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NOTES.

PUBLIC—A., JULY 1913.

Nos. 62—63.

FINAL REPORT OF THE DELHI TOWN-PLANNING COMMITTEE.

From Sir J. H. DUBOULAY, to Hon'ble Mr. H. WHEELER, 23rd March 1913.

I send herewith the original of the final report of the Delhi Town-planners which was presented to His Excellency by them.

His Excellency has sent it to me with the following remarks:—

"I presume that this is the official copy for transmission to the India Office. If so, please have it forwarded by the Home Department. I note that this copy does not contain two maps in the fold, though one is sent separately.

"Please obtain and send me an unsigned copy for my private use.

"I am not sure that there is any necessity for the ultimate publication of this report. What do Home Department and Mr. Hailey think? If it is necessary we would have to get 1,100 copies printed."

I have told His Excellency that it is not necessary to send *this* copy home, and that so far as I am aware it is unnecessary to send a copy home at all, though it might be *wise* to do so, together with any comments the Government of India may have to make.

On the other hand, I have told him that I think copies should be circulated as soon as possible to Members of Council.

In any case the report is now for you to deal with and take orders about.

You will doubtless consult Hailey and note about the question of publication raised by His Excellency.

Will you kindly let me have a spare copy for His Excellency's use as soon as possible, without waiting for maps if none are immediately available.

I may note that a signed copy—with maps—has gone home for the Secretary of State's private information.

P.S.—I have asked His Excellency to let me have any maps or plans attached to the report of the Medical Committee.

This is the final report of the Delhi Town-Planning Committee and orders are required as to the method of dealing with it. The question of printing will be taken up separately.

1. In the first place, I think we should send a copy to the Secretary of State for information, saying that the recommendations of the Government of India with regard to it will follow. The Town Planning Committee has been appointed in close communication with the Secretary of State, and he may not unnaturally expect to receive their report officially as soon as it is presented. But the papers should not be laid before Parliament. This is purely an administrative report which the Government of India will have to consider, and in the light of which it will have to settle upon its course of action. It is only an outline of what is needed and the details have still to be elaborated. Probably in that process changes will be proposed, and it is not desirable that a report should be published which may be represented as handicapping the Government of India in any decision which may eventually be arrived at. I have discussed with Mr. Hailey, who agrees.

2. Secondly, it is submitted that copies may be distributed at once to Honourable Members for their personal perusal. I am separately sending copies for His Excellency's use.

H. WHEELER.

On re-consideration, I think it will be simplest to address the President of the Committee direct; that will obviate the necessity of his having as Chief Commissioner to forward letters to himself as President.

H. WHEELER.

4. As regards the next stage in this country, it would apparently be that of forwarding the report to the Chief Commissioner and calling upon him, in consultation with the Imperial Delhi Committee, to submit a project estimate. The component parts of the new Capital fall, perhaps, under three main heads:—

- I. The buildings etc., which Government must provide before the new city can be got into working order as the seat of Government.
- II. The buildings, etc., which Government may add to the new city hereafter but which are not essential before it can be brought into being.
- III. The buildings, etc., which will be constructed by private agency.

Immediately we are only concerned with I. Head III raises very important issues, and we should, I think separately, now formally ask the Chief Commissioner (in consultation with the Imperial Delhi Committee) to submit proposals as to

- (a) the terms on which building sites are to be let for shops and bazars,
- (b) the terms on which sites are to be let for the residences of Native Princes,
- (c) the terms on which building sites are to be let for the residences of other private persons, and
- (d) the terms on which sites are to be let to private institutions such as missions, schools, etc.

This classification may not be exhaustive, and it would be open to the Committee to modify or elaborate it, but *prima facie* there seem to be different considerations which govern the settlement of sites of these descriptions. There is, of course, the other question of the settlement of non-urban land, but for the present we are concerned with the new city primarily.

5. With reference to Head II, I take it that each Department concerned with any particular project, which may eventually take shape at Delhi, *e.g.*, a Museum, Oriental Institute, University, Cathedral, Her Excellency's Medical College for Women or an Imperial Record Room, should work it out on its merits, the only essential being that the Chief Commissioner should be informed as soon as possible for what purposes of this nature sites should be reserved. The Delhi Committee will now practically have to prepare a detailed lay-out in continuance of the somewhat meagre outline contained in this report, and in order to do this they will require this information, but these schemes do not presumably come within the scope of the first project estimate. They will be additions to the city made from time to time as the need of them is demonstrated.

6. That leaves Head I only and this would seem to comprise the following sub-heads :—

- (a) Government House.
- (b) The Secretariats including the offices of those heads of Departments, etc., who, it has been decided, shall be brought to Delhi.
- (c) The Press.
- (d) The miscellaneous public buildings, *e.g.*, the administrative offices, station hospital etc. (It will be for the Chief Commissioner to prepare an exhaustive list of these.)
- (e) Residence of His Excellency the Commander-in-Chief.
- (f) Residences of Members of Council.
- (g) Residences for different officers, together with recommendations as to the precise number which should be built in the first instance.
- (h) Ditto for clerks.
- (i) Ditto for menials.
- (j) Roads.
- (k) Water supply.
- (l) Drainage.
- (m) Irrigation.
- (n) Lighting.
- (o) Parks, public gardens and open spaces, including arboriculture.
- (p) Railways.

