

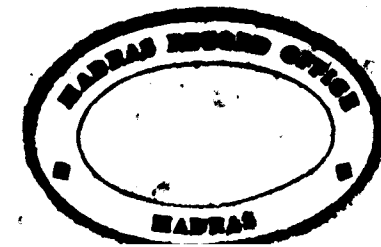
Correspondence relating to the Arrangement between the Government of Madras and the Government of Mysore regarding the Construction of Works for utilising the Whole of the Water Power at the Falls of the River Cauvery at Sivasamudram.

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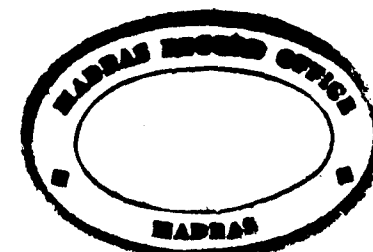


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No. 1.—*Letter No. 584—2975, dated Bangalore, 10th June 1899, from the Secretary to the Government of Mysore, Public Works Department, to the First Assistant to the Resident in Mysore.*

With reference to correspondence ending with this office No. 1029—5640 of 29th September 1898, regarding the utilization of the water-power at the Sivasamudram Falls, Cauvery River, I have the honour to state that the Durbar has decided to make the attempt to develop this power and transmit the same in the shape of electricity to various centres of industry in Mysore.

2. Before putting the work in hand, the Durbar desires to obtain an agreement from the Madras Government to the erection of low permanent anikats across the branches of the Cauvery at approximately the points marked on the plan.*

3. I would point out that during the dry season it is essential to concentrate all the flow in the River into one channel, and the anikats now proposed will be the simplest way of securing this.

4. I would also point out that the proposal does not involve the loss of a gallon of water below the Falls, as the whole of the water drawn for working the Turbines will be returned again to the River.

The Durbar might attain this object by throwing an anikat across the River 8 miles above the Falls within Mysore Territory, and constructing a channel to carry the dry weather supply to the Turbines, but this would be expensive.

6. The concession asked for, if granted, will save the Durbar some Rs. 15,000 (cost of channel). The Durbar is prepared to pay an annual rental of Rs. 500 to the Madras Government for the concession asked for. The concession to be a permanent one.

7. An early reply will oblige as the preliminary work in connection with the proposed installation has already been put in hand.

No. 2.—*D. O. Letter, dated Bangalore, 8th July 1899, from the Dewan of Mysore, to the Offg. Resident in Mysore.*

In the matter of the proposed utilization by the Durbar, for industrial and other purposes, of the water-power at the Cauvery Falls at Sivasamudram, I had asked Col. Robertson's help in two ways, namely

1st. To enlist the general sympathy and support of His Excellency the Viceroy in favour of the Scheme as outlined in Mysore D. P. W. Secretary's Memo, dated 10th June 1899: and

2nd. To obtain the permission of the Madras Government for the proposed utilization of the power by the Durbar on payment of a reasonable rent.—*Vide* Mysore D. P. W. Secretary's letter to First Assistant Resident, No. 584—2975, dated 10th June 1899.

Colonel Robertson had an idea that he would first obtain the Viceroy's general approval and thus strengthen his hands before approaching the Madras Government. I am not sure whether, acting upon this idea, Colonel Robertson deferred application to the Madras Government, or did already apply to that Government in the terms of my D. P. W. Secretary's letter to First Assistant Resident, No. 584—2975, dated 10th June 1899. At any rate, the position has altered somewhat since Colonel Robertson left, for now we are told that the Madras Government also contemplates some power works at Sivasamudram. This is the first time we hear of any such idea on the part of the Madras Government. And as we have been in the field for several years, it behoves us, I think, to communicate at once to the Madras Government the whole of the facts and to ask for its permission to the Durbar utilizing the whole of the power available at the Falls. Under such circumstances

* Not added to the compilation.

I beg to forward herewith a brief Memo explaining the situation and as supplementary to my D. P. W. Secretary's official letter of 10th June 1899, above referred to.

As the enclosed Memo gives a full statement of the case, it may perhaps be used in lieu of D. P. W. Secretary's letter of 10th June unless the latter has already been sent on to Madras, in which case it (the Memo) may be regarded as supplementing the latter. I am very anxious for an early settlement and shall feel much obliged for your help.

No. 3.—Dewan's Memorandum, dated Bangalore, 8th July 1899.

