not advisable. To accelerate the process of regional planning it is necessary in India to have regulatory powers for a comprehensive control over industrial location, as suggested in the P. E. P. Report. In India, though it is true that there are a few congested industrial areas standing in need of immediate relief, the problem which is even more pressing is the industrialization of undeveloped areas for the twin purposes of exploitation of dormant resources and the provision of occupational opportunities. This can be achieved only by a deliberate action to develop industries in those regions with the help of regulatory powers over location throughout the country.

In respect of the special machinery for India the Central Planning Board and the Regional Authorities whose establishment has already been envisaged would be adequate for the purpose. It is not necessary to create any machinery apart from these for the purpose of regulating industrial location. Since the main thesis of this work is that control over location is only an instrument for regional planning it stands to reason that the Central Planning Board should itself be vested with powers for controlling industrial location. The regional licensing can be done by the Central Planning Board and the actual choice of the site within the region may be entrusted to the Regional Authorities. Other ancillary measures, such as encouragements and deterrents would rest with the Regional Authorities. The main licensing of industrial establishments would commence in the first instance with the Central Planning Board and end ultimately with the

choice of the particular site by the Regional Authority. The purpose of this division of functions is that the regional allocation should be based on national considerations which the central authority is in a better position to judge and the subsequent choice of the site for the concern is a matter on which the Regional Authority will be in a much better position to advise. For a country of such vast dimensions as India this kind of differentiation of functions in respect of location of particular concerns is necessary.

In the actual administration of licensing there should be definite rules of which the public are aware. All the criteria determining location, such as the special economic and the wider social principles, should be made known to the public before they are actually applied. This is very essential, as the system of licensing is the corner-stone of regional planning. Its application should be done on strictly scientific lines. So in conclusion it could be said that a control over industrial location by the State is an integral part of Regional Planning.

CHAPTER VIII

TRANSPORT RATES AND REGIONAL PLANNING

So far various factors that are directly concerned with the technique of regional planning have been considered at some length. A thorough success of regional planning is not however possible without the co-operation of a few ancillary factors, the chief among them being the means of transport. The test of adequacy in this respect depends upon two considerations, namely its availability to the extent to which the envisaged plan requires it and its cheapness. The absence of either of these two conditions can checkmate a plan which is otherwise quite sound. The form of transport most suitable to give effect to each aspect of the plan drawn up must be available in a requisite measure and it should be economic for the purpose for which it is intended. For either of these considerations it is the demands made on it by industry that is of primary importance. The economic factors influencing transport as such have to be subordinated to the higher needs of national development. In other words, measures which are not strictly economic in the operation of transport systems, such as State subsidization for reducing freight rates and an extension of means of transport in non-remunerative areas have to find a place in transport policy in order to make a success of regional planning.

MEANS OF TRANSPORT

In India railways occupy a predominant position among the means of transport. The volume of traffic carried by the railways is relatively much higher than that of any other form of transport. The amount of freight originating on the railways is in the neighbourhood of about 9·59 crores of tons and the number of passengers carried is about 78·93 crores. A total capital expenditure of about Rs. 858 crores

has been incurred on the railways. Most of the lines are State-owned as nearly 89 per cent. of the capital invested belongs to the State. The total route mileage is about 43,000. Railways are therefore the most important means of transport in the country and for all purposes of immediate economic reconstruction their co-operation would be invaluable.

Water transport in India has not so far played an important part. In spite of its obvious advantages the development achieved in that direction has been meagre. Inland water transport by means of navigable rivers and canals has received very little attention except in certain provinces like the Punjab and the United Provinces. No attempt has been made by the State either to regulate this traffic or to bring under control the existing competition between different inland water carriers. The position with regard to coastal and marine transport is by no means better. In spite of her long sea-board India has not been able to develop coastal shipping to any appreciable extent. Attempts to reserve coastal traffic to Indian shipping have failed due to vested interests. It is estimated that India has the smallest navy and the smallest mercantile marine, the total Indian registered tonnage not exceeding 150,000 tons.[1] There is therefore much leeway to be made in this direction. The two obvious lines of approach for improving the position are a reservation of coastal traffic to Indian shipping and the establishment of an efficient ship-building industry. The potentialities of development in this direction for purposes of planning are immense since a poor country like India stands in great need of economy in transport which is a characteristic feature of water transport.

During the past four decades mechanical road transport has made a spectacular progress in India. But its progress has neither been orderly nor entirely beneficial to the country

[1] H. M. Trivedi: *The Future of Indian Shipping: 15 Years Ahead*, Fazalbhoy Publications, p. 127.

as it has not been regulated on the basis of any well-thought-out plan. It has no doubt sufficiently disturbed the normal functioning of the railways by taking away the cream of its traffic but its full potentialities have neither been exploited nor conserved for the benefit of the country. Several measures have been applied by the State to improve the basis of its operation such as the creation of a road development fund and an enunciation of principles for the co-ordination of road and rail transport. But the full implications of its development for the execution of a national plan has not been recognized. The chief preoccupation of the State so far has been merely to control the severity of its competition in order to preserve the *status quo* of the railways. It should be obvious that this approach to the problem is entirely erroneous. In the first place, by its very nature mechanical road transport is bound to affect the scheme of operation among the railways compelling suitable adaptations. Secondly, its potentialities for economic development may be so great that to harass it with controls with the single purpose of maintaining the railways in good condition is shortsighted. In other words, it is important to realise that both railways and road transport have a national cause to subserve and if in the attempt they happen to affect each other adversely, suitable adjustments have to be made between them keeping in view the ultimate objective of national progress. A neglect of this aspect of the problem so far is due to the fact that the transport system of the country has been considered more as an entity by itself rather than as one of the factors in the scheme of economic development.

So an important feature of the existing means of transport in the country is their extremely individualistic attitude. Each form of transport has developed in a manner conducive to its own interests and as dictated by the narrow commercial needs affecting it. What is worse is that even within each form of transport the individualistic tendency prevails as

between the different units operating it. This is no doubt characteristic of the capitalistic system but the normal conventions and rules of the capitalistic regime do not strictly apply within the realm of the transport industry. The railways cannot function economically unless they exercise their powers as a discriminating monopoly and the competition of the road transport is tainted by an element of indirect subsidization by the State. Therefore if the different forms of transport are left to themselves to settle their problems by means of the weapon of competitive rivalry the trade and industry of the country would be victimised. Besides this form of settlement is incompatible with the aims of a planned development of the country. Each form of transport may have a particular purpose to serve in planning and there is no guarantee that they will be preserved for the nation, to the extent they are required if they are left to the mercies of uncontrolled competition. Several attempts at co-ordination have certainly been made but the aim has throughout been to maintain the integrity of the transport system. It has not so far been realised that its interests ought to be subordinated to the aims of national development.

With regard to the adequacy of the means of transport for launching a comprehensive scheme of planning, the existing development leaves much to be desired. Considering the vast dimensions of the country its railway mileage is poor as compared with other countries. The scope for the development of motor transport is limited by the road mileage in the country. India compares very badly in this respect with some of the Western countries. Whereas in England there are 2·02 miles of road to every square mile, India has only 0·15 mile. For every 100,000 of population there are 2,500 miles of road in the U.S.A., but in India the corresponding figure is only 61 miles. Inland waterways remain absolutely undeveloped and air transport is still in its infancy. Therefore there is still a great need for developing the means of transport in the country, as otherwise it may prove to

be a serious bottleneck for planning. An improvement of the inland waterways and the reservation of coastal traffic to Indian shipping are necessary so far as water transport is concerned. Increase in railway mileage and an abolition of the difference in gauges will make a substantial contribution to the success of national planning. An acceleration of road construction is equally important to exploit the full potentialities of road transport. Lastly, the possibilities of civil aviation await to be fully explored.

RAILWAY RATE STRUCTURE

Having given a general picture of the state of development attained by the transport industry in India a few details about the operation and the system of rate making among the railways may be examined to ascertain their bearing on the economic development of the country. Railways being the most important among the means of transport in the country the principles guiding their operation are likely to exert a determining influence on the nature of the economic progress to be attained in the country. The essential basis of the existing rate structure is the earning of adequate revenues by the railways. This capitalistic principle has manifested itself in the form of a complicated rate structure due to the peculiar circumstances under which the railways were constructed and are being operated. The large specialised equipment which they involve leads to a high proportion of overhead costs in relation to operating costs. In practice it is impossible to allocate these overhead costs accurately among different units of traffic. The existence of the large specialised equipment warrants an effective utilization of the plant as it is beneficial both to the railroad and the shipper to do so. It also incidentally deters potential competitors from entering the field. Thus the railways have become natural monopolies of organization.

These features about the capital and operating costs among the railways have given rise to certain peculiarities in their

rate making. Since allocation of costs is not possible in practice, costs have ceased to be the basis of their rates. At the same time the benefits accruing from an effective utilization of plant due to the existence of decreasing costs among them leads to an anxiety to carry as much traffic as possible. The combined effect of these two tendencies is to ignore cost even where it is available and to carry traffic at a price lower than its full cost. The implied meaning of this principle is to make cost play a limited role. Even though the entire cost of transporting any unit of traffic is unascertainable due to the difficulty of allocating overhead costs the special or differential cost of each item can be reckoned with. One of the principles of rate making is to recover at least this portion of the costs from all traffic irrespective of their nature or value. The role of cost in rate making ceases with this, as the other portion of the cost, namely, the proportion of overhead costs is not amenable to allocation. But the differential cost can only serve as the minimum below which rates cannot fall, because the entire cost of carriage cannot be recovered by this means. Hence they resort to another principle, namely, the value of service principle on the basis of which some of the more valuable items of traffic are made to contribute a larger share of the overhead costs than what might be due from them. This method has been found feasible as the more valuable among the goods transported can afford to pay a higher rate than what it might actually cost the railway to render the service. This system is generally known as the method of charging according to "what the traffic will bear". The implications of this principle are that one class of users are taxed to subsidize another and thereby even those who cannot afford to pay the full cost of transport are given an opportunity to avail themselves of the service. On closer examination however it could be seen that the advantage is not all on the side of the so-called subsidized users of the service, because even the low grade traffic very often contributes

something towards the overhead expenses and as such the rates which the high grade traffic should have had to pay if low grade traffic was not carried at all might have been much higher than what it is at present. So even though there is no strict equalisation between marginal utility and cost the system provides for a larger aggregate amount of traffic to be carried and for a fuller utilization of installed plant.

Theoretically this system of rate making has been evolved to obviate the difficulty arising out of the indeterminateness of the unit cost of transport and to take advantage of the operation of decreasing costs until the maximum capacity of the line is reached. To give effect to this principle the railways must have the power to discriminate in their price structure. In other words, they must be able to act as discriminating monopolies. The incentive to discriminate in prices among monopolies arises out of three considerations, namely, the motive for differentiation, the ability for differentiation and the benefit of differentiation. The motive for differentiation is strong when the proportion of overhead costs to prime costs is high. Then the advantage lies in maximising total revenue by means of a scheme of differential prices. Since the proportion of overhead costs is high among the railways a strong motive for discrimination exists. The ability to discriminate depends upon the capacity to isolate markets so that competition of similar products from elsewhere is prevented. Among railways such isolation is quite feasible as the service meant for one class of traffic cannot be utilized for another. Thus they are also in possession of the ability to discriminate. Lastly, the benefit of differentiation is in proportion to the difference in the elasticities of demand in different markets. Among railways the policy of discrimination is always likely to be profitable as the elasticity of demand of their customers is bound to differ. Thus from all standpoints the railways are eminently suited to function as discriminating monopolies. In fact it is this power to act as a monopoly and to discriminate in prices

that has been the basis of their rate structure. The force of this argument can be further borne out by the vulnerability of the rate structure in the face of any threatened potential competition. The immediate reaction of the road competition with railways has been an increase in the importance of special or exceptional rates. Though this has not meant any fundamental change in the structure of railway rates, still the large volume of traffic carried on its basis has reduced the importance of the class rates. These exceptional rates are being used more or less as a competitive weapon against road transport. One important consequence of a more generalised adoption of the special rate system would be to undermine in due course the differential structure of railway rates. In other words, the discriminating character of the rail-rate structure will automatically disappear if a very large proportion of the traffic is carried on the basis of special rates. Unless road competition is effectively neutralised the differential structure of rates on the railways cannot be maintained. Hence the entire scheme of rate making among the railways depends upon its power to act as a discriminating monopoly which has become extremely vulnerable due to road competition.

The technique adopted to give effect to the theoretical principles enunciated in the preceding paragraphs is the classification of goods into categories and the application to them of what are known as class rates. The system of classification differs in different countries. In the U.S.A. there are 8 to 11 classes in the several territories and in the United Kingdom there are 21 classes. On the Indian railways commodities are grouped into sixteen classes and they are charged differently according to a maxima and minima rate laid down for each class. In assigning commodities to the various classes, though the value of service principle is the guiding factor, it has to be often modified by other considerations, such as the size of shipment, the class of service, bulk of the article in proportion to its weight, nature of

packing, competitive carriers, etc. In India the class rates are of two types depending on whether the maximum rate is charged or a rate lower than the maximum is charged to encourage the growth of traffic. In the latter event it is known as an Adjusted Class Rate. So the classification of goods is to be distinguished from the actual rate applied to each commodity within the margin available between the maxima and minima rates for the classes. Therefore the classification gives the rating and the freight tariff gives the rate. A second variety of rates in vogue is the schedule rates which are invariably lower than the maxima rates and are telescopic in character, determined by the length of the haulage. As it is more economic to haul a longer distance, since the terminal charges do not vary with the length of the haulage, the rate is made to decline progressively with distance. This principle may also take certain special forms such as the basing point and the system of group rates. A characteristic feature of the system of basing point is that as one approaches the basing point, the rates decrease as distance increases. A basing point may be defined as one where an alternative mode of transport is available at a more economical rate. Under group rates there is a grouping of a large number of points of origin or destination for the purpose of rate making. It is however sometimes argued that rates that are strictly related to distance are socially advantageous, since they discourage wasteful transportation. They favour local production in surrounding areas and interfere less with the natural migration of industries to favourable localities. A more detailed consideration of this aspect of the problem may be deferred for sometime.

A third variety of rates in India are what are known as station-to-station rates quoted between particular stations either to encourage the growth of new traffic or help particular industries. Rates similar to these are known as commodity tariffs in America and exceptional rates in England. These rates are quoted directly on an article

instead of through the medium of classification and are always lower than the class rate they displace. Some articles are always carried under commodity rates in the U.S.A. and others have commodity rates only between specified points so that on certain articles both class and commodity rates can be found. Goods carried under class rates are usually manufactured products of a relatively high grade. Low grade shipments and large shipments are usually carried by the commodity tariff. They represent the bulk of the tonnage and in England and America about 60 to 75% of all freight moves by them. In India however only a small proportion of the total traffic is carried on the exceptional basis, such as the station-to-station or schedule rates.

It is thus evident that in the scheme of rate making there is considerable scope for the exercise of judgement in fixing a suitable rate. The difference between the maxima and minima points provides a margin and there are also the exceptional rates for the purpose. The factors that generally influence such judgement are the competition of routes, markets and alternative modes of transport. When there is a competition of routes between two railways the rate is based on the shortest rail distance. If there is a competition between markets equivalent freight rates to all markets are charged. The idea is to equalise differences that may operate for or against any market or a producing area. In the event of an alternative mode of transport like water or road the railway rates are suitably adjusted. In the U.S.A. to meet motor truck competition there are what are known as truck-made or truck-compelled rates. Occasionally rates may also be reduced to give assistance to industry if the reduction is not below the point of compensating the railways.

RATES IN INDIA

The rate structure evolved by the Indian railways manifest most of the tendencies that are generally in vogue among the railways in Western countries but the salutory effects of some

of them are nullified by certain peculiar local features. The chief among them is the system of 'discontinuous' mileage in the operation of the schedule rates. According to this, long distance traffic does not get the benefit of the telescopic rate for the entire mileage over which it is hauled but only up to the local distance of each railway. Particularly in a country of long distances like India a calculation of schedule rates on the basis of continuous mileage would yield beneficial results. There is not much justification for this practice particularly after the nationalisation of most of the railways in India. The only serious consequence of the adoption of the 'continuous' mileage principle may be a loss of revenue. As a solution for this the Wedgwood Committee suggested that station-to-station rates may be quoted in all cases of real hardship due to the discontinuous mileage system so that the shippers may be benefited without affecting the railway revenue to any considerable extent.[1] But this suggestion can neither do justice to all cases of hardship nor insulate entirely against the loss of revenue. Besides the suggestion overlooks the large proportion of potential traffic that might have been discouraged from embarking on the journey due to the heavier cost of transport. As for revenue, if the station-to-station rate is made in effect to correspond to the continuous mileage principle in all cases of hardship, it is bound to result in a loss. Besides the schedule rates and the station-to-station rates are constituted on two different principles and cannot therefore be substituted for each other for purposes of expediency. The telescopic character of the schedule rates corresponds to the economy of long haulage whose benefit is legitimately due to the traffic concerned whereas station-to-station rates are exceptional in character due to certain extraneous circumstances and are irrespective of the value of service or cost principle. Therefore the logical development of this aspect of the Indian railway rate system is the introduction

[1] *Wedgwood Committee of Indian Railway Enquiry*, 1937, p. 81.

of the continuous mileage system for all traffic concerned. The primary consideration in this respect should be national necessity and not the interest of the shipper. Consequently the State can reserve the right to disqualify such long distance traffic if it is likely to lead to uneconomic location of industries. In any event the railways should normally quote rates on the 'continuous' mileage principle so that the State as well as the shipper may have a knowledge of the actual transport charges. For any modification thereof the discretion must rest with the State and not with the railways.

Another defect in practice is the diversity of schedules on the Indian railways. The State regulation in this respect has merely specified the classes and the maximum rate for each class, without classifying the commodities into different categories, and what is more important, restricting the transfer of goods from one class to another. Consequently there is no uniformity in the practice of rate making among the different railways. The case of cement in India is an important instance of such a diversity. A certain degree of diversity may no doubt be permissible due to variations in the nature of road bed and conditions of traffic but an arbitrary indulgence in it is not in the interest of economic development. So the Wedgwood Committee also felt that there is a great necessity to work in the direction of greater simplification in this respect. Otherwise it is likely to create unequal competitive conditions for industry in different parts of the country. Therefore unless they are fully warranted by natural and traffic conditions such diversities have no justification to remain.

There is also a difference in India as compared with other countries in the treatment of the risk element in the carriage of goods. In the Indian rate structure there is a greater tendency to encourage traffic being carried on owners' risk. The schedule and station-to-station rates are invariably quoted on the basis of owners' risk. If railway risk is preferred the class rate becomes applicable. In the class rate

there is a choice for the party between owner's risk and railway risk, but the proportion of difference between the two is far in excess of the actual degree of risk. On foreign railways the corresponding conditions are entirely different. On American railways goods are always carried on railway risk and on the English railways the Railway Rates Tribunal determines the percentages of difference between railway risk and owner's risk rates according to the susceptibility to damage. Besides even exceptional rates have a corresponding railway risk rate unlike the Indian system. It is a regrettable feature of the Indian railways that the consignor is unable to insure himself against risk at a reasonable price. There is also not much justification for punishing the choice of exceptional rates by the imposition of the owner's risk basis.

The preferential treatment according to import and export traffic as against internal trade has been a weighty allegation against the Indian railways. The Acworth Committee[1] and the Public Accounts Committee of 1934–35[2] were of opinion that the allegations were not fully supported by facts. They say that the alleged practice might have been in existence some years ago when the country was relatively less industrialized and the bulk of the traffic was at the ports to which the tariffs had to be adjusted. At present there are no such preferential rates except the quotation of special rates to and from ports because they are the chief distributing centres and important industrial areas. But even though there may be a certain amount of justification for this unless each case is examined on its own merits the old practice might revive and persist under the guise of economically justifiable special rates. An encouragement of traffic to and from a port is inconsistent with a sche[illegible] of regionalism.

[1] *Acworth Committee on the Administration and Working of Indian Railways*, p. 50.

[2] *Report of the Public Accounts Committee*, 1934-35, Appendix VII.

AN APPRAISAL OF EXISTING PRACTICE

So far the characteristic features of the rate structure among the railways in general and the special defects in India in this respect have been examined in some detail. The complicated nature of the rate structure is justified by the peculiar conditions governing railway construction and operation. To operate the railways on commercial lines and to earn adequate revenue such complications in the rate structure are inevitable. But though this system of rate making may be justifiable from the standpoint of the railways it is not fully compatible with schemes of general economic progress or a balanced industrial development in a country. Some of the features of the rate structure tend to yield results entirely contrary to the fulfilment of a scheme of planned development of industries. The principle of discrimination in rates which is the fundamental basis of their structure pays no heed to any of the wider economic considerations except the earning of adequate revenues by a full exploitation of all the traffic from the standpoint of their value. An entirely different form of discrimination based on the relative needs of different industries and areas of development may have to be substituted for it if the objective of rate making is national progress instead of adequate revenues for the railways. Besides in the actual application of the rates there are so many instances where they exert a prejudicial influence on economic development. The quotation of special rates to ports has a tendency to subsidize imports and exports to the detriment of local industries. It means virtually an indirect subsidization of foreign competitors by Indian manufacturers. Further, the system of low rates from ports discourages the use of local raw materials and encourages the import of foreign materials. For instance, the cotton mills at Ahmedabad and Nagpur find it more expensive to get Punjab-American cotton than to import foreign cotton through Bombay at reduced rates. Conversely, the same local cotton is exported to Japan

at reduced rates available from the Punjab to Karachi port.[1]

The revenue earning motive which is predominant in the present rate structure is also responsible for the encouragement of long hauls as against short hauls. This is a special form of place discrimination. In its extreme form a larger aggregate sum is charged for a shorter than a longer distance in the same direction. The justification for it is no doubt due to the large proportion of overhead costs which do not vary with the volume of traffic. But the objection is that it tends to increase the rates charged at the intermediate points rendering them incapable of competing with more distant points which receive preferential rates. Some of the intermediate points may perhaps be better suited for industrial development than the more distant points, but under the present system of rates they are being discouraged as otherwise it would result in a fall of revenue. Further, a concentration of industry is invariably preferred by the railways to dispersion as it encourages long hauls. So the social consequences of such concentration and the economic disequilibrium resulting from it are matters in which the railways are not directly interested. They are also indifferent to the larger national objective of a full exploitation of the available resources of the country. Only such of the resources which can yield an adequate revenue can get a chance for utilization by being transported to its appropriate places of exploitation. The undeveloped areas in the country are not likely to be patronized by the railways since it is not lucrative to do so. Therefore on the existing basis of railway rates it is difficult to expect the co-operation of the transport system for industrialising backward areas. So from various standpoints the rate structure as evolved at present does not seem to be in consonance with the aspirations of a planned development of the country.