In asking for a project estimate under these heads (and any others which may suggest themselves to the Delhi Committee as appropriately falling within its scope), I think we might ask generally for their recommendations as to the order in which these wants should be carried out, or in other words, for a programme of operations. It will be noticed that in paragraph 4 (b) page 3 of their report, the Town Planning Committee observes that "If, however, it is considered necessary to adopt a restricted lay-out of the nature considered in connection with the north site, the whole of this area will not be occupied by buildings at once but will be developed gradually." I take it that the decision to adhere to the southern site implies that the idea of a restricted lay-out has been abandoned, and apart from matters of parks and open spaces, the matter bearing most closely on the total area involved is the size of compounds attached to private houses. That has been settled by an Order in Council, to which it is presumed that it is intended to adhere, and if so, the instructions to the Chief Commissioner as outlined above will perhaps suffice to cover all that is needed at the moment. It might be added that the works might be classified according as they will be unremunerative and remunerative, the anticipated return in the latter event being estimated. With regard to private residences, the expenditure might perhaps be sub-divided into that which should be taken for the purpose of the calculation of rent under the usual rules, and that which is incurred for the purpose of bringing the architectural features of these residences into conformity with the requirements of the Capital. It is probable that, outwardly, bungalows will require to be of a more elaborate description architecturally than would be the case were they constructed in an ordinary station, and it would be useful if the expenditure incurred

on this account was specified separately. Whether rent should be paid on this portion of the initial cost can be decided hereafter; it would depend a good deal on what the scale of rents worked out to, apart from it.

7. The report of the Town Planning Committee raises two other points which scarcely fall under any of the above heads, and regarding which it may be desirable to call separately for the views of the Chief Commissioner and the Delhi Committee. These are :—

Paragraph 6 VII, pages 16-17.—River treatment and water effect.

Paragraph 6 VIII, pages 17-18.—Development and control.

We have separately asked already for the views of the Chief Commissioner as to the desirability of taking up the expansion block south of Saffdar Jang's tomb, but the Committee's report raises the more important and costly question of the acquisition of Paharganj. When that came up in connection with one of the earlier tentative lay-outs (*vide* paragraph 1—Preliminary of the report) it was negatived; it is for orders whether it should now again be re-examined. In one sense it can wait, but every years delay will mean a large ultimate outlay.

8. The Public Works Department should see and, of course, His Excellency's orders are required.

H. WHEELER,—24-3-13.

I agree with the suggestions made by Secretary as to the further action to be taken. As regards the lay-out, I gather that the latest opinion is that the original proposals made were too lavish. On the other hand, it would I think be a great mistake to have a constricted lay-out such as the selection of the northern site would have forced upon us.

A '*via media*' is the proper course. Even if the climate of Delhi is good, India is not England. Sanitary appliances do not make sanitary men. You cannot keep Indian servants perpetually separated from their families, and families of Indian servants should not be too close to houses.

Secondly, if regard is to be paid to the interests of Government officers some relaxation of rules regarding rents will be necessary—

(i) Because houses will only be occupied for half the year.

(ii) Because from the point of view of architecture more elaboration will be necessary than mere comfort requires.

while (iii) Arboriculture should be kept distinct from gardens.

These are some points for consideration as regards the lay-out to which I would direct attention.

As regards Paharganj, it certainly would be a blessing to have it removed, but it is a question of finance; and provided that the access from the new city to the Ridge is safeguarded by broad thoroughfares, its complete removal would not be absolutely necessary.

The Ridge and the present Civil Station should not be neglected. It should form an integral part of "Delhi" of which it would be a presentable suburb.

R. H. C[RADDOCK],—25-3-13.

From Sir J. H. DuBOULAY, to the Hon'ble Mr. H. WHEELER, dated 26th March 1913.

I think this note had better be circulated by the Home Department, which I understand is already dealing with the case. I understand you have spare copies of the report and lay-out, which can be annexed to the note.

The final report of the Delhi Town-planning Committee together with their proposed lay-out is herewith annexed. I have not been able to compare it with the draft report and the lay-out map already supplied to Honourable Members but I believe them to be practically the same in every respect. Although there is no necessity to send home this final report, I think it would be wise policy to do so and to say that we accept the conclusions generally, while reserving to ourselves the right to defer the carrying out of some of the proposals (such as the artificial water scheme) and to modify them in accordance with future necessities as they arise. There are many details which will require very careful examination before execution and I think we should reserve to ourselves a certain latitude in dealing with them. I regard the Town-planning Committee as having merely advisory and not compulsory powers.

Please circulate to Honourable Members for their views.

H[ARDINGE OF PENSURST],—24-3-13.

His Excellency's note of the 24th instant was received yesterday after Honourable Member's note of the 25th was written. In these circumstances circulate the file now to Honourable Members and we can consult Public Works Department, departmentally, hereafter if need be.

The second map accompanying the report is not circulated on account of its size, but the map in the pocket of the report shows the lay-out as well as the engineering services.

H. WHEELER,—27-3-13.

I was absent in England during the whole of the time when this matter was considered last summer; and I had never seen any of the documents connected therewith till quite

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No. 12 of 1913.

GOVERNMENT OF INDIA.
HOME DEPARTMENT.

no. 63

PUBLIC.

To

THE MOST HONOURABLE THE MARQUESS OF CREWE, K.G.,
His Majesty's Secretary of State for India.

Simla, the 1st May 1913.