The Cauvery River rises in the Western Ghats on the south-west of the Mysore Plateau. It then flows through Mysore, receiving during its course several large tributaries from various parts of the State. After a long course within the State, the river falls some 400 feet at Sivasamudram. At the Falls at Sivasamudram, the river is the boundary between Madras and Mysore, but 12 miles above the Falls both banks are in Mysore Territory.

2. The question of utilizing the power at the Falls has engaged the attention of the Durbar for several years past. They have completed the necessary preliminary investigation and have now decided upon carrying out a scheme for transmitting the power over long distances to centres of important industries within the State. In thus proceeding with the investigation and maturing a scheme, the Durbar acted under the belief that the Madras Government itself was not considering any similar scheme and that there would be no objection on the part of that Government to the utilization by the Durbar of the whole of the available power.

3. This power has hitherto run to waste, and the Durbar's scheme to utilize it is calculated to develop industrial enterprise throughout the State.

4. The Durbar have had applications from private individuals for permission to utilize the power. But as our object is to benefit industries by placing cheap power within their reach, and as no private investors can be expected to transmit and deliver the power at the low prices which would satisfy the State, the Durbar have come to the conclusion that the best plan is for the State to carry out the scheme out of its own revenue.

5. The scheme is now so far advanced that the Durbar are prepared at once to depute Captain A. Joly deLotbiniere to Europe and America to prepare a detailed estimate of the plant and machinery required, and to place the order for the same with the best manufacturing firms. If no obstacle is met with, the Durbar hope to be able to carry out, within two years from now, the first instalment of the scheme, i.e., transmitting to the Kolar Gold Field 5,000 H. P.

6. The Durbar's scheme is to utilize the maximum of power available in the driest part of the year, in units of 5,000 H. P.

7. Before proceeding any further, I am anxious to obtain the consent of the Madras Government to the whole of the available power being utilized for the Durbar's scheme.

8. After very careful investigation, the Mysore Engineers have come to the conclusion (in which I entirely concur), that it is out of the question (with the small flow in the river during the driest months) to attempt to work two separate installations of power at Sivasamudram. Either one or the other Government must have the sole right to use the whole of the water passing over the Falls in the dry weather, and then it must proceed cautiously by establishing the installations of power in successive units, so as not to overstep the capabilities of the river in an exceptionally dry season. The maximum number of H.P. which can be generated and transmitted in an exceptionally dry season can be definitely ascertained only by practical experience, that is, by successively establishing and working fixed units of power.

9. There are obviously two ways in which the Mysore scheme can be carried out, namely—

1st, to build a dam across the river, about 12 miles above the Falls where both banks are in Mysore Territory, thence take off a channel on the

left bank to the Mysore side of the Falls and there drop the channel into the river and thus generate the power proposed to be utilized;
2nd, to build low dams across the branches of the river at Sivasamudram and thus divert the whole of the dry-weather flow into one channel and use such channel for the generation of power.

10. Whichever plan is adopted, there would be not the slightest interference with the existing interests in the Madras Presidency, for every gallon of water utilized to generate power will be returned to the river just at the Falls. This being so, the first plan abovementioned, in which all the works would be wholly in Mysore Territory, would be within the competence of the Durbar to carry out. In the second plan, the works would be partly in British and partly in Mysore Territory, and the operations involved in the diversion of the water, construction of dams, etc., would require the previous consent of the Madras Government.

11. The first plan would be unnecessarily costly and otherwise not quite satisfactory. The Durbar are of opinion that by far the best arrangement in every way would be for the State to acquire a permanent right to use the whole of the river at the Falls by an express agreement with the Madras Government, and then establish the whole of the works about Sivasamudram. As consideration for the acquisition of this right, the Durbar are prepared to make a reasonable payment. Mysore Public Works Department Secretary's letter, dated 10th ultimo, mentions Rs. 500 per annum for this purpose, but the Durbar would be willing to agree to any other reasonable arrangement which may commend itself to the Madras Government. Moreover, the said letter from the Mysore Public Works Department Secretary asks for permission to build dams, etc., in particular situations; but I would, in lieu of this, ask for the permission of the Madras Government to the Durbar utilizing for the generation of power the whole of the water passing over the Falls. After securing this permission, the Durbar Engineers will proceed to settle the exact location and dimensions of dams, channels, penstock, etc., acquiring in the due course any private or Madras Government lands required for the purpose. The acquisition of such lands hereafter is quite a subordinate matter of detail, which may be reserved for separate settlement hereafter. It does not, in any way, affect the merits of the question immediately under consideration, namely, the grant by the Madras Government to the Mysore State, for a reasonable consideration, of the right to use the whole of the water-power available at the Sivasamudram Falls, and this right the Durbar are anxious to secure as early as possible.