[1] Tiwari: *Railway Rates in India*, p. 225.

Apart from the depressing influence that a rate structure based on revenue considerations is likely to exert on economic progress in general it is also responsible for the geographical pattern of industrial development in a country. In other words, the nature of industrial distribution may be affected by it because all factors except labour are largely matters of transportation costs and an industry will tend to locate where the aggregate transport charges are the least Therefore for regional location the relation of rates is very important. The places of industrial location are extremely susceptible to variations in the nature of transport rates. For instance, if the rate on finished products is higher than that on raw materials the location will tend to be at the consumption centre. The practice of grouping points of origin or destination equalises the advantage of all towns in the group and has a decentralising effect on industry. Thus the peculiarities of the freight rate structure exert a profound influence on the location of industry.

Generally speaking there are three alternative ways in which transport rates can influence industrial distribution.[1] They may be in their effect positive, negative or indifferent. If they are positive there is definite encouragement for traffic to move in a particular direction. If this influence is in the direction envisaged by the State the rate structure may be said to co-operate with the planning of industrial location. On the other hand, it may be negative in the sense that it hinders the normal movement of goods as influenced by economic conditions. Under such circumstances it is necessary to see if industries are being led away from their legitimate places of location. Lastly, it is also quite likely that the rates are absolutely indifferent by being neutral in their effect on the type of industrial distribution evolved in the country. The negative influence is pernicious and the neutral attitude is not helpful. Unless it has a positive influence,

[1] Author's article on "Transport Rates and Industrial Distribution" (*The Indian Journal of Economics*, January 1946).

the transport system cannot be said to be an active agent in the execution of a national plan. Under certain circumstances it might even indirectly nullify the fiscal policy of the country. Consequently the success of regional planning would depend upon the nature of influence exerted by the existing rate structure.

The problem may be examined with reference to particular industries in India. The cotton industry was initially concentrated at Bombay and was subsequently scattered to the up-country centres. Neither its initial concentration nor its subsequent scatter have been caused directly by the rate structure. But the rates have had an indirect influence in encouraging the original concentration but discouraging the subsequent scatter. The special rates quoted to Bombay were due to the fact that it was a port city and this incidentally offered an encouragement to the concentration of the cotton industry. The scatter occurred in spite of these rates and were due to the other favourable circumstances elsewhere. In fact the new centres have been experiencing severe handicaps due to the apathy of the rate structure towards them. So even though the new centres are amidst cotton growing areas the importation of better varieties of cotton by them is unavoidable and any railway concession granted to them would have been of immense help, but they are not available and Nagpur is one of the important centres affected by it. So in the case of the cotton industry the railways have in the first instance been indifferent to their place of location. But latterly this indifference has turned out to be a negative influence on the new places of location determined by economic circumstances. It is however definite that there was no conscious attempt on the part of the railways to encourage the development of the cotton industry at suitable centres. The concessions granted to Bombay have resulted only in the imported piecegoods enjoying a better competitive position at the interior consuming centres, neutralising thereby to a certain extent the effect of tariff protection. This is also

true of other textile industries such as woollen manufacture. Except Cawnpore which has various favourable circumstances no other centre has been able to flourish in the absence of exceptional rates. The woollen industry at Bangalore is severely affected by this factor.

In the cement industry transport cost is a very important consideration due to the necessity of securing coal from great distances and the heavy cost of transport on the finished commodity to the port towns which are the most important consuming centres. By nature the cement industry is regional in its location with plants scattered over the country, each of which supplying a substantial area. So the rates on coal to the manufacturing centres and those on cement within the region ought to be favourable for their development. But in India imported cement gets the benefit of schedule rates to the interior to a larger extent than local cement as the latter has to traverse over a large number of railway systems. The discontinuous system of mileage has imposed a severe burden on local cement in catering to distant markets within their region. The recent concessions on coal and the quotation of station-to-station rates in certain instances has given some relief. But the rates on cement have not been evolved on the regional basis of their development. On the other hand, the schedule rates on imported cement have actually interfered with these aspirations.

Special rates are quoted for coal by the Government of India on account of its importance for industrial development. Substantial reductions were effected in the rates during 1926 and 1929 but the surcharge of 15 per cent. levied in 1932 has neutralised the reductions to some extent. In India the importance of transport rates for coal looms large on account of the concentration of collieries in one area. The adoption of the 'continuous' mileage system for coal is a step in the right direction. To ease the situation further it is necessary to quote special station-to-station rates to those industrial centres whose competitive capacity is impaired

by the high cost of coal and where an exploitation of resources is essential from a national standpoint.

The Indian sugar industry is in need of concessions in transport rates due to its high cost of distribution, because of the concentration of the industry in certain areas. The exceptional rates quoted for sugar on the Indian railways have provided it with a transport protection in addition to the tariff protection. So imported sugar has no incentive to compete even on the basis of transport concessions as in earlier days. But this in itself is not a matter for gratification so far as the sugar industry is concerned. The adoption of a rational system of transport concessions is essential for an equitable distribution of sugar all over the country. This policy is warranted by the high concentration of the sugar industry and the necessity to avoid excess output by a multiplication of factories at different centres due to transport protection.

A study of the railway rates in relation to the foregoing industries reveals the fact that except in a few cases, the rate structure in India has not been designed to encourage either a growth or a scientific distribution of industries. Even accidentally they do not seem to have exercised a positive influence on the industrial distribution of the country as the objectives of their rate making seem to run contrary to the correct principles of regional distribution. This appears to be inevitable so long as the revenue earning motive is predominant in their policy of rate making. Neither their basic principle of framing rates nor their large variety of exceptional rates have any relation to the national aspirations of economic progress. Some of the concessions granted by them have even had a negative influence on the normal tendency of regional dispersion. The special rates on raw cotton to Bombay perhaps prevented an earlier scatter of the cotton industry to up-country centres, which might have probably reduced the severity of the depression in the Bombay section of the industry. There is also some evidence to prove

that the special rates from ports have a neutralising effect on the tariff policy. Generally speaking there is an air of indifference on the part of the railways about the needs of particular industries until such time that a competitive route disturbs their equanimity. That means even the concessions granted in the form of exceptional rates are not done from altruistic motives but form part of their technique of enhancing revenues by meeting competition effectively. Therefore the fundamental factor underlying their policy of rate making is the individualistic character of the entire undertaking which warrants the employment of various devices for achieving a fuller utilization of plant and incidentally enhancing their revenue. So long as this character of the transport system continues no objection can possibly be raised against the details of their system of rate making. Under the circumstances the existing rate structure has perhaps been evolved with very great care after expending a good deal of thought over it. But the entire picture changes if the transport system is to be subordinated to the wider interests of national progress. Then our dispute cannot be with the nature of the rate structure but with the underlying principle of transport policy and operation. Hence if national needs are pressing we have to think of alternative principles on the basis of which the transport system of the country has to be worked.

METHODS OF REORGANIZATION

There are two alternative considerations on the basis of which the transport system of a country can be operated, namely commercial and social. It is the commercial consideration which has hitherto been the basis of rate making among the transport services. The adoption of the commercial principle implies the necessity to earn adequate revenue whether the transport system is owned either privately or by the State. In fact even at the time of accepting the principle of State ownership in India on the basis of the

recommendations of the Acworth Committee it was impressed that the railways should be run on commercial lines, meaning thereby that it should earn adequate revenue and be self supporting. This was also partly the reason for the separation of the railway budget from the general budget. So long as this principle is accepted there is no alternative to the system of differential charging in vogue among the railways at present. That is the only feasible device for maximising the revenue through a full utilization of plant. No doubt the proportion of special rates can increase, disturbing the differential scheme of rate structure but the main objective of it would be to meet either route or market competition or to face the competition of alternative modes of transport. It is only under very rare circumstances that exceptional rates would be quoted for meeting the difficulties of particular industries. Though in Western countries a very large proportion of the traffic is carried on the basis of exceptional rates, under private ownership of railways, its extension will not be such as to encroach on normal profits. There can be a slight variation of this principle if the railways happen to be under State ownership and management. The State need not aim at making profits though it may try to run the service on a self-supporting basis. If incidentally it incurs any loss by the adoption of this policy it could be borne out of general revenues. Thus there may be a slightly larger scope for the application of exceptional rates if the railways are under State management. But still the pressing necessity to earn revenue would be predominant as long as the commercial principle is the basis whether the railways are operated by private enterprise or by the State.

As an alternative to the commercial principle some writers have advanced a theory that the transport system should be operated on the basis of social consideration and have enunciated the Social Benefit of Service Principle.[1] According

[1] M. H. Gopal: "A New Basis for Railway Rates—The Social Benefit of Service Principle" (*The Indian Journal of Economics*, January 1946).

to this principle instead of revenue being the basis of operation it would be social service, and any revenue that might accrue would be purely incidental. The expenditure involved in rendering the service is to be met out of the general revenues of the State like those on medical aid or water supply. In other words it is to be interpreted as a social service for the well-being of the community. The justification of this change in principle is that the existing standpoint is not in social interest as it fails to produce the output socially most desirable. Besides it also gives rise to a discrepancy between the point of maximum entrepreneur's return and that of optimum social advantage. This principle of the social benefit of service is said to emerge from the view which regards means of traffic as subservient to the development of the economic powers of the nation. It is said that an adaptation of the rates on this basis is warranted by the varying and growing needs of society. The sponsors of this scheme claim several salutary effects from it for the State, such as an encouragement to industrialization, a fillip to exports, a decentralisation of industries and a redistribution of labour force.

The substitution of this principle will imply a change in the spirit of rate making among the railways. The usual criteria of rate level and rate relativity will have to be looked at from an entirely different perspective. The rate level will not depend either upon the level of traffic or on traffic ability to pay but will depend on wider social considerations. The rate level will be low enough to encourage the use of the transport service by everybody who is in need of it but will not be so low as to be wastefully employed. The criteria determining the rate level would be in the first place the national and *per capita* income of the country. Therefore it should naturally be low in India as the traffic of the country is of a relatively poor quality. Secondly the rate level would also depend upon the pace of industrial progress in the country. Countries where the progress is low would cer-

tainly desire to have a low rate level. Lastly, the competitive position of the country with the outside world ought to be an important criterion in determining the level of rates. They ought to be low enough to encourage exports wherever they are economically necessary.

Similarly the question of rate relativity will also undergo a healthy change. While the existing discrimination in rates is between commodities, based on the differences in their value, places and conditions of carriage, the discrimination under the new scheme would be between industries and between regions. Those industries which are of national importance and which are in need of aid would be entitled to concessions from the transport system. Similarly the undeveloped regions would receive preferential treatment in rates as compared with well developed regions. In other words, the rate relativity will be based on national economic policy and the pace of industrial development envisaged for a country. The establishment of a balanced economy might warrant a type of rate relativity different from the one that is in vogue at present. Thus considered from various standpoints the adoption of the service principle is likely to introduce far-reaching changes in the underlying motive of rate making. But the system is not entirely free from shortcomings. Therefore a dispassionate appraisal of both the systems would throw further light on the analysis that is attempted here.

It must be evident by now that those two systems represent two extreme positions in the technique of rate making. Whereas the commercial principle stands for the single objective of maximising revenue irrespective of the repercussions of its policy on the economy of the nation the service principle interests itself exclusively in economic development whatever may be its consequence on the efficiency of the transport system. But in actual practice neither of these two extreme views can find application. The commercial principle at any rate has been toned down to a large

extent by various measures. In the first place, a rigid application of the principle is not permissible because the railway is one of the public utilities and the State cannot tolerate an exploitation of the people by it. This condition has been impressed on them even by means of legislation in certain countries. In the United States of America the Congress modified in 1933 the rate making rule of 1920 and laid down a few principles. It is said that in the exercise of its power to prescribe just and reasonable rates the Commission shall give due consideration, among other factors, to the effect of rates on the movement of traffic; to the need in the public interest, of adequate and efficient transportation service at the lowest cost consistent with the furnishing of such service; and to the need of revenues sufficient to enable the carriers, under honest economical and efficient management, to provide such service.[1] In 1938 the Joint Committee on Railways practically eliminated in rate making the factor of "what the traffic will bear" and authorised the Interstate Commerce Commission to protect the public against the exaction of unreasonable and unjustly discriminatory rates.[2] The important yardsticks adopted by them in giving effect to this principle are the needs of commerce and the nation, the credit needs of the carriers and a fair treatment to investors. Thus the public utility character of the railways has acted as an effective check on the ravages of the revenue motive.

Besides the railways have invariably been subjected to some form or other of State control because of their monopolistic character and their powers of discrimination in rates. The State has imposed a limit on the return on capital wherever the railways are operated as a private enterprise. The objective of this measure is to impose an indirect check on the tendency for exploitation. The State has gone further than this in some countries such as India. On the Indian

[1] Julius H. Parmelee: *The Modern Railway*, p. 309.
[2] *Ibid.*, p. 310.

railways commodities are grouped into sixteen classes and they are charged differently according to a maxima and minima rate laid down for each class. The maximum rate ranges from 0·38 pie per maund per mile to 1·87 pie per maund per mile and the minimum from 0·10 pie to 0·166 pie. This has effectively reduced the margin available for manipulation by the railways. Finally there is the Railway Rates Advisory Committee in India to scrutinise the rates and advise the Government. No doubt this body is not invested with decisive and mandatory powers like the Interstate Commerce Commission of the U.S.A. or the Rates Tribunal of Great Britain, but still it offers some resistance, however feeble it might be, to the unreasonableness of rates. It would certainly have been advantageous if the Acworth Committee's recommendation to set up a powerful tribunal on the English or American model had been accepted by the Government. The Government could not accept the recommendation because of its own enormous financial stake in the railways. Still, whatever may be the limitations of the existing checks on exploitation, the principle of earning adequate revenues has never been allowed a full sway in the practice of rate making. But this by itself does not seem to answer all the points of criticism levelled against the exclusive application of the commercial principle. Further these measures may only prevent an exploitation of the people, but will not make the railways actively co-operate with the State in industrialising the country. Hence the weightiest among the arguments against the revenue earning motive will still remain.

The principle of Social Benefit of Service, on the other hand, suffers from a few shortcomings of a practical nature. Though it is theoretically sound and appeals to the sense of justice, it threatens to break down when put to the test of actual application. In the first place, no industry under any form of economic constitution can entirely relinquish the objective of earning a revenue. The purpose of earning a revenue is not merely to make a profit but to serve as an

index of the efficiency and economic success of an enterprise. Even in socialised communities like the U.S.S.R. individual concerns or cartels of industries are made to operate with an eye on revenue in order to judge their economic efficiency. Therefore to treat revenue as merely an incidental event is to forego the only available measuring rod for assessing the economic value of the undertaking. Further, when the relationship between cost and price is given up the output of the service becomes indeterminable. Instead of the consumers' effective demand it will be the aggregate social demand that will determine the output of the service by the transport industry. But it will be very difficult to make an estimate of the social demand in the absence of some objective criteria for measuring its effectiveness. In any event, it will be so large and fluctuating that the maintenance of adequate installed capacity for the purpose would be a difficult problem. At any particular point of time there is bound to arise a deficiency in this respect which in itself will warrant a denial of service to some. Hence the cost principle should perforce be maintained as a check against an indiscriminate demand for the use of the service. With cost a corresponding price will automatically revive. There is no objection to a rate lower than cost being charged and the loss being made good by State subsidization if there are sound reasons for it. But to cater the service at any price at which it is likely to be required with no form of relationship with cost is a proposition that is difficult to conceive.

In addition to these technical objections against an unadulterated application of the service principle there are also a few administrative difficulties. In rendering the service some kind of differentiation between the deserving and the undeserving industries is necessary. Perhaps the deserving industries may stand in greater need of the service than the others. But the basis of differentiation between them is not well defined and hence there will always be some scope for

preferential treatment to a few against others. If the discretion in this respect is left with the railways it might offer a temptation for corruption among the administrative staff. So it is incumbent on the part of the State either to define these differences at the very outset or to constitute a responsible commission for the purpose. Lastly, the relative degrees of service to be rendered for different purposes ought to be carefully determined by the State as otherwise service may be wasted enriching one section of the community at the cost of the other. There is as much reason to conserve service as there is to render it freely to all that require it. It is therefore obvious that social benefit of service principle cannot stand independently as the basis for operating the transport system. It has certainly a contribution to make in that direction, but its scope is limited.

REMODELLED RATE STRUCTURE

The urge for remodelling the rate structure among the railways arises out of the desire to utilize the transport system of a country as an active agent in giving effect to a plan of economic development. On analysis we have found that the existing rate structure is far from satisfactory in this respect. Very frequently its influence on economic development actually runs counter to the normal tendencies of development based on economic considerations. Therefore economic planning cannot be attempted in the face of the neutralising effect of a powerful factor in a society like the transport system. Hence a modification of the system so as to make the transport service an ally of planning is a condition precedent of its success. But in introducing a change to suit our purpose it is necessary to assess carefully the features that are inherent to the system and hence not amenable to change. If such features are likely to persist under any form of economic constitution in which the railways are operated due weight has necessarily to be given to them in framing the rate structure. There are a few such

features among the railways, the most important being the large capital outlay with a high proportion of constant as compared with variable expenditure. As a consequence an allocation of the fixed costs among the different consignments of traffic is not possible, so that the unit cost of transport is indeterminable. Though it is assumed by some that it could be calculated, as Locklin says, cost allocation is not feasible.[1] Further, the operation of decreasing costs until the maximum capacity of the line is reached, provides an incentive to take as much traffic as possible by offering different rates. A full utilization of plant which is an important preoccupation among them could be achieved only through a differential system of charging. The absence of unused capacity at any time does not mean that there is no more use for the differential system because the moment all rates are put on a cost basis the condition of unused capacity would immediately reappear.

These features are inherent to the system and are not a manifestation of the capitalistic constitution in which it functions. This will be obvious if we look at the features of the transport system from the perspective of a Socialist State.[2] The problems of control and operation do not offer much difficulty in a socialist state, because along with all other industries, the railways will also be brought under governmental management; and there will be ample justification for it as even under capitalism they are subjected to some form of public control. In a socialist state neither competitive instability nor a private monopolistic exploitation among them is desirable. Hence under socialization perhaps the first among the industries to be brought under State operation will be the railways along with other public utilities. Therefore the real issue which bristles with difficulties, is the nature of price policy to be pursued in a socialist

[1] D. Phillip Locklin: *Economics of Transportation*, p. 158.

[2] Author's paper on "Rate Structure of Public Utilities in a Socialist State" (*The Indian Journal of Economics*, April 1941).

state. Very few among the socialist writers have discussed this problem except Mr. Dickinson who has suggested a few variations of the rate structure for adoption in a socialist state.[1]

At the outset Mr. Dickinson raises the issue whether discrimination in rates should be retained under socialist administration. He is of opinion that the proper basis of charging for a railway in a socialist community is cost. He prefers average cost to marginal cost and suggests a new form of average called "mean costs", which is the average costs of services belonging to a particular category. These categories include services which are produced under similar but not identical circumstances. So when the cost of a particular unit of service cannot be separately ascertained the basis will be the mean cost of a category. Any deviation from this principle through price discrimination is considered unscientific because an uneconomic diversion of resources may occur. Though according to Prof. Pigou and Mrs. Robinson, the ideal social output under certain circumstances may increase through discrimination in prices still it is not considered by Mr. Dickinson to be in the interest of the socialist community.

Therefore the capitalist system of class rates and exceptional rates are considered by him to be unjustifiable and the system of charging what the traffic will bear is condemned as inequitable. If the traffic is unable to bear the charge it has no claim to exist in a socialist state. So a uniform ton-mile rate over a given route is considered to be the only just method of charging under socialist administration. Discrimination in charges may however continue, if they are based on differences in cost, due to differences of care required in handling goods, the denseness of traffic, the ease of loading, etc. Thus the socialist innovation seems to be the substitution of cost of service principle for the value of service principle.

[1] H. D. Dickinson: *Economics of Socialism.*

FEASIBILITY OF SOCIALIST INNOVATION

In a socialist society, where the private ownership of the means of production is denied, there are no scales of values available and hence economic calculation is impossible. This difficulty is further enhanced so far as the railways are concerned, as they defy cost calculation even in a capitalist state where scales of economic values are easily available. So there are two objections against the acceptance of the socialist formula. In the first place a scientific calculation of cost is not within the realm of the socialist administration. Secondly, even if this primary difficulty is obviated through some statistical device the chances of ascertaining the cost of railway services do not improve by any means through socialization. Hence it is inconceivable how cost could be the basis of railway rates in a socialist community. The device of the "mean costs" enunciated by Mr. Dickinson, does not appear to be a very satisfactory solution of the existing difficulties. In choosing separate categories only the sphere of calculation is narrowed, but within those categories the railways are sure to manifest all their inherent features defying a strict calculation of cost.

While it is recognized that the adoption of average cost in rate making will preclude all traffic of a low value it is asserted that such traffic has no right to exist in a socialist state. As a matter of fact, the inclusion of such traffic is nearer the socialist ideal than the capitalist ideal. Apart from this, by subsidizing the weaker consumers out of the surplus available from the stronger the total demand is enhanced and consequently the aggregate output of transport services will be greater. In other words, there is a greater likelihood of the ideal output being reached through discrimination than under rates fixed on a cost basis which will also incidentally prevent the operation of diminishing costs thus enhancing the average cost. It is therefore evident that the adoption of the cost basis in a socialist state is not likely to yield satisfactory results in rate fixation.

Discrimination in railway rates is a continuing economic necessity due to their technique of operation and the nature of demand.

It must be admitted that the extent of State control over the transport system under planned capitalism will certainly fall short of the degree of control to be exercised over it in a fully socialised state. If the differential principle defies any change even under socialization it is but reasonable to expect its continuance under planned capitalism. Since the inherent characteristics of the railways are not amenable to change by an alteration of the economic constitution in which it is made to function, most of its present manifestations on the rate structure will continue to exist under planned economy. The system of differential charging and the existence of exceptional rates would continue to be the normal features of the rate structure. Hence we have perforce to accept the outlines of the present structure as our basis. This does not however mean that it leaves no scope for modification or adaptation. We have only to bear in mind that all changes have to be superimposed on the existing framework.