MY LORD MARQUESS,

WITH reference to correspondence ending with our despatch no. 11, dated April 24, 1913, we have the honour to forward for your information the final report of the Delhi Town-planning Committee on the town-planning of the new imperial capital. We have considered the report, and desire to say that we accept its conclusions generally as a useful guide in our further operations. There are, however, many details which will require very careful examination before execution, and we feel that we must exercise our discretion in dealing with them. It may be necessary to defer the carrying out of some of the projects and to modify others in accordance with future necessities as they arise.

We have the honour to be,

MY LORD MARQUESS,

Your Lordship's most obedient, humble Servants,

HARDINGE OF PENSHURST.

~~G. MOORE CREAGH~~

GUY FLEETWOOD WILSON.

HARCOURT BUTLER.

S. A. IMAM.

W. H. CLARK.

R. H. CRADDOCK.

E. D. MACLAGAN.

ENCLOSURE.

Final report of the Delhi Town-planning Committee on the town-planning of the new imperial capital.

FINAL REPORT ON THE TOWN PLANNING OF THE NEW IMPERIAL CAPITAL.

1.—Preliminary.

The Committee now propose to present the separate report on town planning which was promised in paragraph 1 of their report on the choice of a site for the new Imperial capital at Delhi.

In accordance with the programme detailed in the concluding paragraph of that report the Committee left Simla in the latter half of June. Mr. Brodie was the first to leave and on his way home visited Delhi, where he went over a portion of the ground. Captain Swinton and Mr. Lutyens left Simla a few days later and met Mr. Lanchester at Delhi. They had the advantage of learning his views and discussing plans with him before leaving for Europe.

From August to November the Committee were in England, but kept themselves continually in touch with India. Lengthy communications passed by every mail: and while certain work was carried out by the Committee at home, the officers at Delhi conducted the necessary investigations on the spot.

The whole railway problem was reviewed. The question of the afforestation of the ridge was considered. Arrangements were made for the rearing of suitable trees and plants for the avenues and parks of the new city. An elaborate preliminary estimate of the cost of the new city was drawn up by Mr. Ward and Mr. deMontmorency, ably assisted by Captain Roberts, Captain Sopwith and Mr. Parker. These preliminary estimates covered the ground of the cost of land, storm water drains, sewage and sanitary installation, irrigation, domestic water supply, roads, parks, buildings, lighting, tools and plant and establishment. The acquisition of land for the new site began.

During the interval there was one fresh development. In paragraph 10 of their report the Committee recommended the acquisition of the suburb of Paharganj, and in a tentative lay-out, which they put forward, it was condemned for demolition. On the receipt of the estimates of the land acquisition officer it was discovered that this suburb, although admittedly of poor character and appearance and insanitary, contained 15,000 inhabitants and was valued at a very large sum. This discovery raised serious complications; and the Committee were informed that the Government of India did not see their way to sanction its immediate demolition. It was held that it would be easier to deal with this area by including it in a general scheme for the improvement of the present city, the expenditure being spread over a number of years. The Committee were accordingly instructed to consider the possibility of aligning the main axis of their lay-out in a more easterly direction.

The Committee realise that the compulsory removal of great masses of population is a difficult matter requiring much care and tact; but they received with regret the news that Paharganj must remain for the present. It is to-day a poor class property; but it occupies such an advantageous position that it must rise in value. In the opinion of the Committee it would be wiser for the Government of India to obtain such control over it that no private interests can be created in it detrimental to the public welfare. The Committee would wish again to emphasise the vital importance of control of which mention was made in paragraph 10 of their earlier report.

Captain Swinton returned to Delhi on November 25th. Mr. Brodie and Mr. Lutyens did not arrive till nearly a month later. At the desire of His Excellency the Viceroy they visited Mandu, Indore, Lucknow and Cawnpore on their way from Bombay to Delhi. Since then the work has been continuous.

2.—A special report on the north site.

Towards the end of January the attention of the public was directed to the north site, or Durbar area, as a site for the new capital. This interest was evoked partly by a paper read by Sir Bradford Leslie before the Society of Arts in London and partly by a series of articles in the press from champions of this site. In paragraph 7 of their report on the choice of the site the Committee had already concluded that it was impossible to provide an area on the north site to suit the requirements of the new capital as communicated to them by the Government of India. The only possible basis, on which the question could be considered, was a modification of the conditions originally laid down. At the desire of His Excellency the Viceroy the Committee proceeded to review the conditions of size and area originally postulated by the Government of India and presented a separate report on the possibility of accommodating a city of half the size previously contemplated on the northern area.

3.—Principles to be kept in view.

There are certain general principles governing town planning in all countries and climates, though they must vary with the motif of the city. First and foremost among these the Committee put the need of foresight. There must be a readiness to meet every requirement of the future. Whatever eventualities the days to come may have in store, the new city must have at its hand the inherent power to command health, and a wealth of air spaces and room for expansion, which no lapse of time can deplete. A well-planned city should stand complete at its birth and yet have the power of receiving additions without losing its character. There must be beauty combined with comfort. There must be convenience—of arrangement as well as of communication. The main traffic routes must be parkways capable of extension both in width and breadth. Communications both internal and external should be above reproach. Where possible, there should be a presentation of natural beauties—hill, wood and water—and of monuments of antiquity and of the architectural splendours of modern times. Space is needed for recreation for all classes. The result must be self-contained yet possessing a latent elasticity for extension. The perfected whole should be obtainable with due regard to economy.

