THE
CALCUTTA IMPROVEMENT ACT, 1911
&
ALLIED MATTERS



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THE
CALCUTTA IMPROVEMENT ACT, 1911
&
ALLIED MATTERS

Vol. I.

CALCUTTA IMPROVEMENT TRUST
P16, INDIA EXCHANGE PLACE, EXTENSION
CALCUTTA-12 Price [illegible]

CONSTITUTION OF THE BOARD OF TRUSTEES FOR THE IMPROVEMENT OF CALCUTTA, 1912.

[The Calcutta Improvement Act came into force on the 2nd January 1912 *vide* Notification No. 1148 dated the 30th October 1911. The first meeting of the Board of Trustees was held at the offices of the Trust at 5, Clive Street at 11 A.M. on Tuesday, the 30th January 1912]

THE HON'BLE MR. C. H. BOMPAS, I.C.S.	*Chairman.*
THE HON'BLE MR. S. L. MADDOX, C.S.I.	*Chairman of the Corporation of Calcutta (ex-officio).*
THE HON'BLE MAHARAJ KUMAR RESHEE CASE LAW ...	*Elected by the Corporation of Calcutta as a whole.*
RAI RADHA CHARAN PAL, BAHADUR	*Elected by the Ward Commissioners of the Corporation of Calcutta.*
DR. CHARLES BANKS	*Elected by the Commissioners of the Corporation of Calcutta appointed under section 8(2) of the Calcutta Municipal Act.*
MR. ROBERT GEORGE DASHWOOD THOMAS	*Elected by the Bengal Chamber of Commerce.*
THE HON'BLE RAI SITANATH RAI, BAHADUR	*Elected by the Bengal National Chamber of Commerce.*
SIR R. N. MOOKERJEE, K.C.I.E. ...	*Appointed by the Local Government by Notification.*
SIR WILLIAM DRING, K.C.I.E. ...	
SIR FREDERICK DUMAYNE ...	
MR. C. F. PAYNE, I.C.S. ...	

THE TRUSTEES FOR THE IMPROVEMENT OF CALCUTTA 1974

(January—June)

SHRI V. S. C. BONARJEE, I.A.S. ..	*Chairman.*
SHRI S. SAMADDAR, I.A.S. ...	*Commissioner, Corporation of Calcutta (ex-officio).*
SHRI GAUTAM CHAKRABARTY, M.L.A.	*Nominated by the State Government to represent Corporation of Calcutta during the period of its supersession vide (i) Notification No. 624/LSG. IC-85/72 dated 28-3-72 and (ii) Notification No. 749/LSG. IC-85/72 dt. 10-4-72.*
SHRI BIREN MAHANTI ...	
SHRI BARID BARAN DAS, M.L.A.	
SHRI B. P. PODDAR (upto 27-2-74)	*Elected by Bharat Chamber of Commerce.*
SHRI B. N. BANERJEE .	*Elected by Bengal National Chamber of Commerce.*
SHRI MANI SANYAL ...	*Appointed by the State Government by Notification.*
SHRI SOOKAMAL KANTI GHOSE	
SHRI V. MISRA, I.A.S., Secretary, P.W. (Roads) Department, Govt. of West Bengal.	
SHRI K. C. SIVARAMAKRISHNAN, I.A.S., Secretary, Calcutta Metropolitan Development Authority (from 24-4-74).	

FOREWORD

For persons interested in Town Planning and Urban Reconstruction, there is a demand for copies of the Calcutta Improvement Act, 1911, which appears to have gone out of print. The purpose of this book is to disseminate and furnish for ready reference a valuable store of knowledge on Town Planning, Urban Reconstruction and allied subjects with the Calcutta Improvement Act, 1911, as its basis. It is hoped that the book will serve the purpose intended.

V. S. C. Bonarjee
Chairman,
Calcutta Improvement Trust.
25-3-74

Chanced on the silt, the City Charnock built
Which Kipling mused on deeply in his lilt,
"Wealth sought and Kings adventured life to hold"
Where motley merchants thrived and bartered gold
Oh Calcutta! The City of my birth
With childhood memories so full of mirth
The house in Ray Street, number two with gate
Where I was born, still stands in hoary state.
Therein, in nineteen seventeen I saw light
In cloudless January's sky so bright.
By then her Trust with half a decade's toil
Had much improved the City and her soil
With sewered streets and parks and avenues
And winsome Schemes to meet Hygeia's views,
Like housing, lakes, wide roads, fresh breath and drink
Sans pollution, sans poverty, sans stink!
And so indeed the Corporation won
Most richly from C.I.T.'s works when done,
But stopped her dues, ignored her law as vain
Till supersession's shame, spelt sore disdain!
By end of August nineteen sixtynine
I joined the Trust with myriad dreams of mine,
For a City beautiful, a City of pride,
A City rebuilt, maintained side by side!
Like Chetla Bridge, its Market fair, some dreams
For sooth, bore fruit in time-bound speedy schemes,
But fundless C.I.T. must needs aspire
Dauntless, to forge ahead though I retire!

Explanatory notes:

The first two lines "Chanced ... lilt" refer to Kipling's poem "A TALE OF TWO CITIES" (vide Rudyard Kipling's Verse, Definitive Edition, Page 76). The third and fourth lines "Wealth ... gold" refer to Kipling's poem "THE SONG OF THE CITIES", Page 175 ibid. Lines 5 to 10 "Oh .... bright" establish the Chairman's link with Calcutta. Lines 11 to 16 "By then ... stink!" indicate the C.I.T.'s work from 1912 to 1917. Lines 17 to 20 "And so .... disdain!" indicate the Corporation's gains from rates and taxes from C.I.T.-improved lands and the Corporation's inability to pay the C.I.T.'s dues (viz. one-half per cent. per quarter on the annual rateable valuation) u/s 88 of the C.I. Act, 1911, from 1967, and its supersession ultimately, in March 1972. Lines 21 to 28 "By end .. I retire" indicate the period during the present Chairman's tenure, the C.I.T.'s financial difficulties and its future, as a valedictory note.

V. S. C. Bonarjee
Indian Administrative Service
Chairman
Calcutta Improvement Trust
9-3-1974.

INTRODUCTION

Calcutta, one of the twelve largest urban complexes of the world, owes its present state of growth to *the Calcutta Improvement Act, 1911* which came into force on the 2nd day of January 1912. The object of the enactment was to provide for the improvement and expansion of Calcutta by constituting *a Board of Trustees* empowered to undertake schemes in order to safeguard the health of the inhabitants of the localities affected or to provide building sites, remedy defective ventilation or improve the means of communication or facilities of conservancy. The enactment was indeed the crown and consummation of efforts which reached crucial stage *in the medical enquiry* instituted into the condition of Calcutta in 1896 owing to the outbreak of plague and *in the report of the Building Commission* appointed in April 1897 to consider changes required in the law relating to buildings and streets in Calcutta. The reports of these enquiries revealed overcrowding noticeably in the northern parts of the city and it was decided that special measures were required for raising funds for opening out the congested areas. The question of funds gave rise to different views being held by the Central and the Provincial Government, the Calcutta Corporation and the general public. It was after prolonged debate and discussion in terms of interests affected by the proposed enactment and due enlistment of public support in the light of experience gained in the working of the *City of Bombay Improvement Act, 1898* that *this Act* came into being. The work of the C.I.T. is, therefore, not that of a careless administrator blessed with good luck : it is the continuing contribution of laborious craftsmen almost obsessed with the diverse ways in which its conceptions and creations can be brought more and more directly into contact with the people.

2. The city now bears witness to the work accomplished by and under the Act. But it all began while the Trustees in entering on their duties formulated a clear idea of what those duties were to be. It is good to remember how the C.I.T. changed the face of the city in pursuance of *the order of Trust operations* laid down by Mr. Cecil Henry Bompas, I.C.S., the first Chairman of the Board of Trustees—

> "1st—To at once institute a very careful examination with a view to deciding what main roads should be constructed in the town.
>
> 2nd—Simultaneously, proceed to develope one or more suburban areas.
>
> 3rd—Simultaneously, proceed with one or more rehousing schemes for the working classes. The question of the accommodation of the population now living in *bustees* is a crying one.

Bustees are insanitary: and unless there is gross over-crowding they accommodate few persons to the acre. When land is valuable it is necessary to house a considerable number of persons to the acre: and it is very important that the Trust should decide by experiment how this can best be done. Private enterprise is not likely to take up this work until the Trust demonstrates that it can be made to yield a fair return on capital expended."

"4th—At once prepare schemes for widening the approaches to Calcutta.

5th—Acquire open spaces for parks in the suburban Municipalities".

The completeness and vigour of the questions identified by Mr. Bompas in 1912 were as remarkable as the fact that we had still been answering these in 1974.

3. It was on the *30th January 1912* that the Board of Trustees met for the first time and even as we write this the Board have already met for the 2269th time. In between, the C. I. Act underwent several amendments: the major amendment being *the West Bengal Act XXXII of 1955* under which the Board were given wider powers. The recent amendments viz. Improvement Laws (Amendment) Act of 1971 which empowered the Board to undertake the construction of approach roads on the Calcutta side to the Second Hooghly Bridge and the amendment of 1973 which reduced the quorum for the meetings, were made in response to the quickening pace of work and increasing responsibilities of development work undertaken under the 'massive mandate' available, by the middle of 1970, at the instance of the Prime Minister of India. The setting up of Calcutta Metropolitan Development Authority under President's Act No. 17 of the 16th July 1970 ensured release of impetus and funds for capital works: new leap forward on time-bound basis. Both 'law' and 'impulse' therefore guided C.I.T. to the present 'decade of development'. Meanwhile, the C. I. Act had gone out of print even as some of its provisions particularly those relating to execution of contracts, approval of estimates, taxation and finance had become dated giving rise to Board proposals of 1970 for amendment of C I. Act which pends with the Government. At about the same time the Calcutta High Court had declared *ultra vires* sub-paragraph (1) of paragraph 9 of the schedule to the Act which deleted the provision regarding *solatium*. This was followed by yet another judicial determination: Section 78A relating to levy of betterment fee was declared *ultra vires* in December 1972. C.I.T. had gone up in appeal against both. *There was therefore almost a compulsive urge to relate the highlights of the Trust operations to the legislation which altered the course of history for so many by giving special powers to so few viz. the eleven Trustees.* The Chairman then sought approval of the State Government to a proposal for reprint of the C. I Act, 1911 under the Copyright Act, 1957. Government agreed to this proposal by their letter dated the 21st March 1973. The Board at their Meetings dated the 21st April 1973, 12th January 1974 and 23rd

March 1974 approved of the proposed reprint with upto date amendments along with commentaries and articles on Town Planning and allied matters by the Chairman and other Trustees, Officers etc.

4. The book is being published in two volumes.

Volume I. "The Calcutta Improvement Act and Allied Matters"

Foreword: a Prefatorial poem, with Explanatory Notes, Introduction, "The C. I. Act 1911 (as amended upto April 1, 1974)", a reprint of a C.I.T. publication entitled "The Calcutta Improvement Trust 1912-1945", "The Calcutta Improvement Trust 1946-1974", Three published papers of the Chairman entitled "Some problems and Solutions on Town Planning in India", "An Anatomy of Slums", "Calcutta's Environmental Pollution—the Canker and its cure", Chief Engineer's report on the "Practice of the Town Planning and Architecture in France" and Deputy Chief Engineer III's paper entitled—Tilt and Shift in wells for bridge foundations.

Volume—II ibid is being projected to include commentaries on the Act, and other articles.

5. The objective of this publication is to provide for ready reference a dependable store of knowledge, which is in a large measure furnished by those whom the Board employed for the purposes of the Calcutta Improvement Act, as also to keep track of the work done for over sixty years. This is a never-ceasing pursuit and has been rendered important in the context of *the West Bengal Ordinance No. XI of 1973: The C.M.D.A. (Amendment) Ordinance, 1973*, which empowered the State Government to supersede the Board for a specified period for "better co-ordination and speedier execution of development work and maintenance thereof". The ordinance has since been replaced by the West Bengal Act XXI of 1974: *Calcutta Metropolitan Development Authority (Amendment) Act 1974* (with certain modifications) : first published in the Calcutta Gazette, Extraordinary of the 4th April 1974.

6. As we move forward we cannot help recalling the words of Ezra Pound: "the age demanded an image of its accelerated grimace', C.I.T. has taken *grin* and *grimace* in its stride and *has in fact moved forward to a state of increasing responsiveness* to the *dictates of the community which is so essential for developing the correct technology of strategic choice for mobilising 'inter-corporate' planning and execution:*

"The troubles of our proud and angry dust
Are from eternity and shall not fail
Bear them we can and if we can we must."

7. 'We studied day before yesterday in order that yesterday may not paralyse to-day and to-day may not paralyse to-morrow': the task before us is to ensure full measure of involvement in the Fifth Plan projects for urban reconstruction. We continue to offer

battle to a combination of hostile forces: delay in land acquisition, 'deficit' financing of schemes, non-receipt of municipal contribution, rise in *costs of labour, materials* and *establishment* and declining receipts from statutory sources etc.: the operations of the Trust have now become an 'obstacle race' at different levels. Nevertheless the Trust marches on with *faith* which has remained unshaken in course of an uneven journey:

"My feet are heavy now, but on I go
My head erect beneath the tragic years
The way is steep, but I would have it so;
And dusty, but I lay the dust with tears
Though none can see me weep: alone I climb
The rugged path that leads me out of time."

S. K. Das Gupta
Secretary to the Board.
9th April, 1974

STATEMENT OF REPEALS, AMENDMENTS AND ADAPTATIONS

REPEALED IN PART	..	Ben. Act I of 1922.
REPEALED IN PART AND AMENDED	.	Ben. Act III of 1915. Act XXXVIII of 1920. Ben. Act I of 1939.
AMENDED	..	Ben. Act IX of 1923. Ben. Act II of 1926. Ben. Act VIII of 1931. Ben. Act II of 1935. Ben. Act XVI of 1946. West Ben. Act XXII of 1948. West Ben. Act XVII of 1949. West Ben. Act L of 1950. West Ben. Act XXXII of 1955. West Ben. Improvement Laws (Amendment) Act, 1971 West Ben. Act XXV of 1973.
MODIFIED AND SUPPLEMENTED		Act XVIII of 1911.
ADAPTED		The Government of India (Adaptation of Indian Laws) Order, 1937. The Indian Independence (Adaptation of Bengal and Punjab Acts) Order, 1948. The Adaptation of Laws Order, 1950.

In reprinting this Act—

(1) Amendments have been inserted in their proper places with explanatory foot-notes.

(2) Repealed matters have been omitted, explanatory notes being inserted.

(3) Some further foot-notes have been added for convenience of reference.

Bengal Act V of 1911

THE CALCUTTA IMPROVEMENT ACT, 1911

CONTENTS

CHAPTER I.

PRELIMINARY.

SECTION

1. Short title, commencement and extent.
2. Definitions.

CHAPTER II.

THE BOARD OF TRUSTEES

Constitution of the Board

3. Creation and incorporation of Board.
4. Constitution of the Board.
5. *(Omitted.)*
6. *(Omitted.)*
7. *(Omitted.)*
8. Appointment in default of election.
9. Disqualifications for being appointed or elected a Trustee
10. The Chairman to be a whole-time officer ordinarily.
11. Remuneration of Chairman.
12. Leave of absence or deputation of the Chairman.
13. Appointment, etc., of acting Chairman.
14. Leave of absence to other Trustees.
15. Removal of Trustees.
16. Filling of casual vacancies in certain cases.
17. Term of office of Trustees.

Conduct of Business.

18. Meetings of Board.
19. Temporary association of members with the Board for particular purposes.
20. Constitution and functions of Committees.
21. Meetings of Committees.
22. Fees for attendance at meetings.
23. Trustees and associated members on Board or Committee not to take part in proceedings in which they are personally interested.

23A. Power of Board to execute certain works or to render certain services.

24. Power to make and perform contracts

24A. Power of Board to determine if execution of work, etc., should be by contract.

25. Execution of contracts and approval of estimates
26. Further provisions as to execution of contracts and provision as to seal of Board.
27. Tenders.
28. Security for performance of contract.
29. Supply of documents and information to the Government.

Officers and Servants.

SECTION

30. Statement of strength and remuneration of staff.
31. Board to make rules.
32. Powers of appointment, etc., in whom vested.
33. Sanction of State Government required to certain statements, rules and orders.
34. Control by Chairman.
35. Delegation of certain of Chairman's functions.

CHAPTER III.

IMPROVEMENT SCHEMES.

35A. Undertaking of works and incurring of expenditure for development of areas.
35B. Matters to be considered when framing improvement schemes.
35C. Matters to be provided for improvement schemes.
35D. Types of improvement schemes.
36. When general improvement scheme may be framed.
37. Authority for making an official representation for a general improvement scheme.
38. Consideration of official representations.
39. When street scheme may be framed.
39A. Housing accommodation scheme.
39B. Rehousing persons displaced by improvement schemes.
39C. Provisions to be made for rehousing of *bustee* dwellers in the case of certain schemes.
40. [*Omitted.*]
41. [*Omitted.*]
42. [*Omitted.*]
43. Preparation, publication and transmission of notice as to improvement scheme, and supply of documents to applicants.
44. Transmission to Board of representation by Corporation or Municipality as to improvement scheme.
45. Service of notice as to proposed acquisition of land or recovery of betterment fee.
46. Furnishing of copy of, or extracts from, the municipal assessment-book.
47. Abandonment of improvement scheme, or application to State Government to sanction it.
48. Power to sanction or reject improvement scheme.
49. Notification of sanction to improvement scheme.
50. Alteration of improvement scheme after sanction.
51. Combination of improvement schemes.
52. [*Omitted.*]
53. Width of streets.
54. Transfer to Board, for purposes of improvement scheme, of building or land vested in the Corporation or in the Commissioners of a Municipality.
55. Transfer of private street or square to Board for purposes of improvement scheme.
56. Provision of drain or water-work to replace another situated on land vested in the Board under section 54 or section 55.

of 1911.]

SECTION

57. Bar to application of certain sections of the Calcutta Municipal Act, 1899, to streets vested in the Board.
58. Repair and watering of streets vested in the Board.
59. Guarding and lighting when street vested in the Board is opened or broken up, or when street is under construction and speedy completion of work.
60. Prevention or restriction of traffic in street vested in the Board during progress of work.
61. Provision of facilities, and payment of compensation, when work is executed by Board in public street vested in them.
62. Power of Board to turn or close public street or square vested in them.
63. Projected public streets and projected public parks.
64. Reference of disputes to Tribunal.
65. Vesting in Corporation of streets laid out or altered and open spaces provided by the Board under an improvement scheme.
66. Application of section 65 to other Municipalities.
67. Power of Board to retain service passages.

CHAPTER IV.

ACQUISITION AND DISPOSAL OF LAND.

Acquisition by Agreement.

68. Power to purchase or lease by agreement.

Compulsory Acquisition

69. Power to acquire land under the Land Acquisition Act, 1894.
70. Tribunal to be constituted.
71. Modification of the Land Acquisition Act, 1894.
72. Constitution of Tribunal.
73. Remuneration of members of Tribunal.
74. Officers and servants of Tribunal.
75. Payments by Board on account of Tribunal.
76. Power to make rules for Tribunal.
77. Award of Tribunal how to be determined.
77A Appeal.

Abandonment of Acquisition.

78. Abandonment of acquisition in consideration of special payment.

Betterment fee.

78A. Payment of betterment fee.
78B. Assessment of betterment fee by Board.
78C. Settlement of betterment fee by arbitrators.
78D. Fees for arbitrators.
78E. Proceedings of arbitrators.
78F. Board to give notice to persons liable to payment of betterment fee.
78G. Agreement to make payment of betterment fee a charge on land.

Recovery of special payments and betterment fees.

SECTION

79. Recovery of money payable in pursuance of sections 78, 78B, 78C, or 78G.

79A. Board to appoint persons for enforcement of processes for recovery of dues.

Acquisition on fresh declaration.

80. Agreement or payment not to bar acquisition under a fresh declaration.

Disposal of land.

81. Power to dispose of land.

CHAPTER V.

TAXATION.

Duty on Transfers of Property.

82. Duty on certain transfers of immovable property.

Terminal Tax on Passengers.

83. Terminal tax on passengers by railway or inland steam-vessel.

Customs Duty on Jute.

84. Customs duty on exports of jute from Calcutta by sea.

85. Section 5 of the Indian Tariff Act, 1934, not to apply to jute.

Supplemental Provisions.

86. Power to State Government to make rules.

87. Punishment for offences.

CHAPTER VI.

FINANCE.

Municipal Contributions.

88. Contributions from Municipal Funds.

Loans.

89. Power of Board to borrow money.

90. [*Repealed.*]

91. Loans from Banks.

92. Diversion of borrowed money to purposes other than those first approved.

93. Form, signature, exchange, transfer and effect of debentures.

94. Signature of coupons attached to debentures.

95. Payments to survivors of joint payees.

96. Receipt by joint holder for interest or dividend.

97. Priority of payments for interest and repayment of loans.

98. Repayment of loans taken under section 89.

99. Establishment and maintenance of sinking funds.

100. Power to discontinue payments into sinking fund.

101. Investment of sinking funds.

102. Application of sinking funds.

103 Annual statements by trustees.

104. Annual examination of sinking funds.

Enforcement of Liabilities.

SECTION

105. Procedure if Board fails to make any payment or investment in respect of loans.

106. Procedure if Chairman of Corporation fails to make any payment due to Board or Accountant-General.

107. Payments under section 105 to be a charge on the property of the Board.

Budget Estimates.

108. Estimates of income and expenditure to be laid annually before the Board.

109. Sanction of Board to estimates.

110. Approval of State Government to estimates.

111. Transmission of copy of estimate to Commissioner of Corporation.

112. Special provisions as to the first estimate after the constitution of the Board.

113. Supplementary estimates.

114. Adherence to estimate, and maintenance of closing balance.

Banking and Investments.

115. Receipt of moneys, and deposit in Imperial Bank of India or other Bank approved by the Board.

116. Investment of surplus money.

117. Payments by cheque.

118. Signature of orders under section 116, and cheques.

119. Duty of Chairman and others before signing cheque.

Accounts.

120. Definition of "cost of management".

121. Keeping of capital account and revenue account.

122. Credits to capital account.

123. Application of capital account.

124. Credits to revenue account.

125. Application of revenue account.

126. Power to direct sale of securities in which any surplus of the revenue account is invested.

127. Advances from revenue account to capital account.

128. Advances from capital account to revenue account.

129. Submission of abstracts of accounts to State Government.

130. Annual audit of accounts.

131. Powers of auditor.

132. Remuneration of auditor.

133. Reports and information to be furnished by auditor to the Board.

134. Board to remedy defects pointed out by auditor.

135. Auditor's report to be sent to each Trustee and considered by Board.

136. Publication and transmission of an abstract of the accounts.

CHAPTER VII.

Rules.

SECTION.

137. Further powers to State Government for making rules.
138. Further powers to Board for making rules.
139. Conditions precedent to the making of rules under section 86, 137 or 138.
140. Sanction of State Government required to rules made under section 138
141. Publication of rules.
142. Printing and sale of copies of rules.
143. Exhibition of copies of rules.
144. Power of State Government to cancel rules made under section 138.

CHAPTER VIII.

SUPPLEMENTAL PROVISIONS.

Status of Trustees, etc.

145. Trustees, etc., deemed public servants.

Contributions towards leave-allowances and pensions of Government servants.

146. Contributions by Board towards leave-allowances and pensions of servants of the Government employed under this Act.

Extension of Acts to areas in the neighbourhood of the Calcutta Municipality.

147. Power to extend the Calcutta Municipal Act, 1951, to areas, near Calcutta, to which provisions of the present Act have been extended

148. Publication of notifications under sections 1(*3*) and 147(*1*) in draft, for criticism.

Facilities for movement of the population.

149. Powers of the Board for facilitating movement of the population.

Telegraph and Railways Acts.

150. Saving of Telegraph and Railways Acts.

Legal Proceedings.

151. Cognizance of offences.
152. Limitation of time for prosecution.
153. Power to hear case in absence of accused when summoned to appear.
154. Powers of Chairman as to institution, etc., of legal proceedings and obtaining legal advice.
155. Indemnity to Board, etc.
156. Notice of suit against Board, etc.

Police.

157. Co-operation of the Police.
158. Arrest of offenders.

of 1911.]

Evidence.

SECTION.

159. Proof of consent, etc., of Board or Chairman or officer or servant of Board.

Validation.

160. Validation of acts and proceedings.

Compensation.

161. General power of Board to pay compensation.
162. Compensation to be paid by offenders for damage caused by them

Public Notices and Advertisements.

163. Public notices how to be made known.
164. Newspapers in which advertisements or notices to be published.

Signature and Service of Notices or Bills.

165. Stamping signature on notices or bills.
166. Service how to be effected.

Surveys

167. Power to make surveys, or contribute towards their cost.

Power of Entry.

168. Power of entry.

Penalties.

169. Punishment for acquiring share or interest in contract, etc., with the Board.
170. Penalty for removing fence, etc., in street.
171. Penalty for building within street alignment or building line of a projected public street.
171A. Penalty for failure to remove wall or building in respect of which agreement has been executed.
172. [*Repealed.*]
173. Penalty for failure to comply with requisition made by auditor.
174. Penalty for obstructing contractor or removing mark.

Recovery of Expenses.

174A. Removal of wall or building and recovery of expenses.
175. [*Omitted.*]

Suspension or abolition, and re-imposition, of taxation or Municipal contributions.

176. Suspension or abolition, and re-imposition, of taxation or Municipal contributions.

Dissolution of Board.

177. Ultimate dissolution of Board, and transfer of their assets and liabilities to the Corporation.
The Schedule.

Bengal Act V of 1911

THE CALCUTTA IMPROVEMENT ACT, 1911.[1]

As modified up to the 1st April 1974

(20th September, 1911.)

An Act to provide for the improvement and expansion of Calcutta.

Whereas it is expedient to make provision for the improvement and expansion of Calcutta by opening up congested areas, laying out or altering streets, providing open spaces for purposes of ventilation or recreation, demolishing or constructing buildings, [2][clearing *bustees,* executing housing schemes and schemes for the rehousing of persons displaced by the execution of improvement schemes, acquiring land for the said purposes and all works relating thereto], and otherwise, as hereinafter appearing;

AND WHEREAS it is expedient that a Board of Trustees should be constituted and invested with special powers for carrying out the objects of this Act;

55 and 56 Vict, c. 14. AND WHEREAS the sanction of the Governor-General has been obtained, under section 5 of the Indian Councils Act, 1892, to the provisions of this Act, which affect Acts passed by the Governor-General of India in Council.

24 and 25 Vict, c 67. AND WHEREAS the sanction of the Governor-General has also been obtained, under section 43 of the Indian Councils Act, 1861, to the enactment of the provisions of Chapter V of this Act, relating to taxation;

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[1] **Local Extent**—This Act (except ss. 82 to 86) extends only to the Calcutta Municipality—*See* s. 1(3).

Section 82 originally extended throughout Bengal as constituted in the year 1911.

Section 83 extends to—

(1) railway stations in the Calcutta and Howrah Municipalities, and

(2) certain landing-places in the Port of Calcutta;

Section 84 extends to the Port of Calcutta;

Section 85 extends to Calcutta;

Section 86 has the same local extent as ss. 82, 83 and 84. So far as it affects s. 82, it has been extended to Eastern Bengal by the Bengal Laws Act, 1914 (Ben. Act I of 1914), s. 3, Sch I.

Several sections of the Act (*e.g.*, ss. 44 to 52, 54 to 56, 63, 66, 149, 163, 167, 168) contemplate that operations of the Board of Trustees constituted under it may be carried on in areas beyond the Calcutta Municipality, and section 1(3) gives power to extend provisions of the Act to such areas.

[2] These words within square brackets were substituted for the words "acquiring land.....improvement schemes" by s. 2 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

It is hereby enacted as follows:—

CHAPTER I.

PRELIMINARY

Short title, commencement and extent.

1. *(1)* This Act may be called the Calcutta Improvement Act, 1911.

(2) It shall come into force on such day[1] as the [2][State Government] may, by notification, direct.

(3) Except as otherwise hereinafter provided, this Act shall extend only to the Calcutta Municipality; but any provision which extends only to the Calcutta Municipality may be extended by the [3][State Government] entirely or in part, by notification, under the procedure prescribed by section **148**, to any specified area in the neighbourhood of that Municipality.

2. In this Act, unless there is anything repugnant in the subject or context,—

Definitions.

[3]*(1a)* "betterment fee" means the fee prescribed by section 78A in respect of an increase in value of land resulting from the execution of an improvement scheme;

(a) "the Board" means the Board of Trustees for the improvement of Calcutta, constituted under this Act;

[4]*(aa)* "building line" means a line (in rear of the street alignment) up to which the main wall of a building abutting on a projected public street may lawfully, extend;

[5]*(b)* "the Calcutta Municipality" means "Calcutta" as defined in clause *(11)* of section 5 of the Calcutta Municipal Act, 1951: West Ben. Act XXXIII of 1951.

(c) "Chairman" means the Chairman of the Board;

(d) "the Corporation" means the Corporation of Calcutta constituted under the said [6][Calcutta Municipal Act, 1951];

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[1] *i e*, the 2nd January, 1912, *see* notification No. 1148, dated the 30th October, 1911.

[2] The words "Provincial Government" were originally substituted for the words "Local Government" by paragraph 4*(1)* of the Government of India (Adaptation of Indian Laws) Order, 1937, and thereafter the word "State" was substituted for the word "Provincial" by paragraph 4*(1)* of the Adaptation of Laws Order, 1950.

[3] Clause *(1a)* was inserted by s. 2 of the Calcutta Improvement (Amendment) Act, 1931 (Ben. Act VIII of 1931).

[4] Clause *(aa)* was inserted by s. 2*(a)* of the Calcutta Improvement (Amendment) Act, 1915 (Ben. Act III of 1915).

[5] Clause (b) was substituted for the original clause (b) by s. 3*(1)* of the Calcutta Improvement(Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[6] These words within square brackets were substituted for the words "Calcutta Municipal Act, 1923" by s. 3*(2)*, *ibid.*

of 1911.]

(Chapter II.—The Board of Trustees.—Section 3.)

[1] * * * *

[2]*(f)* "improvement scheme" means an improvement scheme as described in section **35D**, but does not include a projected public street or a projected public park referred to in section **63**;

I of 1894. *(g)* "land" has the same meaning as in clause *(a)* of section 3 of the Land Acquisition Act, 1894;

West Ben. Act XXXIII of 1951. *(h)* "municipal assessment-book" means the assessment-book kept [3][under section **185** of the Calcutta Municipal Act, 1951] or the valuation and rating list prepared under [4][section 136 of the Bengal Municipal Act, 1932];

Ben. Act XV of 1932. *(j)* "notification" means a notification published in the [5][*Official Gazette*];

(k) "Secretary to the Board" means the person for the time being appointed by the Board to discharge the functions of Secretary to the Board;

(l) the "Tribunal" means the Tribunal constituted under section 72;

(m) "Trustee" means a Member of the Board; and

[6]*(n)* the expressions "*bustee*", "drain", "public street" and "street alignment" have the same meaning as in clauses *(10)*, *(26)*, *(60)* and *(72)*, respectively, of section 5 of the Calcutta Municipal Act, 1951.

CHAPTER II.

THE BOARD OF TRUSTEES

Constitution of the Board

Creation and incorporation of Board.

3. The duty of carrying out the provisions of this Act shall, subject to the conditions and limitations hereinafter contained, be vested in a Board, to be called, 'The Trustees for the Improvement of Calcutta"; and such Board shall be a body corporate and have perpetual succession and a common seal, and shall by the said name sue and be sued.

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[1]Clause *(e)* which was repealed by[1] the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939), is omitted.

[2]Clause *(f)* was substituted for the original clause *(f)* by s 3(3) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[3]These words within square brackets were substituted for the words and figures "section 143 of the Calcutta Municipal Act, 1923" by s. 3(4), *ibid.*

[4]These words and figures within square brackets were substituted for the words and figures "section 103 of the Bengal Municipal Act, 1884" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939).

[5]These words within square brackets were substituted for the words "*Calcutta Gazette*" by paragraph 4(1) of the Government of India (Adaptation of Indian Laws) Order, 1937.

[6]Clause *(n)* was substituted for the original clause *(n)* by s 3(5) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

Constitution of the Board.

[1]**4.** *(1)* The Board shall consist of eleven Trustees, namely :—

(a) a Chairman, appointed by the State Government by notification,

(b) the Commissioner of the Corporation, *ex-officio*,

(c) three members of the Corporation elected by the Corporation,

(d) two members representing the four Chambers of Commerce, that is to say, the Bengal Chamber of Commerce, the Bengal National Chamber of Commerce, the Indian Chamber of Commerce and the Bharat Chamber of Commerce, elected in the manner prescribed by rules by the State Government, and

(e) four other persons appointed by the State Government by notification.

(2) The names of the persons elected under clauses (c) and (d) of sub-section *(1)* shall be published by notification by the Chairman.

[2]* * * * *

5. [*Appointment of Trustees.*]—

[Omitted by section 5 of the Calcutta Improvement (Amendment) Act, 1955 (W. B. Act XXXII of 1955).]

6. [*Ex-officio Trustee.*]—

[Omitted by section 5 of the Calcutta Improvement (Amendment) Act, 1955 (W. B. Act XXXII of 1955).]

7. [*Election of other Trustees.*]—

[Omitted by section 5 of the Calcutta Improvement (Amendment) Act, 1955 (W. B. Act XXXII of 1955).]

Appointment in default of election.

8. If any of the bodies of electors referred to in [3][clause *(c)* or clause *(d)* of sub-section *(1)* of section 4] does not, by such date as may be prescribed by rule made in that behalf under section **137**, elect a person to be a Trustee, the [3][State Government] shall, by notification, appoint a person belonging to such body to be a Trustee; and any person so appointed shall be deemed to be a Trustee as if he had been duly elected by such body.

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[1] Section 4 was substituted for the original s. 4 by s. 4 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[2] New s. 4A was inserted by s. 2 of West Ben Act XXII of 1948, it remained in force up to the 31st March, 1950, *vide* s. 1(3) of West Ben. Act XXII of 1948 as amended by s. 2 of West Ben. Act XVII of 1949.

[3] These words within square brackets were substituted for the words "section 7" by s. 6 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[4] *See* foot-note 2 on p. 2, *ante*.

(Chapter II.—The Board of Trustees.—Sections 9, 10.)

9. *(1)* A person shall be disqualified for being appointed or elected a Trustee if he— Disqualifications for being appointed or elected a Trustee.

(a) has been sentenced by any Court for any non-bailable offence, such sentence not having been subsequently reversed or quashed, and such person's disqualification on account of such sentence not having been removed by an order which the [1][State Government] is hereby empowered to make, if it thinks fit, in this behalf; or

(b) is an undischarged insolvent; or

(c) holds any office or place of profit under the Board; or

(d) has, directly or indirectly, by himself, or by any partner, employer or employee, any share or interest in any contract or employment with, by, or on behalf of, the Board; or

(e) is a director, or a secretary, manager or other salaried officer, of any incorporated company which has any share or interest in any contract or employment with, by, or on behalf of, the Board.

(2) But a person shall not be disqualified as aforesaid or be deemed to have any share or interest in such contract or employment as aforesaid, by reason only of his having a share or interest in—

(i) any sale, purchase, lease, or exchange of land, or any agreement for the same; or

(ii) any agreement for the loan of money, or any security for the payment of money only; or

(iii) any newspaper in which any advertisement relating to the affairs of the Board is inserted; or

(iv) the occasional sale to the Board, to a value not exceeding two thousand rupees in any one financial year, of any article in which he trades;

or by reason only of his having a share or interest, otherwise than as director, or secretary, manager or other salaried officer, in any incorporated company which has any share or interest in any contract or employment with, by, or on behalf of, the Board.

[2]**10.** While any person is holding the office of Chairman, he shall not hold any other salaried office and shall devote his whole time and attention to his duties under this Act: The Chairman to be a whole-time officer ordinarily.

Provided that the [3]State Government may require him to hold some other salaried office in addition to the office of Chairman or may permit him to perform any honorary duties which in the opinion of the State Government will not interfere with the performance of his duties under this Act

[1] *See* foot-note 2 on p. 2, *ante*.

[2] This section was substituted for the original section by s. 3 of the Calcutta Improvement (Amendment) Act, 1948 (West Ben. Act XXII of 1948).

[3] The word "State" was substituted for the word "Provincial" by paragraph 4(*1*) of the Adaptation of Laws Order, 1950.

Remuneration of Chairman.

11. *(1)* The Chairman shall receive such monthly salary not exceeding three thousand rupees, as may be fixed by the [1][State Government] :

Provided that, if the Chairman, after having held his office for three years, is re-appointed for a further term of not less than two years, the [1][State Government] may direct that his monthly salary be increased to any sum not exceeding three thousand five hundred rupees.

(2) The word "salary", as used in this section, excludes allowances to which the Chairman may be entitled and any contribution payable on his account under any general or special orders of the Government for regulating the transfer of Government servants to foreign service.

(3) The [1][State Government] may, if it thinks fit, direct the payment to the Chairman of a house-rent and conveyance allowance, not exceeding five hundred rupees *per mensem*, in addition to his salary.

[2]*(4)* If under section 10 the [1]State Government requires the Chairman to hold any salaried office in addition to the office of Chairman, the salary and allowances (if any) payable to the Chairman for his holding the office, other than the office of Chairman, or such portion thereof, as the [1]State Government may decide, shall, instead of being paid to the Chairman, be payable to the Board for credit to the Revenue Account of the Board.

Leave of absence or deputation of the Chairman.

12. *(1)* The [1][State Government] may, after consultation with the Board, grant leave of absence to the Chairman, or depute him to other duties, for such period as it thinks fit.

(2) The allowance (if any) to be paid to the Chairman while absent on leave or deputation shall be such amount, not exceeding his salary, as may be fixed by the [1][State Government]:

[3]Provided that, if the Chairman is a servant of the [4]Government, the amount of such allowance shall be such as he may be entitled to under the conditions of his service under the [4]Government relating to transfer to foreign service.

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[1]*See* foot-note 2 on p. 2, *ante*.

[2]This sub-section was added by s. 4 of the Calcutta Improvement (Amendment) Act, 1948 (West Ben. Act XXII of 1948).

[3]The proviso was substituted for the original proviso, by Sch. IV to the Government of India (Adaptation of Indian Laws) Order, 1937.

[4]The word "Government" was substituted for the word, "Crown" by paragraph 4(1) of the Adaptation of Laws Order, 1950.

Appointment, etc., of acting Chairman.

13. *(1)* [1][When] the Chairman is granted leave of absence or deputed to other duties, the [2][State Government] may appoint a person to act as Chairman [1][during the period of leave or deputation, as the case may be].

(2) The salary and house-rent and conveyance allowance (if any) of any person appointed to act as Chairman shall be fixed by the [2][State Government] subject to the provisions of section 11.

(3) Any person appointed to act as Chairman shall exercise the powers and perform the duties conferred and imposed by and under this Act on the Chairman, and shall be subject to the same liabilities, restrictions and conditions as the Chairman.

Leave of absence to other Trustees.

14. The Board may permit any Trustee, other than the Chairman or the [4][Commissioner of the Corporation], to absent himself from meetings of the Board for any period not exceeding six months.

Removal of Trustees.

15. *(1)* The [2][State Government] may, by notification, declare that any Trustee shall cease to be a Trustee—

(a) if he has acted in contravention of section 23, or

(b) if he has been absent from, or is unable to attend, the meetings of the Board for any period exceeding six consecutive months, or

(c) if he has, without the permission of the Board, been absent from the meetings of the Board for any period exceeding three consecutive months, or

(d) if he is a salaried servant of the Government, and if his continuance in office as a Trustee is in the opinion of the [2][State Government] undesirable.

(2) The [2][State Government] shall, by notification, declare that a Trustee shall cease to be a Trustee—

(i) if he has become disqualified for appointment or election as a Trustee for any of the reasons mentioned in section 9; or

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[1] This word within square brackets was substituted for the word "Whenever" by s. 7(1) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben Act XXXII of 1955)

[2] *See* foot-note 2 on p. 2, *ante*.

[3] These words within square brackets were added by s. 7(2) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955.

[4] The words "Executive Officer of the Corporation" were orignally substituted for the words "Chairman of the Corporation" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939) and thereafter the word "Commissioner" was substituted for the words "Executive Officer" by s. 8 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955)

(ii) if he was elected or appointed as being a member of the Corporation, the Bengal Chamber of Commerce or the Bengal National Chamber of Commerce [1][or the Indian Chamber of Commerce or the Bharat Chamber of Commerce] and if he is, at the date of such notification, no longer a member of the Corporation or such Chamber, as the case may be.

(3) If at any time it appears to the [2][State Government] that the Chairman has shown himself to be unsuitable for his office, or has been guilty of any misconduct or neglect which renders his removal expedient, it may, by notification, declare that the Chairman shall cease to hold office as such.

Filling of casual vacancies in certain cases.

16. If any Trustee be permitted by the Board to absent himself from meetings of the Board for any period exceeding three months,

or if any Trustee, other than the [3][Commissioner of the Corporation], dies, or resigns the office of Trustee, or ceases to hold the office of Trustee in pursuance of a notification published under section 15,

the vacancy shall be filled, within one month, by a fresh appointment or election under [4][sub-section *(1)* of section 4] or section 8, as the case may be.

Term of office of Trustees.

17. *(1)* The term of office of the first Trustees appointed or elected under [4][sub-section *(1)* of section 4] or section 8, other than the Chairman, shall commence on such day as may be appointed by the [2][State Government].

(2) Subject to the provisions of section 15, the term of office of Trustees other than the [5][Commissioner of the Corporation] shall be as follows:—

[7]*(a)* the Chairman—such period as may be fixed by the State Government: provided that the initial term shall not be less than three years;

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[1] These words within square brackets were inserted by s 9 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955)

[2] *See* foot-note 2 on p. 2, *ante*.

[3] The words "Executive Officer of the Corporation" were originally substituted for the words "Chairman of the Corporation" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939) and thereafter the word "Commissioner" was substituted for the words "Executive Officer" by s 10 (i) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben Act XXXII of 1955).

[4] These words within square brackets were substituted for the words "section 5, section 7" by s. 10(ii) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[5] These words within square brackets were substituted for the words "section 5, section 7" by s. 11(1), *ibid*.

[6] The words "Executive Officer of the Corporation" were originally substituted for the words "Chairman of the Corporation" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939) and thereafter the word "Commissioner" was substituted for the words "Executive Officer" by s. 11(2)(*a*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[7] This clause (*a*) was substituted for the orignal clause (*a*) by s. 11(2)(b of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

(*b*) a Trustee appointed or elected in pursuance of section 16 in the place of a Trustee who has been permitted to absent himself from meetings of the Board—the period of the absence of the latter Trustee;

(*c*) other Trustees—three years:

[1]Provided that when a vacancy occurs in the seat of a member elected under clause (*c*) or clause (*d*) of sub-section (*1*) of section 4 by death or resignation or for any other reason, the bodies concerned shall elect a person to fill the vacancy within such time as the State Government may prescribe by rules, and the Trustee so elected shall hold office as a member of the Board for the residue of the term of office of the member whose seat he is elected to fill.

(*3*) Any Trustee shall, if not disqualified for any of the reasons mentioned in section 9 be eligible for re-appointment or re-election at the end of his term of office.

Conduct of Business

18. The Board shall meet, and shall from time to time make such arrangements with respect to the place, day, hour, notice, management and adjournment of their meetings, as they may think fit, subject to the following provisions, namely:— Meetings of Board.

(*a*) an ordinary meeting shall be held once at least in every month;

(*b*) the Chairman may, whenever he thinks fit, and shall upon the written request of not less than two other Trustees, call a special meeting.

(*c*) the Chairman shall attend every meeting of the Board unless absent on leave or prevented by sickness or other reasonable cause;

(*d*) no business shall be transacted at any meeting unless at least [2][one-third] of the existing number of the Trustees are present from the beginning to the end of the meeting;

[3]*(e)* every meeting shall be presided over by the Chairman and in his absence, by a Trustee chosen by the Trustees present to preside over the meeting;

(*f*) all questions shall be decided by a majority of votes of the Trustees present, the person presiding having a second or casting vote in all cases of equality of votes;

(*g*) if a poll be demanded, the names of the Trustees voting, and the nature of their votes, shall be recorded by the person presiding;

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[1]This proviso was added by s. 11(*2*)(*c*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[2]The words within square brackets were substituted for the word 'half' by amendment of s. 18 of the Calcutta Improvement (Amendment) Act, 1973 (W.B. Act XXV of 1973).

[3]This clause (*e*) was substituted for the original clause (*e*) by s. 12(*1*), *ibid.*

[1](*h*) minutes of the proceedings of each meeting (together with the names of the Trustees present) shall be recorded and such minutes shall be—

(i) read at the next ensuing meeting by the person presiding at such meeting.

(ii) signed by the person presiding at such meeting, and

(iii) open to inspection by any Trustee during office hours.

Temporary association of members with the Board for particular purposes.

19. (*1*) The Board may associate with themselves, in such manner and for such period as may be prescribed by rules made under section 138, [2][any person or persons] whose assistance or advice they may desire in carrying out any of the provisions of this Act.

(*2*) A person associated with themselves by the Board under sub-section (*1*) for any purpose shall have a right to take part in the discussions of the Board relative to that purpose, but shall not have a right to vote at a meeting of the Board, and shall not be a member of the Board for any other purpose.

Constitution and functions of Committees.

20. (*1*) The Board may from time to time appoint Committees consisting of such persons of any of the following classes as they may think fit, namely:—

(i) Trustees,

(ii) persons associated with the Board under section 19,

(iii) other persons whose assistance or advice the Board may desire as members of Committees:

Provided that no Committee shall consist of less than three persons.

(*2*) The Board may—

(*a*) refer to such Committees, for inquiry and report, any matter relating to any of the purposes of this Act, and

(*b*) delegate to such Committees, by specific resolution, and subject to any rules made under section 138, any of the powers or duties of the Board.

(*3*) The Board may at any time dissolve, or, subject to the provisions of sub-section (*1*), alter the constitution of, any such Committee.

(*4*) Every such Committee shall conform to any instructions from time to time given to them by the Board.

(*5*) All proceedings of any such Committee shall be subject to confirmation by the Board.

Meetings of Committees

21. (*1*) Committees appointed under section 20 may meet and adjourn as they think proper, but the Chairman may, whenever he thinks fit, call a special meeting of any Committee, and shall call

[1] This clause (*h*) was substituted for the original clause (*h*) by s. 12(*2*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[2] These words within square brackets were substituted for the words "any persons" by s. 13, *ibid.*

a special meeting of any Committee upon the written request of not less than two members thereof.

(*2*) The person to preside at a meeting of a Committee shall be the Chairman, if he is a member of the Committee, or, if he is not a member [1][or is absent], then the members present shall choose one of their number to preside.

(*3*) No business shall be transacted at any meeting of a Committee unless at least [2][one-third] the number of the members of the Committee are present from the beginning to the end of the meeting.

(*4*) All questions at any meeting of a Committee shall be decided by a majority of votes of the members present, the person presiding having a second or casting vote in all cases of equality of votes.

Fees for attendance at meetings

22. Every Trustee (other than the Chairman), and every person associated with the Board under section 19, shall be entitled to receive a fee of twenty rupees, and every member of a Committee shall be entitled to receive a fee of ten rupees, for each meeting of the Board or the Committee—

(*i*) at which a quorum is present and business is transacted, and

(*ii*) which he attends[3] * * * *

Provided that the aggregate amount of fees payable to any person in respect of meetings of any kind held during any month shall not exceed such sum as may be prescribed by any rule made under section 137 in this behalf.

Trustees and associated members of Board or Committee not to take part in proceedings in which they are personally interested

23. (*1*) A Trustee who—

(*a*) has, directly or indirectly, by himself or by any partner, employer or employee, any such share or interest as is described in sub-section (*2*) of section 9, in respect of any matter, or

(*b*) has acted professionally, in relation to any matter, on behalf of any person having therein any such share or interest as aforesaid,

shall not vote or take any other part in any proceeding of the Board or any Committee relating to such matter.

(*2*) If any Trustee, or any person associated with the Board under section 19, or any other member of a Committee appointed under this Act, has, directly or indirectly, any beneficial interest in any land situated in an area comprised in any improvement scheme framed under this Act, or in an area in which it is proposed to acquire land for any of the purposes of this Act,—

(*i*) he shall, before taking part in any proceeding at a meeting of the Board or any Committee relating to such area

[1] These words within square brackets were inserted by s. 14 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955)

[2] These words were substituted for the word 'half' by amendment of s 21 of the Calcuttta Improvement Amendment) Act, 1973 (W.B Act XXV of 1973).

[3] The words beginning with "from the beginning" and ending with "of the fee" were omitted by s. 15, *ibid.*

inform the person presiding at the meeting of the nature of such interest,

(ii) he shall not vote at any meeting of the Board or any Committee upon any resolution or question relating to such land, and

(iii) he shall not take any other part in any proceeding at a meeting of the Board or any Committee relating to such area if the person presiding at the meeting considers it inexpedient that he should do so.

Power of Board to execute certain works or to render certain services.

[1]**23A.** The Board may, on behalf of any person or the State Government, execute any work or render any service, not being a work or service which is inconsistent with the provisions of this Act, in any area to which this Act applies on such terms and conditions as may be agreed upon between the Board and such person or the State Government, as the case may be:

Provided that when any work is executed or any service is rendered on behalf of any person, no such work shall be executed or services rendered except with the previous sanction of the State Government.

Power to make and perform contracts.

24. The Board may [2][perform all such functions or] enter into and perform all such contracts as they may consider necessary or expedient for carrying out any of the purposes of this Act.

Power of Board to determine if execution of work, etc., should be by contract.

[3]**24A.** The Board may determine either generally for any class of cases or specially for any particular case whether the work should be executed or materials purchased by contract or otherwise.

Execution of contracts and approval of estimates.

25. *(1)* Every such contract shall be made on behalf of the Board by the Chairman:

'Provided that a contract involving an expenditure exceeding five thousand rupees shall not be made by the Chairman without the previous sanction of the Board:

[4]'Provided further that a contract involving an expenditure exceeding five *lakhs* of rupees shall not be made without the previous sanction of the State Government;

(2) Every estimate for the expenditure of any sum for carrying out any of the purposes of this Act shall be subject to the approval of the authority who is empowered by sub-section *(1)* to make or sanction the making of a contract involving the expenditure of a like sum.

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[1] Section 23A was inserted by West Bengal Improvement Laws (Amendment) Act, 1971.

[2] These words within square brackets were inserted by s. 16 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[3] Section 24A was inserted by s. 17, *ibid.*

[4] These provisos were substituted for the original proviso by s. 18(*a*), *ibid.*

(*3*) Sub-sections (*1*) and (*2*) shall apply to every variation [1] * * * of a contract or estimate, as well as to an original contract or estimate.

Further provisions as to execution of contracts, and provision as to seal of Board

26. (*1*) Every contract made by the Chairman on behalf of the Board shall be entered into in such manner and form as would bind the Chairman if such contract were made on his own behalf, except that the common seal of the Board shall be used (where necessary); and every such contract may in the like manner and form be varied or discharged.

(*2*) Every contract for the execution of any work or the supply of any materials or goods which will involve an expenditure exceeding one thousand rupees shall be in writing, and shall be sealed.

(*3*) The common seal of the Board shall remain in the custody of the Secretary to the Board, and shall not be affixed to any contract or other instrument except in the presence of a Trustee (other than the Chairman), who shall attach his signature to the contract or instrument in token that the same was sealed in his presence

(*4*) The signature of the said Trustee shall be in addition to the signature of any witness to the execution of such contract or instrument.

(*5*) A contract not executed as provided in this section shall not be binding on the Board.

Tenders

27. (*1*) At least seven days before the Chairman enters into any contract for the execution of any work or the supply of any materials or goods which will involve an expenditure exceeding [2][five thousand] rupees, he shall give notice by advertisement in local newspapers inviting tenders for such contract:

[3]Provided that the Board may, at the instance of the Chairman and with the sanction of the State Government, for reasons which shall be recorded in the proceedings, authorize the Chairman to enter into a contract without inviting tenders.

(*2*) In every such case the Chairman shall place before the Board the specifications, conditions and estimates and all the tenders received, specifying the particular tender (if any) which he proposes to accept.

(*3*) In every case in which the acceptance of a tender would involve an expenditure exceeding [4][five lakhs] of rupees,

the Board shall submit to the [5][State Government] the specifications, conditions and estimates, and all the tenders received, specifying

[1] The words "or abandonment" were omitted by s. 18(b) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[2] These words within square brackets were substituted for the words "one thousand" by s. 19(*1*), *ibid.*

[3] This proviso was added by s. 19(*2*), *ibid.*

[4] These words within square brackets were substituted for the words "one lakh" by s. 19(*3*), *ibid.*

[5] *See* foot-note 2 on p. 2, *ante*

the particular tender (if any) the acceptance of which they propose to sanction.

(4) Neither the Board nor the [1][State Government] shall be bound to sanction the acceptance of any tender which has been made; but the Board, within the pecuniary limits of their powers, as prescribed in section 25, sub-section *(1)*, or the [1][State Government], may sanction the acceptance of any of such tenders which appears to them, upon a view of all the circumstances, to be the most advantageous, or may direct the rejection of all the tenders submitted to them.

Security for performance of contract.

28. The Chairman shall take sufficient security for the due performance of every contract involving an expenditure exceeding one thousand rupees.

Supply of documents and information to the Government.

29. *(1)* The Chairman shall forward to the [1][State Government] a copy of the minutes of the proceedings of each meeting of the Board, within ten days from the date on which the minutes of the proceedings of such meeting were signed as prescribed in section 18, clause *(h)*.

(2) If the [1][State Government] so directs in any case, the Chairman shall forward to it a copy of all papers which were laid before the Board for consideration at any meeting.

(3) The [1][State Government] may require the Chairman to furnish it with—

(*a*) any return, statement, estimate, statistics or other information regarding any matter under the control of the Board, or

(*b*) a report on any such matter, or

(*c*) a copy of any document in the charge of the Chairman.

Officers and Servants

Statement of strength and remuneration of staff.

30. The Board shall from time to time prepare, and shall maintain, a statement showing—

(*a*) the number, designations and grades of the officers and servants (other than employees who are paid by the day or whose pay is charged to temporary work) whom they consider it necessary and proper to employ for the purposes of this Act,

(*b*) the amount and nature of the salary, fees and allowances to be paid to each such officer and servant, and

(*c*) the contributions payable under section 146 in respect of each such officer and servant.

Board to make rules.

31. The Board shall from time to time make rules—

(*a*) fixing the amount and nature of the security to be furnished by any officer or servant of the Board from whom it may be deemed expedient to require security;

[1] *See* foot-note 2 on p 2, *ante*.

(*b*) for regulating the grant of leave of absence, leave allowances and acting allowances to the officers and servants of the Board ;[1]*

(*c*) for establishing and maintaining a provident or annuity fund, for compelling all or any of the officers or servants of the Board (other than any [2][servant of the Government] in respect of whom a contribution is paid under section 146) to contribute to such fund, at such rates and subject to such conditions as may be prescribed by such rules, and for supplementing such contributions out of the funds of the [3][Board ;]

[4](*d*) regulating the compassionate allowance and gratuities to officers and servants of the Board and families of deceased officers and servants ;

[4](*e*) prescribing the qualifications for employment of officers and servants of the Board ; and

[4](*f*) regulating the conduct of officers and servants of the Board :

[5]Provided that a servant of the [6][Government] employed as an officer or servant of the Board shall not be entitled to leave or leave allowances otherwise than as may be prescribed by the conditions of his service under the [6][Government] relating to transfer to foreign service.

Powers of appointment, etc in whom vested.

32. Subject to any directions contained in any statement prepared under section 30 and any rules made under section 31, and for the time being in force, the power of appointing, promoting and granting leave to officers and servants of the Board, and reducing, suspending or dismissing them for misconduct, and dispensing with their services for any reason other than misconduct, shall be vested—

(*a*) in the case of officers and servants whose monthly salary does not exceed three hundred rupees—in the Chairman, and

(*b*) in other cases—in the Board :

Provided that any officer or servant in receipt of a monthly salary exceeding one hundred rupees who is reduced, suspended or dismisssd by the Chairman may appeal to the Board, whose decision shall be final.

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[1] The word "and" was omitted by s. 20(*1*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[2] The words "servant of the Crown" were originally substituted for the words "servant of the Government" by Sch. IV to the Government of India (Adaptation of Indian Laws) Order, 1937, and thereafter the word "Government" was substituted for the word "Crown" by paragraph 4(*1*) of the Adaptation of Laws Order, 1950.

[3] This word within square brackets was substituted for the word "Board" by s. 20(*2*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben Act, XXXII of 1955).

[4] Clauses (*d*), (*e*) and (*f*) were added by s. 20(*3*), *ibid.*

[5] This proviso was substituted for the original proviso by Schedule IV of the Government of India (Adaptation of Indian Laws) Order, 1937.

[6] *See* foot-note 4 on p. 6, *ante*.

(Chapter II.—The Board of Trustees.—Sections 33-35.)

Sanction of State Government required to certain statements, rules and orders.

33. (*a*) All statements prepared under section 30, so far as they relate to officers carrying a salary of more than one thousand rupees per mensem,

(*b*) all rules made under [1][clause (*b*), clause (*c*), clause (*d*), clause (*e*) or clause (*f*) of section 31, and

(*c*) all orders passed by the Board under section 32, and relating to any officer appointed to hold an office carrying a salary of more than one thousand rupees *per mensem*, except orders granting leave to, or suspending, any such officer,

shall be subject to the previous sanction of the [1][State Government].

Control by Chairman.

34. The Chairman shall exercise supervision and control over the acts and proceedings of all officers and servants of the Board; and, subject to the foregoing sections shall dispose of all questions relating to the service of the said officers and servants, and their pay, privileges and allowances.

Delegation of certain of Chairman's functions.

35. (*1*) The Chairman may, by general or special order in writing, delegate to any officer of the Board any of the Chairman's powers, duties or functions under this Act or any rule made hereunder, except those conferred or imposed upon or vested in him by sections 18, 21, 29, 55, 108, 112, 116, 118, 154 and 158:

Provided as follows:—

(*a*) the Chairman shall not delegate his power under section 25 to make on behalf of the Board any contract involving an expenditure exceeding one thousand rupees;

(*b*) the Chairman shall not delegate his power under section 32 to make appointments to offices carrying a salary of more than one hundred rupees *per mensem*;

(*c*) the Chairman shall not delegate to any officer his power under section 32 to grant leave to, or to reduce, suspend, dismiss, or dispense with the services of, any employee, unless such employee was appointed by such officer by virtue of a delegation of the Chairman's powers of appointment conferred by that section.

(*2*) The exercise or discharge by any officer of any powers, duties or functions delegated to him under sub-section (*1*) shall be subject to such conditions and limitations (if any) as may be prescribed in the said order, and also to control and revision by the Chairman.

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[1] These words within square brackets were substituted for the words "clause (b) or clause (c)" by s. 21 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[2] *See* foot-note 2 on p. 2, *ante*.

of 1911.]

(Chapter III.—Improvement Schemes.— Sections 35A—35C.)

CHAPTER III

[1][Improvement Schemes]

Undertaking of works and incurring of expenditure for development of areas

[2]**35A.** The Board may, subject to the provisions of this Act, undertake any works and incur any expenditure for the improvement and development of any area to which this Act applies and for the framing and execution of such improvement schemes as may be necessary from time to time.

Matters to be considered when framing improvement scheme

[2]**35B.** When framing an improvement scheme in respect of any area, regard shall be had to—

(*a*) the nature and the conditions of neighbouring areas and of Calcutta as a whole;

(*b*) the several directions in which the expansion of Calcutta appears likely to take place; and

(*c*) the likelihood of improvement schemes being required for other parts of Calcutta.