THE SERVICE PRINCIPLE

The first line of deviation is to temper the spirit of the existing rate structure by a candid acceptance of the social benefit of service principle. The revenue motive of rate fixation has to be largely diluted by a spirit of service for the community. This will certainly entail a shrinkage in the aggregate revenue, because service is an ethical concept and cannot be expected to square perfectly well with the economic objective of making a profit. But the loss in revenue could be easily made good by other means, such as a subsidization from out of the general revenues. To the extent the economic motive is substituted by the ethical there is a justification for a claim on general revenues. The public expenditure to be incurred in this manner may be considered as a financial measure to redress the inequalities in the abilities of different

categories of traffic to bear the expense of transportation. Ultimately it is a measure of social security as the benefit of such a financial measure may be transmitted to a class of consumers who might have otherwise been unable to avail of it. The logic of the entire scheme of measures in this connection is the peculiar position held by the transport system of a country. It is a primary necessity to all, but an exclusive application of the economic principle seems to deprive some people of its benefit. Hence at the crucial point where the economic principle fails the ethical principle has to be made to function.

There are two specific directions in which the service motive finds definite application. In the first place, low grade traffic has to be transported irrespective of the contribution that they can afford to make. In their case, apart from the contribution to overhead costs, even special costs need not be fully recovered. Considering all circumstances, a rate appropriate for their purpose may be collected irrespective of its proportion to the cost incurred by the railways. Here the service motive would be fully operative. Secondly, the rate structure may have to be modified wherever the normal flow of traffic is hampered by a strict application of the economic principle. Here the railways may not be deliberately interfering with the normal flow but may be doing so indirectly as a consequence of their policy. For instance, long hauls may be more economic for the railways but the denial of schedule rates for a short haul in another direction might discourage a normal flow and a more natural location of industries. The railways may no doubt lose revenues in the aggregate if such available economies are sacrificed but the service principle would look at it from an entirely different perspective. The principle of exploiting all avenues for maximising revenue may have to be partly given up in the wider interests of national well-being. Thus the service principle has an important part to play in toning down the rigour of the rate structure. It deprives it of its

mercenary character and renders it more flexible. Beyond this the service principle cannot go as the basic framework of rates has to rest on cost-price-profits standpoint.

ECONOMIC PURPOSE

The next line of departure from the normal rate structure is to modify it in such a manner that it is made to serve an economic purpose. At the outset the service motive has to be distinguished from an economic purpose. Under the principle of service, transportation is to be made available to all that require it without assessing its results in terms of any preconceived plan of action. Its results are to be judged only in terms of aggregate social advantage. On the other hand, the significance of the principle of economic purpose in rate making is to aid and supplement the economic policy of the State. In other words, it has not merely to render service but to behave like an active agent in reordering economic society in a particular manner. Here the economic purpose refers to national as against individual interests. Wherever the economic purpose is likely to be frustrated by the revenue motive of the individualistic rate structure, the fiat of the State is to be brought to bear on the railways.

A few details of what is being described here as an economic purpose may be considered. Under national planning, regionalisation of industries is one of the important accepted principles. In giving effect to it the existing rate structure is not found to co-operate fully. Sometimes a railroad may deliberately deprive a locality of its advantages of location by rates that are arbitrarily high. They can also alter the location of industries by quoting low rates from distant producing points to sell in a given locality in competition with local producers. This is known as market competition. Sometimes the railways may discourage location in a particular place in the interest of a longer haul to a more distant point. These aspects of rate making have often been recognized by State authorities. In the U.S.A. the Inter-State

Commerce Commission was not given power to offset natural advantages by rate adjustments.[1] So for the purpose of achieving a proper regionalisation of industries the rate structure has to be suitably modified. The normal criteria of length of haul or market competition will have to be subordinated to the needs of regionalisation; and the consequent effects on revenue may be made good in other ways. In this connection it would be advisable to have rates based on actual distance, as it would conform to a greater degree with the natural distribution of resources. Sometimes the railways may also be made to grant what are known as in-transit privileges for encouraging a wider scatter of establishments in appropriate places. Such privileges are already being granted in certain countries like the U.S.A. for the milling of flour and the fabrication of steel. They are known as milling-in-transit or fabrication-in-transit privileges. Thus there are innumerable ways in which the State can interfere with the existing framework of rate structure for achieving the economic purpose of a correct regionalisation of industries.

The assemblage of raw materials at appropriate manufacturing centres should be an important preoccupation of the State under planning. Though it is only an aspect of regionalisation it looms large because of the necessity to exploit fully all resources of the country under planned development. Resources which are likely to be uneconomic to transport are apt to be neglected normally by the railways. So to achieve the economic purpose of full exploitation along with a balanced development, the State has to devise suitable rates to encourage their transportation to appropriate centres. The usual practice of quoting exceptional rates ought to be utilized for this purpose, the objective to be achieved here being a fuller utilization of the nation's resources. Lastly, the State has also to modify the rates so as to enable local products to meet international competition. Rates favouring foreign competitors, such as the

[1] Locklin: *op. cit.*, p. 516.

exceptional rates from and to ports will have to automatically disappear. These are some of the economic purposes to be achieved under regional planning. The State has therefore to modify the existing structure of rates under these circumstances. These changes could be effected while retaining the general framework of the present structure. But both under service motive and economic purpose there can be no strict adherence to the revenue principle. Consequently any loss in the earnings of the railways has to be made good by State subsidization. In the case of the application of the service motive the subsidy has to be construed as a State grant for social well-being whereas it has to be considered as a price of regional planning in the case of the economic purpose.

The general principles regarding the economic purpose given above have to be implemented by elaborating an appropriate method for their application. The regional plan of the country is the basis on which the necessary changes in the rate structure have to be effected. According to it industries would be assigned to particular regions and within those regions certain localities will be selected for their establishment. The sources of raw material and power would be determined for each of them by the regional planning authority. On the basis of these the costs of production at important centres have to be calculated taking the existing rates of transport for them. If the costs of production are found to be excessively high at certain centres some relief has to be given in the shape of transport rates to make them economically sound. Here the first line of inquiry is to ascertain the degree of relief that would be available from the existing framework of rates without seriously impairing the revenue that has to be earned. If the resulting relief is not considerable from the standpoint of the industry the regional authority has to fix a rate appropriate for the industry. The difference between the rate determined by the authority and the economically feasible rate of the

railways has to be made good by means of State subsidization. So the grant of the subsidy is to be made only after a full examination of the circumstances of the case both from the standpoint of the industry and that of the railways. Such subsidization is inevitable for the success of regional planning and has to be construed as a price paid for achieving it.

The detailed study of circumstances involved in the application of the principle warrants the creation of a permanent machinery for the purpose. Each regional authority has to create a Rates Tribunal having jurisdiction within the region. The general policy regarding the methods and degree of subsidization will have to be enunciated by the Central Planning Authority and only such powers as are necessary for an immediate application of the principle will be delegated to the Regional Rates Tribunals. One important assumption in this scheme of machinery is that all railways in a country are nationalised. The advantage of this condition is that all protracted negotiations with private companies would be avoided and the individualistic attitude of independent railway systems would be broken down. The entire railway system of a country will have to be considered as one unit for purposes of planning. The chief preoccupation of the Regional Rates Tribunal should be to implement the State policy of economic development. The classification made by the State of areas and of goods as a part of regional planning should be the basis on which the rates for each region will have to be framed. The rates policy should be formulated with a full knowledge of the fiscal policy of the country so that the transport systems will function as a supplement to it. Thus the railways will be an important link in the general economic policy of the country. The entire railway system of the country ought to be put to an optimum use by rationalising movements so that the community's aggregate freight bill will be at its minimum.

ROAD TRANSPORT AND CO-ORDINATION

The mechanized road transport has become an important factor in India since 1920. Its development led to a serious internal competition with the railways. By 1931 the situation became serious and the railway revenues were adversely affected. It was estimated that the loss of railway revenues to the roads was to the tune of about Rs. 4½ crores in 1937. The acuteness of the situation was however temporarily relieved during the war period since there was enough traffic under war conditions for all forms of transport. But hereafter the old problem is likely to revive in a more magnified form as the army vehicles are going to be released in large numbers for civilian uses.

The most important effect of the development of road transport on the railways has been in respect of the rate structure of the latter. As already observed the railway rate structure was based on the monopolistic position of the railways. With a serious competitor in the form of mechanical road transport it was no longer possible to maintain the differential structure of rates on the railways. However no fundamental change was immediately introduced among the railways except for an increase in the proportion of exceptional rates. The exceptional rates have been utilized by the railways as a competitive weapon against road transport. Hence the original significance of exceptional rates as arising out of special economies in transport is virtually given up. Besides even the basic rate structure has lost its significance as its differential character cannot be maintained under competitive conditions. In other words, the progress of road transport has an undermining influence on the fundamental basis of the railway rate structure. Hence the alternatives are either to let road competition grow leaving the railways to evolve a new rate structure or to co-ordinate the two forms of transport giving an opportunity to the railways to maintain their present rate structure and earn adequate revenues.

Unlike the railways the road transport system is not in possession of a well-defined rate structure. This is due in the first place to the unorganized character of the system and secondly to the absence of monopoly. The road haulers have had to compete among themselves and also with the railways. So the cost of service has been their guiding principle in rate making. Consequently the principle of discrimination according to the value of the commodities has not found a place in the road-rate structure. This has been the main attraction for the costly goods to choose road transport instead of railway transport as the latter extracts a high proportion of overhead costs from them. So the more valuable section of the traffic is automatically transferred to the road and the railways are left with commodities of low value. The unorganized character of the road transport system is due to the small unit of operation among them. Hence the rates are independently quoted and have not been evolved into a generalised schedule. In fine, the road rates have remained within the competitive system.

The future possibilities of road transport are immense in view of the far-reaching economic developments that are envisaged. The several gaps in the network of Indian railways can be filled only by road transport. Its potentialities for rural and industrial development are enormous. It is one of the most important among the transport resources of the country and should therefore be utilised to the best advantage possible. But it is also necessary to realise some of the limitations of mechanical road transport in India. In the first place, so long as agriculture in India remains fragmented, and mechanical tillage is slow to develop, the prime mover of agriculture will be the bullock. Consequently the cattle will provide the chief means of transport, as it will be more economical than motor transport. So the transformation in the rural picture has to be very gradual. It is only the cheapest form of mechanical transport that can displace the bullock cart at the initial stages. There are

however certain special forms of agriculture where the scope for motor transport is considerable. In areas around large cities market gardening and fruit culture can develop appreciably with the establishment of regular and quick road transport.

With regard to industrial development the scope of road transport is unlimited. In conjunction with the railways they can make a significant contribution in the furtherance of national planning. But in order to utilize both of them to the maximum advantage it is necessary to determine their spheres of efficiency and keep them apart so that they may not interfere with each other and neutralise the benefit accruing to the nation. The Technical Sub-Committee on Transport is of opinion that any natural transfer of short-haul goods traffic upto a lead of about 50 miles or upto about 100 miles where rail transhipment is involved would constitute an improvement of transport facilities.[1] That means for distances longer than these, transport by rail is more efficient. Thus the future of road transport and the prosperity of the nation depends upon a scientific allocation of traffic between these spheres of efficient transport service. The difference between the two forms of transport is not so important from the national standpoint as the differences in the sphere in which they are efficient. So the chief preoccupation is to devise methods for making them function in their respective spheres of efficiency.

There are various methods of regulating the relationship between road transport and the railways. The Technical Sub-Committee on Transport have taken four among these methods for appraisal. In the first place, there can be an arbitrary determination of each form of transport for the purpose for which it is required by an expert authority so that in due course an empirical code will evolve itself. Secondly, there could be a system of zoning according to

[1] *Report of Technical Sub-Committee on the Future of Road Transport and Road-Rail Relations*, 1943, p. 15.

the spheres of efficiency of each form of transport. Thirdly, a sliding scale system of road taxation rising with increasing leads may be imposed so that long distance transport by road may be discouraged. Lastly, the railway rates may be reduced to a competitive level with the rates of road transport and the option may be left to the trader to make a choice between them as it suits his purpose. The consequent loss to the railways is to be made good by other means, such as a taxation of road transport.

Among these alternatives the last two are considered impracticable by the Technical Sub-Committee. A substantial reduction in the higher railway rates would definitely mean a loss of revenue, because even though the traffic may be retained, avoiding a diversion, it would have to be carried at low rates. There would be no public advantage corresponding to this loss as the road transport would not be utilized thereby to the best possible advantage. The imposition of heavier taxation on long hauls by road is to avoid direct prohibition and to leave the traffic to choose either of the two forms of transport according to its ability to pay. But it is likely to lead to evasion by transhipment at intermediate points. Besides it is considered unjust to impose a toll on goods which are in the public interest to be hauled over long distances by road. For instance, fresh fruits and vegetables could be advantageously carried over long distances by motor transport. Hence it is felt that it is unreasonable to penalise certain classes of traffic which should be carried by road in the public interest. A better approach to the problem would therefore be to take each case on its merits instead of leaving them to an automatic adjustment.

So the first two methods, namely, an arbitrary determination by an expert authority and a system of zoning are taken as suitable for purposes of co-ordinating the two forms of transport. The Technical Sub-Committee considers that a combination of the two methods would be ideal for the

purpose. Within the sphere of efficiency of transport, namely upto a lead of about 50 miles or upto about 100 miles where rail transhipment is involved, there should be no restriction on carriage by road. Beyond those distances of efficiency the expert committee appointed for the purpose may encourage transport by road if it is in the public interest to do so. By such an appraisement of all classes of traffic it would be possible to evolve gradually an empirical code. On the basis of such an empirical code a zoning of transport by road of different classes of commodities may be effected. This kind of approach to the problem of road-rail co-ordination is considered suitable by the Technical Sub-Committee. It would not only let each form of transport thrive within its sphere of efficiency but would also utilize both the forms of transport to the best advantage of the country.

Before appraising the suggestions of the Technical Sub-Committee given above it would be useful to consider the views of Prof. Gadgil on the subject of rail-road co-ordination expressed in his paper to the Indian Economic Conference.[1] He points out that the attempts to neutralise the effect of road competition on railway rates are not based on scientific considerations. Those who support the maintenance of *status quo* have two important arguments, namely the financial loss to be sustained by the railways and the effect of competition on the structure of railway rates. Prof. Gadgil points out that the distressed condition of Indian railway finance in the thirties was due more to the impact of the depression than the competition of road transport. Besides the road-rail relation is not in the main competitive but is to a large measure complementary. With regard to its effect on the rate structure of the railways Prof. Gadgil feels that a limitation on their power to discriminate due to road competition is to be construed more as an advantage from the national point of view than as a drawback. So if the financial

[1] D. R. Gadgil: "Rail-Road Co-ordination with special reference to Rate Policy" (*The Indian Journal of Economics*, January 1946).

position could be maintained through a rationalisation of rates there is no justification for a perpetuation of the *status quo*.

Further the maintenance of the *status quo* through the creation of a monopoly by bringing the two forms of transport into a single system will make it impossible to realise the benefits of competition; and discrimination will proceed on irrational lines. It is also to be noticed that the railway rate structure seems to have favoured a concentration of industry as against dispersion and it is the competition of road transport that has given rise to a wide dispersal of economic activity. It is therefore considered by Prof. Gadgil that a road-rail monopoly will put an end to any further progress in this direction.

Consequently competition between the two forms of transport is considered healthy provided it is subjected to some form of regulation. In respect of regulation Prof. Gadgil is not in favour either of any arbitrary system of control of goods traffic or the adoption of a zoning limit. The control by a board is likely to be very arbitrary particularly at a time when conditions are still so fluid. Similarly the adoption of a zoning limit would render the road-rail relations very rigid. So Prof. Gadgil is of opinion that a system of regional licenses together with the evolution of controlled rates would seem to meet best the requirements of the case.[1] This would involve the division of transport areas into regions and the restriction of goods transport licenses to areas within the regions. It is only in exceptional cases and after close examination can a license be permitted to go beyond the authority of a region.

There does not appear to be any fundamental difference between the views expressed by Prof. Gadgil and the recommendations of the Technical Sub-Committee on Transport. The salient feature of Prof. Gadgil's scheme is a greater degree of flexibility due to the automatic division of traffic between

[1] D. R. Gadgil: *op. cit.*

the two forms of transport. Except in respect of distance there is no restriction placed on the free choice of the form of transport by each unit of traffic. In this respect the scheme is certainly superior to the recommendations of the Technical Sub-Committee. In other respects there appears to be a large measure of identity between the two schemes. Both of them envisage a limitation of traffic distance for road transport but for certain exceptions. There is also provision in both the schemes for some measure of control, though there is no perfect identity in this respect. But the Technical Sub-Committee is attaching undue importance to the arbitrary judgment of an expert authority. What they call an empirical code is not impossible to evolve by the scheme suggested by Prof. Gadgil. In view of all these considerations it is in the interest of co-ordination to reduce to the minimum any form of external coercion which is not accompanied by adequate compensation. It must be the responsibility of the authorities to create circumstances favourable to an automatic division of traffic into desired channels. It is only when the resulting effect of such a measure is not appreciable that some degree of control is to be exercised. Therefore a co-ordination of road-rail transport on the lines suggested by Prof. Gadgil has greater chances of success. The recommendations of the Technical Sub-Committee may have to be slightly modified so as to incorporate some of the valuable features of Prof. Gadgil's scheme.

Influence on Planning

Transport is a very important factor in regional planning. The delimitation of areas for purposes of economic exploitation does not mean economic self-sufficiency within the regions. It means on the other hand an acceleration of productive activity in every part of the country according to the economic equipment with which it is endowed. Since every region cannot be in possession of all the necessary

factors an inter-regional mobility of factors is an assumed condition of regional planning. Further trade between regions is a necessary counterpart of specialised production in each area. So both from the standpoint of the productive processes of the country and from the standpoint of economic well-being transport facilities should be available to a greater degree in a planned economy on a regional basis than in an unplanned economy. But the fundamental difference between the two types of economy in this respect is that the transport services would be much more rationalized in a planned economy than in an unplanned economy. It would therefore certainly economise the use of the available transport services avoiding a national waste. But in the aggregate there may be a greater demand for transport services as the plans mature.

The rationalization of transport that is contemplated here requires certain significant modifications in their present scheme of operations. The main objective of such modifications is to enlist the co-operation of the transport services and if possible to make them active agents in the furtherance of the plan. As observed in the preceding pages this form of co-operation may not be forthcoming under the existing scheme of rate making and operation. The commercial principle in rate making is incompatible with the objective of using transport as an active agent in planning. So the foremost preoccupation should be to render the rate structure among the railways more flexible by making adequate provision for subsidization in the event of their financial position being undermined.

The device of subsidization is not to be flippantly restored to. Its main purpose should be to make good any financial loss arising out of a departure from the orthodox principles of rate making which may be warranted by the needs of planning. All other methods of making the transport systems pay their way would have to be first applied before taking resort to the final measure of subsidization. There

is nothing inherently wrong in the process of subsidization provided all aspects of the problem are analysed by a competent authority. By this means the agencies of transport may be made to subserve a national cause subordinating their own private interests. The present conflict of interests between the railways and the general public is due mainly to a non-recognition of each other's standpoint. The railways cannot but have the scheme of rates which are now in vogue due to the inherent characteristics of their organization. Similarly trade and industry cannot develop on rational lines unless the transport system co-operates with them in their efforts. The hostility therefore between the two is due essentially to certain forces over which neither of them have any control. So to break the tangle State subsidization seems to be the only solution.

When the policy of railway operation is modified on the proposed lines it can give effect to a scheme of regional planning. It can indirectly create favourable cost conditions to encourage the development of industries on proposed lines. Since the underlying principle of regional planning is to make the national pattern of economy correspond as nearly as possible to natural conditions, no artificial diversion is contemplated in a scheme of subsidization. On the other hand, it is only under an unregulated rate structure that artificial conditions of industrial development are fostered. Particularly in a society with capitalistic structure and private enterprise a regulated system of transport becomes an important instrument for overcoming minor obstacles in the evolution of economic progress on natural lines.

A co-ordination of different forms of transport is as important as a regulation of each of them. It is necessary to determine the nature of transport for each purpose either authoritatively or through the evolution of an appropriate rate structure for each of them. The planning authority has to develop appropriate types of transport for each

purpose in a region so that the competition between them may be avoided and they may be made to supplement each other. Under planning the competitive element among transport services has no place. The idea is to utilize each form of transport to the fullest possible extent.

Thus in conclusion it might be said that the part transport has to play under regional planning is of no small importance. A hostile attitude on the part of a country's transport system can checkmate a plan however well conceived it might otherwise be. Hence the co-operation of the transport system has to be enlisted by certain judicious changes in the policy underlying their operation. The most important change in policy suggested here, in this respect, is to make the transport system operate for achieving an economic purpose as determined by the planning authority. In the blue prints of central planning there may be several economic purposes to be achieved such as an exploitation of dormant resources, a regionalization of industries and an equitable distribution of consumers' goods. To give effect to them the co-operation of the transport system of the country is a primary necessity. Therefore their individualistic attitude due to the revenue earning considerations, has to be substituted by a policy of aiding national development. To implement this policy the State must be prepared to make good the loss of revenue by means of subsidization. The basis of subsidization however will be the existing framework of rates among the railways. No fundamental change in this respect is feasible due to certain inherent characteristics regarding the construction and operation of railways.

A co-ordination of the different forms of transport is another important aspect of the problem. In a planned economy the use of available transport systems has to be rationalized. Therefore the respective spheres of their efficient operation have to be centrally determined and suitable measures have to be devised to encourage their use in the most appropriate manner. Here as far as possible

an automatic division of traffic between different forms of transport is essential. This could be achieved by means of a control over rates and a limitation of traffic distance for each class of commodities in respect of the different forms of transport. The regional authorities to be established in India according to the envisaged scheme may be entrusted with both these aspects of the problem. In this manner the different forms of transport would be brought into a proper relationship. This form of co-ordination is of particular importance in respect of mechanical road transport and railways as there has been an unhealthy competition between them. Thus the main objective of this chapter has been to assess the various measures available for enlisting the co-operation of the transport system for purposes of national and regional planning.