To all this must be added the special principles governing the town planning of a particular site. In the case of Delhi the Committee conceive the chief of these to be a realization of the dominant idea of the new Delhi and the adaptation of the scheme of the new city to physical conditions. Delhi is to be an Imperial capital and is to absorb the traditions of all the ancient capitals. It is to be the seat of the Government of India. It has to convey the idea of a peaceful domination and dignified rule over the traditions and life of India by the British Raj. The attention to be paid to physical conditions chiefly centres on making the new city one suited for a seven months' residence in a climate which varies during that period from a maximum shade temperature of 105 degrees Fahrenheit to a minimum winter shade temperature often approaching freezing point. Health in a land with a bad malarial record and violent variations in climate, rainfall and river flood levels has to be most specially safeguarded. The local drawbacks of dust, glare and barrenness have to be combated; and the provision of irrigation, without which no grass or trees can grow successfully in Delhi, must be arranged. The Committee now propose to show how their lay-out on the south site is governed by these principles.

4.—Description of the south site.

The general description of the south site, which was given in paragraph 9 of the report on the choice of a site, may now be presented in greater detail with a view of showing clearly how the lay-out on such a site can fulfil those principles which the Committee have set for their standard.

Situation.

(a) The site of the proposed new city may be said to begin from the walls of the present city of Delhi and to extend from them in a southerly and south-westerly direction. On the eastern side the area will extend to the Jumna. The old high bank of the river on which are situated the remains of the cities of

Ferozshah Kotla and Indrapat and the buildings in the vicinity of Humayun's tomb, is far away from the present channel of the river from which it is separated by a considerable expanse of low-lying land locally known as the *Bela*.

On the west the natural limit of the area is the ridge. A cross-section of the ridge opposite Paharganj shows a rocky surface at an elevation of about 725 feet above mean sea level, rising to about 800 feet at the highest point and falling again to about 750 feet in a total width of 1,200 yards before the rock surface again disappears beneath the soil. The ridge continues southwards at the same apparent width, but gradually rises in height to a maximum of 865 feet at a point west of Tal Katora. A line drawn from this point to Safdar Jang's tomb and then due east to the river forms roughly the present southern boundary of the land required, though the tract southwards of this line is in every way suitable for building and will be available for expansion.

(b) The total area described as the site has a width of about $4\frac{1}{2}$ miles at its broadest part at the proposed southern boundary and narrows as it approaches the present town to a width of about $2\frac{1}{2}$ miles. The village of Malcha at the south-west corner of the site is $3\frac{1}{2}$ miles from the Ajmere gate of Delhi city while Nizamuddin's tomb at the south-east corner is $3\frac{1}{4}$ miles from the Delhi gate. If however it is considered necessary to adopt a restricted lay out of the nature considered in connection with the north site, the whole of this area will not be occupied by buildings at once but will be developed gradually. The size of the site.

(c) Looking from the centre of the site towards the river there is Shahjehan's Delhi on the left, and following down the river frontage Ferozshah's Delhi, Indrapat and Humayun's tomb fill the outlook in front, while outside the site itself Tughlakabad, Siri, Jehanpanah, Kila Rai Prithora, Lal Kot and the Kutb complete the panorama. The isolated buildings known as Safdar Jang's tomb, the Lodi mausoleums and the observatory of Jey Singh are within the site itself; the only portion of the older cities which lies within the boundaries of the site is an area of about $1\frac{1}{2}$ square miles starting on the west near the Turkoman gate of the present city and extending southwards from the Delhi gate to the edge of the old high river bank. This area is unoccupied by buildings at present, but much of it is rough and uneven with the scattered remains of the stones and foundations of old settlements. It will best be utilized partly for large institutions which require a considerable area of land around them and partly by being planted and treated as a natural wild park. The older Delhi.

(d) All the rest of the site with this exception consists of good land most of which is in continual use for agricultural purposes. The area has been largely cleared of trees so as to allow of unrestricted tillage; but it grows excellent crops, and where the villagers have allowed occasional trees to remain near a village site or mosque or in a walled garden the excellence of the tree growth is an earnest for the success of the avenues and parks in the new city. In a few places near to the present city the land has been spoilt by use of the underlying materials for brick burning; but it will not be difficult to bring these areas up to the level of the surrounding land before they are required for building purposes. The Committee have twice seen the ground under a smiling expanse of crops and feel the greatest confidence in the good qualities of the soil for the purposes of gardens, parks and arboriculture generally. This opinion is shared by Mr. Griessen, an expert landscape gardener who inspected the site. The unoccupied area.

(e) The natural fall of the country is at right angles to the base of the ridge and towards a shallow valley on the eastern boundary of the site; this valley falls in a southerly direction past the village of Kilokri and has its outlet into the river near Okhla. The Committee could wish for nothing better. The whole of the natural surface falls are very favourable for the disposal of sewage and storm water. From observations taken in September last, when a heavy fall of rain occurred amounting to eight inches in 12 hours, it appeared that the nullas or ravines connecting with the main valley were dry again within a period of eight hours from the time the rain ceased. The general fall of the country.

(f) It must not be supposed however that beside the ridge the only feature is a plain with a gentle slope to the south-west. Within the proposed area there are a number of places where the land or rocky eminences rise considerably above the surrounding surfaces. At Ugar Sain's Baoli there is a small plateau rising to a height of 720 feet. A rocky hillock at Raisina village, which is the Variations in the plain. east

approximate centre of the building area, rises to 750 feet or about 40 feet above the country immediately surrounding it. A long ridge of high ground varying in height up to 760 feet surrounds on three sides a lower area of land lying to the south-west of the village of Kushak. A number of projecting ridges also outcrop between the western boundary of this hollow and the village of Malcha extending northwards at various altitudes generally above 750 feet towards the village and garden of Talkatora. These are a series of spurs from the main ridge itself. These variations make a pleasing break in the general level of the plain and offer great opportunities for advantageous town planning and the placing of important buildings.