Matters to be provided for in improvement schemes

[2]**35C.** (*1*) An improvement scheme may provide for all or any of the following matters, namely:—

(*a*) the acquisition by the Board of any land in the area comprised in the scheme, which will in their opinion be required for or affected by the execution of the scheme;

(*b*) the laying out or re-laying out of the land comprised in the scheme;

(*c*) the demolition, alteration or reconstruction of buildings or portions of buildings situated on the land which it is proposed to acquire in the said area;

(*d*) the construction of any building which the Board may consider necessary to erect for carrying out any of the purposes of this Act;

(*e*) the laying out or construction or alteration of streets (including bridges, causeways, culverts), if required, and the levelling, paving, metalling, flagging and channelling of such streets and planting of flower bushes or trees on the sides of such streets;

(*f*) the sewering and draining of such streets and the provision therein of water, lighting and other sanitary conveniences ordinarily provided in a municipality;

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[1] This heading within square brackets was substituted for the original heading by s. 22 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[2] Sections 35A, 35B, 35C and 35D were inserted by s. 23, *ibid.*

(*g*) raising, lowering or levelling of any land in the area comprised in the scheme;

(*h*) the provision of accommodation for any classes of inhabitants;

(*i*) the formation and retention of open spaces, gardens, parks, play-grounds, lakes, and the provision therein of athletic tracks and stadiums, recreation buildings and structures and other necessary aids to field and aquatic sports, arboriculture and any other objects which the Board consider desirable to provide;

(*j*) controlling the use of land developed by the Board by zoning or reserving areas for specific purposes;

(*k*) any other matters consistent with this Act, which the Board may think fit.

(2) When areas are reserved for specific purposes, under clauses (*i*) and (*j*) of sub-section (*1*), it shall be the duty of the Corporation or the Commissioners of the municipality, within whose jurisdiction such areas are situate, to prohibit and prevent their use in violation of such purposes.

Types of improvement Schemes

[1]**35D.** An improvement scheme may be of one of the following types or a combination of any two or more of such types or of any special features thereof, that is to say—

(*a*) a general improvement scheme,

(*b*) a street scheme,

(*c*) a housing accommodation scheme,

(*d*) a re-housing scheme.

When general improvement scheme may be framed

[2]**36.** Whenever it appears to the Board, whether upon official representation made under section 37 or without such representation,—

(*a*) that any buildings in any area which are used as dwelling places are unfit for human habitation, or

(*b*) that danger to the health of the inhabitants of any area or of a neighbouring area is caused by—

(i) the narrowness, closeness and bad arrangement and conditions of streets or buildings or groups of buildings in such area, or

(ii) the want of light, air, ventilation or proper conveniences in such area, or

(iii) any other sanitary defects in such area, or

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[1] *See* foot-note 2 on p. 17 *ante*.

[2] This section 36 was substituted for the original section 36 by s 24 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

of 1911.]

(Chapter III.—Improvement Schemes.—Sections 37, 38.)

(c) that any area is undeveloped or has been developed without a satisfactory plan or design and that it is necessary to develop or re-develop it on a better plan after incorporating all or some of the improvements mentioned in section 35C,

the Board may pass a resolution to the effect that a general improvement scheme ought to be framed in respect of such area and may then proceed to frame such a scheme.

Authority for making an official representation for a general improvement scheme.

37. (*1*) An official representation referred to in section 36 may be made by the Corporation—

(*a*) of their own motion; or

(b) on a written complaint by the [1][Commissioner] of the Corporation; or

(c) in respect of any area comprised in a municipal ward, on a written complaint signed by twenty-five or more residents of such ward who are liable to pay either the owner's share or the occupier's share of the consolidated rate leviable under [2][the Calcutta Municipal Act, 1951]

West Ben Act XXXIII of 1951.

(*2*) If the Corporation decide not to make an official representation on any complaint made to them under clause (b) or clause (c), they shall cause a copy of such complaint to be sent to the Board, with a statement of the reasons for their decision.

Consideration of official representations

38. (*1*) The Board shall consider every official representation made under section 37, and, if satisfied as to the truth thereof and to the sufficiency of their resources, shall decide whether a general improvement scheme to carry such representation into effect should be framed forthwith or not, and shall forthwith intimate their decision to the Corporation.

(*2*) If the Board decide that it is not necessary or expedient to frame a general improvement scheme forthwith, they shall inform the Corporation of the reasons for their decision.

(*3*) If the Board fail, for a period of twelve months after the receipt of any official representation made under section 37 to intimate their decision thereon to the Corporation,

or if the Board intimate to the Corporation their decision that it is not necessary or expedient to frame a general improvement scheme forthwith,

the Corporation may, if they think fit, refer the matter to the [1][State Government].

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[1] This word within square brackets was substituted for the words "Health Officer" by s. 25(*1*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955)

[2] These words within square brackets were substituted for the words "the Calcutta Municipal Act, 1923" by s. 25(*2*), *ibid.*

[4] *See* foot-note 2 on p. 2, *ante.*

(4) The [1][State Government] shall consider every reference made to it under sub-section (3), and

(a) if it considers that the Board ought, under all the circumstances, to have passed a decision within the period mentioned in sub-section (3), shall direct the Board to pass a decision within such further period as the [1][State Government] may think reasonable, or

(b) if it considers that it is, under all the circumstances, expedient that a scheme should forthwith be framed, shall direct the Board to proceed forthwith to frame a scheme.

(5) The Board shall comply with every direction given by the [1][State Government] under sub-section (4).

When street scheme may be framed.

39. Whenever the Board are of opinion that, for the purpose of—

(a) providing building-sites, or

(b) remedying defective ventilation, or

(c) creating new, or improving existing, means of communication and facilities for traffic, or

(d) affording better facilities for conservancy,

it is expedient to lay out new streets or to alter existing streets (including bridges, causeways and culverts), the Board may pass a resolution to that effect, and shall then proceed to frame a street scheme for such area as they may think fit.

Housing accommodation scheme

[2]**39A.** Whenever the Board are of opinion that it is expedient and for the public advantage to provide housing accommodation for any class of persons in any area to which this Act applies, the Board may frame a scheme to be called a housing accommodation scheme, for the aforesaid purpose.

Rehousing persons displaced by improvement schemes.

[2]**39B.** The Board may frame schemes (in this Act called rehousing schemes) for the construction, maintenance and management of such and so many dwellings, shops and other classes of accommodation as they may consider ought to be provided for persons who—

(a) are displaced by the execution of any improvement scheme sanctioned under this Act, or

(b) are likely to be displaced by the execution of any improvement scheme which it is intended to frame, or to submit to the State Government for sanction under this Act.

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[1] *See* foot-note 2 on p. 2, *ante*.

[2] Sections 39A, 39B and 39C were inserted by s 26 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

of 1911.]

(Chapter III.—Improvement Schemes.—Sections 39C—43.)

Provision to be made for rehousing of *bustee*-dwellers in the case of certain schemes

'**39C.** *(1)* When a general improvement scheme mentioned in section 36 or a housing accommodation scheme mentioned in section 39A or a combination of both, is likely to involve displacement of persons dwelling in a *bustee*, provisions for rehousing such persons shall be made either in the same scheme or by another scheme and the scheme or schemes, as the case may be, together with a statement of the rent or rents proposed to be charged for such rehousing shall be submitted to the State Government for its approval before any steps are taken under section 43.

(2) In considering the scheme or schemes submitted under sub-section *(1)*, the State Government shall have regard to the rent or rents indicated in the said scheme or schemes for accommodation to be provided for the displaced *bustee*-dwellers, and may, if necessary, give financial aid to the Board in order that the rent may be such as, in the opinion of the State Government, is reasonable, and also lay down the conditions for giving such aid before the scheme or schemes is or are sanctioned under section 48.

(3) The Board shall be entitled to proceed to execute under section 49 any scheme referred to in sub-section *(1)* provided that no *bustee*-dwellers are displaced until arrangements for rehousing them have previously been made.

40. [*Matters to be considered when framing improvement schemes.*]—[*Omitted by s. 27 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).*]

41. [*Matters which must be provided for in improvement schemes.*]—[*Omitted by s. 27 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).*]

42. [*Matters which may be provided for in improvement schemes.*]—[*Omitted by s. 27 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).*]

Preparation, publication and transmission of notice as to improvement scheme, and supply of documents to applicants.

43. *(1)* When any improvement scheme has been framed, the Board shall prepare a notice, stating—

(a) the fact that the scheme has been framed,

(b) the boundaries of the area comprised in the scheme, and

(c) the place at which particulars of the scheme, a map of the area comprised in the scheme, and a statement of the land which it is proposed to acquire [2][and of the land in regard to which it is proposed to recover a betterment fee,] may be seen at reasonable hours.

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[1] *See* foot-note 2 on p. 20, *ante*.

[2] These words within square brackets were inserted by s. 3 of the Calcutta Improvement (Amendment) Act, 1931 (Ben. Act VIII of 1931).

(2) The Board shall—

(i) cause the said notice to be published weekly for three consecutive weeks in the '[*Official Gazette*] and in local newspapers, with a statement of the period within which objections will be received, and

(ii) send a copy of the notice to the '[Commissioner of the Corporation] and to the Chairman of any Municipality constituted under the Bengal Municipal Act, '[1932], in which '[and to the General Manager of the Calcutta Metropolitan Water and Sanitation Authority within whose jurisdiction] any portion of the area comprised in the scheme is situated. Ben. Act XV of 1932.

(3) The Chairman shall cause copies of all documents referred to in clause *(c)* of sub-section *(1)* to be delivered to any applicant on payment of such fee as may be prescribed by rule made under section 138.

Transmission to Board of representation by Corporation, Municipality or Authority as to improvement scheme.

[5]**44.** The [Commissioner of the Corporation, the Chairman of any Municipality and the General Manager of the Calcutta Metropolitan Water and Sanitation Authority, to whom a copy of a notice has been sent under clause *(ii)* of sub-section *(2)* of section 43 shall, within a period of sixty days from the receipt of the said copy forward to the Board any representation which the Corporation, Municipality or the Authority may think fit to make with regard to the scheme.

Service of notice as to proposed acquisition of land or recovery of betterment fee

45. *(1)* During the thirty days next following the first day on which any notice is published under section 43 in respect of any improvement scheme, the Board shall serve a notice on—

(i) every person whose name appears in the municipal assessment-book as being primarily liable to pay the owner's share of the consolidated rate, or the rate on the annual value of holdings, as the case may be, in respect of any land which the Board propose to acquire in executing the scheme [6][or in regard to which they propose to recover a betterment fee], and

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[1] *See* foot-note 5 on p. 3, *ante.*

[2] The words "Executive Officer of the Corporation" were originally substituted for the words "Chairman of the Corporation" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939) and thereafter the word "Commissioner" was substituted for the words "Executive Officer" by s 28 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[3] These figures were substituted for the figures "1884" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939).

[4] The words within square brackets were inserted by s. 88(3) of, and schedule III to, Calcutta Metropolitan Water and Sanitation Authority Act, 1966 (West Ben. Act XIII of 1966).

[5] This secton was substituted by s. 88(3) and Schedule III, *ibid.*

[6] These words within square brackets were inserted by s. 4(1) of the Calcutta Improvement (Amendment) Act, 1931 (Ben. Act VIII of 1931).

of 1911.]

(Chapter III.—Improvement Schemes—Sections 46, 47.)

(ii) the occupier (who need not be named) of each premises or holding, entered in the municipal assessment-book, which the Board propose to acquire in executing the scheme.

(2) Such notice shall—

(a) state that the Board propose to acquire such land '[or to recover such betterment fee] for the purpose of carrying out '[an improvement scheme], and

(b) require such person, if he dissents from such acquisition '[or from the recovery of such betterment fee], to state his reasons in writing within a period of sixty days from the service of the notice.

(3) Every such notice shall be signed by, or by the order of the Chairman.

Ben. Act XV of 1932.

46. The '[Commissioner of the Corporation], and the Chairman of any Municipality constituted under the Bengal Municipal Act, [5][1932], in any part of which this section is for the time being in force, shall, respectively, furnish the Chairman, at his request, with a copy of, or extracts from, the municipal assessment-book at such charges as may be fixed by rule made under section 137.

Furnishing of copy of, or extracts from, the municipal assessment-book.

47. *(1)* After the expiry of the periods respectively prescribed under section 43, clause (i), and by section 44 and section 45, clause *(b)*, in respect of any improvement scheme, the Board shall consider any objection, representation and statement of dissent received thereunder, and, after hearing all persons making any such objection, representation or dissent who may desire to be heard, the Board may either abandon the scheme or apply to the [6][State Government] for sanction to the scheme, with such modifications (if any) as the Board may consider necessary.

Abandonment of improvement scheme, or application to State Government to sanction it

(2) Every application submitted under sub-section *(1)* shall be accompanied by—

(a) a description of, and full particulars relating to, the scheme, and complete plans and estimates of the cost of executing the scheme;

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[1] These words within square brackets were inserted by s. 4(2) of the Calcutta Improvement (Amendment) Act, 1931 (Ben. Act VIII of 1931)

[2] These words within square brackets were substituted for the words "a general improvement scheme or a street-scheme, as the case may be" by s 30 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[3] These words within square brackets were inserted by s. 4(3) of the Calcutta Improvement (Amendment) Act, 1931 (Ben. Act VIII of 1931).

[4] The words "Executive Officer of the Corporation" were originally substituted for the words "Chairman of the Corporation" by s. 2 and the First Sch. of the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939), and thereafter the word "Commissioner" was substituted for the words "Executive Officer" by s. 31 of the Calcutta Improvement Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[5] *See* foot-note 3 on p. 22, *ante*.

[6] *See* foot-note 2 on p. 2, *ante*.

(Chapter III.—Improvement Schemes.—Sections 48—50.)

(b) a statement of the reasons for any modifications made in the scheme as originally framed;

(c) a statement of objections (if any) received under section 43;

(d) any representation received under section 44;

(e) a list of the names of all persons (if any) who have dissented, under section 45, clause (b), from the proposed acquisition of their land [1][or from the proposed recovery of a betterment fee], and a statement of the reasons given for such dissent; and

(f) a statement of the arrangements made or proposed by the Board for the re-housing of persons [2] * * * who are likely to be displaced by the execution of the scheme.

(3) When any application has been submitted to the [1][State Government] under sub-section *(1)*, the Board shall cause notice of the fact to be published for two consecutive weeks in the [4][*Official Gazette*] and in local newspapers.

Power to sanction or reject improvement scheme

48. The [1][State Government] may sanction, either with or without modification, or may refuse to sanction, any improvement scheme submitted to it under section 47.

Notification of sanction to improvement scheme

49. *(1)* Whenever the [3][State Government] sanctions an improvement scheme, it shall announce the fact by notification and the Board shall forthwith proceed to execute the scheme.

(2) The publication of a notification under sub-section *(1)*, in respect of any scheme, shall be conclusive evidence that the scheme has been duly framed and sanctioned.

Alteration of improvement scheme after sanction

50. At any time after any improvement scheme has been sanctioned by the [1][State Government] and before it has been carried into execution, the Board [5][may alter or cancel it]:

Provided as follows:—

(a) if any alteration is estimated to increase the estimated net cost of executing a scheme by more than five *per cent* of such cost, such alteration shall not be made without the previous sancion of the [1][State Government];

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[1] These words within square brackets were inserted by s. 5 of the Calcutta Improvement (Amendment) Act, 1931 (Ben. Act VIII of 1931).

[2] The words "of the poorer and working classes" were omitted by s. 32 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[3] *See* foot-note 2 on p. 2, *ante*

[4] *See* foot-note 5 on p. 3, *ante*.

[5] These words within square brackets were substituted for the words "may alter it" by s. 33(1) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

of 1911.]

(Chapter III.—Improvement Schemes.—Sections 51—53.)

(b) if any alteration involves the acquisition, otherwise than by agreement, of any land the acquisition of which has not been sanctioned by the [1][State Government], the procedure prescribed in the foregoing sections of this chapter shall, so far as applicable, be followed, as if the alteration were a separate scheme;

[2]*(c)* if, owing to changes made in the course of a scheme, any land not previously liable under the scheme to the payment of a betterment fee, becomes liable to such payment, the provisions of sections 43, 45 and 47 shall, so far as they are applicable, be followed in any such case;

[3]*(d)* no scheme shall be cancelled without giving the Corporation or the Municipality, as the case may be, an opportunity to express its views within sixty days of the receipt of the notice of the cancellation and without previous sanction of the State Government.

Combination of improvement schemes.

51. Any number of areas in respect of which improvement schemes have been, or are proposed to be, framed, may at any time be included in one combined scheme.

52. [*Rehousing persons displaced by improvement schemes.*] —[*Omitted by s. 34 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).*]

Width of streets.

53. No street laid out or altered by the Board shall be of less width than—

(*a*) forty feet, if the street be intended for carriage traffic, or

(*b*) twenty feet, if the street be intended for foot traffic only:

Provided as follows:—

(i) the width of an existing street need not be increased to the minimum required by this section, if the Board consider it impracticable to do so;

(ii) nothing in this section shall be deemed to prevent the Board from laying out service passages for sanitary purposes of any width less than twenty feet.

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[1] *See* foot-note 2 on p. 2, *ante*.

[2] Clause (c) was added by s. 6 of the Calcutta Improvement (Amendment) Act, 1931 (Ben. Act VIII of 1931).

[3] Clause (d) was added by s. 33(2) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

Transfer to Board, for purposes of improvement scheme, of building or land vested in the Corporation or in the Commissioners of a Municipality.

[1][54. (1) Whenever any building, or any street, square or other land, or any part hereof, which—

(a) is situated in the Calcutta Municipality and is vested in the Corporation, or

(b) is situated in any part of any Municipality constituted under the Bengal Municipal Act, [2][1932], in which this section is for the time being in force, and is vested in the Commissioners of that Municipality, Ben. Act XV of 1932.

is within the area of any improvement scheme and is required for the purposes of such scheme, the Board shall give notice accordingly to the [3][Commissioner of the Corporation] or the Chairman of such Municipality, as the case may be, and such building, street, square, other land or part, shall thereupon vest in the Board subject in the case of any building or any land, not being a street or square, to the payment of compensation, if any, to the Corporation or to such Commissioners, as the case may be, under sub-section (3):

[4]Provided that the Corporation or the Commissioners, as the case may be, shall be allowed reasonable opportunity to remove at their cost any underground pipes, cables or other fixtures belonging to them if they so desire.

(2) Where any land vests in the Board under the provisions of sub-section (1) and the Board make a declaration to the Corporation that such land will be retained by the Board only until it revests in the Corporation as part of a street or an open space, under a declaration made by the Corporation under sub-section (1) of section 65 or a resolution passed by the Board under sub-section (2) of section 65, as the case may be, no compensation shall be payable by the Board to the Corporation in respect of that land.

(3) Where any land or building vests in the Board under sub-section (1) and no declaration is made by the Board that the land will be so retained, the Board shall pay to the Corporation, or to the Commissioners, as the case may be, as compensation for the loss resulting from the transfer of such land or building to the Board, a sum equal to the market value of the said land or building [5][as

[1] Section 54 was substituted for the original section by s. 2 of the Calcutta Improvement (Amendment) Act, 1923 (Ben. Act IX of 1923).

[2] *See* foot-note 3 on p. 22, *ante*.

[3] The words "Executive Officer of the Corporation" were substituted for the words "Chairman of the Corporation" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939) and thereafter the word "Commissioner" was substituted for the words "Executive Officer" by s. 35(*a*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[4] This proviso was added by s. 35(b) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[5] These words within square brackets were substituted for the words beginning with "at the time when" and ending with "as amended by this Act," by s. 35(c) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

of 1911.]

(Chapter III.—Improvement Schemes.—Section 55.)

on the date of the publication of the notification under section 49] and where any building, situated on land in respect of which a declaration has been made by the Board under sub-section *(2)*, is vested in the Board under sub-section *(1)*, like compensation shall be payable in respect of such building by the Board.

(4) If, in any case where the Board have made a declaration to the Corporation in respect of any land under sub-section *(2)*, the Board retain or dispose of the land contrary to the terms of the declaration, so that the land does not revest in the Corporation as contemplated under such declaration, like compensation shall be payable by the Board to the Corporation in respect of such land for the loss resulting from the non-transfer of such land to the Corporation, such compensation not to be less than the market value which would have been payable for the said land under the provisions of sub-section *(3)*.

(5) If any question of dispute arises—

(a) as to whether compensation is payable under sub-section *(3)* or sub-section *(4)*, or

(b) as to the sufficiency of the compensation paid or proposed to be paid under sub-section *(3)* or sub-section *(4)*, or

(c) as to whether any building or street, or square or other land, or any part thereof is required for the purposes of the scheme,

the matter shall be referred to the [1][State Government] whose decision shall be final.

Transfer of private street or square to Board for purposes of improvement scheme

55. *(1)* Whenever any street or square or part thereof which is not vested in the Board or in the Corporation or in the Commissioners of any Municipality constituted under the Bengal Municipal Act, [2][1922], is required for executing any improvement scheme, the Board shall cause to be affixed in a conspicuous place in or near such street, square or part, a notice, signed by the Chairman, and

Ben. Act XV of 1932

(a) stating the purpose for which the street, square or part is required, and

(b) declaring that the Board will, on or after a date to be specified in the notice, take over charge of such street, square or part from the owner thereof;

and shall simultaneously send a copy of such notice to the owner of such street, square or part.

(2) After considering and deciding all objections (if any) received in writing before the date so specified, the Board may take over charge of such street, square or part from the owner thereof; and the same shall thereupon vest in the Board.

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[1] *See* foot-note 2 on p. 2, *ante*.

[2] *See* foot-note 3 on p. 22, *ante*.

(3) When the Board alter or close any street or square or part thereof which has vested in them under sub-section *(2)*, they shall pay reasonable compensation to the previous owner for the loss of his rights therein.

(4) If the alteration or closing of any such street, square or part causes damage or substantial inconvenience to owners of property adjacent thereto, or to residents in the neighbourhood, the Board—

(i) shall forthwith provide some other reasonable means of access for the use of persons who were entitled to use such street, square or part as a means of access to any property or place, and,

(ii) if the provision of such means of access does not sufficiently compensate any such owner or resident for such damage or inconvenience, shall also pay him reasonable compensation in money.

Provision of drain or waterwork to replace another situated on land vested in the Board under section 54 or section 55

56. (1) When any building, or any street, square or other land, or any part thereof, has vested in the Board under section 54 or section 55, no municipal drain or waterwork therein shall vest in the Board until another drain or waterwork (as the case may be), if required, has been provided by the Board, to the satisfaction of the [1][Corporation of Calcutta] or of the Commissioners of the Municipality constituted under the Bengal Municipal Act, [2][1932], as the case may be, in place of the former drain or work.

Ben. Act XV of 1932.

(2) If any question or dispute arises as to whether another drain or waterwork is required, or as to the sufficiency of any drain or waterwork provided by the Board, under sub-section *(1)*, the matter shall be referred to the [1][State Government] whose decision shall be final.

Bar to application of certain sections of the Calcutta Municipal Act, 1951, to streets vested in the Board.

57. *(1)* [1][Sections 350, 351, 362 and clause (c) of section 361 of the Calcutta Municipal Act, 1951] shall not apply to any street which is vested in the Board.

West Ben Act XXXIII of 1951.

(2) [1][Rules 5 and 6 in Schedule XV to] the said Act shall not apply when any drain, pavement or surface referred to in the said 6[rule 5] is opened or broken up by the Board or when any public street is under construction by the Board.

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[1] These words within square brackets were substituted for the words "General Committee" by the Bengal Repealing and Amending Act, 1938 (Ben Act I of 1939).

[2] *See* foot-note 3 on p. 22, *ante*.

[3] *See* foot-note 2 on p. 2, *ante*.

[4] These words within square brackets were substituted for the words "Sections 296, 297 and 307, and clause (c) of section 306, of the Calcutta Municipal Act, 1923" by s. 36(*a*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[5] These words within square brackets were substituted for the words "Rules 4 and 5 in Schedule XVI to" by s. 36(b)(i), *ibid.*

[6] This word within square brackets was substituted for the word "rule 4" by s. 36(b)(ii), *ibid.*

Repair and watering of streets vested in the Board.

58. Whenever the Board allow any street vested in them to be used for public traffic,—

(a) they shall, as far as practicable, keep the street in good repair and do all things necessary for the safety and convenience of persons using it, and

(b) they shall cause the street to be watered, if they consider it necessary to do so for the public convenience.

Guarding and lighting when street vested in the Board is opened or broken up, or when street is under construction and speedy completion of work.

59. Whenever any drain in, or the pavement or surface of, any street vested in the Board is opened or broken up by the Board for the purpose of carrying on any work,

or whenever the Board allow any street which they have under construction to be used for public traffic,

the Board shall cause the place to be fenced and guarded and to be sufficiently lighted during the night, and shall take proper precautions for guarding against accident by shoring up and protecting adjoining buildings,

and shall, with all convenient speed, complete the said work, fill in the ground, and repair the said drain, pavement or surface, and carry away the rubbish occasioned thereby or complete the construction of the said street, as the case may be.

Prevention or restriction of traffic in street vested in the Board, during progress of work

60. (*1*) When any work referred to in section 59 is being executed by the Board in any public street vested in them, or when any other work which may lawfully be done is being executed by the Board in any street vested in them, the Board may direct that such street shall, during the progress of such work, be either wholly or partially closed to traffic generally or to traffic of any specified description.

(*2*) When any such direction has been given, the Board shall set up in a conspicuous position in or near the street an order prohibiting traffic to the extent so directed, and shall fix such bars, chains or posts across or in the street as they may think proper for preventing or restricting traffic therein, after notifying in local newspapers their intention to do so.

Provision of facilities, and payment of compensation, when work is executed by Board in public street vested in them

61. (*1*) When any work is being executed by the Board in any public street vested in them, the Board shall, so far as may reasonably be practicable, make adequate provision for—

(*a*) the passage or diversion of traffic;

(*b*) securing access to all premises approached from such street; and

(*c*) any drainage, water-supply or means of lighting which is interrupted by reason of the execution of the work.

(*2*) The Board shall pay reasonable compensation to any person who sustains special damage by reason of the execution of any such work.

Power of Board to turn or close public street or square vested in them.

62. (1) The Board may—

(*a*) turn, divert, discontinue the public use of, or permanently close, any public street vested in them or any part thereof, or

(*b*) discontinue the public use of, or permanently close, any public square vested in them, or any part thereof.

(2) Whenever the Board discontinue the public use of, or permanently close, any public street vested in them or any part thereof, they shall pay reasonable compensation to every person who was entitled, otherwise than as a mere licensee, to use such street or part as a means of access and has suffered damage from such discontinuance or closing.

(3) Whenever the Board discontinue the public use of, or permanently close, any public square vested in them, or any part thereof, they shall pay reasonable compensation to every person—

(*a*) who was entitled, otherwise than as a mere licensee, to use such square or part as a means of access, or

(*b*) whose immovable property was ventilated by such square or part,

and who has suffered damage,—

(*i*) in case (*a*), from such discontinuance or closing, or

(*ii*) in case (*b*), from the use to which the Board have put such square or part.

(4) In determining the compensation payable to any person under sub-section (2) or sub-section (3), the Board shall make allowance for any benefit accruing to him from the construction, provision or improvement of any other public street or square at or about the same time that the public street or square or part thereof, on account of which the compensation is paid, is discontinued, or closed.

(5) When any public street or square vested in the Board, or any part thereof, is permanently closed under sub-section (1), the Board may sell, or lease so much of the same as is no longer required.

Projected public streets and projected public parks

[1]**63.** [2](1) The Board may from time to time in regard to any area—

(*a*) within the Calcutta Municipality, or

(*b*) in the neighbourhood of the said municipality,

make plans of—

(*i*) proposed public streets showing the direction of such streets, the street alignment and building line (if any), on each side of them, their intended width and such other details as may appear desirable, and

[1]Section 63 was substituted for the original section by s. 3 of the Calcutta Improvement (Amendment) Act, 1915 (Ben. Act III of 1915).

[2]This sub-section (1) was substituted for the sub-section (1) by s. 37(*a*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben Act XXXII of 1955).

of 1911.]

(Chapter III.—Improvement Schemes.—Section 63.)

(*ii*) proposed public parks showing such details as may appear desirable.

(2) When a plan of a proposed public street [1][or a proposed public park] has been made under sub-section (*1*), the Board shall prepare a notice stating—

(*a*) the fact that such plan has been made,

(*b*) particulars of the land (shown in such plan) [2][comprised within the proposed public park or] through which the proposed public street will pass,

(*c*) the place at which the said plan and particulars may be seen at reasonable hours, and

(*d*) the period (which shall be not less than sixty days) within which objections to the said plan may be submitted to the Board;

and the Board shall thereupon—

(*i*) cause the said notice to be published weekly for two consecutive weeks in the [3][*Official Gazette*] and in local newspapers, and in such other manner as the Board may direct, and

(*ii*) forward a copy of the said notice to any person whose name appears in the municipal assessment-book as being primarily liable to pay the owner's share of the consolidated rate, or the rate on the annual value of holdings, as the case may be, in respect of any land included within the proposed public street [1][or the proposed public park], and

(*iii*) forward a copy of the said notice and of the plan to which it relates to the [4][Commissioner of the Corporation] and, if any area in the neighbourhood of the Calcutta Municipality is included in such plan, to the Chairman of the local authority administering any portion of such area, and

(*iv*) cause copies of the said notice and plan to be delivered to any applicant on payment of such fee as may be prescribed by rule made under section 138.

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[1]These words within square brackets were inserted by s 37(*b*)(*i*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben Act XXXII of 1955).

[2]These words within square brackets were inserted by s 37(*b*)(*ii*), *ibid.*

[3]*See* foot-note 5 on p. 3, *ante*.

[4]These words within square brackets were inserted by s 37(*b*)(*iii*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben Act XXXII of 1955).

[5]The words "Executive Officer of the Corporation" were originally substituted for the words "Chairman of the Corporation" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939) and thereafter the word "Commissioner" was substituted for the words "Executive Officer" by s. 37(*b*)(*iv*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

(Chapter III.—Improvement Schemes.—Section 63.)

(3) On or after a date (not being less than sixty days from the date of the first publication of the notice) to be appointed by the Board in this behalf, the Board shall consider—

(*a*) all objections in writing received from any person affected by the proposed public street [1][or the proposed public park] contemplated by such plan, and

(*b*) any representation in regard to such street [2][or public park] made to the Board by the Corporation or the aforesaid local authority;

and the Board may thereupon either withdraw the plan or apply to the [1][State Government] for sanction thereto with such modification (if any) as the Board may consider necessary.

(4) If the Board apply for sanction as provided in sub-section (3), they shall simultaneously forward to the [1][State Government] a full statement of all objections and representations made to them under the said sub-section.

(5) When a plan of a proposed public street [1][or a proposed public park] has been submitted to the [1][State Government] under sub-section (3), the Board shall cause notice of the fact to be published for two consecutive weeks in the [1][*Official Gazette*] and in local newspapers.

(6) The [1][State Government] may sanction, either with or without modification, or may refuse to sanction, any plan of a proposed public street [1][or a proposed public park] submitted to it under sub-section (3).

(7) Whenever the [1][State Government] sanctions a plan of a proposed public street [6][or a proposed public park], it shall announce the fact by notification and the publication of such notification shall be conclusive evidence that the plan has been duly made and sanctioned;

and the proposed public street [7][or a proposed public park] to which such notification refers shall be deemed to be a projected public street [7][or a projected public park], and shall be so deemed until—

(*a*) such street [8][or park], has been declared, under section 65 or section 56, as the case may be, to be a public street [8][or park], or

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[1]These words within square brackets were inserted by s. 37(*c*)(*i*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[2]These words within square brackets were inserted by s. 37(*c*)(*ii*) *ibid*

[3]*See* foot-note 2 on p. 2, *ante*

[4]These words within square brackets were inserted by s. 37(*d*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[5]*See* foot-note 5 on p. 3, *ante*.

[6]These words within square brackets were inserted by s. 37(*e*)(*i*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben Act XXXII of 1955)

[7]These words within square brackets were inserted by s. 37(*e*)(*ii*), *ibid*

[8]These words within square brackets were inserted by s. 37(*e*)(*iii*), *ibid*.

of 1911.]

(Chapter III.—Improvement Schemes.—Section 63.)

(b) the said notification has been cancelled by another notification:

Provided that such cancellation shall not affect the validity of any action taken by the Board in pursuance of the said notification.

(*8*) If any person desires to erect, re-erect or add to any wall (exceeding ten feet in height) or building which falls within [[1]the area comprised in a projected public park or within] the street alignment or building line of a projected public street shown in any plan sanctioned by the [2][State Government] under this section, he shall submit an application in writing to the Chairman for permission so to do:

Provided as follows:—

(*i*) no such application shall be necessary for permission to erect or re-erect, between a building line and the street alignment,—

(*a*) a porch or balcony, or

(*b*) along not more than one-third of the frontage, an out-house not exceeding fifteen feet in height;

(*ii*) nothing in this sub-section shall relieve any person from the liability to obtain such sanction as it may be necessary to obtain under any law for the time being in force from any local authority.

(*9*) The Chairman shall in no case refuse an application submitted under sub-section (*8*) if the applicant executes an agreement binding himself and his successors in interest to remove, without compensation, any wall or building to which that application relates, in the event of the Board—

(*a*) deciding (at any time after an improvement scheme has been sanctioned under section 48 for an area within which such building or wall is situate) that the said wall or building, or any portion thereof, ought to be removed, and

(*b*) calling upon the owner for the time being, by written notice to remove the same within a time (not being less than sixty days from the date of the service of the notice) to be specified in the said notice.

(*10*) If the Chairman does not, within thirty days from the receipt of an application submitted under sub-section (*8*), grant or refuse the permission applied for thereunder, such permission shall be deemed to have been granted.

(*11*) If the Chairman refuses permission to any person to erect, re-erect or add to any wall or building as aforesaid which falls—

(*i*) within the street alignment, or

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[1]These words within square brackets were inserted by s 37(*f*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[2]*See* foot-note 2 on p. 2, *ante*.

(ii) between the street alignment and the building line of a projected public street [1][or within a projected public park], the owner of the land on which it was sought to erect, re-erect or add to such wall or building, may call upon the Board, at any time, within three months from the date of such refusal either—

(a) to pay him compensation for any damage sustained by him in consequence of such refusal, or

(b) to acquire so much of his land as falls within the street alignment, or between the street alignment and the building line [2][or within the area comprised in the projected public park], as the case may be;

and the Board shall thereupon—

in case (a), make full compensation to the said owner for any damage which he may be found to have sustained in consequence of such refusal, and

in case (b), forthwith take steps to acquire the said land:

Provided that, in the case of such land as falls within the street alignment only, it shall be optional with the Board to acquire the same in lieu of paying compensation therefor.

(12) An appeal shall lie to the Board from any refusal by the Chairman to grant an application under this section.

Reference of disputes to Tribunal.

64. (1) If any question or dispute arises—

(a) between the Board and the previous owner of any street or square or part thereof which has vested in the Board under section 55 and has been altered or closed by them, as to the sufficiency of the compensation paid or proposed to be paid under sub-section (3) of that section, or

(b) between the Board and any person who was entitled otherwise than as a mere licensee, to use as a means of access any street or square or part thereof which has vested in the Board under section 55.

(i) as to whether the alteration or closing of such street, square or part causes damage or substantial inconvenience to owners of property adjacent thereto or to residents in the neighbourhood, or

(ii) as to whether the other means of access provided or proposed to be provided under sub-section (4) of the said section 55 are reasonably sufficient, or

(iii) as to the sufficiency of any compensation paid or proposed to be paid under the said sub-section (4), or

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[1]These words within square brackets were inserted by s 37(g)(i) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[2]These words within square brackets were inserted by s. 37(g)(ii), *ibid.*

of 1911.]

(Chapter III.—Improvement Schemes.—Section 65.)

(c) between the Board and any person, as to the sufficiency of any compensation paid or proposed to be paid to him under section 61, section 62 or section 63,

the matter shall be determined by the Tribunal, if referred to it, either by the Board or by the claimant, within a period of three months from—

in case (*a*) or case (*b*)—the date on which the street or square or part thereof was altered or closed by the Board, or

in case (*c*)—the date on which the said person was informed of the decision of the Board fixing the amount of compensation to be paid to him;

and the determination of the Tribunal shall be final.

(2) If a reference to the Tribunal be not made within the period prescribed by sub-section (*1*), the decision of the Board shall be final.

(3) For the purpose of determining any matter referred to it under sub-section (*1*), the Tribunal shall have all the powers with regard to witnesses, documents and costs which it would have if the Land Acquisition Act, 1894, as modified by section 71 of this Act, were applicable to the case.

1 of 1894.

65. [1][(*1*) When the Board are of opinion -

Vesting in Corporation of streets laid out or altered, and open spaces provided, by the Board under an improvement scheme

(*a*) that any street laid out or altered by them has been duly levelled, paved, metalled, flagged, channelled, sewered and drained in the manner provided in the plan sanctioned by the State Government under section 48,

(*b*) that such lamps, lamp-posts or other apparatus as are necessary for the lighting of such street have been provided, and

(*c*) that water and other sanitary conveniences ordinarily provided in a Municipality have been duly provided in such street,

they shall report this fact to the Corporation; and it shall be the duty of the Corporation within three months from the date of receipt of such report, after such inquiry as it thinks fit to make either to declare the street to be a public street by written notice affixed in some conspicuous position in such street, whereupon such street shall vest in the Corporation and be maintained, kept in repair, lighted and cleared by the Corporation; or, if the Corporation is of opinion that

[1]These sub-sections (*1*) and (*2*) were substituted for the original sub-section (*1*) by s 38(*a*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

certain works are required to be done before such declaration may be made, to require the Board to complete such works;

Provided as follows:—

(*a*) no engineering or accommodation work not included in the scheme as sanctioned by the State Government under section 48 shall be required to be done by the Board except with the latter's consent as a condition of such transfer.

(*b*) when certain works in connection with the street can be taken up only after a lapse of time to allow for consolidation of roads or the erection of buildings on both sides, the declaration shall not be put off till they are completed, but shall be made, within the time prescribed under this sub-section on the Board giving an undertaking that they shall complete the works when asked by the Corporation to do so.

[1](2) As soon as the works required to be done by the Corporation as aforesaid are completed, the Board shall report the fact to the Corporation; and it shall be the duty of the Corporation to declare the street to be a public street by written notice affixed in some conspicuous position in such street within two months from the date of receipt of the report, on the expiry of which period the liability of the Board to maintain the street and the street lighting or to pay the Corporation rates assessed on the lands comprised within such street shall cease.

[2][3] When any open space for purposes of ventilation or recreation has been provided by the Board in executing any improvement scheme, it shall, on completion, be transferred to the Corporation by resolution of the Board, and shall thereupon vest in and be maintained at the expense of the Corporation:

Provided that the [3][Corporation of Calcutta] may require the Board before any such open space is so transferred, to enclose, level, turf, drain and lay out such space and provide footpaths therein, and, if necessary, to provide lamps and other apparatus for lighting it.

[2][4] If any difference of opinion arises between the Board and the [3][Corporation of Calcutta] in respect of any matter referred to in the foregoing provisions of this section, the matter shall be referred to the [4][State Government] whose decision shall be final.

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[1]*See* foot-note 1 on p. 35, *ante*.

[2]Original sub-sections (*2*) and (*3*) were renumbered as sub-sections (*3*) and (*4*) respectively by s. 38(*b*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben Act XXXII of 1955).

[3]*See* foot-note 1 on p 28, *ante*.

[4]*See* foot-note 2 on p. 2, *ante*.

of 1911.]

(Chapter III.—Improvement Schemes.—Sections 66, 67)
(Chapter IV.—Acquisition and Disposal of land.—Sections 68, 69.)

Application of section 65 to other Municipalities.

66. If section 65 be extended, by notification, under section 1, sub-section (3), to any Municipality in the neighbourhood of the Calcutta Municipality, it shall be construed as if the references therein to the General Committee and the Corporation were references to the Commissioners of the former Municipality.

Power of Board to retain service passages

67 Notwithstanding anything contained in section 65 or section 66, the Board may retain any service passage which they have laid out for sanitary purposes, and may enter into an agreement with the Corporation or any other person for the supervision, repair, lighting and general management of any passage so retained

CHAPTER IV.

ACQUISITION AND DISPOSAL OF LAND.

Acquisition by agreement.

Power to purchase or lease by agreement

68. The Board may enter into an agreement with any person for the purchase or leasing by the Board from such person of any land [1]* * * or any interest in such land [2][for carrying out any of the purposes of this Act].

[3]*Explanation.*—The power of the Board to acquire land or any interest in such land by purchase or lease may be exercised not only in respect of lands falling within an improvement scheme already framed but also in respect of lands relating to which the Board may frame improvement schemes in future and shall be exercised after obtaining the previous sanction of the State Government.

Compulsory Acquisition.

Power to acquire land under the Land Acquisition Act, 1894.

69. The Board may, with the previous sanction of the [4][State Government], acquire land under the provisions of the Land Acquisition Act, 1894, for carrying out any of the purposes of this Act.

I of 1894.

[5]*Explanation.*—The power of the Board to acquire land under the Land Acquisition Act, 1894, may be exercised not only in respect of land falling within an improvement scheme already framed but also in respect of lands relating to which the Board may frame improvement schemes in future.

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[1]The words "which the Board are authorized to acquire" were omitted by s. 39*(1)(a)* of the Calcutta Improvement (Amendment) Act, 1955 (West Ben Act XXXII of 1955).

[2]These words within square brackets were added by s. 39*(1)(b)*, *ibid*

[3]This *Explanation* was added by s. 39*(2)*, *ibid.*

[4]*See* foot-note 2 on p. 2, *ante.*

[5]This *Explanation* was added by s. 40 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

Tribunal to be constituted.

70. A Tribunal shall be constituted, as provided in section 72, for the purpose of performing the functions of the Court in reference to the acquisition of land for the Board under the Land Acquisition Act, 1894. I of 1894

Modification of the Land Acquisition Act, 1894.

71. For the purpose of acquiring land under the said Act for the Board,—

(a) the Tribunal shall (except for the purposes of section 54 of that Act) be deemed to be the Court, and the President of the Tribunal shall be deemed to be the Judge under the said Act;

(b) the said Act shall be subject to the further modifications indicated in the schedule;

(c) the President of the Tribunal shall have power to summon and enforce the attendance of witnesses and to compel the production of documents, by the same means, and (so far as may be) in the same manner, as is provided in the case of a Civil Court under the Code of Civil Procedure 1908; and Act V of 1908

(d) the award of the Tribunal shall be deemed to be the award of the Court under the said Land Acquisition Act, 1894, and [1][shall, subject to the provisions of section 77A, be final].

Constitution of Tribunal.

72. *(1)* The said Tribunal shall consist of a President and two assessors.

(2) The President of the Tribunal shall be either—

[2]*(a)* a person who was or has been a member of the Judicial service as defined in article 236 of the Constitution of India for at least ten years and held a rank not inferior to that of a Subordinate Judge for at least three years; or

[3]*(b)* a barrister or advocate who has practised as such in the Calcutta High Court for not less than ten years.

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[1]These words within square brackets were substituted for the words "shall be final" by s. 41 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[2]This clause *(a)* was substituted for the original clause *(a)* by s. 42*(1)(a)*, *ibid.*

[3]This clause *(b)* was substituted for the original clause *(b)* by s. 42*(1)(b)*, *ibid.*

(3) The President of the Tribunal and one of the assessors shall be appointed by the [1][State Government], and the other assessor shall be appointed by the Corporation [2][within the time fixed by the State Government], or, in default of the Corporation, by the [1][State Government] :

Provided that no person shall be eligible for appointment as a member of the Tribunal if he is a Trustee or is, for any of the reasons mentioned in section 9, disqualified for appointment as a Trustee.

(4) The term of office of each member of the Tribunal shall be two years; but any member shall, subject to the proviso to sub-section *(3)*, be eligible for reappointment at the end of that term :

[3]Provided that a member who is an assessor shall not be eligible for reappointment for more than a further term of two years.

(5) The [1][State Government] may, on the ground of incapacity or misbehaviour, or for any other good and sufficient reason, cancel the appointment of any person as a member of the Tribunal.

(6) When any person ceases for any reason to be a member of the Tribunal, or when any member is temporarily absent in consequence of illness or any other unavoidable cause, the [1][State Government] or (if the person whose place is to be filled was appointed by the Corporation) the Corporation, or, in default of the Corporation, the [1][State Government] shall forthwith appoint a fit person to be a member in his place.

(7) All appointments made under this section shall be published by notification.

Remuneration of members of Tribunal.

73. Each member of the Tribunal shall be entitled to receive such remuneration, either by way of monthly salary or by way of fees, or partly in one of those ways and partly in the other, as the [1][State Government] may prescribe.

Officers and servants of Tribunal

74. *(1)* The President of the Tribunal shall, from time to time, prepare a statement showing—

(a) the number and grades of the clerks and other officers and servants [4][who] he considers should be maintained for carrying on the business of the Tribunal,

(b) the amount of the salary to be paid to each such officer and servant, and

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[1]*See* foot-note 2 on p 2, *ante*.

[2]These words within square brackets were inserted by s. 42*(2)* of the Calcutta Improvement (Amendment) Act, 1955 (West Ben Act XXXII of 1955)

[3]This proviso was added by s. 42*(3)*, *ibid*.

[4]This word within square brackets was substituted for the word "whom" by s. 43*(a)*, *ibid*.

(Chapter IV.—Acquisition and Disposal of land.—Section 75.)

(c) the contributions payable under section 146 in respect of each such officer and servant.

(2) The President of the Tribunal shall, from time to time, make rules—

[1]*(ai)* prescribing the qualifications, the period of service, the age of superannuation and other conditions of service of the officers and servants of the Tribunal;

(i) for regulating the grant of leave of absence, leave allowances and acting allowances to the officers or servants of the Tribunal; and

(ii) for establishing and maintaining a provident or annuity fund, for compelling all or any of the officers or servants of the Tribunal (other than any [2][servant of the Government] in respect of whom a contribution is paid under section 146) to contribute to such fund, at such rates and subject to such conditions, as may be prescribed by such rules and, with the sanction of the Board for supplementing, such contributions out of the funds of the Board:

[3]Provided that a servant of the [4][Government] employed as an officer or servant of the Tribunal shall not be entitled to leave or leave allowances otherwise than as may be prescribed by the conditions of his service under the [4][Government] relating to transfer to foreign service.

(3) All statements prepared under sub-section *(1)*, and all rules made under sub-section *(2)*, shall be subject to the previous sanction of the [5][State Government].

(4) Subject to any directions contained in any statement prepared under sub-section *(1)* and any rules made under sub-section *(2)*, and for the time being in force, the power of appointing, promoting and granting leave to officers and servants of the Tribunal, and the power of reducing, suspending or dismissing them, shall vest in the President of the Tribunal.

Payments by Board on account of Tribunal.

75. The remuneration prescribed under section 73 for members of the Tribunal, and the salaries, leave allowances and acting allowances prescribed under section 74 for officers and servants of the Tribunal shall be paid by the Board to the President of the Tribunal for distribution.

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[1]This clause was inserted by s. 43*(b)* of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[2]The words "servant of the Crown" were originally substituted for the words "servant of the Government" by Sch. IV of the Government of India (Adaptation of Indian Laws) Order, 1937 and thereafter the word "Government" was substituted for the word "Crown" by paragraph 4*(1)* of the Adaptation of Laws Order, 1950.

[3]This proviso was substituted for the original proviso by Schedule IV of the Government of India (Adaptation of Indian Laws) Order, 1937.

[4]*See* foot-note 5 on p 6, *ante*.

[5]*See* foot-note 2 on p. 2, *ante*.

Act V of 1908.

76. (1) The President of the Tribunal may, from time to time, with the previous sanction of the [1][State Government], make rules, not repugnant to the Code of Civil Procedure, 1908, for the conduct of business by the Tribunal. Power to make rules for Tribunal.

(2) All such rules shall be published by notification.

I of 1894.

77. (1) For the purpose of determining the award to be made by the Tribunal under the Land Acquisition Act, 1894,— Award of Tribunal how to be determined.

(a) if there is any disagreement as to the measurement of land, or the amount of compensation or costs to be allowed, the opinion of the majority of the members of the Tribunal shall prevail;

(b) questions relating to the determination of the persons to whom compensation is payable, or the apportionment of compensation, may be tried and decided in the absence of assessors if the President of the Tribunal considers their presence unnecessary; and when so tried and decided, the decision of the President shall be deemed to be the decision of the Tribunal; and

(c) notwithstanding anything contained in the foregoing clauses, the decision on all questions of law and procedure shall rest solely with the President of the Tribunal.

(2) Every award of the Tribunal, and every order made by the Tribunal for the payment of money, shall be enforced by the Court of Small Causes of Calcutta as if it were a decree of that Court.

[2]77A. (1) An appeal shall lie to the High Court from an award under this Chapter, in any of the following cases, namely:— Appeal.

(a) where the decision is that of the President of the Tribunal sitting alone in pursuance of clause (b) of section 77;

(b) where the decision is that of the Tribunal, and—

(i) the President of the Tribunal grants a certificate that the case is a fit one for appeal, or

(ii) the High Court grants special leave to appeal:

Provided that the High Court shall not grant such special leave unless the President of the Tribunal has refused to grant a certificate under sub-clause (i) and the amount in dispute is five thousand rupees or upwards.

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[1]*See* foot-note 2 on p. 2, *ante*.

[2]Section 77A was inserted by s. 44 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

(2) An appeal under clause (b) of sub-section (1) shall only lie on (one or more of) the following grounds, namely:—

(i) the decision being contrary to law or to some usage having the force of law;

(ii) the decision having failed to determine some material issue of law or usage having the force of law;

(iii) a substantial error or defect in the procedure provided by the said Act which may possibly have produced error or defect in the decision of the case upon the merits.

(3) Subject to the provisions of sub-sections (1) and (2), the provisions of the Code of Civil Procedure, 1908, with respect to appeals from original decrees shall so far as may be, apply to appeals under this section. Act V of 1908

(4) An appeal under this section shall be deemed to be an appeal under the Code of Civil Procedure, 1908, within the meaning of article 156 of the First Schedule to the Indian Limitation Act, 1908. IX of 1908

(5) The Chief Judge of the Court of Small Causes of Calcutta shall, on application, execute any order passed by the High Court on appeal under this Act as if it were a decree made by himself.

Abandonment of Acquisition.

Abandonment of acquisition in consideration of special payment.

78. (1) In any case in which the [1][State Government] has sanctioned the acquisition of land, in any area comprised in an improvement scheme, which is not required for the execution of the scheme, the owner of the land, or any person having an interest therein, may make an application to the Board, requesting that the acquisition of the land should be abandoned in consideration of the payment by him of a sum to be fixed by the Board in that behalf.

(2) The Board shall admit every such application if it—

(a) reaches them before the time fixed by the Collector, under section 9 of the Land Acquisition Act, 1894, for making claims in reference to the land, and

(b) is made by all persons who have interests in the land greater than a lease for years having seven years to run

(3) If the Board[2] * * admit any such application, they shall forthwith inform the Collector; and the Collector shall thereupon stay for a period of three months all further proceedings for the acqui-

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[1]*See* foot-note 2 on p. 2, *ante*.

[2]The words "decide to" were omitted by s. 45(*a*)(*i*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

of 1911.]

(Chapter IV.—Acquisition and Disposal of land.—Section 78.)

sition of the land, [1][and if the Board decide to allow the application they shall proceed] to fix the sum in consideration of which the acquisition of the land may be abandoned.

(4) Within the said period of three months, or, with the permission of the Board, at any time before the Collector has taken possession of the land, under section 16 of the Land Acquisition Act, 1894, the person from whom the Board have arranged to accept the sum so fixed may, if the Board are satisfied that the security offered by him is sufficient, execute an agreement with the Board, either—

I of 1894.

(i) to pay the said sum three years after the date of the agreement, or

(ii) to leave the said sum outstanding as a charge on his interest in the land, subject to the payment in perpetuity of interest [2][at such rate not exceeding six *per cent. per annum* as the [3](State Government) may fix by notification], and to make the first annual payment of such interest four years after the date of the agreement:

Provided that the Board may, at any time before the Collector has taken possession of the land under section 16 of the Land Acquisition Act, 1894, accept immediate payment of the said sum instead of an agreement as aforesaid.

(5) When any agreement has been executed in pursuance of sub-section (4), or when any payment has been accepted in pursuance of the proviso to that sub-section, in respect of any land, the proceedings for the acquisition of the land shall be deemed to be abandoned.

(6) Every payment due from any person under any agreement executed under sub-section (4) shall be a charge on the interest of that person.

(7) If any instalment of interest payable under an agreement executed in pursuance of clause (ii) of sub-section (4) be not paid on the date on which it is due, the sum fixed by the Board under sub-section (3) shall be payable on that date, in addition to the said instalment.

(8) At any time after an agreement has been executed in pursuance of clause (ii) of sub-section (4), any person may pay off the charge created thereby, with interest, [4][at the rate fixed under the provisions of that clause] up to the date of such payment.

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[1]These words within square brackets were substituted for the words "and the Board shall proceed" by s. 45*(a)(ii)* of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[2]These words within square brackets were substituted for the words "at the rate of six *per cent per annum*" by s. 2*(a)* of the Calcutta Improvement (Amendment) Act, 1934 (Ben. Act II of 1935).

[3]*See* foot-note 2 on p. 2, *ante*.

[4]These words within square brackets were substituted for the words "at the rate of six *per cent per annum*" by s. 2*(b)* of the Calcutta Improvement (Amendment) Act, 1934 (Ben. Act II of 1935).

(9) When an agreement in respect of any land has been executed by any person in pursuance of sub-section (4), no suit with respect to such agreement shall be brought against the Board by any other person (except an heir, executor or administrator of the person first aforesaid) claiming to have an interest in the land.

[1](10) Notwithstanding anything contained in clause (ii) of sub-section (4) or in sub-section (8) the rate of interest payable, under the provisions of that clause or that sub-section, as the case may be, shall be, or continue to be, four *per cent. per annum* in cases where the sum, in consideration of which the acquisition of the land has been abandoned, has been fixed under sub-section (3) before the date of the commencement of the Calcutta Improvement (Amendment) Act, 1923, and the agreement in respect of the payment of the same is executed before, on or within two months after, that date. Ben. Act IX of 1923

[2](11) Notwithstanding anything contained in clause (ii) of sub-section (4) or in sub-section (8), the rate of interest payable under the provisions of that clause or that sub-section, as the case may be, shall be, or continue to be, six *per cent. per annum* in cases where the sum, in consideration of which the acquisition of the land has been abandoned, has been fixed under sub-section (3) on or after the date of the commencement of the Calcutta Improvement (Amendment) Act, 1923, but before the date of the commencement of the Calcutta Improvement (Amendment) Act, 1934, and the agreement in respect of the payment of the same is executed during the period commencing with the date of the commencement of the Calcutta Improvement (Amendment) Act, 1923, and ending two months after the date of the commencement of the Calcutta Improvement (Amendment) Act, 1934. Ben. Act II of 1935.

[3](12) When an application has been made under sub-section (1) and the Board are of opinion that the whole or any part of the land belonging to the applicant is not required for the execution of the scheme but that it is necessary that some adjoining land should be purchased by the applicant and amalgamated with his land or the portion not so required, in order to conform to the general layout of the scheme, they may permit the applicant to execute an agreement to purchase the adjacent land abovementioned and may at the same time fix a fee in consideration of which the land not required for the execution of the scheme may be exempted from acquisition. The price of the land sold together with the sum fixed as exemption fee shall then be dealt with in the manner provided in sub-section (4), and if the whole sum payable or any part of it is kept outstanding, it shall be secured as a charge on the interest

[1]Sub-section *(10)* was inserted by s. 3*(2)* of the Calcutta Improvement (Amendment) Act, 1923 (Ben. Act IX of 1923).

[2]Sub-section *(11)* was added by s. 2*(c)* of the Calcutta Improvement (Amendment) Act, 1934 (Ben. Act II of 1935).

[3]Sub-section *(12)* was added by s. 45*(b)* of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

of the applicant in the total area of the land sold to the applicant and of the land exempted. Sub-sections (5), (7) and (8) shall apply to such agreements in the same manner as in the case of total abandonment under the foregoing provisions of this section.

[1]*Betterment fee.*

Payment of betterment fee

[1]**78A.** (1) When by the making of any improvement scheme, any land in the area comprised in the scheme which is not required for the execution thereof will, in the opinion of the Board, be increased in value, the Board, in framing the scheme, may, in lieu of providing for the acquisition of such land, declare that a betterment fee shall be payable by the owner of the land or any person having an interest therein in respect of the increase in value of the land resulting from the execution of the scheme.

(2) Such betterment fee shall be an amount equal to one-half of the increase in value of the land resulting from the execution of the scheme, and shall be calculated upon the amount by which the value of the land on the completion of the execution of the scheme estimated as if the land were clear of buildings exceeds the value of the land prior to the execution of the scheme estimated in like manner.

Assessment of betterment fee by Board.

[1]**78B.** (1) When it appears to the Board that an improvement scheme is sufficiently advanced to enable the amount of the betterment fee to be determined, the Board shall by a resolution passed in this behalf declare that for the purpose of determining such fee the execution of the scheme shall be deemed to have been completed and shall thereupon give notice in writing to every person on whom a notice in respect of the land to be assessed has been served under clause (i) of sub-section (1) of section 45 that the Board propose to assess the amount of the betterment fee payable in respect of such land under section 78A.

(2) The Board shall then assess the amount of betterment fee payable by each person concerned after giving such person an opportunity to be heard and such person shall within three months from the date of receipt of notice in writing of such assessment from the Board, inform the Board by a declaration in writing whether he accepts or dissents from the assessment.

(3) When the assessment proposed by the Board is accepted by the person concerned within the period specified in sub-section (2), such assessment shall be final.

(4) If the person concerned dissents from the assessment made by the Board or fails to give the Board the information required by sub-section (2) within the period specified therein, the matter shall be determined by arbitrators in the manner provided by section 78C.

[1]This sub-heading and sections 78A, 78B, 78C, 78D, 78E, 78F and 78G were inserted by s. 7 of the Calcutta Improvement (Amendment) Act, 1931 (Ben. Act VIII of 1931).

(Chapter IV.—Acquisition and Disposal of land.—Section 78C.)

Settlement of betterment fee by arbitrators.

[1]**78C.** *(1)* For the determination of the matter referred to in sub-section (4) of section 78B, the [2][State Government] shall constitute a panel of arbitrators consisting of two parts, the first part of which shall be composed of persons having special knowledge of the valuation of land and the second part of other suitable persons.

(2) When the Board have, in accordance with the provisions of section 78B, assessed the amount of betterment fee payable by all persons in respect of land in the area comprised in the scheme the Board shall serve a notice on all those persons who have dissented from the assessment made by the Board, requiring them to meet at such time and place as may be fixed by the Chairman for the purpose of electing an arbitrator.

(3) For each scheme there shall be a body of two arbitrators, one of whom shall be elected by vote by the persons present at the meeting referred to in sub-section (2) from one part of the panel, and the other shall be appointed by the [2][State Government] from the other part of the panel:

Provided that for the purposes of a particular scheme the [3][State Government] may, prior to the election referred to in this sub-section, if it thinks fit, modify either part of the panel.

(4) In the event of a difference of opinion on any matter between the two arbitrators, a third arbitrator [4][who shall act as an umpire] shall be selected by lot from the first part of the panel, and [4][the decision of the umpire on the matter shall be final].

(5) If an arbitrator dies, resigns, becomes disqualified, is removed under sub-section (6), or refuses to perform or in the opinion of the [2][State Government] neglects to perform or becomes incapable of performing his functions, the authority who elected or appointed him shall forthwith elect or appoint a fit person to take the place of such arbitrator.

(6) If the [3][State Government] is satisfied after such inquiry as it thinks fit that the arbitrator has misconducted himself, it may remove him.

(7) When [5][an award has been made under this section by the arbitrators or the umpire, as the case may be,] they shall sign it and forward it to the Board, and such award shall subject to the provisions of sub-section (8) be final and conclusive and binding on all persons.

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[1] *See* foot-note 1 on p. 45, *ante*.

[2] *See* foot-note 2 on p. 2, *ante*.

[4] These words within square brackets were inserted by s. 46(*a*)(i) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[3] These words within square brackets were substituted for the words "the matter shall be decided by the votes of the majority of the three arbitrators" by s. 46(*a*)(ii), *ibid*.

[5] These words within square brackets were substituted for the words, "the arbitrators have made their award under section 78C," by s. 46(*b*), *ibid*.

of 1911.]

(Chapter IV.—Acquisition and Disposal of land.—Sections 78D—78G.)

(8) If the [1][State Government] is satisfied after such inquiry as it thinks fit that an award has been improperly procured or that an arbitrator has misconducted himself in connection with an award, the [1][State Government] may set aside the award.

Fees for arbitrators.

[2]**78D.** The Board shall pay to each arbitrator a fee to be determined by the [1][State Government] in respect of the whole of the scheme for which his services are utilized.

Proceedings of arbitrators.

[2]**78E.** Notwithstanding anything contained in any other enactment the proceedings of arbitrators under section 78C shall be governed by rules to be made in this behalf under section 137:

Provided that every party to such proceedings shall be entitled to appear before the arbitrators either in person or by his authorized agent.