CHAPTER IX

STRUCTURE OF RECONSTRUCTED ECONOMY

THE nature of the inquiry hitherto has been inductive and analytical. The Indian economy has been subjected to a critical study to observe its transformations as a result of a process of growth and expansion. The fundamental weaknesses of the entire set-up have been noticed and the desired changes in the objectives and methods of organization have been indicated. Incidentally, an attempt has also been made to give a detailed scheme of reconstruction on the basis of an exhaustive survey of the economic resources of the country. No doubt, the main emphasis throughout this investigation has been on the regional aspect of economic development, but it is necessary to realise that unless the entire structure of the economy is suitably adapted it is futile to expect favourable results in any particular direction. Hence several fundamental changes in the basic structure of the economy have been explicitly stated. A few are also implicit in the envisaged nature of reorganization. To appreciate the changes in structure warranted by the difference in approach a cross-section of the planned economy, elaborated in the previous chapters, may be taken at this stage so that its structural features may be pieced together to present a synthesized picture.

PATTERN OF THE CAPITALISTIC ECONOMY

At the outset a brief account of the essential features of the capitalistic economy may be given to serve as a background to the description of the new pattern that is contemplated. The basic factors influencing the capitalistic economy are freedom of enterprise and contract. The implication of these two privileges is the private ownership and disposal of means of production. Consequently the chief force determining economic development is the profit motive.

Economic institutions come into existence on the basis of industrial profit and according to circumstances most favourable to the individual entrepreneur. There is no preconceived plan of action determining economic growth in the scheme of the capitalistic economy. It is essentially an unplanned economy depending on the unco-ordinated decisions of a large number of individual entrepreneurs. Though it is without a basic constitution, it does not lack in mechanical perfection. Order is evolved out of chaos in an automatic manner. It is only with a change in the sense of values that its deficiencies are noticeable.

The economic structure yielded by these basic factors of the capitalistic system is mainly competitive in character. The most profitable avenues are chosen first for the employment of capital. The expansion as well as contraction of each line of activity depends on the rate of profit among them. The size of each industrial unit tends to approximate towards the optimum purely as a result of the free play of competitive forces. Occasionally monopolistic tendencies may also appear, as a means of maximising profits, either internally or internationally in the form of national or international cartels. With regard to the exploitation of national resources under the capitalistic system only such of those that are easily amenable and most profitable to exploit receive priority to the neglect of others which are relatively less profit yielding. The choice of regions for economic development is determined exclusively on the basis of minimum cost conditions and the existence of the largest number of external economies. Every economic institution under the system of free private enterprise is guided by the profit motive. Banks, transport systems, power supply organizations, and such other institutions which are largely instrumental in shaping the form of the economic structure are extremely individualistic in their policy. Therefore it is the neutralised effect of the influence of all these institutions that determines the form of economic activity and the place

of location. There is an inherent tendency for the exploitation of labour in the capitalistic form of production. International trade is determined largely on the basis of private profit and hence national interests are not always safeguarded.

The economic and social consequences of such a structure have invariably been against the interest of the community. It gives rise to an unbalanced development of economic activity. There is a functional as well as a regional want of balance in the economic structure of the capitalistic countries. The functional disequilibrium manifests itself in the form of trade depressions and cyclical unemployment. The regional disequilibrium leads to a disparity in the interregional *per capita* incomes and living conditions. It is also responsible for the wastage of national resources. Consequently the aggregate national income of the country falls below the optimum which the existing resources would justify. Under a system of free enterprise the assortment and the proportions in which goods are produced in the country depend entirely on the estimates of individual entrepreneurs. There is no deliberate effort to relate them to the needs of the nation either from the standpoint of human welfare or national prosperity. The capitalistic system creates circumstances favourable for the genesis of economic inequality in a society. The method of capitalistic production offers greater opportunities for the rich to increase their wealth than for the poor to add to their earnings. In other words, there is no equality of opportunity for all even though freedom of enterprise is the basic principle of the system. This is due to the inevitable association of capital with enterprise in the productive effort. Since the access to capital is limited the opportunity for the profitable employment of enterprise is confined to those who are either in possession of it or can lay claim to it on the basis of their credit. The repercussions of such economic inequality are far-reaching. It leads to political inequality undermining the foundations of true

democracy. The economic inequality is also largely responsible for the social unrest prevailing in the capitalistic countries. The living standards of the masses are low on account of the inequitable manner in which the national wealth is distributed. Though there is nothing technically wrong in the manner of distribution still it appears unsatisfactory when judged from ethical standards. It has also been the cause of class conflict and social disharmony. The economic machinery of the capitalistic system does not possess any means for neutralising the evil social consequences caused by it. They are left to the State for rectification even though the State was not in any way responsible for them. They are the outcome of individual decisions. But the State, as the custodian of the interests of the people, has to take measures to mitigate their influence. Finally, in the capitalistic regime there is no means for maximising the aggregate social satisfaction because in an individualist society there is invariably a divergence between the social and private net product at the margin. In other words private enterprise operating under conditions of simple competition leads to a distribution of resources which is not always favourable to the attainment of optimum national dividend.

CHANGE IN OBJECTIVES

A gradual recognition of the evil social consequences of the system of private enterprise has undermined the faith placed in the perfection of the capitalistic system. The objectives of economic endeavour have undergone a significant change with a shift of emphasis from maximum production to maximum human welfare. The most important among the decisions regarding economic activity is to replace individualistic automatism by collective deliberate action. In other words, there is a consensus of opinion regarding the introduction of a planned economy in place of the unplanned capitalistic system. There may be differences about

the form of planning, but it is generally agreed that the individualistic form of economic activity has become anachronistic. Even the most advanced countries have brought to bear serious limitations on the freedom of individual economic enterprise. The most significant objective of this reform is to relate economic activity to social well-being instead of individual profit. The acceptance of this cardinal principle necessitates the application of innumerable measures for the realisation of particular objectives. One such objective is to endeavour to exploit national resources to the fullest possible extent. Even those resources which may be uneconomic to exploit from the individualistic standpoint under the competitive structure should be fully utilized in the interest of the nation. What may be uneconomic under the competitive structure need not necessarily be unsuitable for exploitation. With the surrender of the profit motive as the determinant of economic activity all such resources will come within the purview of planned production. The criterion of choice of resources for production would therefore be national need and not the margin of private profit that it would yield. Similarly, the selection of regions for establishing productive activity should be made on the basis of wider economic and social considerations. The objective under planned economy would be to develop each region of the country to the full extent of its factor equipment. Such a policy would help to maintain a national balance in production from a geographical standpoint. Another prominent objective in the minds of the planners is to provide for full employment. Occupational opportunities must be made available to all even though the nature of the occupations may differ from country to country. The nature of the occupations will depend upon the relative supplies of factors of production and skill in each country. The pattern of the economy may be different in different countries, but employment should be available to all that desire it. It may be more economical for certain countries to have a larger share

of small-scale industries than others. In other words, the main objective being full employment, there could be a variation in the patterns of the economies to attain it. Under the capitalistic economy there is no such deliberate attempt to attain full employment.

Another significant change in the attitude of the planners is to subordinate all ancillary economic institutions to the national plan. The banking institutions, transport systems and power supply corporations should either be nationalized or brought under the strict control of the State so that their individualistic policies may not checkmate the furtherance of the national plan. The underlying objective of such control is to make all such ancillary institutions actively co-operate in putting into effect the envisaged plan by relinquishing their individual interests. On the social side there is a keen desire to bring about a more equitable distribution of the national wealth. The experience of the capitalistic system in this respect has not been quite happy. The inherent characteristics of the system of free private enterprise prevent a more equitable distribution of national wealth. So the objective in this respect is to change if necessary the economic constitution in order to attain greater distributive justice. Social well-being is considered more important than the efficiency of the economic machinery. Lastly, there has been a fundamental change in outlook regarding the welfare of labour. Improvement in living standards and conditions of work has been the chief preoccupation of the present time. Probably the worst sufferers in the capitalistic scheme are the working classes, as the economic machinery of the system was never designed to safeguard the interests of labour. As a consequence they are denied the privilege of sharing in the prosperity of the nation. Unless their economic position is improved it is not possible to reduce, if not to eradicate, the prevailing class conflict and establish social harmony. So it is felt that a deliberate attempt must be made

to sponsor the cause of labour in any scheme of economic reconstruction.

DIFFERENCE IN BASIC FACTORS

The changes in the objectives of economic activity discussed in the preceding section are fundamental. The achievement of those objectives warrant a radical change in the basic factors governing the economic constitution. The most significant change in this respect is the relegation of free enterprise and free competition to a subordinate position in the shaping of the economic constitution. They cease to be the sole guides in the organization of the economic machinery as they were in the capitalistic regime. This is perhaps the most essential change as the others are based on it. This decision is inevitable as the objectives that are newly posed are incapable of being achieved under their dispensation. Several years of experience has proved that there is a large element of self-contradiction in the assumption that economic activity based on individualistic principles would ultimately be in the national interest. In several directions this hope has been falsified and hence the faith imposed in those factors has been rudely shaken. The reaction against this has been of various degrees. The most violent among them is the socialist alternative where free enterprise and free competition have been completely erased from the picture. A more moderate reaction is one where these factors are assigned a subordinate role in the scheme of economic activity. The State assumes the power of regulating economic activity but within limits free enterprise is allowed some scope to operate so that the benefits of it may accrue to the community. This is the form of change that has been contemplated in this work on regional planning and hence the other basic factors are adapted accordingly.

With the disappearance of free enterprise and free competition as the determinants of economic activity the ownership and disposal of essential means of production would cease

to be in private hands. The State has to appropriate the right in order to canalise them according to the envisaged plan of development. The institution of private property and freedom of contract may continue unhampered but the sole right of disposal of essential means of production cannot be vested with the private individual. No doubt under planned capitalism such rights will continue to remain with private individuals to a certain extent but such of the resources which are the basis of key industries and industries of national importance would automatically go under the control of the State. The choice of industries to be started and the rates of their development are to be related to national needs. Consequently the decision in these matters would be with the State and not with the private entrepreneur. This is a factor of fundamental importance as the nature of economic constitution required to put it into effect would be entirely different from the capitalistic device of an automatic allocation of resources based on the profit motive. Therefore profit, hereafter, will not always be the motive of production. Even unprofitable avenues of investment in the technical sense of the word, may have to be undertaken, in the interest of national welfare. They may either be undertaken directly by the State or the State may subsidize private enterprise whenever it is inevitable. However what is pertinent to our enquiry is that a particular form of economic organization is to be installed irrespective of the means employed for doing so. Since the capitalistic motivation has proved ineffective in yielding the desired result it has to be tempered by State intervention.

Another important basic factor of the new order would be a deliberate attempt to increase the size of establishments to reach the optimum level. The obvious reason for this is to attain maximum efficiency in production. Efficiency is not to be sacrificed with a change in the organization of production and hence a conscious attempt is to be made for maintaining it. Under the capitalistic system the approxi-

mation towards the optimum size is by means of the free play of economic forces. The competitive structure enables certain firms to reach the optimum size even in the absence of any deliberate attempt on the part of the entrepreneurs. But in an economy where economic forces have no scope for free play the central authority should determine the optimum scale of production for each industry and strive to reach it by deliberate action. The purpose of attaining the optimum level of production is not however for reaping monopoly profits. Under conditions of private enterprise there are possibilities of such a consummation of attaining the most efficient size in production by outbidding the less efficient producers. But in the new constitution the benefits of efficiency in production ought to accrue to the nation in the form of low prices. So simultaneously with the attempts for approximating towards the optimum the State must guard against the exploitation of the consumer.

The next basic factor of the new scheme is with regard to the scales of production. They are generally left to the mercy of competitive forces in an unplanned economy. No doubt there are certain inherent characteristics in each industry which make them operate efficiently on particular scales, but in a system of free competition low unit costs is the only criterion which decides the scale to be maintained. On the other hand, the problem of creating employment opportunities is of vital importance from the social standpoint. So the scales of production should be looked at from the standpoint of efficiency on the one hand and from the standpoint of creating employment on the other. Even though relatively speaking some industries may produce more cheaply on a large scale than on a small scale it is necessary to find out the difference in the employment opportunities offered by them. Since efficiency in production is not to be completely ignored the best approach to the problem is not to associate the conception of size merely with the firm but to consider it in respect of the various stages of production with-

in an industry irrespective of the fact as to how many of those stages are constituted in any one of the existing firms. In other words, the optimum scale of operations for each process of production should be determined and each of these should be conducted at that level involving a " vertical disintegration ". This would mean that a particular industry would have a few firms whose optimum size may be small. A good example of an industry where such a stratification of firms is feasible is the handloom industry. The various processes of the industry are amenable to different scales of production and as such they should be conducted at their respective optima. A much larger time is spent in the preparation of the yarn for the loom than in the actual process of weaving. Hence if the preparatory processes are undertaken on a large scale the actual weaving may be done by small establishments. This form of arrrangement would provide greater scope for employment opportunities without at the same time impairing the efficiency of production. The purpose of this lengthy discussion is to emphasise the idea that in a planned economy scales of production should be designed and maintained according to national needs and circumstances. This is a basic factor which is conspicuous by its absence in the scheme of capitalistic production.

The difference in the objectives to be achieved necessitate an important change in the method of operating some of the ancillary economic institutions like the banks and the transport systems. By operating them on individualistic lines the progress of planned development is likely to be impeded. The individual interests of these concerns have to be subordinated to the higher ideals of national development. Just as productive activity in manufacturing or agriculture is to be freed from the shackles of the profit motive, similarly these institutions need not have the earning of adequate revenues as their primary consideration. They must cooperate as active agents in the endeavour to achieve the accepted objective. If during the process of doing so there

is a diminution of revenue it must be made good by other means. Thus they have to be considered as parts of a larger organization instead of as independent entities functioning for their own benefit. Trade with the outside world has also to be subjected to central control. Trading profits ought not to determine the volume of international trade. Foreign imports and exports have to be controlled according to the nature of the envisaged economic development within the country. Though the virtues of free trade are unimpeachable it is incompatible with national plans of development. If planning is undertaken on an international scale it may be possible to let free trade have an unlimited scope. Under international planning the patterns of economic development in different parts of the world would be designed in such a manner that there would be no unnecessary repetition of the patterns leading to trade conflicts. The incompatibility of national patterns arises out of a similarity in the nature of economic development in different parts of the world. In fact, during the heyday of multilateralism in foregin trade there was a clear distinction between the advanced and the undeveloped countries. It was during the uneasy thirties of the twentieth century that bi-lateralism in trade had to be imposed to obviate the conflict of interests arising out of a development of backward areas. So unless the national patterns are designed and maintained internationally on the basis of the economic resources of each area, free international trade cannot operate smoothly. Hence to think of free trade under the present circumstances is illogical. National objectives can be attained only through a severe control of foreign imports and exports.

PATTERN OF THE NEW ECONOMY

The new set of basic factors governing organization yields an economic structure whose pattern is fundamentally different from the normal capitalistic pattern. The constitution of the new economy would be the national plan adjusted

according to regional demands. The national plan will indicate the general lines of development and the regional plan will determine its spatial aspect. So the general tenor of development will be in accordance with an agreed constitution unlike the automatic and unco-ordinated mechanism of the capitalistic system. In the new structure the State has not only to design the pattern but also to operate certain parts of it. Consequently there is to be a difference in the spheres of economic activity. The State and private sectors of economic activity have to be distinctly maintained. In the State sector all the key industries of the nation, industries using scarce raw materials and public utilities have to be maintained. All other consumers' goods industries would operate on the basis of private enterprise. So far as the State sector is concerned the profit motive will be deprived of its essential function of determining either the nature of the goods to be produced or their volume. The yield of revenue will only be a means of measuring the efficiency of each concern. They may subsidize each other and then meet if necessary the net deficiency out of the general revenues. In the State sector the types of industries to be developed and the volume of their output would depend entirely on the national plan. So the most important characteristic feature of the new pattern is a combination of State activity and guidance with private enterprise and initiative. The purpose of State intervention is to fill the vital gaps in the capitalistic structure and eschew the undesirable manifestations of free private enterprise. The retention of private enterprise is to avail ourselves of the benefits of a free play of entrepreneurial ability. Such an amalgam is likely to yield better results than either of the two extreme alternatives, namely Socialism or Capitalism.

In this arrangement the sphere of private activity will by no means be narrowly circumscribed. Though the economic importance of the industries retained under State control may be great the total quantum of output and the number of

people employed in the private sector will by no means be meagre. Hence to avoid a repetition of the capitalistic manifestations in this wide sphere a large degree of State control over certain details of their operation is incumbent. As a matter of fact, there are several issues which are likely to go astray if left uncontrolled by the State. There are however three important issues over which the State has to enforce a rigid control. These are industrial location, the rate of profits and welfare of labour. The problem of location is of primary importance in giving effect to the regional plan of the country. As discussed in some of the preceding chapters a regional alignment of the country has to be done in the application of the national plan. For the fruition of this scientific alignment a rational distribution of industries among different regions is necessary. An important condition for the success of the distribution is a control over industrial location. Though it is a very disputed fact whether the State or the private entrepreneur is more competent to choose an appropriate location there are greater chances of a State control yielding better results under the existing circumstances. The factors influencing location are so many and so varied that an individual cannot be expected to make always the best choice. Besides industrial development has to be in accordance with the regional code adopted and there is no guarantee that it would happen if left to chance.

A control over the rates of profit in private industries is necessary to discourage the development of monopolistic tendencies. Most of the structural maladies of capitalism are the outcome of the temptation of rising profits. Hence a control over them in the interests of the consumers is a primary necessity for realising the objective of greater national well-being. The rate of profits determined may be such that while the incentive for enterprise is not deprived the consumers may be able to get the product for a fair price. The State has also to hold itself responsible for the welfare of labour as there is no means of safeguarding it in a system of

free private enterprise. The workers have no guaranteed level of wages, fair living conditions and security of tenure under the capitalistic regime. These ought not to be repeated in the private sector of the new structure. Hence the State ought to afford protection to the workers in respect of their wages, security of service and living conditions. Private industrialists in this sector would be eligible to public aid in the form of protective tariffs and subsidies only when they accept the obligation to provide for the workers a national minimum of wages. This element of violation of the individualistic freedom is not without justification. Over and above these particular forms of State control over the private sector there should also be a periodic assessment of their position to make an estimate of their national value.

Nextly, the structure of the industry would be designed on more rational lines in the new scheme. The form of economic activity for each purpose will be deliberately determined. In other words, large and small scale establishments for each type of industrial activity will be determined in advance and maintained by deliberate effort. The basis of this pattern will be the nature of the national resources and the volume of employment opportunities required to attain a state of full employment. A balance has to be maintained between these two forms of establishments by dovetailing the two types of units. It will lead to a greater efficiency of the industry in general. In the absence of careful dovetailing of the two they will become incompatible and cease to co-exist. So the State has to design the proper structure for each country on *a priori* grounds and provide safety valves for its smooth operation.

All Public Utilities and Banks will be nationalized in this economic structure, as their individualist proclivities are inimical to the furtherance of a national plan. Even though they may not deliberately try to thwart economic progress their policy has not been conducive to concerted action by the nation as it is based essentially on sectional interests.

Railways and power supply organizations will have to be operated by the State so that their services may be made available according to the needs of industry and not on the basis of their effective demand. The nationalization of Banks is a primary necessity as the volume of capital and its distribution for industrial purposes have to be centrally regulated. A control of capital issues is also a part of the same mechanism. This may become a permanent feature of the new structure. The important objective to be achieved by these controls over capital is to canalise the flow of it for particular purposes in selected regions. It is thus a very important factor in working up a regional plan of development.

The kernel of the entire structure consists of the predetermined order of advance of the primary, secondary and tertiary occupations in the country. The rates of growth of these three different types of activities will be rationally determined and centrally executed. They will depend no doubt on the resources of each country, but under the capitalist dispensation there is no guarantee that they will be developed even to the extent permitted by nature. On the other hand, under central guidance it is possible within reasonable limits to vary their proportions. The economic prosperity of a country depends upon a proper balance in development among them. The proportion of secondary and tertiary occupations is much higher in progressive countries. The unbalanced economy of India is due in a considerable measure to the meagre development of tertiary occupations. So these proportions have to be deliberately sought for and maintained. The new structure affords sufficient scope for doing so.

Thus the new economy that is contemplated is capable of several salutary effects. Functional balance, structural propriety and regional equality are the corner-stones of the new economy. A functional balance is attained by maintaining primary, secondary and tertiary occupations in their proper proportions. They will be decided on the basis of the

ultimate national needs. It will raise the earning capacity and the living standards of the people. The economy will be broad-based with ample scope for attaining functional equilibrium. The structure of the economy is appropriate for the purpose. The basic framework of capitalism is not unnecessarily distorted. Such of its elements which are still capable of yielding favourable results are retained. The points at which State intervention is contemplated are crucial for the wider interests of the nation. They are such that while efficiency is not sacrificed orderly progress is assured. The new structure also incorporates ethical and sociological principles wherever economic principles have failed to operate satisfactorily when judged by higher standards. This approach is in keeping with the times. There is a fairly wide acceptance of the fact that economic maladies are sometimes capable of an ethical solution. The recent schemes of social security and national minimum are based, in their ultimate analysis, to a considerable extent on ethical foundations.

The establishment of a regional balance along with a functional balance is another important feature of the economy. One of the most important lapses of the capitalistic economy is the lopsided development of industry from a geographical standpoint. So the chief precaution taken in framing the new economy is to make adequate provision for safeguarding the spatial aspect of industrial growth. This requirement has perhaps made the most violent encroachments on the individualistic freedom of the capitalistic structure. The system of licensing of new factories is a feature of the new structure. This aspect of the new structure is an evidence of the change of perspective in appraising the value of economic decisions. It is no longer the individual choice which is economic for him in the short run that is considered adequate as the national choice which is economic for the community in the long run. Thus the severe control over industrial location embodied in the scheme connotes a significant departure from the orthodox structure of capitalism.

Finally, are we to define the new structure as competitive or monopolistic? Does State control tantamount to a State monopoly? These are questions that can be answered only in the light of subsequent developments. These issues depend much upon the manner in which the economy is worked. Unless the policy and outlook of the State are sufficiently enlightened the economy may be shunted on to wrong rails. If self-seeking and self-interest predominate on the part of the administrative machinery none of the expected benefits will accrue to the people at large. In other words, it is not a fool-proof mechanism that is being devised. No doubt private monopolies might disappear from the structure and the influence of free competition may be limited but their place may be taken by bureaucratic methods much worse in their effects on the well-being of the nation. Hence with a change of structure a change of the attitude of mind on the part of the authorities is essential. It is a structure that is deprived of the automatic checks and balances of the capitalistic machinery. Hence the responsibility of the State is even greater. The normal bureaucratic machinery of administration is inappropriate for working this novel economic structure. Its personnel would require a different kind of competence altogether. The primary motivation for it should emanate from an economic " Brain Trust ". This by itself will not be sufficient. At every crucial stage there ought to be persons who are conversant with the spirit of the structure. The form of the structure is only the skeleton framework of the new pattern of economy.