The Main Ridge.

(g) The main ridge, a continuation of the historic Ridge on the north, starts from a suburb called Sadar Bazar, and stretches in a south-westerly direction. Its surface consists largely of bare quartzite weather worn rocks of a reddish colour rounded in contour, lying between vertical beds of some thickness. Many individual stones are of considerable bulk. Between the tilted layers of rock, and in pockets between stones, small patches of soil are to be found which support shrubs and bushes and throw up grass in the rainy season. At present the ridge is heavily grazed by numerous flocks of goats and sheep, and vegetation has little chance of successful existence. Here and there in the surface above Talkatora gardens and in other places, considerable areas of soil have accumulated in local depressions. A scheme has now been drawn up by an experienced forest officer for the afforestation of the ridge. This scheme provides for rough terracing to hold up soil and skilful treatment of the watercourses down which the surface waters escape. Irrigation to start arboriculture is possible from the drinking water-supply which will be delivered at a high level along the crest. It is anticipated that the stoppage of browsing will in itself conduce to the rapid growth of much natural wild vegetation, while the skilled arboricultural operations of the afforestation scheme will result in a complete reboisement of these hills. The lay-out provides for the construction of ridge drives along the higher portions which will be connected through to the existing roads on the north Ridge by a thoroughfare constructed through the Sadar Bazaar. The views from these high drives will be magnificent. The panorama of the present city, the new city and the monuments and cities of the past stretching below to the river as seen from the rough eminence past a foreground of rocks and trees should be one difficult to match for charm.

Physical conditions in relation to health.

(h) The villages on the site have, as compared with those in other areas near Delhi, a good past history in the matter of health. Where there has been malaria, it has been due to a localised cause such as the ponding up of storm water by artificial embankments for agricultural purposes or to local depressions which gave an opportunity for anopheline breeding. These local defects will disappear on the development of the site for the purposes of the new city. In other respects the site is excellent from the point of view of health. The subsoil water gives no cause for anxiety. The soil is a fine permeable loam. The slope for drainage of storm water or sewage is excellent. The site is sheltered from the cold north-west winds in the winter. The part of the site which will be closely built over is at a distance from any flooded areas and is free from water-logging.

The Cantonment area.

(i) To the south-west of Malcha, but on the other side of the ridge, lies the tract which has commended itself to the military authorities as being the area most eminently adapted for the purposes of a cantonment in the vicinity of Delhi. This offers wide expanses suitable for manœuvres and is a healthy site open to the wind in the warm season—a necessity for a station which will be occupied all the year. This area is most conveniently situated in regard to the proposed site for the new capital, as near Malcha the configuration of the ground makes it possible to provide without difficulty connecting roads with easy gradients between the two settlements.

Communications.

(j) The nature of the site is such that there is a possibility of the freest communication everywhere to the south for purposes of expansion. To the north there is no obstacle in communication with the Ajmere, Turkoman and Delhi gates of the present city, which are the three important gates in the south wall. On the east communication to the banks of the Jumna is everywhere unrestricted. To the west there are good means of communication with the

established by roads from the Military settlement joining both the ridge road and the existing road from Delhi to Gurgaon.

(i) In laying out avenues and compounds it is essential that the design of the buildings and the actual lay-out of entrances to compounds should be determined before trees are planted as lines of trees and buildings are dependent on one another for effect. Foresight in planting trees.

(j) Sufficient areas have been provided for parks in the following places :— Parks.

- (a) The Viceregal estate.
- (b) The park-way from Indrapat to the Secretariats.
- (c) The park round the Lodi tombs and Safdar Jang's Mausoleum.
- (d) The park area to the south of the club containing the golf and race-course.
- (e) The park between the new and the present city, roughly 1,000 yards in width.
- (f) The afforested ridge.

(k) The lay-out has been designed within lines of deviation so as to give the greatest possible freedom, and provides for a city on a ten square mile basis : but the alignment of avenues and roads is equally suited to a restricted lay-out of the nature that was considered for the North Site. Reduced or extended lay-out.

(l) A lake which can be obtained by river treatment is shown on the plan. The lay-out has been made independent of the water effect, but the Committee think that its ultimate creation will enhance enormously the beauties and general amenities of the new capital : and it should and would become an integral portion of the design now submitted. Water effect.

6.—Recommendations in regard to the treatment of special points.

Having set forth the general idea underlying the plan of the town and given a general description of the lay-out, the Committee feel that, without any desire to tie the hands of those who are to build and develop the new city, there are certain points of important detail, chiefly connected with engineering problems, in connection with which they wish to make recommendations. Their remarks will fall under the heads of—

- I.—Water-supply and irrigation.
- II.—Storm water drainage.
- III.—Sewage system and refuse destruction.
- IV.—Communications—
 - (a) Railways.
 - (b) Roads—their construction and surfaces.
 - (c) Tramways.
 - (d) Diversion of traffic.
 - (e) Through traffic routes.
- V.—Parks and open spaces.
- VI.—Arboriculture.
- VII.—River treatment and water effects.
- VIII.—Future development.