Board to give notice to persons liable to payment of betterment fee.

[2]**78F.** When the amount of all betterment fees payable in respect of land in the area comprised in the scheme has been determined under section 78B or section 78C, as the case may be, the Board shall, by a notice in writing to be served on all persons liable to such payment, fix a date by which such payment shall be made, and interest at the rate of six *per cent. per annum* upon any amount outstanding shall be payable from that date.

Agreement to make payment of betterment fee a charge on land.

[2]**78G.** (1) Any person liable to the payment of a betterment fee may, at his option, instead of making a payment thereof to the Board, execute an agreement with the Board to leave the said payment outstanding as a charge on his interest in the land, subject to the payment in perpetuity of interest at the rate of six *per cent. per annum*, the first annual payment of such interest to be made one year from the date referred to in section 78F.

(2) Every payment due from any person in respect of a betterment fee and every charge referred to in sub-section (1) shall, notwithstanding anything contained in any other enactment and notwithstanding the existence of any mortgage or other charge whether legal or equitable created either before or after the commencement of the Calcutta Improvement (Amendment) Act, 1931, be the first charge upon the interest of such person in such land.

Ben. Act VIII of 1931.

(3) The provisions of sub-sections (7), (8) and (9) of section 78 relating, in the case of the payments mentioned in that section, to the non-payment of instalments of interest, the paying off of the charge with interest, and the restrictions in respect of suits against the Board shall apply, *mutatis mutandis*, to the payment of the money payable under an agreement made in pursuance of sub-section (1) and of the interest payable in respect thereof.

[1] *See* foot-note 2 on p. 2, *ante*.

[2] *See* foot-note 1 on p. 45, *ante*.

(Chapter IV.—Acquisition and Disposal of land.—Sections 79, 79A, 80.)

[1]*Recovery of special payments and betterment fees.*

Recovery of money payable in pursuance of sections 78, 78B, 78C or 78G.

79. [1]All money payable in respect of any land by any person under an agreement executed in pursuance of sub-section (*4*) of section 78, or by any person in respect of a betterment fee under section 78B or section 78C, or by any person under an agreement executed in pursuance of section 78G, sub-section (*1*), shall be recoverable by the Board (together with interest, [2][due, up to the date of realization, which shall, in the case of betterment fees under section 78B or section 78C, be] at the rate of six *per cent. per annum*), from the said person or his successor in interest in such land, in the manner provided by [3][the Calcutta Municipal Act, 1951,] for the recovery of the consolidated rate; West Ben. Act XXXIII of 1951.

and, if not so recovered, the Chairman may, after giving public notice of his intention to do so, and not less than one month after the publication of such notice, sell the interest of the said person or successor in such land by public auction, and may deduct the said money and the expenses of the sale from the proceeds of the sale, and shall pay the balance (if any) to the defaulter.

Board to appoint persons for enforcement of processes for recovery of dues.

[4]**79A.** The Board may direct by what authority any power or duties incident under [5][the Calcutta Municipal Act, 1951], to the enforcement of any process for the recovery of the consolidated rate shall be exercised and performed when that process is employed under section 79.

[6]*Acquisition on fresh declaration.*

Agreement or payment not to bar acquisition under a fresh declaration.

[6]**80.** If any land, in respect of which an agreement has been executed or a payment has been accepted in pursuance of sub-section (*4*) of section 78, or in respect of which the payment of a betterment fee has been accepted in pursuance of sub-section (*3*) of section 78B, or has been made after its determination under section 78C, or in respect of which an agreement for such payment has been executed under section 78G, be subsequently required for any

[1] This sub-heading and this paragraph were substituted for the original first paragraph by s. 8 of the Calcutta Improvement (Amendment) Act, 1931 (Ben. Act VII of 1931).

[2] These words, figures and letters within square brackets were substituted for the words "up to the date of realization" by s. 3 of the Calcutta Improvement (Amendment) Act, 1934 (Ben. Act II of 1935).

[3] These words within square brackets were substituted for the words "the Calcutta Municipal Act, 1923," by s. 47 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[4] Section 79A was inserted by s. 9 of the Calcutta Improvement (Amendment) Act, 1931 (Ben. Act VIII of 1931).

[5] These words within square brackets were substituted for the words "the Calcutta Municipal Act, 1923" by s. 48 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[6] This sub-heading and section 80 were substituted for the original section 80 by s. 10 of the Calcutta Improvement (Amendment) Act, 1931 (Ben. Act VIII of 1931).

of 1911.]

(Chapter IV.—Acquisition and Disposal of land.—Section 81. —Chapter V.—Taxation.—Section 82.)

of the purposes of this Act, the agreement or payment shall not be deemed to prevent the acquisition of the land in pursuance of a fresh declaration published under section 6 of the Land Acquisition Act, 1894.

I of 1894.

Disposal of land.

81. (*1*) The Board may retain, or may let on hire, lease, sell, exchange or otherwise dispose of, any land vested in or acquired by them under this Act. **Power to dispose of land.**

(*2*) Whenever the Board decide to lease or sell any land acquired by them under this Act from any person, they—

(*a*) shall give notice by advertisement in local newspapers, and

(*b*) shall offer to the said person, or his heirs, executors or administrators, a prior right to take on lease or to purchase such land, at a rate to be fixed by the Board, if the Board consider that such a right can be given without [1][prejudice to public interest or] detriment to the carrying out of the purposes of this Act.

(*3*) If in any case two or more persons claim to exercise a right offered under clause (*b*) to take on lease or to purchase any land, the right shall be exercisable by the person who agrees to pay the highest sum for the land, not being less than the rate fixed by the Board under that clause, to the exclusion of the others.

CHAPTER V.

TAXATION.

Duty on Transfers of Property.

II of 1899.

[2]**82.** (*1*) The duty imposed by the Indian Stamp Act, 1899, on instruments of sale, gift and usufructuary mortgage, respectively, of immovable property shall, in the case of instruments affecting immovable property situated in the Calcutta Municipality and executed on or after the commencement of this Act[3] be increased by two *percentum* on the value of the property so situated, or (in the case of an usufructuary mortgage) on the amount secured by the instrument, as set forth in the instrument. **Duty on certain transfers of immovable property.**

[1] These words within square brackets were inserted by s. 49 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[2] Section 82 was extended to Eastern Bengal by the Bengal Laws Act, 1914 (Ben. Act I of 1914), s. 3, Sch. I.

[3] i.e. the 2nd January 1912, *see* notification No. 1148, dated the 30th October 1911.

(Chapter V.—Taxation.—Section 83.)

(2) For the purposes of this section, section 27 of the said Indian Stamp Act, 1899, shall be read as if it specifically required the particulars referred to therein to be set forth separately in respect of— II of 1899.

(*a*) property situated in the Calcutta Municipality, and

(*b*) property situated outside the Calcutta Municipality, respectively.

(3) For the purposes of this section, section 64 of the said Indian Stamp Act, 1899, shall be read as if it referred to the Board as well as the Government.

(4) All collections resulting from the said increase shall, after deducting incidental expenses (if any), be paid to the Board at such time as may be prescribed by rule made under section 86.

Terminal Tax on Passengers.

Terminal tax on passengers by railway or inland steam-vessel.

83. (*1*) Every passenger brought to or taken from any station in the Calcutta Municipality or the Howrah Municipality by railway, and

every passenger brought to or taken from any landing place in the Port of Calcutta, within [1][eight kilometres] from Government House, by inland steam-vessel,

shall pay a tax of [2][three naye paise] in respect of each journey so made by him:

Provided as follows:—

(*a*) the said tax shall not be payable by any passenger brought from, or taken to, any place situated within a radius of [3][forty-eight kilometres] from Government House;

(*b*) the [4][State Government] may, by notification, either—

(i) [5]* * reduce the said radius to any distance less than [3][forty-eight kilometres], in its application either to passengers generally or to passengers of any specified class, or

(ii) [5]* * * * cancel proviso (*a*), or

(iii) reduce the said tax to any lower rate, either in respect of passengers generally or in respect of passengers making frequent journeys;

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[1] The words within square brackets were substituted for the words "five miles" by s. 2(*a*) of the Calcutta Improvement (Amendment) Act, 1961 (West Ben. Act XX of 1961).

[2] The words within square brackets were substituted for the words "half-an-anna" by s. 2(*b*), *ibid.*

[3] The words within square brackets were substituted for the words "thirty miles" by s. 2(*c*)(i), *ibid.*

[4] *See* foot-note 2 on p. 2, *ante.*

[5] The words "with the previous sanction of the Government of India" were omitted by the Devaluation Act, 1920 (XXXVIII of 1920).

(c) the said tax may, in the case of passengers taking suburban season tickets, be calculated at the rate of [1][thirty-seven naye paise] *per mensem* for each such ticket, or at such lower rate as the [2][State Government] may prescribe by notification.

(2) The said tax shall be collected by means of a surcharge on fares, by the administration of the railway, or the owner of the vessel, by which the passengers are carried, and shall be paid to the Board at such time as may be prescribed by rule made under section 86, after making such deduction as the [3][State Government] may approve to meet any expenses incurred in connection with the collection of the tax.

(3) The owner of every inland steam-vessel referred to in sub-section (1) shall prepare and deliver, or cause to be prepared and delivered, to the Chairman, each quarter, a return in the form prescribed by rule made under section 86, of all passengers, carried by such vessel, by whom the tax imposed by that sub-section is payable; and shall subscribe at the foot of such return, a declaration of the truth thereof.

(4) Every such return shall be delivered to the Chairman or posted to his address within fifteen working days or at most within thirty days, after the end of the quarter to which it relates.

Explanation.—The expression "working day" as used in this sub-section, means every day except a public holiday as defined in section 25 of the Negotiable Instruments Act, 1881.

XXVI of 1881.

(5) If this Act is directed to come into force during a quarter, the first of the said returns shall be made for the unexpired portion of that quarter.

(6) The expression "administration" and the expressions "owner" and "inland steam-vessel" as used in this section, have the same meanings as in the Indian Railways Act, 1890, and the Inland Steam-vessels Act, [4][1917], respectively.

IX of 1890.
I of 1917.

[5][(7) After the commencement of [6][the Constitution] a tax on passengers by railway shall only be leviable under this section if it [7][was lawfully levied] immediately before that date, and shall only be leviable until provision to the contrary is made by [8][Parliament]

[1] The words within square brackets were substituted for the words "six annas" by s. 2(c)(ii) of the Calcutta Improvement (Amendment) Act, 1961 (West Ben. Act XX of 1961).

[2] *See* foot-note 2 on p. 2, *ante*.

[3] These figures within square brackets were substituted for the figures "1884" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939).

[4] Sub-section (7) was inserted by Sch. IV of the Government of India (Adaptation of Indian Laws) Order, 1937.

[5] The words within square brackets were substituted for the words and figures "Part III of the Government of India Act, 1935" by paragraph 3 of and the Eleventh Schedule to the Adaptation of Laws Order, 1950.

[6] These words within square brackets were substituted for the words "was levied", *ibid.*

[7] This word within square brackets was substituted for the words "the Central Legislature", *ibid.*

Customs Duty on Jute.

Customs duty on exports of jute from Calcutta by sea.

84. *(1)* A customs duty shall be levied and collected on all jute exported by sea from the Port of Calcutta to any other port, whether beyond or within India, at such rate, not exceeding,—

(*a*) in the case of raw jute (including jute cuttings and rejections), [1][twelve naye paise per bale of one hundred and eighty kilograms], and

(*b*) in the case of manufactured jute, [2][seventy-five naye paise per metric tonne of one thousand kilograms], as the [3][State Government] may prescribe by notification:

Provided that the said duty shall not be levied or collected in respect of jute, whether raw or manufactured, exported under any contract which was made before the fifteenth day of August, 1911 and the existence of which was established to the satisfaction of the Customs Collector before the fifteenth day of September, 1911.

(2) At the close of each quarter, or as soon as thereafter as may be convenient, the duty collected under sub-section (*1*) shall, after deducting the expenses of collection (if any), be paid by the Customs Collector to the Board.

[4]*(3)* After the commencement of [5][the Constitution] a duty shall only be leviable under this section if it [6][was lawfully levied] immediately before that date, and shall only be leviable until provision to the contrary is made by [7][Parliament].

Section 5 of the Indian Tariff Act, 1934, not to apply to jute.

85. Section 5 of the Indian Tariff Act, [8][1934], shall not apply to jute (whether raw or manufactured) passing by land out of Calcutta. XXXII of 1934.

Supplemental Provisions.

Power to State Government to make rules.

[9]**86.** *(1)* The [10][State Government] may make rules for carrying out the purposes of this chapter.

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[1]The words within square brackets were substituted for the words "two annas per bale of four hundred pounds" by s. 3(*a*) of the Calcutta Improvement (Amendment) Act, 1961 (West Ben. Act XX of 1961).

[2]The words within square brackets were substituted for the words "twelve annas per ton of two thousand two hundred and forty pounds" by s. 3(*b*), *ibid.*

[3]*See* foot-note 2 on p. 2, *ante.*

[4]Sub-section (*3*) was inserted by Sch. IV of the Government of India (Adaptation of Indian Laws) Order, 1937.

[5]*See* foot-note 5 on p. 51, *ante.*

[6]*See* foot-note 6 on p. 51, *ante.*

[7]*See* foot-note 7 on p. 51, *ante.*

[8]The figures within square brackets were substituted for the figures "1894" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939).

[9]Section 86, in so far as it affects section 81, was extended to Eastern Bengal by the Bengal Laws Act, 1914 (Ben. Act I of 1914), s. 3, Sch. I.

of 1911.]

(Chapter V.—Taxation.—Section 87.—Chapter VI.—Finance.—Section 88.)

(2) In particular, and without prejudice to the generality of the foregoing power, the [1][State Government] may make rules—

(a) for regulating the collection of taxes imposed by this chapter, and the payment thereof to the Board;

(b) for prescribing the form of the return required by section 83, sub-section (3), and the particulars to be contained therein, and the manner in which the same is to be verified.

Punishment for offences.

87. The offences mentioned in column 1 of the following table shall be punishable to the extent mentioned in column 2 thereof with reference to such offences, respectively:—

1	2
(1) Omitting to make any return required by section 83, sub-section (3), or refusing to sign or complete the same.	Fine not exceeding one thousand rupees.
(2) Making and delivering any such return containing any statement not true to the best of the information and belief of the person making the same.	The penalty provided in the Indian Penal Code, section 199 for making a false statement in a declaration.
(3) Otherwise contravening any rule made under section 86.	Fine not exceeding five hundred rupees.

Act XLV of 1860.

CHAPTER VI.

FINANCE.

Municipal Contributions.

Contributions from Municipal Funds.

88. (1) The [2][Commissioner of the Corporation] shall pay from the Municipal Funds to the Board on the first day of each quarter, so long as the Board continue to exist, a sum equivalent to one-half

[1] *See* foot-note 2 on p. 2, *ante*.

[2] The words "Executive Officer of the Corporation" were originally substituted for the words "Chairman of the Corporation" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939) and thereafter the word "Commissioner" was substituted for the words "Executive Officer" by s. 50(1)(a) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

per cent, per quarter on the annual rateable valuation determined under [1][Chapter XI of the Calcutta Municipal Act, 1951,] as it stood on the first day of the last preceding quarter:

West Ben. Act XXXIII of 1951.

Provided as follows:—

(*a*) in the case of property vested in the Commissioners for the Port of Calcutta, the said percentage shall be calculated upon nine-tenths of the annual rateable valuation of such property, and

(*b*) if this Act is directed to come into force during a quarter the amount of the first of such payments shall bear such proportion to the sum payable hereunder as the unexpired portion of that quarter bears to the whole quarter.

(*2*) If in any financial year the sums due to the Board under section 82 and sub-section (*1*) of this section aggregate less than seven-and-a-half lakhs of rupees, the [2][Commissioner of the Corporation] shall pay to the Board, from the Municipal Funds, such further sum as may be required to make up the said sum of seven-and-a-half lakhs of rupees.

(*3*) The payments prescribed by sub-sections (*1*) and (*2*) shall be made in priority to all other payments due from the Corporation, except those referred to in [3][section 144 of the Calcutta Municipal Act, 1951].

West Ben. Act XXXIII of 1951.

(*4*) If any payment prescribed by sub-section (*1*) or sub-section (*2*) cannot be made without increasing the maximum authorised by [4][section 165 of the Calcutta Municipal Act, 1951], then that maximum may be increased to such extent as may be necessary to secure the due making of such payment.

[1] The words and figures "Chapter X of the Calcutta Municipal Act, 1923" were originally substituted for the words and figures "Chapter XII of the Calcutta Municipal Act, 1899" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939) and thereafter these words within square brackets were substituted for the words "Chapter X of the Calcutta Municipal Act, 1923" by s. 50(*1*)(*b*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[2] The words "Executive Officer of the Corporation" were originally substituted for the words "Chairman of the Corporation" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939) and thereafter the word "Commissioner" was substituted for the words "Executive Officer" by s. 50 (2) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[3] The words and figures "section 110 of the Calcutta Municipal Act, 1923" were originally substituted for the words and figures "section 140 of the said Calcutta Municipal Act, 1899" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939) and thereafter these words within square brackets were substituted for the words "section 110 of the Calcutta Municipal Act, 1923" by s. 50(3) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[4] The words and figures "section 124 of the Calcutta Municipal Act, 1923" were originally substituted for the words and figures "clause (*a*) of section 147 of the said Calcutta Municipal Act, 1899" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939) and thereafter these words within square brackets were substituted for the words "section 124 of the Calcutta Municipal Act, 1923" by s. 50(4) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

Loans.

Power of Board to borrow money.

89. The Board may from time to time borrow, at such rate of interest, and for such period, and upon such terms, as to the time and method of repayment and otherwise, as the [1][State Government] may approve, any sum necessary for the purpose of—

(a) meeting expenditure debitable to the capital account under section 123, or

(b) repaying any loan previously taken under this Act:

[2] * * * *

90. [*Manner and time of borrowing money.*] *Rep. by the Devolution Act, 1920 (XXXVIII of 1920).*

Loans from Banks.

91. Whenever the borrowing of any sum has been approved under section 89, the Board may, instead of borrowing such sum or any part thereof from the public, [3] * * * take credit from any Bank, on a cash account to be kept in the name of the Board, to the extent of such sum or part;

and, with the previous sanction of the [1][State Government] may grant mortgages of all or any property vested in the Board by way of securing the payment of the amount of such credit or of the sums from time to time advanced on such cash account with interest.

Diversion of borrowed money to purposes other than those first approved.

92. When any sum of money has been borrowed under section 89 or section 91 for the purpose of meeting particular expenditure or repaying a particular loan, no portion thereof shall be applied to any other purpose without the previous sanction of the [1][State Government].

Form, signature, exchange, transfer and effect of debentures.

93. (*1*) Whenever money is borrowed by the Board on debentures, the debentures shall be in such form as the Board, with the previous sanction of the [1][State Government], may from time to time determine.

(*2*) All debentures shall be signed by the Chairman and one other Trustee.

(*3*) The holder of any debenture in any form prescribed under sub-section (*1*) may obtain in exchange therefor, upon such terms as the Board may from time to time determine, a debenture in any other form so prescribed.

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[1] *See* foot-note 2 on p. 2, *ante*.

[2] The provision was omitted by Sch. IV of the Government of India (Adaptation of Indian Laws) Order, 1937.

[3] The words and figures "but subject to any direction given by the Provincial Government under section 90" were repealed by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939)

(Chapter VI.—Finance.—Sections 94—98.)

(4) Every debenture issued by the Board shall be transferable by endorsement, unless some other mode of transfer be prescribed therein.

(5) The right to sue in respect of moneys secured by debentures issued by the Board shall vest in the respective holders of the debentures for the time being, without any preference by reason of some of such debentures being prior in date to others.

Signature of coupons attached to debentures.

94. All coupons attached to debentures issued under this Act shall bear the signature of the Chairman; and such signature may be engraved, lithographed or impressed by any mechanical process.

Payments to survivors of joint payees.

95. When any debenture or security issued under this Act is payable to two or more persons jointly, and either or any of them dies, then, notwithstanding anything in section 45 of the Indian Contract Act, 1872, the debenture or security shall be payable to the survivor or survivors of such persons: IX of 1872.

Provided that nothing in this section shall affect any claim by the representative of a deceased person against such survivor or survivors.

Receipt by joint holder for interest or dividend.

96. Where two or more persons are joint holders of any debenture or security issued under this Act, any one of such persons may give an effectual receipt for any interest or dividend payable in respect of such debenture or security, unless notice to the contrary has been given to the Board by any other of such persons.

Priority of payments for interest and repayment of loans.

97. All payments due from the Board for interest on, or the repayment of loans, shall be made in priority to all other payments due from the Board.

Repayment of loans taken under section 89.

98. Every loan taken by the Board under section 89 shall be repaid within the period approved by the [1][State Government] under that section, and, subject to the provisions of section 125, sub-section (2), by such of the following methods as may be so approved, namely:—

(a) from a sinking fund established under section 99 in respect of the loan, or

(b) by paying equal yearly or half-yearly instalments of principal, or of principal and interest, throughout the said period, or

(c) if the Board have, before borrowing money on debentures, reserved, by public notice, a power to pay off the loan by periodical instalments and to select by lot the particular debentures to be discharged at particular periods —then by paying such instalments at such periods, or

(d) from money borrowed for the purpose under section 89, clause (b), or

[1] *See* foot-note 2 on p. 2, *ante*.

of 1911.]

(Chapter VI.—Finance.—Sections 99—101.)

(*e*) partly from the sinking fund established under section 99 in respect of the loan, and partly from money borrowed for the purpose under section 89, clause (*b*).

Establishment and maintenance of sinking funds.

99. *(1)* Whenever the [1][State Government] have approved the repayment of a loan from a sinking fund the Board shall establish such a fund and shall pay into it in every year, until the loan is repaid, a sum so calculated that, if regularly paid throughout the period approved by the [1][State Government] under section 89, it would, with accumulations in the way of compound interest, be sufficient, after payment of all expenses, to pay off the loan at the end of that period.

(*2*) The rate of interest on the basis of which the sum referred to in sub-section (*1*) shall be calculated shall be such as may be prescribed by the [1][State Government].

Power to discontinue payments into sinking fund.

100. Notwithstanding anything contained in section 99, if at any time the sum standing at credit of the sinking fund established for the repayment of any loan, is of such amount that, if allowed to accumulate at the rate of interest prescribed under sub-section (*2*) of that section, it will be sufficient to repay the loan at the end of the period approved by the [1][State Government] under section 89, then, with the permission of the [1][State Government] further annual payments into such fund may be discontinued.

Investment of sinking funds.

101. (*1*) All money paid into any sinking fund shall as soon as possible be invested, under the orders of the Board, in—

(*a*) Government securities, or

(*b*) securities guaranteed [2][by the Central or any State Government], or

(*c*) Calcutta Municipal debentures, or

(*d*) debentures issued by the Commissioners for the Port of Calcutta, or

(*e*) debentures issued by the Board,

in the joint names of the Secretary to the Government of [West Bengal] in the financial Department and the Accountant-General of [3][West Bengal], to be held by them as trustees for the purpose of repaying from time to time the debentures issued by the Board.

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[1]*See* foot-note 2 on p. 2, *ante*.

[2]The words "by the Central or any Provincial Government" were originally substituted for the words "by the Government" by Sch. IV of the Government of India (Adaptation of Indian Laws) Order, 1937 and thereafter the word "State" was substituted for the word "Provincial" by paragraph 4(*1*) of the Adaptation of Laws Order, 1950.

[3]The words "West Bengal" were substituted for the word "Bengal" by paragraph (*2*) of article 3 of the Indian Independence (Adaptation of Bengal and Punjab Acts) Order, 1948.

(2) All dividends and other sums received in respect of any such investment shall, as soon as possible after receipt, be paid into the appropriate sinking fund and invested in the manner prescribed by sub-section (1).

(3) Any investment made under this section may from time to time, subject to the provisions of sub-section (1), be varied or transposed.

Application of sinking funds.

102. The aforesaid trustees may from time to time apply any sinking fund, or any part thereof, in or towards the discharge of the loan or any part of the loan for which such fund was established and until such loan is wholly discharged shall not apply the same for any other purpose.

Annual statements by trustees.

103. (1) The aforesaid trustees shall, at the end of every financial year, transmit to the Chairman a statement showing—

(a) the amount which has been invested during the year under section 101,

(b) the date of the last investment made previous to the transmission of the statement,

(c) the aggregate amount of the securities held by them,

(d) the aggregate amount which has, up to the date of the statement, been applied under section 102 in or towards repaying loans, and

(e) the aggregate amount already paid into each sinking fund.

(2) Every such statement shall be laid before the Board and published by notification.

Annual examination of sinking funds.

104. (1) The said sinking funds shall be subject to annual examination by the Accountant-General, [1][West Bengal] who shall ascertain whether the cash and the current value of the securities at credit of such funds are actually equal to the amount which would have accumulated had investments been regularly made and had the rate of interest as originally estimated been obtained therefrom.

(2) The Board shall forthwith pay into any sinking fund any amount which the Accountant-General may certify to be deficient, unless the [2][State Government] specially sanction a gradual readjustment:

[3]Provided that if the current value of the securities in all the sinking funds together is equal to the amount mentioned in sub-section (1), the deficit in any particular sinking fund shall not be certified by the Accountant-General.

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[1]*See* foot-note 3 on p. 57, *ante*.

[2]The words "Provincial Government" were originally substituted for the words "Government of India" by Sch. IV of the Government of India (Adaptation of Indian Laws) Order, 1937 and thereafter the word "State" was substituted for the word "Provincial" by paragraph 4(1) of the Adaptation of Laws Order, 1950.

[3]This proviso was added by s. 51 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

of 1911.]

(Chapter VI.—Finance.—Section 105.)
Enforcement of Liabilities.

Procedure if Board fail to make any payment or investment in respect of loans.

105. (*1*) If the Board fail—

(*a*) to pay any interest due in respect of any loan taken in pursuance of section 89, or

(*b*) to make any payment prescribed by section 98, section 99 or sub-section (2) of section 104, or

(*c*) to make any investment prescribed by section 101,

the Accountant-General of [1][West Bengal] shall make such payment or set aside and invest such sum as ought to have been invested under the said section 101, as the case may be;

and the [2][Commissioner of the Corporation] shall forthwith pay from the Municipal Funds to the said Accountant-General a sum equivalent to the sum so paid or invested by him;

and the [3][State Government] may attach the rents and other income of the Board; and thereupon the provisions of [4][sub-section (*2*) of section 152 of the Calcutta Municipal Act, 1951], shall, with all necessary modifications, be deemed to apply.

West Ben. Act XXXIII of 1951.

(*2*) Whenever the [5][Commissoiner of the Corporation] has made any payment to the Accountant-General under sub-section (*1*), the [6][State Government] shall reimburse the Corporation out of the rents and income attached under that sub-section, and if such rents and income prove insufficient for that purpose the Corporation may, with the previous sanction of the [7][State Government] increase the maximum authorized by [8][section 165 of the Calcutta Municipal Act, 1951], to such extent as may be necessary for the purpose of making up the deficiency:

Provided that no such increase shall be made, unless the taxes imposed by sections 83 and 84 are levied at the maximum rates respectively prescribed by those sections.

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[1]*See* foot-note 3 on p. 57, *ante*.

[2]The words "Executive Officer of the Corporation" were originally substituted for the words "Chairman of the Corporation" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939) and thereafter the word "Commissioner" was substituted for the words "Executive Officer" in sub-sections (*1*) and (*2*) by s. 52(*1*)(*a*) and (*2*)(*a*) respectively of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[3]*See* foot-note 2 on p. 2, *ante*.

[4]The words, brackets and figures "sub-section (*2*) of section 118 of the Calcutta Municipal Act, 1923" were originally substituted for the words, brackets and figures "sub-section (*2*) of section 141 of the Calcutta Municipal Act, 1899" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939) and thereafter the words "section 152 of the Calcutta Municipal Act, 1951" were substituted for the words "section 118 of the Calcutta Municipal Act, 1923" by s. 52(*1*)(*a*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[5]The words and figures "section 124 of the Calcutta Municipal Act, 1923" were originally substituted for the words, brackets, letter and figures "clause (*a*) of section 147 of the Calcutta Municipal Act, 1899" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939) and thereafter these words within square brackets were substituted for the words "section 124 of the Calcutta Municipal Act, 1923" by s. 52(*2*)(*b*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

Procedure if Commissioner of Corporation fails to make any payment due to Board or Accountant General.

106. If the [1][Commissioner of the Corporation] fails to make any payment as required by section 88 or section 105, the [2][State Government] may attach the Municipal Funds or any of them;

and thereupon the provisions of [3][sub-section (2) of section 152 of the Calcutta Municipal Act, 1951], shall, with all necessary modifications, be deemed to apply, and the [2][State Government] may further require the Corporation to increase the maximum authorized by [4][section 165 of that Act], to such extent as may be necessary for the purpose of making such payment:

Provided that no such increase shall be made, in consequence of any failure of the [1][Commissioner of the Corporation] to make any payment as required by section 105, unless the taxes imposed by sections 83 and 84 are levied at the maximum rates respectively prescribed by those sections.

Payments under section 105 to be a charge on the property of the Board.

107. All moneys paid by the [1][Commissioner of the Corporation] under sub-section (*1*) of section 105 and not reimbursed by the [2][State Government] under sub-section (*2*) of that section, and all moneys payable under sub-section (*1*) of section 105 and levied under section 106, shall constitute a charge upon the property of the Board.

Budget Estimates.

Estimates of income and expenditure to be laid annually before the Board.

108. (*1*) The Chairman shall, at a special meeting to be held in the month of February in each year, lay before the Board an estimate of the income and expenditure of the Board for the next ensuing financial year.

(*2*) Every such estimate shall make provision for the due fulfilment of all the liabilities of the Board and for the efficient administration of this Act.

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[1]The words "Executive Officer of the Corporation" were originally substituted for the words "Chairman of the Corporation" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939) and thereafter the word "Commissioner" was substituted for the words "Executive Officer" in sections 106 and 107 by sections 53(*1*) and 54 respectively of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[2]*See* foot-note 2 on p. 2, *ante*.

[3]The words, brackets and figures "sub-section (*2*) of section 118 of the Calcutta Municipal Act, 1923" were originally substituted for the words, brackets and figures "sub-section (*2*) of section 141 of the Calcutta Municipal Act, 1899" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939) and thereafter the words "section 152 of the Calcutta Municipal Act, 1951" were substituted for the words "section 118 of the Calcutta Municipal Act, 1923" by s. 53(*2*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[4]The word and figures "section 124" were originally substituted for the words, brackets, letter and figures, "clause (*a*) of section 147" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939) and thereafter these words within square brackets were substituted for the words "section 124 of that Act" by s. 53(*3*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

of 1911.]

(Chapter VI.—Finance.—Sections 109—113.)

(3) Every such estimate shall differentiate capital and revenue funds, and shall be prepared in such form, and shall contain such details, as the [1][State Government] or the Board may from time to time direct.

(4) Every such estimate shall be completed and printed, and a copy thereof sent, by post or otherwise, to each Trustee, at least ten clear days before the date of the meeting at which the estimate is to be laid before the Board.

Sanction of Board to estimates.

109. The Board shall consider every estimate so laid before them, and shall sanction the same, either without alteration or with such alterations as they may think fit.

Approval of State Government to estimates.

110. *(1)* Every such estimate, as sanctioned by the Board, shall be submitted to the [1][State Government], who may, at any time within two months after receipt of the same,—

(*a*) approve the estimate, or

(*b*) disallow the estimate or any portion thereof, and return the estimate to the Board for amendment.

(2) If any estimate is so returned to the Board, they shall forthwith proceed to amend it, and shall re-submit the estimate, as amended, to the [1][State Government], who may then approve it.

Transmission of copy of estimate to Commissioner of Corporation.

111. A copy of every such estimate shall, when approved by the [1][State Government] be sent by the Board to the [2][Commissioner of the Corporation].

Special provisions as to the first estimate after the constitution of the Board.

112. *(1)* A special meeting of the Board shall be held as soon as may be expedient after the day appointed under section 17, sub-section (1), and the Chairman shall at such special meeting lay before the Board an estimate of the income and expenditure of the Board for the portion of the financial year which on the said day had not expired.

(2) The provisions of section 108, sub-sections (2) to (4), and sections 109 to 111 shall apply to the said estimate.

Supplementary estimates

113. *(1)* The Board may, at any time during the year for which any estimate has been sanctioned, cause a supplementary estimate to be prepared and laid before them at a special meeting.

(2) The provisions of section 108, sub-sections (3) and (4), and sections 109 to 111 shall apply to every supplementary estimate.

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[1]*See* foot-note 2 on p. 2, *ante*.

[2]The words "Executive Officer of the Corporation" were originally substituted for the words "Chairman of the Corporation" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939) and thereafter the word "Commissioner" was substituted for the words "Executive Officer" by s. 55 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

Adherence to estimate and maintenance of closing balance.

114. *(1)* No sum shall be expended by or on behalf of the Board unless the expenditure of the same is covered by a current budget-grant or can be met by re-appropriation or by drawing on the closing balance.

(2) The closing balance shall not be reduced below one lakh of rupees without the previous sanction of the [1][State Government].

(3) The following items shall be excepted from the provisions of sub-sections *(1)* and *(2)*, namely,—

(*a*) re-payments of moneys belonging to contractors or other persons and held in deposit, and of moneys collected by, or credited to, the Board by mistake;

(*b*) payments due under a decree or order of a Court passed against the Board or against the Chairman *ex-officio*, or under an award of the Tribunal;

(*c*) sums payable under a compromise of any suit or other legal proceeding or claim effected under section 154;

(*d*) sums payable under this Act by way of compensation; and

(*e*) payments required to meet some pressing emergency.

(4) Whenever any sum exceeding five thousand rupees is expended under clause *(e)* of sub-section *(3)* the Chairman shall forthwith report the circumstances to the [1][State Government], and shall at the same time explain how the Board propose to cover the expenditure.

Banking and Investments.

Receipt of moneys, and deposit in Imperial Bank of India or other bank approved by the Board.

115. All moneys payable to the Board shall be received by the Chairman, and shall forthwith be paid into the [2][Imperial Bank of India] [3][or any other bank approved by the Board with the sanction of the State Government] to the credit of an account which shall be styled "The Account of the Trustees for the Improvement of Calcutta".

Investment of surplus money.

116. *(1)* Surplus moneys at the credit of the said account may from time to time be—

(*a*) deposited at interest in the [2][Imperial Bank of India] or in any other Bank[4]* * approved by the [1][State Government] in this behalf, or

(*b*) invested in any of the securities or debentures mentioned in section 101, sub-section *(1)* of this Act or in section 20 of the Indian Trusts Act, 1882. II of 1882.

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[1]*See* foot-note 2 on p. 2, *ante*.

[2]These words within square brackets were substituted for the words "Bank of Bengal" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939).

[3]These words within square brackets were inserted by s. 56 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[4]The words "in Calcutta" were omitted by s. 57, *ibid.*

(2) All such deposits and investments shall be made by the Chairman on behalf of, and with the sanction of, the Board; and with the like sanction, the Chairman may at any time withdraw any deposit so made, or dispose of any securities, and redeposit or re-invest the money so withdrawn or the proceeds of the disposal of such securities.

Payments by cheque.

117. *(1)* No payment shall be made by the [1][Imperial Bank of India] [2][or other bank referred to in section 115] out of the account referred to in section 115, except upon a cheque.

(2) Payment of any sum due by the Board exceeding one hundred rupees in amount shall be made by means of a cheque, and not in any other way.

Signature of orders under section 116 and cheques.

118. All orders for making any deposit, investment, withdrawal or disposal under section 116, and all cheques referred to in section 117, must be signed—

(*a*) by the Chairman and the Secretary to the Board, or

(*b*) in the event of the illness or occasional absence from Calcutta of the Chairman or the Secretary, then by the Secretary or the Chairman, as the case may be, and by a Trustee other than the Chairman.

Duty of Chairman and others before signing cheque.

119. Before the Chairman or any other Trustee or the Secretary to the Board signs a cheque under section 118, he must satisfy himself that the sum for which such cheque is drawn either is required for a purpose or work specifically sanctioned by the Board or is an item of one of the excepted descriptions specified in section 114, sub-section (*3*).

Accounts.

Definition of "cost of management".

120. *(1)* The expression "cost of management", as used in the following sections in this Chapter, means—

(*a*) the salary and house-rent and conveyance allowance (if any) of the Chairman or acting Chairman and the allowances and contributions referred to in section 11, sub-section (*2*);

(*b*) all fees paid under section 22, for attendance at meetings;

(*c*) the salaries, fees and allowances of, and the contributions paid under section 146 in respect of, officers and servants of the Board who are included in statements prepared under section 30;

(*d*) the remuneration of other employees of the Board, except employees who are paid by the day or whose pay is charged to temporary work;

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[1]*See* foot-note 2 on p. 62, *ante*.

[2]These words within square brackets were inserted by s. 58 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

(*e*) all payments made under section 75 and section 146 on account of the Tribunal; and

(*f*) all office expenses incurred by the Board or the Tribunal.

(*2*) The expression "office expenses", in clause (*f*), means expenses incurred for carrying on office work, and includes the rent of offices, the provision of furniture therefor, [1][the purchase of books and charges for printing, photographing, preparing models and stationery].

Keeping of capital account and revenue account.

121. (*1*) The Board shall keep a capital account and a revenue account.

(*2*) The capital account shall show separately all expenditure incurred by the Board on each improvement scheme [2]* * *

Credits to capital account.

122. There shall be credited to the capital account—

[3]"(*a*) all sums (except interest) received by way of special payments for betterment fees in pursuance of sections 78, 78A or 79; ... ...

(*b*) all moneys received on account of loans taken by the Board in pursuance of section 89 or section 91;

(*c*) the proceeds of the sale of any land vested in the Board

[4]* * * * * *

[5]* * * * * *;

(*e*) the proceeds of the sale of any movable property (including securities for money invested from the capital account) belonging to the Board;

(*f*) all lump sums received from [6][any Government] in aid of the capital account;

(*g*) all *premia* received by the Board in connection with leases

[7]* * * * * *;

(*h*) all sums (if any) which the [8][State Government] directs, under section 125, sub-section (*2*), to be credited to the capital account; and

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[1]These words within square brackets were substituted for the words "and charges for printing and stationery" by s. 59 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[2]The words "and each re-housing scheme" were omitted by s. 60, *ibid.*

[3]Clause (*a*) was substituted for the original clause by s. 11 of the Calcutta Improvement (Amendment) Act, 1931 (Ben. Act VIII of 1931).

[4]The words "which was purchased out of any loan taken in pursuance of section 89 or section 91" were omitted by s. 61(*1*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[5]Clause (*d*) was omitted by s. 61(*2*), *ibid.*

[6]These words within square brackets were substituted for the words "the Government" by Sch. IV of the Government of India (Adaptation of Indian Laws) Order, 1937.

[7]The words "for any term exceeding forty years" were omitted by s. 6(*1*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[8]*See* foot-note 2 on p. 2, *ante.*

(i) all moneys resulting from the sale of securities by direction of the [1][State Government] under section 126.

Application of capital account.

123. The moneys credited to the capital account shall be held by the Board in trust, and shall be applied to—

(a) meeting all costs of framing and executing improvement schemes [2]* * *;

(b) meeting the cost of acquiring land for carrying out any of the purposes of this Act;

(c) meeting the cost of constructing buildings required for carrying out any of the purposes of this Act;

(d) the repayment of loans from money borrowed in pursuance of section 89, clause (b);

(e) making payments in pursuance of section 149, otherwise than for interest or for expenses of maintenance or working;

(f) making, or contributing towards the cost of making, surveys, in pursuance of section 167;

(g) meeting such proportion of the cost of management as the Board may, with the sanction of the [1][State Government], prescribe in this behalf; and

(h) temporarily making good the deficit (if any) in the revenue account at the end of any financial year.

Credits to revenue account.

124. There shall be credited to the revenue account—

(a) all interest received in pursuance of [3][sections 78, 78G or 79];

(b) all proceeds received by the Board of taxes imposed by Chapter V;

(c) all sums contributed from Municipal Funds which are received by the Board under section 88;

(d) all [4]*, damages [5]* * received by the Board under section [6][162];

(e) all annually recurring sums received from the Government in aid of the funds of the Board;

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[1]*See* foot-note 2 on p. 2, *ante*.

[2]The words "and re-housing schemes" were omitted by s. 62 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[3]These words, letter and figures within square brackets were substituted for the words and figures "section 78 or section 79" by s. 12 of the Calcutta Improvement (Amendment) Act, 1931 (Ben. Act VIII of 1931).

[4]The word "fines" was omitted by Sch. IV of the Government of India (Adaptation of Indian Laws) Order, 1937.

[5]The words "and proceeds of confiscations" were omitted, *ibid.*

[6]These figures within square brackets were substituted for the figure "175", *ibid.*

'(f) all receipts from lease of playgrounds, swimming pools, athletic tracks and stadiums and from sale of tickets for admission thereto;

(g) all rents of land vested in the Board; and

(h) all other receipts by the Board which are not required by section 122 to be credited to the capital account.

Application of revenue account.

125. (1) The moneys credited to the revenue account shall be held by the Board in trust, and shall be applied to—

(a) meeting all charges for interest and sinking fund due on account of any loan taken in pursuance of section 89, clause (a), or section 91, and all other charges incurred in connection with such loans;

(b) paying all sums due from the Board in respect of rates and taxes imposed under the [2][Calcutta Municipal Act, 1951], upon land vested in the Board; West Ben. Act XXXI of 1951.

(c) paying the cost (if any) of maintaining a separate establishment for the collection of the rents and other proceeds of land vested in the Board;

[3](ci) paying of cost of holding or participating in conferences or exhibitions relating to urban improvements;

[4](cc) paying the fees prescribed for arbitrators under section 78D;

(d) paying all sums which the '[State Government] may direct to be paid to any auditor under section 132;

(e) making payments in pursuance of section 149, for interest or for expenses of maintenance or working;

(f) paying the cost of management, excluding such proportion thereof as may be debited to the capital account under clause (g) of section 123; and

(g) paying all other sums due from the Board, other than those which are required by section 123 to be disbursed from the capital account.

(2) The surplus (if any) remaining after making the payments referred to in sub-section (1) shall,

subject to the maintenance of a closing balance of one *lakh* of rupees, and

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[1]This clause (f) was substituted for the original clause (f) by s. 63 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[2]These words within square brackets were substituted for the words "Calcutta Municipal Act, 1923" by s. 64(1)(i) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[3]Clause (ci) was inserted by s. 64(1)(ii), *ibid.*

[4]Clause (cc) was inserted by s. 13 of the Calcutta Improvement (Amendment) Act, 1931 (Ben. Act VIII of 1931).

[5]*See* foot-note 2 on p. 2, *ante.*

[1][unless contributed permanently to the capital account under the direction of the State Government or advanced to the capital account under the provisions of section 127], and

unless the [2][State Government] otherwise directs,

be invested, in the manner prescribed in section 101, towards the service of any loans outstanding after the expiry of sixty years from the commencement of this Act.

Power to direct sale of securities in which any surplus of the revenue account is invested.

126. If, at any time after any surplus referred to in section 125, sub-section (*2*), has been invested, the [2][State Government] is satisfied that the investment is not needed for the service of any loan referred to in that sub-section, it may direct the sale of the securities held under the investment.

Advances from revenue account to capital account.

127. (*1*) Notwithstanding anything contained in section 125 the Board may advance any sum standing at the credit of the revenue account for the purpose of meeting capital expenditure.

(*2*) Every such advance [3][shall, unless a direction is given by the State Government under sub-section (*2*) of section 125, be refunded] to the revenue account as soon as may be practicable.

Advances from capital account to revenue account.

128. (*1*) Any deficit in the revenue account at the end of any financial year may be made good by an advance from the capital account.

(*2*) Every such advance shall be refunded to the capital account in the following financial year.

Submission of abstracts of accounts to State Government.

129. The Board shall submit to the [2][State Government] at the end of each half of every financial year, an abstract of the accounts of their receipts and expenditure.

Annual audit of accounts.

130. The accounts of the Board shall, once in every financial year, be examined and audited by such auditor as the [2][State Government] may appoint in this behalf.

Powers of auditor.

131. The auditor so appointed may—

(*a*) by written summons, require the production before him of any document which he may consider necessary for the proper conduct of the audit;

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[1]These words within square brackets were substituted for the words "except as provided in section 127" by s. 64(*2*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[2]*See* foot-note 2 on p. 2, *ante*.

[3]These words within square brackets were substituted for the words "shall be refunded" by s. 65, of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

(b) by written summons require any person having the custody or control of, or being accountable for, any such document to appear in person before him; and

(c) require any person so appearing before him to make and sign a declaration with respect to any such document, to answer any question, or to prepare and submit any statement.

Remuneration of auditor

132. The Board shall pay to the said auditor such remuneration as the [1][State Government] may direct.

Reports and information to be furnished by auditor to the Board.

133. The said auditor shall—

(a) report to the Board any material impropriety or irregularity which he may observe in the expenditure, or in the recovery of moneys due to the Board, or in the accounts, and report the same to the [1][State Government];

(b) furnish to the Board such information as they may from time to time require concerning the progress of his audit, and

(c) within fourteen days after the completion of his audit, forward his report upon the accounts to the Chairman.

Board to remedy defects pointed out by auditor.

134. It shall be the duty of the Board forthwith to remedy any defects or irregularities that may be pointed out by the auditor.

Auditor's report to be sent to each Trustee and considered by Board.

135. The Chairman shall cause the report mentioned in section 133, clause (c), to be printed and shall forward a printed copy thereof to each Trustee, and shall bring such report before the Board for consideration at their next meeting.

Publication and transmission of an abstract of the accounts.

136. As soon as practicable after the receipt of the said report, the Board shall prepare an abstract of the accounts to which it relates, and shall publish such abstract by notification, and shall send a copy of the abstract to the [2][Commissioner of the Corporation] and to the [1][State Government].

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[1]*See* foot-note 2 on p. 2, *ante*.

[2]The words "Executive Officer of the Corporation" were originally substituted for the words "Chairman of the Corporation" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939) and thereafter the word "Commissioner" was substituted for the words "Executive Officer" by s. 66 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

of 1911.]

(Chapter VII.—Rules.—Sections 137, 138.)

CHAPTER VII.

Rules.

Further powers to State Government for making rules.

137. In addition to the power conferred by section 86, the [1][State Government] may make rules—

(*1*) for regulating elections under [2][clauses (c) and (d) of sub-section (*1*) of section 4];

(*2*) for prescribing the maximum sum which may be paid to any person by way of fees under section 22;

(*3*) for fixing the charge to be made for a copy of, or extracts from, the municipal assessment-book furnished to the Chairman under section 46; and

[3](*3a*) for determining the qualifications and disqualifications of, the conditions and mode of election, selection or appointment of, an arbitrator and for regulating the proceedings of arbitrators under section 78C;

(*4*) for prescribing the form of the abstracts of accounts referred to in sections 129 and 136.

Further powers to Board for making rules.

138. (*1*) In addition to the power conferred by section 31, the Board may from time to time make rules (not inconsistent with any rules made by the [1][State Government] or the President of the Tribunal under this Act) for carrying out the purposes of this Act.

(*2*) In particular, and without prejudice to the generality of the foregoing power, the Board may make rules—

(*a*) for associating members with the Board under section 19;

(*b*) for appointing persons (other than Trustees and persons associated with the Board under section 19) to be members of Committees under section 20;

(*c*) for regulating the delegation of powers or duties of the Board to Committees under section 20;

(*d*) for the guidance of persons employed by them under this Act;

(*e*) for prescribing the fees payable for copies of documents delivered under section 43, sub-section (*3*), [4][or clause (*iv*) of sub-section (2) of section 63];

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[1]*See* foot-note 2 on p. 2, *ante*.

[2]These words within square brackets were substituted for the words "sub-sections (*1*), (*2*) and (*3*) of section 7" by s. 67 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[3]Clause 3(*a*) was inserted by s. 14 of the Calcutta Improvement (Amendment) Act, 1931 (Ben. Act VIII of 1931).

[4]These words, brackets and figures within square brackets were added by s. 4 of the Calcutta Improvement (Amendment) Act, 1915 (Ben. Act III of 1915).

(*f*) for facilitating the taking of a census and securing accurate returns thereof;

(*g*) for the maintenance and management of dwellings and shops constructed under re-housing schemes.

(*3*) In making any rule under sub-section (*1*) or sub-section (*2*), the Board may provide that a breach of it shall be punishable—

(i) with fine which may extend to five hundred rupees, or

(ii) in case of a continuing breach, with fine which may extend to fifty rupees for every day during which the breach continues after receipt of written notice from the Chairman to discontinue the breach.

Conditions precedent to the making of rules under sections 86, 137 or 138.

139. The power to make rules under section 86, section 137 or section 138 is subject to the condition of the rules being made after previous publication, and to the following further conditions, namely,—

(*a*) a draft of the rules shall be published by notification and in local newspapers;

(*b*) such draft shall not be further proceeded with until after the expiration of a period of one month from such publication, or such longer period as the '[State Government] or (in the case of rules made under section 138) the Board may appoint;

(*c*) for one month at least during such period, a printed copy of such draft shall be kept at the Board's office for public inspection, and every person shall be permitted at any reasonable time to peruse the same, free of charge;

(*d*) printed copies of such draft shall be delivered to any person requiring the same, on payment of a fee of twelve paise for each copy.

Sanction of State Government required to rules made under section 138.

140. No rule made under section 138 shall have any validity unless and until it is sanctioned, with or without modification, by the '[State Government].

Publication of rules.

141. When any rule has been made under section 86 or section 137, and when any rule has been made under section 138 and duly sanctioned, it shall be published by the '[State Government] by notification, and such publication shall be conclusive proof that the rule has been duly made.

Printing and sale of copies of rules.

142. (*1*) The Chairman shall cause all rules made under section 86, section 137 or section 138 and for the time being in force to be printed, and shall cause printed copies thereof to be delivered to any applicant on payment of a fee of twelve paise for each copy.

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[1]*See* foot-note 2 on p. 2, *ante*.

of 1911.]

(Chapter VII.—Rules—Sections 143, 144.—Chapter VIII.—Supplemental Provisions.—Sections 145, 146.)

(2) Notice of the fact of copies of rules being obtainable at the said price, and of the place where and the person from whom the same are obtainable, shall be given by the Chairman by advertisement in local newspapers.

Exhibition of copies of rules.

143. Copies, in English and Bengali, of all rules made under section 137 or section 138 shall be hung or affixed in some conspicuous part of the Board's office and in such places of public resort affected by the rules as the Chairman may think fit.

Power of State Government to cancel rules made under section 138.

144. The [1][State Government] may at any time, by notification, cancel any rule made by the Board under section 138.

CHAPTER VIII.

SUPPLEMENTAL PROVISIONS

Status of Trustees, etc.

Trustees, etc., deemed public servants.

145. Every Trustee, and every officer and servant of the Board, and every member and officer and servant of the Tribunal, shall be deemed to be a public servant within the meaning of section 21 of the Indian Penal Code.

Act XIV of 1860.

Contributions towards leave-allowances and pensions of [2][servants of the Government].

Contributions by Board towards leave-allowances and pensions of servants of the Government employed under this Act.

146. The Board shall be liable to pay such contributions for the leave-allowances and pensions of any [3][servant of the Government] employed as Chairman or as an officer or servant of the Board, or as a member or officer or servant of the Tribunal, as may be [4][required, by the conditions of his service under the Government to be paid by him or on his behalf.]

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[1]*See* foot-note 2 on p. 2, *ante*.

[2]The words "servants of the Crown" were originally substituted for the words "Government Servants" by s. 2 and the first Sch. of the Bengal Repealing and Amending Act, 1946 (Ben. Act XVI of 1946) and thereafter the word "Government" was substituted for the word "Crown" by paragraph 4(*1*) of the Adaptation of Laws Order, 1950.

[3]The words "servant of the Crown" were originally substituted for the words "Government servant" by Sch. IV of the Government of India (Adaptation of Indian Laws) Ordert, 1937 and thereafter the word "Government" was substituted for the word "Crown" by paragraph 4(*1*) of the Adaptation of Laws Order, 1950.

[4]The words "required, by the conditions of service under the Crown, to be paid by him or on his behalf" were originally substituted for the words "prescribed in any general or special orders of the Government for regulating the transfer of Government servants to foreign service" by Sch. IV of the Government of India (Adaptation of Indian Laws) Order, 1937, and thereafter the word "Government" was substituted for the word "Crown" by paragraph 4(*1*) of the Adaptation of Laws Order, 1950.

(Chapter VIII.—Supplemental Provisions.—Sections 147, 148.)

Extension of Acts to areas in the neighbourhood of the Calcutta Municipality.

Power to extend the Calcutta Municipal Act, 1951, to areas, near Calcutta, to which provisions of the present Act have been extended

147. (*1*) When any provision of this Act has been extended to any area under section 1, sub-section (*3*), the [1][State Government] may, by notification published in the [2][*Official Gazette*]and in such other manner (if any) as it may consider necessary, extend to such area the [3][Calcutta Municipal Act, 1951], or any portion thereof, subject to such restrictions and modifications (if any) as may be specified in such notification. West Ben. Act XXXIII of 1951

(*2*) When the said [3][Calcutta Municipal Act, 1951], or any portion thereof, is extended under sub-section (*1*) to any area, then—

(*a*) the Bengal Municipal Act, [4][1932], or the Bengal Local Self-Government Act of 1885, as the case may be , or the corresponding portion of such Act, as the case may be, if in force in such area, shall be deemed to be repealed therein, and, Ben Act XV of 1932. Ben Act III of 1885

(*b*) except as the [1][State Government] may otherwise, by notification, direct, all rules, by-laws, regulations, orders, directions and powers made, issued or conferred under the portions of the said [3][Calcutta Municipal Act, 1951], which have been so extended and in force at the date of such extension, shall apply to the said area, in supersession of all corresponding rules, by-laws, regulations, orders, directions and powers (if any) made, issued or conferred under the said Bengal Municipal Act [4][1932], or the said Bengal Local Self-Government Act of 1885, as the case may be.

Publication of notifications under sections 1(*3*) and 147(*1*) in draft, for criticism.

148. (*1*) Before finally publishing any notification under section 1, sub-section (*3*), or section 147, sub-section (*1*), the [1][State Government] shall publish a draft of the same in the [2][*Official Gazette*].

(*2*) Any ratepayer or inhabitant of the area affected by such draft may, if he objects to the draft, submit his objection in writing to the [1][State Government] within six weeks from its publication, and the [1][State Government] shall take such objection into consideration.

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[1] *See* foot-note 2 on p. 2, *ante*.

[2] *See* foot-note 5 on p. 3, *ante*.

[3] These words within square brackets were substituted for the words "Calcutta Municipal Act, 1923" by s. 68 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[4] These figures within square brackets were substituted for the figures "1884", by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939).

of 1911.]

(*Chapter VIII.—Supplemental Provisions.—Sections 149—152.*)

Facilities for movement of the population.

Powers of the Board for facilitating movement of the population.

149. With a view to facilitating the movement of the population in and around the Calcutta Municipality, the Board may from time to time,—

(*1*) subject to any conditions they may think fit to impose,—

(*a*) guarantee the payment, from the funds at their disposal, of such sums as they may think fit, by way of interest on capital expended on the construction, maintenance or working of means of locomotion; or

(*b*) make such payments as they may think fit from the said funds, by way of subsidy to persons undertaking to provide, maintain and work means of locomotion; or

(*2*) either singly or in combination, with any other person, construct, maintain and work any means of locomotion, under the provisions of any law applicable thereto; or

(*3*) construct, or widen, strengthen or otherwise improve bridges:

Provided that no guarantee or subsidy shall be made under clause (*1*), and no means of locomotion shall be constructed, maintained or worked under clause (*2*), without the sanction of the [1][State Government].

Telegraph and Railways Acts.

Saving of Telegraph and Railways Acts.

XIII of 1885
IX of 1890

150. Nothing in this Act shall be deemed to affect the provisions of the Indian Telegraph Act, 1885, or the Indian Railways Act, 1890.

Legal Proceedings

Cognizance of offences.

Act V of 1898.

151. Notwithstanding anything contained in the Code of Criminal Procedure, 1898,

all offences against this Act or any rule made hereunder shall, wherever committed, be cognizable by a Presidency Magistrate,

and no such Magistrate shall be deemed to be incapable of taking cognizance of any such offence by reason only of being liable to pay any tax imposed by this Act or of his being benefited by the funds to the credit of which any fine imposed by him will be payable.

Limitation of time for prosecution.

152. No person shall be liable to punishment for any offence against this Act or any rule made hereunder unless complaint of such offence is made before a Presidency Magistrate within three months next after the commission of such offence.

[1] *See* foot-note 2 on p. 2, *ante*.

Power to hear case in absence of accused when summoned to appear.

153. If any person, who has been summoned to appear before a Presidency Magistrate to answer a charge of an offence against this Act or any rule made hereunder which is punishable with fine only, fails to appear at the time and place mentioned in the summons, the Magistrate may, if service of the summons is proved to his satisfaction, and if no sufficient cause is shown for the non-appearance of such person, hear and determine the case in his absence.

Powers of Chairman as to institution, etc., of legal proceedings and obtaining legal advice

154. The Chairman may, subject to the control of the Board,—

(a) institute, defend or withdraw from, legal proceedings under this Act or any rule made hereunder;

(b) compound any offence against this Act or any rule made hereunder which, under any law for the time being in force, may lawfully be compounded;

(c) admit, compromise or withdraw any claim made under this Act or any rule made hereunder; and

(d) obtain such legal advice and assistance as he may from time to time think it necessary or expedient to obtain, or as he may be desired by the Board to obtain, for any of the purposes referred to in the foregoing clauses of this section, or for securing the lawful exercise or discharge of any power or duty vested in or imposed upon the Board or any officer or servant of the Board.

Indemnity to Board, etc

155. No suit shall be maintainable against the Board, or any Trustee, or any officer or servant of the Board, or any person acting under the direction of the Board or of the Chairman or of any officer or servant of the Board, in respect of anything lawfully and in good faith and with due care and attention done under this Act or any rule made hereunder.

Notice of suit against Board, etc.

156. No suit shall be instituted against the Board, or any Trustee, or any officer or servant of the Board, or any person acting under the direction of the Board or of the Chairman or of any officer or servant of the Board, in respect of any act purporting to be done under this Act or any rule made hereunder,

until the expiration of one month next after written notice has been delivered or left at the Board's office or the place of abode of such officer, servant or person, stating the cause of action, the name and place of abode of the intending plaintiff, and the relief which he claims;

and the plaint must contain a statement that such notice has been so delivered or left.

Police.

Co-operation of the Police.

157. *(1)* The Commissioner of Police and his subordinates shall be bound to co-operate with the Chairman for carrying into effect and enforcing the provisions of this Act.

(2) It shall be the duty of every police-officer who is subordinate to the Commissioner of Police—

(i) to communicate without delay to the proper officer or servant of the Board any information which he receives of a design to commit or of the commission of any offence against this Act or any rule made hereunder, and

(ii) to assist the Chairman or any officer or servant of the Board reasonably demanding his aid for the lawful exercise of any power vesting in the Chairman or in such officer or servant under this Act or any such rule.

Arrest of offenders.

158. *(1)* Every police-officer shall arrest any person who commits, in his view, any offence against this Act or any rule made hereunder, if the name and address of such person be unknown to him, and if such person, on demand, declines to give his name and address, or gives a name or address which such officer has reason to believe to be false.

(2) No person so arrested shall be detained in custody after his true name and address are ascertained, or without, the order of a Magistrate, for any longer time, not exceeding at the most twenty-four hours from the arrest, than is necessary for bringing him before a Magistrate.

(3) On the written application of the Chairman, any police officer above the rank of constable shall arrest any person who obstructs any officer or servant of the Board in the exercise of any of the powers conferred by this Act or any rule made hereunder.

Evidence.

Proof of consent, etc., of Board or Chairman or officer or servant of Board.

159. Whenever, under this Act or any rule made hereunder, the doing or the omitting to do anything or the validity of anything depends upon the approval, sanction, consent, concurrence, declaration, opinion or satisfaction of—

(a) the Board or the Chairman, or

(b) any officer or servant of the Board,

a written document, signed, in case *(a)* by the Chairman, and in case *(b)* by the said officer or servant, purporting to convey or set forth such approval, sanction, consent, concurrence, declaration, opinion or satisfaction, shall be sufficient evidence of such approval, sanction, consent, concurrence, declaration, opinion or satisfaction.