ECONOMIC AND SOCIAL ADVANTAGES

The modified economic structure described in the preceding pages is likely to yield several economic and social advantages. By an optimal utilization of the national resources the national income of the country is bound to increase. There would also be a more rational adjustment in the proportions in which luxuries and necessities ought to be produced. In

other words, the economic machinery of the nation would be directed to the production of that assortment of goods which would yield the maximum social satisfaction. What is more important is the reduction in the inequality of incomes which will result from the change in the motivation under the new scheme. The economic inequality that exists at present can be greatly narrowed by the orderly change that is contemplated in the capitalistic system. Though the scheme does not seriously upset the control of the use of the productive agents by the machinery of the price system, still it affords opportunities for substantial amounts of national income to be diverted to the poorer sections of the community. The personal distribution of incomes is bound to become more even with the slight envisaged change in the distribution of productive agents between different fields. It is the method of State control of private enterprise, on the lines suggested in the scheme, that will bring about the fundamental transformation. Of course it ought to be accompanied by other financial measures such as transfers of national wealth from one section to another by means of progressive collections from the rich and liberal expenditures for the poor. These are implied in the scheme.

In the reorganized economy there are opportunities for maintaining stability in occupational equilibrium. The progress in each direction is according to a preconceived plan and any change in the same is to be brought about in an orderly fashion. The capitalistic criterion of varying profits is deprived of its influence on the occupational pattern of a country. Further, it is not unlikely that business oscillations will be greatly minimised. Cyclical changes may be practically ruled out if we assume that Government policy will be successful in maintaining effective demand. Even non-cyclical changes in demand can be met by the policy of spreading industries as an insurance against any single area being unduly hit. The worst features of a slump can be avoided if each region has a variety of industries. Besides

through a State control of location it is possible to achieve an optimum use of economic resources leading to greater stability in production. Under the new scheme it is also possible to see that industrial growth is not necessarily accompanied by any social dislocation. The State can plan the location of new enterprises in relation to the distribution of the working population so that it may be possible to avoid wholesale migration and the consequent personal hardship. Such planning is feasible even when industry is operated by private enterprise. Thus through two important measures, namely, a control over the disposal of essential means of production and a control over industrial location, occupational instability and cyclical oscillations in production can be brought under control. Both the measures are incorporated in the new economy and in fact they play a leading part.

On the social side perhaps the greatest contribution of the reorganized economy will be the establishment of greater harmony between the different sections of the community. In this respect no doubt the achievement may fall short of what a fully socialized system can contribute. The socialist system would completely break the class distinction and bring about perfect equality between individuals. There would be no private ownership of means of production and all industries would be nationalized. In theory it is an attractive form of economic organization but in practice there are innumerable difficulties in its application. It is difficult to maintain the incentive for production in the complete absence of the profit motive. The relative differences in the wage level cannot be determined. The values of the means of production cannot be easily computed. Hence it is not yet possible to introduce Socialism in all its purity. A transitional stage is inevitable for a safe transformation of our society. Even if Socialism is the final objective it can be reached only through a transitional period. The important features of this transitional economy are a

large measure of State intervention in the organization of production and an improvement in the working and living standards of the labouring class. This by itself is bound to introduce a considerable measure of economic equality leading to social harmony. Whatever economic equality we might sacrifice in this respect by retaining certain parts of the capitalistic apparatus is more than made good by the increased output resulting from a free play of economic forces. A strict regimentation of economic life may have serious psychological repercussions. The equality of opportunity that it provides will lead to greater political freedom and thus lay the foundation for true democracy.

CONCLUSION

In conclusion, it might be said that the fundamental feature of reconstruction is a substantial modification of the Capitalistic system. The underlying idea is to exercise direct State control over its operation while retaining the general framework of the system. The justification for the adoption of this process is the discovery of innumerable lapses in its operation in spite of its tremendous achievements. The accomplishments of Capitalism are too many to be ignored. Since its inception there has been a tremendous increase in production and economic activities. This has been rendered possible by the technological changes introduced under the capitalistic system. The standard of living of the masses has been raised by the large quantities and variety of commodities produced. The distribution of income is certainly unequal under capitalism, but it is inherent in a system where factors of production are rewarded according to their efficiency. Probably to a certain extent such inter-personal inequalities are necessary for catering to the acquisitive instinct among the people and for capital accumulation. Besides it is a form of economy which operates freely and automatically. No doubt the frequent business depressions to which it is subjected has deprived it of some of its

attractions, but it is contended that these depressions are neither inherent in the capitalistic economy nor beyond control.

However the weaknesses manifested by the capitalistic system threaten to outweigh its achievements. Even though its record of production may be spectacular it is not as much as the resources of the country would justify. There is often a restriction of production by an abuse of the profit motive. There is also a perpetual existence of excess capacity due to the competitive structure. In other words, there is a wasteful employment of resources. There is also a considerable amount of waste in advertising and in maintaining an unmanageable variety in production. National resources are not always fully exploited as it is uneconomical to do so under the capitalistic regime. It is also not possible to justify the inequality of incomes on the ground that it is favourable to the accumulation of capital. It may not be impossible to organize capital accumulation through State control. To foster an inequitable system of distribution for its sake is unjustifiable. It may have other more serious repercussions. It is also wrong to conclude that the capitalistic system functions automatically. The ideal theoretical model is far from the actual practice in vogue. Most of the major decisions of production are under the control of a small group of individuals. Naturally their private interests may not harmonize with the basic human desires of the nation. The system also suffers from economic instability for want of proper co-ordination.

It is therefore a foregone conclusion that the capitalistic model is outmoded for modern purposes. But the problem is to get rid of it and to find a substitute superior to it in every respect. If the Marxian predictions concerning capitalism come out true it will die a natural death. He predicted that there would be frequent partial breakdowns of capitalism through severe depressions caused by the want of balance between the ever expanding productive power and the

severely limited consuming power of the masses. He also envisaged that there would be a concentration of capital in the hands of a few people and there would be large-scale unemployment. After a stage capitalism would find national operation insufficient in volume and would try to secure foreign markets. This in turn would lead to international conflict and the adoption of a policy of Imperialism with regard to backward areas. Thus Marx predicted that ultimately the capitalistic system would collapse and there would be a revolution by the proletariat.

Some of his predictions have no doubt materialised and others threaten to do so. Hence if the normal sequence of events is allowed to occur uninterrupted human society would be subjected to inconceivable privations. It is also doubtful if at the end of it we will be in possession of an alternative model which is superior in every respect to the existing model. No doubt Marx foresaw, as most others do at present, the establishment of a socialist order. The theoretical socialist economy is very attractive and certainly superior in many respects to the existing capitalistic economy. But such a theoretically perfect socialist order has neither been reached anywhere nor capable of being established easily. For that matter a theoretically perfect capitalistic system does not exist anywhere for comparison with a pure socialist order. Perhaps such a system may be superior to Socialism in many respects. Consequently our comparisons must be confined to what actually exists. When that is done we find that the Socialism as it is found in operation to-day is not without shortcomings as compared with the present economy. Hence it is a more profitable line of approach to modify and reconstruct a model with which we are already familiar than to experiment with a new one. This is the spirit in which a structural reconstruction has been attempted in this inquiry on Indian conditions. India at present is on the eve of momentous changes. Grave decisions have to be taken by the authorities regarding the future economic

constitution of the country. If at such a time some useful light can be thrown on the innumerable problems confronting the country the efforts of an inquiry would be more than rewarded. Theoretical speculations are not always easily amenable to practical application. It requires extraordinary qualities on the part of the administrators. Such qualities are not by any means lacking in the country. So we can confidently look forward to the dawn of a new civilization in India.

NOTE*

ECONOMIC CONSEQUENCES OF THE PARTITION OF INDIA

INTRODUCTORY

THE partition of the country into the two dominions of India and Pakistan marks the beginning of a new era. Though the division was not impelled by economic forces its consequences would certainly be far-reaching in the economic sphere. In the course of evolution there is a perpetual adjustment of economic forces and it may therefore not be unreasonable to expect the emergence of a new economic order based on the fresh set of circumstances that have been created. But the social costs of such adjustments are considerable and unless there is a wise economic policy keeping the disruptive forces under restraint national well-being would be greatly undermined. It is therefore necessary to make a survey of the position with perfect objectivity, so that there would be a realistic appreciation of the new situation.

The purpose of this enquiry is two-fold. In the first place, an attempt will be made to discover the degree of disturbance caused to the original economic structure of the country as a consequence of the political division. The magnitude of the problem of readjustment would depend upon it and it is only in the light of it that policy for the future could be evolved. Next, it would be relevant to enquire to what extent the regional plan elaborated in the body of this book is likely to be affected by the seceding of certain areas for the formation of a new dominion. As the division was then unforeseen the plan was evolved for the country as a whole. Naturally it has now to undergo certain adaptations. But the nature of adaptation would depend to a considerable

* This note had to be added as the book was already in the Press when the country was divided on August 15, 1947.

extent on the form of relationship that is likely to subsist between the two independent political areas.

In this respect one would certainly find oneself in the region of speculation. Certain assumptions are however possible on the basis of the available alternatives. The two Dominions may deliberately co-operate in all economic matters. This is perhaps the best course for both and would entail the least disturbance to the regional plan that has been drawn up. Alternatively they may co-operate only wherever it is inevitable following a plan of action independently conceived for each Dominion. There may perhaps be a justification for such a policy. Each country would choose to become an economic entity to justify its political independence. Such legitimate aspirations cannot be thwarted by economic antecedents. Even this course of action may not involve any fundamental alteration in our regional plan. Except for certain changes in priorities the plan would continue to be useful. The third alternative would consist of a determination to evolve the economic destinies of the two Dominions independently and exclusively of each other. Such a policy is however not warranted by the economic history of the country. It is most unlikely to happen, as it will not be in the interest of either.

In order to judge the economic implications of these decisions it is necessary at the outset to assess the industrial equipment and economic resources in the two newly created political areas. Future development would be conditioned to a considerable extent by the existing equipment and easily available resources. In a long-range plan the potentialities of the countries would no doubt figure prominently, but in an economic budget it is the short-run possibilities that should provide the means for long-run developments. Hence it would be germane to draw the outlines of the types of plans suitable for the two Dominions on the basis of the existing resources and equipment and discover, if possible, the scope for harmonizing them.

GEOGRAPHICAL ASPECT

In the formation of the new Dominion of Pakistan certain areas of the country have been carved out based essentially on the communal composition of the population. It is obvious therefore that neither geographical considerations nor economic factors have exerted any influence on the territorial division. In course of time this aspect is bound to have its repercussions. According to the award of the Boundary Commission two provinces, namely, Sind and the North-West Frontier Province will belong exclusively to Pakistan. The Provinces of Bengal and Punjab are divided between the two Dominions. Bengal is divided into East Bengal and West Bengal transferring intact thirteen districts to the former and nine to the latter. The remaining five districts are divided between East and West Bengal. No exact computation of the areas of these divided districts going respectively to the two parts of Bengal is yet possible. Hence as a rough approximation two-thirds of the area is credited to East Bengal and one-third to West Bengal in the estimates made for the purpose of this note. These proportions are maintained throughout this note for making estimates of area and yield of the two. East Bengal is the seceding part to constitute Pakistan. It is geographically one unit unlike West Bengal which has certain areas in the north absolutely unconnected with the rest.

Similarly the Punjab is divided into West Punjab and East Punjab being assigned to Pakistan and to India respectively. There are fifteen districts belonging exclusively to West Punjab and twelve to East Punjab. The remaining two districts are divided between the two parts. For the purpose of making an estimate two-thirds of the area of these two districts is credited by us to West Punjab and one-third to East Punjab. In the absence of an exact computation this is considered as a rough approximation on the basis of the areas shown in the maps of the divided provinces. In addition to these, Pakistan also receives British Baluchistan

in the west and the district of Sylhet in the east. Thus the new dominion of Pakistan has its areas distributed partly in the west and partly in the east of India separated by a considerable distance. The western portion consists of Sind, West-Punjab, North-West Frontier Province and British Baluchistan. The eastern portion is constituted by East Bengal and Sylhet. From the economic standpoint the absence of geographical contiguity is a serious liability. So far as the dominion of India is concerned considerable portions of the important provinces of Bengal and the Punjab have seceded. The loss of Sind is also not without some economic significance.

Taking next the area that has thus seceded to Pakistan we find that in the province of Bengal about 51 thousand square miles out of a total of about 77 thousand square miles go to East Bengal. That means about 66·35 per cent. of the area of Bengal will go to Pakistan and 33·65 per cent. will remain in the Dominion of India. From the standpoint of the population of Bengal, which is about 60 millions, East Bengal will have about 39·7 millions and West Bengal about 20·5 millions. The precentage proportions would be 65·9 for East Bengal and 34·1 for West Bengal.[1] One important observation that could be made regarding these proportions is that in the division of the province, area and population are closely related to each other. About two-thirds of the area and population of Bengal are included in Pakistan.

The Punjab has a larger area than Bengal but the total population is smaller. The area of West Punjab is about 62 thousand square miles out of a total of about 99 thousand square miles. The balance of about 37 thousand square miles belong to East Punjab. The percentage proportions are 62·86 to Pakistan and 37·14 to the Indian Union. The total population of the Punjab is about 28·4 millions. The proportion of population in West Punjab is 56·02 per cent and in the East Punjab it is 43·98 per cent. That shows in

[1] *Census of India*, 1941, Vol. I, Table XVI; Summary Figures.

relation to area a largeer proportion of the population will be in East Punjab.

Regarding the other areas of Pakistan, Sind has an area of about 48 thousand square miles with a population of about 4·5 millions. The North-West Frontier Province has an area of about 14 thousand square miles with about 3 million persons. The district of Sylhet in Assam has a high density of population though the area is not much. The area of Sylhet is about 5 thousand square miles but the population is about 3 millions. In the case of British Baluchistan both area and population are meagre. From these individual estimates of the different provinces the total area and population of Pakistan may be estimated. The total area of Pakistan is 236 thousand square miles with a population of 66·8 millions. As compared with the total area of India the percentage share of Pakistan is 14·92 per cent. In respect of population Pakistan has 17·19 per cent. of the total population of India.[1] These proportions of area and population indicate the great disparity in size between the two new Dominions of Pakistan and the Indian Union. The resources and potentialities of the two would also reveal corresponding differences. Consequently the economic plans for the two Dominions have to be conceived on different scales.

INDUSTRIAL EQUIPMENT

An estimate of the existing industrial equipment is the most important criterion for judging the economic strength of the two areas. Therefore a survey may be made in respect of each important industry to ascertain at the outset the relative positions. The possibilities of future development may be considered at a later stage. The cotton textile industry, which is the premier industry of the country, may have precedence over others in this enquiry. In the year 1944 there

[1] The calculations are made on the basis of the *Census of India*, 1941. They may be disturbed by the migration of population subsequent to the partition. The net result can be ascertained only at a later stage.

were 31 cotton mills in Bengal. The share of East Bengal is only 7 mills out of this total and they are situated mostly in the district of Dacca. The balance of 24 mills are in West Bengal concentrated in the districts of Howrah, Hoogly and the 24 Parganas. East Bengal has altogether 94,570 spindles and 2,404 looms. In the Punjab there were seven cotton mills in 1944 and four of them now belong to the Pakistan area of West Punjab. Their total looms and spindles are 2,026 and 78,856 respectively. Apart from these there is only one other cotton mill in Sind with 5,235 spindles and 60 looms which will now be included in Pakistan. So, as compared with a total of 405 cotton mills for India, Pakistan will have only 12 cotton mills. The total looms in Pakistan are 4,490 as against 202,000 looms for the whole of India. In respect of spindles Pakistan has only 178,661 out of a total of more than 10 million spindles in the country.[1] Thus though cotton industry exists in both the areas its proportion in Pakistan is relatively very small. Consequently the division of the country has not affected the integrity of the cotton industry. It is mainly in the Indian Union.

The jute industry of India has always been highly concentrated in the province of Bengal. In the year 1940 out of a total of 106, as many as 97 jute mills were in Bengal. It is strange that all the Jute mills of Bengal are in the three districts of Howrah, Hoogly and the 24 Parganas. Since these are West Bengal districts under the division there is not even a single jute mill in the Pakistan area of East Bengal. As the mills outside Bengal are in the provinces of the Indian Union the jute industry is exclusively in the Indian Union.[2] Similarly, the iron and steel industry is also practically non-existent in Pakistan. In 1937 there were thirteen large concerns in the industry. Five among them were in Bengal but since the districts concerned were Howrah, Burdwan and the

[1] *List of Cotton Mills in India*, 1944, M. P. Gandhi.
[2] *Statistical Abstract of British India*, 1939–40.

24 Parganas they now belong to West Bengal.[1] Under the stimulus of the war there was an expansion of the industry but the present Pakistan area had no significant share in it. The Steel Corporation of Bengal is the biggest among the new concerns and it is in the Burdwan District of West Bengal. The six new steel producers by the electric process are all outside Pakistan. Even among the re-rolling mills none of the large concerns are in Pakistan. Except for two small re-rolling mills in Lahore, Pakistan has practically no share of the original Indian iron and steel industry.[2]

In the sugar industry there were 153 factories in 1937. Since the industry is mainly concentrated in the United Provinces and Bihar the share of the other provinces would certainly be small. But even on a comparison with provinces outside the concentrated zone the development in the Pakistan area is very inadequate. There are 40 sugar factories outside the United Provinces and Bihar, and Pakistan has only 11 among them. There are six in East Bengal including the two in Dinajpur, which is a divided district, four in West Punjab and one in Sind.

In the cement industry there were 19 concerns in India in 1939 and only three of them belong to Pakistan. In West Punjab there is one factory situated in the district of Attock and in Sind there are two factories. Among the 26 soap factories there is only one in Punjab which belongs to Pakistan. Though there are 11 soap factories in Bengal none of them belong to East Bengal. In the glass industry there were 79 concerns in India in 1939 and except for two of them in Dacca, Pakistan has no claim on the industry. The few glass factories of the Punjab belong to East Punjab. In the chemical industry though the share of Bengal is large it is monopolised entirely by West Bengal. Except for two in Lahore and one in Sind, Pakistan has no claim on the 39 concerns of the Indian Chemical industry. In the paper industry none of the 16

[1] *Large Iudustrial Establishments in India*, 1937.

[2] *Vide supra*, Chapter V.

paper mills of India are in Pakistan. The paper mills of Bengal and Punjab belong to the Indian Union. Among the 113 match manufacturing concerns in India, Pakistan gets a small share of six concerns. In the woollen and silk textiles the share of Pakistan is again negligible. There are only two woollen mills and two silk factories in Pakistan. Finally, with regard to general engineering workshops and foundries there are 66 concerns in Pakistan out of a total of 450 for the whole of India.[1]

In reviewing the position we find that certain industries are entirely non-existent in the Pakistan area. The Jute, Iron and Steel and Paper industries are exclusively in the Indian Union. The Cotton Textile and the Sugar Industry exist in both the Dominions, but the share of Pakistan is not in proportion to its size or requirements. Other industries like Cement, Chemicals, Soap, Glass, Match, Woollen and Silk Textiles have not made any conspicuous progress in the Pakistan area though they are in existence in some parts

Industrial Distribution

Industry	Pakistan				Indian Union	Total
	East Bengal	West Punjab	Sind	Total		
Cotton Mills ..	7	4	1	12	393	405
Jute Mills ..	..	..	..	..	106	106
Sugar ..	6	4	1	11	142	153
Iron and Steel	..	..	..	..	13	13
Cement ..	..	1	2	3	16	19
Soap ..	..	1	..	1	25	26
Glass ..	2	..	..	2	77	79
Chemicals ..	..	2	1	3	35	38
Paper ..	..	..	..	..	16	16
Match ..	4	2	..	6	107	113
Wollen Mills ..	1	1	..	2	22	24
Silk Factories ..	..	..	2	2	90	92
Total ..				42	1,042	1,084

[1] *The Location of Industry in India*, 1944: Office of the Economic Adviser, Government of India.

Industrial Workers, Indian Union & Pakistan

1939

	Total No. of workers	Pakistan	Indian Union
Cotton Mills ..	4,41,000	8.590	4,32,410
Jute Mills ..	3,02,285	..	3,02,285
Silk Mills and Filatures ..	10,099	70	10,029
Woollen Mills ..	17,201	2,121	15,080
Iron and Steel ..	43,771	..	43,771
General Engineering ..	56,830	5,226	51,604
Sugar ..	74,305	3,011	71,294
Match ..	16,220	468	15,752
Paper ..	12,410	..	12,410
Chemical Industry ..	7,968	46	7,922
Glass ..	10,151	415	9,736
Soap ..	2,227	23	2,204
Cement ..	10,758	1 273	9,485
Total ..	10,05,185	21,243	9,83,942
Percentage to total ..		2·11	97·89

of the new Dominion. Consequently industrial employment is extremely limited in Pakistan. Out of the total industrial workers in important industries only 2·11 per cent. are in Pakistan and the balance of 97·89 per cent. are in the Indian Union. The two tables given above will indicate the relative positions of the two Dominions regarding industries and industrial workers.

MINERAL RESOURCES

A brief account of the mineral resources of the two Dominions may be useful for envisaging the potentialities for future development. Even with regard to minerals Pakistan does not appear to be particularly rich. Such of those minerals which could serve as the basis of key industries are concentrated in narrow zones of the Indian Union. In fact this has been an important reason for the non-development of heavy industries in different parts of the country even before the partition. However there are a few minerals in Pakistan, on the basis of which the future industrial edifice

of the Dominion has to be raised. Chromite is an important industrial mineral and nearly 50 per cent. of the Indian output of it is in Baluchistan. It is now being largely exported as there is no use for it within an economic distance. The other places where chromite is produced are Singhbum in Bihar and the Mysore State.