12. In conclusion, I submit that Mysore has a preferential claim to this right on the following among other grounds:—

- 1st, it was the first in the field to investigate and mature proposals for utilizing the power hitherto running to waste;
- 2nd, it is prepared to carry out the works out of State revenue without any loss of time, such works carried out from State revenue would be more advantageous to the various industries concerned than similar works carried out by private capital;
- 3rd, the Cauvery River at the Falls carries the waters whose gathering grounds lie almost exclusively in Mysore Territory, and the Durbar's utilization of the river for the generation of power cannot, and is guaranteed not to interfere with any existing interests or prescriptive rights in the Madras Presidency.

No. 4.—D. O. letter, dated Bangalore, 15th July 1899, from the Offg. Resident in Mysore, to the Dewan of Mysore.

I lost no time in sending on to the Madras Government the Memorandum about the Cauvery Falls Scheme, which was enclosed in your D. O. letter of the 8th instant.

Colonel Robertson did, as you surmise, make a reference to the Government of India on the subject; and I have now received a reply to his letter. Provided the scheme can be shown to work out favourably, it is regarded as one on which the Mysore State may be encouraged to embark. This opinion is given subject to the result of an examination of the matured proposals by the Government of India,

and it is of course without prejudice to any other opinion which may be formed when complete information is available.

It is apparently thought at Simla that the question of the demand for the power is more doubtful than that of the possibility of supplying it. No doubt you will carefully consider this part of the scheme.

No. 5.—D. O. letter, dated Bangalore, 17th July 1899, from the Secretary to the Government of Mysore, P. W. D., to the Dewan of Mysore.

It would appear from the reports of my Surveyor, that the problem of locating the whole of our works in connection with the Power Installation, on Mysore Territory, from the ané to the Power Station, is quite feasible. I enclose a tracing* which will give you a good idea of the route to be followed by the channel. You will see that this takes off from an existing ané in Mysore Territory, and out of a length of channel of approximately 18½ miles, 14½ are already in existence. The heaviest cut in the remaining 4 miles will be about 20 feet. It also appears that an extra head of over 100 feet will be gained by following this line, as the river has a fall of over 150 feet from the ané to the Falls. I am sending deLotbiniere down on Wednesday to carefully go over the line and select the sites for the Power house, Transformer station, etc.

The extra head gained of over 100' will reduce the quantity of water necessary to generate "one unit" to something like 150 c.ft. per second, our old plan involved the use of 200 c.ft. approximately. I propose to simply strengthen the existing ané by plastering with cement and continue our existing channel as shewn in red on the tracing. Under the circumstances, if deLotbiniere's report is favourable in every way, I would be inclined to inform the Madras Government, that our previous correspondence on the subject "may be considered as cancelled" as further investigation has shewn that with the aid of existing works across and taking off from that portion of the river which belongs entirely to Mysore, supplemented by a short length of channel, the necessary water may be conveyed to our Power station.

Regarding deLotbiniere's deputation, I think the time has come for his departure, as the problem of cost, etc., cannot be solved in India. The Government of India's sanction to his deputation must be obtained. May I address the Resident on this point to save delay? On deLotbiniere's return from the Falls, I would like to meet you with him, in order to finally settle our procedure. I hear Government of India have authorised the Resident (by wire) to negotiate with Madras re this question. This shows that Government of India approve of the scheme.

No. 6.—Letter No. 840—4290, dated Bangalore, 15th August 1899, from the Secretary to the Government of Mysore, P. W. D., to the First Assistant to the Resident in Mysore.

I have the honour to state that the decision of the Madras Government, re the Durbar's proposal for the location of a Power Installation at or near the Cauvery Falls is anxiously awaited.

2. In a note forwarded demi-official to the Resident on 8th July 1899, the Durbar's proposals were fully explained. To enable detailed estimates to be prepared by the Officer, now on special duty in Europe in connection with the scheme, it is essential that the site of the Power station should be fixed.

No. 7.—Endorsement No. 3927—302-94, dated the 4th September 1899, from the First Assistant to the Resident in Mysore, to the Dewan of Mysore.

Copy of the following letter forwarded to the Dewan of Mysore for information, with reference to correspondence ending with letter No. 840-4290, dated the

* Not added to this compilation.