Validation.

Validation of acts and proceedings

160. *(1)* No act done or proceeding taken under this Act shall be questioned on the ground merely of—

(a) the existence of any vacancy in, or any defect in the constitution of, the Board or any Committee; or

(b) any person having ceased to be a Trustee; or

(Chapter VIII.—Supplemental Provisions.—Sections 161—163.)

(c) any trustee, or any person associated with the Board under section 19, or any other member of a Committee appointed under this Act, having voted or taken any other part in any proceeding in contravention of section 23; or

(d) the failure to serve a notice under section 45 on any person where no substantial injustice has resulted from such failure; or

(e) any omission, defect or irregularity not affecting the merits of the case.

(2) Every meeting of the Board, the minutes of the proceedings of which have been duly signed as prescribed in section 18, clause (*h*), shall be taken to have been duly convened and to be free from all defect and irregularity.

Compensation.

General power of Board to pay compensation.

161. In any case not otherwise expressly provided for in this Act, the Board may pay reasonable compensation to any person who sustains damage by reason of the exercise of any of the powers vested, by this Act or any rule made or scheme sanctioned hereunder, in the Board or the Chairman or any officer or servant of the Board.

Compensation to be paid by offenders for damage caused by them.

162. *(1)* If, on account of any act or omission, any person has been convicted of an offence against this Act or any rule made hereunder, and, by reason of the same act or omission of the said person, damage has occurred to any property of the Board, compensation shall be paid by the said person for the said damage, notwithstanding any punishment to which he may have been sentenced for the said offence.

(2) In the event of dispute, the amount of compensation payable by the said person shall be determined by the Magistrate before whom he was convicted of the said offence.

(3) If the amount of any compensation due under this section be not paid, the same shall be recovered under a warrant from the said Magistrate, as if it were a fine inflicted by him on the person liable therefor.

Public Notices and Advertisements.

Public notices how to be made known.

163. Every public notice given under this Act or any rule made hereunder shall be in writing over the signature of the Chairman,

and shall be widely made known in the locality to be affected thereby, by affixing copies thereof in conspicuous public places within the said locality, or by publishing the same by beat of drum or by advertisement in local newspapers, or by any two or more of these means, and by any other means that the Chairman may think fit.

Newspapers in which advertisements or notices to be published

164. Whenever it is provided by this Act or any rule made hereunder that notice shall be given by advertisement in local newspapers, or that notification or any information shall be published in local newspapers, such notice, notification or information shall be inserted, if practicable, in at least two English newspapers and two vernacular newspapers.

Signature and Service of Notices or Bills.

Stamping signature on notices or bills

165. Every notice or bill, which is required by this Act or by any rule made hereunder to bear the signature of the Chairman or of any other Trustee or of any officer or servant of the Board, shall be deemed to be properly signed if it bears a *facsimile* of the signature of the Chairman or of such other Trustee or of such officer or servant, as the case may be, stamped thereupon.

Service how to be effected

166. When any notice, bill or other document is required by this Act or any rule made hereunder to be served upon or issued or presented to any person, such service, issue or presentation shall be effected—

(a) by giving or tendering such document to such person; or

(b) if such person is not found, by leaving such document at his last known place of abode in Calcutta, or by giving or tendering the same to some adult male member or servant of his family; or

(c) if such person does not reside in Calcutta, and his address elsewhere is known to the Chairman, by forwarding such document to him by registered post under cover bearing the said address; or

(d) if none of the means aforesaid be available, by causing a copy of such document to be affixed on some conspicuous part of the land (if any) to which the document relates.

Surveys.

Power to make surveys, or contribute towards their cost

167. The Board may—

(a) cause a survey of any land [1][or a civic or diagnostic survey of any area] to be made, whenever they consider that a survey is necessary or expedient for carrying out any of the purposes of this Act, or

(b) contribute towards the cost of any such survey made by any other local authority.

Power of Entry.

Power of entry.

168. *(1)* The Chairman [2][or any other officer of the Board authorised by him in this behalf] may, with or without assistants or workmen, enter into or upon any land, in order—

(a) to make any inspection, survey, measurement, valuation or inquiry,

[1] These words within square brackets were inserted by s. 69 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[2] These words within square brackets were inserted by s. 70, *ibid.*

(*b*) to take levels,
(*c*) to dig or bore into the sub-soil,
(*d*) to set out boundaries and intended lines of work,
(*e*) to mark such levels, boundaries and lines by placing marks and cutting trenches, or
(*f*) to do any other thing,

whenever it is necessary to do so for any of the purposes of this Act or any rule made or scheme sanctioned hereunder or any scheme which the Board intend to frame hereunder:

Provided as follows:—

(*a*) no such entry shall be made between sunset and sunrise;
(*b*) no dwelling-house, and no public building or hut which is used as a dwelling-place, shall be so entered, unless with the consent of the occupier thereof, without giving the said occupier at least twenty four hours' previous written notice of the intention to make such entry;
(*c*) sufficient notice shall in every instance be given, even when any premises may otherwise be entered without notice, to enable the inmates of any apartment appropriated to females to remove to some part of the premises where their privacy need not be disturbed;
(*d*) due regard shall always be had, so far as may be compatible with the exigencies of the purpose, for which the entry is made, to the social and religious usages of the occupants of the premises entered.

(*2*) Whenever the Chairman enters into or upon any land in pursuance of sub-section (*1*), he shall at the time of such entry pay or tender payment for all necessary damage to be done as aforesaid; and, in case of dispute as to the sufficiency of the amount so paid or tendered, he shall at once refer the dispute to the Board, whose decision shall be final.

Penalties.

Punishment for acquiring share or interest on contract, etc., with the Board.

169. If any Trustee, or any officer or servant of the Board, knowingly acquires, directly or indirectly, by himself or by any partner, employer or employee, otherwise than as such Trustee, officer or servant, any share or interest in any contract or employment with, by, or on behalf of, the Board,

not being a share or interest such as, under sub-section (*2*) of section 9, it is permissible for a Trustee to have without being thereby disqualified for being appointed a Trustee,

he shall be deemed to have committed the offence made punishable by section 168 of the Indian Penal Code. Act XLV of 1860.

Penalty for removing fence, etc., in street.

170. If any person, without lawful authority,—

(*a*) removes any fence or shoring-timber, or removes or extinguishes any light, set up under section 59, or

of 1911.]

(Chapter VIII.—Supplemental Provisions.—Sections 171, 172.)

(b) infringes any order given, or removes any bar, chain or post fixed, under section 60, sub-section (2),

he shall be punishable with fine which may extend to fifty rupees.

Penalty for building within street alignment or building line of a projected public street.

171. [1] [2][If any person, without the permission of the Chairman required by section 63, sub-section (8), erects, re-erects or adds to any wall (exceeding ten feet in height) or building which falls within the street alignment or building line of a projected public street shown in any plan sanctioned by the [3](State Government) under the said section], he shall be punishable—

(a) with fine which may extend, in the case of a masonry building or a wall, to five hundred rupees, and, in the case of a hut, to fifty rupees, and

(b) with further fine which may extend, in the case of a masonry building or a wall, to one hundred rupees, and, in the case of a hut, to ten rupees for each day after the first during which the projection continues.

[1](2) In either case, the court may further direct that the erection, re-erection or addition shall be demolished forthwith.

Penalty for failure to remove wall or building in respect of which agreement has been executed

[4]**171A.** If the owner for the time being of any wall or building in respect of which an agreement has been executed as provided in section 63, sub-section (9), fails—

(a) to remove such wall or building, or any specified portion thereof, when so required by notice issued under that sub-section, or,

(b) within fifteen days from the receipt of such notice, to authorize the Chairman, by permission in writing, to remove the said wall, building or portion,

he shall be punishable—

(i) with fine which may extend, in the case of a masonry wall or building, to one hundred rupees, and, in the case of a hut, to twenty rupees; and

(ii) with further fine which may extend, in the case of a masonry wall or building, to ten rupees, and, in the case of a hut, to five rupees, for each day after the first during which the failure continues.

172. *[Penalty for failure to set back building or wall on requisition.] Rep. by s. 7 of the Calcutta Improvement (Amendment) Act, 1915 (Ben. Act III of 1915).*

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[1]Section 171 was renumbered as sub-section (1) of that section and after that sub-section as so renumbered sub-section (2) was added by s. 71 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[2]These words, brackets and figures within square brackets were substituted for the previous words and figures by s. 5 of the Calcutta Improvement (Amendment) Act, 1915 (Ben. Act III of 1915).

[3]*See* foot-note 2 on p. 2, *ante*.

[4]Section 171A was inserted by s. 6 of the Calcutta Improvement (Amendment) Act, 1915 (Ben. Act III of 1915).

(Chapter VIII.—Supplemental Provisions.—Sections 173—176.)

Penalty for failure to comply with requisition made by auditor.

173. If any person fails to comply with any requisition made under section 131, he shall be punishable—

(*a*) with fine which may extend to one hundred rupees; or

(*b*) in case of a continuing failure, with fine which may extend to fifty rupees for each day after the first during which the failure continues.

Penalty for obstructing contractor or removing mark.

174. If any person—

(*a*) obstructs or molests any person with whom the Chairman has entered into a contract on behalf of the Board, in the performance or execution by such person of his duty or of anything which he is empowered or required to do by virtue or in consequence of this Act or any rule made hereunder, or

(*b*) removes any marks set up for the purpose of indicating any level or direction necessary to the execution of works authorized by this Act or any rule made or scheme sanctioned hereunder,

he shall be punishable with fine which may extend to two hundred rupees, or with imprisonment for a term which may extend to two months.

[1]*Recovery of expenses.*

Removal of wall or building and recovery of expenses.

[1]**174A.** When a written notice, issued under section 63, sub-section (9), for the removal of a wall or building, or any portion thereof, is not complied with by the owner thereof for the time being as provided in section 171A, the Chairman may proceed to remove such wall, building or portion and the expenses incurred in effecting such removal shall be recoverable by sale of the materials or other things removed.

175. [*Fines, damages and proceeds of confiscations to be paid to Board.*] *Omitted by Sch. IV of the Government of India (Adaptation of Indian Laws), Order, 1937.*

Suspension or abolition, and re-imposition of taxation or Municipal contributions.

Suspension or abolition and re-imposition, of taxation or municipal contributions.

176. (*1*) Whenever the [2][State Government] considers that any duty or tax imposed by Chapter V, or any payment required by section 88, or any portion of any such duty, tax or payment, as the case may be, is not required for the purposes of this Act, it may, by notification, [3]* * *

(*a*) suspend, for any specified period, the levy of such duty or tax or any specified portion thereof, or the making of such payment or any specified portion thereof, or

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[1] This heading and s. 174A were inserted by s. 8 of the Calcutta Improvement (Amendment) Act, 1915 (Ben. Act III of 1915).

[2] *See* foot-note 2 on p. 2, *ante*.

[3] The words "with the previous sanction of the Government of India" were omitted by the Devolution Act, 1920 (XXXVIII of 1920).

of 1911.]

(Chapter VIII.—Supplemental Provisions.—Section 177.)

(b) abolish such duty, tax or payment, or any specified portion thereof, from a date to be specified in the notification.

(2) If at any time the [1][State Government] considers that any duty, tax or payment, or any portion thereof, which has been suspended or abolished under sub-section (1) is required for the purposes of this Act, it may, by notification, [2]* * * cancel such suspension or abolition, wholly or in part, as it may think fit, from a date to be specified in the notification.

Dissolution of Board.

Ultimate dissolution of Board, and transfer of their assets and liabilities to the Corporation.

177. (1) When all schemes sanctioned under this Act have been executed, or have been so far executed as to render the continued existence of the Board, in the opinion of the [1][State Government], unnecessary, the [1][State Government] may, by notification, [2]* * * declare that the Board shall be dissolved from such day as may be specified in this behalf in such notification; and the Board shall be deemed to be dissolved accordingly.

(2) From the said date—

(a) all properties, funds and dues which are vested in or realizable by the Board and the Chairman, respectively, shall vest in and be realizable by the Corporation and the [3][Commissioner of the Corporation] respectively; and

(b) all liabilities which are enforceable against the Board shall be enforceable only against the Corporation; and

(c) for the purpose of completing the execution of any scheme, sanctioned under this Act, which has not been fully executed by the Board, and of realizing properties, funds and dues referred to in clause (a), the functions of the Board and the Chairman under this Act shall be discharged by the Corporation and the [1][Commissioner of the Corporation], respectively; and

(d) the Corporation shall keep separate accounts of all moneys respectively received and expended by them under this Act, until all loans raised hereunder have been repaid, and until all other liabilities referred to in clause (b) have been duly met.

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[1]*See* foot-note 2 on p. 2, *ante*.

[2]*See* foot-note 3 on p. 80, *ante*.

[3]The words "Executive Officer of the Corporation" were originally substituted for the words "Chairman of the Corporation" by the Bengal Repealing and Amending Act, 1938 (Ben. Act I of 1939) and thereafter the word 'Commissioner" was substituted for the words "Executive Officer" by s. 72 of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[Ben. Act V

(The Schedule.—Paragraphs 1, 1A, 1B, 2.)

THE SCHEDULE.

(Referred to in section 71.)

FURTHER MODIFICATION IN THE LAND ACQUISITION ACT, 1894

Amendment of section 3.

1. After clause *(e)* of section 3 the following shall be deemed to be inserted, namely :— I of 1894.

"*(e)* the expression 'local authority' includes the Board of Trustees constituted under the Calcutta Improvement Act, 1911." Ben. Act V of 1911.

New section 6A.

[1]**1A.** After section 6, the following section shall be deemed to be inserted, namely :—

Publication of notification, hearing of objections and declaration under the Calcutta Improvement Act to be substituted for those under sections 4, 5A and 6.

"6A. When acquisition is proposed to be made of land comprised within any improvement scheme framed by the Board and published under section 49 of the Calcutta Improvement Act, 1911—

(i) the publication of a notice of the improvement scheme under sub-section (2) of section 43 of the Calcutta Improvement Act, 1911, shall be substituted for and have the same effect as publication of a notification in the *Official Gazette* and giving public notice of the substance of such notification in the locality under section 4.

(ii) Proceedings under section 45 and sub-section 1 of section 47 of the Calcutta Improvement Act, 1911, shall be substituted for and have the same effect as proceedings under section 5A.

(iii) The publication of a notification under section 49 of the Calcutta Improvement Act, 1911, shall be substituted for and have the same effect as a declaration under section 6."

Amendment of section 11.

[2]**1B.** In section 11, before the words "make an award under his hand" the words "after considering such evidence as may be adduced by the Board under sub-section (2) of section 50" shall be inserted.

2. *Rep. by s. 2 of the Calcutta Improvement (Amendment) Act, 1922 (Ben. Act I of 1922).*

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[1]Paragraph 1A was inserted by s. 74(a) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben Act XXXII of 1955).

[2]Paragraph 1B was inserted by s. 74(b), ibid.

(The Schedule.—Paragraphs 3—9.)

Amendment of section 15.

3. In section 15, for the word and figures "and 24" the figures, word and letter "24 and 24A" shall be deemed to be substituted.

Amendment of section 17.

4. *(1)* In section 17, sub-section *(3)*, after the figures "24" the words, figures and letter "or section 24A" shall be deemed to be inserted.

(2) To the said section 17 the following shall be deemed to be added, namely:—

"*(4)* Sub-sections *(1)* and *(3)* shall apply also in the case of any area which is stated in a certificate granted by a salaried Presidency Magistrate or a Magistrate of the first class to be unhealthy."

"*(5)* Before granting any such certificate, the Magistrate shall cause notice to be served as promptly as may be on the persons referred to in sub-section *(3)* of section 9, and shall hear without any avoidable delay any objections which may be urged by them."

"*(6)* When proceedings have been taken under this section for the acquisition of any land, and any person sustains damage in consequence of being suddenly dispossessed of such land, compensation shall be paid to such person for such dispossession."

New section 17A.

5. After section 17 the following shall be deemed to be inserted namely:—

Transfer of land to Board.

"17A. In every case referred to in section 16 or section 17, the Collector shall, upon payment of the cost of acquisition, make over charge of the land to the Board; and the land shall thereupon vest in the Board, subject to the liability of the Board of pay any further costs which may be incurred on account of its acquisition."

6, 7, 8 and 9. *(1) Rep. by s. 2 of the Calcutta Improvement (Amendment) Act, 1922 (Ben. Act I of 1922).*

Amendment of section 23.

9. [1](1) Sub-section *(2)* of section 23 shall be deemed to be omitted;

(2) At the end of section 23 the following shall be deemed to be added, namely:—

"*(3)* For the purposes of clause *first* of sub-section *(1)* of this section,—

[2]*(a)* when acquisition is proposed to be made by the Board of land comprised within any improvement scheme framed by the Board and published under section 49 of the Calcutta Improvement Act, 1911, the market-value of the land shall be deemed to be the market-value according to the disposition of the land at the date of publication of the notice under sub-section *(2)* of section 43 of the said Act; and in other cases, the market-value shall be

[1]This sub-paragraph *(1)* was inserted by s. 74*(c)*(i) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[2]This clause (a) was substituted for the original clauses *(a)* and (b) by s. 74*(e)*(ii), *ibid.*

deemed to be the market-value according to the disposition of the land at the date of publication of the notification relating thereto under section 4;

[1]*(bb)* if the market-value has been increased or decreased owing to the land falling within or near to the alignment of a projected public street, so much of the increase or decrease as may be due to such cause shall be disregarded;

[1]*(bbb)* if any person, without the permission of the Chairman required by section 63, sub-section *(8)*, of the Calcutta Improvement Act, 1911, has erected, re-erected or added to any wall (exceeding ten feet in height) or building within the street alignment or building line of a projected public street [2][or having erected, re-erected or added to any wall or building as aforesaid with such permission fails to remove such wall or building or any specified portion thereof when so required by notice issued under sub-section (9) of the said section], then any increase in the market-value resulting from such erection, re-erection or addition shall be disregarded; Ben. Act V of 1911

(c) if the market-value has been increased by means of any improvement made by the owner or his predecessor in interest within two years before [3][the date with reference to which the market-value is to be determined] such increase shall be disregarded, unless it be proved that the improvement was made *bona fide* and not in contemplation of proceedings for the acquisition of the land being taken under this Act;

(d) if the market-value is specially high in consequence of the land being put to a use which is unlawful or contrary to public policy, that use shall be disregarded, and the market-value shall be deemed to be the market-value of the land if put to ordinary uses; and

(e) if the market-value of any building is specially high in consequence of the building being so overcrowded as to be dangerous to the health of the inmates, such overcrowding shall be disregarded, and the market-value shall be deemed to be the market-value of the building if occupied by such number of persons only as could be accommodated in it without risk of danger from overcrowding."

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[1]Clauses *(bb)* and *(bbb)* were inserted by s. 9 of the Calcutta Improvement (Amendment) Act, 1915 (Ben. Act III of 1915)

[2]These words within square brackets were inserted by s. 74*(c)(iii)* of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[3]These words within square brackets were substituted for the words "the aforesaid declaration was published" by s. 74*(c)(iv)*, *ibid.*

of 1911.]

(The Schedule.—Paragraphs 10, 11.)

10. For clause *seventhly* of section 24 the following shall be deemed to be substituted, namely :— Amendment of section 24

"*seventhly*, any outlay on additions or improvements to land acquired, which was incurred after the date [1][with reference to which the market-value is to be determined], unless such additions or improvements were necessary for the maintenance of any building in a proper state of repair."

11. After section 24 the following shall be deemed to be inserted namely :— New section 24A

Further provisions for determining compensation.

"24A. In determining the amount of compensation to be awarded for any land acquired for the Board under this Act, the Tribunal shall also have regard to the following provisions, namely :—

(1) when any interest in any land acquired under this Act has been acquired after the date [2][with reference to which the market-value is to be determined], no separate estimate of the value of such interest shall be made so as to increase the amount of compensation to be paid for such land;

(2) If, in the opinion of the Tribunal, any building is in a defective state, from a sanitary point of view, or is not in a reasonably good state of repair, the amount of compensation shall not exceed the sum which the Tribunal considers the building would be worth if it were put into a sanitary condition or into a reasonably good state of repair, as the case may be, *minus* the estimated cost of putting it into such condition or state;

(3) if, in the opinion of the Tribunal, any building, which is used or is intended or is likely to be used for human habitation, is not reasonably capable of being made fit for human habitation, the amount of compensation shall not exceed the value of the materials of the building, *minus* the cost of demolishing the building;

Ben. Act V of 1911.

[3][*(4)* If any tank in any area comprised within a scheme framed by the Board and published under section 49 of the Calcutta Improvement Act, 1911, is, no account of accumulation of filth, rubbish or putrid matter or of the percolation of foul water from the kitchen, court-yard, privy or urinal, or for any other cause, in an unhygienic condition or contains water which is discoloured or malodorous or unfit for use for domestic purposes, or is a source of nuisance or disease, then notwithstanding anything contained in any law for the time being in force, the Tribunal shall, in determining the amount of compensation, make such deduction from the market-value of the

[1]These words within square brackets were substituted for the words "of the publication of the declaration under section 6" by s. 74(*d*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[2]These words within square brackets were substituted for the words "of the publication of the declaration under section 6" by s. 74(*e*)(i), *ibid.*

[3]Clause (4) was added by s. 74(*e*)(ii), *ibid.*

tank according to its present disposition as will, in their opinion, be a reasonable set-off against the cost to society in unhealthiness, disease and discomfort caused by the tank being kept in such an unhygienic or insanitary condition."

12. *Rep. by s. 2 of the Calcutta Improvement (Amendment) Act, 1922 (Ben. Act I of 1922).*

Amendment of section 27.

[1]12A. Sub-section *(2)* of section 27 shall be deemed to be omitted.

New sections 48A and 48B.

13. After section 48 the following shall be deemed to be inserted, namely:—

Compensation to be awarded when land not acquired within two years.

"48A. *(1)* If, within a period of two years from the date of the [2][issue of the public notice under sub-section *(1)* of section 9], in respect of any land, the Collector has not made an award under scetion 11 with respect to such land, the owner of the land shall be entitled to receive compensation for the damage suffered by him in consequence of the delay.

(2) The provisions of Part III of this Act shall apply, so far as may be, to the determination of the compensation payable under this section."

Sections 48 and 48A not to apply in certain cases.

"48B. No compensation shall be payable in pursuance of section 48 or section 48A when proceedings for the acquisition of land have been abandoned on the execution of an agreement, or the acceptance of a payment, in pursuance of sub-section (4) of section 78 of the Calcutta Improvement Act, 1911." Ben. Act V of 1911.

Amendment of section 49.

[3]14. For sub-section *(1)* of section 49, the following sub-section shall be deemed to be substituted, namely:—

"*(1)* The provisions of this Act shall not be put in force for the purpose of acquiring a part only of any house, manufactory or other building if the acquisition of the part will render the full and unimpaired use of the remaining portion of the house, manufactory or building impracticable:

Provided that if any question shall arise as to whether the part proposed to be acquired will render the full and unimpaired use of the remaining portion of the house, manufactory or building

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[1]Paragraph 12A was inserted by s. 74(*f*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

[2]These words within square brackets were substituted for the words "publication of the declaration under section 6" by s. 74(*g*), *ibid.*

[3]The original paragraph 14 was repealed by s. 15 of the Calcutta Improvement (Amendment) Act, 1931 (Ben Act VIII of 1931) and thereafter this paragraph 14 was inserted by s. 74(*h*) of the Calcutta Improvement (Amendment) Act, 1955 (West Ben. Act XXXII of 1955).

(The Schedule.—Paragraph 14.)

impracticable, the Collector shall refer the determination of such question to the Court and shall not take possession of such part until after the question has been determined.

In deciding on such a reference the Court shall have regard only to the question whether the land proposed to be taken is reasonably required for the full and unimpaired use of the remaining portion of the house, manufactory or building."

[Ben. Act V

THE CALCUTTA METROPOLITAN DEVELOPMENT AUTHORITY (AMENDMENT) ACT, 1974.

First published in the
Calcutta Gazette Extraordinary of the 4th April, 1974

WHEREAS it is expedient to amend the Calcutta Metropolitan Development Authority Act, 1972, for the purposes and in the manner hereinafter appearing: West Ben Act XI of 1972.

It is hereby enacted in the Twenty-fifth Year of the Republic of India, by the Legislature of West Bengal, as follows:—

Short title.

1. This Act may be called the Calcutta Metropolitan Development Authority (Amendment) Act, 1974.

* * * *

Insertion of new sections 22A and 22B.

5. After section 22 of the said Act, the following sections shall be inserted, namely:—

"Delegation. 22A. The Metropolitan Authority may, by order in writing and subject to such conditions as it may think fit to impose, delegate any of its powers, duties and functions under this or any other Act or any rule or regulation made thereunder to the Chairman, Vice-Chairman, Secretary or any other officer appointed under this Act.

Amendment of the Calcutta Improvement Act, 1911, the Howrah Improvement Act, 1956, and the Calcutta Metropolitan Water and Sanitation Authority Act, 1966.

22B. The Calcutta Improvement Act, 1911, the Howrah Improvement Act, 1956 and the Calcutta Metropolitan Water and Sanitation Authority Act, 1966, shall stand amended to the extent and in the manner specified in the Schedule." Ben. Act V of 1911. West Bengal Act XIV of 1956. West Ben. Act XIII of 1966.

Insertion of new Schedule.

6. After section 23 of the said Act, the following Schedule shall be added, namely:—

THE SCHEDULE

(See section 22B)

A. Amendments to the Calcutta Improvement Act, 1911

(Ben. Act V of 1911).

1. In sub-section (2) of section 17, for clause (a), the following clause shall be substituted, namely:—

"(a) the Chairman—such period not exceeding three years as may be fixed by the State Govt.:

Provided that the State Govt. may, if it thinks fit, extend or reduce the period from time to time."

of 1911.]

2. For section 177, the following sections shall be substituted namely :—

Power of State Govt. to supersede the Board.

177. (1) If in the opinion of the State Govt. it is necessary so to do with a view to better co-ordination and speedier execution of development work and maintenance thereof the State Govt. may, by an order published in the *Official Gazette* and mentioning therein the reason for the order, supersede the Board for such period as may be specified in the order.

(2) For the removal of doubts it is hereby declared that no notice whatsoever is required to be given to the Board for submission of any representation before making any such order of supersession under sub-section (1).

(3) The State Govt. may, if it considers necessary so to do, by order, extend or modify from time to time the period of supersession.

Consequences of supersession.

177A. (1) When an order of supersession has been made under section 177, then with effect from the date of the order—

(a) all Trustees of the Board and all members or other persons constituting committees shall vacate their respective offices;

(b) all properties, funds and dues which are vested in or realisable by the Board and the Chairman, respectively, shall vest in and be realisable by the Calcutta Metropolitan Development Authority constituted under section 3 of the Calcutta Metropolitan Development Authority Act, 1972 (hereinafter referred to as the Metropolitan Authority); West Beng. Act XI of 1972.

(c) all contracts and liabilities which are enforceable by or against the Board shall be enforceable by or against the Metropolitan Authority;

(d) all the powers and duties which may, under the provisions of this or any other Act or any rule, regulation, bye-law, order or notification made thereunder, be exercised or performed by the Board, committee or the Chairman shall be exercised or performed by the Metropolitan Authority;

(e) all legal proceedings instituted by or against the Board may be continued or enforced by or against the Metropolitan Authority;

(f) all officers and other employees of the Board continuing in office immediately before the date of the order shall be deemed to be employed by the Metropolitan Authority on such terms and conditions not being less advantageous than what they were entitled to immediately before the said date.

(2) The State Govt. shall, before the expiration of the period of supersession, reconstitute the Board in accordance with the provisions of this Act.

(3) The State Govt. may make such incidental or consequential orders as may appear to it to be necessary for giving effect to the order made under sub-section (1) or (3) of section 177 or under sub-section (2) of this section."

THE
CALCUTTA

IMPROVEMENT TRUST
1912–1945

THE ORIGIN AND GROWTH OF CALCUTTA

Chance—directed—chance—erected laid and built

On the silt

Palace, byre, hovel, poverty and pride

Side by side

KIPLING—*"A tale of two cities"*



CALCUTTA—THE ORIGIN.

When the Portuguese first began to frequent Bengal about 1530, the two great centres of trade were Chittagong in the east and Satgaon in the west. The river Hooghly was easily navigable by sea-going ships as far as Adi-ganga (Tolly's Nullah). Garden Reach, therefore, became the anchoring place of the Portuguese and Betor became the market.

Towards the end of the 16th century, owing to the growing prosperity of Betor, four families of Bysacks and one of Setts founded the village of Govindpore (Hastings to Esplanade). They also opened up a cloth market at Sutanuti (Baghbazar to Burrabazar) just north of Kalikota (Burrabazar to Esplanade). This did not prove a success, as the Portuguese, on an invitation from Akbar, settled at Hooghly.

The Dutch succeeded the Portuguese; by 1625 they had established themselves at Pipli and Chinsurah, and it was not until the time of Oliver Cromwell that the English ventured up the river as far as Hooghly. The setting up of a factory at Hooghly by the English traders of the East India Company was permitted after Gabriel Boughton, Surgeon of the ship "Hopewell," had saved the life of the

Emperor's daughter, Jahanara. About this time Betor disappears from history, and the foreign market (such as it was) was transferred to Sutanuti where the Setts and Bysacks had built up an English connection.

Between 1686 and 1690 the Company suffered varying fortunes. In 1686 a clash with Shaista Khan, the Fouzdar (Governor) of the Nawab, caused the Chief Factor Job Charnock to remove his Hooghly factory. After a futile attempt to settle at Sutanuti, he withdrew to Hijli, an island at the mouth of the river, but on the 24th August, 1690, Job Charnock returned to the deserted village of Sutanuti, and four days later the restored Bengal Council passed the resolution that

> "In consideration that all the former buildings here are destroyed, it is resolved that such places be built as necessity requires and as cheap as possible, these to be done with mud walls and thatched till we get ground whereon to build a factory".

The Peepul tree at the junction of what is now Bow Bazar Street and Lower Circular Road under which tradition records that Job Charnock was accustomed to sit and smoke a meditative hookah, was cut down in 1820 in pursuance of a scheme for the improvement of this locality.

Charnock died in 1693, and Ellis, who followed him, was soon superseded by Charles Eyre who was responsible for building the octagonal mausoleum within the precincts of St. John's Churchyard, beneath which, undisturbed amid the noise and bustle of modern Calcutta, lay the remains of the founder of the City.

In 1696 the English were given permission to defend themselves, and by January, 1697 they had built a bastion and a walled enclosure, and in the following year obtained from Azim-ush-shan, the grandson of Aurangzeb, who was the Viceroy of Bengal, a lease of the three villages, Sutanuti, Coolecatta (Kolikota) and Govindpore at an annual rent of Rs. 1,300/-. By 1699 the site was made an independent Presidency, and in 1700 the name "Fort William" was conferred upon it.

The city continued to grow up around Lall Bagh, the area now known as Dalhousie Square. The tank in the centre (Lall Dighi) was deepened and enlarged and made into a much needed reservoir of "sweet water". Beyond the huts and buildings erected by the English were swamps, water-logged paddy fields and bamboo groves and the maidan was at that time, a tiger haunted jungle. A hospital was erected in 1707, and Captain Hamilton's observations are worth recording.

> "The Company has a pretty good hospital at Calcutta, where many go in to undergo the grievance of physic but few come out to give account of its operation".

The settlement reeked with Malaria and in one year, out of 1200 English in Calcutta 460 died between August and December.

The power of Murshed Kuli Khan, who was then the Mogul's representative, continued to expand and his demands on the Company increased. His exactions became so severe that in 1715 an Embassy was sent to Delhi to represent the grievances of the Company to the Emperor Ferokh Shah. They arrived at Delhi on the 8th July, 1715, but it was not until January, 1716 that they could gain permission to present their petition. The deputation met with little success until the Emperor fell ill and was restored to health by Surgeon Hamilton, one of the Embassy, a service which led to the concession to the English Embassy of the objects of their mission. After further delays the Company were granted the privilege of free trade and permitted to purchase 37 villages extending 10 miles to the South of Calcutta. The names of many of these villages are retained to-day in street names in modern Calcutta, such as Belgachia, Surah, Ultadanga, Simla, Bagmari, Sealdah, Tiljolla, Chowringhee, Entally, Chitpore, etc. The purchase of all the villages was not effected owing to the opposition of Murshed Kuli Khan, but the privileges granted by the Emperor made it possible for the Company to increase yearly in "wealth, beauty and riches". Calcutta attracted Portuguese, Armenian, Mogul and Hindu merchants who carried on their commerce under the protection of the British flag. Shipping increased and a wave of prosperity began.

In 1726 four courts were constituted in Calcutta by Royal Charter.

(1) *The Mayor's Court,* which was a Court of Record consisting of a Mayor and nine Aldermen. Their duty was to deal with civil disputes, collect ground rents and town dues and to make the necessary repairs to roads and drains.

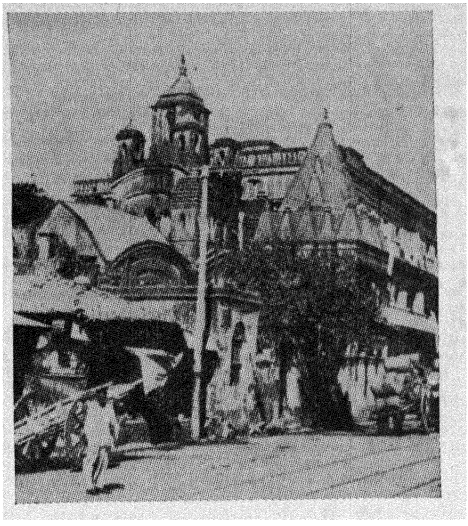
(2) *The Court of Appeal,* which consisted of the Governor and Council.

(3) *The Court of Quarter Sessions* which was also a Court of Record "of Dyer & Terminer and Gaol Delivery" for trying and punishing all offenders, excepting those charged with High Treason.

(4) *The Court of Requests* which consisted of twenty-four Commissioners who determined summarily all suits the subject matter of which did not exceed five pagodas or forty shillings.

These Courts partly superseded the jurisdiction of the Company's Zamindar or Revenue Officer, an office held at that time by Gobindram who accumulated great wealth and in 1731 built a "nine jewel" temple on Chitpore Road. The main spire was a 'great height' but was destroyed in the cyclone and earthquake of 1737. The smallest cupola still remains at No. 260, Upper Chitpore Road. This cyclone of 1737 did immense damage to properties, and amongst other buildings destroyed was the steeple of the English Church.

A Mahratta horde invaded Bengal in 1742; Mukwah Tannah Fort, which stood on the site now occupied by the Superintendent of the Botanical Gardens was taken; Hooghly was captured; Orissa sur-

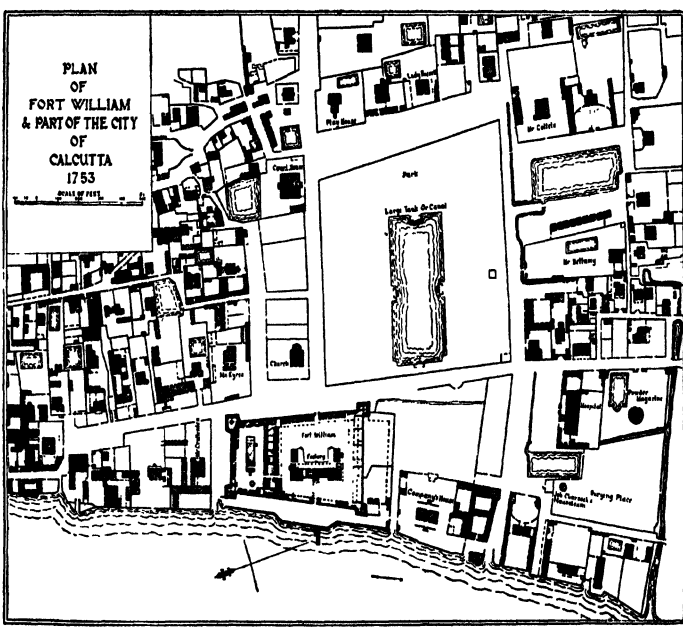


Gobindram's Temple, Upper Chitpore Road.

rendered. Owing to the alarm which arose in Calcutta and district, the English obtained permission from Ali Verdi Khan, who in 1740 ousted the son of Murshed Kuli Khan by force of arms from the Musnud of Bengal, to dig an entrenchment round their territory. The ditch was to be seven miles in length. In six months, three miles were finished and when they found the Mahrattas were not approaching Calcutta, the work was stopped. The ditch later became the receptacle of all the filth and garbage of Calcutta, and it was filled in about 1802 by order of the Marquis of Wellesley. The site of the completed ditch began near Entally Market, proceeded northwards along the Circular Road and except for a detour at Halsibagan to enclose the garden houses of Govindram Mitter and Omichand, it follows Circular Road up to the New Barrackpore Bridge and then along the southern side of the canal to the River Hooghly.

In 1756 Ali Verdi Khan died and was succeeded by his grandson Seraj-Uddowlah, who after friction with the Company over the fortifications and surrender of fugitives marched with an army of 50,000 men against Fort William. The English had neglected their defences and were wholly unprepared to meet an attack. The total of the garrison force including militia was about 500, of which 174 were Europeans. The first attack on the 16th June against Perrins Garden near the Chitpore Bridge across the canal was repulsed. The follow-

ing day the Nabob attacked from the East and set fire to Burra Bazar ; and on the 18th attacked the Battery located on the site of St. Andrew's Church. Despite a stubborn defence and irregular street fighting in the area now known as Mission Row and British Indian Street, a general retirement was made to Fort William (the site of General Post Office). The women and children were sent down the river in ships, and after the ignominious flight of the Governor, the fort surrendered. News of the tragedy was received at Fort St. George on August 16, 1756 and Clive and Admiral Watson were ordered to sail for Calcutta ; the expedition left on October 16th. Budge Budge was taken on January 2nd, 1757 and Calcutta and Fort William were soon again in English hands. After Clive had defeated the Nabob's force at Plassey, a treaty was concluded at Murshidabad. Meer Jaffer agreed to grant to the Company the land within the Mahratta Ditch and 600 yards beyond at a yearly rent of Rs. 2,22,958/-. One crore of rupees was paid to the Company as damages and eighty lakhs by way of compensation for the losses sustained by the inhabitants. The destroyed houses were rebuilt and the next phase of Calcutta's life dates from the year, 1757.



CALCUTTA AFTER PLASSEY.

Calcutta was still an undrained swamp in the immediate vicinity of a malarious jungle. An epidemic raged in 1757 and another ravaged Calcutta five years later. In 1757 a new cemetery was opened up at the eastern extremity of Burying Ground Road (now Park Street) and the hospital was removed to its present site, south of the Maidan, one year later. The wealthier Englishmen resided in garden houses outside the plague stricken area of Calcutta. Clive lived at Dum Dum. Sir William Jones at Garden Reach. Sir Robert Charmers had a house at Cossipore and Warren Hastings lived at Alipore

A graphic description of Calcutta is contained in one of the letters of Mrs. Kindersley written in June, 1768.

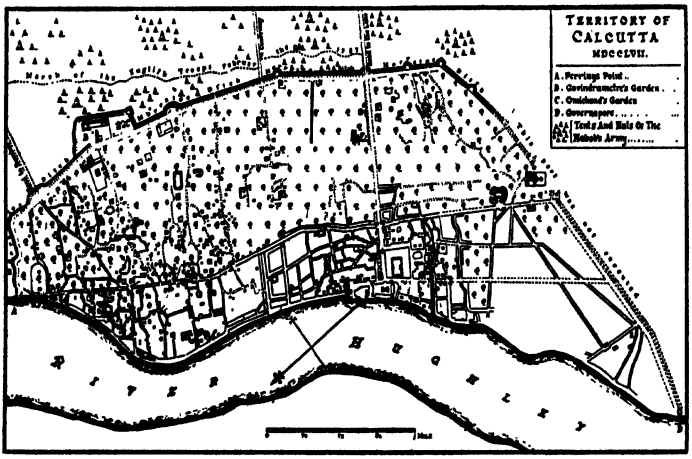
"Indeed after Madras, Calcutta does not appear much worthy describing; for although it is large with a great many good houses in it, it is as awkward a place as can be conceived; and so irregular that it looks as if all the houses had been thrown up in the air and fallen down again by accident as they now stand. People keep constantly building; and every one who can procure a piece of land to build a house upon, consults his own taste and convenience without any regard to the beauty or regularity of the town. Besides the appearance of the best houses is spoiled by the little straw huts and such sort of incumbrances, which are built up by the servants themselves to sleep in; so that all the English part of the town, which is the largest, is a confusion of very superb and very shoddy houses dead walls, straw huts, warehouses and I know not what'.*

The new Fort William was designed under the direction of Clive in 1758 and completed about 1773. The site was then the centre of the village of Govindpore. The jungle which separated the Fort from Chowringhee was cleared and such was the beginning of the Maidan which has proved so beneficial to the inhabitants of the City. Chowringhee was already known for in 1746, Holwell refers to it as "the road leading to Collegot" (Kalighat).

In the year 1773 Calcutta became the official capital of British India. The East Indian Company Charter was renewed and Warren Hastings was elevated to the rank of Governor-General of the Presidency of Fort William in Bengal. Towards the latter end of his rule Calcutta received some share of his attention. In 1783 he persuaded the Maharaja Nubkissen to make a formal gift of the old powder magazine yard, which adjoined the disused burial ground, and now forms the eastern portion of the enclosure of St. John's Church. Lord Cornwallis, who succeeded Hastings, presided over the first vestry meeting of the new Church in 1787.

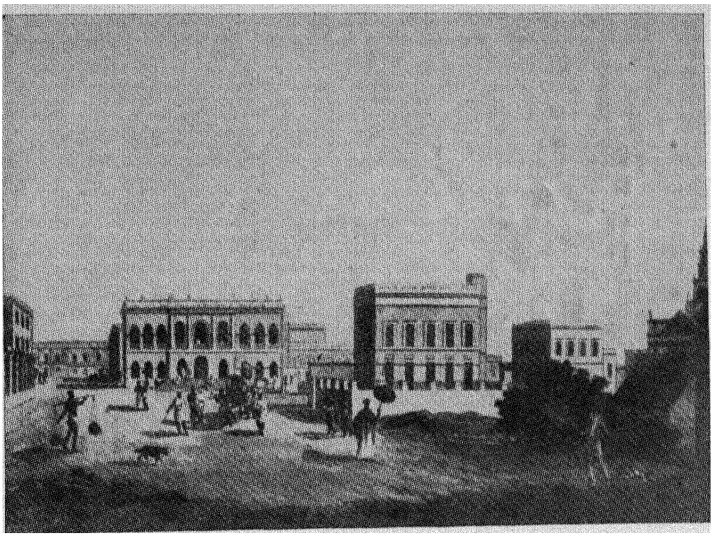
From the time of their arrival in 1775, the Judges of the Supreme Court had sat in the old Court House which stood on the site of St.

* This memorable document could well be described as the first lecture on the need for Town Planning in the city of Calcutta.



Andrew's Church. By 1784 they had moved to the new Court House on Esplanade (the present High Court) and the Old Court House was demolished in 1792. The time honoured office of Zamindar, which had, for 70 years been charged with the "care of public order, convenience, and health" not only in Calcutta, but in the suburbs, was relieved of its municipal authority in 1794. Justices of the Peace were appointed and entrusted with the management of the town. In 1795 the first regular assessments were made and a system of organized municipal Government was for the first time attempted. By a proclamation dated 10th September, 1794 the lines of demarcation of the City were laid down. These boundaries have remained in force ever since as the limits of the jurisdiction, first of the old Supreme Court, and from 1862 of the original side of the High Court which has taken its place, but ceased to exist as the municipal boundary in 1882.

Towards the end of the eighteenth century familiar street names began to appear. Hastings Street took the place of the Creek. Esplanade Row joined Dhurrumtollah in a straight line past the Council House and Government House, standing side by side. Access to Larkins Lane and Fancy Lane was by a narrow tortuous gully which had the appropriate name of Corkscrew Lane. The "West End" was rapidly coming into existence. Camac Street, Russell Street, Middleton Street, Harington Street and Theatre Road are all depicted, but unnamed in the maps of the period. This part of the town was laid out with some regularity—a striking contrast to the rest of the City. The Mint stood opposite St. John's Church on the site of the Stationery Office. It was removed to Strand Road in 1832.



Old Court House, about 1780.

THE FIRST CALCUTTA IMPROVEMENT AUTHORITY.

The Justices appointed under the Statute of 1794 set to work with a will. In 1799 they were busy with the metalling of Circular Road which they describe as "the road forming the eastern boundary of the town, commonly called the Boytockunah Road, and commencing from the Russapuglah Road at the corner of Chowringhee and terminating at Chitpore Road."

In 1801 they advertised for 85 pairs of bullocks "with the proportionate numbers of drivers for the use of carts employed under the scavengers for cleaning the streets and drains." Their powers were, however, very limited. Although empowered by their act to collect revenues, they were restricted to expenditure principally on "Repairing, watering and cleaning the streets". To remedy these defects Lord Wellesley appointed a series of Committees to investigate and report. The first of these Committees was nominated in 1803 by the famous minute in which the improvement of drains, roads, streets and buildings was strongly urged, and the need of public markets, slaughter houses and burial grounds pointed out. Arising out of this minute, thirty of the leading citizens of Calcutta were selected to form a Town Improvement Committee. Extensive enquiries were made and improvements equally extensive were sanctioned, but the projects suffered from the magnitude of the scale upon which they were designed.

The improvements sanctioned by Wellesley remained in abeyance, a few streets only were metalled and by 1805 Government extended its patronage to the Lottery Commissioners and the records of the Improvement Committee were in 1814 transferred to the Lottery Commissioners. Between 1805 and 1817 large tanks were dug, the Town Hall was built, Belliaghata Canal constructed and several roads including Elliot Road were made out of funds raised by lotteries.

The Lottery Commissioners were succeeded by the Lottery Committee in 1817. This Committee looked after the affairs of the Town up to 1836. The Committee's work was highly commendable, they made roads and paths across the Maidan, tanks were excavated, Strand Road was completed in 1828, the north to south road now known as Cornwallis Street, College Street, Wellington Street, Wellesley Street and Wood Street was constructed. Large squares, each with a tank, were constructed along the route of this road such as Cornwallis Square, Wellington Square and College Square. Hastings Street and Loudon Street was also the work of the Committee. Other streets were opened and widened including Free School Street, Kyd Street, Creek Row, Mangoe Lane and Bentinck Street. In addition to these works a systematic plan for metalling the roads was also taken in hand.

The Lottery Committee was killed by public opinion in England in 1836 and in its place sprang up the Fever Hospital Committee appointed by Lord Auckland, to whose sisters, Calcutta is indebted for the Eden Gardens. The Committee produced no immediate results and in 1840 Lord Auckland attempted to divide the city in four divisions and empowering Government on the application of two-thirds of the ratepayers in any division, to entrust to them the assessment, collection and management of the rates on a scheme to be approved by Government. Not a single application was made and the idea failed completely, but it marked the beginning of modern Municipal Government.

ONE HUNDRED YEARS AGO.

In 1847 a Board of seven Commissioners were appointed for the improvement of the Town, three of whom were to be Government nominees and four to be selected by the ratepayers. Lord Dalhousie quickly recognised the need for pure water and a proper system of sewerage and drainage, and he ordered a survey of the town to be made in 1850 (known as Simms Survey). In 1852 the number of Commissioners was reduced to four and the four districts were merged into two, northern and southern, and finally in 1856 a very elaborate Act was passed which constituted a new board of three paid Commissioners nominated by Government. This was followed by another Act by which the Commissioners were declared to be a Corporation with the municipal funds under their control, and with power to raise funds for the drainage and lighting of the town. For seven years this Corporation of three continued in office, and they justified

their appointment by inaugurating in 1859 the great scheme of underground drainage which took sixteen years to complete.

The first footpath was made in 1858 by filling up an open drain in Chowringhee. The old High School occupied the site of the Indian Museum until 1863 when it was moved to Darjeeling and became St. Paul's School. The Supreme Court occupied only the western portion of the site of the present High Court. In Old Post Office Street was the residence of Sir James Colvin. The Court of Appeal was on Lower Circular Road (British Military Hospital) and after the High Court was built in 1872 the building reverted to its original use. The Treasury Building occupied the same site as it does to-day, but it took its present shape between 1877 and 1882. The General Post Office was opened in 1868, but the Central Telegraph Office was in Clive Street in 1869 and in Fancy Lane in 1870; the present building was commenced in 1873. The Small Causes Court was to be found in Mangoe Lane in 1870, the building in Bankshall Street was erected four years later. The Bengal Secretariat started its career in No. 1, Council House Street in 1854. Two years later it was transferred to the corner of Hastings Street and Strand Road. During the seventies it occupied one house in Chowringhee and one in Sudder Street and it was not until 1880 that it went to Writers' Buildings. The New Market was built between 1871 and 1874.

During the latter portion of their term of office the Justices made many improvements in Calcutta. Beadon Street, Beadon Square and Grey Street were opened out. Canning Street was widened, Clive Row was made to relieve the congestion in Clive Street, and Free School Street was extended to Dhurrumtollah. 105 miles of streets were lit by Gas, slaughter houses were built and many footpaths



Old Court House Street, 1945.

made. Between 1858 and 1876 over two crores of rupees were expended on the improvement of Calcutta.

In 1876 the Justices handed over their administrative functions to a Corporation consisting of twenty-two Commissioners of which two-thirds were elected by the people and one-third were appointed by Government. In the last twelve years of office the Corporation claimed to have completed the drainage scheme, filled up 240 foul tanks, opened out five squares and commenced the conservancy works. The Tramway Service was inaugurated in 1880. A large bustee was cleared to make way for the Eden Hospital. Chitpore Road was widened and Harrison Road opened out.

The Municipal boundaries were extended in 1888 by the inclusion of a large portion of the suburbs lying south and east of Circular Road. Seven new wards were added and three wards in the north of the city were extended. The number of municipal Commissioners was raised to 75. During the succeeding ten years the filtered water supply was augmented, a drainage scheme for the added areas was commenced, a dhobikhana and incinerator were constructed, some insanitary tanks were filled in and converted into roads and squares.

The Municipal administration was revised in 1899 and again 1923. The boundaries were further extended to include Cossipore, Maniktala and Garden Reach. This added about 11¾ square miles to 18¾ square miles of the old Municipality. The present Corporation consists of 90 members, of whom 63 are elected, twenty-two are nominated by Government, Bengal Chamber of Commerce, Calcutta Trades Association and the Port Commissioners. The remaining five seats are for Aldermen.

A special Plague Commission was appointed by Government in October, 1896 to devise measures for the prevention of an outbreak of plague in Calcutta. The following year another Commission was set up to report upon the requirements of Calcutta in respect of building bye-laws and the best means of opening out congested areas. Both these Commissions brought to prominent notice the extent to which overcrowding prevailed in some parts of the City, more particularly in the northern portion, and it was decided by Government that special measures were required by which funds could be raised for the construction of roads traversing the localities in question. The subject of finance raised many difficulties. The outlines of a scheme were first made public in April, 1903 but the proposals then put forward were subsequently subjected to considerable modification, and the public were again invited to express an opinion in July, 1905. Meanwhile Bombay had passed into law the City of Bombay Improvement Act, 1898, and it was upon the experience gained in the working of the Bombay Act, and the expression of public opinion in Bengal, that the Calcutta Improvement Act, 1911 was put on the statute-book.

THE CALCUTTA IMPROVEMENT TRUST

Its operations

Before proceeding with the account of the operations of the Calcutta Improvement Trust it would be well to explain briefly its powers, obligations and functions and the procedure followed in the preparation and execution of improvement schemes. The preamble of the Act states :—

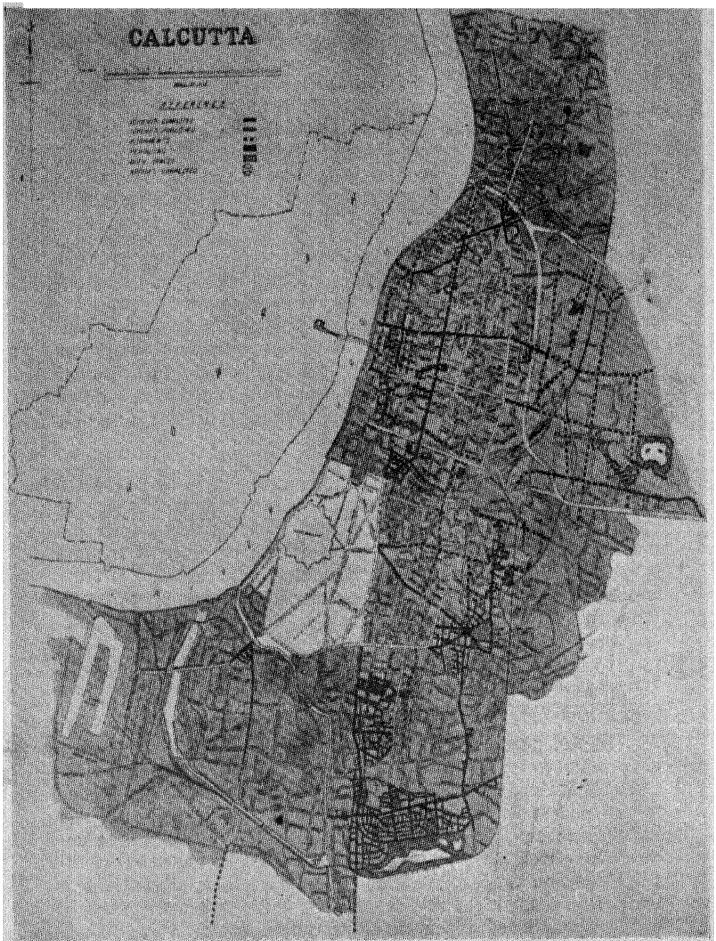
"Whereas it is expedient to make provision for the improvement and expansion of Calcutta by opening up congested areas, laying out or altering streets, providing open spaces for purposes of ventilation or recreation, demolishing or constructing buildings, acquiring land for the said purposes and for the rehousing of persons of the poorer and working classes displaced by the execution of the improvement schemes, and otherwise as hereinafter appearing; and that a Board of Trustees should be constituted and invested with special powers for carrying out the objects of this Act."

This preamble gives a concise outline of the scope of the Trust's operations and although very wide in range it should be clearly understood that the Trust is not a town planning authority in the modern sense, but an authority charged with the duty of framing schemes for urban improvement and for carrying them out. The Trust is not vested with powers for zoning, nor for housing, except to the limited extent of re-housing persons dispossessed by its operations.

The method of working, so far as these operations are concerned, will be of interest to most planning authorities since the system is, relatively speaking, unknown outside India.

The Act provides for the laying down of the road and street alignments which are the basis of all the Trust's improvement schemes. The making of an alignment is in itself of prime importance for as soon as it has received Government sanction the land and buildings covered by it are at once sterilized so far as private uncontrolled development or re-development along its route is concerned. Property owners affected, of course, have their privileges, and these include the right to call upon the Trust to acquire property within a sanctioned alignment at its current market value. Much property has already been acquired by the Trust in this way on alignments which are not likely to be converted into Schemes for some time to come.

When an 'improvement scheme' is initiated the Board of Trustees pass a formal resolution to that effect, and direct that plans and estimates be prepared for the property proposed to be acquired and for the engineering work. As soon as these documents are ready they



Improvement Plan of Calcutta. This plan shows the sanctioned road alignments and improvement schemes. The portion shaded is the area of the Calcutta Municipality.

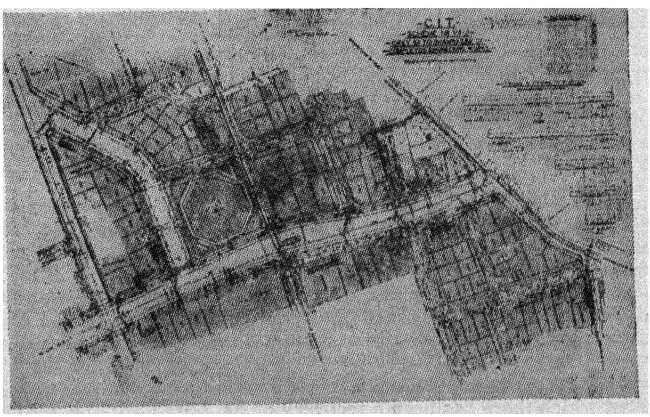
are submitted to the Board for approval, and when approved, the scheme is published by Notification in the Official Gazette.

The scheme, however, does not have final effect until sanctioned by Government to whom the Board submit it after consideration of objections by a Special Committee, with any modifications found necessary in the light of their report. Several minor adjustments are usually made during this objection stage, and Government generally accepts the scheme, as submitted, without further modification. Finality is reached, therefore, with very much simpler procedure than that in Great Britain, while the Trust are still not debarred from making any minor adjustments subsequently found necessary during the progress of work.

Valuation for the purpose of compensation is made by the Land Acquisition Collector, subject to appeal to a Special Tribunal and, in certain circumstances to the High Court.

As soon as possible after acquisitions within a scheme have been completed, the buildings are demolished, and the site cleared. The usual practice in these cases is to sell the standing structures by public auction to contractors for demolition—quite an appreciable trade in old materials is carried on in the Calcutta area. The scheme area is then available for engineering operations.

A feature of urban machinery in Calcutta common to other large cities of India, is that the Improvement authority does not derive its status from the Municipal authority, but is a co-ordinating body in direct relation to Government. A slight degree of friction generated



When the engineering work in an improvement scheme is completed the scheme is transferred to the Calcutta Corporation for maintenance. All the work undertaken is shown in a 'Completion Plan' prepared at the time of transfer. The above photograph is typical—it is of the Completion Plan for Scheme VIIJ.

by this state of affairs in one or two other cities is, however, happily absent from Calcutta, while the technical officers of the Trust are in constant consultation with those of the Corporation both about points at which the Trust operations impinge on the existing Corporation streets and as regards the details of the improvements under construction.

In approaching the immense job that confronted the Trust at its inception it was necessary to obtain rather comprehensive data of the prevailing conditions, particularly from the point of view of road communications. As is common to all major planning and improvement projects a survey of the Municipality and its immediate environs was made and on the basis of this survey report the main lines of redevelopment were laid down.

The problem, it was found, resolved itself into three main requirements, first, to open up and provide better communications throughout the municipal area which would serve the dual purpose of facilitating the ever increasing flow of traffic and to operate as ventilating shafts; second, to deal as effectively as possible with the intense congestion of buildings and with the consequent overcrowding, and third, to open up new areas for suburban development.

IMPROVEMENT SCHEMES.

The most congested districts in Calcutta were (and still are) those framed by Wards Nos. 1 to 9, bounded on the south by Bow Bazar Street, on the west by the River Hooghly and on the north and east by the Circular Canal and it was in this locality that the first improvement scheme of the Trust was undertaken. This was Scheme No. 1—(improvement of Surtibagan area), located in the rectangle formed by Kolutola Street, Harrison Road, College Street and Lower Chitpur Road. This scheme began, in 1913, initiated the Trust into the very large improvement projects that were to follow, though progress was interferred with to some extent on account of the war and it was not until 1919 that the Trust's operations really got going.

Scheme Nos. II, III, IV, V and the eleven major improvements in the Scheme No. VII group, soon followed. The latter group of schemes deserve special mention, as together they cover the entire 2¾ mile length of Chittaranjan Avenue (which is a single track road 100-ft. in width and is the principal north-south route through the city); and Chitpur Spur, Manicktolla Spur and Jagannath Ghat Road from Chittaranjan Avenue westward to Strand Road. The actual area dealt with in this group of schemes was 201.1 acres and has so far cost the Trust for property acquisitions and engineering work Rs. 5,50,24,276/-, against which there has been a recovery of Rs. 3,50,68,703/-, on account of the sale of land. The 80-ft. diagonal road in Scheme No. XXXVII links up Chittaranjan Avenue (North) with the Sham Bazar Circus.

The next group of improvement schemes to be undertaken were those in the Scheme No. VIII series. They embraced the east central



Chittaranjan Avenue—looking north-east from Chowringhee Square—is the principal north-south route through Calcutta. Constructed under the improvement Schemes in the No. VII, series, this road is 100-ft. wide, 2¾ miles in length and for the greater part surfaced with reinforced concrete. The arrangement of trees along the footways is characteristic of nearly all the improvement projects undertaken by the Trust.