The coal resources of the country are entirely in the Indian Union. The best coalfields of India, namely, Jheria and Raniganj are in Bihar and West Bengal. The other important coalfields of the gondwana variety are in the Central Provinces and the Hyderabad State. Practically all the Gondwana coalfields, which constitute about 98·17 per cent. of the coal resources of the country, are in the Indian Union. Tertiary coal occurs in Baluchistan and in the Punjab Salt Range. The tertiary coal accounts for only 1·83 per cent. of the total coal resources and it is not of much value for coking purposes. The Punjab portion of the tertiary coal is no doubt in West Punjab being in the three districts of Shahpur, Jhelum and Mianwali, but its proportion to the total is only ·65 per cent.[1] Baluchistan contributes only ·08 per cent. of the Indian total. So except for an insignificant quantity of coal of the tertiary variety Pakistan has no coal resources. Its implications on industrialization may be considered at a later stage.

The occurrence of iron ore is essentially in Bihar, the Central Provinces, Eastern States Agency and the Mysore State. So out of a total output of about 2·7 million tons in 1938 the areas of Pakistan had absolutely no share.[2] The magnesite resources of India is almost entirely concentrated in the Madras Presidency. For manganese resources the most important place is the Central Provinces, though it is available in a few other places in the Indian Union. The output of mica which is a considerable quantity is mainly from

[1] *Quinquennial Review of the Mineral Production of India*, 1929–33 : *Records of the Geological Survey*, Vol. 7), 1935.

[2] *Records of the Geological Survey of India*, Vol. 76, 1939,

Bihar and Madras Presidency. Thus Pakistan has none of these minerals. Even copper, gold and monazite which are important minerals of India are exclusively in the Indian Union.

The important mineral resources of Pakistan, barring chromite in Baluchistan, are petroleum, salt, saltpetre, gypsum, limestone and clays. The petroleum resources of the Punjab are in Attock which is a district in West Punjab. The output in Attock is about 21 million gallons out of a total of 87 million gallons for the whole of India. With regard to salt, the rocksalt of Punjab in the salt range and the evaporation of sea brine in Sind together contribute a considerable quantity. There is also a considerable quantity of saltpetre in West Punjab. The Jhelum District of the Punjab contributes nearly a third of the total output of gypsum in India. Limestone occurs in large quantities in the North-West Frontier Province and in the Attock, Jhelum and Rawalpindi districts of West Punjab. There is also a fairly large quantity of clay in the Punjab. However, it is important to remember that none of these are basic minerals having any industrial value. Unless they can be combined with other appropriate minerals there is no economy in exploiting them.

It may not be inappropriate to consider the power resources of Pakistan in this context, as coal, oil and water power are the chief sources of it. The inadequacy of coal resources for power has been made good in the Punjab by the generation of hydro-electric power. In the Punjab the Mandi Scheme has an initial installed capacity of 48,000 K.W. The scheme is capable of further development.[1] Therefore there are sufficient power resources in the Punjab to cater to potential industries. In Bengal the presence of large quantities of coal has so far prevented the development of hydro-electric power as it cannot effectively compete with thermal power in regions of cheap coal. So Bengal has been essentially a thermal power area. With the division of Bengal

[1] *Vide supra*, Chapter III.

the Pakistan portion of East Bengal may find it difficult to have its normal supply of power as the coal resources are in the Indian Union. Consequently the eastern portion of Pakistan may experience considerable difficulties in finding adequate power for industry.

AGRICULTURAL RESOURCES

The agricultural resources of the two Dominions are of outstanding importance from the standpoints of adequacy of food supply and agricultural raw materials. Consequently a detailed investigation of all aspects of agricultural production should necessarily precede any generalisations on planning. The actual as well as the potential resources of the two areas should be determined at the outset in order to envisage the probable course of economic development in the two Dominions. The nature of the industrial plan and the type of foreign trade of the two Dominions would be conditioned by these agricultural resources. The problem assumes importance because there has been no balanced development of agriculture in the country, as crop planning was never seriously contemplated. The consequences of such an unregulated development are bound to get exaggerated when the country gets divided on a principle which must be admitted to be arbitrary from an economic standpoint.

The agricultural position as it existed in 1938–39 may be taken as the basis of our analysis.[1] At the outset the net area available for agricultural purposes in the two Dominions may be calculated. The division of Bengal has entailed a loss of about 32 million acres out of about 50 million acres to the Indian Union. In other words, about 64·93 per cent. of the area of Bengal has seceded to Pakistan. In the Punjab about 37 million acres out of a total of 61 million acres has gone to Pakistan. That is about 61·27 per cent. of the area of Punjab has seceded. Taking the whole of the

[1] *Agricultural Statistics of India*, 1938–39, Vol. I.

Pakistan we find that it gets 21·89 per cent. of the entire net area of India by professional survey.

Taking the net area sown the loss for the Indian Union is even greater in Bengal. About 17 million acres out of a total of 24 million acres of sown area has gone to the share of East Bengal, so that 70·93 per cent. of the sown area of Bengal is now in Pakistan. The position in the Punjab is not so bad. The share of West Punjab is about 15 million acres out of a total of 25 million acres. That means about 60·33 per cent. of the sown area of Punjab is assigned to Pakistan. Including the sown areas in the other provinces of Pakistan we get a total of about 41·8 million acres out of a total of 209 million acres for the whole country. The percentage proportions are therefore 20 for Pakistan and 80 for the Indian Union.

A specification of the important crops in the divided provinces will throw further light on the effects of partition on the agricultural position of the two Dominions. In Bengal rice is one of the most important food crops having about 22 million acres under cultivation. East Bengal gets a larger share of this than West Bengal. About 15·4 million acres, that is about 70·13 per cent. of the area under rice goes to East Bengal. The balance of about 6·5 million acres which is only approximately 30 per cent. of the area under rice remains in West Bengal. In the Punjab though rice is not as important as wheat still as much as 62·74 per cent. of the one million acres that is under rice goes to West Punjab. Among the other areas of Pakistan, Sind and Sylhet are important rice-growing areas having altogether about 3·2 million acres. Taking the entire Pakistan Dominion it could be estimated that about 26·27 per cent. of the area under rice in the whole of India is its share. This is much higher in proportion to either the area or population of Pakistan. The proportions of area and population of Pakistan to the whole of India are 14·92 and 17·19 per cent. respectively. Thus the position of the Indian

Union with regard to supplies of rice may deteriorate further in future.

Wheat is an important crop in the Punjab having about 9·5 million acres under cultivation. Under the division of Punjab nearly 70 per cent. of the area goes to West Punjab. In Bengal the area under wheat is not much and it is also more or less equitably distributed between East and West Bengal. About 51 per cent. is in West Bengal and about 49 per cent. in East Bengal. The North-West Frontier Province and Sind are important wheat-growing areas having about 2 million acres under cultivation. On a comparison with the whole of India, Pakistan will have 24·95 per cent. of the area under wheat which is again much higher than its proportion of population or area.

The area under sugarcane in Pakistan is not much being altogether only about 482 thousand acres. It is only 15·41 per cent. of the total area under sugarcane in the country. East Bengal is the most important part in Pakistan for sugarcane, as it gets 77·75 per cent. of the sugarcane area in Bengal. With regard to oilseeds, Bengal is an important area having about a million acres under cultivation. East Bengal gets as much as 82·21 per cent. of the area under oilseeds. Though the Punjab has a relatively smaller acreage under oilseeds West Punjab gets 63·4 per cent. of the area. Even though the aggregate area under oilseeds is not much as compared with the area in the other parts of the Indian Union still the seceding areas are getting a larger share of the divided provinces.

Under fibre crops the position of cotton and jute may be considered as they are the two most important industrial raw materials. Jute is practically a monopoly of Bengal with about 2·4 million acres under cultivation. It is strange that 91·48 per cent. of this area is in East Bengal. Sylhet also contributes some area under jute cultivation. In the Punjab and other parts of Pakistan no jute is cultivated. Since there is not much of jute cultivation outside Bengal

the proportion of Pakistan to the whole country for jute cultivation is 72·94 per cent. This is certainly a serious situation in relation to the jute manufacturing industry which is in the Indian Union. The serious repercussions of it may be deferred for the present.

In the cultivation of cotton Punjab excels all other provinces in India. There are nearly 3 million acres under cotton in the Punjab and 73·21 per cent. of it is in West Punjab. Besides the cultivation of the American varieties of long-staple cotton is practically confined to West Punjab. Sind has also a fairly large acreage under cotton cultivation. In Bengal though the area under cotton is not much it is practically confined to East Bengal. So the percentage of the area in Pakistan under cotton is 13·02 per cent. to the total. Though the proportion of the area is not very high the Punjab and Sind were hitherto important sources of supply to the cotton textile industry of India.

In summing up the position with regard to these important food and commercial crops, it has to be emphasised that Pakistan is certainly in a superior position. The position of the Indian Union is vulnerable as its industries have depended on agricultural raw materials from this area and its population has drawn freely from the food supplies of the Punjab and Sind. As the total area under food crops is very unevenly divided in the Punjab and Bengal there may be no surplus from those areas to the rest of India. Nearly 70 per cent. of the total area under food crops in Bengal now belongs to East Bengal. Similarly, about 58 per cent. of the area under food crops in the Punjab has gone to West Punjab. There will be an acute shortage of raw jute and a relative shortage of raw cotton for the Indian Union.

Along with the area under important crops it would be instructive if a few figures about the actual yield are also given. But in the published reports information regarding yield by districts is not available.[1] So a calculation of yield

[1] *Estimates of Area and Yield of Principal Crops in India*, 1940–41.

for the divided provinces becomes difficult. It is however possible to make estimates of yield in the two parts of the divided provinces on the basis of the proportion of area between them for the different crops. But the only vitiating factor in such an estimate would be the differences in the yield of the districts belonging to the two parts. But fortunately on a calculation of the average yield of the districts of the divided provinces it is found that there are only negligible differences.[1] Hence estimates of yield are made on the basis of the area under different crops in the divided provinces.

The yield of rice in East Bengal is about 5·2 million tons as compared with 2·2 millions in West Bengal. In Sind and Sylhet the yields are individually higher than that of West Punjab. The aggregate yield of these three areas comes up to a little more than a million tons. In the Punjab the yield of wheat is about 2·2 million tons as compared with a million tons in East Punjab. The North-West Frontier Province and Sind together contribute a little more than half a million tons. The yield of jute in Pakistan is about 7·5 million bales of 400 lbs. each. With regard to cotton the yield in West Punjab and Sind alone exceed a million bales. The table given below will be illustrative of the yield of important crops in Pakistan.

PAKISTAN

Yield of Important Crops, 1938-39 (000 omitted)

	Rice (tons)	Wheat (tons)	Sugar (tons)	Cotton (Bales of 400 lbs.)	Jute (Bales of 400 lbs.)
East Bengal ..	5,296	21	342	19	7,490
West Punjab ..	189	2,232	121	805	..
N.-W. Frontier Province	..	235	57	3	..
Sind ..	497	365	14	364	..
Sylhet ..	627	..	2	..	85
Total ..	6,609	2,853	536	1,191	7,575
Whole of India ..	23,962	9,963	3,387	6,875	9,738

[1] *Agricultural Statistics of India*, 1938–39, Appendix A.

So far a few details have been given about the actual agricultural position in the divided areas of the country. A knowledge of the potentialities of the two areas would also be useful in estimating the future possibilities. For instance, the extent of the uncultivated land or cultivable waste in the Dominions would indicate the scope of further extensive cultivation. In this respect the Punjab is in an unique position. The Punjab has 14·2 million acres of uncultivated land excluding fallows and out of this 3·8 million acres are known to be definitely culturable. Of the uncultivated land 80·8 per cent. is in West Punjab and of the land definitely known to be culturable 76·2 per cent. is in West Punjab. So the share of Pakistan in the potentialities for agricultural development in the Punjab is overwhelming. In Bengal there are about 6·6 million acres of culturable waste and this is divided more or less equally between East and West Bengal. For the entire Pakistan area there are 23 million acres of culturable waste as compared with a total of 94 million acres for the whole country.

The potentialities for agricultural development may also be judged from the extent of irrigated area in the two Dominions. In the Punjab there are 16·5 million acres of irrigated land. Under the division of the Punjab 67·83 per cent. of the irrigated area goes to West Punjab. This, along with the large irrigated area in Sind which is about 4·3 million acres, is a considerable total for Pakistan. In Bengal the irrigated area is only 1·8 million acres and most of it is in West Bengal. So the scope for further agricultural progress for Pakistan is in West Punjab and Sind. The percentage proportion of the irrigated area for Pakistan as compared with the whole of India is 31·82. This is a high proportion in comparison with the net sown area of Pakistan which is only 20 per cent. of the total for India.

Having investigated the actual and potential agricultural conditions of the two Dominions we may turn our attention to a few general issues, such as the balance in agricultural

production, food requirements and deficits, and the adequacy of agricultural raw materials. Neither of the two Dominions can have a fully balanced agricultural economy. Even though Pakistan may be relatively at an advantage regarding cereals she does not grow millets. The sugar production in West Pakistan is inadequate for her needs and East Bengal is dependent to an even greater degree on imports of sugar. Pakistan has to depend entirely on India for tea and coffee. The tea grown in East Bengal is only 3 per cent. of the Bengal crop. Except for jute and cotton there is a shortage of other commercial crops, like oilseeds, in Pakistan. The cattle wealth of Pakistan no doubt compares very well with that of the Indian Union. In Pakistan there is certainly sufficient food on nutritional levels but a well-balanced diet is difficult to secure internally. In the Indian Union, of course, there will be large deficits of food if imports are not available. Hence both the Dominions have to commence with a lack of balance in their agriculture.

With regard to food requirements and deficits some light may be thrown by examining the food position of the different provinces before the partition of the country. Bengal has been a net importer of foodgrains to the extent of about five lakhs of tons annually and hence a deficit province. Wheat is the most important foodgrain imported into Bengal. The imports however do not form a very large proportion of Bengal's total foodgrains. Bihar is another deficit province importing about 2,75,000 tons annually. Both rice and wheat are significant in her imports. The imports of Bombay average 7,64,000 tons annually consisting mainly of rice and wheat. The deficit of Bombay is large as compared with its internal production. Madras imports about 8,48,000 tons consisting mainly of rice and gram. The degree of deficit is high in spite of the large internal production.[1]

[1] *Report of the Foodgrains Policy Committee*, 1943, pp. 13–18.

The Punjab has been a surplus province having a net export surplus of 7,54,000 tons essentially consisting of wheat. The United Provinces has an average export of 69,000 tons a year due to gram even though rice is imported into the province. The export from Sind has been to the extent of 3,28,000 tons annually and it is a substantial proportion of the output in the province. The Central Provinces and Orissa are also surplus areas exporting rice. It is obvious therefore that most of the deficit provinces are in the Indian Union. West Bengal may have to import rice also hereafter, as nearly 70 per cent. of the area under rice has gone to East Bengal. The wheat imports of Bengal and other areas in the Indian Union may be difficult hereafter as 70 per cent. of the area under wheat in the Punjab goes to West Punjab. The province of Bombay will be particularly affected as it must have been depending on the neighbouring provinces of Sind and Punjab for her supplies of rice and wheat. Hence from the standpoint of food supplies much leeway has to be made in the Indian Union.

The position with regard to the agricultural raw materials is most unfortunate. Their chief sources are in Pakistan while the processing plants are in the Indian Union. For supplies of raw jute India has to depend entirely on Pakistan. The interprovincial movements of raw cotton before the partition indicate the raw cotton importing and exporting provinces. The largest importers have been Bombay, Madras and the United Provinces owing to the growth of cotton industry among them. Among the exporters of raw cotton the Punjab is the most important province. Next in importance are Sind, Central Provinces and Berar, and the Nizam's territory. Since 73 per cent. of the area under cotton in the Punjab is now in West Punjab it is obvious that the supplies from the Punjab and Sind will be practically non-available in future. So the position of the Indian Dominion is also vulnerable in respect of the two most important commercial crops.

PARTITION AND THE OLD ECONOMY

Now we may briefly consider the manner in which the partition has affected the old economy of the country. The parts are unequal in size, as only 14·92 per cent. of the area and 17·19 per cent. of the population has seceded to form a new dominion. But though the shrinkage in absolute size is not much the economic consequences of the partition on the old economy are too significant to be ignored. The seceding area was an important part of the vital economic organism of the country. The original division of economic activity was based on the principle of inter-regional specialisation according to resources. Though this is not a justification of the nature of industrial distribution in the country, the old pattern was largely in conformity with the resources particularly with reference to the areas that have now seceded from the country. This would be evident if the recommendations made in the body of this book regarding the potential industries in these areas are taken into account. It has been pointed out that in the Punjab there is no scope for the development of metallic industries. The manufacture of sulphuric acid is recommended on the basis of the sulphur deposits of Punjab and Baluchistan. The poor quality coal available in the Punjab may enable cement manufacture and the deposits of clay may be the basis of a ceramic industry. Barring these the only industries of importance can be salt manufacture and petroleum. Perhaps the cotton textile industry has the largest scope for development in the Punjab and in Sind. So the old pattern had not seriously violated the principle of inter-regional specialisation by allowing Punjab and Sind to develop their agriculture to a greater degree. It was in conformity with the natural resources. The dispersion of industries that has been emphatically demanded in this book is for other parts of the country where industrial resources have remained dormant.

So the fundamental consequence of the partition is a disturbance of the mutual interdependence of parts in the

economic pattern. The old orientation depended on inter-regional trade. With a change in the complexion of trade the organic unity of the economy will be undermined. This is true of all aspects of economic life and its effects will be felt by both the parts of the original country. Hence the pace of economic specialization that was attained in the course of evolution would be retarded. It would have been much easier to rectify the lack of economic balance in the country if the original scheme had continued. The partition has created new problems, in the solution of which the old ideals would be more difficult to achieve. The aim towards a high degree of national self-sufficiency would hereafter cease to be within the realm of possibilities. The commercial policy of the country so patiently evolved during the course of a century may have to be largely readapted. Thus the implications of partition are indeed far-reaching. It is also necessary to see the manner in which it affects the parts individually. For this purpose the future economies of the two Dominions may be visualized separately.

PLAN FOR PAKISTAN

The general outlines of an economic plan for Pakistan may be elaborated on the assumption that the two Dominions would function as non-co-operating independent entities. On such an assumption Pakistan should develop its economy on the basis of its own existing and potential resources. The general features of such a plan would be determined by the economic limitations of the area. The initial deficiency is the absence of geographical contiguity between the Western and Eastern parts of the Dominion. Hence a concerted plan for the whole ominion is difficult. The resources in the two parts have to be developed independently. There can only be a co-ordination of general policy. No doubt financial resources, technical skill and other mobile economic factors may flow to East Bengal. But it cannot be an organic part of the economy of the main-

land of Pakistan which is in the west. Distance, which is by no means inconsiderable, will be a limiting factor of a comprehensive plan.

The industrial equipment and potential resources are meagre and therefore economic self-sufficiency is not attainable in the immediate future. On the other hand, for a fairly long time she may have to depend to a disproportionate degree on outside sources for manufactured goods. For her requirements of iron and steel, coal, jute manufactures and paper she has to depend entirely on imports as there are no corresponding industries. All of them are essential commodities for a modern society. There is no prospect of the iron and steel industry developing even at a distant future as the resources for it do not exist. The jute industry may develop in course of time but capital goods have to be imported for it. Paper manufacture is doubtful particularly in the absence of a well-developed heavy chemical industry.

The cloth requirement of the Dominion may be estimated to ascertain the degree of deficiency in the development of the textile industry. According to the Cotton Cloth Movements Control Order the Textile Control Board allocated in 1944 at the rate of 12 yards per person in the Sind Deficit Zone, 18 yards in the Punjab Deficit Zone and 24 yards in Baluchistan. For Bengal and Assam the allocation was 10 yards per person.[1] On the basis of this, the cloth requirements of Pakistan may be estimated at about 1,092·8 million yards. Calculating on a uniform basis of 12 yards per person the cloth requirement of Pakistan would be 802·2 million yards. The output of cloth production in the mills in East Bengal and West Punjab has to be estimated on the basis of the spindles and looms going to their share after the division. The two areas together may be estimated to produce about 89·3 million yards. In estimating handloom production only a rough calculation is possible on the basis of the area of the two provinces going to Pakistan as handloom weaving is widespread. On this basis we get about 229·8

[1] *The Indian Cotton Textile Industry and Annual*, 1904, Table 18.

million yards including Sind. So there is an overall deficiency of 483·1 million yards per year for Pakistan even at the rate of 12 yards *per capita*. This is no surprise as even before the partition the Punjab, Bengal and Sind have been deficit provinces for cloth. So the leeway that has to be made is enormous if Pakistan wishes to clothe its people by its own industry. Consequently a large import of cloth would be a necessity for a long time. No doubt the raw cotton resources of Pakistan are enormous but the requisite textile machinery is not so easily available. However, this is a direction in which Pakistan has to strain every nerve to accelerate development. It will be an important part of its economic plan.

There is also a general deficiency of almost all manufactured commodities in Pakistan. The sugar output is inadequate, as the number of sugar factories is meagre. The output of cement is not commensurate with the existing demand; and further plans of expansion would certainly require an augmentation of production. The heavy chemical industry, which is the basis of industrial expansion, is still to develop. Other miscellaneous products like soap, match and glass are very inadequate even for normal consumption. But Pakistan cannot plan to develop all these industries. Their inauguration depends very much on the resources that are available. Unfortunately the mineral resources of the Dominion are extremely limited. Unless imports of chemicals and minerals on a large scale are contemplated most of these industries would be outside the purview of an economic plan for Pakistan.

Still industrialization has to be pursued in all feasible directions, as otherwise the economic progress of the area cannot be accelerated. Since capital goods have to be imported for the purpose, an export surplus from Pakistan is absolutely essential in order to acquire foreign exchange. At present agricultural production is the only source for such an export surplus and hence its pace cannot be retarded

for the implementation of a policy of industrialization. Consequently Pakistan has to give a high priority to agriculture in her economic plan. Besides she must acquire a balanced diet locally so that her foreign exchange may be conserved for the importation of industrial equipment. Consequently agricultural plans have to precede industrial plans in Pakistan.