A map of the Engineering services forms an enclosure to the report.

cantonment area to the south-west, and with the present city and civil lines to the north-west.

This amplification of the description of the site will, it is hoped, make it clear how far both time and nature have combined to secure on the south site the realization of many of the principles which the Committee had set up to be their guiding influence in planning the new capital. Time has stored up for the new city those splendid monuments of ancient empires and cities to convey the legacy of history and the imperial tradition. Nature has provided a varied scene of ridge and river, of plain and hill. Nature too has supplied that wide area for expansion, that facility of communication, and that excellence of soil and slope which give the potentiality for convenience and health. It now remains to set forth in what manner the Committee recommend that these gifts should be used in order to attain the consummation of the rest of their principles.

5.—Description of the lay-out.

(a) The central point of interest in the lay-out, which gives the motif of the whole, is Government House, the Council Chamber and the large blocks of Secretariats in which the Members of the Governor-General's Council administer the great departments of Government. This is the keystone of the rule over the Empire of India; this is the place of Government in its highest expression; this is the seat of the Governor-General in India and his Council. The central point.

This Governmental centre has been given a position at Raisina hill near the centre of the new city. This will be the centre of its life. So placed it commands views of the new city on every side and is viewed by all the inhabitants thereof. There is a wide outlook over its demesne—ridge, river and plain, the Delhi of to-day and the Delhis of the past.

Advantage is taken of the height of this hill and it is linked with the high ground behind so as to appear a spur of the ridge itself. Behind the hill a raised platform or forum would be built. This will be flanked by the large blocks of secretariat buildings and terminated at its western end by the mass of Government House and the Council Chamber, with its wide flight of steps, portico and dome. Thus the imagination is led from the machinery to the prime moving power itself.

The forum will be approached by inclined ways with easy gradients on both its north and south sides. The main access to it is from the east. The axis of the main avenue centres on the north-west gate of Indrapat nearly due east of Government House.

(b) Looking from the eastern end of the forum where the broad avenue enters the Governmental centre and where the great stairways are set, the view is towards the east. The height and mass of the Secretariats, with the dominating influence of Government House and the Council Chamber behind them to the west, look towards Indrapat, the site of the oldest of all the Delhis. It was on this too that Shahjehan faced the Delhi gate of the Fort and the Delhi gate of Shahjehanabad. Right and left the roadways go and weld into one the empire of to-day with the empires of the past and unite Government with the business and lives of its people. The reasons for siting on Indrapat.

(c) Behind Government House to the west would be its gardens and parks flanked by the general buildings belonging to the Viceregal estate. Beyond these again on the ridge itself would be a spacious amphitheatre to be made out of the quarry from which much of the stones for roads and buildings may be cut. Above this and behind it will lie the reservoir and its tower which will be treated so as to break the sky line of the ridge. The general lay-out.

To the east of the forum, and below it, will be a spacious forecourt defined by trees and linked on to the great main avenue or park-way which leads to Indrapat. This forecourt might be adorned by fountains and contain decorative features emblematic of the various provinces of the Indian Empire.

Across this main axis, and at right angles to it, will run the avenue to the railway station. This will terminate in the railway station, the post office and business quarters at its northern end, and in the Cathedral at its southern extremity.

8. The most satisfactory method of lighting the roads will be by lamps ^{Lighting.} suspended across the roadways between columns, which should be concealed as much as possible by being erected out of the way in the lines of trees.

(c) *Tramways.*

The Committee have not suggested any tramway routes through the new city, as they are of opinion that the conditions of traffic would not be likely to give a satisfactory return. It has to be borne in mind that in the summer months the resident population will be small, and that in any case many of the residents will utilize their own means of conveyance.

Should a necessity for public means of conveyance arise it will probably best be met by the provision of a motor omnibus service, as in this way capital expenditure on tramway lines would be avoided, and there would be no difficulty in laying up the omnibuses at those seasons when the traffic did not warrant their operations. If, however, a demand for tramways arises in the future, the roads are of ample width to accommodate them.

(d) *Diversion of traffic.*

There are three existing main roads through the site :—

- (a) The road from Delhi to Gurgaon *via* Malcha.
- (b) The road from Delhi to the Kutb *via* Safdar Jang.
- (c) The road from Delhi to Muttra.

With regard to the interference with the traffic on these three roads the Committee consider that the Gurgaon road can be diverted without inconvenience so as to follow a line lying parallel to, and near the base of, the Ridge. This alignment will lead the traffic almost direct to the neighbourhood of Paharganj, through which it has hitherto passed.

The traffic coming from the Kutb in the direction of Safdar Jang towards Delhi can be diverted near the latter in two directions. The first alternative will transfer it by a diversion running south of Arakpur Bagh Mochi and joining the same route which was proposed for the diversion of the Gurgaon road. The other route will be a diagonal connection with the Muttra road. The traffic along the Muttra road may be allowed to continue towards the Delhi gate, light traffic entering the Delhi Gate and slower and heavier traffic the Turkoman gate.

(e) *Through traffic routes.*

The road communications through the new City and also those linking it to the old have been mentioned more than once. It will be seen by reference to the plan that they are numerous. The greatest pains must be taken to ensure, that, though they are not made too wide at first, no traffic possible in the future will ever congest them.

It is a mistake and uneconomical to make a roadway unnecessarily wide, but it is even a bigger blunder not to take such steps that the roadway can be widened cheaply when required. This can always be arranged by keeping back the frontages of buildings and all permanent structures.