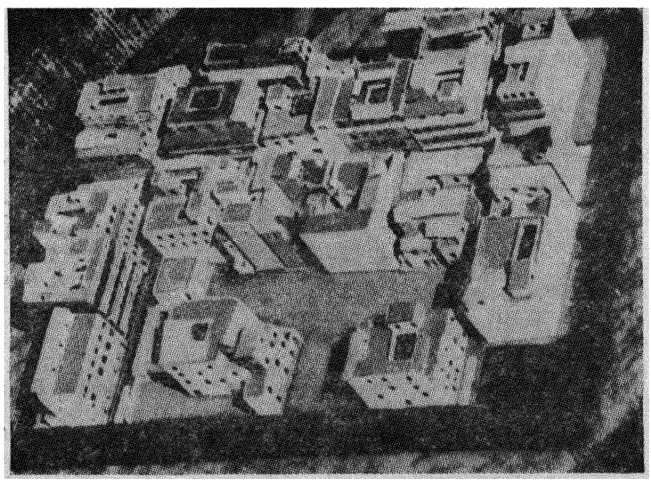
district, formerly known as Karaya Bazar, located at the eastern extremity of Park Street, which at the time was a heavily congested and overcrowded neighbourhood. The central feature of this improvement is Park Circus, the focal point for six important suburban roads, New Park Street, New Theatre Road, Syed Amir Ali Avenue, Dilkusha Street and Surahwardy Avenue—the sixth road, however, has not yet been constructed. This latter will follow the route of Alignment No. XXIII northward from the Circus, to link up with Alignment No. III—(South Road, Entally). The first portion of the Eastern Park was laid out in Scheme No. VIII.

Extending eastward from Park Circus to Gora Chand Road is Scheme No. XXXV, the principal road of which, now named Surahwardy Avenue, is 100-ft. wide. Included in this Scheme is the second portion of Eastern Park. Scheme No. XXXV was designed for the dual purpose of eliminating the Bustee at Gora Chand Road and providing the communication link for the new 100-ft. double track road in Scheme No. XLIX which with Scheme No. LII follows northward along Alignment No. XLIV to join up with Alignment No. II—

(Middle Road, Entally). Scheme No. XLIX is almost completed and the site of Scheme No. LII is being cleared preparatory to engineering operations.

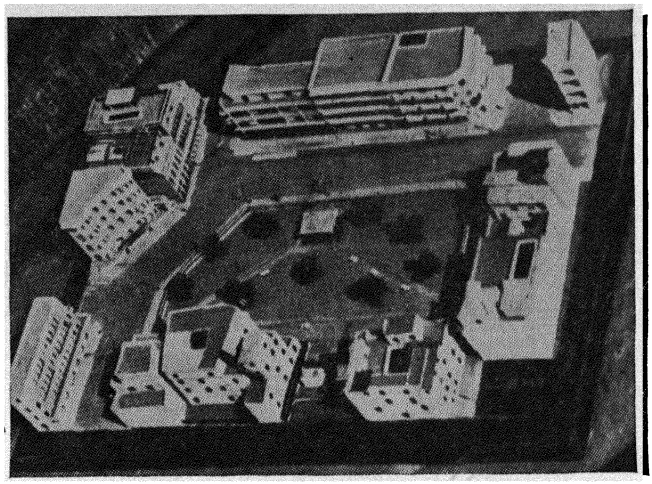
Considerable improvement has been effected in Burra Bazar area which is by far the most expensive area for operations in all Calcutta. The principal improvement schemes here were Nos. XXVI, XXVII, XXXII, XLII, XLIII which between them cost Rs. 1,25,12,139/- for acquisitions and engineering work against which sales of land has recouped Rs. 51,09,803/-. Scheme No. XLII—(Kalakar Street widening) runs nothward from Harrison Road to Kali Krishna Tagore Street, the new name given to the 100-ft. road in Scheme No. VII-G. Formerly the street was 20-ft. wide and being located in the centre of the busiest trading and commercial sections in the Burra Bazar district was naturally very congested. The road was widened to 60-ft. and is already almost completely re-developed. In this scheme the Trust provided a small park.

Apart from the two Schemes "D" & "E" in the Scheme VII group located at the southern end of Chittaranjan Avenue the two principal improvements undertaken in the central area are Scheme Nos. XXXVIII and XL. The former, known as Mission Row Extension, runs from the Currency Office to Chittaranjan Avenue and the latter is its eastward continuation, linking Chittaranjan Avenue with Wellington Street at the site of the old pumping station of the Calcutta Corporation. Both the main roads in these Schemes are 84-ft. wide.



Shows the density of building in the neighbourhood of the proposed park.

City improvement schemes are very costly—Scheme Nos. XLV and L, provide for a new 100-ft. wide road 1,050 yards in length which, when completed, will form the principal link between the city centre and the New Howrah Bridge to the Howrah Railway terminus. This project is about half completed, and the estimated nett cost of the two schemes is in the region of one and a half crores of rupees.

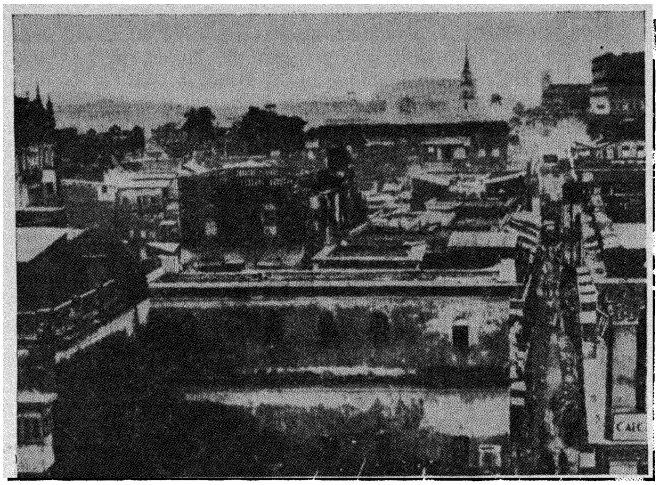


The same locality after improvement.

The city of Calcutta has many peculiar features—it is built on what was in ancient times, a channel of the Ganges, which through the centuries has silted up to a level of about 20.00 K.D.S.*, though the levels of the suburban areas away from the banks of the Hooghly fall below 14.00 K.D.S. During the monsoon rains the level of the subsoil water rises considerably and is actually at, and in some instances above, ground level for a few months of the year. The silt subsoil is overlaid with bluish green clay of depths ranging from 2-ft. to 10-ft., and in consequence, ground stability is the exception rather than the rule. But the chief handicap under which Calcutta lies as regards expansion, is its topographical position ; it is, one might say, an island; on the west it is bounded by the tidal river Hooghly, on the east by the 50 square mile Salt Lakes (salt no more due to the silting up of the Bidyadhari River which in previous times was also tidal and used to flush the Salt Lakes basin), on the south-west the dock area acts as a formidable buffer against expansion and the concentration of industry on the north has a similar effect. Calcutta therefore has had to develop, more or less, within itself.

At the time the Trust came into existence a considerable portion of the southern extremity of the municipality was a low lying marshy

* The datum K.D.S. is the Kidderpore Dock Sill.



Scheme No. XLV.—Before improvement. A view looking southward from Canning Street. Note the heavy congestion of buildings and the narrow streets. The spire in the background is St. Andrew's Church.



Scheme No. XLV.—This photograph was taken from the same view point three years later. The main 100-ft. wide road through the scheme area is completed and redevelopment begun.

jungle and the access to it was through the then very congested Bhowanipore district. It was realised very early on, that quite apart from opening up congested areas in different sections of the city, it was vital for the development of Calcutta that new area should be made available for building to cater for the increasing population, and it was with this end in view that the improvement of the southern district, embracing the schemes in the Scheme IV, V and XV series and Schemes XXXIII and XLVII, was undertaken.



The maps reproduced above show the location of the southern Calcutta improvement schemes before and after development.

The locality covered by the improvement schemes in the Schemes XV series and Schemes XXXIII and XLVII was, as is stated above, very low lying and with large deep tanks* profusely distributed throughout the area, and before any redevelopment was possible it

* Tanks are large pools. Originally they were excavated for the threefold purposes of (a) raising the level of the adjoining land above monsoon floods to facilitate hut building, (b) obtaining a regular supply of water and (c) fish culture.

was clear that extensive reclamation work have to be undertaken. To enable this reclamation to be carried out some 190.74 acres of land on the southern boundary of the municipal area abutting the B. & A. Railway (Budge Budge Branch line) was purchased in two lots. The first specifically as an excavation site and the second for the purposes of excavation, but in fact, forming part of Scheme No. XXXIII; the boundary between these two blocks of land is Boroj Road. Both sites were worked more or less simultaneously, and have between them, provided more than 50,000,000 cubic feet of earth for tank filling and raising the ground levels of the 720 acres covered by the improvement schemes in the southern district.

In connction with these southern schemes two very important east to west parallel roads have been constructed; each of them links up Gariahat Road on the east to Russa Road (which is a southern continuation of Chowringhee Road) on the west. Rashbehari Avenue, the first of these two roads to be constructed, is a 120-ft. wide dual



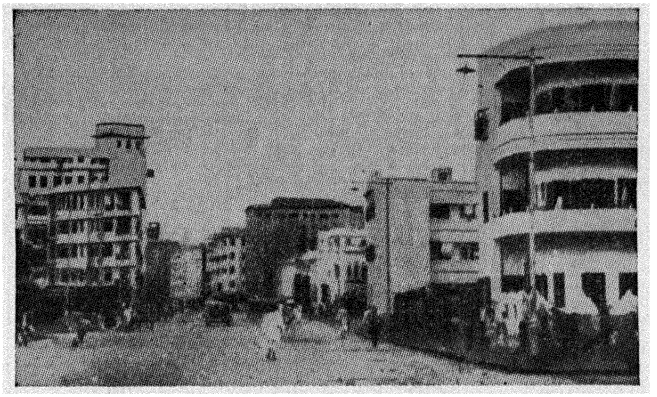
The site of the main road in Scheme No. XL, before demolitions began. The view point is north-eastwards from Wellington Street. The square towered building on the left of the picture abuts on Chittaranjan Avenue.

carriageway road, along the central grass strip of which runs a double tramway track. This road also carries the main 9-ft. diameter sewer serving south Calcutta. The second parallel road to be constructed was Southern Avenue, a 150-ft. wide dual track boulevard, completed in 1942. It is interesting to note that although Scheme No. XLVII is not yet completed the effect on the rateable values of the Calcutta Municipality as a direct result of the Trust's operations in the southern area alone, has been an increase from Rs. 13 lakhs to Rs. 53 lakhs in 16 years.

The next series of suburban improvements to be undertaken by the Trust will be in the Manicktala District in east Calcutta. The

initial schemes for this work have already received Government sanction and full scale operations will begin as soon as hostilities cease. The general engineering provisions in this group of improvement schemes provide for a 100-ft. wide north-south road beginning at Beliaghatta Main Road on the south and extending northward along Alignment No. V, crossing Narkeldanga and Manicktala Main Roads and joining up with Ultadanga Main Road in the north. This, with the extension of Grey Street (Scheme No. V—Manicktala), will complete the eastern outer traffic circuit.

The Manicktala District is approximately 7-sq. miles in area; has a population of about 270,000 and is without a piped sewerage system. In the improvement schemes referred to above, provision has also been made for sewering this district. The main outfall sewer



Scheme No. XL, after improvement. The road is 84-ft. wide; redevelopment along its route has advanced considerably.

will be of culvert section 14-ft. wide and 12-ft. deep and will discharge at the new pumping station of the Calcutta Corporation at Dhappa.

Up to the present time the Trust has not undertaken any improvement work within the Howrah Municipality but a scheme has been sanctioned by Government which provides for a new western approach to the New Howrah Bridge. Acquisitions have been completed and the site is being cleared.

BRIDGES.

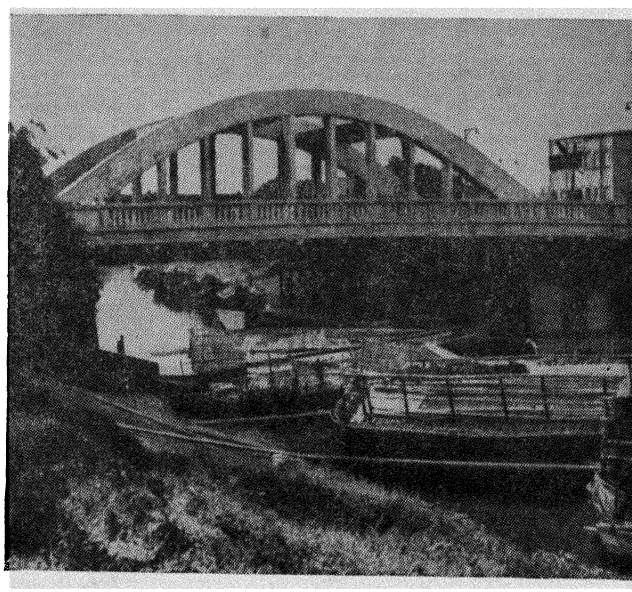
In a number of instances, particularly in North-east Calcutta, road alignments have been carried across the canals and where these crossings occur, bridges have to be erected replacing those where they exist. The canal system in Bengal is under the control of the Provincial Government, and by arrangement with Government, the new canal bridges required in Calcutta are erected by the Trust.

Except in a few instances the type of bridge built has been on the bowstring principle, which for practical reasons, particularly for

providing the maximum clearance for canal traffic, has been found best. These bridges are all very substantial structures of reinforced concrete and have in every case been designed to the Ministry of Transport standard loading. Up to the present time the undermentioned eight canal bridges have been erected :—

	Cost. Rs.		Cost. Rs.
1. Dum-Dum Bridge	6,75,526/-	5. Narkeldanga Bridge	5,26,562/-
2. Manicktala ,,	5,97,220/-	6. Chitpore ,,	1,96,052/-
3. Alipore ,,	3,54,713/-	7. Tollygunge ,,	2,46,957/-
4. Beliaghatta ,,	5,29,815/-	8. Barrackpore ,,	3,97,403/-

The most recent of these is Barrackpore Bridge. Work on the demolition of the old steel girder bridge began in 1938, and the new bridge was completed and opened for traffic in April, 1940. Three other canal bridges remain to be constructed—these are at Hastings



Barrackpore Bridge. Completed in 1940, this structure is 82-ft. wide with a span of 112-ft. and is one of the eight canal bridges built by the Trust.

and Ultadanga, where both the existing structures have been condemned ; while the other is at Chetla, though this latter, while being over a State canal, will not be subsidised by Government but will complete the extension of Rashbehari Avenue constructed under Improvement Scheme No. XV-A, to Chetla Road which runs parallel to the Chetla Canal on the west.

The Dhakuria Bridge carrying Boroj Road through Dhakuria Lakes deserves special mention as it is probably unique in so far that it was erected before the waterway it spans came into existence. This structure built for light traffic, is also of reinforced concrete and is designed as an arched vault slab with spandril walls. A consideration in the design of the bridge was the boat race regattas held by the three rowing clubs established at the Dhakuria Lakes; a clear waterway being provided of sufficient width to allow two boats racing abreast to pass underneath.

PARKS AND OPEN SPACES.

One of Calcutta's most pressing needs is recreation space—in this respect the deficiency is great. The Trust, being fully conscious of this extremely unsatisfactory situation, has framed its policy accordingly and consequently in every important scheme undertaken, except in a limited street widening project, provision has been made for small parks and squares and for large recreation grounds, wherever possible. This policy has been steadily followed in spite of the terrific handicaps arising from land values, which in Calcutta, it may be stated, are probably higher on the average than in any town of similar size in the world. When it is realized that fringe suburban land of indifferent quality fetches anything from Rs. 1,500/- to Rs. 3,000/- per kottah* and in the densely congested districts of Burra Bazar, from Rs. 30,000/- per kottah upwards,** the problem will be more readily appreciated.

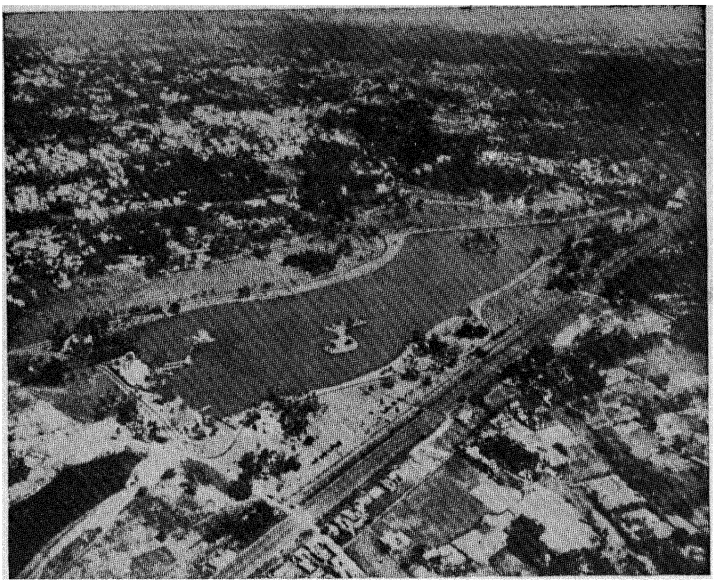
Up to the present time the Trust has laid out and developed thirty-eight parks and open spaces—four of them fairly large—and of the total number thirty-one have been transferred to the Calcutta Corporation, six others have been completed and one is in course of development. The total area covered by these parks is 318.58 acres made up as follows:—

NORTHERN CALCUTTA.

		Area in acre.	
	Cossipore-Chitpore Open Space	51.57	Transferred to Calcutta Corporation.
	Deshbandhu Park (Scheme No. XIV)	17.52	
17	Small Parks and Squares	12.41	
5	Do. Do.	0.17	Still under Trust control.

* Land measurement in Bengal is on the basis of Chataks, Kottahs, Bighas, etc.
One chatak = 45 sq. ft.
One kottah = 16 chataks = 80 sq. yards.
One bigha = 20 kottahs;
One acre = 3,025 bighas.

** Land was recently sold by the Trust in Scheme L. (Burra Bazar) for Rs. 70,000/- per kottah.



Aerial photograph of the eastern portion of the Dhakuria Lakes. The proximity and extent of the Salt Lakes along the eastern boundary of the Calcutta Municipal Area can be seen in the background. The white building on the small island in the lake (bottom left corner) is a Mosque. It has always been the policy of the Trust to preserve religious buildings.

SOUTHERN CALCUTTA.

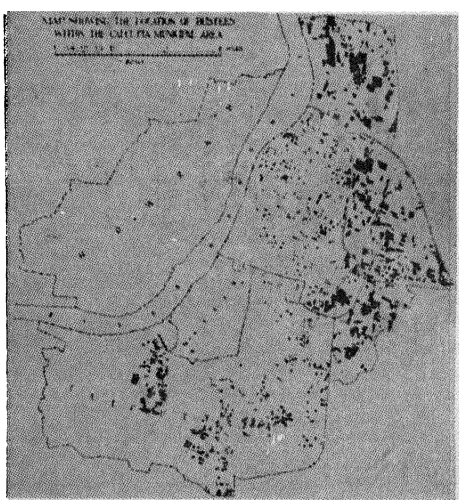
		Area in acre.	
	Dhakuria Lakes	190.74	Still under Trust control.
	Eastern Park	24.13	Transferred to Calcutta Corporation.
11	Small Parks and Squares	21.63	
1	Do. Do.	0.41	Still under Trust control.

In addition to these another site comprising some 98 acres in East Calcutta (Manicktala District) has been purchased for development as a park and recreation grounds; preliminary work has already begun on this site. The dearth of play space for children in the congested sections of the city has led the Trust to adopt a policy of laying out and equipping small temporary playgrounds on vacant

land acquired along alignments—this has added another 20 'Children's Corners' to the city's inadequate total.

The story of the gradual transition of the Dhakuria Lakes park and recreation grounds from a malarious marshy jungle, is too long to recount in detail here, but it is of great interest nevertheless, and is outstanding evidence of the success that can be made of any site, however unattractive and seemingly impossible of improvement it may appear in its original state. The excavations here were carried out to a pre-conceived plan with the object of creating ornamental lakes after the excavation works was finished. While this work was in progress the sections reserved for park land and playing fields were being raised and levelled and extensive tree planting, under the supervision of the Director of the Calcutta Horticultural Society, was simultaneously undertaken. Blocks of earth were left undisturbed in the centre of the excavations and the tops were raised and planted with trees and flowering shrubs. These earth blocks are now islands, and are extremely attractive features in the Lakes. Another form of ornamentation has been the mounting of old cannon found during the course of the Trust's operations throughout Calcutta —at each emplacement a tablet has been fixed giving details of the sites where these ancient weapons were discovered.

The provision made for sport and recreation at the Dhakuria Lakes includes a large open air swimming pool, three full size foot-

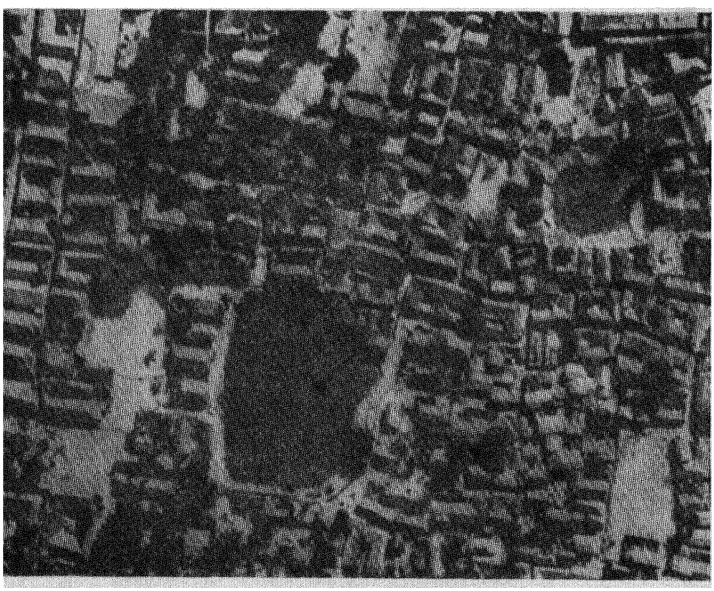


Calcutta's 'Black Spots'—the bustees. This plan shows the location and congestion of the bustee slums within the municipal area; more than half a million live in them. A recent survey of population in one of these bustees disclosed a density of 1,300 persons per acre.

ball grounds and an athletic ground laid out and equipped for high and long jumps, running track, and 'Putting the shot'. Two playgrounds for children have also been laid out and are equipped with shelters, swings, slides and so on, but the most popular feature in the summer time in these children's grounds are the bathing pools.

HOUSING.

As regards housing—the policy of the Trust hitherto has been to develop sites and to offer building plots to the public on lease or sale at extremely low rates to encourage people to build their own houses; but this scheme has fallen far short of expectations. Two sites, one at Bow Street near the centre of the city and the other at Wards Institution Street in North Calcutta were developed for housing soon after the last war. In both cases flatted buildings were erected, in the nature of an experiment, but these also have not proved satisfactory. The reason for the failure in these two instances may be traced to the fact that the average Indian of the poorer class is a confirmed 'ground floor' dweller and the only type of residence that would appeal to his conservatism is a bungalow, either enclosed within a walled-in compound or with a compound attached.



What a typical bustee looks like from the air. Note the intense congestion of hutments and the narrow tortuous access passages. The large dark areas in this photograph are tanks or pools.

There are many contributing factors which explain the lack of progress made in housing, chief amongst them being the extremely high values of building land and the relatively high cost of house building having regard to the wage level of the great majority of the working class community. Other aspects of the problem, no less important, are the social order of the people and the climatic conditions under which they live. High costs, low wages, the indifferent education (and in many instances none at all) of the lower paid workers, have had its cumulative effect in the creation of the most appalling housing conditions imaginable—the 'bustee'.

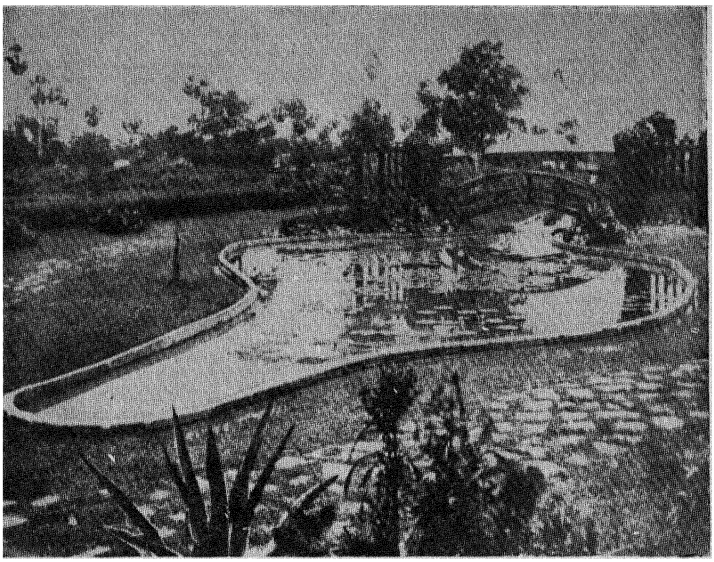
The Trust, however, is persevering with its housing experiments and administrative sanction has already been received for the erection of cottages at the Christopher Road re-housing site—this work will be put in hand as soon as conditions permit and if the venture proves the success it is expected, further developments in housing, designed to replace the insanitary bustee, will follow.

REVENUE.

The main source of revenue of the Trust is from the sale of land in completed improvement schemes. The income fluctuates every year and in the year 1941-42, when there was a boom in land sales, the income from this source amounted to Rs. 90.89 lakhs; the average sales per annum bring in a figure slightly more than half this sum. There are five other sources from which the Trust derives an income —these are provided for in the Act and are as follows:—

		Amount for year 1943-44 Rs.
(1)	Contribution from Calcutta Corporation equal to 2 per cent of the annual value for rating purposes	20,68,000/-
(2)	Duty levied on the value of jute exported from the Port of Calcutta	6,10,000/-
(3)	Duty on transfer of property within the Calcutta municipal area	6,59,000/-
(4)	Terminal tax on passengers arriving by Railway from 30 miles distance	2,55,000/-
(5)	Fixed Government grant	1,50,000/-
	Total ...	37,42,000/-

These five sources of annual revenue serve the double purpose of meeting the management expenses of the Trust and financing loans for the purpose of initiating schemes and meeting expenditure not recovered by recoupment on projects in built-up areas in the



Lily pond and garden at Dhakuria Lake.

centre of the city. The total amount of loans outstanding at date raised for financing the operations of the Trust is approximately Rs. 4,17,50,000/- and the loan charges including interest and sinking fund payments, consume about Rs. 30,00,000/- per annum out of the above recurring income. The further borrowing capacity of the Trust does not now exceed Rs. 1,00,00,000/- until debenture loans of Rs. 1,57,50,000- fall due to be redeemed in the years 1952 and 1953.

In any future planning and redevelopment, the town of Calcutta cannot be disintegrated and considered as a separate entity for special treatment, but must be taken as part of the area known as the greater Calcutta industrial zone, and the main aspects to be considered are :—

(1) Communications,

(2) Industry (including rehousing of industrial workers),

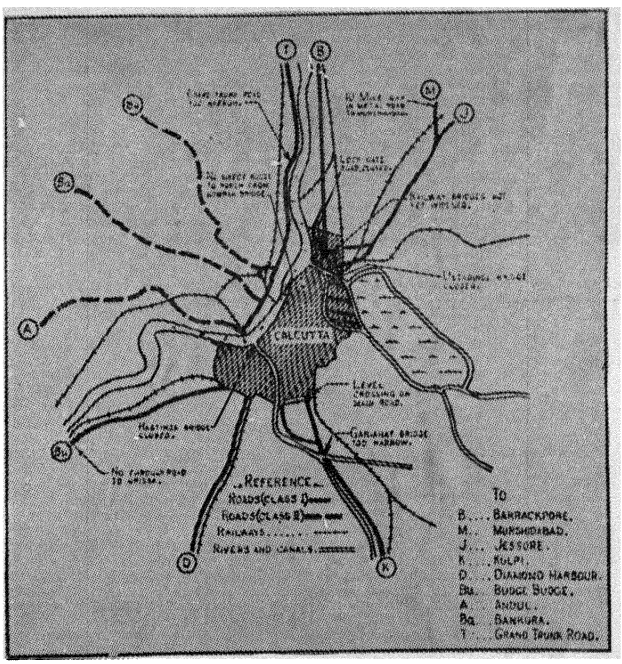
(3) Housing, and

(4) Parks and Recreation Space.

COMMUNICATIONS.

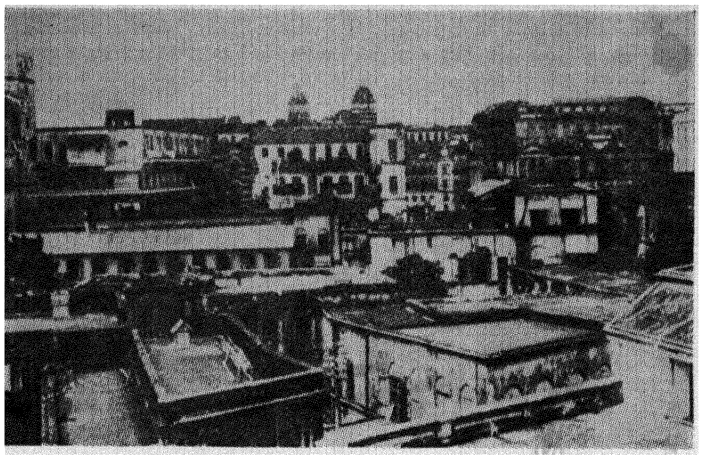
The map shows a straggling development of industry-cum-urbanism along the banks of the Hooghly, extending roughly for a distance of twenty-five miles from Budge Budge in the south to Chinsurah and beyond in the north, embracing within these limits

26 Municipalities. A great bulge of urban development in the riverine area occurs at Calcutta on the east and in the town of Howrah in the west; the remainder may be described as triple ribbon development—the river bank in the centre and the two north-south arterial roads, the Grand Trunk Road parallel on the west and the Barrackpore Trunk Road parallel on the east. The former road is a glaring example of the absence of foresight and control in development; it is a mutilated ribbon of the worst possible kind, the latter is rapidly



heading towards the same chaotic condition. And these two main roads are hemmed in rigidly by railways which combine to give the impression of an immense corridor from Calcutta to Chinsurah.

There are, it is true, other routes leading away from the central nucleus; they are shown clearly in the diagram. They remain, however, little more than alignments on the basis of which the road net-work for the future may be built, the importance of which will no doubt be emphasised when the "New Road Plan for India" takes shape. The main line of road communication to the south-west by Budge Budge and Ulubaria has fallen completely out of use, there being no road communication across the rivers, Damodar and Rupnarain. In this direction steps will have to be taken sooner or later



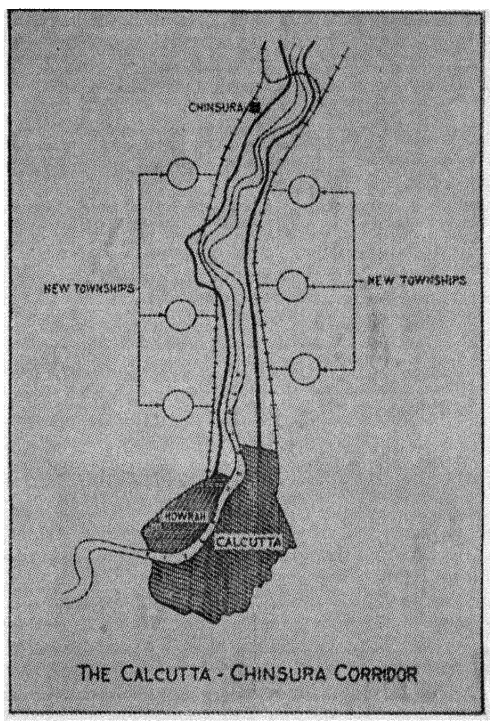
Another view of Scheme No. XLV—site of the 60-ft. road looking westward from Chitpore Road to Clive Street. Radha Bazar before improvement.



Picture taken from the same viewpoint exactly three years later. Opening up of the area completed and redevelopment begins.

to restore the main route which existed in the early 19th century. There are other bottle-necks on the roads to the north besides that of ribbon development of the Grand Trunk Road and the access to Calcutta itself is throttled in almost every direction.

In all planning and redevelopment projects, communications must play a vital part; commerce, industry, the very life of the community depends upon them. Communications in the Calcutta area include in addition to roads, the river, the railways and the canals. The river is the most vital of all, but it is outside the sphere of a planning authority to control it (indeed if that were possible by any one else) and the only measures that could and should be put into operation, are those designed to prevent further encroachment by building along its banks, conserving what remains for the benefit of the public.



THE CALCUTTA - CHINSURA CORRIDOR

The Railways too with their protective statutes are inviolate as far as the planning authority is concerned, but generally speaking Calcutta has escaped the worst features of penetration by the Railway. Its principal arrival station from the west is not in Calcutta at all,

but at Howrah, while the Sealdah station, the terminus for trains from the east and north east, is located on the eastern boundary of the Municipality, and about one and a half miles from the city centre. The other municipalities in the greater Calcutta industrial zone are not so well placed. Howrah, the second largest town in Bengal, is virtually divided into three parts by what must to-day be acknowledged as very bad railway planning. Both the Grand Trunk Road and the Barrackpore Road have several level crossings which add to the congestion of the ever increasing traffic using them. The road bridges over the Railways and Railway bridges over roads in Calcutta are a problem in themselves. Built between 70 and 80 years ago to cater for contemporary traffic they are to-day utterly inadequate both as regards strength, width and height. All the overbridges in Calcutta require rebuilding and widening; work which has been urgent for some time past, and this feature in communications, on the main roads at any rate, must be given priority in post-war reconstruction. Again, level crossings, particularly on the arterial roads, must be eliminated by diversion, wherever practicable, and by the construction of fly-over bridges in all other cases.

The canals are in the main a provincial problem, though their influence on the development of Calcutta has been very great. The Circular Canal has operated almost as the moat of a medieval town; on the town side permanent buildings have been erected, on the other side, until comparatively recently, development was mainly in the form of hutted buildings. With the canals also, as the law stands, a planning authority would have no jurisdiction over them; they are State property, but the need for control by a live planning authority is patent to anyone who takes the trouble to pay a visit of inspection. The urgent need is control of canal banks, re-design of the canal roads and the laying down of building lines; the siting and development of loading or discharging docks and more effective control of traffic flow.

REDISTRIBUTION OF INDUSTRIAL WORKERS AND OTHERS.

Development for residence has long been recognised as a problem of pressing urgency in the greater Calcutta zone, especially in the municipal area itself with a population of 2½ million inhabitants packed tight in the space of 22,832 acres. This problem is complicated by its peculiar topographical position, touched on earlier in this brochure. The town is virile and must go on growing either by periphered expansion or by decentralisation in the form of satellite townships. Periphery development presupposes the reclamation of the Salt Lakes (a project which will be discussed later); otherwise expansion this way is impossible of attainment. On the other hand the development of satellite towns located at the terminals of roads radiating from the city while offering greater advantages all-round from a community point of view is bound to present acute problems of transport to the people working in the industrial area.

Lack of pre-considered planning in the Calcutta-Chinsurah corridor calls for radical attention and here it is within the capacity of the planning authority to do something effective and worth while. Inside the corridor itself there is relatively little scope for satisfactory redevelopment; the solution lies outside and along its length. It is easily possible to establish on the land side of the corridor community settlements or townships which would incorporate many of the features of the "Linear City" plan. The diagram illustrates this suggestion; the township unit would be linked up with the arterial road and at convenient places along the railway routes local "halt" stations would be installed. With the transference of the working population to the outer areas the problem of congestion within the corridor could be solved; ample opportunities for industrial expansion in the places where industry has already firmly taken root would be afforded.

INDUSTRY INCLUDING REHOUSING OF INDUSTRIAL WORKERS.

The concentration of industry on either side of the river-bank within a radius of 30 miles of Calcutta is one of the striking features in the economic make-up of the Province. While so much open land is still available, it cannot be said that this phenomenon gives rise to the problem of the location of the industry now so prominent in Great Britain, but it does contribute to the continual growth of Calcutta as an industrial as well as a commercial centre. Moreover, the tendency to concentrate industry in the Calcutta area has already gone so far, that the tendency cannot be reversed, and the most that can be done is to preserve, if possible, the main roads leading out of Calcutta from the ribbon development, especially the Barrackpore Trunk Road. Unfortunately the pressure of production during the war has accentuated this development. The provision of adequate housing for labour of large industrial concerns in the Calcutta area goes rather beyond the scope of this planning authority and must remain essentially the responsibility of each firm for its own labour. That there is room for improving the standard and more rigorous control over the housing of labour, few would deny.

HOUSING.

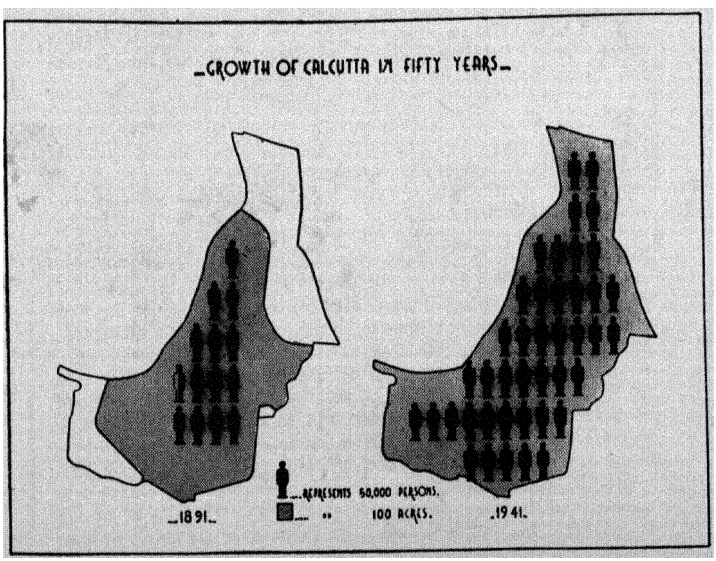
As regards housing, it must be admitted that Calcutta has been up to the present a city without a housing policy. The improvements carried out during the last 30 years have resulted in a certain degree of decentralisation and transfer of the incidence of population from North to South; but in spite of the rapid expansion in the South of Calcutta, the pressure on the soil in the North continues to increase. The 1941 census shows that one ward in the heart of the city had an average density of population of 434 persons per acre; while the count taken in a selected bustee revealed the almost unbelievable figure of 1,300 persons per acre. There is at present no organisation for the re-housing of Calcutta as a whole. No data,

no statistics, no financial basis of population, no settled policy and no organisation exists to give effect to such policy.

While the housing of the middle class worker is acute, the special problem of Calcutta and the surrounding industrial areas is the re-housing of the bustee population. This population is extraordinarily mobile, and in Calcutta up to the present, had packed up and moved further to the outskirts as *bustees* were displaced by schemes of improvement. This process cannot continue indefinitely and the whole problem is to find some kind of housing to which people accustomed to *bustee* life would accommodate themselves. Very little progress has been made in dealing with this problem so far, and the experiment which is to be made after the war will be watched with great interest.

PARKS AND RECREATION SPACE.

The town of Calcutta with its 2½ million inhabitants has only 1,500 acres available for all purposes of parks, playgrounds and public recreation (exclusive of the Golf Clubs in the south of the city). With less than one acre per 1,000 population, Calcutta falls far below the standard of 6 or 7 acres per 1,000 population for public open space and recreation ground, accepted in modern principles of planning; and, though in point of area the percentage is at first sight not so disastrously low, it is to be remembered that some 421 acres only are distributed throughout the city of which the Trust





Dhakuria Lake. A swimming pool in the children's section and a shelter.

have provided 318, the rest constituting the maidan. Howrah, its neighbour on the opposite bank of the Hooghly, is still worse off—there, the total area of park and recreation ground for its population of over 300,000 is less than 60 acres, a ratio of over 1 acre per 5,000 persons. The maidan, however, which has always been the pride of Calcutta, has the disadvantage of serving only a limited population in the European and adjacent quarters of Calcutta; and even so, many years must elapse after the end of the war before this magnificent public space recover from the deterioration and encroachment necessitated by the war efforts against Japan. In fact the utmost care and vigilance will be required to ensure that these scars are healed and defacements obliterated in future years. Nor can it be said by



Dhakuria Lake—Shelter.

way of compensation that there is easy access to the country-side, for, in the first place, the country-side round Calcutta is, with a few exceptions, peculiarly unattractive and even for the motorist it is a good half an hour's journey to clear the urban environment. The only places of recreation available for the Calcutta public outside the city, are the Shibpur gardens, heavily used on holidays in normal times, and the public portion of the Barrackpore Park, which is, in fact, very little frequented by the populace at large though favourite spot for small picnics. Looking ahead, well into the future, Calcutta must have two objectives:—

(i) the increase of parks and play-grounds in the city itself, and

(ii) the provision of places of public resort with scenic recreational value outside the city similar to those which are the pride of western cities and are now being developed with intensive eagerness in the United States.

The former process must be at the best a slow and tedious movement, but there are opportunities for the development of the new park areas in the east of the city, and there are schemes on foot for combing *bustee* clearance and re-housing with a provision of play-grounds where a *bustee* previously existed. In addition to this, in the years preceding the war, one or two small play-grounds were being added to the city by the Improvement Trust every year and this process will be resumed in normal conditions. Small as these cases are, their provision goes far to meet the definite need of the neighbourhood, play-grounds in which children can find amusement and exercise in the cooler hours of the day off the Street.

But Calcutta of the future must look further afield. What the city needs is a few large recreational areas chosen both for recreation and scenic relaxation, in fact bigger and better Shibpur gardens within a radius of about 20 miles. Places suitable are those such as the Hooghly Point, the old Fort of Pulta, the public grounds in the Barrackpore Park itself and possibly the Ishapur Park on the east side of the river; while on the west side a few similar places on the banks of the river could still be found available for dedication to the public. The full use of such parks in the neighbourhood of Calcutta could not be expected until passenger transport is better organised and made far cheaper for the masses, than at present; but when a proper authority is formed for this purpose it should acquire rights of control, if not ownership, in places, such as the old Fort at Pulta, which would ensure that they are permanently dedicated to the public and are so developed and embellished, as to ensure the maximum recreational value, instead of degenerating into malaria-infected spots of jungle, pleasant enough for public picnic in cold weather but otherwise robbed of their potential public value.

RECLAMATION OF THE SALT LAKES.

When Calcutta was founded, the existence of the Salt Lakes on the eastern side was undoubtedly an asset in isolating the settlement,

and rendering it free from any anxiety as to hostile threats from this direction. This advantage ceased to have any meaning during the 19th century and by the 20th century the Salt Lakes have become not only a troublesome limitation but a positive source of danger to the city. On the one hand, Calcutta is cut off from expansion except by continuance of the process of elongation from North to South, which already extends to seven miles. On the other hand, through the loss of tidal action and consequent decrease in salinity, the Salt Lakes have especially during the last generation become a menace to the health of the city through the increased danger of malaria. No doubt after the war this menace can be countered by appropriate measures; but the congestion within the city will remain. It is well within the means of practical possibility to reclaim, at any rate, some 20 square miles of the Salt Lakes area by the double process of drainage and filling, and lay out a new suburb or a satellite town in the area reclaimed. An area of 5,000 acres nett of building land with an equivalent area in Lakes and recreation grounds could be laid out within a radius of 6 miles from



Government House, while the recreation grounds themselves would serve the purpose of a green belt on the east of the city, secluding it from what was left of the Salt Lakes to be reclaimed at a later period.

COMPLEX OF JURISDICTIONS.

Calcutta, like many other metropolitan cities, suffers from a complex of local authority jurisdictions, some of them of great traditional and historical interest. On the Maidan you are not in the Calcutta Municipality, and as you approach Esplanade, the highest Court in the land could not tell you with certainty when you enter the city. In part of Hastings you are in the Calcutta Municipality for one purpose and not for another. Generally speaking, if you commit a murder just East of the Circular Road, you will find yourself tried in Alipore, but the same crime just east of the same road over a stretch of half a mile would land you instead in the High Court, for the curious reason that a Hindu magnate named Omichand, had his garden house there before the invasion of Calcutta. If you are run over at the road junction, a quarter of a mile south of Russa Railway Bridge, the policeman you call from one side of the street wears one uniform, while the constable on the other side, probably a greater rarity, wears another. To say nothing of the detachment of Howrah, the operations of the Calcutta Improvement Trust cannot extend beyond the Railway Bridge on Russa Road without a special Notification empowering them to operate. If a fire breaks out in the Budge Budge oil godowns, the Calcutta Fire Brigade hurrying out to assist will, if true respectors of law, put on their brakes three miles short of the scene of conflagration, where their jurisdiction ends. Contiguous to Calcutta and Howrah, on either side of the river, is a series of small Municipalities. Some are indistinguishable from the outskirts of Calcutta, some, such as Dum Dum, are a group of inextricable jumble of boundaries, and others more sparsely inhabited, stretch out along the river bank, so that the general picture is that of a comet heading to the south, with a tail of attenuated urban population along the riverside. Each small Municipality is understandably jealous of its independent jurisdiction and tendencies are still fissiparous. The petty townships, Rishra and Konnagar, shown as one Municipality in the diagram, parted company only the other day. Those on the outskirts of Calcutta are nervously apprehensive of further expansion by their bigger neighbours. But just as in Great Britain, it is clear that the time is coming, when the local Government system will have to be adjusted to the better planning of the Calcutta area. On the whole these independent Municipal authorities will have to be brought into some kind of relation with the Central Planning Authority in this region.

HOWRAH.

Foremost among the issues affecting the adjacent Municipalities, is the extension of the operations of the Improvement Trust to

Howrah. This town, which a 100 years ago was a rural suburb of Calcutta with shipbuilding on the river bank, has now become one of the most congested and insanitary urban centres in India, and one of the few towns in the world containing a population of more than a third of a million, without the vestige of a sewerage system. The completion of the new Howrah Bridge, replacing the old pontoon bridge, which was congested almost to the stopping point in crowded hours of the day, and closed to traffic for two or three hours in the night, for the passage of river traffic, has created a new urban situation. This bridge, one of the largest cantilever bridges in the world, with ample roadway, has brought Howrah a good deal nearer to Calcutta than one end of Calcutta to the other. One of the outstanding problems will be that of carrying out the sewerage system in Howrah, and other improvements required immediately for elementary reasons of public health, with as little prejudice as possible to the opportunity which now presents itself for the radical re-planning of this ignoble suburb, on the lines of a modern city.

In this brief sketch for planning and redevelopment, the Greater Calcutta zone has been taken as the unit. Reference has been made to the functions of a Planning Authority, but at the present time there is no co-ordinating authority for planning in this area, though the need for such a body has long since become urgent. Legislation designed for setting up a Planning Authority with wide powers for controlling development, must come into being in the near future, if the principal industrial area in the Province is to be lifted out of the morass of squalor and disorder that is apparent on every side. This authority should be vested with really effective machinery for zoning, controlling development and use of land, regulating buildings and the elevation of buildings in streets. No authority in any municipality in the Greater Calcutta zone, not even the Trust, has any of these powers.

In concluding this review, it would be out of place not to refer to the programme for improvements within the Calcutta Municipality which has been approved by the Board of Trustees. This programme covers the period up to 1950..... it is hoped that active engineering operations will be resumed in 1946. The work embraced may be divided into two categories:—(a) completion of suspended improvements schemes and (b) the beginning of new ones, details of which are set out in the table attached.

The work of the Trust in the South of Calcutta is now practically finished, and the bulk of the improvements now planned lie in the Eastern district comprised in the old Municipality of Maniktala. These are based on a proposal to instal there a drainage and sewerage scheme, the main sewers for which will eventually run Northwards to Cossipore. The first improvement scheme to be undertaken in the Howrah Municipality comes in this period and also in the programme is the initiation of the bustee elimination policy adopted by the Trust.

TABLE OF IMPROVEMENT SCHEMES

IN

FIVE-YEAR PROGRAMME.

No.	Scheme.	Estimates for		Total.	Constructive Programme for Initial Works in Lakhs Rupees				
		Land Acquisition.	Engineering Works.		1946	1947	1948	1949	1950
		Rs.	Rs.	Rs.					
	(A) Suspended Schemes.								
1.	Scheme No. XLVII	Unspent	15,00,000	15,00,000	3.00	4.00	4.00		
2.	,, ,, XLVIII	balances	6,00,000	6,00,000	1.50	2.00			
3.	,, ,, XLIX	on	6,31,500	6,31,500	1.80	2.00			
4.	,, ,, L	estimates	7,50,000	7,50,000	2.50	2.50			
5.	Older schemes (footpath paving, asphaltum and concrete road surfacings)	...	...	...	1.00	1.00	1.50	1.50	1.50
	(B) New Schemes								
6.	Scheme No. M-IV 1944-45	27,50,000	38,80,500	66,30,500	...	5.00	8.00	8.00	10.04
7.	,, ,, M-IV (1st Sup.) 1944-45	22,66,600	10,00,000	32,66,600	1.00	1.50	1.50	1.50	1.50
8.	,, Howrah-I do.	16,00,000	7,50,000	23,50,000	2 00	3.00	1.00	..	...
			S. W. outfall drain 1,42,000	1,42,000	0.42	1.00	...	...	...
9.	,, ,, XXXV-R	3,21,000	5,40,000	8,61,000	2.00	3.00	..	...	...
10.	,, ,, M-IV (2nd Sup.) 1945-46.	1,50,000	16,44,000	17,94,000	...	4.00	4.00	5.15	...
11.	,, ,, LI do.	23,00,000	2,83,500	25,83,500	...	1.00	1.26	...	...
12.	,, ,, LII do.	30,00,000	12,54,000	42,54,000	...	3.00	3.00	4.03	...
13.	,, LIII do.	10,00,000	1,29,000	11,29,000	...	0.50	0.53	...	...
14.	, ,, LVII do.	2,00,000	6,75,000	8,75,000	...	1.50	1.50	2.40	...
15.	Bustee Scheme No. I 1946-47	2,46,500	3,00,000	5,46,000	...	...	1.40	1.00	...
16.	Scheme No. M-V 1946-47	28,00,000	11,20,500	39,20,500	...	...	...	2.50	3.00
17.	,, No. M-VI 1947-48	65,50,000	45,00,000	1,10,50,000	...	...	...	...	6.00
18.	,, No. LV do.	25,25,000	10,50,000	35,75,000	...	...	...	...	3.00
19.	Bustee Scheme No. II 1948-49	2,82,000	6,00,000	8,82,000	...	...	...	...	2.80

TABLE OF IMPROVEMENT SCHEMES

IN

FIVE-YEAR PROGRAMME.

No.	Scheme.	Estimate for		Total.	Constructive Programme for Initial Works in Lakhs Rupees				
		Land Acquisition.	Engineering Works.		1946	1947	1948	1949	1950
		Rs.	Rs.	Rs.					
	(A) Superseded Schemes.								
1.	Scheme No. XLVII	Unspent	15,00,000	15,00,000	3.00	4.00	4.00		
2.	,, ,, XLVIII	balances	6,00,000	6,00,000	1.50	2.00			
3.	,, ,, XLIX	on	6,31,500	6,31,500	1.80	2.00			
4.	,, ,, L	estimates	7,50,000	7,50,000	2.50	2.50			
5.	Older schemes (footpath paving, asphaltum and concrete road surfacings)	...	..	..	1.00	1.00	1.50	1.50	1.50
	(B) New Schemes								
6.	Scheme No. M-IV 1944-45	27,50,000	38,80,500	66,30,500	...	5.00	8.00	8.00	10.04
7.	,, ,, M-IV (1st Sup.) 1944-45	22,66,600	10,00,000	32,66,600	1.00	1.50	1.50	1.50	1.50
8.	,, Howrah-I do.	16,00,000	7,50,000 S. W. outfall drain	23,50,000	2 00	3.00	1.00	...	..
			1,42,000	1,42,000	0.42	1.00	..	...	...
9.	,, ,, XXXV-R	3,21,000	5,40,000	8,61,000	2.00	3.00	.	. .	...
10.	,, ,, M-IV (2nd Sup.) 1945-46.	1,50,000	16,44,000	17,94,000	.	4.00	4.00	5.15	...
11.	,, ,, LI do.	23,00,000	2,83,500	25,83,500	.	1.00	1.26	...	...
12.	,, ,, LII do.	30,00,000	12,54,000	42,54,000	...	3.00	3.00	4.03	. .
13.	,, LIII do.	10,00,000	1,29,000	11,29,000	...	0.50	0.53	. .	
14.	,, ,, LVII do.	2,00,000	6,75,000	8,75,000	..	1.50	1.50	2.40	...
15.	Bustee Scheme No. I 1946-47	2,46,500	3,00,000	5,46,000	...	..	1.40	1.00	...
16.	Scheme No. M-V 1946-47	28,00,000	11,20,500	39,20,500	...	. .	...	2.50	3.00
17.	,, No. M-VI 1947-48	65,50,000	45,00,000	1,10,50,000	...	...	...	...	6.00
18.	,, No. LV do.	25,25,000	10,50,000	35,75,000	...	..	...	. .	3.00
19.	Bustee Scheme No. II 1948-49	2,82,000	6,00,000	8,82,000	...	...	...	...	2.80

THE CALCUTTA IMPROVEMENT TRUST, 1946-74

During the first 30 years of its existence the C.I.T. had executed several important projects including the entire length of Chittaranjan Avenue, Vivekananda Road, Southern Avenue, Old Russa Road, Rashbehari Avenue, Syed Amir Ali Avenue, Old Ballygunge Road, Dr. Sundari Mohan Avenue, Brabourne Road, Ganesh Chunder Avenue etc. The *decade of disturbance* commencing with World War II and ending with India's Independence produced serious bottle-necks in Trust operations and led to virtual cessation of works. After the Independence the C.I.T. could develop *Manicktola, Kankurgachi, Narkeldanga area. Due to paucity of funds* resulting from continued *non-payment of Municipal contribution the Trust could not undertake execution of important projects they had already framed and adopted.* These included the widening of the Manicktola Main Road (portion), the widening of the Ultadanga Main Road with bridge across the canal, construction of the main outfall sewer for Ultadanga area, construction of two bridges in continuation of Rashbehari Avenue across Tolly's Nullah (Chetla) and the Eastern Railway Track (Kasba), the widening of Raja Subodh Mullick Road in continuation of the completed Gariahat overbridge, the widening of Deshpran Sasmal Road in continuation of the Tollygunge Railway underpass which had already been widened by C.I.T., the widening of Prince Anwar Shah Road etc. These projects could be taken up for implementation *with the setting up of the Calcutta Metropolitan Development Authority (under President's Act No. 17, 1970 dated the 16th July 1970).* The C.I.T. had then in hand 71 sanctioned schemes in all, estimated to cost about Rs. 37 crores, but no funds to execute them. Steadily from October/November 1970 onwards the Calcutta Metropolitan Development Authority started according administrative approval and financial sanction to some Trust schemes for *Traffic & Transportation, Sewerage & Drainage, Water Supply, Park Schemes* and *Housing.* Funds were made available in phases. Although the pattern of financial assistance (loan or grant etc.) had not been spelt out conclusively by the C.M.D.A. *the spurt in C.I.T.'s activities was unmistakable and there was no denying that the 70's had begun as the decade of development for Calcutta.* A brief review of the works completed and in progress since Independence till 1973-74 is given below :—

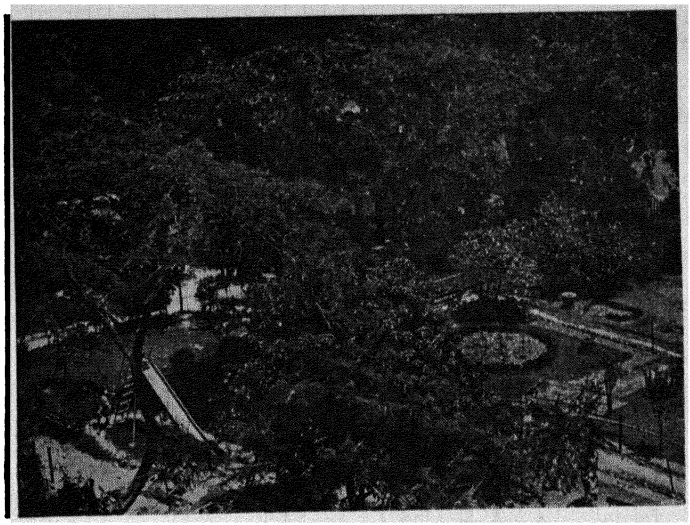
Improvement works in the Eastern District in the old Municipal area of Manicktala were taken up by C.I.T. from 1948 onwards and a large north-south corridor of improvement area has been completed extending from Ultadanga area on the north upto Beliaghata area on the south. This corridor opened up a main thoroughfare mostly 120 ft. and partly 100 ft. wide road, with the trunk main sewer running underneath which were to carry the combined storm of

Ultadanga Manicktala area (N) and sanitary effluents of the entire eastern part of the city leading to the Dhapa Lock Pumping Station. At the outfall end the dimension of trunk sewer is 13'-3" x 14'-0" and in its detour compries various sections of brick sewer such as 10'-0", 9'-0" and so on. In this sewerage system a total length of 5.7 km. of brick sewers had been completed and connected to the Dhapa Lock Pumping Station. The accompanying diagram No. I shows the outline of this *corridor Improvement* Area and also indicates how

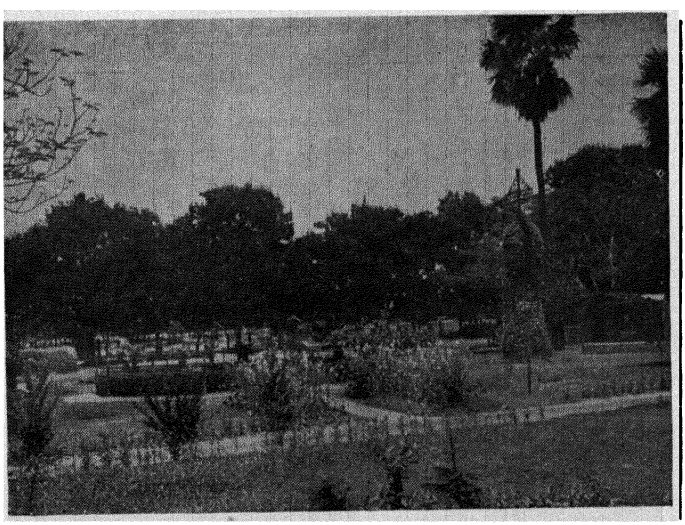


Portion of the North South Corridor between Narkeldanga Main Road and Manicktala Main Road. (The new Municipal Market on C.I.T. Plot at the Righthand Bottom).

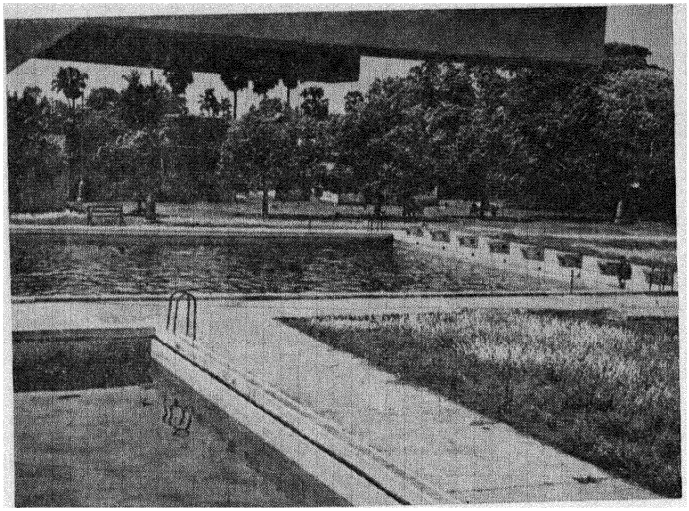
this corridor would be linked up by wide connector roads (by widening and improvement of existing link roads) e.g. Ultadanga Main Road, Manicktala Main Road, Narkeldanga Main Road and Beliaghata Main Road with the Acharyya Prafulla Chandra Road. As the area to be developed within this corridor comprised large tract of low land, tanks etc. large quantity of earth was required for reclamation purposes. As was done in the case of development of South Calcutta, large area in south-eastern fringe was acquired and declared excavation area—(Schemes No. IV-M-S—later renamed as Scheme No. LXXXV) and a lake was excavated and the spoil was utilised for reclamation purposes. The area round this *excavated area* was later developed (on the lines of Rabindra Sarobar in South Calcutta) as a recreation complex now called *Subhas Sarobar* shown in Diagram No. I containing one of the best laid out parks in the



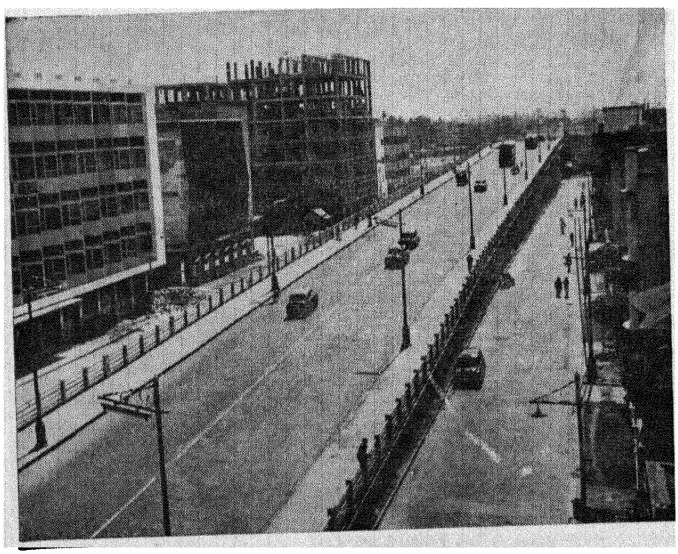
View of the Children's Park at Subhas Sarobar.