The delimitation of areas in Pakistan for the sake of a regional approach in planning is not a formidable task as nature and geography come to our rescue. The North-West Frontier Province and Baluchistan are not endowed by nature with many potentialities for economic development. Their economies are bound to be backward for a considerable length of time. They will be a liability to the rest of Pakistan for the supply of manufactured consumption goods. Perhaps the most important region would be West Punjab and Sind. They have to function as one economic region in the further industrialization of Pakistan. The development of the cotton textile industry should be the most important preoccupation in this region. Even those industries that have to be built up on imported resources have to be established in this region. The foundation of the heavy chemical industry has to be laid here and the manufacture of fertilizers should be an important aspect of it. East Bengal is geographically separated from the rest of Pakistan and so it has to be an independent region. The establishment of the jute industry here to a certain extent may be an important plank in the economic programme. The cotton textile industry in and around Dacca has to be developed further, as any addition to the present output of cloth would alleviate the situation. Dacca may also be the centre of a few other industries, such as sugar, glass, matches, etc. The sugar industry has to be developed both in East Bengal and in the West Punjab zones. Though these meagre possibilities can be exploited they have to give precedence to agricultural planning.

The finances available in Pakistan in the immediate future may not be of a very large magnitude to enable any far-reaching scheme of development. The revenue from customs duties may be a small part of the Indian total. The import duties on raw materials would accrue to the Indian Union, as she has most of the industrial areas. On consumers' goods the import duties may not be much even if they are diverted from Indian ports to those in Pakistan. With regard to export duties the position of Pakistan is relatively better. The duty on raw jute and cotton will accrue to Pakistan while those on manufactured jute and tea will go to India. The revenue from the central excises will be very meagre for Pakistan as the industries that pay them are mostly in India. The yield from income-tax is also likely to be low in Pakistan, as it is derived mostly from trade and industry which have been very unevenly distributed in the country. The provincial shares of income-tax provide a clue to this and the share of Punjab has been low. In Bengal income-tax is paid mostly by Calcutta and the surrounding industrial areas. So the revenue from income-tax and corporation tax will not be appreciable for Pakistan. In respect of commercial services the strategic railways of the North-West Frontier Province for which a subvention was being paid will be a liability. The earnings from the railways in Sind and Punjab may be just enough to make up the loss of the strategic railways.

PLAN FOR INDIA

The Indian Union still continues to be a large entity with sufficient industrial equipment and vast potentialities. About 98 per cent. of the industrial workers and most of the strategic mineral resources are with it even after the partition. Therefore its industrial possibilities are certainly enormous. But its agricultural position is weak, as the surplus areas have seceded. The relative weakness will affect not only the food position but also the manufacturing industry owing to

the paucity of agricultural raw materials. The cotton textile industry and the jute industry may be severely affected if the raw materials are not forthcoming from Pakistan. From the standpoint of food supplies a large country like India cannot depend on imported foodgrains for ever. Agricultural development is therefore the *sine quo non* of the new economy for India if it is to develop as an independent entity not co-operating with Pakistan. Agricultural planning should have priority over industrial planning and intensive agriculture will have to be practised to a greater degree as the scope for extensive cultivation is limited relatively to Pakistan. It is of primary importance for India to make her position secure in respect of foodgrains and agricultural raw materials like cotton and jute.

The problem of demarcation of areas for regional development may not be difficult as the regional division indicated in the text of the book can continue except for the fact that the seceding areas may affect the size of the regions concerned. But some of the important sources of supply are cut off warranting a reorientation of the entire plan. The programme of industrial development envisaged for the regions may have to be retarded. They may have to go slow giving precedence to the agricultural rehabilitation of the Dominion. Of course the other alternative is to depend on imports from abroad, but then the economy will be extremely unbalanced. Even though complete self-sufficiency need not be the aim, a full development to the extent of the available scope is an economic necessity. The finances of the Indian Union will also be adequate as the chief sources of revenue like income-tax, customs, excises and commercial services are not affected much by the partition. It is neither finance nor industrial potential that will be a limiting factor for going ahead with schemes of industrialization. It will be limited by natural factors for obtaining an adequate supply of agricultural produce. The foreign exchange position will be weak as there cannot be much of export surplus

Her manufactured exports may be mostly to countries of the Middle East and Australia. Unless the foreign exchange thus secured is multilaterally convertible she may not be able to import capital goods from Western countries.

A few tentative conclusions may be drawn from the outlines of the two economic plans given on the assumption that the Dominions would function as non-co-operating independent entities. The first inference is that priority to industrial planning would be difficult in both the Dominions due to different reasons. In the Indian Union though industrial equipment is adequate certain essential raw materials will not be available locally. The first preoccupation should therefore be to fortify the Dominion with adequate agricultural raw materials and food supplies. In Pakistan industrial resources are generally meagre and the existing equipment is negligible. The industrial edifice has therefore to be built with imported capital goods and hence its acceleration will depend on other factors. The second inference is that agricultural progress is incumbent in both the Dominions for two different reasons. In Pakistan it is necessary for acquiring sufficient foreign exchange for implementing its industrial programme. In the Indian Union it is essential for avoiding an unhealthy dependence on outside countries for food and raw materials. The third inference is that since resources and processing equipment in respect of important industries are separated by the partition, plans independently drawn for the two Dominions would involve a duplication and a corresponding destruction of manufacturing equipment. From a larger perspective this is an uneconomic process. A policy of non-co-operation therefore is not likely to benefit either.

THE REGIONAL PLAN

Our next task is to consider how far and under what circumstances will the regional plan elaborated in the text of this book be useful for the future. It will certainly be

useful for the Indian Union and it may also be useful for both the Dominions if there is some element of co-operation between them which is inevitable according to our thesis. Further arguments will be adduced in favour of concerted action for future planning. Obviously the plan was meant for the whole of India and was drawn up on the basis of the entire resources and economic equipment in the country. In the event of the two Dominions choosing to be economically independent the plan will no doubt be suitable for the Indian Union, being the larger of the two entities. No radical changes will be warranted by the division except for the fact that some of the regions may be reduced in size and there may be a lack of certain agricultural raw materials. It may not affect the entire plan except for certain adjustments for securing the raw materials either locally or from abroad. No doubt the pace of industrial progress will be slower even though all industries envisaged can be developed. There may be a dislocation in certain industries like jute and cotton. Ways and means have to be found for their adaptation. Finally the scope for redistribution of industries may be limited owing to the agricultural emphasis.

On the other hand, if there is to be some co-operation on essentials, the task of planning becomes much easier for both the Dominions. The reasons in favour of a healthy understanding between them are overwhelming. Pakistan is not very strong economically. Her actual development is meagre and the existing economy is terribly ill-balanced. She may develop with imported resources provided she is prepared to ignore all considerations of cost. The political necessity for her creation may not justify economic independence. The long evolution of the economic structure of the country has been on the basis of the entire resources. The same scheme of development can be maintained in spite of the political division if there can be agreement on certain essentials. Planning will then provide for appropriate industries in all zones. What it would prevent is

uneconomic production in either of them necessitated by the arbitrary division. There need be no apprehensions that Pakistan would be used as a feeder of agricultural raw materials to India in the event of a concerted plan of action. It may be mutually agreed that all industries suitable for the environment would be developed with joint efforts. All that it would prevent is an uneconomic duplication of plant. For instance, it may not be economical, even if it is possible to build up a new jute industry in East Bengal. Already the output capacity in West Bengal exceeds the world demand for jute and hence any political rivalry on an issue like that would only result in an economic loss to both.

If there is an intelligent collaboration of plans the resources of the two Dominions can be more scientifically exploited. Without any sacrifice on the part of either of them for the benefit of the other a better balance in employment and earning can be secured with a little understanding regarding their fundamental economic interests. The uneconomical emphasis on priorities for new objectives, coming to the forefront on account of the division, will retard economic progress and compel a reduction in the targets aimed at in the original plans. There would certainly be a few new targets hereafter as the political perspective from which the planning of the Pakistan area is looked at has changed, but it will not be impossible to reconcile them with the larger interests of the people of the two nations.

The manner of co-operation is not inconceivable. The economic history of Europe provides innumerable instances of economic co-operation between independent nations. Since national sovereignties have to be respected each Dominion can have its own economic plan independently conceived. But before implementing them it would be to their advantage to explore the possibilities of concerted action to make up their mutual deficiencies. If such joint effort is beneficial to both they can agree on a common plan of action. Several instances could be cited where a joint plan would be of

incalculable benefit to them. The well-established industries of India like iron and steel, paper and jute can continue to be the sources of supply to Pakistan. There is no economic justification for their duplication. Various other manufactured consumers goods may also be imported from the Indian Union though simultaneously efforts may be made in Pakistan to develop such of the industries for which there are opportunities. With regard to the export of agricultural raw materials from Pakistan there need not be a diversion from the Indian Union owing to antipathies developed on non-economic considerations. Hence the cardinal principle to be borne in mind is that there need be no import and export restrictions between the two Dominions unless they are economically justifiable. The true export surplus of either of them that could go to foreign countries would be that which remains after satisfying each other's needs. The trade position of the Dominions would then be represented by a large import of foodgrains, raw cotton and raw jute from Pakistan into India. Correspondingly there will be a large import of textiles, sugar, iron and steel, tea, woollen and silk goods, paper, etc., from India to Pakistan. These are essential for their sustenance and no new sources for them need be discovered.

But in any such scheme of joint effort a distinction has to be drawn between a transitional and a long-range policy. During the transitional stage the degree of dependence would certainly be greater. In a long-range policy more distant visions would enter the picture and necessitate adaptations. It is a dynamic process and hence the nature of co-operation must be amenable to change. With increased industrialization in Pakistan the composition of its imports from India might change. Similarly India may have to find new sources of supply for some of its raw materials from Pakistan. So by suggesting mutual co-operation we are not trying to freeze a pattern for ever. All that is emphasised here is that even under a long-range policy it will not be difficult to find

opportunities for mutual co-operation. For instance, the imports of foodgrains from Pakistan can continue even under a long-range plan.

Finally, a few controversial issues concerning the limits of concerted action may be considered. The nature of co-operation would depend upon the aims of economic development. For instance, it will be very difficult to decide whether it would be in the interest of Pakistan to develop its textile industry only to the extent of its cloth requirement and export the excess of raw cotton to India or to build a large textile industry capable of absorbing its entire raw cotton output. The latter alternative may probably be more advantageous as she could export cloth instead of raw cotton and acquire more foreign exchange for her imports. Similarly she may have visions of a large jute industry in East Bengal so that she could sell manufactured jute instead of raw jute. There is also no reason why Pakistan should not contemplate sending all her export surplus to foreign countries instead of India so that the foreign exchange acquired thereby may be useful for her import of capital goods. These are not unreasonable expectations but still it is doubtful whether they are legitimate and well founded.

For solving such impediments to economic co-operation certain assumptions are necessary. We expect a re-establishment of the multilateral system of trading where trade balances can be adjusted within the orbit of a world trading system. Hence exports of Pakistan to India may be utilized for importing capital goods from abroad so long as foreign exchange is multilaterally convertible. The needs of India therefore need not be denied on that score. The other problem of export of manufactured goods *versus* raw materials is even more easy to solve. In a state of free enterprise and competition which we expect to continue for some more time the extent to which an industry can be developed depends upon economic factors. If after providing for the claims of other economic activities Pakistan can develop the

cotton textile industry for export purposes she can certainly do so. But all that is implied in this context is that there should neither be uneconomic extension of industries nor a deliberate diversion of trade under the influence of any dictatorial policy. It would certainly be uneconomic and dictatorial if the establishment of a huge jute industry in East Bengal is seriously contemplated.

So then in conclusion we might observe that obstacles to co-operation are really few and far between so long as economic thought and action are not swayed by political considerations. The future prosperity of the two Dominions would depend upon the spirit of goodwill and tolerance practised towards each other. A large volume of constructive work is ahead of them and they must prove themselves equal to it by submerging their differences. It is not unreasonable to expect such understanding in the economic sphere. It would only conserve for the future much of the energy that has already been expended in planning the future economy of the country and prevent another long period of readjustment whose victims will be the teeming millions of the country.

APPENDIX A

Supplementary Tables for Chapter II

Group I

Industries with no Dispersion

Table I—*Jute*

Place	1919		1931		1937	
	Proportion of workers	Location factor	Proportion of workers	Location factor	Proportion of workers	Location factor
Bengal ..	98·7	10·3	96·0	10·5	93·2	10·2
United Provinces ..	·1	·005	·3	·01	2·1	·11
Madras ..	1·0	·06	2·2	·1	·4	·02
Bihar and Orissa ..	..	..	·2	·02	2·0	·2
French Settlements .	..	..	1·0	..	·9	..

Table II—*Iron and Steel*

Bihar and Orissa ..	70·3	9·1	64·4	8·9	53·1	7·3
Bengal ..	29·7	3·1	20·5	2·2	40·1	4·4
Mysore ..	..	..	14·0	10·0	5·5	3·9
Madras ..	..	..	..	..	1·0	·06
United Provinces ..	..	..	..	..	·18	·009

Group II

Industries with Dispersion and Decline of Original Location

Table I—*Cotton Industry*

Place	1919		1931		1937	
	Proportion of workers	Location Factor	Proportion of workers	Location Factor	Proportion of workers	Location Factor
Madras ..	4·7	·5	8·7	·5	11·0	1·7
Bombay ..	68·6	10·0	57·1	8·4	53·0	7·8
Bengal ..	3·8	·4	4·3	·4	4·8	·5
United Provinces	5·2	·3	7·0	·3	7·2	·4
Punjab ..	·3	·03	·6	·05	·8	·08
C.P. and Berar ..	4·7	1·0	5·2	1·2	3·6	·8
Bihar and Orissa ..	..	..	·1	·01	·2	·02
Ajmer-Merwara ..	·3	1·5	·6	1·5	·7	1·7
Delhi ..	·4	*	2·4	4·8	1·7	3·4
Sind ..	..	..	..	..	·06	*

Table II—*Cotton Industry (Indian States)*

Hyderabad ..	1·2	·2	1·0	·2	1·3	·3
Mysore ..	·7	·8	2·0	1·4	2·4	1·7
Baroda ..	·5	1·0	2·5	3·1	3·4	4·1
Central Indian States	2·2	·6	4·6	2·3	6·1	3·0
Rajaputana States ..	·6	..	·09	·02	·2	·04
Madras States ..	·1	·04	·1	·003	·3	·1
Bombay States ..	·5	·2	·7	·8	1·4	1·6
French Settlemements	1·4	..	1·2	..	·9	..

Table III—*Soap*

Bengal ..	81·6	26·7	..	..	46·4	..
United Provinces ..	9·8	..	..	..	..	..
Mysore ..	8·3	..	26·4	..	8·7	..
Bombay ..	..	..	22·1	..	39·9	..
Madras ..	..	..	6·5	..	..	..
Hyderabad ..	..	..	11·6	..	2·4	..
Baroda ..	..	..	..	..	1·3	..
Punjab ..	..	..	..	..	1·3	..

* No province.

Table IV—*Matches*

Place	1919		1931		1937	
	Proportion of workers	Location factor	Proportion of workers	Location factor	Proportion of workers	Location factor
Bombay ..	76·7	11·2	31·4	4·6	16·4	2·4
C.P. and Berar ..	23·3	5·1	·8	·2	1·4	·3
Madras ..	..	..	6·6	·4	19·2	1·2
Bengal ..	..	..	35·3	3·8	29·5	3·2
United Provinces	..	..	5·8	·3	6·4	·3
Punjab ..	..	..	·8	·07	2·2	·2
Assam ..	..	..	2·6	..	1·9	..
Hyderabad ..		..	1·6	·4	8·3	2·3
Mysore ..	..	.	1·0	·7	·6	·4
Baroda ..	..	..	1·6	2·0	2·3	2·8
Kashmir ..	..	..	·8	1·6	·5	1·0
Madras States ..		..	2·8	1·0	1·2	·4
Bombay States ..	..	..	7·1	8·8	6·7	8·3
Rajaputana States ..	..	..	..	..	1·2	·2

Table V—*Woollen Industry*

United Provinces ..	51·3	2·3	25·9	1·4	30·8	1·6
Punjab ..	27·5	2·7	24·3	2·3	28·9	2·7
Bengal ..	2·5	·2	2·2	·2	1·9	·2
Bombay ..	11·1	1·6	17·3	2·5	20·3	3·0
Mysore ..	7·4	9·2	12·6	9·0	6·8	4·8
Bihar & Orissa ..	..	.	12·2	1·6	8·8	1·2
Baroda ..	..	..	5·2	6·5	1·7	2·0
Madras ..	..	..	..	..	·6	·04

Table VI—*Cement*

C.P. & Berar ..	20·9	4·5	25·4	6·0	28 9	6·8
Madras ..	10·8	·6	·2	·01	1·3	·08
Rajaputana States ..	68·1	13·6	17·4	3·8	10·1	2·2
Bengal ..	..	..	16·4	1·8	13·9	1·5
Punjab ..	..	..	5·7	·5	7·6	·7
Bihar and Orissa ..	..	..	6·8	·9	9·6	1·3
Assam ..	..	..	1·5	..	·6	..
Delhi ..	..	..	·9	1·8	·9	1·8
Hyderabad ..	..	..	8·2	2·3	5·3	1·4
Baroda ..	..	..	3·4	4·2	2·0	2·5
Central India States	..	..	4·5	2·2	9·8	4·9
Bombay States ..	..	..	9·0	11·2	6·7	8·3
United Provinces ..	..	..	..	..	·12	·06
Bombay ..	..	..	..	..	·4	·06
Mysore ..	..	..	..	..	·1	·07

Table VII—*Silk*

Place	1919		1931		1937	
	Proportion of workers	Location factor	Proportion of workers	Location factor	Proportion of workers	Location factor
Bengal ..	8·9	·9	6·7	·7	16·9	1·8
Bombay ..	89·3	13·1	27·2	4·0	16·2	2·2
Central India States ..	1·7	·5	..	..	..	..
Madras ..	..	..	5·6	·3	6·5	·4
Mysore ..	..	..	11·3	8·0	17·0	12·1
Kashmir ..	..	..	49·0	98·0	32·5	..
Sind ..	..	..	..	..	·5	..
United Provinces ..	..	..	..	..	·8	·07
Punjab ..	..	..	..	..	7·6	·17
Hyderabad ..	..	..	..	..	1·1	·3
Rajaputana States ..	..	..	..	..	·3	·06

Group III

Industries with Dispersion but no Decline of Original Location

Table I—*Sugar*

Place	1919		1931		1937	
	Proportion of workers	Location Factor	Proportion of workers	Location Factor	Proportion of workers	Location Factor
Assam ..	7·1	..	..	..	·04	..
Bengal ..	7·2	·7	..	..	4·3	·4
Bihar and Orissa ..	24·8	3·2	26·3	3·6	see below	
United Provinces ..	24·8	1·4	55·1	3·0	58·3	3·2
Punjab ..	·9	·09	3·1	·3	1·9	·1
Madras ..	32·8	2·1	12·7	·8	4·5	·3
Central India States	1·9	·5	..	..	1·5	·7
Bombay ..	..	..	1·9	·2	3·1	·4
Baroda ..	..	..	·5	·6	·4	·5
Bombay States ..	..	..	·1	·1	2·1	2·5
Madras States ..	..	..	..	..	·2	·07
Rajaputana States ..	..	..	..	..	·6	·1
Mysore ..	..	..	..	..	1·2	·8
Bihar ..	..	..	..	..	24·3	3·3
Orissa ..	..	..	..	..	·6	..
Sind ..	..	..	..	..	·5	..

Table II—*Leather Works*

Bengal ..	1·3	·1	4·8	·5	44·7	4·9
United Provinces ..	91·0	5·2	83·4	4·5	49·7	2·9
Madras ..	3·1	·2	3·2	·2	3·1	·2
Central India States ..	4·4	1·3	..	..	..	..
Bombay ..	..	..	1·9	·2	2·4	·3
Hyderabad ..	..	..	5·0	1·4	..	..
Bombay States ..	..	..	1·4	1·7	..	..

Table III—*Tanneries*

Bengal ..	19·0		9·8		10·1	
Bihar ..	4·9		..		..	
Bombay ..	6·0		6·0		4·8	
Madras ..	33·7		41·1		44·2	
United Provinces ..	21·7		20·0		22·7	
Mysore ..	3·8		4·5		·8	
Central India States	10·5		..		..	
Punjab ..	..		·6		1·8	
Hyderabad ..	..		13·3		10·2	
Rajaputana States ..	..		1·5		1·1	
Bombay States ..	..		2·9		3·2	
Kashmir ..	..		..		·7	

Table IV—*Chemical*

Place	1919		1931		1937	
	Proportion of workers	Location Factor	Proportion of workers	Location Factor	Proportion of workers	Location Factor
Bengal ..	79·2		68·7		75·6	
United Provinces ..	1·6		7·2		1·3	
Bombay ..	14·8		7·1		4·7	
Baroda ..	4·3		5·9		7·9	
Punjab ..	..		1·2		4·3	
Bombay States ..	..		9·7		·9	
Mysore ..	..		..		1·8	
Kashmir ..	..		..		·9	

Table V—*Paper*

United Provinces ..	10·4	·5	12·4	·6	12·3	·6
Bengal ..	75·1	7·6	73·6	8·0	64·2	7·0
Bombay ..	10·1	1·4	10·9	1·6	11·7	1·7
Central India States ..	4·3	1·2	..	..	..	..
Madras ..	..	..	2·1	·1	1·6	·1
Madras States ..	..	..	·7	·2	1·5	·5
Punjab ..	..	..	..	..	8·5	·8

Table VI—*Glass*

Bengal ..	2·8	·2	18·3	2·0	29·7	3·2
Bombay ..	21·3	3·1	22·6	3·3	5·0	·7
United Provinces ..	41·5	2·3	46·7	2·5	46·8	2·5
Central Provinces ..	11·5	2·5	2·5	·5	3·4	·8
Punjab ..	6·3	·6	3·9	·3	1·5	·1
Baroda ..	6·0	2·7	..	..	..	..
Rajaputana States ..	10·4	2·0	·8	·1	..	..
Hyderabad ..	..	..	3·0	·8	2·6	·6
Bombay States ..	..	..	1·9	2·3	7·9	9·8
Madras ..	..	..	..	..	1·1	·07
Orissa ..	..	..	..	..	1·9	..