With the newer and speedier methods of locomotion which are being introduced a free run is essential, for it will enable places many miles apart to be more easily accessible than others but a short distance away, but separated by a congested area. The delay and danger caused by cross traffic should be kept in mind, and there should be ample space where crowded roads intersect.

Nothing will conduce more to the convenience and the amenities of greater Delhi than facilities for locomotion across it in every direction.

V.—PARKS AND OPEN SPACES.

Every effort must be made to ensure that the parks are a real feature. All over greater Delhi there is ample space for large parks and smaller recreation grounds of every description. Once trees have been planted and can be given a certain amount of water, some of these parks may be left for many

years in a wild state, requiring no costly upkeep, forming an area which will be dustless and pleasant to the eye and always available for expansion. The afforestation of the southern ridge has been already referred to. As it proceeds, one of the arguments that have been so freely used of late that some of the site is barren rock will speedily disappear. But the northern ridge must be considered also, for as soon as the linking road has been carried out, the drive along the crest from the Cantonments and Malcha to Hindu Rao's House and the Flagstaff Tower will become popular. Arrangements are now being made to protect its slopes, and, when to an unsurpassed sentimental and historic interest are added fine trees and shrubs and flowers, few places should have a stronger attraction.

The Kudsia and Roshanara Gardens, and indeed all the amenities of the northern site should also be jealously preserved. The coming of the Government of India to Delhi should mean no loss but pure gain.

When dealing with the detailed lay-out of the area intended to be devoted to minor officials, etc., care should be taken to see that ample air space and playing grounds for children is provided in the vicinity of these residences. It is now customary elsewhere in well-laid out neighbourhoods where the houses are small in character, to provide areas of at least as much as one acre for every ten acres of gross land developed, and open spaces of this character should invariably be provided in the vicinity. The same rule might well be applied to other areas; and everywhere open spaces in this proportion would be found useful both for ornamental purposes and for extension in future.

This should be particularly remembered when it comes to dealing with the western extensions of the Indian City and the quarters of the large railway staff which will be housed near the railway yards. In nearly all countries a feeling appears to prevail that the yards must be so big, so ugly and so smoky that nothing can be done to improve their amenities, and railway servants are prejudiced accordingly.

VI.—ARBORICULTURE.

The Committee have already drawn attention to the time for planting trees, and the importance of determining the design of buildings, and the actual entrances to compounds before lines of trees are planted as the lines of trees and buildings are dependent on one another for effect. Another important point is the kind of trees to be used for avenues. As has been remarked before the size of the special trees selected for the avenues determine the width of avenues in which they are to stand. For the purpose of getting the right effect from the design of an avenue both the size and shape of trees are of importance; and with this end in view the Committee have picked out 13 kinds of avenue trees out of a very large number, which will grow in Delhi, and arrangements are being made to grow them in readiness to plant out on the avenues. A deviation from the kind of tree selected to suit each avenue means a loss of a large general effect. The Committee would therefore point out that the matter is one of considerable importance.

In all countries there is a tendency to increase the number of trees and gardens in towns, and in Delhi, where trees give rest to the eye and assist in dissipating heat radiation and are quick in growth with irrigation, the afforestation of parks and compounds is likely to proceed apace. This must, however, advance on judicious lines and thought must be exercised to preserve lines of view, and not to conceal intended architectural effects. The general tree effects in new Delhi, it may be safely anticipated, will be very fine: the danger is that they may be obtained to the elimination of nearly all other effects.

VII.—RIVER TREATMENT AND WATER EFFECT.

The scheme of river improvement and water treatment shown on the plan is intended to provide for an improved and healthier river frontage from Wazirabad to a point below Indrapat.

The river below the railway bridge would be trained towards the city walls by means of groynes on the east side until the channel becomes parallel to the walls, and remains at a distance of about 300 yards from them.

The *Bela* would be raised to a level above the permanent lake level, and given a fall for the drainage of the surface towards the river.

The east side of the river where the land is low could be raised by the deposits from flood waters and the edge could be embanked above high flood level and planted with trees.

As excavated material will be required in considerable quantities for raising the *Bela* and for filling and levelling areas within the new city site, an ornamental bay could be formed clear of the main channel of the river opposite to the end of the main avenue by excavation. This would be so arranged that the water of the river could be excluded at those times when it is heavily charged with silt.

The level of the water would be maintained by means of Stoney or other sluices below Indrapat in the line of the permanent channel, and the free passage of silt-laden storm waters as well as the removal of the silt deposited in the permanent channel during periods of small flow would thus be provided for.

Investigations show that a maximum level of R. L. 672 for water, whilst not sufficiently high to affect prejudicially the low-lying land on the west bank above Wazirabad, would reduce the total quantity of excavation over the shallow area required for the formation of the bay near Indrapat. If in working up the scheme the cost permits the water surface may be reduced to a minimum of R. L. 666; if this prove possible, this reduction in level will remove any sub-soil water difficulties that may be urged against the scheme.

From the information available it appears likely that the present flow in the Jumna will meet the requirements of evaporation and percolation except during periods of exceptional low flow such as occurred during the month of June last year. On such occasions the water stored above the weir should be a very useful supplement to the Agra Canal supply, while the draining of the lake, should such a course become necessary, during the hottest portion of the year would not be unhealthy.

The improvement of the public health of the existing city of Delhi requires that the *Bela* should be raised and the river bed improved and made more permanent. Expenditure on these works if carried out as part of a larger scheme of general sanitary regeneration would help towards completion of this scheme also.