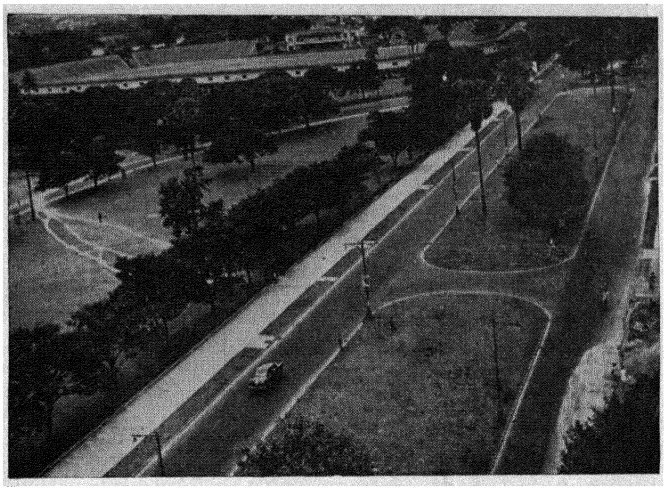
View of the Children's Park at Subhas Sarobar.



View of a portion of International Standard Swimming Pool at Subhas Sarobar.



View of the Northern Approach to Gariahat Overbridge (The new sky line on the left in developed C.I.T. Plot is noticeably different from the low sky line on the right).



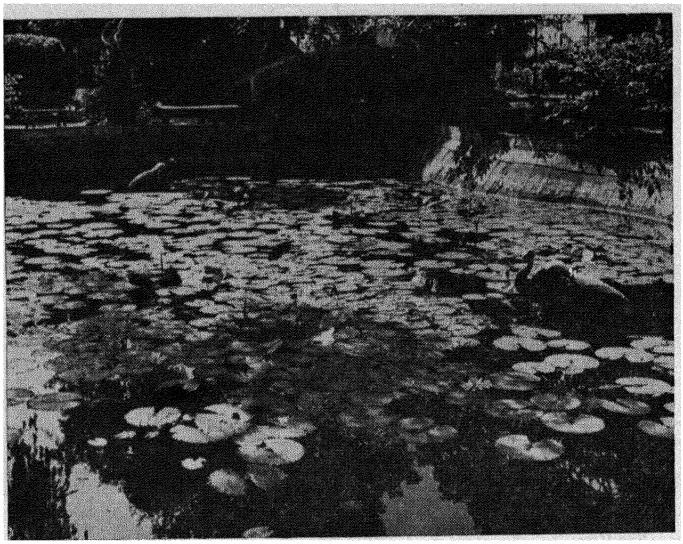
A Bird's eye view of a Portion of Rabindra Sarobar with the Stadium at the Top and 150'—0" wide Southern Avenue in the Fore Ground.

city with luxuriant trees and gardens providing open spaces for different age groups.

The replacement of the Railway Level Crossing on Gariahat Road by a 4 lane wide overbridge over the Railway Lines, the remodelling of the old single span Railway Underpass with low headroom on Deshpran Sasmal Road to double span opening with adequate headroom for double decker bus to ply through, the corridor improvement scheme executed in Entally/Paddapukur/Old Ballygunge Area linking Rashbehari Avenue with Dharamtolla Street via Park Circus, are important steps towards the redevelopment of this City and are now principal routes of communication of the present city.

The activities of the Trust were not only confirmed to re-development schemes; with a view to promoting sports and recreational activities, the Trust gave the city its first *Stadium* accommodating 20,000 persons fully equipped with Audio/Visual training in sports and games, located in the *Rabindra Sarobar* and also a number of play grounds therein, swimming pool of International Standards at the Subhas Sarobar with similar facilities of play grounds and also a large number of parks completed as independent park schemes or forming a part of General Improvement Schemes executed in different areas. Out of the total area of 850.68 acres of Parks and Play fields existing in the city (excluding Maidan area), C. I. Trust has laid out and constructed 700.68 acres, *i.e.*, 82.36% of the total.

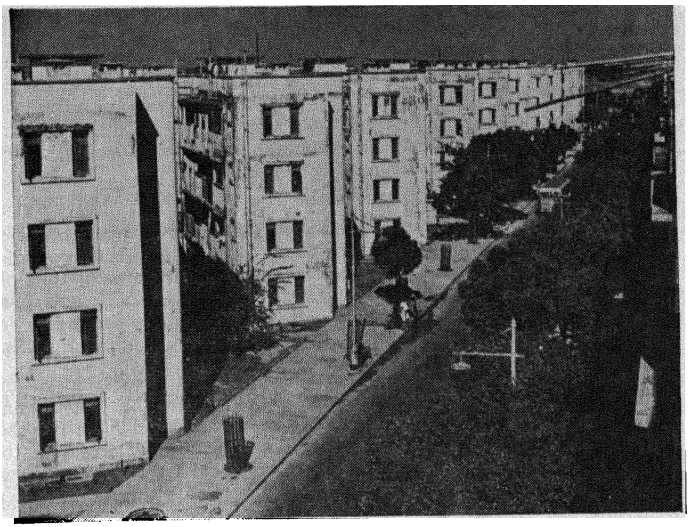
Housing and Rehousing came to be important operations of the Trust when the Calcutta Improvement Act 1911 was amended in



View of the Lily Pool in Rabindra Sarobar (A Children's Recreation Area).

1955 *vide* West Bengal Act XXXII of 1955. In terms of this amendment housing accommodation was recognised as an Improvement Scheme *vide* Section 35D and it became mandatory for the Trust *vide* Section 39C to provide alternative accommodation to dwellers in Bustees, who would be displaced as a result of execution of General Improvement Schemes by the Trust. It is in fact a statutory obligation of the Board to see that no bustee dwellers are displaced until arrangements for rehousing them have previously been made. The annexed statement gives the details regarding the tenements built in pursuance of the new provisions. Apart from tenements for rehousing purposes, a number of tenements/flats were built for accommodation of Industrial workers under the Central Government Subsidised Industrial Housing Scheme and also for residence of Lower and Middle Income Group of people.

Improvement schemes under execution being included in the 4th and 5th Five Year Plans i.e., the *Master Plan or the Basic Development of C.M.P.O. were construction of the Chetla Bridge* (which has been completed by C.I.T. and opened to traffic by Shri Siddhartha Sankar Ray, Chief Minister, Govt. of West Bengal on 27.1.74), *construction of the over-bridge over the Railway Lines at Ballygunge Station* (that will link up the Kasba Area with City proper), *construction of Bridge over the Circular Canal* in continuation of Grey Street, widening and improvement of Ultadanga Main Road, Manicktala Main Road, Raja Subodh Mullick Road, Prince Anwar Shah Road, Deshpran Sasmal Road, construction of 10'-0" dia. high level



A typical view of Subsidised Industrial Housing Scheme.



View of a typical M.I.G. ownership Housing Showing the Children's Play Area and the Community Building on the Right Hand Bottom.

sewer and pumping station of 400 cusecs capacity of Manicktala Sewer Project, construction of Eastern Metropolitan Bye-pass from Beliaghata Main Road upto the Kasba Link along with the 3 other connector roads and a number of park schemes. These schemes provide for 'general improvement' of the locality with provision for roads, sewers and drains, filtered water supply, street lighting etc. and also construction of alternative accommodation for shops/residences for those who would be displaced by Trust operations. The location of *major schemes* are shown in diagrams II, III and IV.

A list of tenements/shops being built for alternative accommodation of those to be displaced in the process of land acquisition is also appended. The water supply scheme for the entire area within old Tollygunge Municipal Limit measuring 7.44 sq. miles which envisaged supply and distribution of potable water @ 50 gallons per capita for a projected population of 4 lacs (by 1981) is fast nearing completion.

The C. I. Trust has been entrusted with the execution of the Calcutta Side Approach and Interchange system for the Second Hooghly River Bridge which is coming up in the Maidan on the east of St. George's Gate. The Govt. of India had actually amended the Calcutta Improvement Act *vide* the West Bengal Improvement Laws (Amendment) Act 1971 to empower the Board of Trustees to undertake this work.

The proposed *second Hooghly Bridge* will form a main Artery in the net work of Road System of West Bengal with other neighbouring states. In addition to the facility of crossing the Hooghly River connecting the two big Cities of Calcutta and Howrah.

The total traffic volume on the Bridge has been estimated as 85,000 vehicles per day of which 15% volume of traffic will be commercial type. The whole project has been divided into three sections;

Sections I & II are for *Approach and Interchanges for Calcutta* and Howrah Side respectively and Section III covers the Main Bridge, of the three Sections. Calcutta Improvement Trust is responsible for the construction of Calcutta End Approach and Interchanges while H.I.T. and C.P.C. have been given the responsibility for construction of Section II and III respectively. Total estimated cost of the whole project has been worked out to be Rs. 42 crores.

The work of construction of Calcutta End Approach and Interchanges consists of two parts: (a) Approach viaduct and (b) Interchanges.

The Approach viaduct, which starts immediately after the Main Bridge, is 510 Metres (approx.) long and consists of 17 spans of 30 metres (approx.) each. It has two separate three lane carriageway, each 11 metres wide, carrying traffic leading to and coming down from the Main Bridge through the Bridge. The super-structure of each carriageway consists of Prestressed Concrete Girders and R. C. Deck slab etc. supported on R.C. pier columns resting on a R.C. pile cap below which 60^T & 90^T capacity R.C. cast-in-situ piles are

driven. The height of piers varies from 6.50 metres (approx.) to 26 metres (approx.) above ground.

The interchanges portion starts immediately after the Approach viaduct and consists of a road network system connecting the traffic to and from the Main Bridge to the existing roads in area such as Acharya Jagadish Ch. Bose Road, Kidderpore Road (North and South respectively) and St. George's Gate Road. The total length of different roads in the Interchanges is about 6750 metres (approx.) which consists of roads on cinder-filled embankments, elevated viaducts and on surface. The arrangement of viaduct in the Interchanges area is similar to Calcutta Side Approach viaduct. However there is only one carriageway and the spans are generally 18.50 metres (approx.) each.

The total value of Contract for the work of Calcutta End Approach and Interchanges is Rs. 6.33 crores. The foundation works on Approach viaduct was started in January, 1973 and work on foundations and Substructure is in progress at site. The target date of completion of the work is May, 1976.

The activities of the Trust are now therefore oriented towards improvement and creation of infra-structure and amenities of areas away from the Central Business District and on completion of these operations newly developed areas would form different sub-centres of this Metropolis.

MAIN SOURCES OF INCOME

The main sources of *receipts* of the Trust are from (A) Sale of Land and Premia on Leases and (B) Taxation and Grants provided for in the Act.

2. Income from the said sources over a period of 28 years from 1945-46 are shown *in the statement enclosed.*

3. It was in the year 1965-66, return from "Sale of Land" reached its highest, i.e. Rs. 97.99 lakhs when there was a spurt in land sale. On an average, income from this source (Group A) during the last 12 years was Rs. 48.27 lakhs per annum.

4. Under group 'B' the major revenue-earning source is contribution from the Calcutta Corporation, u/s 88 of the Act. This source has almost dried up. The dues with previous arrears which the Corporation has failed to pay amount to Rs. 2.67 crores on 31-3-74.

5. The five sources of annual Revenue under group 'B' serve the dual purpose of meeting the management expenses of the Trust and financing loans for the purpose of initiating and implementing Schemes as well as meeting expenditure not covered by recoupment on projects in built-up areas in the centre of the City. The amount of public loan repaid so far is indicated below :—

	Rs. P.
6% Sterling Debenture Loan of 1922	52,50,000 00
5½% „ „ „ „ 1923	1,05,00,000 00
6% Debenture Loan of 1925	50,00,000 00
5½% „ „ „ 1929	25,00,000 00
4% „ „ „ 1934	50,00,000 00
3½% „ „ „ 1935	35,00,000 00
3% „ „ „ 1936	30,00,000 00
3% „ „ „ 1037	50,00,000 00
3% „ „ „ 1938	20,00,000 00
4% „ „ „ 1952	80,00,000 00
4% „ „ „ 1956	1,02,00,000 00
4½% „ „ „ 1958	75,00,000 00

The outstanding public loan, floated in 1959, amounting to Rs. 65,00,000/- is due for repayment on 16.11.74.

6. In view of the Revenue and Capital income, specially the non-payment of Municipal Contribution which is continuing over the years the capital account can no longer be sustained by Debenture Loans as the said loans are raised on the strength of revenue surplus.

7. The Trust had received loans from the Govt. for the construction of the Gariahat Overbridge and different Housing Schemes. The amount of such loans, outstanding on 31st March 1973 is Rs. 1,50,85,643/- approximately. Annual servicing charges for the Govt. loans amount to over Rs. 13.00 lakhs.

8. Due to paucity of funds resulting from continued non-payment of Municipal Contribution and slump in receipts from sale of land the Trust could not undertake execution of projects they had already framed and adopted. This position related particularly to

the period commencing from December 1965 till the 3rd quarter of 1970. The said projects could be taken up for implementation after the setting up of the Calcutta Metropolitan Development Authority (July 1970). The C.I.T. started receiving funds in phases from November 1970 onwards. By March 1974 C.M.D.A. has made available Rs. 7.02 crores for select schemes on traffic and transportation, sewerage and drainage, parks and play-grounds and alternative accommodations and Tollygunge Water Supply Scheme for which the State Government had earlier made available Rs. 192.80 lakhs. For the said schemes being executed with the administrative approval and financial sanction of the C.M.D.A. the C.I.T. had spent Rs. 9.02 Crores upto March 1974 (inclusive of departmental charges at 12% on actual capital expenditure).

9. It has already been noted that the provision regarding Municipal Contribution under Section 88 of the C. I. Act had been rendered inoperative. There are other provisions of the Act which are being declared *ultra vires* e.g. since 1969 *solatium* (at 15% of the market value of the land already awarded as compensation) is being reimposed under Tribunal/Court's order on the basis of the L.A. Act: this renders paragraph 9 of the schedule referred to in Section 71 of the C. I. Act infructuous. The latest development (December 1972) is the Court order declaring *ultra vires* the statutory provision regarding betterment fee (another source of capital receipts). The amendments of 1955 had already (i) imposed the statutory burden of providing alternative accommodation to bustee dwellers displaced by the execution of schemes; (ii) taken away half the receipts from the Jute duty for the benefit of the Howrah Improvement Trust.

10. At the instance of the Hooghly River Bridge Commissioners the Trust had undertaken to construct within four years on agency basis, the approach road and its interchanges on the Calcutta side. The foundation stone for the entire project was laid by the Prime Minister on the 20th May, 1972.

The Trust has received upto 31st March 1974 from the Hooghly River Bridge Commissioners an amount of Rs. 107.50 lakhs and has spent Rs. 102.31 lakhs inclusive of supervision charges.

11. The works at the instance of the Calcutta Metropolitan Development Authority and the Hooghly River Bridge Commissioners are being undertaken under Section 23A inserted by the recent amendment of the C. I. Act viz. West Bengal Improvement Laws (Amendment) Act of 1971.

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SOME PROBLEMS AND SOLUTIONS ON TOWN PLANNING IN INDIA

V. S. C. Bonarjee

1 An endeavour is made to record in this paper the problems which are generally accepted as existing (i.e. which are axioms or self-evident truths requiring no proof) in urban areas, together with an analysis of each problem, with the possible solutions and the ways and means to achieve the solutions in each case.

The problem of rocketing land values in urban areas.

2(i). It is a well-known and accepted fact that land values in and around cities and large towns are shooting up at an alarming rate. This increases in its turn the rate of house rent and in consequence has a tendency to make living conditions of the less affluent sections of the community or people extremely difficult. It creates a gradual trend of driving them out of the urban areas to the rural or semi-urban areas where the house-rent may be less. But due to lack of sufficient means of transport and speedy transport at that, living in such cheaper-rent areas, away from the town where one's place of work lies, goes to make life more miserable to the bulk of the people who are victims of this vicious circle. The problem of rocketing land values and its disastrous effects on the large majority of urban people who live or work in the towns, needs no further amplification or emphasis.

Analysis of the problem of rocketing land values in urban areas.

2(ii). The analysis of the problem is simple. The demand for land in the towns is much more than its availability or supply. People from non-urban areas or smaller towns congregate to the larger towns for trade, commerce, industry, employment and for availing the utilities, services and community facilities which exist there more than in the non-urban areas or semi-urban areas or small towns. The surplus from agricultural labour accustomed to a very low standard of living, also flow into the large towns in multitudes, and become slum or pavement dwellers. Businessmen and other moneyed people pay very high prices for such urban land; whereas land-speculators buy up undeveloped land at cheap rates with a view to selling the same at a very high rate for easy profit. In short, the root of the problem is that land is a common marketable commodity and there is no means to check the rocketing of land values under the present circumstances and laws.

Solutions to the problem of rocketing land values in urban areas.

2(iii). The obvious solution is to prevent land from continuing to be a common marketable commodity, to fix its value according to quality and establish a qualified private ownership of land within the limits of the Constitution of India and control its use so as to prevent ill-planned growth.

Ways and means to achieve the solutions to the problem of rocketing land values in urban areas.

2(iv) (a). Articles 19(1) (f) and 31, 31A and 31B of the Constitution of India deal with the fundamental 'Right to Property' and

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Article 31A(1) (a) empowers the State to extinguish or modify any such rights vesting in a proprietor, i.e. over any estate or property. Hence under Article 31A of the Constitution, laws may be enacted extinguishing the unqualified right to dispose of property and modifying such right by "price-control" and giving the State a right of pre-emption. Now Article 246(2) of the Constitution of India and items 6 and 34 of List III—Concurrent List of the Seventh Schedule thereof, contain the subjects "Transfer of Property other than agricultural land" and "Price-Control" respectively. Hence under the said Article of the Constitution [246(2)] and the said Schedule (List III), both the Union Government and the State Governments have power to make laws to control the price of land, (according to quality). Price control over land is not likely to meet with the same difficulties as other marketable but movable commodities like foodgrains; for land transactions have to be registered by the parties in their own interests and values recorded; and land can neither be hoarded nor hidden under ground. Moreover, if the State has any pre-emptive right established by law (with a provision for an exemption fee for not exercising the right) over all lands offered for sale and if the State normally exercises that right and if the penalty (under the law) for illegal land-transaction is made very heavy both for the purchaser and seller, then the likelihood is that Price-control laws for urban land will be obeyed generally with hardly any scope or inventive for evasion. The price of land will then on the contrary have a downward tendency. The Government, have power under the said Articles to give the State or also to any Corporation or Statutory Body controlled by the State, the right of pre-emption (at the price fixed by the State under the proposed Urban Land Price Control Act) over any land which a private owner may want to sell or otherwise dispose of, except by way of gift. The payment by the State or the said controlled Corporation or Statutory Body for such land may either be in cash or by interest-bearing bonds redeemable after a certain period. These proposals of "legal tools" require careful scrutiny and the details may be worked out, once the principles have been accepted. These laws, in the view of the present writer would stop land-speculation, prevent the rocketing of land values and in effect retard the spiral upward trend of many other values and prices, including exhorbitant house-rent, affecting urban population in general.

Satellite Towns.

2(iv) (b). Decentralisation of population by the creation of well-planned new cities (e.g. *Brasilia* in Brazil, South America), satellite or suburban towns with cheap and speedy communications with the main city, e.g. by large-capacity single or double-decker electric, petrol, diesel (Pullman) or gas powered passenger vehicles, railcars etc. may also help in controlling urban land-values and check the resultant disastrous effects in other directions.

The problem of: (a) ill-planned growth & (b) control of land-use in relation to the Master Plan.

3(i). This problem is intimately connected with the first problem

of rocketing land values. It exists practically in every city or town for which no overall Master Plan has yet been drawn up. Even in cities or towns for which an overall Master Plan exists, there is hardly any legal method of controlling 'land use' for implementing the Master Plan according to the "land use" or "Zoning" plan envisaged by it.

Analysis of the problem of ill-planned growth and control of "land use".

3(ii). This problem, when analysed brings out the obvious natural tendency for ill-planned growth based on the availability of land to meet some immediate need and the non-existence of any planning or controlling authority to co-ordinate or correlate that need for "land use" with that of others.

Solution to the problem of ill-planned growth and control of "land use".

3(iii). The obvious solution for this problem is to prepare a Master Plan and to establish ways and means to control land-use according to Plan and to implement that Master Plan. "Where the Master Plans are not yet ready" to quote the words of the 'Land Acquisition and Development Scheme' of the Government of India, Ministry of Works, Housing and Supply,... "the operations should conform to the general ideas of what the development of that area and land use is likely to be during the next few years".

Ways & means to achieve the solutions to the problem of ill-planned growth and control of 'land use'.

3(iv). The 'legal tool' for this problem finds a ready example in the 'Durgapur (Development and Control of Building Operations) Act, 1957, West Bengal Act XXVII of 1958'. This is an Act to provide for the planned Development of, and control of building operations in Durgapur. Such an Act should be passed for each city or new town to be improved or newly planned and built, with such modifications or variations as may be necessary for its own peculiar needs and the Act when passed should be brought into force at once. In cities where both an Improvement Trust and a Municipality exist the former being the main planning and executing body of the Master Plan, should be vested with the powers for planned development, "Zoning", control of building operations etc. and the Municipal law should be amended to that extent. Also such new State enactments, or the old ones amended from time to time should contain the latest and most modern principles of Town Planning and Improvement so as to modernise and improve on the existing City Improvement Acts (e.g. The Howrah Improvement Act, 1956). One of the duties or functions of such a Statutory Body, as laid down in the Act, should be to prepare an 'outline of Draft Master Plan with an estimated cost thereof' on the basis of available data, surveys, existing Public or Private Sector plans for its area, and visualisation with vision and imagination to a great extent, without waiting for

all the surveys etc. to be completed. Such "Outlines" should indicate the main lines of improvement envisaged and depict the essentials of the Draft Master Plan and be practical workable plans. There should be quick and firm executive decisions so as to determine the ultimate size of "Tentative Plan" of the expanded town or enlarged City, and to divide the "Outline of the Draft Master Plan" into a number of Schemes (e.g. parks, roads, sewage disposal, sewerage, housing, rehousing, storm water and other drainage, slum-clearance, general improvement etc.) of convenient size, arranged in order of priority for convenience and expediency of execution. This "outline of Draft Master Plan" with the priorities accorded to the Schemes into which it may be divided, should be reviewed from year to year and during the country's Five-Year Plan periods and modified according to necessity thus making the planning a continuous process. In the meantime, proper surveys should be conducted, tables, charts, maps etc. prepared and a proper Master Plan compiled, which may take four or five years.

The problem of implementation of Master Plan or even the Outline of its Draft.

4(i). Even when a City Improvement Act has been enacted and brought into force and even when within a very short time an "Outline of Draft Master Plan" with a number of practical and executable Schemes comprising it has been prepared and the priority of the schemes has been fixed as indicated above, the problem of actually implementing the Plan looms large. This is mainly due to lack of funds during the initial years and the prevalent idea, that the Schemes or the Plan as a whole, will be self-financing or pay for themselves from the very beginning on the basis of "land business". In other words, it is assumed that after the Trust or the Statutory Body concerned procures the land by acquisition or otherwise, it will develop it mostly as saleable building sites and then sell all the available plots at a very high price by public auction and thus make a huge profit from which the Master Plan as a whole can be financed.

Analysis of the problem of implementation of a Master Plan or even the Outline of its Draft.

4(ii). An analysis of the problem will at once bring out the fallacy of this "self-financing" idea. In densely populated urban areas there is not much vacant land, i.e. land without structures. Very often these structures happen to be the only shelter and dwelling houses of their occupants. Acquiring these structures and the lands and selling them out by auctionbid or otherwise to others at high price, means in fact and practice, the eviction of the poor local people and intrusion or implantation on their land by rich outsiders. On the other hand, as long as no finance is available in lump sums from Government in sufficient amount to meet the needs at least of the initial years of the "Outline Plan" period as indicated in the paragraph below, this problem of the implementation of the Master Plan is likely to remain unsolved.

Solutions to the problem of implementation of a Master Plan or even the outline of its Draft.

4(iii). The obvious solution is to provide the Trusts initially with the necessary funds.

Ways and means to achieve the solutions to the problem of implementation of a Master Plan or its Outline Draft.

4(iv) (a). In order to make an estimate of the funds initially required for Capital Expenditures i.e. Expenditure on Schemes (as distinct from the recurring Expenditure for the regular establishment of the Trust or other Statutory Body concerned) the Union or State Government controlling the Trust or other Body should provide in its Annual Budget a sizable amount as a grant (for each such Trust) depending on the population, area, importance of the City or town and its own financial resources under the Act; e.g. a provision of Rs. 50,00,000/- (Rupees Fifty lakhs) only per lakh of existing population may be made. It should be appreciated that before the Trust or other Body can acquire adequate assets it can neither float nor receive any loans. Even if there is a law fixing the price of land and giving pre-emption of purchase of land to the State or Trust or other Statutory Body concerned and also an Act to provide for planned development and to prevent ill-planned growth, the vital importance, urgency and indispensability of the Trust etc. in getting immediate possession of at least the vacant lands needed for its Schemes, should not be lost sight of. This means that as soon as the Trust etc. has prepared an "Outline of Draft Master Plan" and schemes comprising it, it should be given the grant it requires for the immediate acquisition of all the vacant lands within its Schemes including the future Schemes which cannot be taken up forthwith or in the immediate future. This will enable the Trust etc. to implement its plan systematically and to prevent the vacant lands falling within its future Schemes from getting used up for other purposes legally or illegally, just because the Trust etc. could not get hold of them while they still remained vacant, undeveloped or structureless.

Union Government Principles of Planning.

4(iv) (b). Lastly, the principles laid down in the Government of India; Ministry of Works, Housing and Supply "Land Acquisition and Development Scheme". "Slum Clearance Scheme" etc. and any other Scheme, affecting Town Planning, by any other Union Ministry, should be incorporated in all the City Improvement Acts, so that the same policies and principles are followed throughout India in the Improvement of Urban areas.

Problem of Housing.

5(i). The number of Pavement dwellers, low-income group people and others requiring shelter, tenements or flats, outweigh by far the number who require buildings, for purchase or housing-plots to build their own houses from their own resources in cities/towns.

Analysis of the problem of housing.

5(ii). The problem when analysed, at once brings out the low economy or backward social structure in our country, especially the urban areas today, where the rapid increase of population as a result of various factors surpass by far the land and funds required by the people to build their own houses.

Solution to the problem of Housing.

5(iii). The solution, therefore, for Trusts etc. is to concentrate on multistoreyed buildings for residential or commercial-cum-residential purposes, thus planning for increasing the 'vertical density' per net acre while providing for sufficient breathing space round each such multi-storeyed building and thus reducing the 'horizontal density' per net acre.

Ways and means for achieving the solution to the problem of housing.

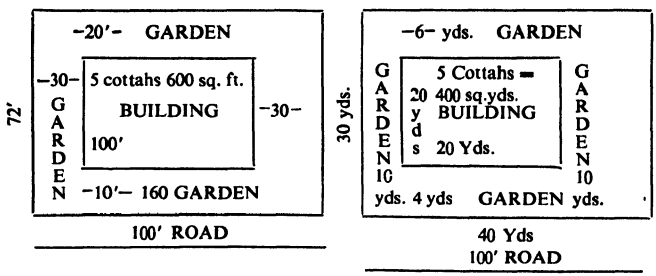
5(iv). To achieve the solution, the number of tenements per net acre (and not gross acre, as laid down in the Government of India: Slum Clearance Scheme) should be fixed because the open lands taken into account in the calculation of such gross acres may not remain open and may become built upon thus forming slum conditions again for lack of breathing space in the gross acreage taken into account. Hence, whenever any multi-storeyed building is constructed, there should be sufficient space round it in the very plot on which it is built: so that the road-frontage, the space between buildings and the space in general round each building are adequate in all respects. Thus the present writer would recommend that on the sides of all new roads, used for fast traffic especially roads of over 60′ (sixty feet) in width, there should be blocks of about fifteen cottahs (¼ acre or about 1,200 sq. yds.) each on which the plinth area of the multistoreyed building should not be more than five cottahs (or one-twelfth of an acre or about 400 sq. yds). Two examples are given below to illustrate the recommendation.

Multi-storeyed buildings for residential & commercial-cum-residential purposes and building-height zones for covering all sections of people.

This will give four such plots of about 1,200 sq. yds. each, per net acre with four such multi-storeyed buildings thereon, each having a plinth area of about 400 sq. yds. only. If there is shortage of electricity and lift-machinery, the building will have to be upto *five storeys only and without lifts.* Each floor on each building may then have a maximum of eight low rent tenements giving each building 40 low rent tenements. Thus there will be 160 such low rent tenements per net acre. Such plots may be kept on both sides of the main roads. Such plots of about 1,200 sq. yds. each on the main roads should be reserved, as far as practicable for multi-storeyed buildings for commercial-cum-residential purposes. The first two or three storeys of such buildings may be used for commercial purposes and the storeys above that, may have one, two or three good and spacious flats per floor for high income group people.

The lands of less value away from the main roads, but on subsidiary roads may have similar plots for similar multi-storeyed buildings with one or two roomed tenements only or three or more roomed flats. The lands further away may have smaller plots with smaller buildings, suitably spaced. The lands farthest away from the main roads should have very low-cost single storeyed structures for the present, for rehoused slum or 'bustee' dwellers, who should be rehoused not far away from their previous dwellings and in one-storeyed low-cost structures for the present, practically on the same rent as their previous slum dwellings for which the necessary subsidies from Government will be needed. After about twenty years or so, when the

(A) 16 Cottah Plot=1280 sq. yds. (B) 15 Cottah Plot=1200 sq. yds.



economy and the rent-paying capacity of these rehoused slum-dwellers improve, they may be rehoused again in multi-storeyed buildings on the same lands, by phased demolition of the said lowcost structures which will ensure better utilisation of the available land gradually.

Other agencies of the Public and Private Sectors to be encouraged to take up housing schemes within the general layout of the scheme.

5(iv) (b). The actual construction of the building on the said plots may not only be done by the Trusts etc., themselves; but by the Housing Departments of the State or Union Governments, Housing Co-operatives or Housing Agencies of the Private Sector, which may undertake, or make a contract, to abide by the general layout of the Schemes, e.g. to pay for the 1,200 sq. yds. plot but to build the multi-storeyed buildings on 400 sq. yds. thereof only.

Hire-purchase Schemes for flats, tenements, etc. to suit all pockets.

5(iv) (c). Suitable schemes for the Hire-purchase of tenements, flats, houses and to suit all pockets, both in the main cities and satellite towns should be framed.

Rehousing before making shelterless, as per United Nations' Charter and the Universal Declaration of Human Rights.

5(iv) (d). In accordance with the United Nations Charter and Articles 12, 17(2), 22 and 25 of the Universal Declaration of Human Rights for Social Security, housing and accommodation, no occupant of a house which is his only shelter should be displaced for the execution of any scheme till he has been "rehoused" in a house or at least in a tenement or a flat, in a multi-storeyed or other building or structure, according to his family requirements and his rent paying capacity: and as near as possible to the area of his previous dwelling so as not to dislocate his family budget or economy by increasing his expenses for transport etc. to come or go to his place of work from his new dwelling.

Construction of Night Shelters and gradual elimination of pavement-dwellers and beggars.

5(iv) (e). For pavement dwellers, beggars and old and infirm people, however, who are unable to pay any rent at all, for the present large open sheds with roofs (but no wall), i.e. "Night Shelters" should be erected all over the town, including corners of public parks, if feasible and unabstrusive, with proper arrangements for water supply and public latrines (separate for men and women). They should be gradually absorbed, i.e. given employment in industries and housed in "Industrial Housing Estates". Beggars who are physically handicapped or infirm people who dwell in pavements should be put in proper institutions like Vagrant Homes, Infirmaries, Old People's Homes etc. so that in course of time, beggars and pavement dwellers are eliminated from cities altogether.

Architectural layout.

5(iv) (f). Finally, before actual building construction is taken up for each Scheme its Architectural layout (with a relief model if possible) should be prepared. It must be borne in mind that building i.e. Architecture is ultimately the dominant factor in town planning and town improvement; and the flat map of town-improvement schemes, (which are part of an overall Master Plan), if rendered with poor quality of architecture will result in disaster. Hence not only the architectural design of each public building or monument should be carefully prepared and decided so as to harmonise with the surroundings and add to the beauty thereof, but even the general design for the multi-storeyed and other buildings to be constructed by those who purchase the plots should be studied, decided and laid down, at least in broad outlines in a general manner, so that the architectural beauty of a Scheme area as a whole is pleasant to the eye and soothing to the soul! Then, scheme by scheme the new or improved city of beauty with utility, should be gradually built or reconstructed.

Communication problem.

6(i). Due to the rapid rate of urbanisation and urban growth of population, the problem of transport and communication is extremely acute in every city and large town.

Analysis of the problem of Communication.

6(ii). The problem hardly needs any analysis. The very sight of passengers hanging precariously from trains, buses and trams during the rush hours in Calcutta-Howrah area will speak volubly and eloquently on the gravity of this problem. The fact is that the number of roads and the number of public-service-passenger-vehicles including trains are not enough to meet even the barest needs of even a fraction only of the growing office-and-factory-going population during rush hours.

Solutions to the problem of Communication.

6(iii). The solutions are to construct more new wide roads and to widen and enlarge the old ones if possible, to fan out traffic, to have in each road different lanes or 'reserves' for fast passenger carrying vehicles e.g. motor cars, buses, and taxies; for heavy motor traffic like trucks and lorries; for trams or trolleys; for slow-moving vehicular traffic including man-driven carts and rickshaws and for cyclists and for pedestrians. The question of tiered roads and subways, tubes, mono-rails, double-decker rail-cars etc. also needs examination. But the main thing is to increase the public transport vehicles IMMEDIATELY including double-decker buses and taxies and use all available roads for bus routes.

Ways and means to the solution of the problem of Communication.

6(iv). The way to achieve the solution is firstly to increase the number of double decker buses, the number of trains, electric trains etc. on the existing roads and railways. In the meantime, schemes for new roads and railways and the widening of old roads within town should be executed. As the investigations for underground railways, subways, monorails etc. mature and as funds are available, they also have to be implemented. To reduce costs, tolls may be collected (over tunnels or bridges) if really necessary. Transport ferries may be established over rivers connecting towns like Calcutta and Howrah. New main roads for heavy traffic in large towns and cities should not be less than 100′ (hundred feet) in width.

Problems of Public health and water supply analysis.

7(i). The problem of Public Health and Water Supply needs no special emphasis. It exists as an axiom, in all large towns.

7(ii). Like the problem itself, it hardly needs any analysis.

Solution to the problems of Public Health & Water supply.

7(iii). The solution is to have a plan not only for each town but for an entire Metropolitan area or 'conurbation' or close network of towns by the Public Health experts of each State.

Ways & Means.

7(iv). Sewage Disposal, Storm Water and other Drainage (which should not be connected with sanitary sewers leading upto

the Sewage Disposal Plant), sewerage, water supply from rivers as well as tube-wells etc. are matters to be dealt with by the Public Health experts or Special Board established to tackle this problem only, in a Metropolitan or 'conurbation' area. This problem should not be left only in the hands of the "Trust" or other City Improvement Body as it deserves special and concentrated attention by an expert body specially created or set up, to tackle this problem for an entire Metropolitan area or "Conurbation", with funds made available by Government. However, in the cities and towns where new sewerage have to be laid and new main roads also have to be constructed, a net-work of main-sewers-cum-new-main-roads should be planned together. This is because the main sewers and the new main roads may conveniently have the same alignments and require the same "Land acquisition" and it should be expedient to plan them and construct them together. In such cases it would be desirable to provide for an 'Improvement belt' of about one hundred yards width on either side of the said main alignments for 'Improvement Schemes' (of roads, housing, parks, public or community buildings or places etc.), along them. Thus all the new roads, should not only have sewers, but also water-supply-distribution mains, electric and telephone lines etc. within or along them. New main roads for fairly heavy traffic in large towns and cities should not be less than 100′ (one hundred feet) in width.

Conclusion.

8(a). Last, but not the least, all "planning of utilities, services and community facilities and their integration with, (and the preparation of), the Master Plan must have vision and imagination, however imperfect they may be. Plans may be reviewed and improved, as and when needed, and as the vision becomes clearer, or as the light received is better. *Above All, the human planner with all his limitations must humbly muse and seek the inner guidance and kindly light from the Master Planner Himself!*

8(b). In an endeavour to express that imperfect vision, for the work of improving the city of Howrah with which the writer is charged at present, he ventures to record hereunder, a few poor lines, in the form of a poem (a double-sonnet, rhymed in couplets, depicting two phases of the same theme) the literary and other shortcomings of which, he hopes, and trusts, the reader will kindly forgive :

CITY OF HOWRAH

Howrah today (A view obscure)

City of Howrah ! dismal, dense and drear
Where savage fumes surcharge the atmosphere

And surging numbers, land and streets o'erflow,
Where traffic strangled marks her daily show !

No sewers, veined and woven 'neath her ground
Of swelling sewage flush the sicklied town,

Her odious, noisome waste to purify,
On which the claims of Public Health rely:

Her open spaces, gardens, parks are few;
Playgrounds or lakes soothe not her cheerless view,

But dingy by-lanes, tanks and 'bustees' old
Her pressing needs proclaim, in letters bold

For quickening plans, improving overall
Such hapless, stifling sights which do appal!

Howrah tomorrow (A vision pure!)

But oft when in a pensive mood I lie,
Sweet visions bless my dreamful inward eye,

Filling my heart and soul with joy untold-
A happy city beauteous to behold!

Where power electric, smokeless fuel, gas
Supplant all coal and noxious fuming mass,

And myriad fields and parks and wholesome air
Spell public health and happiness so fair!

With housing, water, sewers, as per Scheme
Where firm Hygeia's mandates reign supreme;

And wide and tiered roads and subways too
With smooth and speedy traffic welcome you!

'Greater Howrah' immaculate and fair
Will tend you one and all with love and care!

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ANATOMY OF SLUMS

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Non-Member

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Summary

Slums provide cheap shelter to the poor. Slum clearance involves prior rehousing with essential amenities, minimum dislocation and rents within paying capacity. Each rehousing structure must have open breathing space around it, covering about twice its built-up area. Prior socio-economic survey should be carried out to determine the rent paying capacity, accommodation requirements and social-cum-economic suitability for single or multistoreyed tenements. Family planning and employment decentralization should obviate growth of slums. Wards should have reserved slum clearance zones. Considering our economy, a 'vertical' density of 160 tenements per net acre in five-storeyed rehousing, without lifts, is recommended.

1. Introduction

The problem of slums is faced by most of the cities in the world. In India, and especially the Calcutta and Howrah regions where a large number of people have a low income and the rate of increase in population is high, the problem of finding healthy living accommodation for such people is more acute. Growth of slums is, therefore, the natural solution to meet the problem, i.e immediate housing needs of such people. Thus, though slums are unsightly, full of filth and squalor and a disgrace to the cities, they are nevertheless inevitable till better living conditions are made available to the slum dwellers by carefully planned and executed slum clearance schemes as discussed in this paper.

2.1 Slums and their causes

2.1.1 What are slums?

The word 'slum' means in general terms, a collection of huts in urban areas, used for human habitation where such huts or structures do not have the minimum amenities required for healthy living.

2.1.2 Causes of slums

Slums are the natural outcome of the problem for meeting the need for housing for a large section of population who do not have the means or financial resources to live in better structures provided with civic amenities. The influx of surplus agricultural landless labour from rural areas into towns adds to the problem.

2.2 Slum sanitation

'No city can be considered healthy which tolerates within itself the existence of a highly congested area with only the minimum amenities of life, where some of the poorest elements of population are huddled together in almost sub-human conditions'. The minimum amenities required for decent human living for a family consist of

* Presented at the Symposium on 'Anatomy of Slums', at the 42nd Annual Convention, Calcutta, February 7, 1962.

a clean living room, water supply, kitchen, lavatory and bathing arrangements with drainage facilities, so that even if the structure itself is 'kutcha' or unsubstantial, a person or a family can live in it with cleanliness, health and some privacy. Slums do not have one or more of the said minimum amenities, and generally abound in filth and squalor. In order to improve slum areas, regular slum clearance schemes have to be undertaken and executed. Slum clearance is 'an essential part of a housing policy... Schemes of housing should proceed *pari passu* with the Scheme of Slum Clearance at least in the major industrial cities,' so that when a housing estate is ready, steps should be taken to remove the slum dwellers to the newly built houses and to proceed with the clearance of the slum area in question! *

2.3 Planning for slum clearance

For the purpose of clearing slum areas, the Ministry of Works, Housing and Supply have prepared a slum clearance scheme laying down certain minimum standards for rehousing of slum dwellers, i.e., providing some minimum amenities such as a room of 120 sq. ft. area, a verandah and kitchen of 72 sq. ft. area, a bathroom of 16 sq. ft. area, and a lavatory of 12 sq. ft. area, making a total of 220 sq. ft. for the minimum accommodation in each house or tenement. Though lavatories and bathrooms may be shared under certain conditions, attempts should be made to provide independent ones. The scheme lays down two important principles: (a) there should be minimum dislocation of slum dwellers and effort should be made to rehouse them as far as possible at the existing sites of the slums and/or sites nearby, in order to ensure that they are not uprooted from their fields of employment; and (b) in order to keep down rents within the paying capacity of slum dwellers, the emphasis should necessarily be laid more on provision of minimum standards of environmental hygiene and essential services rather than on construction of any elaborate structures.

Structures may be single, double or multi-storeyed. For single-storeyed structures to be constructed on a self-help basis, the size of each plot should be 1,000 to 1,200 sq. ft. with plinth area of about 300 sq. ft. Thus, in each plot of 1,000 sq ft., more than two-thirds of the land will remain vacant. The scheme lays down an optimum density of 20 to 25 (average of 22) plots or single-storeyed tenements per gross acre. Thus, under the optimum tenement density laid down, out of the 43,560 sq. ft. in a gross acre, only about 22×1,000 sq. ft. will be required for plots under the scheme and the rest used for providing adequate spaces for parks and other amenities if they do not already exist. This arrangement envisages a very important principle in spacing.

The principle is that no plot should be less than 1,000 sq. ft. and in every plot, not more than one-third space should be built upon and not less than two-thirds space left vacant. This general principle of 'breathing space' should apply not only to slum clearance

* Government of India. 'First Five Year Plan', p. 604.

schemes, but to all new buildings within a city or town for single, double and multi-storeyed structures, to relieve congestion and slum or quasi-slum conditions in cities and towns.

2.3.2 Replanning and improvement of slums

2.3.2.1 Socio-economic survey and rent paying capacity

From what has been stated it is clear that for replanning and improvement of slums the first requirement is to find out undeveloped and open spaces not used for human habitation to any great extent as near as possible to the existing sites of the slum to be cleared. The next step is to plan this undeveloped area as a slum rehousing scheme and to proceed with the scheme after acquiring the land. Prior to the framing of the rehousing scheme, a socio economic survey should be carried out to ascertain the rent paying capacities and accommodation requirements of each household, splitting the households where necessary into a larger number of separate family units on the basis of earning members (e.g., a married son with his wife and children) with ability to pay rent for a separate tenement and to live as a separate family unit. This will enhance privacy and decency.

2 3.2.2. Percentage of slum dwellers

The percentage of slum or bustee dwellers in main cities is quite high. In a recent socio-economic survey carried by the Howrah Improvement Trust, it was found that 38.2% of the people live in bustees.

2.3.2.3. Family planning

As the rate of increase in the population of slum dwellers is considerable, special efforts shall have to be made to popularize family planning in the slum areas both before and after rehousing them.

2.3.2.4. Employment decentralization

The causes which attract surplus agricultural labour and other sections of the population and add to the number of slum dwellers should be ascertained and steps taken to remove or control the said causes so as to prevent the increase in slum dwelling population. One such cause, which is perhaps the main cause, is to find employment. Hence, if sources of employment are decentralized by decentralization of industries, trade and commerce, and new industrial towns and cities are set up away from the main city, it may then be possible to stop the influx of new slum dwelling population into the main cites where land is already scarce, and thus enable the slum clearance schemes to maintain the aesthetic and public health values without giving scope to further growth of slums.

2.3.2.5. Reservation of areas in every ward for rehousing slum dwellers

As the cost of land is excessive and has an upward trend in the cities, it is difficult to find suitable land at comparatively low

rates near the existing slums for the purpose of slum clearance schemes. Hence, some areas in every ward near the existing slums have to be reserved or 'zoned' for slum clearance schemes. These areas should be acquired by the Government or its slum clearance agencies as early as possible to prevent the land getting used up and built upon for other purposes.

2.3.2.6. Slum clearance agencies

In the 'First Five Year Plan' published by the Government of India, page 604, slum clearance has been included under the chapter 'Housing' where it is stated, 'In certain cities, improvement trusts have made some efforts on slum clearance. Their efforts have been rather sporadic in character, mainly because the Improvement Trusts, to a greater degree than other local authorities, suffer from limitation of funds. Few of them have independent sources of income and have generally to depend on uncertain grants and subventions from the State Governments and local authorities. The initial cost of acquiring slum areas which under the present state of the law have to be compensated not only at the market value but with an additional surcharge in consideration of the compulsory nature of acquisition, is almost prohibitive in most areas for Improvement Trusts to undertake any large scale clearance of slums. We consider the clearance of slums to be an essential part of housing policy because the housing we propose is meant for the class of people who are now generally dwellers of slums. In our view, the schemes of housing should proceed *pari passu* with the schemes of slum clearance, at least in the major industrial cities, so that when a housing estate is ready, steps should be taken to remove the slum dwellers to the newly built houses and to proceed with the clearance of the slum area in question.'

Thus, it will be seen that Improvement Trusts and municipalities will never have the required finances for really effective slum clearance schemes; because the single or multistoreyed tenements constructed for such rehousing will have to be rented out to the to-be-displaced slum dwellers at rents within their paying capacity which, in most cases, is very low. Hence, no matter how much Government subsidy an Improvement Trust or municipality gets for slum clearance schemes, a substantial part of their resources and income will be consumed in such schemes only, leaving very little for other urgent works for the benefit of the city and its people in general. Hence, to face the slum Clearance problem and to deal with it effectively, the resources of a department of the State Government, for example, the Housing Department, will be necessary. The problem of maintaining the rehousing scheme structures is also there with its financial implications; because the rent fetched from the tenements is not likely to cover even a fraction of the cost of maintenance. To rehouse slum dwellers with comparatively higher incomes and rent paying capacity of about Rs. 20 per month, multistoreyed tenements may be constructed provided sufficient subsidy and interest-free loan are received from the Government.

2.3.2.7. Advantages and disadvantages of single and multi-storeyed tenements for rehousing schemes.

Rehousing of slum dwellers is entirely different from housing of low income group people who work in factories, etc. Slum dwellers may be of two categories: (a) those who are in service in factories, etc., and live in slums or huts only because they cannot get better accommodation within their rent paying capacity; and (b) very poor people who eke out an existence by daily labour or other low paid work, cottage industries, small business, and keep cattle or poultry or grow vegetables etc., on the land around their huts as part of their source of income. The former can be rehoused in single or multi-storeyed tenements without detriment to their economy. The latter class, however, if rehoused in multistoreyed tenements, will have to leave their cattle, kitchen-garden income etc., and their economy may fail. Hence, for the former class, rehousing in multistoreyed tenements within their rent paying capacity and near their former abode will be desirable, but for the latter, multistoreyed rehousing will spell disaster. Moreover, the persistence of slum habits even in improved surroundings may be difficult to eradicate and if, in multistoreyed structures, the rent becomes higher than the paying capacity, then there is every possibility of surreptitious change of tenancy or subletting, *in spite of vigilance*. The only way to check such abuses will be to sue for ejectment, which will be a long drawn and costly process. The Slum Clearance Scheme of the Government lays down the standard cost per slum family for the purpose of Central assistance and allows, where pucca structures are provided, Rs. 2,700 for single or double-storeyed tenements and Rs. 4,500 for multistoreyed tenements in Bombay and Calcutta. These costs are inclusive of the cost of acquisition and development of land. There are some undeveloped and insanitary areas near the slums in the Calcutta-Howrah region. The land value in such undeveloped areas may not be excessive. Hence, after acquiring and developing such land for rehousing slums, the cost per single-storeyed tenement may not be as high as the cost per tenement in a multi-storeyed building on the same land, inclusive of the cost of acquisition and development of land. In such cases, it will be better to rehouse slum dwellers of the latter class in single-storeyed tenements or houses even by using larger areas of the developed land because this will enable them to have better living conditions in economical structures within their rent paying capacity and without dislocating their economy or means of subsistence. For the former class, multistoreyed tenements may be constructed as near to their former slum abodes as possible so as not to uproot them from their fields of employment and increase their expenses for transport, etc. In both cases, however, care must be taken to ensure that the cost of structures (excluding Government subsidy) is limited to an amount which will enable a rent within the paying capacity of the slum dwellers to be rehoused. This rent should be inclusive of service charges and should not exceed 10% of the average monthly income of the family. It is stated in the

Annual Report of the Calcutta Improvement Trust for 1958-59 as follows:—

"The persistence of slum habits even in improved surroundings has been difficult to eradicate, because water, which is available for 24 hours, is allowed to run to waste through taps being kept open whole night, staircase and corridor lights are misused, walls are damaged by driving nails anywhere, and lavatory pans and drain pipes are choked by throwing rags or solid matter into them. Indiscriminate throwing of litter in the compound and the display of dirty clothings and washings on the railing or against the protecting iron mesh of the veranda windows could not be stopped, and we have not been able to persuade all our tenants to keep the garbage can at the door step at the stated hour for the sweeper to clear away. With some, default in the payment of rent has become habitual which only a periodical service of notice of termination of tenancy helps to keep under control. A small number of tenants run up huge arrears of rent and when a suit is filed, the mounting arrears during the slow progress of the suit become a colossal liability which the judgement debtors very often escape through death or bankruptcy. The protection which private landlords enjoy under the Premises Tenancy Act, under which tenants are compelled during the pendency of the suit to deposit the monthly rent in the court however prolonged the suit may be, is not available to us, so that by the time a suit is disposed of after two or three years or more, (if the loopholes of law can be shrewdly made use of) the debt becomes impossible of payment:"

The cost of maintenance of multistoreyed buildings is also a matter for consideration. As against this, colonies with separate plots having single-storeyed economical structures with foundations for two storeys, if necessary, may involve a much less initial cost and the structures may be more suitable for the socio-economic standard of slum dwellers at the time when they are rehoused. After 10 or 20 years, the economic standards of such rehoused people may improve and gradually such land may be re-utilized by building multistoreyed tenements in a phased programme in place of the single-storeyed structures. Thus, on the basis of socio-economic survey, slum dwellers in each slum or bustee should be divided into the two categories mentioned earlier, and rehoused in multistoreyed tenements or single-storeyed colonies as the case may be. A particular slum or bustee may have to be rehoused in one or more rehousing schemes or estates scattered around if sufficient land is not available to rehouse its dwellers in one place. To implement this recommendation may perhaps involve a *higher rate of Government subsidy* than allowed at present

2.3.3.1. Design of buildings

In the Government Slum Clearance Scheme, the optimum density for four-storeyed or higher structures is limited to 60 tenements per gross acre. This envisages the provision for adequate spaces for parks and amenities within the scheme areas. However, in practice the Schemes shall have to be taken up in comparatively small pockets

due to scarcity of land. Hence, instead of laying down a tenement density limit per gross acre, a much higher density per net acre is desirable. However, even if the breathing space proportion of one-third built-up area and two-thirds open area per plot, as referred to earlier, is maintained, it will be possible and practicable to have a density of even *160 tenements per net acre in five-storeyed buildings without lifts; with covered area per tenement as large as 420 sq. ft.* or floor area of about 350 sq. ft. as compared with only 220 sq. ft. laid down in the Scheme. Further, to ensure privacy especially where families have grown up children, such tenements should have two rooms, instead of one as given in the Scheme. In other words, 60 tenements per acre, as laid down in the Scheme, is too idealistic for our poor economy and a density of 160 tenements per net acre in five-storeyed buildings without lifts is recommended for such slum dwellers who are able to pay a rent of about Rs. 20 per month and live in multistoreyed tenements.

2.3.3.2. Plot and tenement layout

As an example for the recommendation as above, a net area comprising 240 yd. road frontage length and 20 yd. breadth, i.e. 4,800 sq. yd., i.e., about one net acre, may be considered. This area may be divided into four building plots of 60 yd. × 20 yd. or 1,200 sq. yd. each. In each such plot, only one-third or 400 sq. yd. should be used for a five-storeyed building, leaving out two-thirds of the plot for gardens and open space around the building as essential breathing space. Each floor may then be divided into eight tenements, each of 420 sq. ft. area, including wall thickness, with four tenements on either side of the staircase which should be 8 ft. in width. Thus, there will be eight tenements per floor and 40 tenements per building or plot, and therefore, 160 tenements per net acre. Further, the built-up area will be 1,600 sq. yd., leaving out an open breathing space of 3,200 sq. yd. per net acre. Even after keeping this liberal breathing space the tenement density can be raised to 160 tenements per net acre or an average population density of about 800 persons per net acre, taking five persons per family on the average. The open space around the building will be 10 yd. on either side lengthwise and 4 yd. from the road in front and 6 yd. at the rear breadthwise. The population rehoused by such vertical density may avail of the facilities of parks, playfields, educational, cultural and other amenities already obtaining or planned for in the neighbourhood of such multi-storeyed buildings, but not forming a part of the slum rehousing-cum-clearance scheme itself. If necessary, however, a single-storeyed primary school or a similar institution may be constructed on the open land on the side of such a multistoreyed building, and its ground floor let out to shops, etc., which will cater to the needs of the building inhabitants. Such shopping accommodation should be preferably let out to applicants who form part of the building inhabitants.

2.3.3.3. Tenement density and layout per floor

In the tenement plan as detailed above, each tenement consists of 2 rooms of 14 ft. × 10 ft. each, with a combined bathroom and

sanitary w.c. of 5 ft. × 5 ft., a kitchen of 5 ft. × 5 ft. and either two verandahs one on either side, of 2 ft. 6 in. width each, or one verandah only on one side 5 ft. in width. The staircase is 8 ft. wide. The doors and windows will be properly aligned to ensure proper ventilation. All dimensions include wall thickness. External walls are 15 in. thick and internal walls 5 in. thick.

2.3.3.4. Suggestions

These suggestions are based on the author's own ideas and observations, both in India and abroad on the housing needs of very low income groups or slum dwellers. The suggestion is merely to set up a thought current so that qualified architects and engineers may examine the suggestion carefully and improve on it. The main requirements of such a tenement are (i) low rent, (ii) at least two rooms to preserve privacy and decency, (iii) separate kitchen per tenement, (iv) separate bathroom with combined water closets, (v) at least one verandah, (vi) sufficient doors and windows aligned properly to provide healthy ventilation and (vii) if possible, safety precautions to prevent children from falling out of the windows and verandahs, etc.

3. Conclusions

3.1. Main recommendations

In conclusion it may be emphasized that the two principles laid down in the Government of India Slum Clearance Scheme, viz., (i) the minimum dislocation and (ii) construction of economical structures with minimum standard of *environmental* hygiene and essential services within the rent paying capacity of the slum dwellers to be rehoused, are of paramount importance. The next important point is to have the shelters or tenements ready for rehousing before displacing the slum dwellers. If possible, the slum rehousing should start on any available open land in a part of the slum area itself and the huts demolished after rehousing the slum dwellers in gradual and continuous phases. Where, however, this is not practicable, alternative sites nearby have to be acquired for the prior rehousing of the slum dwellers and the existing slum sites be acquired and utilized for building sites of higher value and other purposes which should fetch a good return, which, again, may be set off against the total cost of the slum rehousing-cum-clearance schemes. The next recommendation is that wherever practicable and possible colonies with separate plots of one or two-storeyed houses should be made for the poorer section of the slum dwellers in preference to multistoreyed structures for them. This is because the former will be more suitable for the socio-economic standards of the very poor slum dwellers at present; and these structures may be replaced later by multi-storyed tenements for better utilization of the land in gradual stages when the economic condition of the rehoused slum dwellers improves. Further in order to implement all the recommendations made in this paper it may involve a *higher rate of Government subsidy* than allowed at present, and in such a case, it would be a matter for the

consideration of the Government if it would or would not be worthwhile in the long run to enhance the subsidy and thereby enable slum clearance schemes to be implemented effectively both as a service to the slum dwellers effectively and also as a service to the cities from the aesthetic and public health points of view.

3.2 Need for vision and imagination

Last but not least, in dealing with such human beings as slum dwellers, no specific or set type-plan should or can always be adhered to. The climate, the social and other needs, and the ways and means to plan for and meet them, consonant with the economy, e.g., the rent paying capacity of the human beings dealt with, as well as the financial and other resources of the planning and executing agency, etc., have all to be carefully considered in each case or each class of cases. This requires vision and imagination, however, imperfect they may be. Plans may be reviewed and improved upon, as the insight becomes clearer or the inspiration stronger. Above all, the human planner with all his limitations must humbly muse and seek the inner guidance and kindly light from the Master Planner Himself!

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Special Issue—Calcutta on The Move

Calcutta's Environmental Pollution—the Canker and its Cure

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CALCUTTA'S ENVIRONMENTAL POLLUTION THE CANKER AND ITS CURE

by

V. S. C. Bonarjee I.A.S.

CHAIRMAN, CALCUTTA IMPROVEMENT TRUST

At the outset, it may be useful to discuss the interpretation of certain terms or words used in this paper. *'Environment'* indicates surroundings in general and in its special application here it means the *living conditions* of the citizens of Calcutta *covering almost all aspects of life and growth.* The word *'pollution'* is taken to mean, in that respect, whatever fouls or *defiles* the *living conditions* of the citizen and affects his healthy life and happiness. In biology these matters are dealt with in its branch of 'oecology' or *'ecology';* but here the ecological implications relate to human beings only, and the term *'biosphere'* implies the so far *self-renewing system* of air, water and land, as well as the *sub-surface,* areas of land and water which *sustain* the citizens' *life* almost *in an automatic manner.* The term "Environmental Pollution", therefore, includes all matters which affect the citizens' biosphere adversely. But to make this paper readably concise, I am excluding from it such essentials of the human biosphere as the state of *Law & Order* including *Adulteration and Corruption* and some aspects of Sociology as marriage, family life etc. I am avoiding the subject of Law & Order intentionally lest some of my ideas based on my earlier studies on "Intelligence & Security" during my Air Force career from 1940 to 1948 or my experience thereafter as a District Magistrate or Divisional Commissioner or as the State Government's Secretary to the Home (Anti-Corruption) Department and Special Officer, Enforcement Branch, inadvertently find expression herein. I shall also endeavour to mention the *practicable solutions* only, instead of unnecessarily dwelling on the *problems* involved.

2. Now, the biosphere of the population of Calcutta is affected ecologically by the towns in its environments, and Howrah is the most important among them. Calcutta and Howrah are almost twin cities. A few years ago (1960-62) I was the Chairman of the Howrah Improvement Trust when in course of writing a paper on the subject of "Some Problems and Solutions on Town Planning in India" (published in the Journal of the Institute of Town Planners India, No. 29-30, January-April, 1962), the living conditions in Howrah, from its human ecological point of view, flashed upon my mind with a shock, and I depicted my feelings in the form of a double-sonnet in couplets entitled "CITY OF HOWRAH", which is quoted hereunder:

CITY OF HOWRAH

Howrah today (A view obscure)
City of Howrah! dismal, dense and drear
Where savage fumes surcharge the atmosphere
And surging numbers, land and streets overflow
While traffic strangled marks her daily show!
No sewers, veined and woven 'neath her ground
Of swelling sewage flush the sicklied town,
Her odious, noisome waste to purify,
On which the claims of Public Health rely;
Her open spaces, gardens, parks are few;
Playgrounds or lakes soothe not her cheerless view,
But dingy by-lanes, tanks and 'bustees' old
Her pressing needs proclaim, in letters bold
For quickening plans, improving overall
Such hapless, stifling sights which do appal!