APPENDIX B

Supplementary Tables for Chapter III

*Agricultural Raw Materials**

Table I—*Sugar-cane*, 1938–39

Province	Area under crop (acres)	Yield per acre (lbs.)	Total yield (tons of raw sugar)
Assam ..	38,000	2,181	37,000
Bengal ..	299,000	3,289	439,000
Bihar	375,000	2,204	369,000
Bombay ..	71,000	5,584	177,000
C.P. and Berar ..	31,000	3,468	48,000
Delhi ..	1,000	420	500
Madras ..	98,000	6,263	274,000
N.W.F. ..	53,000	2,404	59,000
Orissa ..	32,000	4,340	62,000
Punjab ..	354,000	1,449	229,000
Sind ..	7.000	4,480	14,000
U.P. ..	1,610 000	3,005	2,160,000
Baroda ..	2,000	6,253	7,000
Bhopal ..	5,000	2,240	5 000
Bombay States ..	38.000	4,952	84,000
Hyderabad ..	29,000	4,943	64,000
Mysore ..	45,000	2,887	58 000
Rampur ..	25,000	1,971	22,000

* *Estimates of Area and Yield of Principal Crops in India*, 1938–39.

Table II—*Cotton*, 1938-39

Province	Area under crop (acres)	Yield per acre (lbs.)	Total yield (bales of 400 lbs. each)
Ajmer-Merwara ..	27,000	119	8,000
Assam ..	37,000	151	14,000
Bengal ..	58,000	159	23,000
Bihar ..	43,000	65	7,000
Bombay ..	3,627,000	78	708,000
C.P. and Berar ..	3,742,000	59	549,000
Delhi ..	2,000	133	..
Madras ..	1,950,000	76	372,000
N.W.F. ..	22,000	91	5,000
Orissa ..	8,000	50	1,000
Punjab ..	2.902,000	152	1,104,000
Sind ..	856,000	132	282,000
U.P. ..	654,000	109	179,000
Baroda ..	863,000	94	202,000
Bombay States ..	2,124,000	75	396,000
Central India States ..	1,141,000	56	159,000
Gwalior ..	560,000	69	96,000
Hyderabad ..	3,490,000	58	507,000
Khairpur ..	52,000	169	..
Mysore ..	84,000	52	11,000
Punjab States ..	757,000	160	302,000
Rajaputana States ..	465,000	78	91 000
Tripura ..	30,000	67	5,000
Rampur ..	13,000	62	2,000

Table III—*Jute*, 1938-39

Province	Area under crop (acres)	Yield per acre (lbs.)	Total yield (bales of 400 lbs. each)
Assam ..	281,000	793	557,000
Bengal ..	2,504,000	1,315	8,232,000
Bihar ..	265,000	1,070	709,000
Orissa ..	23,000	817	47,000
Cooch Behar ..	33,000	739	61,000
Tripura ..	13,000	892	29,000

Table IV—*Groundnut*, 1938–39

Province	Area under crop (acres)	Yield per acre (lbs.)	Total yield (tons of nuts in shell)
Bombay ..	1,373,000	907	556,000
C.P. and Berar ..	275,000	603	74,000
Madras ..	3,772,000	958	1,613,000
Orissa ..	19,000	825	7,000
Bombay States ..	1,266,000	651	368,000
Hyderabad ..	1,520,000	791	537,000
Mysore ..	214,000	429	41,000

Table V—*Castor*, 1938–39

Province	Area under crop (acres)	Yield per acre (lbs.)	Total yield (tons)
Bihar ..	34,000	264	4,000
Bombay ..	45,000	299	6,000
C.P. and Berar ..	29,000	386	5,000
Madras ..	270,000	183	22,000
Orissa ..	20,000	224	2,000
Sind ..	5,000	169	400
U. P. ..	11,000	815	4,000
Baroda ..	70,000	192	6,000
Bombay States ..	66,000	339	10 000
Hyderabad ..	550,000	183	45,000
Mysore ..	99,000	158	7,000

Table VI—*Sesamum* (*Til or Jinjili*), 1938–39

Province	Area under crop (acres)	Yield per acre (lbs.)	Total yield (tons)
Ajmer-Merwara ..	25,000	27	..
Bengal ..	188,000	369	31,000
Bihar ..	114,000	334	17,000
Bombay ..	210,000	235	22,000
C.P. and Berar ..	438,000	174	34,000
Madras ..	876,000	240	94,000
Orissa ..	105,000	277	13,000
Punjab ..	97,000	185	8,000
Sind ..	10,000	155	1,000
U.P. ..	322,000	174	25,000
Baroda ..	51,000	132	3,000
Bhopal ..	63,000	178	5,000
Bombay States ..	352,000	216	34,000
Hyderabad ..	451,000	144	29,000
Kotah ..	50,000	179	4,000

Table VII—*Linseed*, 1938-39

Province	Area under crop (acres)	Yield per acre (lbs.)	Total yield (tons)
Bengal ..	156,000	416	29,000
Bihar ..	576,000	307	79,000
Bombay ..	113,000	218	11,000
C.P. and Berar ..	1,334,000	185	110,000
Orissa ..	8 000	280	1,000
Punjab ..	31,000	217	3,000
U.P. ..	281,000	359	45,000
Bhopal ..	63,000	284	8,000
Bombay States ..	6,000	266	1,000
Eastern Agency ..	119,000	132	7,000
Hyderabad ..	463,000	194	40,000
Kotah ..	101,000	177	800

Table VIII—*Rape and Mustard*, 1938-39

Province	Area under crop (acres)	Yield per acre (lbs.)	Total yield (tons)
Assam ..	406,000	375	68,000
Bengal ..	777 000	438	152,000
Bihar ..	498,000	486	108,000
Bombay ..	16 000	420	3,000
C.P. and Berar ..	73,000	491	16,000
N.W.F. ..	83,000	270	10,000
Orissa ..	26,000	431	5,000
Punjab ..	650,000	379	110,000
Sind ..	163,000	192	14,000
U.P. ..	252,000	354	40,000
Alwar ..	43,000	..	3,000
Baroda ..	14,000	480	3,000
Bombay States ..	4,000	560	1,000
Hyderabad ..	9,000	132	1,000
Khairpur ..	7,000	192	..

Table IX—*Paid-up Capital of Industrial Concerns*, 1938-39 (000 omitted)

	Madras	Bombay	Bengal	U.P.	Punjab	Bihar	C.P. & Berar	Assam	N.W.F.	Sind	Orissa	Ajmer-Merwara	Delhi	Bangalore C. & M.	Hyderabad	Mysore	Baroda	Gwalior	Indore	Travancore	Cochin
Banking and Insurance	5,36,81	9,68,93	8,64,60	62,67	85,47	62,40	9,75	10,99	2,87	3,80	92	1,77	22,30	1,26	3,66	45,68	30,83	1,84,57	46,60	67,03	17,92
Transit and Transport	58,73	11,57,53	9,27,66	3,35	6,83	2,89	..	47	..	54,75	58	..	50,74	..	2,56	8,74	..	..	..	3,98	1,35
Trading and Manufacturing	6,58,45	38.58,73	45 42,45	3,32,18	2,23,57	2,65,16	38,09	15,74	6,01	1,15,24	8,12	4,52	63,39	6,20	24,54	51,54	26,48	33,15	1,54	32,50	11,05
Mills and Presses	4,27,36	26,97,32	27,39,81	2,96,72	47,29	43,97	43,42	1,43	..	13,72	..	30,22	38,95	..	78,62	90,78	1,38,12	91, 8	1,60,96	7,68	14,70
Tea and other Planting Cos.	1,47,80	19,04	10,71,68	10,70	..	1,64	..	79,92	..	..	..	..	..	..	..	11,53	..	..	..	1,42,88	4,60
Mining and Quarrying	3,64	11,34,45	7,78,51	..	1,76	59,65	12,30	30	..	..	..	..	1,69	..	64,65	12,73	..	..	..	..	..
Estate, Land & Building	6,23	6,42,70	5,07,91	..	5	11,54	3	92	..	12,43	..	..	51,66	..	..	1,33	..	13	..	..	..
Breweries and Distilleries	10,96	..	22,04	2,20	20,10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sugar, etc.	43,27	1,06,65	2,74,11	3,96,79	68,51	1,20,25	..	38	18,94	7,71	6,04	..	7,38	..	29,92	21,79	6,00	2,65	..	7,15	2
Hotels, Theatres, etc.	32 54	77,60	1,18,35	10,13	44,44	..	7	1,96	57	1 27	..	7	7,06	..	10, 27	2,62	6	..	..	..	39
Others ..	3,52	1,41,80	6,72	2,05	1,10	..	1,70	74	..	4,93	6	..	1,23	..	..	..	..	2	..	1,51	15

APPENDIX C

Supplementary Tables for Chapter IV

Table I—*Coefficients of Localization*

Industry	Coefficient
Cotton	1·07
Jute	1·71
Iron and Steel	1·76
Silk	·96
Woollen	1·02
Sugar (Perennial)	1·24
Sugar (Seasonal)	1·17
Chemical	1·50
Soap	1·54
Leather	1·26
Tanneries	·86
Paper	1·32
Cement	1·11
Matches	·99
Glass	1·14

Table II—*Cotton Industry*

	L.F.	D	W*	
Madras	·7	·3 ×	15·4 =	4·62
Bombay	7·8	6·8 ×	6·8 =	46·84
Bengal	·5	·5 ×	9·1 =	4·55
United Provinces	·4	·6 ×	18·2 =	10·92
Punjab	·08	·92 ×	10·4 =	9·56
C.P. and Berar	·8	·2 ×	4·2 =	0·84
Bihar	·02	·98 ×	7·2 =	7·95
Ajmer-Merwara	1·7	·7 ×	·4 =	·28
Delhi	3·4	2·4 ×	·5 =	1·20
Hyderabad	·3	·7 ×	3·6 =	2·52
Mysore	1·7	·7 ×	1·4 =	·98
Baroda	4·1	3·1 ×	·8 =	2·48
Central India	3·0	2·0 ×	2·0 =	4·00
Rajaputana States	·04	·96 ×	4·5 =	4·32
Madras States	·1	·9 ×	2·9 =	2·61
Bombay States	1·6	1·6 ×	·87 =	·52
Rest of India	0·00	1·0 ×	11·83 =	11·83
			100·00	107·02

Coefficient of Localization 1·07

* L.F. = Location Factor; D. = Mean Deviation; W. = Weightage

Table III—*Iron and Steel*

	L.F.	D	W	
Madras	·06	·94	× 15·4	= 14·47
Bengal	4·4	3·4	× 9·1	= 30·47
United Provinces	·009	·991	× 18·2	= 16·25
Bihar	7·3	6·3	× 7·2	= 45·36
Mysore	3·9	2·9	× 1·4	= 4·06
Rest of India	0·0	1·0	× 65·7	= 65·70
			100	176·78

Coefficient of Localization 1·76

Table IV—*Jute*

Madras	·02	·98	× 15·4	= 15·09
Bengal	10·2	9·2	× 9·1	= 83·72
United Provinces	·1	·9	× 18·2	= 16·38
Bihar	·2	·8	× 7·2	= 5·72
Rest of India	0·0	1·0	× 50·1	= 50·10
			100	171·01

Coefficient of Localization 1·71

Table V—*Glass*

Madras	·07	·93	× 15·4	= 14·32
Bombay	·7	·3	× 6·8	= 2·04
Bengal	3·2	2·2	× 9·1	= 20·02
United Provinces	2·5	1·5	× 18·2	= 27·30
Punjab	·1	·9	× 10·4	= 9·36
Central Provinces	·8	·2	× 4·2	= ·84
Hyderabad	·6	·4	× 3·6	= 1·44
Bombay States	9·8	8·8	× ·87	= 7·65
Rest of India	0·0	1·0	× 31·43	= 31·43
			100	114·40

Coefficient of Localization 1·14

Table VI—*Silk*

	L.F.	D.	W.	
Madras ..	·4	·6 ×	15·4 =	9·24
Bombay ..	2·2	1·2 ×	6·8 =	7·16
Bengal ..	1·8	·8 ×	9·1 =	7·28
United Provinces ..	·07	·93 ×	18·2 =	16·92
Punjab ..	·7	·3 ×	10·4 =	3·12
Hyderabad ..	·3	·7 ×	3·6 =	2·52
Mysore ..	12·1	11·1 ×	1·4 =	15·54
Rajaputana States ..	·06	·94 ×	4·5 =	4·23
Rest of India ..	0·0	1·0 ×	30·6 =	30·60
			100	96·61

Coeffiecient of Localization ·96

Table VII—*Woollen*

Madras	·04	·96 ×	15·4 =	14·78
Bombay	3·0	2·0 ×	6·3 =	13·60
Bengal	·2	·8 ×	9·1 =	7·28
United Provinces	1·6	·6 ×	18·2 =	10·92
Punjab	2·7	1·7 ×	10·4 =	17·68
Bihar	1·2	·2 ×	7·2 =	1·44
Mysore	4·8	3·8 ×	1·4 =	5·32
Baroda	2·0	1·0 ×	·8 =	·80
Rest of India	0·0	1·0 ×	30·7 =	30·70
			100	102·70

Coefficient of Localization 1·02

Table VIII—*Matches*

Madras	1·2	·2 ×	15·4 =	3·08
Bombay	2·4	1·4 ×	6·8 =	9·52
Bengal	3·2	2·2 ×	9·1 =	20·02
United Provinces	·3	·7 ×	18·2 =	12·74
Punjab	·2	·8 ×	10·4 =	8·32
Central Provinces	·3	·7 ×	4·2 =	2·94
Hyderabad	2·3	1·3 ×	3·6 =	4·68
Mysore	·4	·6 ×	1·4 =	·84
Baroda	2·8	1·8 ×	·8 =	1·44
Rajaputana States	·2	·8 ×	4·5 =	3·60
Madras States	·4	·6 ×	2·9 =	1·74
Bombay States	8·3	7·3 ×	·87 =	6·35
Rest of India	0·0	1·0 ×	21·83 =	21·83
			100	99·10

Coefficient of Localization ·991

Table IX—*Sugar*

Madras	1·6	·6	× 15·4	=	9·24
United Provinces	2·1	1·1	× 18·2	=	20·02
Mysore	18·1	17·1	× 1·4	=	23·94
Baroda	10·3	9·3	× ·8	=	7·44
Rest of India	0·0	1·0	× 64·2	=	64·2
			100		124·84

Coefficient of Localization 1·24

Table X—*Sugar* (*Seasonal*)

Madras	·2	·8	× 15·4	=	12·32
Bombay	·4	·6	× 6·8	=	4·08
Bengal	·4	·6	× 9·1	=	5·46
United Provinces ..	3·1	2·1	× 18·2	=	38·22
Punjab	·1	·9	× 10·4	=	9·36
Bihar	3·3	2·3	× 7·2	=	16·56
Central India	·7	·3	× 2·0	=	·60
Rajaputana States	·1	·9	× 4·5	=	4·05
Madras States	·07	·93	× 2·9	=	2·69
Bombay States	2·5	1·5	× ·87	=	1·30
Rest of India	0·0	1·0	× 22·63	=	22·63
			100		117·27

Coefficient of Localization 1·17

Table XI—*Paper*

Madras	·1	·9	× 15·4	=	13·86
Bombay	1·7	·7	× 6·8	=	4·76
Bengal	7·0	6·0	× 9·1	=	54·60
Punjab	·8	·2	× 10·4	=	2·08
Madras States	·5	·5	× 2·9	=	1·45
Rest of India	0·0	1·0	× 55·4	=	55·40
			100		132·15

Coefficient of Localization 1·32

Table XII—*Cement*

Madras	·08	·92 ×	15·4	= 14·16
Bombay	·06	·94 ×	6·8	= 6·23
Bengal	1·5	·5 ×	9·1	= 4·55
United Provinces	·06	·94 ×	18·2	= 17·10
Punjab	·7	·3 ×	10·4	= 3·12
Central Provinces	6·8	5·8 ×	4·2	= 24·86
Bihar	1·3	·3 ×	7·2	= 2·16
Delhi	1·8	·8 ×	·5	= ·40
Hyderabad	1·4	·4 ×	3·6	= 1·44
Mysore	·07	·93 ×	1·4	= 1·30
Baroda	2·5	1·5 ×	·8	= 1·20
Central India	4·9	3·9 ×	2·0	= 7·80
Rajaputana States	2·2	1·2 ×	4·5	= 5·40
Bombay States	8·3	7·3 ×	·87	= 6·35
Rest of India	0·0	1·0 ×	15·03	= 15·03
			100	111·10

Coefficient of Localization 1·11

Table XIII—*Chemical*

Bombay	·7	·3 ×	6·8	= 2·04
Bengal	8·3	7·3 ×	9·1	= 66·43
United Provinces	·07	·93 ×	18·2	= 16·92
Punjab	·4	·6 ×	10·4	= 6·24
Mysore	1·3	·3 ×	1·4	= ·42
Baroda	9·0	8·0 ×	·8	= 6·40
Bombay States	1·1	·1 ×	·87	= ·08
Rest of India	0·0	1·0 ×	52·43	= 52·43
			100	150·96

Coefficient of Localization 1·50

Table XIV—*Soap*

Bombay	5·5	4·5 ×	6·8	= 30·60
Bengal	5·1	4·1 ×	9·1	= 37·31
Punjab	·1	·9 ×	10·4	= 9·36
Hyderabad	·6	·4 ×	3·6	= 1·44
Mysore	6·2	5·2 ×	1·4	= 7·28
Baroda	1·6	·6 ×	·8	= ·48
Rest of India	0·0	1·0 ×	67·9	= 67·90
			100	154·37

Coefficient of Localization 1·54

Table XV—*Leather*

Madras	·2	·8	× 15·4	=	12·32
Bombay	·3	·7	× 6·8	=	4·76
Bengal	4·9	3·9	× 9·1	=	34·49
United Provinces	2·9	1·9	× 18·2	=	24·58
Rest of India	0·0	1·0	× 50·5	=	50·50
			100		126·65

Coefficient of Localization 1·26

Table XVI—*Tanneries*

Madras	2·9	1·9	× 15·4	=	29·26
Bombay	·7	·3	× 6·8	=	2·04
Bengal	1·1	·1	× 9·1	=	·91
United Provinces	1·2	·2	× 18·2	=	3·64
Punjab	·1	·9	× 10·4	=	9·36
Hyderabad	2·8	1·8	× 3·6	=	6·48
Mysore	·5	·5	× 1·4	=	·70
Rajaputana States	·2	·8	× 4·5	=	3·60
Rest of India	0·0	1·0	× 31·0	=	31·00
			100		86·99

Coefficient of Localization ·869

APPENDIX D

Supplementary Tables for Chapter VI

Table I—*Provincial Distribution of Cotton Industry*, 1939–40

	No. of Mills	Looms	Spindles
Madras	55	5,623	1,322,,116
Bombay	212	128,055	5,349,756
Bengal	30	9,998	415,876
United Provinces ..	24	10,731	684,354
Punjab	13	2,252	86,748
C.P. & Berar	11	6,573	362,394
Ajmer-Merwara	3	1,428	52,350
Delhi	5	2,754	111,180
Bihar	2	312	18,352
	355	167,726	8,403,126
Indian States :			
Hyderabad	6	2,043	115,222
Mysore	7	2,574	155,863
Baroda	16	6,810	325,422
Gwalior	6	3,972	153,798
Central India-Indore ..	6	5,784	194,854
Ratlam ..	1	425	15,550
Rajputana-Kishangarh ..	1	400	28,352
Mewar	1	250	7,812
Cochin	2	381	34,160
Bombay States	5	777	19,988
Western India States ..	9	2,399	113,472
Eastern Agency States ..	1	624	31,476
Travancore	1	300	11,600
French Settlements ..	3	2,056	88,124
	65	28,795	1,295,693

Table II—*Production of Cotton Yarn*

(000 omitted)

	lbs.
Madras	173,770
Bombay	556,554
Bengal	47,999
U.P.	124,700
Punjab	151,581
C.P. & Berar	61,372
Ajmer	13,306
Delhi	35,603
Bihar	2,545
	1,031,430
Indian States	203.443

Table III—*Woollen and Coloured Goods*

(000 omitted)

Madras	24,807
Bombay	494,611
Bengal	43,548
U.P.	70,243
Punjab	17,918
C.P.	25,163
Ajmer	6,751
Delhi	25,809
Bihar	1,977
Sind	3
	710,830
Indian States :	
Woollen goods	128,568
Coloured goods	38,414
	166,982

Table IV—*Cotton Yield*

	Bales of 400 lbs.
Ajmer-Merwara	4,000
Assam	14,000
Bengal	26,000
Bihar	8,000
Bombay	679,000
C.P. & Berar	721 000
Madras	452,000
N.W.F.	3,000
Orissa	1,000
Punjab	1,017,000
Sind	309,000
U.P.	147,000
	3,381,000

	Bales of 400 lbs.
Indian States:	
Baroda	196,000
Bombay States	280,000
Central India States	119,000
Gwalior	54,000
Hyderabad	503 000
Khairpur	25,000
Madras States	3,000
Mysore	12 000
Punjab State	274,000
Rajaputana States	55,000
Tripura	4,000
Rampur	3,000
	1,528,000

Total 4,909,000 (Bales of 400 lbs.)

Table V—*Consumption of Cotton—in Provinces and States Returns under Indian Cotton Cess Act*, 1938–39

(000 omitted)

	Bales of 400 lbs.
Bombay	1,316
Madras	470
U.P.	350
C.P. & Berar	165
Bengal	85
Punjab & Delhi	124
Total–British India	2,562
Total–Indian States	558
Total	3,120

Table VI—*Movement of Articles by Rail and River between Provinces and States*, 1939–40

Cotton : Raw (000 omitted)

Place	Imports Mds.	Exports Mds.
Assam	2	123
Bengal	207	143
Calcutta	429	62
Bihar	52	13
Orissa	1	1
U.P.	820	408
Punjab	12	6,637
Delhi	357	28
N.W.F.	1	133
Sind and Baluchistan	41	2,163
Karachi	6,271	2
C.P.	180	2,316
Bombay	2,358	2,914
Bombay Port	7,523	1,552
Madras	653	977
Madras (chief)	993	58
Madras Ports (others)	118	573
Rajputana	63	388
Central India	379	451
Nizam's Territory	..	1,711
Mysore	251	59
Kashmir	1	..
Cotton : Piecegoods		
Assam	266	2
Bengal	957	129
Calcutta	1,563	1,737
Bihar	1,080	68
Orissa	151	2
United Provinces	1,425	332
Punjab	1,358	176
Delhi	566	455
N.W.F.	300	4
Sind & Baluchistan	467	42
Karachi	55	654
C.P. & Berar	390	168
Bombay	397	2,976
Bombay Port	557	2,960
Madras	464	364
Madras Chief Port	250	262
Madras other ports	196	57
Rajputana	310	36
Central India	169	676
Nizam's territory	167	70
Mysore	146	123
Kashmir	60	1

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