The total cost of this scheme including river training, excavation and deposit of material, provision of Stoney sluices, formation of roads and planting, it is considered, should not exceed £250,000.

The Committee are of opinion that the carrying out of the scheme outlined would be a great addition to the attraction of the new capital and they have, therefore, thought it well to include it in their plan as an important step towards the complete eventual development and embellishment of Delhi.

VIII.—DEVELOPMENT AND CONTROL.

The Committee have alluded to the case of Paharganj in paragraph 1 of their report. Before concluding their report, they would like again to draw attention to the advice offered in paragraph 10 of their former report on the choice of a site for the new Imperial capital. On that occasion certain recommendations were made for the acquisition of some lands for the extension of the present city of Delhi and the civil station, and for the control of other lands lying outside the limits both of the site of the new city and of these areas. In the former case the need is economic, civic and sanitary. Extensions there must be; and well-planned extensions fitting in with the scheme of communications which the Committee have delineated on their plan for the future complete development of the capital can now be obtained at a trifling expenditure on land acquisition. The environs of Delhi can now by such action be made a success. Left to themselves past experience would show that their regeneration and conversion into a sanitary and convenient suburb will at no distant date have become a crying need and one which it will be most expensive to effect.

In regard to control, the limits of the land now being acquired for the new city end near Safdar Jang's mausoleum. If the land beyond this remains uncon-

trolled it requires no great feat of imagination to predict that 50 years hence the expansion of the new capital in that direction may have become outflanked by the presence of numerous insanitary, but expensive, suburbs of the Paharganj type. The situation on the edge of the new cantonments and at the base of the new city is one where such a development might reasonably be expected to take place as a most ordinary expression of evolution.

7.—The newly appointed Committee who will carry out the construction.

The Committee esteem it as very fortunate that they have been in personal contact with most of the individual members of the newly appointed committee who will carry out the actual task of constructing Imperial Delhi; that one of their own members will work out in stone what for a year they have discussed on paper; and that so many of the officers, who have been associated with them, are re-engaged. They can therefore rely on continuity, and a carrying out of the ideas which they have endeavoured to express.

8.—Maps and Plans.

In the course of their deliberations many plans have been drawn.

With their first report, on the choice of a site, was printed a map explanatory of the gross areas which they considered the Government of India should purchase or control.

With their second special report, on the northern site, was issued a plan covering the whole of greater Delhi. The primary intention of this plan was to illustrate the position of possible northern and southern cities, but the Committee thought it also advisable to show on it the main through routes which they intended to recommend and which they relied on to ensure that nothing worthy of notice should be isolated, and that, however Delhi might expand, there should be channels of communication across it in every direction.

With this, their third report, they present their final plan or lay-out.

It should be looked at from two points of view. Where it deals with the new city which has to be built from its foundations, it embodies definite recommendations. All these lead up to a regularly formulated lay-out; but while some must be undertaken at once, as essential from the commencement, others will only become so as circumstances develop.

The Committee, however, hope that the Government of India will elaborate a policy by which these definite recommendations may eventually be carried out in their entirety.

But together with definite recommendations this Committee put forward suggestions. Without months of patient investigation into the conflicting interests and the value of the various properties which will be encountered it is impossible to lay down with any certainty the lines on which Delhi within the walls or the Sadar Bazar and other suburbs can be improved. The Committee are convinced that schemes for opening out are required combined with wide through traffic routes, and they have indicated certain roads. They hope that the Construction Committee will study these roads and endeavour to provide them; for it should never be forgotten that while compulsory improvements in crowded neighbourhoods are not only costly but unpopular, and moreover actually produce a more insanitary congestion—the tendency being for the dispossessed to huddle even closer into the side streets—on the other hand if easy access is given to fresh ground and better conditions, and traffic facilities are provided, it is possible to induce the people to move of their own free will. The Committee would point out that tempting people is more satisfactory than driving them. They also hope that in all their improvements the Construction Committee will bear in mind the paramount need for open spaces, not only for large parks but for small play grounds. These things are the essence of town planning.

A mass of notes, of tentative proposals and rough drawings, which have accumulated during the Committee's year of labour will be handed on for the information and the assistance of the Construction Committee.

9.—The help which the Committee have received.

It would be ungenerous of the Committee to close this report without placing on record their appreciation of the services of those who have assisted them. For seldom has such recognition been more thoroughly deserved. The circumstances were exceptional, for the Committee came from overseas and were very dependent on men with Indian training and local experience. They regret that they cannot acknowledge individually all the help which they have received not only from officials of every grade but from private persons—for assistance and useful criticism have come from many quarters, from Europeans and Indians alike. But they must mention by name those who have worked with them for a whole year. Mr. deMontmorency and Mr. Ward, both brought to the task an intimate acquaintance with the varying problems which have to be tackled. Their service has been most helpful to Delhi and quite invaluable to the Committee. Captain Roberts, Captain Sopwith, and Mr. Parker have laboured day in and day out to make the project a success.

The Committee trust that the Government of India will realize how much they owe to the loyal work of all these gentlemen.

GEORGE S. C. SWINTON,
JOHN A. BRODIE,
EDWIN L. LUTYENS,

Chairman.
} *Members.*

EXPERTS' CAMP, DELHI,
Dated 20th March 1913.

New Capital Delhi.

Typical Cross Sections of Avenues and Roads
to accompany the Report of the Town Planning Committee.