Howrah tomorraw (A vision pure!)
But oft when in a pensive mood I lie,
Sweet visions bless my dreamful inward eye,
Filling my heart and soul with joy untold—
A happy city beauteous to behold!
Where power electric, smokeless fuel, gas
Supplant all coal and noxious fuming mass,
And myriad fiields and parks and wholesome air
Spell public health and happiness so fair!
With housing, water, sewers, as per Scheme
Where firm Hygeia's mandates reign supreme;
And wide and tiered roads and subways too
With smooth and speedy traffic welcome you!
'Greater Howrah' immaculate and fair
Will tend you one and all with love and care!

Needless to say, the environments of both the cities in land, water and air i.e. the biospheres of their population are surcharged with pollution of a stifling nature and an all-out effort is necessary, *firstly*, to arouse *public awareness* regarding the problem, which slowly eats into the vitals of urban human life and, secondly, to take *remedial measures* before the pollution-desease surpasses control.

3. This poem was composed and published in 1961-62 when the subject of environmental pollution had not assumed the world-wide importance as it has done in this decade. Nevertheless, the poem, in short, gives both the problems and solutions to our environmental pollution. Let us, therefore, analyse the points brought out in the

said poem on the problems of environmental pollution and their solutions or remedial measures. It is seen that the subject is covered in the poem under four distinct aspects viz. (1) Atmosphere or Air, (2) Land (surface), (3) Water (Surface) and (4) the Sub-surface or underground/underwater biosphere.

4. Point no. 1 deals with the Atmosphere and mentions savage *fumes* which obviously envisages all other types of unwholesome air, smoke, gases, dirt, soot, bacteria, solid particles, 'smog' as also *noise*, uncomfortable *temperatures*, air *pressure*, moisture etc., which surcharge the atmosphere. As remedial measures, the use of electric power or *"white coal"*, to replace coal, coke and other types of *pollution-producing power generators*, should be considered. Other types of smokeless fuel e.g., pipe-line gas and portable non-poisonous cylinder-contained gas have been suggested. The possibility of other types of smokeless fuel produced out of coal dust or waste has also been envisaged; as also the replacement of noxious fumes from diesel buses etc. by 'non-fuming' fuel has been indicated. In this connection, the possibility of devising new types of *filters* for diesel buses etc. to prevent pollution from fumes and even the use of electric, Nitrogen or *atomic-power motor cars* or even vehicles powered by *batteries chargeable by solar energy* for the purpose, may fire and inspire one's imagination. *Research* is needed on *weather-control* including the control of temperature, humidity, pressure, rainfall, *chemical contents* of the air, and the control of light, and methods of detecting and removing all types of impurities (including radio-active fallout due to atomic explosions and other causes) from the air (as well as water). Even after removing the said impurities from the air as well as the causes of uncomfortable temperature, pressure, moisture, 'smog' etc., the problem of *congestion* remains and this problem has been dealt with in my paper entitled 'Anatomy of Slums', (published in the Journal of the Institution of Engineers (India), Vol. XLIII, No. 8, Part GE 2 April 1963), wherein I have emphasised the factor of *'essential breathing space'* recommending that the existing building laws should be changed to enforce the said factor and any new structure must have around it open space which is at least twice its built-up area in each building plot. I have also emphasised in the said poem on this point the vital importance of open spaces, gardens, *parks, playgrounds*, fields, lakes (including well maintained *swimming pools*, tanks, picnic spots, recreational grounds) etc. for wholesome air to spell public health and happiness. *Noise* also is a part of environmental pollution defiling urban atmosphere, which, however, is something which a city-dweller becomes accustomed and ultimately immune to within limits say below 80 decibels. The cure for cities like Calcutta and Howrah for their smoke-infested atmosphere is not only the *replacement* of coal by non-smoking fuel, electric power etc. in factories etc., but also the replacement of *open-ovens* e.g. *'balti-chulas'* (on streets, compounds of houses etc.), which are used by the poorer sections of the community in general, thus causing the whole atmosphere to be surcharged with smoke, 'smog' and soot. The solution is, therefore, to produce a cheap fuel manufactured in the form of *briquettes out of coal-dust* or coal waste,

which will ensure its burning with a blue flame without causing any smoke at all. As this pollution is peculiar to the environments of Calcutta only, active and continuous *research* should be done to produce the necessary types of *cheap smokeless fuel within the paying capacity of the poorer sections of the community.* However, such a smokeless cheap fuel fit for using in open ovens or 'bucket-chulas' must be produced on a mass scale in the public sector, and, if necessary, supplied by Govt. as part of rations. After the supply of such cheap smokeless fuel has been arranged by Govt. satisfactorily, a *'Clean-Air Act'* should be passed to enforce the use of such smokeless fuel making it a cognisable offence for anyone, who pollutes the atmosphere by smoke; provided, of course, the Act is so worded as to allow smoking as a habit to those, who are addicted to it; though it will be preferable in the long run, in the best interests of public health in general, to prevent smoking altogether!

5. Apart from parks, playgrounds, lakes and swimming pools, open spaces, the construction of *tiered roads and sub-ways,* and *wide roads of about 200 ft. in width* e.g. the Eastern Metropolitan Bye Pass with its link-roads, and high and wide bridges with approach roads e.g. the Hooghly River Bridge with Approaches (for the construction of which the Calcutta Improvement Trust is involved on the Calcutta-approach portion), with *arboriculture* wherever practicable, will enable the population to get away from the urban congested areas and breathe fresh air less tainted with pollution. Such highways should continue right upto the sea i.e. the Bay of Bengal through the *forests of Sunderbans* in order to enable the population to breathe sea and *forest* air at minimum cost and time with well arranged travel and day and night halting facilities to suit all pockets. Ways and means should also be devised to ascertain the *bacteria and other pollution content* of the air periodically and to control the same as far as possible.

6. The second point is environmental pollution of *land.* I have mentioned in the said poem that surging numbers of men, vehicles, houses and other structures overflow the land and streets and that traffic is strangled as a daily show! Dingy by-lanes and 'bustees' and *pavement dwellers who use the streets and pavements as latrines* also contribute to dirt and squalor, which cause environmental pollution affecting land. Remedial measures for these are obviously the drawing up and execution of Master Plans for the cities with area-development schemes on the principles of "neighbourhood planning" as described, among others, by Ebenezer Howard towards the end of the nineteenth century and later by Lewis Keeble in his "Principles and Practice of Town and Country Planning", and as laid down in Section 35C read with Section 35D (a) of the Calcutta Improvement Act, 1911, as 'General Improvement Schemes' together with *night-shelters, public-privies* and baths, *bustee-improvement* by the *Calcutta Corporation* and C.M.P.O./C.M.D.A. as also public housing in multi-storeyed buildings with built-up or plinth area always having not less than twice its area as *open essential breathing space* around it, as mentioned earlier. I would specially emphasise the provision for *National Parks* (with arboriculture and horticulture), forests e.g. in Moscow, *lakes, swimming pools and playgrounds as lungs of the*

town for the people and recreation-space for the youth. However, new arterial roads should not be less than 200 ft. in width as in the case of the Eastern Metropolitan Bye Pass now under survey by the C.I.T. Though the underground railway or the *Metropolitan Traffic Project* is under survey, it is not known whether its possible effects on environmental pollution in a city like Calcutta have also been considered. If not, these effects should also be thought of and anticipated and remedial measures taken at the outset. In the long run, however, for cities like Calcutta and Howrah with increasing population and their streets overflowing with vehicles of all types with continuous traffic jams in spite of underground railways etc., it may be necessary to construct *elevated highways* in a *wheel-like pattern* with an elevated outer ring road as the *rim* and suitably-sized roads as *spokes* connecting it to the central ring with well-planned car and bus parks on the elevated structure itself with arrangements for coming down to the ground level only at suitable points. *The planning for such a road from the Calcutta end of the Hooghly River Bridge should be started forthwith, so as to connect it to the Eastern Metropolitan Bye Pass.* These, however, may be a costly affair, and the economics of the same have to be carefully worked out including the paying capacity of those who may have to use the buses etc. running on such elevated roads. However, a major arterial highway should be constructed early to connect *Calcutta with Diamond Harbour* with *bus-truck-car and Railway-wagon carrying ferry-vessels linking Diamond Harbour to Haldia. Trolley buses* (including *double-deckers* if possible) should either replace trams or take the place of additional trams. Rickshaws (and cycle rickshaws in Calcutta's environments) should be motorised ones. Due to lack of car-parking space, *Mini-cycles* should also be introduced. The most important remedial measure for environmental pollution is, however, the creation of *EMPLOYMENT* for all people, so that they can earn enough to afford a good healthy life and can obey all the laws for *environmental pollution control.* For this, I would suggest that the public and the private sectors should collaborate to start *new industries* of all types *keeping 51% of the shares in the public sector* for effective control and the rest divided between the private sector and the general public for dividends; or, if necessary, the public sector by itself should go into industries of all types for the production of consumer goods (including food) e.g. the extraction of *Nitrogen from the* air within limits, while maintaining the Nitrogen Cycle (for the fertiliser industry), Tea industry, Rice Mill industry, Jute Mill industry, Sugar Mill industry, Textile Mill industry, Cement industry etc. Now, *unemployment*-employment and *Industrial unrest* (due to labour demands, go-slow tactics, more pay with *less* work and less production etc.) move in a *vicious circle.* To create stability in factories and offices and to give incentive to the employees, a certain number of *shares* should be reserved *for employees* both in the public and private sectors, and it should be a service-condition for new employees to purchase a minimum number of shares or to execute bonds for purchase of shares by deduction from salaries in due course. *Elected shareholder-employees should participate in the management.* Furthermore, a law should be enacted, if possible, *prohibiting* (1) political

affiliation of trade/employees' unions and (ii) ensuring that there is only *one non-political employees' union* in each factory or office. *New factories* of all types should be established in *villages* at the very site where raw materials and resources are available to *prevent migration from villages* to cities. Moreover, to ensure production and *industrial peace*, the possibility should be examined of bringing out an enactment by virtue of which new *Govt. factories* and essential services as well as public sector-cum-private sector industries can be organised *on the lines of defence services* i.e. to make similar provisions in its service-terms to its employees as in the defence services to ensure discipline, efficiency, maximum production and industrial peace. The possibility under the law of introducing such terms and conditions to new employees in the private sector should also be examined. Furthermore, arrangement for, boy/girl entrants to the Defence Services, apprentices in Govt. and Civil Establishments, *Workshops*, Shipping etc. should be expanded several-fold, so that boys and girls can start their careers early with minimum education and later 'in-service' education and training. Furthermore, the system of *education* itself should be reorganised to make it *'employment-oriented'*! Govt. or the *Public Sector* should also enter the *wholesale and retail trade* and compete with the Private Sector. Govt.-shop employees should be employed on *commission basis* on their sales to to create incentive for their salesmanship. Thus by full employment,maximum production, quality and price-control, together with *population-control*, the *buying power of the rupee should be increased* and restored to the pre-War or pre-Independence level, at the same time *increasing* the *purchasing power* of the poorest sections of the people. Moreover, in certain cities of Japan, there are *Employment Exchanges for retired people*. Sometimes, both in the public and private sectors in India, such retired people with good health are in demand; but, there is no Employment Exchange to link the employers with the candidates. Hence, there should be Employment Exchanges for retired people also, or existing Employment Exchanges may take up this work in addition. There is heavy 'employable' population in some States whereas some States have low density of population requiring man-power, which aggravates the economic problem in the former States. There should be arrangement at the Central Govt. level to tackle the work of *inter-State migration* with due publicity and propaganda regarding facilities etc. to result in a normal flow of 'employable' population from the heavy-density States to low-density States, thereby improving the economy of both types of States. Similarly, there are many talented 'employable' people, who are *unemployed* or under-employed in India and feel frustrated. There should be a policy to help such people to *migrate to foreign lands* where the employment conditions may give them better amenities and satisfaction in life, so that they can send their savings to India and earn *'foreign exchange'* for her. Our Embassies in low-density countries like Canada, Australia, *Russia*, countries in South America etc. may be instructed to examine such possibilities, and the matter may be taken up with the foreign Governments concerned. In fact, this will be a kind of 'colonisation' e.g. the Japanese have 'colonised' in some of the States of Brazil. There is a sizeable popu-

lation of *beggars,* who aggravate the environmental pollution of the cities and the impression of unemployment therein, though they may be earning good sums by this profession. When enough employment opportunities have been created by the State, *begging on streets should be prohibited as a cognisable offence* and beggers should be given employment or kept in Vagrants' Home etc. by the State. Moreover, social and *Family Planning Work* should be extended to *beggars,* pavement dwellers etc., if necessary, by operations to ensure *birth-control.* The legal aspect for this requires examination. In rationed areas, to create disincentive for family expansion and an incentive for Family Planning, the question of *limiting rations for two children* only should be examined and introduced, if possible. Furthermore, *research* in new types of production with *new ideas* e.g. *extraction of Nitrogen from the* air for fertiliser factories (within limits while otherwise maintaining the Nitrogen Cycle), *electric-battery-run cars, batteries from solar energy* etc. should be carried out. Other types of new industries may take the form of production of *cellular building blocks* like Siporex' now being manufactured in Maharashtra by Siporex India Ltd. The production of brick-like structures from coal ash should also be undertaken by the public sector at least as an experiment to give a lead to the private sector. This is all the more necessary specially when the price of bricks is going up by leaps and bounds making it very expensive for house building. Briefly, as a solution to the environmental pollution problem, *removal of poverty and unemployment* go hand in hand together with the solution to the housing problem for which Govt. have to take the lead and arrange for mass production and mass supply of building materials so as to improve employment and to reduce the costs of construction, which ultimately reflect on the paying capacity of the poorer sections of the community, who are responsible so much ultimately for environmental pollution. The rate of growth in the number of Hospitals, Schools and Colleges together with *Workshops* must also keep up with the growing needs of the population. Effective measures should also be taken regarding *garbage clearance* by dumping or incineration, and conversion into composts or *fertiliser* for *agricultural and arboricultural purposes,* which in turn will grow food to *fight poverty and hunger!*

7. The third important point for environmental pollution is regarding *water.* The drinking water in the Calcutta area is brought from the Hooghly River, which itself being near the estuary is liable to *estuarine pollution.* I need not go into the details of estuarine pollution (including eutrophication) in this paper, which is a subject by itself. However, it is obvious that the Hooghly River, which supplies the drinking water here, is a receptacle of *industrial waste* of a large number of factories on its banks on both sides as well as the untreated effluent of a number of drains, sewers etc. of the cities on both the banks. The quantum of water which we shall *actually* receive from the *Farakka Barrage* during the dry weather is not yet certain and, therefore, it is not clear how far it will ultimately affect or improve the *'salinity pollution'* of the drinking water drawn from the Hooghly River during the dry months. However, it will go a

long way if *laws* are passed and steps are taken to enforce the factories *to treat their industrial waste* before discharging the same into the river and steps are also taken to find out *sub-soil water reservoirs from areas beyond the saline or tidal limit* of the river to supply the city with *sweet, fresh and soft water* in the years ahead with an effective pipe line system from the said reservoirs to the city's existing network of overhead reservoirs and water mains. As *silt is an* important item of pollution to the river water, effective measures of "silt-trapping"-cum-manure/fertiliser/building material production together with *soil conservation* should also be planned for and taken.

8. Last but not the least, I mention the point of sub-surface land/water i.e. subsoil or underwater areas. The City of Calcutta is suffering as in the case of other cities, from inadequate supply of water due to the inability of the Calcutta Corporation to cope with the water-supply needs of its growing population, and, in consequence, the demand on sub-soil water is increasing. It may be that due to sub-soil conditions at present, the recuperation-rate of water drawn out from the sub-soil is sufficient and, therefore, there is no sign as yet of the city subsiding. Other cities of the world, however, are already feeling the effect of *subsidence* due to this factor. It is, therefore, necessary to examine this matter carefully so that uncontrolled drawal of tubewell water is not allowed so as to accelerate *tactonic flexures and pressures. Tubewell* water may not always be free from bacteria and may be *contaminated.* Hence, *drinking water,* as such, whether drawn from the Corporation supply or from subewell, should, in my view, always *be boiled* from the anti-bacterial point of view with requisite cooling before drinking. This will prevent a large number of *water-borne* deseases, the bacteria of which affect the human ecology. The underground sewerage system should also be re-organised, so that night soil and storm-water are conveyed by different sewers, and the former always treated before its effluent is disposed of into the river. Storm-water sewers must be regularly desilted and the 'silt' removed from the surface after clearance at once to the dumping ground or fertiliser factory, as the case may be, so that it is not washed back into the sewers again causing money and labour wastage and chokage and overall *water-logging.* Effective mechanical measures for sewer clearance, including the 'flushing system' with adequate pumping-arrangements and pumping-stations, should be introduced and effective measures taken regarding the disposal of garbage as well as sewage to eliminate environmental pollution from these factors.

9. Let me emphasise that many of the solutions, I have suggested, could be put into practice if the composite general improvement schemes under Section 35C read with 35D (a) of the C. I. Act, 1911, could be financed as such, and accepted readily by the Calcutta Metropolitan Development Authority. It is well known that *piecemeal schemes* never contribute to effective town planning, and the failure of *single-purpose* planning is well known. Nevertheless, the Calcutta Metropolitan Development Authority finances the C.I.T. Schemes sectorwise in piecemeal fashion making it difficult for the C.I.T. to get its composite 'general improvement' schemes based on

the Town Planning principles of 'Neighbourhood Planning', as indicated below, financed and executed. In this connection, I am quoting hereunder Section 35C of the C.I. Act, 1911 :—

"35C. (1) An improvement scheme may provide for all or any of the following matters, namely :—

(*a*) the acquisition by the Board of any land in the area comprised in the scheme, which will in their opinion be required for or affected by the execution of the scheme ;

(*b*) the laying out or re-laying out of the land comprised in the scheme ;

(*c*) the demolition, alteration or reconstruction of buildings or portions of buildings situated on the land which it is proposed to acquire in the said area ;

(*d*) the construction of any building which the Board may consider necessary to erect for carrying out any of the purposes of this Act ;

(*e*) the laying out or construction or alteration of streets (including bridges, causeways, culverts), if required, and the levelling, paving, metalling, flagging and channelling of such streets and planting of flower bushes or trees on the sides of such streets ;

(*f*) the sewering and draining of such streets and the provision therein of water, lighting and other sanitary conveniences ordinarily provided in a municipality ;

(*g*) raising, lowering or levelling of any land in the area comprised in the scheme ;

(*h*) the provision of accommodation for any classes of inhabitants ;

(*i*) the formation and retention of open spaces, gardens, parks, playgrounds, lakes, and the provision therein of athletic tracks and stadiums, recreation buildings and structures and other necessary aids to field and aquatic sports, arboriculture and any other objects which the Board consider desirable to provide ;

(*j*) controlling the use of land developed by the Board by zoning or reserving areas for specific purposes ;

(*k*) Any other matters consistent with this Act, which the Board may think fit.

(2) When areas are reserved for specific purposes, under clauses (*i*) and (*j*) of sub-section (1), it shall be the duty of the Corporation or the Commissioners of the Municipality, within whose jurisdiction such areas are situate, to prohibit and prevent their use in violation of such purposes."

It will be seen from the above that these are the matters which have been included in the 'neighbourhood planning' principles of Town Planning. The general improvement schemes under section 35D (a)

of the Act are composite schemes on the aforesaid principles consisting of wide roads including sewers and drains, parks etc. but the C.I.T. schemes are financed by the C.M.D.A. *NOT* in their entirety as GENERAL IMPROVEMENT SCHEMES as sanctioned by Govt.; but on a sectorwise basis only, in which the roads, parks etc. only of the C.I.T. Schemes (as already sanctioned by the Local Self Govt. now Municipal Services Dept. of Govt.) are given to the C.I.T. for implementation as individual or separate projects; and some of its other components e.g. sewerage, drainage etc. are given to other bodies (e.g. the C.M.W. & S. A. etc.). This not only delays the execution of all schemes by the C.I.T. but also makes it difficult for the C.I.T. to have its schemes financed by the C.M.D.A. in such a piecemeal single-purpose manner; because the C.I.T.'s general improvement schemes have then to be broken up into several components and the financing structure makes the scheme itself piecemeal and single-purpose in aspect, thereby depriving the people of the area the full benefit of such Govt. sanctioned schemes . It may be mentined, in this connection, that the Calcutta Improvement Trust is *not getting its statutory dues from the Calcutta Corporation* as laid down in Section 88 of the Calcutta Improvement Act, 1911, read with Section 117 (2) of the Calcutta Municipal Act, 1951, due to the paucity of funds of the Calcutta Corporation itself, thereby the C.I.T. is *losing about 80 lakhs* of rupees per annum on its Revenue Account and has to depend almost solely on the C.M D.A. to finance its schemes. Government in the Municipal Services Department have also refused to assist the C.I.T. from the Octroi receipts, thus making the C.I.E. almost wholly dependent on the financing pattern of the C.M.D.A. which, as aforesaid suffers from the defects of piecemeal and single-purpose planning as far as the C.I.T. is concerned. Efforts have been made and are still being made to make the C.M.D.A. finance the full composite 'general improvement schemes' of the C.I.T. as such, so that the full benefit of the money spent may be derived by the peaple. Otherwise, it appears to the writer that though there is money in the hands of the C.M.D.A., its application is not in accordance with the principles of overall planning as indicated above, thereby delaying the cure of Calcutta's environmental pollution—the canker, which needs immediate treatment on the lines suggested above, for its effective cure!

V. S. C. Bonarjee

During the year 1962-63, I had the opportunity of going to France and attend a Specialised Course in Architecture and Town Planning organised by the Ministry of Construction and Housing, French Government. This covered a period of nine months' stay in France, accompanied with extensive tours throughout that country. Trained as we are in a system which has at its base the British Laws and the British Practice, the methodology adopted in France in the application of Principles of these two Human Sciences were found to be somewhat different. I have prepared a report on the practice of Town Planning and Architecture in France and I think this may be of interest and use to those, who may like to know and take into consideration matters and courses prevailing in countries other than U.K. while taking policy decision on allied matters.

K. Roy,
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19-3-74

A. TOWN PLANNING

The main characteristics of city and town planning in France are a great confidence in the re-development of existing towns, *peripherique* development of urban areas, emphasis on mixed and co-ordinated type of development, and a great care for a planned development of the precincts to objects of historical or architectural interest. There has not been any single new town worth mentioning though town planning and housing activities have been in operation in full swing since 1950. All towns having a population more than 10,000 have been given Master plans and re-development works are being carried out through operation "Rennovation urbane". A great effort and good deal of progress has been made to develop the fringe areas of the existing towns through operation Z.U.P. These new developments have resulted to and are reflected in comfortable apartment houses with all urban amenities and social facilities (adequate provision being made in planning for the integration of the new developments with the exsiting one) well developed industrial sites and good communication with other towns or cities. All development and redevelopment works are being executed obeying the principles of Master plans which permit of a mixed type of development. It prescribes only the predominant use of land of a particular zone, but permits also a partial use for other purposes to a limited extent. For example, in residential areas of Paris 16% of the land in the residential zone could be used for commercial buildings and light industries.

The huge developmental works in the peripherique areas has brought in their wake new and serious problems for Paris. The 'ban-lieu' of Paris i.e. Greater Paris is getting larger and denser. At present the population in this region is 8.5 millions, 18% of the total population of France living in the area representing only 2% of the total surface of the country, and within this region is concentrated 25% of the total activities of France, and certainly Paris is the nerve-centre of this region. This has put immense pressure on the communication system. Paris is very fortunate in having a very efficient underground Metro and a net-work of wide boulevards and avenues for which Haussmann is still respectfully referred to. The Metro is restricted to the city proper, and there is not much of a communication problem within the city. But for the hundreds and thousands of people who daily come and go out of Paris the existing suburban communication system is proving to be much insufficient in spite of the fact that the terminus for 6 suburban train lines (electrified) are right in the city, and a number of autoroutes converge into the boulevard peripheric. The administration has now decided to extend the Metro lines to the 'ban-lieu' in the form of express Metro, running at a different and much lower depth than the existing Metro. This express Metro will have terminals at

important suburban centres about 60/70 k.m. from the centre of Paris, and construction work has already been taken up on this.

The authority in charge of Town Planning and Housing activities in France is the Ministry of Construction.

In the matter of state policy towards planning and development, the predominant features are—

(a) The collective municipal authority is always subjugant to the administration with regard to development or re-development works.

(b) The ownership of land is gradually changing hand from the individual to the collective—mainly municipal or societies semi-public in character.

I will now give an outline of Town Planning practices in France.

France is divided into 90 departments or districts and each department comprises more than one town or villes and villages. The city of Paris is a department in itself, its shape almost circular, diameter about 35 k.m. and having a population of 3 millions. Greater Paris comprises Paris, the departments Seine & Marne and the southern portion of department Oise.

As usual, there are 3 levels of planning: National, Regional and Local. Regional plans have been framed for some areas and are in the process of preparation for the other. These regional plans when completed will cover the all-important city regions namely, Paris Lyon, Marsailles, Toulouse etc. These are called "PADOG" i.e. Plan D'amenagement et D'organisation generale.

Master Plans

Master Plans of cities and towns are called Plan "Directeur d'urbanisme".

There is a wide latitude in tracing out the limits of these Master Plans—it may be limited to the boundary of existing towns and their suburbs—these are called Plan directeur d'urbanisme; it may include portions or entire areas of other towns or villages, those being situated within the same department or neighbouring departments. The guiding factor in tracing out the limits of Master plans are geographic, historic, demographic, industrial, economic and social considerations. The Ministry of Construction gives final approval to all Regional and Master plans, housing projects, development and renovation works, and the same Ministry also gives financial sanction for different state contributions and participations at all projects. The Prefecture of Police in each department is the authority vested with the power and charged with the responsibility of uniting the efforts of different Municipalities in the matter of framing of Master Plans and also co-ordinating divergence in approach between the different Local authorities. In each district, there is one "Urbaniste

en Chef"—he is a town-planner of standing reputation. He is not an employee of the state, has his own office and practice, but is charged with the duty of framing up of Master Plans under the direction of the Municipality and the Prefecture of Police and in collaboration with two other officers. The latter are officers of state posted in each department:—"Directeur departmental de la Construction" responsible for housing activities, and "Directeur de Ponts et Chausses" responsible for roads and bridges. The former is an officer of the Ministere de la Construction and the latter of the 'Ministere de la travaux Publics". Major water supply, drainage and sanitation problems are dealt with by specialists in the respective branches, who are appointed by Local authorities the appointments being subject to the approval of the Prefecture of Police. Problems on other services i.e. Electricity, Gas and Telephone are dealt with by the respective utility authorities. Expert economists, sociologists, geographers and geologists are also called upon to help formulate the plan. During stages of formulation of the plan frequent meetings and discussions are held between the above-mentioned experts and Local authorities. In case of divergence of opinion between the Local authorities and experts, the matter is referred to the Prefecture of Police. If he fails to bridge the gap, he refers the case to the Ministry of Construction whose authority is final. As usual, there are different stages in the formulation of Plan: publication, public representation, modification of the plan of considered necessary and final approval and Notification of the Plan.

In the plan directeur, the different zones of habitation that are to be maintained or created are indicated along with the respective ultimate density of apartments per hectare; the dilapidated and blighted areas are marked for rennovation; the industrial zones that are to be preserved or created are designated, so the principal roads that are to be opened up or widened or preserved are also designated; the road widths, buildings lines, designs of all new principal road junctions are specified; premises and precincts of historical or architectural interest that are to be preserved are marked; major open spaces that are to be created or extended are specified; zones of educational and other social institutions are indicated; zones for sportive activities that are to be created or extended are specified. The complete document for Plan directeur d'urbanisme or Groupment d'urbanisme comprises:—

(i) report and plans explaining the historic, geographic and geologic considerations, the existing social, domographic and economic conditions, state of affairs as to traffic and communications, and the industrial, commercial and cultural aspect of the town;

(ii) plan showing the actual land use;

(iii) a report "justificatiff" stating the objectives and target of the Master Plan;

(iv) the Master Plan itself;

(v) "the Reglement d'urbanisme".

The last document sets out in detail specifications, the standard of technical services to be provided as to water supply, sanitation and drainage, road construction and other utility services; this document sets out also the rules that are to be observed in the development of the Zones of habitation and zones of activity. These rules envisage different types of developments in different zones. For example, in some zones of habitation it prescribes attached buildings with provision for shops on ground floor, in other zones it prescribes attached buildings in groups of two or four, and in all cases the heights of buildings are specified. Some of the zones are prescribed for detached individual buildings, and some for collective housings to be realised by some industrialised process. It prescribes also for compulsory provision of parking space in each zone of different capacities depending on the use pattern of that particular zone.

Development and re-development works are executed through three main instruments. These are: (I) operation rennovation urbane, (II) operation Z.U.P., (III) zone d'amenagement differre.

(I) Operation Rennovation Urbane.

There are two types of rennovation works—one is for conservation and is carried out in and around premises and precincts of historical and architectural interest. Here the act provides for redevelopment work with minimum of demolition and destruction and careful conservation of the character of the locality and structures of interest. In the second case entire rennovation of insalubre quarters and slum areas is called for. A complete survey of all aspects in the area under consideration is made, proposals are formulated and published; public representation held, and then the plan is finalised with suitable modification, if necessary.

The Municipality is the executing authority and gets the fund from "Fond Nationale d'amenagement du territoire". Within the limit of area under operation each and every property is acquired. There is an interesting clause on the "participation by the owners" in the act. Within 3 months from the date of approval of the project, the owner of a property within that area may intimate to the authority his intention of participation. In such a case, after valuation of his property the amount is credited to his account at an interest of 3% per annum. The executing authority draws up an agreement with the owner to pay him back either in the form of a parcel of developed land or in the form of apartment houses that are to be constructed after re-development of same value lying to his credit at the time of acquiring his property. By this means the capital sum necessary for land acquisition is considerably kept down. All land is acquired at the market price prevalant a year before the first publication of the plan. After re-development, the local authority never disposes of the land to individual builders. The developed land is sold to "societies de economic mixed" of semi-public in their formation. There is in France huge governmental fund known as "Credit Foncier" and the society gets the fund from the same.

The responsibility of rehabilitating families who are evicted by such operation rests on the executing local authority and as such it executes a dovetailing programme of construction of apartment houses for provisional occupation. State financial aid towards such provisional construction is very liberal-interest-free loan is advanced to local authorities that are repayable in 53 years. There is no such clause that prescribes the distance or locality of these provisional accommodation with respect to the original places of dwellings that are to be pulled down. In the permanent construction, provision is made for shops, studios for artisans etc. as are judged to be necessary on the basis of survey and analysis. To meet the cost of re-development work, funds are made available from other sources; for example, the Ministry of Health pays for health and medical institutions, Ministry of Education Nationale pays for educational institutions and thus by a co-ordinated effort the project is realised. The expenses usually surpass the receipts and the State meets the deficit. As for the permanent rehabilitation of families evicted, they are offered apartments on completion on sale or hire terms.

The rents for the new apartments are usually higher than that paid by tenant families for their old apartments. No subsidy, however, is being paid by the State simply on this account to the families. But in France there exists a comprehensive system of Governmental aid to families specially for their housing. This is a detailed and somewhat complicated system and the essence of the system can be stated thus: The necessary accommodation that a particular family requires and the monthly rent which the family can afford to pay are worked out on the basis of the structure and the total income of the family. The standard monthly rent of such an apartment is worked out. The difference between this standard rent and the rent the family can afford is reimbursed cash by the State direct to the families in the form of housing allowance.

(II) Z.U.P.—zones a 'urbaniser en priorite.

These are zones that are to be developed and equipped with all urban amenities and the work to be executed on a priority basis. The developed land is utilised for collective housing or for industrial activities, as it is designated for use in Master Plan. In urban areas if there is acute shortage of housing due to natural growth of population, due to sudden implantation of industries, or in case due to lack of necessary facilities in undeveloped urban areas new industries are not established but the State desires to give an impetus for proper growth of the said area, the authority can declare a Z.U.P. under such circumstances. The Act states that the superficial area for such Z.U.P.s should be sufficient to accommodate a minimum of 500 apartments besides the area that may be set apart for educational institutions, parks and play grounds, necessary commerce and area for artisanal and industrial activity. Developmental works under Z.U.P. are carried out either in the peripherique areas or in the suburban areas, entailing a minimum eviction of families.

In France, a huge number of development works are realised under this instrument of action 'Z.U.P.' Actually this is a very important and creative aspect of town planning to structurise and equip the peripherique areas and suburban areas of towns and cities. Up to 1960, 400,000 apartments have been built under Z.U.P. and at present a further number of 130 Z.U.P.s are in different stages of execution. These new Z.U.P.s cover an area of 15,000 h.a. of land and will provide 500,000 apartments along with necessary social institutions and amenities. On an average each Z.U.P. takes 6 years for implementation.

Within 4 years from the date of declaration of a Z.U.P., which date may be extended by another 2 years, the executing authority has got the right of preemption of purchase of all properties within such area. The Municipality may itself execute a Z.U.P. but it seldom does so. Generally a society of the order "Societie de economie mixed" is formed and with the approval of the Ministry of Construction this society executes the operation. In the matter of valuation of properties for acquisition and in case of disagreement and dispute the matter is decided by a tribunal. The Act prescribes for acquisition at the market rate that was prevailing one year before the date of declaration. For land development operation, resources are made available from different authorities as in operation "Rennovation urbaine"—for roads, drainage and water services—by the Municipality; for educational institutions by the Ministry of education Nationale; for hospitals and health services by the Ministry of Health; and for sportive institutions by the "Commissariat du Sports". The developed land is offered to different offices under organismes de H.L.M. (Habitation Louyer a modere) or LOGECO for building collective housings under suitable terms. These constructors of houses are also semi-public in character and after purchase of the developed land they build apartment houses. On completion the apartments are let out or in some cases sold to prospective clients the land remaining the property of the public societies. For the zones to be used for industrial activities, the developed land is offered to industries on long term lease conditions.

(III) Zones d'amenagement differe

Operations under 'Rennovation urbaine' and 'Z.U.P.' are creative in nature, while the purpose of this instrument is preventive. In newly developing urban and suburban areas the growth of industries and commerce leads to speculative transactions on land. This leads to considerable rise in land value and future development is rendered more difficult. Generally this happens to fringe areas where land has been hitherto fallen or unused or used for gardening purposes. Counting on the prospect of the advancing development speculators purchase and re-sell thereby resulting in unplanned and uncordinated development. To counteract this tendency the State can declare an area as 'Zone d'amenagement differe'. Within 8 years from the date of declaration, the respective authority has the right of preemption for purchase of all properties within such area.

Within 2 years from the date of declaration it is obligatory on each individual proprietor or owner of right to submit statement to the authority concerned stating the details of the property and his ownership, the prevailing use of the same on the date of declaration, his estimate of the value of his ownership and call upon the authority for acquisition of the same. It is strictly forbidden under the act to make any change of the prevailing use of the property and also to make any additions and alterations after the area has been declared to be under "Zone d'amenagement differe". The respective authority should decide within a period of six months from the date of demand in the matter of acquisition and within a period of 2 years from the same date the authority should pay off the proprietor at the current market rate. In case of disagreement on valuation, the Tribunal will decide it. If the authority does not take any action or refuse to acquire the property within that six months or if fails to pay off the proprietor within that 2 years, the right of pre-emption ceases and the proprietor is at liberty to go in his own way.

Thus the act secures the implementation of future development work by prohibiting change in the prevailing use of the premises and also by the right of pre-emption of purchase. It does not however freeze the value of land at any particular date but provides for payment on acquisition at current market rate. It is interesting to note that during enforcement of this instrument on a certain zone, it is not at all necessary to publish a plan of the future development. This is only an action securing easy execution of future development works that may be considered necessary.

CONCLUSION

It would be of interest to compare the provisions in the planning Laws of Paris with the relevant section of the Calcutta Improvement Act, which was of late the only Act that operated upon the development and re-development of this city for the last sixty years.

Under the C. I. Act the C. I. Trust may frame four types of Improvement Schemes either singly or in combination of any two or more of such types or of any special feature thereof, that is to say,

(*i*) A General Improvement Scheme

(*ii*) A Street Scheme

(*iii*) A Housing Accommodation Scheme

(*iv*) A Re-housing Scheme

All the above four aspects of Development work are fully provided within the French Instrument of Operation—"Operation Rennovation Urbaine". These have been explained in details before. The

execution of one scheme under the French Law not only covers all the above four aspects—but also provides for many more things: The Ministry of Sports would ensure and see that necessary Parks and Playfields are created and would contribute in turn; The Ministry of Health would contribute its part so that Hospitals and Health Services are created to meet the future needs; and so also the Ministry of Education contributes and in return have the necessary Schools/Colleges built up simultaneously along with the execution of schemes. It would be evident from above that even in the matter of Development of a locality, how piecemeal is our thinking, and how comprehensively they envisage their Development Work.

The French Instrument of Operation "Z.U.P." is operative mainly in peripheral areas and may be compared with the City Extension Schemes of the British Planning System. This has a great effect in checking the congestion of City Core-areas, as people like to live in newly developed areas, where all the infrastructure of Social life are fully created also such as Schools/Colleges, Markets/Places of Commerce, Hospitals/Health Services etc. The C. I. Trust has indeed developed large areas anew, but since it lacked a comprehensive and co-hesive work on the pattern of development, these have not helped decongestion of the city core area. The evils of the City Core remain as it was 20/30 years before.

Under provisions of Section 63 of the C. I. Act, the Trust may delineate and declare projected Public Streets and Public Parks and freeze all development work within delineated areas. The implication of the French instrument of operation "Zone d"amenagement Differe" have similarity to the C. I. Act provisions, but has a much wider aspect and is very important from planning point of view. Areas that are ripe for development and prospective are brought under the purview of this Act and as a result all land speculation activities are arrested. Owner of any property within such delineated areas, if desirous of sale, must offer it to the Authority who has the first right to purchase at the Current Market Price. Whenever this is promulgated upon any area, the value of property declines. By this instrument, the authority secures the land that it would require in future for future development work.

HOUSING

Our country is passing through a phase of industrialisation which is going to speed up in the future. The mounting shortage of food is pressing us hard to grow more grains and so more fertilizer factories and irrigation projects—both canal and tubewell water—are coming into being. The drift of population from village to towns is causing shortage of agricultural worker and so mechanised farming will also come to stay. Electric power is being made available

in wider areas; improvement of road systems is establishing road communication as a dependable means of transport. All these go to show that we will see a quicker industrialisation and consequent intensified growth of urban areas. Housing of urban population is already a problem with the nation and with intensified industrialisation and urbanisation, the problem of housing will assume new dimension.

A healthy and organised building industry is a major tool for the implementation of our urbanisation schemes. Moreover, as is the case with all industries, building industry affects and influences growth and development of urban areas to a great extent. An organised and efficient building industry will ensure quicker construction of houses at economic prices, will provide regular employment to workers as any other productive industry does and will render the towns and cities more comfortable places to live in. An organised building industry will always promote skill and efficiency of labour and thus ensure better productions and higher wages to workers.

The factor which motivates initiation of organising any industry on a large scale is an assured market of the products, as with this the industry can plan for continuous production. In this case our demand of houses is immense. Public body housing has been accepted as a major step towards amelioration of housing problem in urban areas. The Government participation in housing schemes is gradually increasing and investment on housing in the public sector is gaining in bulk in our successive plan periods.

It has been recognised in advanced countries that the main obstacle to achievement of progress in the field of housing is the lagging state of building industry. Unless the capacity of the industry is rated to enhanced and quicker production any amount of monetary assistance in the form of subsidies, grants or loans will not help the situation. The Building industry is more than a productive industry; it is a social industry too and as such it deserves special care from the state.

We are very shy of using mechanised process in our building industry on the plea, that unskilled labour is very cheap. It is sad indeed that to utilise cheap labour we are still clinging to a costly, time taking and non-productive process of construction. A brief review of the study by United Nations on Building costs in Asia and Far East will be illuminating. In conducting that study, the team worked out the number of days' wages of unskilled worker required for construction of one square metre of the building in various countries. The table below gives comparative figures for some of the countries, which is sufficiently indicative of the efficiency of the building industry in those countries. The table also gives the price index for unskilled labour—taking as unity the price of unskilled labour for Indonesia—the lowest in the list.

Country	Index of wage of unskilled labour	No. of days' wages of unskilled labour for constn. of 1 sq. metre.
Indonesia	1	104.5
India	1.68	71.9
Pakistan	1.91	78.8
Hongkong	4.0	34.3
Iran	4.3	48.7
Japan	4.54	42.8
Singapore	7.41	22.8
Malaya	8.91	23.3

It is observed from above that countries having higher wages of unskilled labour produce houses more quickly and at comparatively cheaper rates too. Taking the cases of Malaya and India the wage of Malayan labour is $\frac{8.91}{1.68}$ i.e. 5.3 times that of Indian labour; but the basic cost of buildings in Malaya is only $\frac{23.3 \times 8.91}{71.9 \times 1.68}$ i.e. 1.72 times that in India. Moreover, the time for construction is less than one third that in India. It will be observed that the same trend of relationship exists between wages of labour and the production cost for all the countries.

After a great deal of research and trial over different materials and processes of construction, some of the continental countries have adopted concrete as the main material and prefabrication as the technique in construction of houses. West Germany and France in spite of the devastations spread over a couple of years during World War II, and in spite of the shattered economic condition of the countries after the war was over, have been able to bridge the gap and able to meet the housing problem creditably. The performance of France in this field is very impressive. She has now more than twenty heavy industries on prefabricated construction and apart from meeting the needs of her own, has commanded a good market in other countries in Europe. A brief resume is given below of the industrialised process of building construction in France.

B. Housing

Till about the year 1950, the state of affairs regarding Housing in France was far from satisfactory. There was little of housing activity during the first 4 or 5 years immediately after the Second

World War as there were more important and urgent works to be attended to. So for a fairly long period, that is to say since the beginning of the last war to 1950, few of new houses were constructed; also due to lack of necessary repairs and maintenance during this period most houses became dilapidated. The initiative for construction of new houses lay with the private sector, which however remained inactive, as investments on housing proved unattractive. The deterrent factors were: rising costs of land, labour and materials, and the Rent Control Act. The annual construction of houses/apartments during this period was in the order of 50,000 only. The rapid industrialisation of city regions augmented the problem of Housing in urban areas. The building industry was also not properly organised; methods or construction were traditional and wasteful.

The state decided to intervene and ameliorate the situation, as the problem of Housing assumed a national importance. After careful consideration of relevant aspects it decided that Collective Housing realised and executed through process of industrialisation was the only solution which can give to the people in the quickest possible way a reasonable standard of accommodation. There were three hurdles to be overcome :—

(a) To secure land in all possible localities for creation of collective houses.

(b) To decide on the standard of accommodation and amenities that are to be provided in these apartments so that these houses may not become obsolete in the near future and can cope with the ascending standards of living.

(c) To build these apartments in the quickest and most economical way.

The first falls in the domain of Town Planning and in my notes on this subject I have stated how through the different instruments viz. Master Plans of towns and cities, operation Z.U.P. and Rennovation urbane, and Zones d'amenagement differe, land problem is encountered.

As regards the second, the authorities after careful and detailed examinations of the demographic, social and economic aspects of families in urban areas set up a standard on accommodation and amenities of apartments, and also on communal facilities that are to be provided for different families in the future housing projects.

The economic rent of such apartments worked out to be beyond the paying capacities of families. Instead of cutting down the standards of accommodation and amenities, it decided to pay each family direct an amount in cash to help it to pay off its housing rent. The principle of this aid has also been briefly outlined in my notes on town planning. This had another important effect on the building industry—it assured a ready occupation of the collective houses.

The third one was, of course, the crux of the problem. To achieve it the technique of construction is to be improved, the

building industry is to be organised and liberal aid is to be provided to housing projects.

The traditional method of construction consisted of all site executions, where there were considerable wastage on labour and materials, progress was slow, and as such the houses were very costly. The state, out of its annual programme for construction of apartment houses, reserved two sizable portions to be realised under the two schemes (a) on the result of competitive designs of building projects by architects prepared in collaboration with contractors' organisations; and (b) building groups completely designed with detailed drawings and specifications drawn up by Engineers' groups. These methods imported new ideas in technique of construction and planning and use of partial prefabrication in building construction was introduced. The economic values of standardisation of the cell apartments were realised and so also in standardisation of secondary works particularly of doors and windows. These processes considerably reduced the site work, and thus considerable economy was effected. In its process of perfection and improvement the present form of prefabricated construction has come into use. The first important realisation of prefabricated houses was at Le-HARVE, 4,000 apartment houses been successfully completed. In this project prefabricated structural parts type CAMUS was used; this is an important and widely used system of prefabrication in France and neighbouring countries. The present-day production of houses in France is in the order of 340,000 per year and about 65% are realised utilising different processes of prefabrication. In these processes, site work has been reduced to minimum; all fabrication works of structural components being done under controlled conditions either in factory or in the work site itself under controlled conditions.

The Ministry of Construction, which is charged with the responsibility of all housing and town planning activities is not directly concerned with the construction. It gives approval to housing projects and gives financial sanction of state aid to these projects. There is detailed legislation on housing aid known as H.L.M.—Habitations Loyer a modere i.e. houses to be let out at moderate rents. The act provides for financial aids in different forms to initiators of housing projects. The country is divided into five regions of which Paris region is one. The amount of aid varies for the different regions, the rate for Paris region being the highest. The aids are available only to bodies or societies public or semi public in nature. For eligibility of aid under H.L.M., the apartments must conform to the standards as to the habitable area and also as to technical specification. The act classifies seven types of apartment houses starting from one room apartments to seven room apartments—the habitable floor area varying from $15m^2$ to $113m^2$ but the majorities are the 3-room apartments, the average habitable area being $57m^2$. The act then specifies 3 different programmes of housing—

(a) P.S.R.—Programme social du relogement—These are projects for rehousing of families living in slums and also

for erection of houses for provisional accommodation of families. These are evicted by operations Rennovation urbane.

(b) H.L.M.O.—Habitations a loyer modere ordinaire—i.e. collective houses to be let out at a low rental of 15 N.F./m²/per year on the corrected surface area of the apartment. *

(c) I.L.N.—Immenbles a loyer normale—i.e. collective houses to be let out at economic rents.

The act then specifies the ceiling cost of construction and amount of loan to be granted for each of the 7 types of apartments. These ceiling costs and loan amounts are same irrespective of the programme under which they are executed, the amount differing only from region to region. The loan terms and conditions are :—

(a) Programme P.S.R.—Loan interest free; repayable in 53 years.

(b) H.L.M.O.—Loan interest 1% ; repayable in 45 years.

(c) I.L.N.—Loan interest 3.5% ; repayable in 45 years.

It is clear from above that an incentive form of aid is provided for housing projects more social in character.

The other form of aid known as "Primes et Prites"—is available to all sorts of initiators, public, or private, provided the public organisations have not taken the benefit of any aid under H.L.M. Under this system, a fixed annual sum of premium is paid by the state to constructors for each apartment constructed. There are two scales of premiums—one tenable for 10 years and other for 20 years. The constructor having the option of choosing either of the two. Besides this premium, the state grants a long term loan of fixed amount for each apartment constructed. Obviously the amount of yearly premium and the loan varies for the seven different categories of apartment and varies also for the five different zones of construction.

The terms of the loan are:	
For apartments to be let out at a specified low rent:	Interest—2.75% ; loan repayable in 30 years.
Apartments to be let out at economic rents:	Interest—5% ; loan repayable in 20 years.

* The corrected surface area of an appartment is different from its habitable surface area and there is a detailed system of correction. Each part of the apartment is critically judged from its utility point of view e.g. whether it is sufficiently agreeable for use, whether it gets sufficient sunlight, the nature of external view that is obtained, amenities within the flat such as running hot water, central healing, gas and electrical services, the state of maintenance etc. The habitable surface area is multiplied by the different indices, and thus the final corrected surface area is obtained. In an average type of new apartment built under H.L.M. aid, the corrected surface area is 50% higher than the habitable surface area.

Housing layouts : Plan and Principle.

In the housing layouts, the density of apartments is always correlated with the percentage of the land that will be built upon. For example in a layout having a density of 120 tenements per hectare, 42% of the ground area in maximum can be built upon; while for a layout having a density of 80 apartments per hectare, 60% of the ground area in maximum can be built upon. In other wards, for higher density developments, the building blocks are to be much taller than in the lower density developments. In 'grandes ensembles'—big housing projects, having the Nos. of apartments more than 1000, I have seen some of the blocks being built very tall, upto 22 storeys high which releases a liberal amount of ground space, well exceeding the optimum mentioned above. This gives a sense of openness in the layout with sufficient provision for children's playgrounds, gardens, pathways and roads. The lofty tower blocks are suitably oriented and give an interesting feature to the development.

Great emphasis is laid on the proper orientation of building blocks so that each appartment gets proper sun shine. The act states that all principal rooms in an apartment must receive direct sun shine for a minimum of 200 days in a year the minimum duration of such sun shine being 2 hours per day. For the purpose of accounting of the sun shine factor, sun rays inclined with the facade at an angle greater than 15° in horizontal plane and 12° in vertical plane will be only taken into consideration. The roads and pathways in the estate are so laid out, that the pedestrian pathways more or less do not cross any of the roads in the estate in which vehicles will ply. Provision for garages is made, generally in the basement and the topography of the land is well utilised for this purpose. In some of the housing estates, I have seen children's parks being nicely laid out, a reasonable balance being maintained between the actual green grassy spots and the children's playing spaces, so the children are not forced to encroach upon the green spots and spoil them. A great care is also taken in tree plantation; the plantation is done in the early stages of land development and as such by the completion of building blocks, the trees became sufficiently grown up.

A house provides shelter and accommodation for the residing family, and with the improvement of technology, more comforts and amenities are being provided for the houses. This is all the more economically possible in collective housings owing to the largeness of the project. In collective housings grandes ensembles such as those are coming up in France, there is another delicate problem to be handled. This is a social problem, i.e. how to help development and growth of a co-herent society in these housing estates. The residing families have come from different walks of life, and belong to different stratas of society. It is a fact that an apartment is a highly desirable one which could be comfortably lives upon irrespective of the proper or improper use of the neighbouring apartments. While this is good from individualistic point of view, it creates a sense of intolerance and unneighbourliness, which is unhealthy from social point of view. In designing an

apartment or a house, we are to carefully scrutinise and judge each factor and make such provision that a reasonably comfortable use of the apartment is assured. This aspect of the problem is much emphasised in France and architects, sociologists and engineers are united in their efforts in achieving a better realisation of their targets. A great amount of research and study has been made and are being made on this aspect of apartment houses and various provisions are made in interior planning, layout planning and estate management, so that a sense of interdependence grows among the residing families in a housing estate.

I will describe briefly two instances which have been considered to be useful instruments. The first one is on the access of apartments. In a multi-storied housing block, planning could be such as to provide access to two apartments each floor from each staircase or it may well be possible also to provide access to three or four apartments at each floor per staircase. But in the former case, the stair widths and stair landings are to be constructed of minimum dimension on grounds of economy while in the latter, a wider staircase and landing and a corridor could be installed without affecting cost factor. It has been observed here in actual cases, that in the latter case of development, residing families develop quickly, a sense of neighbourliness among each other, in view of a more common approach and access to their apartments. In some estates, I have seen, that the four apartments having the common access are of different sizes of accommodation and it is claimed that this type of planning gives a still better effect. The second instance is on the disposal of refuse from individual apartments. The disposal of refuse is done from all floors through concrete pipe chutes, the access to the chute being very admirably fitted with a hinged metallic receptacle that seals off automatically the opening of the chute when one puts the refuse within the receptacle, so that foul air may not get inside the apartments. At the basement, with the help of intermittent flushing, refuses are collected at a certain point, which are cleared off daily morning. An access to the chute is provided in every apartment near kitchen for this purpose. But I observed in some housing blocks where access to four apartments were provided in each floor per staircase, only one common chute was provided in a small cubicle with a door, at one corner of the stair landing the floor of the cubicle being sunk by 6". It was observed, I am told, that the cubicle was very carefully used and there was no complaint by any tenant as to maluse of the same by another. I feel, pursuasive a sense of neighbourliness and interdependence among the residents.

There is a minimum standard of establishments and Equipments that are to be provided for housing estates for community uses. In an estate of 100 apartments a hall is provided with necessary sanitary conveniences and one or two side rooms, where children of the age group 2 to 5 years, who are not going to school, may pass their time apart from their constant company with parents. All kinds of toys, colouring equipments and other things of children's interest are provided there. Mothers, or other female members, who have some

spare time, voluntarily administer this. Usually there is no paid staff, the little monthly expenses being shared by the tenements themselves. Another hall of lesser dimension is provided for indoor activities of elderly members, to which a small reading room is also attached. For pursuit of hobbies during leisure hours provision for a covered accommodation is made where I have seen, facilities of carpentry, mechanical and electrical tools are provided. A community laundry and a washing and drying place are also installed. The laundry is provided with washing machines and drying chambers. Generally the ground floor (Rer-de-chausse) in housing blocks are not utilised for residential purposes and the above indoor establishments are all installed on the ground floor. There are besides, the gardens and pathways a small playground for children with playing equipments. The above is the minimum standard for a small cell of development. In "grandes-ensembles"—all sorts of amenities are provided—nursery and primary schools, higher secondary schools, sporting grounds, in some cases cinema halls and of course places of commerce. In recent developments, there has been a tendency to instal a large and spectacular departmental stores—"centres de commerce"—where everything from vegetable and meat to the highest luxury goods are sold. Sociologists are against implantation of such "centre de commerce" in "Grandes ensembles"—they are of opinion that individual shops are more effective and advantageous in their use. These individual shops may be located at different suitable points, where housewives feel more comfortable to make their choice and shopping. This helps to grow a relationship between the shop-owner and the client, and is a healthy aspect of a proper development.

I have already stated in my notes on town planning that the new housing estates are mostly on the periphery areas of the existing towns or cities (realised through operation Z.U.P.). In the layout of the housing estate, the establishments and equipments for community uses are so oriented that the residents of the existing neighbouring quarters may also derive the benefit of these establishments. This provide also a common meeting ground between the residents of the old and new quarters, and helps integration of the two.

The guardian of the estate is considered as an important instrument in co-ordinating and uniting individual efforts for the proper maintenance of the estate. On his function depends much the proper growth of social life in the estate. He is a man having some background of social services training and with some technical knowledge also. In small housing estates, the guardian has to attend technical duties also.

As regards interior planning of apartments, I have not much to state as our requirements are quite different from theirs. While in our climate provision of cross ventilation is essential for bed rooms these are unnecessary and disadvantageous for them. The clear headroom of 2.50 M i.e. 8'-3" as adopted here is too low for us.

Housing by industrialised processes

In the process of building prefabricated houses, different parts of the apartment are manufactured under controlled conditions, either in the factory or in the site itself and are then erected and assembled at the site. The success of this process depends mainly on the following points:

(i) There should be absolutely standardised plans for different types of "cell houses".

(ii) There should be a carefully laid out standardised and detailed specifications for each and every type of fitting and fixing.

(iii) There should be assured market of the product.

The majority of collective housing schemes in France are executed with state financial assistance in one form or other, and is always tied with strict compliance to technical standards and specifications. The state in its programme of housing also sets apart a definite portion for realisation under industrial processes. Counting on these factors, the entrepreneur could equip his factory on modern lines, make capital investment on mechanical equipments and derive higher efficiency. This cuts down the cost of production and as a result in the competitive market economic prices are quoted.

The economy that is derived in the construction of houses using pre-fabricated components is mainly due to the fact that in this process the site work has been reduced to a minimum. The different parts of the apartment and house namely the load bearing walls, all inner walls and partitions, floors and roofs, stairlights are fabricated in factories under controlled conditions and transported at site. The site work reduces simply to the building of foundations upto plinth level, erection of component parts and concreting the joints. Utmost accuracy is being observed as to dimension, provision of ducts, and apertures etc. so that at the site during erection no mending is necessary. The walls are mainly of reinforced concrete with a suitable insulating layer within it, which will be described later. The external finish to the wall is incorporated in the wall itself during concreting by coloured glass beads of mosaic finish or washed pen gravel finish. These exterior finishings give a very interesting texture and require no maintenance. The door and window frames, ventilation duots, and electrical conduit pipes are also incorporated within the wall during concreting and so also the water heating tubes and electrical conduit pipes. During concreting of the stair flights, the paving of the trends are also integrated. Along with the perfection of prefabrication work, portions of secondary works are also incorporated during the fabrication of the primary structure. This is termed block technique—for instance the entire bath and W.C. cubicle is fabricated having all the equipments and fittings fixed in position and the block is then erected and placed in position. This clearly shows that a great deal of accurate detailing and foresight are required during the design and detailing stages as also great precision during fabrication.

The size of prefabrication units for wall panels is the same as that of the wall of a room, the line of joint being at either wall with wall or wall and floor slab. There are a number of different patented types of prefabricated products in France and we had the opportunity of examining their detailed plans, the respective agreements on specification and quality of products as arrived at between the respective manufacturers and "The centre scientific and technic du Batiment" and also to visit the factory site and the sites where erection and assemblage works were in progress. While among some of them there were good differences in their fabrication and uses in the others there were very little difference in principle. I will give a brief review of the different categories.

Category I—In this type, the fabrication is entirely done in factories and the product is transported to site, erected and assembled; Example—products BALLENCY AND CAMUS. The wall or slab panels and stair flights are concreted in steel moulds and curing is done by steam. On the steel mould, the exterior finish type (either glass mosaic or pea-gravel) are carefully laid, and the window and doors frames (invariably of steel) are kept in position. Electrical conduit pipes, ventilation ducts are also all kept in position and finally concrete is poured in and finished off. After 6 hours of steam curing, the wall panels are lifted off the mould. The factories that we inspected are completely mechanised. In products type BALENCY an insulating medium either 3 c.m. of Polysterine or 18 c.m. of puzzolona concrete is incorporated in the middle of wall panels, while in type CAMUS, the insulating medium employed is 2.5 c.m. polysterine. In these types of factories an efficient management of the stockyard is essential, for the products are quite heavy, average weight being 5 tons, and it is costly to handle them. Just taken out from the mould, they are stacked in vertical position and after 3 days they are ready for transport. For transport of these heavy products, a very efficient transport organisation is also necessary. It is stated, that for an overall economic utilisation of these products in collective housings, the factory should be within a range of 50 k.m. from the erection site. Heavy duty cranes and good organisations are necessary both of factory and works site. The walls of these product are load bearing walls, and I have seen this product being utilised for building blocks 14 storied high.

Category II—Products under this category are fabricated in the worksite itself. In big housing projects where there is a programme of housing for 4 years or above it is found economic to set up a Factory in the site itself as by this the costly item of transport is avoided. For example—products COIGNAC AND TRACOBA. In both these products, an insulting medium of 3 c.m. of polysterine is incorporated in the middle of the wall. The representative of M/s. Tracoba gave the following figures on capital investment and amortisation for a factory having a capacity of production 1000 apartments per year. It may noted that steam curing is not employed in this process.

Capital investment:

a) Sheds at work site, transport organisation, concreting equipments including installation complete	500,000	N.F.
b) 2 Nos. cranes	480,000	„
c) Steel moulds—5 Nos.	300,000	„
d) Other installations: office, power, personnel and organisational	300,000	„
	1,580,000	„

The deprication per year i.e. on 1,000 houses, as worked out by that organisation are:

I) 50% on (a)	250,000	N.F.
II) 33% on (b)	160,000	„
III) 100% on (c)	300,000	„
IV) 50% on (d)	150,000	„
	860,000	„

The average price of a standard apartment in France is 28,000 N.F. So value of total production per year is 28,000,000 N.F. It is found, therefore, that the capital investment is only 5.63% of the production and the capital lost is 3.07% of the production.

Category III—This type of prefabrication employed prefabricated wall panels and stair flights only the floors and roofs being concreted *in situ*. The composition of wall panels is a little different also. The R.C.C. wall is ribbed type, the distances between the web of the rib varying between 50 and 33 cm., depending on the load bearing strength of the wall. The web of the rib is trapezoidal in section and of average thickness 6 c.m., projecting 10 c.m. out of the flange of the rib, the flange itself being 5 c.m. thick. Example products—COSTAMAGNA and BARRET Hollow bricks are placed in between the webs of the rits during concreting of the wall, the flange of the rib forming the outer surface of the wall. The cavity of the hollow bricks serves the purpose of insulation. This is a very widely used type of prefabrication products employing the traditional brick material.

Category IV—In this type product ESTIOT, a light steel column structure is erected at site, posts being of mild steel irons. The wall panels are fabricated at site, of same kind as category II, and iron lugs are provided at the ends of the panels. After erection of the panels, the iron lugs are welded to the M.S. I iron posts. The floor and roof slabs are prefabricated at site and then erected in position. The steel structure provides a good liaison between the different prefabricated parts.

It was impressing to see that in work sites only a small number of labour employed on fairly big construction works. Once the foundation is completed upto plinth level, the structure is erected in no time, the site job only being the concreting of joints. Part of the secondary work has also been incorporated in the primary work—

namely external wall finishings, fixing of door and window frames, provisions of necessary ducts and apertures for different sanitary, water, electric and ventilation services. Great amount of investigation and research has been done to evolve and execute perfect joining of the different prefabricate parts, from the points of view of proper transmission of loads, resistance to vertical and horizontal movement, water tightness and continuity of the insulating property of walls. The documents of agreement between the C.S.T.B. and the different manufacturers cover fully all these aspects. With the use of prefabricated structures, the dead load on foundation is also substantially reduced in comparison to our equivalent brick structures. For large housing projects or a number of small projects located within an economical distance for transport, I feel precast concrete sectional buildings deserve serious special consideration, especially if site and factory work can be specially co-ordinated.

It is of course a fact that in the construction of four storied buildings, use of mechanical devices for erection may not be economic. But on the other hand we are constructing tenement houses i.e. collective houses in big city regions in connection with slum clearance and low income group housing schemes, which shows that we have adopted collective houses as a policy; then why should we not build higher and derive the benefit? By building high, a greater amount of open space will be released in our housing estates. It seems there are two impediments against high buildings. Lifts are to be installed in buildings and cranes will be required for erection purposes. These are much costlier in our country. We are having rapid industrialisation now and I feel with Government assistance these could be manufactured in our country easily. These two items, I feel, will considerably ameliorate the situation.

But how high we can build as the bearing capacity of our soil is poor. Without going into much technical detail I like to state that the foundation necessary for a 6-storied building using prefabricated components is the same that we are providing for our present day four storeyed traditional brick building. It is a question of investigation beyond that limit. The next point to consider is whether the different types of wall construction and jointing will be suitable for our climate and environments. This is one of the most important factors and wants careful investigations. During my visits to the research laboratory of "centre scientific and technique du batiment" I have found that these investigations are not very complicated and do not require much of elaborate establishments. I feel these investigations and researches could be easily carried out in the Civil Engineering laboratories of our Engineering Institutions with some necessary equipments. I am of opinion that we can suitably alter the constituent material and construction technique of the wall and joints, which will meet our climatic and environmental requirements. It is high time that we shall start investigations and researches on this type of construction. But at the same time we should start on building houses in a limited number using prefabricated component parts for four storied structures itself, using whatever mechanical devices we have now. Structurally this type of

construction is quite sound and this involves no risk. By trial in the practical field only we will have the experience of practical difficulties and will be able to improve it upon in our successive operations. That is to say while we continue our investigation and researches in laboratories we must simultaneously execute a few pilot projects in the practical field also. Our problem of housing is so great and the prospectives in this technique are so wide that it is worth giving fair trial.

With the progress and success of prefabrication, the technique of traditional cast-in-situ concrete has modernised its progress also. The drawbacks in regard to cast-in-situ concrete are (*i*) the form work could not be reused so quickly and (*ii*) the prolonged time required for curing. In two of the work sites using processes ISORAPID and G.L.D., I saw complete steel shuttering of the mobile type being used. In one process, I saw preheated concrete of about 60°c. was laid and in another curing was effected by steam. The steel shuttering moves on wheels and is erected by cranes and wedged up in position.

All the above processes are for construction of collective houses. In the field of individual buildings much progress and modernisation has been achieved. These are also prefabricated in nature and it is said that a moderate size house could be completed within 4 weeks. In these a steel structure is erected and light prefabricated wall cladings are mounted on the frame work. Apart from precast concrete walls, a new type of cladıng material is used—this is known as Pannow Sandwitch. The Pannow Sandwitch consists of an outer facing of plastic boarding or inoxydable steel or undulated aluminium, the innerfacing comprising usually timber vineers. In between the two is glued insulating layer of polysterine expense. The glue used is a highly efficient synthetic one. I have seen these pannow sandwitches of very interesting texture and colour.

Collective houses built by utilising prefabricated components give a plain facade. Of course very interesting and puntuated elevational effects are being created by rationally employing the mosaic glass finish and gravel finish to exterior walls. But Architects in their desire to give functional effects in the form of horizontal and vertical lines, specially to buildings like office blocks, administrative buildings, educational institutions, evolved other types of construction known as "PANNEAUX DE FACADE" and "MUR RIDDEAUX". In both the cases, there is a steel or concrete framed structure. In the former the floor and roof slab projects ahead of the structure frame. The wall cladding of panneaux sandwitch is mounted on a light steel or aluminium frame of height floor to ceiling and is fastened to the main structural frame. Thus in this type of construction, a horizontal band effect is created at each floor level by the projecting slabs. In case of Mur Riddeaux the floor slabs finish in line with the structure. A separate light frame work is fabricated for the facade, having aluminium or inoxydable steel light columns. This secondary frame is fixed with the main frame and panneaux sandwitch clading is mounted on this outer frame work. Thus in this

case we see the vertical column lines of the secondary frame work. With both these two types of construction, there is ample scope of elevational treatment. But these are costlier constructions and are generally used for office buildings or buildings for schools, colleges etc.

The floor finishes are always of prefabricated materials. Many a divers types of floor finishes are manufactured, in tiles or in rolls, mostly having its base as asphalt and finished in a varities of colours and shades by adding different chemical ingredients during the process of manufactures. A good amount of research is being carried out in the research laboratory of C.S.T.B. and it has set up different standards for each of the following characteristic properties—commonly known as UPEC;

U — denoting its resistance against heavy traffic

P — resistance to impact

E — Property of waterproofing

C — resistance to chemical action

Each of the flooring materials, bears a mark like U, P_3 E, C_1 or U_3 P_3 E_4 C, etc. certified by C.S.T.B. The indices denote the resisting capacities for the particular product against the respective action.

Impressive progress and simplifications have been effected in the case of doors and windows which is the costliest single item in building construction. All frame works are of steel sheets, 10 or 12 gauge, manufactured in workshops. As the sizes of openings are standardised in the case of collective houses, specialised firms are wholly engaged on manufacture of these. With the process of mass production, the frames are costing about ⅓rd of a tradional timber frame. The door shutters are of block wood with veneer surfacing. The window shutters are mostly of glass panels, but in many cases, timber shutters are used. A number of new designs and ideas have been put in for timber window shutter which with slight modifications may be suitably adopted in our places, as these are cheaper and simpler than our traditional venitian and fixed louvre shutters. In our conditions, I think metalic frames for doors and windows may be straightaway adopted, instead of the costly and bulky timber frames. But for success, we have to standardise the size of openings as this only will initiate the manufacturers in bulk productions. As now we have set on a more or less definite construction programme of housing on slum clearance, housing industrial workers and for low income group, all with the aid and subsidy of the Govt. I think it is not difficult to standardise our doors and windows for each regions and centres. I have noticed another advantage with the metalic frames—at least for doors—the number of fittings and fixings are much reduced and simplified. The hinges are welded to the frame, and so also the draw bar; it remains simply to screw up the door shutter, and to fix up a locking arrangement for the outside. As to shutters for windows it is necessary for us to investigate and try other forms than our conventional ones, which I feel may give encouraging results. In some collective houses, I saw prefabricated

metalic shutters being used in windows, having horizontal slots in the form of our fixed louvres—which provides for ventilation. The apparent deficiency seems that in our climate there will be excessive heat radiation during summer, but to what extent, I think, may be fruitfully investigated also.

The lectures on laminated timber structures and the visits to two work site where some important structures were in the process of execution were very interesting. These revealed great potentialities in the use of laminated timber for structural work. In one I saw, a factory was in the process of erection—the timber portals spanning about 80 ft. it was stated that the volume of timber employed in the structural work is in the order of 30 litres per metre square of the floor area—which works out to a weight of 4.4 lbs. of timber employed per square feet. There the dead weight of such a construction is about half of an equivalent steel structure. The soil in that particular site had a poor bearing capacity and so timber structure was resorted to, as the dead load will be considerably reduced and and with a timber structure a greater amount of deflection will be permissible. Apart from this I saw laminated timber beams being used in a number of cases, spanning 30 to 40 ft. in libraries, school and college lecture halls, and the simplicity and lightness of the construction were impressive. We have plenty of timber resources and I understand at Derhadun important research works are carried out also. But the use of laminated timber for construction purposes has not yet been sufficiently publicised and put into practise. I feel this aspect deserves consideration, and in important construction centres, suitable industries on fabrication of laminated timber should be set up.

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TILT AND SHIFT IN WELLS FOR BRIDGE FOUNDATIONS

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TILT AND SHIFT IN WELLS FOR BRIDGE FOUNDATIONS

—their causes, effect on stability of foundation and remedial measures

by K. S. RAKSHIT

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Introduction.—In bridges with well foundations, the piers supporting the superstructure are sited at the centre of wells so that the direct load from the superstructure as well as the self weight of pier and the well produce only the direct pressure at the foundation level. Additional foundation pressure on one side with consequent relief of equal magnitude on the other side may, however, be induced due to various horizontal forces such as tractive effort or braking effect, seismic or wind effect, water current and temperature effect. The dimensions of the wells are so fixed that the foundation pressure under service condition remains within the permissible value considering both the vertical and horizontal loads to which the wells may be subjected.

Though the vertical load of superstructure along with the self-weight of pier and well produce only uniform pressure under normal condition when the well axis is vertical and the pier centre coincides with the centre of well, the foundation pressure becomes non-uniform with consequent increased value on one side due to moment induced on the well when tilt or shift occurs. In other words, it may be said that the stability of wells, which is otherwise in order under normal condition, is affected when either tilt or shift or both occur.

Again, considerable discrepancies have been observed in the assessment of tilt and shift for not having a universally accepted method of measurement. In bridge contracts, some limits are often prescribed for tilt and shifts. Compensations are also specified in certain tenders for tilt and shift exceeding some accepted values but unfortunately the method of measurement is nowhere stated, resulting in various complications. It is not even stated whether the shift would be measured at top or at bottom of well though the magnitude of shift would change considerably if the shift is measured at bottom instead of at top in some cases.

The object of this paper is to explain why tilt and shift occur, how tilt and shift affect the stability of wells and what remedial measures are to be taken to reduce the effect of tilt and shift of well. Moreover, the correct method of the assessment of tilt and shift on which the stability of wells depends has been indicated in this paper.

2. *What is tilt and shift*—Before proceeding further let the terms 'tilt' and 'shift' be defined.

Tilt is the inclination of the longitudinal axis of a well with respect to the vertical and its magnitude is expressed by one horizontal to 'X' vertical, in short 1 in X. If θ is the angle of the well axis with the vertical then tilt $= \tan \theta$.

The shift, on the other hand, is defined as the distance by which the centre of the well moves from the original designed position. These will be further dealt with in detail later on.

3. How tilt and shift occur.—During the process of sinking, the wells are to penetrate soil strata of varying nature such as silt, soft or stiff clay, mixed soil, sand, gravel or boulders etc. The nature and thickness of soil strata again is not uniform on all sides of the wells and as such the wells get resistance of varying magnitude causing greater penetration on the side with less resistance in comparison with the rest. This results in the tilting of wells (fig. 1-a). Tilt in wells may also be caused due to occurrence of blow or due to local obstruction under the cutting edge by sunk timber, boulder or the like. This prevents one side from going down while the other side sinks (fig. 1-b).

Shift occurs when wells are subjected to differential earth pressure from the sides during the sinking stage (fig. 2-a). Shift may also be caused when a well gets tilted thus forcing the well to move

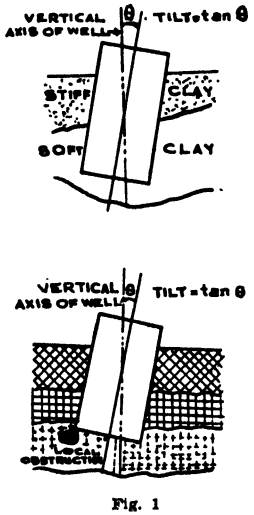


Fig. 1

How till occurs—a. (top) tilt due to resistance of varying magnitude; b.—(bottom) tilt due to local obstruction.

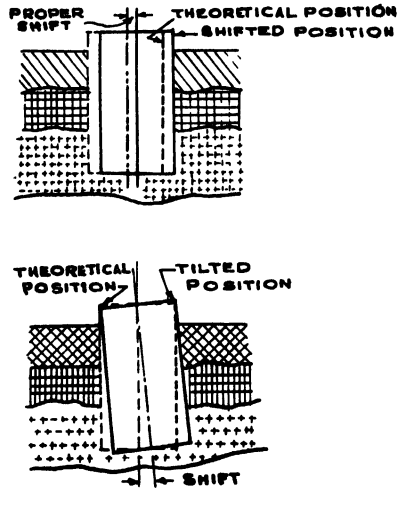
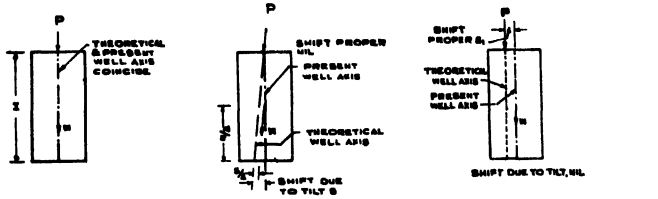
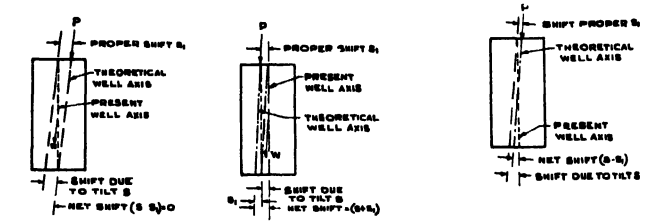


Fig. 2

How "shift" occurs—a. (top) shift due to differential earth pressure; b.—(bottom). shift due to till in well.



(a) No Tilt or shift (b) Only tilt and no shift (c) Only shift and no tilt



(d) Tilt and shift Combined—shift due to tilt fully nullified. (e) Tilt and shift Combined—shift due to tilt further aggravated. (f) Tilt and shift Combined—shift due to tilt partly nullified

Fig. 3. Effect of tilt and shift

on one side (fig. 2-b). Shift is the resultant effect of tilt and bodily movement (proper shift) of a well.

4. *Effect of tilt and shift on the stability of wells.*—In figure 3, six different cases of wells are illustrated. All the wells shown in the figure have been sunk to final founding level and plugged. Well in figure 3 (a) is sunk without tilt and shift. Figure 3 (b) shows a tilted well without any shift of well centre at top while figure 3 (c) gives a well with only shift without any tilt. Figure 3 (d), 3 (e) and 3 (f) illustrate wells having both tilt and shift in combination. Difference between them is explained below.

As stated before, due to tilt and shift of wells, additional moment will be created at well base for which additional foundation pressure will be produced.

Let the load from the superstructure and pier coming over the well be 'P' tons, the self weight of well 'W' tons 'H' the depth of well in ft. and the tilt of well be 1 in X. The area and section modulus of the well are assumed as 'A' ft² and 'Z' ft³ respectively.

Figure 3 (a)

As there is neither tilt nor shift and the resultant direct vertical load passes through the C.G. of well base, there will be only direct stress.

Foundation pressure =

$$= \frac{P + W}{A} \text{ tons/ft}^2 \qquad (1)$$

Figure 3 (b) Shift due to tilt.

$$S = \frac{1}{X}. \quad H = \frac{H}{X} \text{ ft.}$$

In this case both the direct load P and W act eccentrically with respect to the centroid of the well base.

Moment due to $P = P.S. = \frac{PH}{X}$ tons ft.

Moment due to $W = W. \frac{S}{2} = \frac{WH}{2X}$ tons ft.

$$\text{Total moment} = \frac{H}{X}\left(P + \frac{W}{2}\right) \text{ tons ft.}$$

$\therefore$ Foundation pressure =

$$\left[\frac{(P+W)}{A} \pm \frac{H}{X.Z}\left(P + \frac{W}{2}\right)\right] \text{ tons/ft}^2 \qquad (2)$$

Figure 3(c)

Here, the moment is caused only by P since there is no 'tilt' in the well.

Moment $= P.S_1$., tons ft.

Foundation pressure =

$$\left[\frac{(P+W)}{A} \pm \frac{PS_1}{Z}\right] \text{ tons/ft}^2 \qquad (3)$$

Figure 3(d)

In this case the proper shift 'S_1', is equal to the shift due to tilt S and the direction of movement is such that one has completely nullified the other and the point of application of 'P' passes through the centre of well base. Therefore, no moment is induced due to 'P'. Moment is, however, caused by 'W' which acts at an eccentricity of $\frac{S}{2}$ from centre of well due to tilt in well.

$\therefore$ Moment $= \frac{WS}{2} = \frac{WH}{2X}$ tons ft

$\therefore$ Foundation pressure =

$$\left[\frac{(P+W)}{A} \pm \frac{WH}{2XZ}\right] \text{ tons/ft}^2 \qquad (4)$$

Figure 3(e)

It is a case in which the direction of the tilt and proper shift 'S' is such that the effect is aggravated and the net shift at base is

$(S+S_1)$. Therefore, 'P' acts at an eccentricity of $(S+S_1)$ and 'W' at an eccentricity of $\frac{S}{2}$ from the centre of well.

$\therefore$ Total moment $= P(S+S_1) + \frac{WS}{2}$ tons ft.

$$= PS_1 + S\left(P + \frac{W}{2}\right)$$

$$= PS_1 + \frac{H}{X}\left(P + \frac{W}{2}\right) \text{ tons/ft}^2$$

$$\text{Foundation pressure} = \frac{(P+W)}{A} \pm \frac{1}{Z}\left[PS_1 + \frac{H}{X}\left(P + \frac{W}{2}\right)\right] \text{tons/ft}^2 \quad (5)$$

Figure 3 (f)

This is also a case of combination of tilt and shift, but here the direction of tilt and shift is such that the shift due to tilt is partly nullified by the proper shift S_1, so that net shift at base is equal to $(S-S_1)$.

Therefore, total moment due to 'P' and 'W'.

$$= P(S - S_1) + W\frac{S}{2} \text{ tons ft.}$$

$$= S\left(P + \frac{W}{2}\right) - PS_1 = \frac{H}{X}\left(P + \frac{W}{2}\right) - PS_1 \text{ tons ft.}$$

$$\therefore \text{ Foundation pressure} = \left(\frac{P+W}{A}\right) \pm \frac{1}{Z}\left[\frac{H}{X}\left(P + \frac{W}{2}\right) - PS_1\right] \text{ tons/ft}^2 \quad (6)$$

It may be interesting to note that the net shift $(S-S_1)$ causing moment due to 'P' may be positive, zero or negative. When it is positive it comes under figure 3 (f) and when zero, it comes under figure 3 (d) but never under such cases the total moment due to 'P' and 'W' can be zero, since right hand term $\frac{WS}{2}$ will always remain there. Another case may arise when $(S-S_1)$ is negative (*i.e.* when the point of application of 'P' is on the right hand side of centre of well as shown in figure 11-C). In that case total moment may be given by,

$$M = \frac{WS}{2} - P(S_1 - S)$$

The moment becomes equal to zero when $\frac{WS}{2} = P(S_1 - S)$. This shows that though normally tilt in wells means additional foundation pressure due to additional moment, this effect of tilt can be remedied if the pier position is suitably shifted so as to satisfy the condition $\frac{WS}{2} = P(S_1 - S)$. This is the fundamental condition by which the effect of residual tilt and shift of wells occurring during sinking can be nullified as far as possible within practical limits.

This will be shown later on under item "remedial measures" by worked out example.

5. *Corrective measures taken to rectify tilt during sinking.*—If tilt is to be rectified, the first thing to be done is to remove the cause due to which the tilt occurs. One of the causes of the occurrence of tilt as stated earlier is the resistance of earth of varying magnitude offered on the side of the well and the side having less resistance goes down at greater rate than the other side with greater resistance. Therefore, the attempt should be either to prevent the downward movement of the weaker side or to push the other side downwards. The theory of all the corrective measures for rectifying tilt is based on the above basic principle.

The downward movement is prevented by not excavating the dredge hole on the side already down and by putting strut as shown in figure 4. Heavy push may also be exerted on this side by the arrangement as indicated in figure 5 where the site condition permits such.

In pushing the high side down, the dredge hole on this side is grabbed and deep sump is created. Local obstruction under the cutting edge, if any, is cleared by the help of divers wherever possible. Chiselling sometimes releases local obstructions from underneath the cutting edge. The pull is applied by any of the methods illustra-

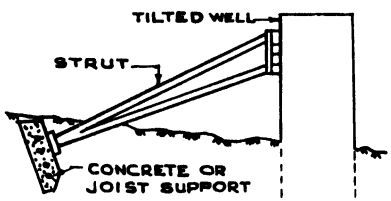
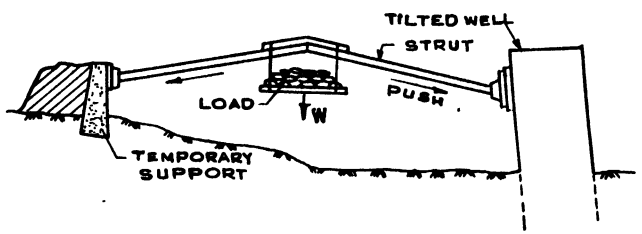


Fig. 4 (top) struting of well.

Fig. 5 (bottom) Rectification of tilt by push.



ted in figure 6. The earth from the outside of well on the high side may be removed as far as possible so as to reduce the resistance. Sometimes, light charges are applied under the cutting edge on the high side to disturb the frictional resistance on the high side. Alternate chiselling and high pressure water jetting under the cutting edge often produce satisfactory results.

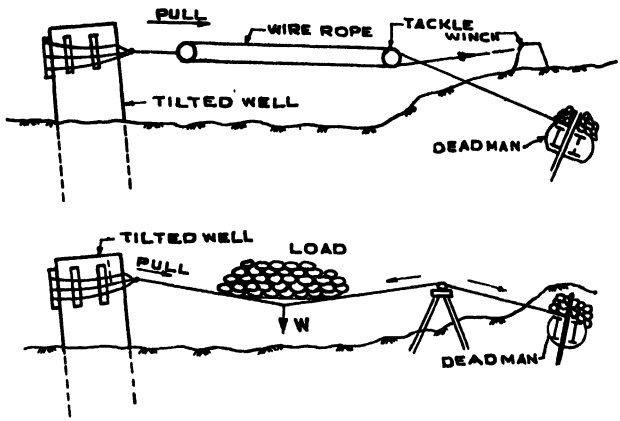


Fig. 6. Rectification of tilt by pull. a (top), b (bottom)

Instead of the application of push or pull on the well, sometimes overturning moment is applied to counteract and overcome the tilting moment by placing eccentric kentledges on a platform over the top of well (figure 7-b). Care, however, must be taken to ensure that the line of action of the resultant of the kentledge load is not on the wrong side of the point of rotation, that is, the centroid of well base. If this be the case (figure 7-a), the load placed on the well

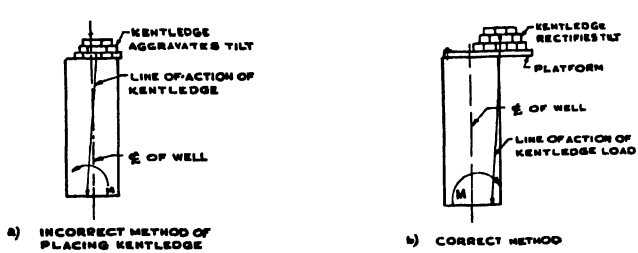


Fig. 7. Rectification of tilt by eccentric kentledge.

instead of helping rectification, would aggravate the tilt and the well instead of being straightened, may get tilted more and more unless the load is immediately removed and placed suitably on a cantilever platform (figure 7-b).

The grabbing, chiselling or waterjetting is resorted to simultaneously along with the application of either pull or push or the overturning moment in order to get the desired result.

6. Remedial measures adopted to reduce the effect of residual tilt and shift after the wells are plugged.—Every attempt should be made to rectify the tilt and shift during the process of sinking but it may not always be possible to achieve this target inspite of best efforts. Under such circumstances when rectification of tilt is not up to the desired extent even at the final stage of sinking, it is preferable to sink the well a few feet more so that the additional moments caused by the tilt and shift may be balanced as much as possible by the moment due to additional passive pressure of earth available from the extra depth of sinking.

It is often found that residual tilt and shift, which remains even after the plugging of wells, are not negligible and the resultant effect produces considerable additional foundation pressure. It, therefore, becomes essential to take some sort of remedial measures to reduce

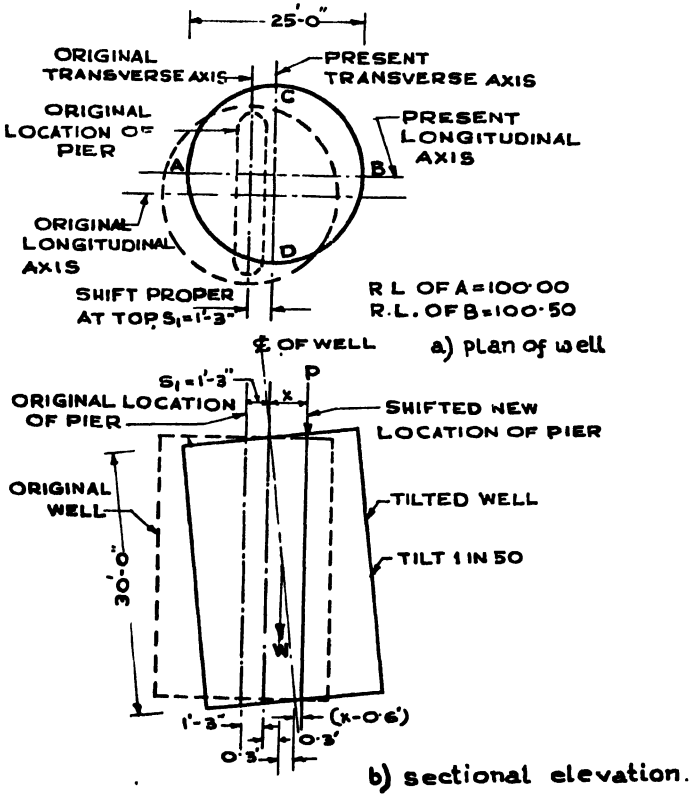


Fig. 8. a—top. b—bottom.

the effect of residual tilt and shift. This is done by shifting the location of pier or abutment on the wells suitably (if necessary by adjusting the design spans either by increasing or decreasing) so that the line of action of load from superstructure and pier passes through a point very near to the centroid of well on the principle as already enumerated before while dealing with the 'effect of tilt and shift on the stability of wells.' This is illustrated by an example.

In figure 8, the plan and elevation of a circular well with tilt and shift are shown in full line. The dotted line shows the original undisturbed position of the well.

The following dimensions and data are given: (Notations are same as stated earlier)

Depth of well, H = 30'—0"
Dia. of well, D = 25'—0"
Proper shift, S_1 = 1'—3"

Tilt =

$$\frac{\text{Difference of level between A and B}}{\text{Length AB}} = \frac{100.50 - 100.00}{25} = \frac{0.50}{25} = \frac{1.0}{50} \text{ i.e. 1 in 50}$$

Shift due to tilt, $S = \frac{30' - 0''}{50} = 0.6$ ft along longitudinal axis.

Load from superstructure and pier, P = 600 tons

Self weight of well, W = 450 tons.

∴ Moment at base due to P and W,

$$M = P(S + S_1) + W \times \frac{S}{2} = 600(1.25 + 0.6) + 450 \times 0.3$$

$= 1120 + 135 = 1255$ tons ft.

Section modulus of well base $= \frac{\pi D^3}{32} = \frac{\pi \times 25^3}{32} = 1520$ ft³

∴ Additional foundation pressure $= \frac{M}{Z} = \frac{1255}{1520} = 0.83$ tons/ft²

This additional foundation pressure due to tilt and shift can be dispensed with if the pier position is so shifted to a new position that the line of action of the load is slightly on the right hand side of the centroid of base and the resultant moment at base is zero. Let the pier be shifted by 'X' ft. at top (fig. 8-b) so that the above condition is satisfied. The moment is then given by,

$$M = P(X - 0.6) - W\frac{S}{2} = 0$$

That is $600(X - 0.6) - 450 \times 0.3 = 0$; or $X = \frac{135 + 360}{600} = 0.82$ ft.

= 10 inches.

That is, in order to balance the additional moment caused by the tilt and shift of the well, the pier position is to be shifted by (1'3"+10") *i.e.* 2'1" from the original designed location. This may necessitate the adjustment of the span lengths. In the case under investigation, if the pier positions on the left and right sides remain undisturbed then the left side span would be increased by 2 ft. 1 in. and the right side span would be reduced by the same value.

The balancing of the moment due to tilt and shift along the longitudinal axis of the bridge is illustrated. Similar procedure should also be adopted to adjust the tilt and shift along transverse axis. Such adjustment along transverse axis is not, however, independent of the other wells since shifting of the pier along transverse axis means shifting of the centre line of the alignment on the upstream or downstream side and as such decision regarding shifting of the pier position shall have to be taken considering the overall position of all the wells.

7. *How tilt and shift should be measured.* As already defined, the tilt is the inclination of the longitudinal axis of well in respect to the vertical but as major portion of the outside of a well gets embedded in the soil and the dredge holes remain immersed in water, it is difficult to measure the inclination of the well axis with respect to the vertical. It is, therefore, measured at top of well which remains always exposed. Levels at two extreme ends along transverse 'axis' of well are taken and the distance between the points measured. As the inclination of the transverse axis of well with respect to the horizontal, is the same as that of the longitudinal axis with the vertical, the magnitude of the tilt can be assessed as stated. Referring to figure 9, tilt of the well is the inclination of the longitudinal axis 'AB' with respect to the vertical 'CD'.

$$\text{That is, tilt} = \frac{LM}{KM} = \tan\theta = \frac{FG}{EF}$$

Therefore, if the level difference 'FG' of the transverse axis 'EF' is known, the tilt can be calculated.

But there is danger in measuring the tilt by taking level at the top of well along transverse axis. Generally in the tender for the well foundations, some stipulations are made restricting tilt within certain accepted values. The contractor normally has to pay some compensation if the tilt exceeds the permissible value and naturally, there might be a tendency from some contractor's side to make up the tilt in order to bring the same within the permissible limit. This might be attained if the level difference between 'E' and 'F' (Fig. 9) is reduced, that is, if during the casting of the steining, the lower side is raised and made level as far as possible so that the level difference between the high side and the low side becomes practically nil thus bringing the tilt within the acceptable value. If the tilt is reduced in this way giving false impression at top that there is no tilt in the well, the shape of a tilted well already sunk and lying embedded into the earth nevertheless may be as shown in figure 10, though a bit exaggerated for the sake of clarification. In figure 10(a),

the nature of tilt is cumulative and for this reason the distance between the line of action of the load from pier at base and the centroid of the base of well, that is, the eccentricity of the load with

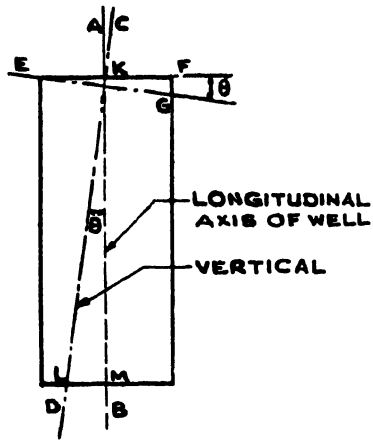


Fig. 9. Tilt of well.

respect to the C.G. of the base is large. However, the case as shown in figure 10(b) for which the nature of tilt is self corrective in certain degree is comparatively better so far the eccentricity of the load at base is concerned but even then this condition is also not desirable and should be avoided.

The above drawback can be obviated if some gauge marks on the four sides of a well are fixed with plaster with proper care and accuracy after the casting of the steining and the level is taken over the same reading on the opposite side gauge marks provided, of course, the gauge marks are correctly made.

The shift which is the resultant effect of both the tilt and bodily movement of the well is the distance between the centres of the well of the theoretical location and the final location as sunk and is measured at top. Though as in tilt, provision for compensation for exceeding shift beyond certain acceptable value on account of affecting the stability of the well are generally made but nothing is specifically mentioned in which manner and at what level the shift would be measured. As will be illustrated now, there is much difference between the shift measured at top and that at base of well. But as per normal practice, the shift is measured at top level and accordingly the decision for the compensation or otherwise is generally taken resulting in realisation of compensation for a case which is better from the consideration of the stability of the well whereas

the case which is worse in regard to the stability is let free without any compensation.

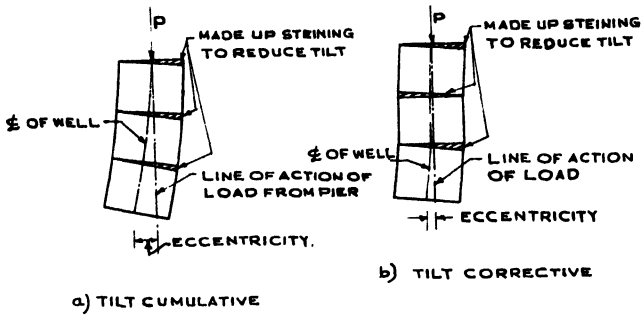


Fig 10

This can be better illustrated from the following discussions and from the sketches shown in figure 11.

Three wells each having a tilt of 1 in 75 and shift at top of varying magnitude are shown in the figure. In figure 11(a), the theoretical location of pier coincides with the well centre at top and as such there is no shift apparently as is normally assumed. Figure 11(b) shows a well in which shift at top is 8 inches but the line of load from the pier passes through the centroid of well base. Figure 11(c) is a case in which the shift at top is 10.5 inches and the line of action of load from pier acts at a distance of 2.5 inches from the centroid of well base. Now if there is provision in the contract for payment of compensation for defect in the well if the tilt exceeds 1 in 60 and shift exceeds 8 inches, which of the three cases is favourable to the contractors and which one is favourable to the Department from the consideration of design and stability of the well?

Let this be examined one by one. The tilt of 1 in 75 is within the permissible limits of 1 in 60 in all the cases. The shift at top is nil for figure 11(a), 8 inches for figure 11(b) and 10½ inches for figure 11(c). That is, the condition as shown in figure 11(a) is most favourable to the contractor as no compensation for tilt or shift has to be paid by him.

Well of figure 11(b) is such that the contractor is just saved from the payment of compensation whereas if the condition of the well becomes as in figure 11(c), he has to pay the full compensation for the shift.

But as regards the stability of the well, condition shown in figure 11(c) is most desirable provided, of course, there is no difficulty in

siting the pier at the shifted position. This may be evident from the following calculations:

Figure 11(a), moment=

$$P.S. + W.\frac{S}{2} = 800 \times 8 + 500 \times 4 = 8400 \text{ tons in}$$

Figure 11(b), moment=

$$W\frac{S}{2} = 500 \times 4 = 2000 \text{ tons in}$$

Figure 11(c), moment=

$$P(S_1 - S) - W.\frac{S}{2} = 800 \times 2.5 - 500 \times 4 = 0$$

Since the direct stress for the above cases remains the same, the well with 8,400 tons-in of moment at base as in figure 11(a) is the most unfavourable one so far the stability is concerned whereas the

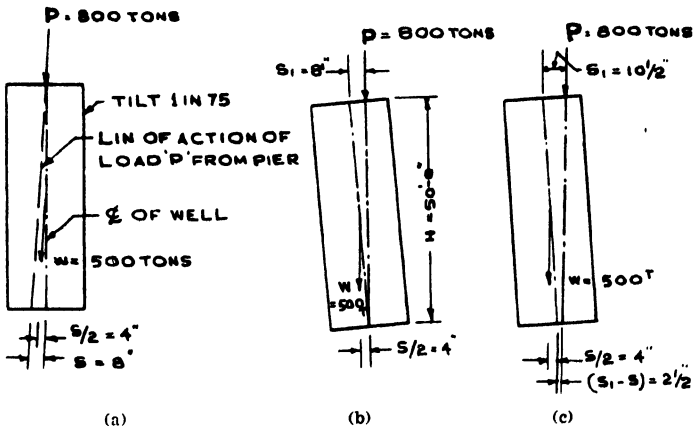


Fig. 11

well of figure 11(c) is the most favourable one having no moment at base due to tilt and shift.

From the above illustrations, it transpires that the contractor has to pay no compensation for the well as in figure 11(a) which is most unfavourable from design considerations, he just saves compensation for a case which is still better than the former one and has to pay compensation for the case which is most favourable from design considerations. This is something queer and the position is anomalous. The approach of measurement of shift should be such that this sort of discrepancy does not arise at all. This can be achieved if from the observations of tilt and shift at top of well, the shift at base of well and therefrom the moment at base both for the load

from pier and the self-weight of well is calculated and the equivalent shift is determined as indicated below.

For figure 11(a), Equivalent shift=

$$\frac{\text{moment due to tilt and shift at base}}{\text{load from pier}} = \frac{M}{P} \quad \frac{8400}{800} = 10.5''$$

For figure 11(b), Equivalent shift= $\frac{2000}{800} = 2.5''$

For figure 11(c), Equivalent shift= $\frac{0}{800} = 0$

The procedure of measurement of equivalent shift as outlined above is reasonable and realistic as it gives indication of the amount of compensation, if there be any, to be charged in conformity with the magnitude of the defect in the wells and is, therefore, recommended. The compensation for tilt may, however, be charged as usual when the tilt exceeds the permissible limits in addition to that for equivalent shift.

8. Conclusions.—As seen in this paper, the effect of residual tilt and shift in well foundation increases the foundation pressure, thereby exceeding the allowable limits in some cases, unless remedial measures are taken by shifting the pier and adjusting the span arrangement, wherever possible. This adjustment may not always be possible when the residual tilt and shift are high. Therefore, every attempt should be made to sink the wells true to plumb and at the designed position from the very beginning.

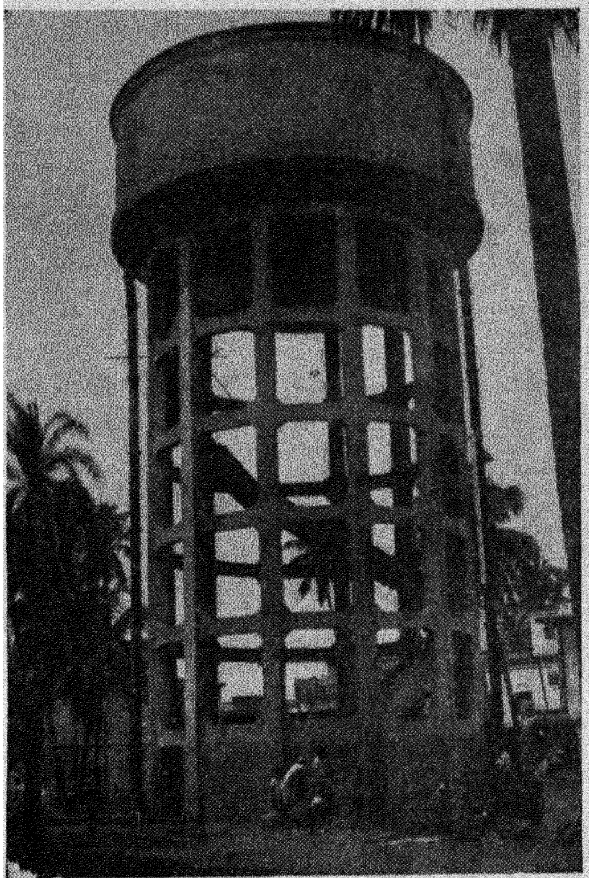
As the possibility of occurrence of tilt or shift is more at the initial stage until the grip length is sufficient to offer resistance to such trend, it is always advisable to handle the well very carefully at this stage of sinking.

Another point should be kept in mind while sinking the wells that the well usually tends to tilt when it is about to leave the sandy strata and enter the clayey strata due to the fact that the sand from one portion of the well curb moves easily. This effect is aggravated if the strata are not horizontal. Though a tilted well may be rectified and straightened partly or fully in some cases by the adoption of corrective and remedial measures but the trouble one has to face in doing so is such that one should always try to avoid such occurrence. The old proverb *viz.* 'Prevention is better than cure' is very appropriate in the case of tilt and shift of wells for bridge foundations.

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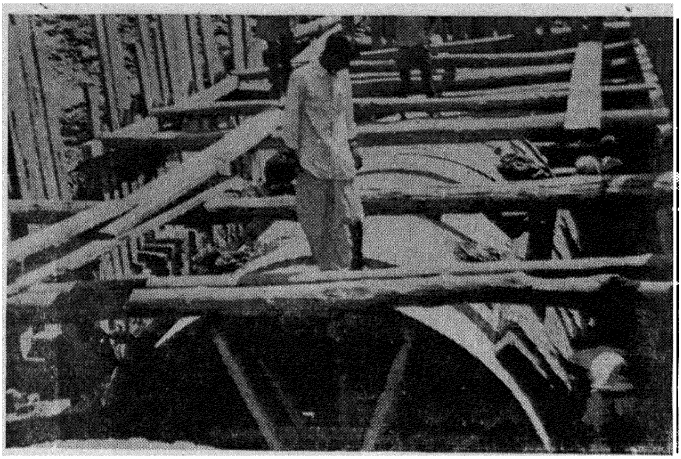
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O.H. reservoir—1,25,000 gallons at Kasba under Tollygunge Water Supply Scheme. Inaugurated by Shri Siddhartha Sankar Ray, Chief Minister on 23-9-73.

Photo by NIRMAL ROY, C.I.T.

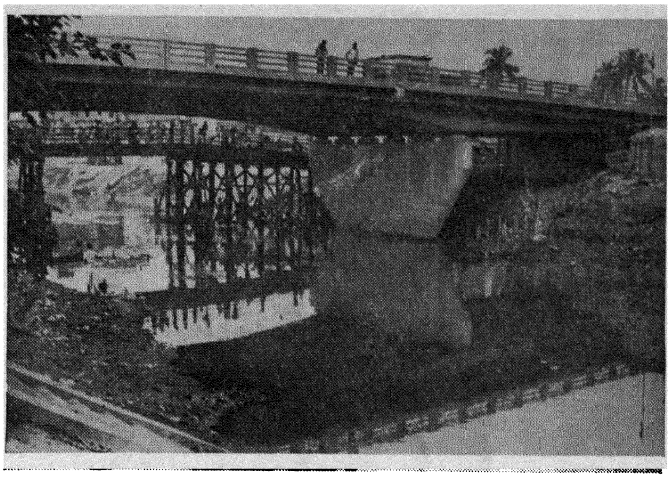


Manicktala Sewerage Project. Scheme No. XIII M (C.M.D.A. Code No. SD/006). 16-6-74.

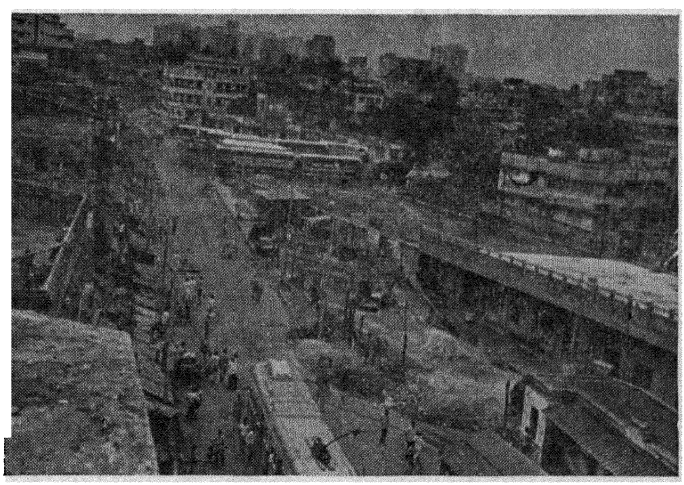


Inauguration of Sahid Jatin Das Setu (Chetla Bridge) by Chief Minister on 27-1-74.

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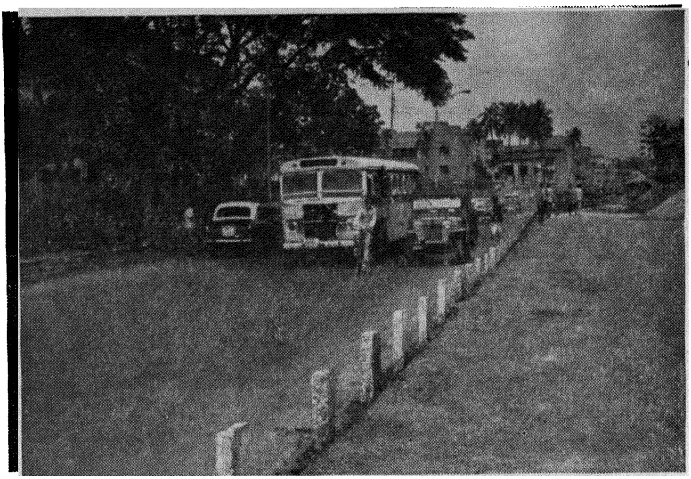


Sahid Jatin Das Setu (Chetla Bridge) opened by the Chief Minister on 27-1-74.

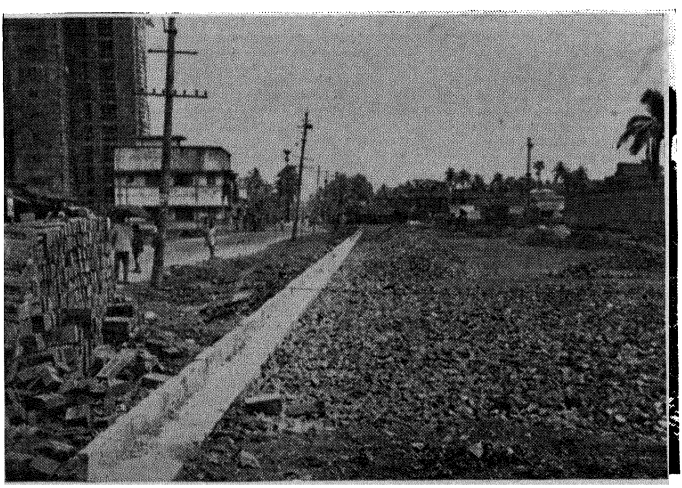


Kasba Bridge (C.M.D.A. TT-010). Ballygunge side high level approach under construction can be seen on the right. 9-6-74.

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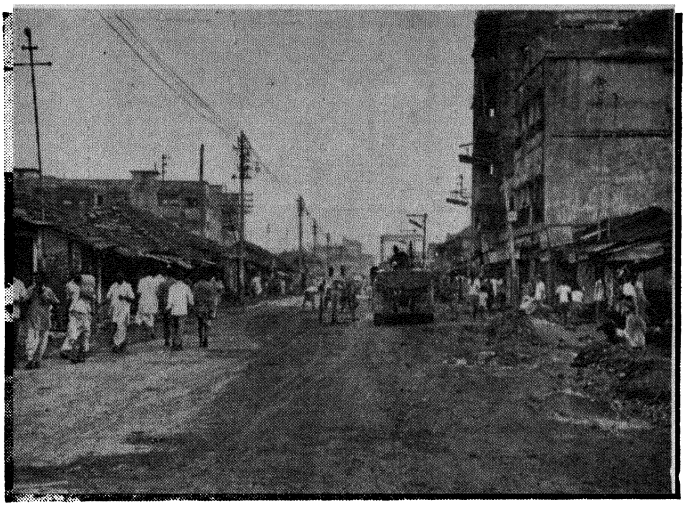


Widening of Raja Subodh Mullick Road, Scheme No. XCIV. 2-6-74.

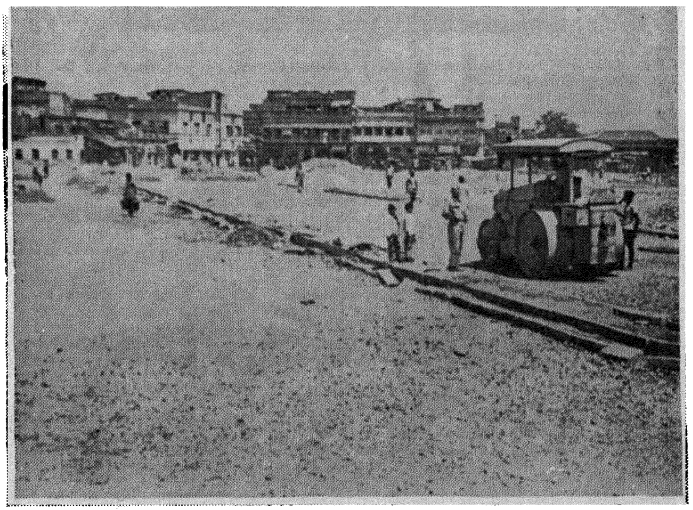


Widening of Prince Anwar Shah Road, Scheme No. 114-B. 9-6-74.

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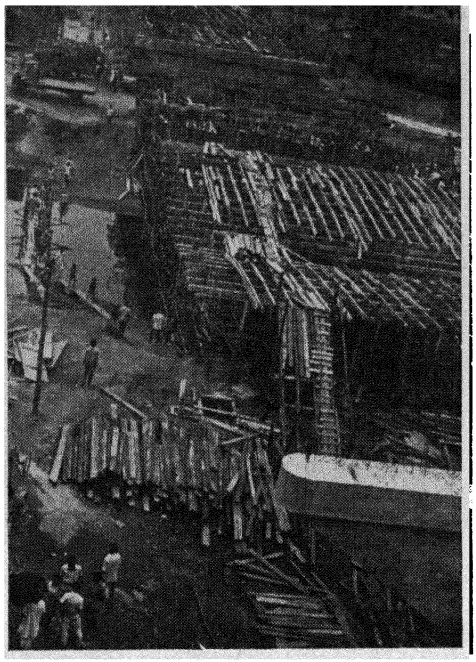


Widening of Manicktala Main Road, Scheme No. XVM. 9-6-74.

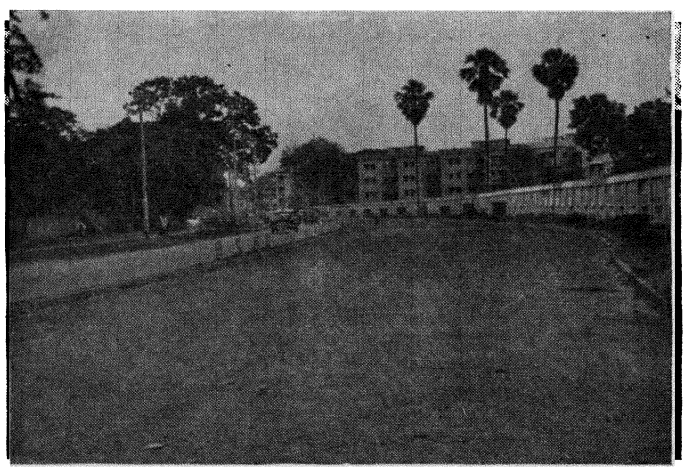


Construction of a 100′-0″ wide road at Ultadanga: Part of the Ultadanga Main Road Widening Project. 16-6-74.

Photo by Nirmal Roy, C.I.T

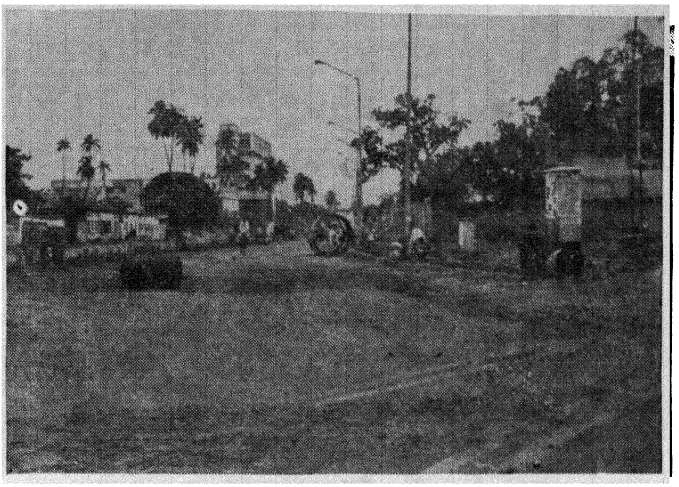


Construction of Bridge over Circular Canal at Ultadanga. 9-6-74.

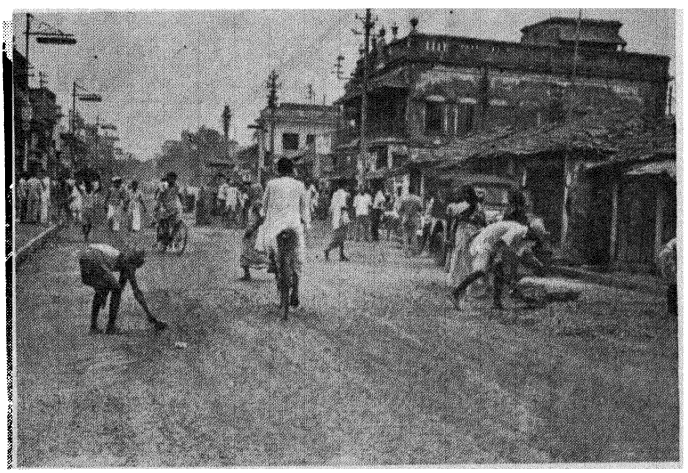


Widening of Deshpran Sashmal Road, Scheme No. 107. 9-6-74.

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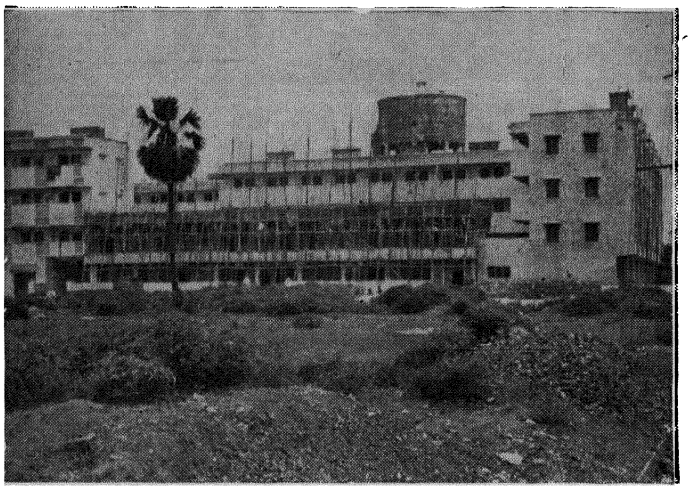


Road repairs and lighting C.I.T. Roads within the city. 2-6-74.

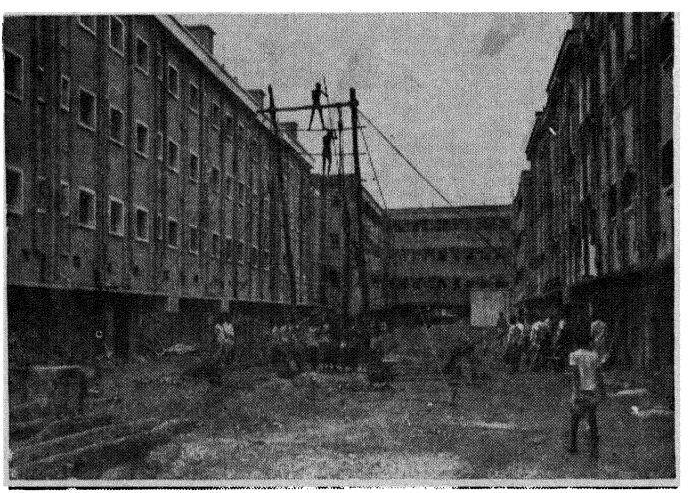


Road repairs within the city. 9-6-74.

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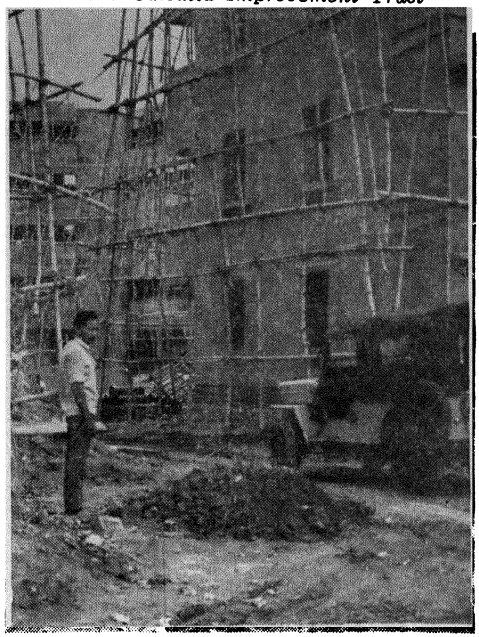


Alternative accommodation scheme with shopping centre at Lake Gardens at Scheme 114A. 2-6-74.

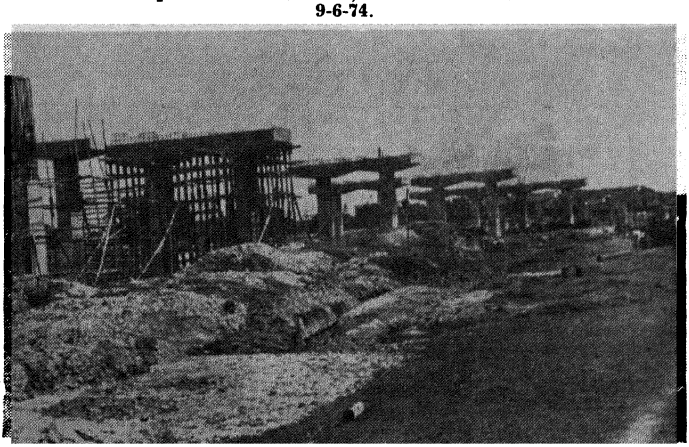


Alternative accommodation Scheme at XV-M(S). 9-6-74.

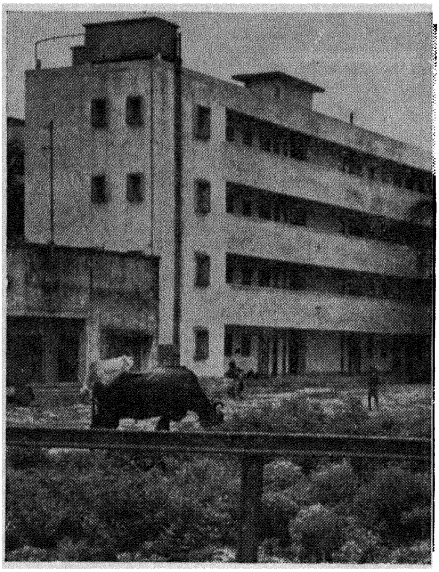
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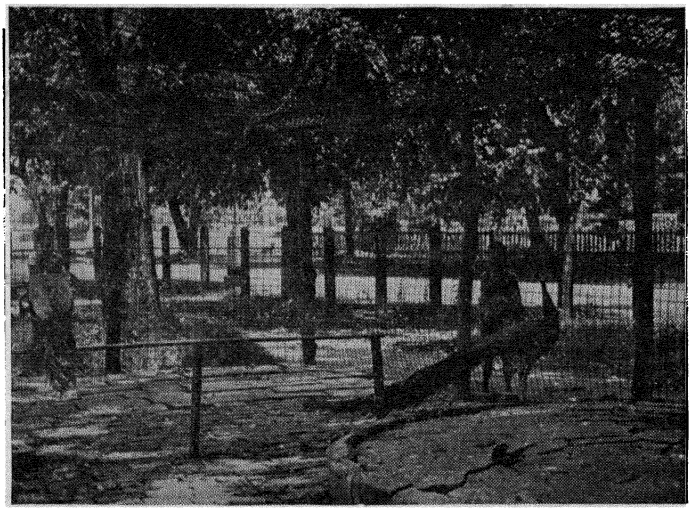
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Calcutta End Approach: Viaduct of 2nd Hooghly Bridge. 9-6-74.
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Alternative accommodation scheme at Shyam Bose Road, Chetla. 20-6-74.



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20th July 1974.

V. S. C. Bonarjee,
Chairman.