15th August 1899, from the Secretary to the Government of Mysore, Public Works Department.

ENCLOSURE IN No. 7.

Letter No. 3159, dated the 1st September 1899, from the Secretary to the Government of Madras, to the Resident in Mysore.

I am directed to reply to your letter No. 3048—302-94, dated 12th July last forwarding a Memorandum by the Dewan of Mysore, on the subject of the Durbar's scheme for utilizing the power of the Cauvery Falls at Sivasamudram to generate electricity, and commending for the favourable consideration of this Government the Durbar's request to be allowed to utilize for this scheme the whole available power of the Falls.

2. Before communicating the decision of His Excellency the Governor in Council, I am instructed to offer the following observations on the Dewan's Memorandum.

3. This Government, if it understands paragraph 10 of the Memorandum aright, is unable to assent to the view that it would be within the competence of the Durbar, without reference to the Madras Government, to divert a sufficient portion of the river where both banks are in Mysore Territory, and after utilization of its power to return the water to the river on the Mysore side below the Falls.

This Government is entitled to all the water in the right branch of the river, and to so much of the water in the left branch as lies on the Madras side of the centre of the deep-water channel, and this right extends to the flow of the water with any natural advantages resulting from the physical circumstances of the locality. In other words, this Government cannot without its consent be deprived of any portion of the volume of water flowing over the Falls under existing conditions on the Madras side of the boundary or of the right to utilize the power of its fall.

4. This remark meets also the statement in paragraph 10 of the Memorandum that "whichever plan is adopted, there would be not the slightest interference with existing interests in the Madras Presidency." The right to utilize the power derivable from the Madras portions of the Falls must be regarded as such an interest, of which the Dewan, in offering consideration for the consent of this Government, clearly recognises the existence.

5. After expressing the opinion in paragraph 8 of his Memorandum, that the flow of water during the hot season is insufficient to allow of two separate installations, and that either one or the other of the Governments interested "must have the sole right to use the whole of the water passing over the Falls in the dry weather," the Dewan proceeds in paragraph 12 to submit that Mysore has a preferential claim to this monopoly on the ground that it was the first to investigate the project, that it can execute the works promptly from State revenue, and that the "gathering grounds" of the river "lie almost exclusively in Mysore Territory." I am to state that His Excellency in Council can subscribe to none of the propositions which underlie this line of argument. Priority of investigation cannot be admitted as affecting the joint interest of either party. As to promptness execution or the provision of funds, His Excellency regards these as matters which do not properly enter into the discussion. Nor can any argument be based on the respective proportions of the watershed lying in Madras or in Mysore Territories, as there has been an exact delimitation of the rights of the two States, in this particular portion of the river, set forth in G. O. No. 1172, Revenue, dated 26th August 1876, of which a copy was communicated to the Chief Commissioner at the time.

6. In the opinion of this Government, these preliminary observations dispose of the preferential claim to the utilization of the whole water of the Falls, put forward by the Dewan on behalf of the Mysore Durbar. The question remains whether and, if so, for what consideration, and subject to what restrictions, this Government should give up its rights to certain water-power to which it is entitled. It may be here stated that an application for a concession of this power has already been made to this Government from another quarter.

7. After a careful consideration of the matter, His Excellency the Governor in Council is prepared to allow the Durbar to utilize the whole power of the Falls subject to the following conditions:—

- (i) that no charge be made for five years from the date of the concession;
- (ii) that thereafter for a period of 30 years for half the total water-power utilized a payment of Rs. 5 per Electrical HP per annum shall be made to this Government by the Durbar, provided that the minimum annual payment shall be Rs. 2,000.
- (iii) that at the expiry of this period of 30 years the terms shall be liable to revision;
- (iv) that in the event of a dam or weir being constructed to divert the water from the right (or wholly Madras) channel, the Durbar shall pay on demand by this Government the sum found due as compensation for damage (if any) to existing private interests on the Madras side;
- (v) that a cessation on the part of the Durbar to utilize the water of the Falls for the generation of electrical power for two years shall operate to terminate the agreement.

8. I am to enquire whether the Durbar agrees to accept the above terms.

No. 8.—*Letter No. 1082—5827, dated Bangalore, 17th November 1899, from the Secretary to the Government of Mysore, D. P. W., to the First Assistant Resident in Mysore.*

I am directed to acknowledge the receipt of your No. 3927—302-94, dated 4th September 1899, forwarding copy of letter No. 3159, dated 1st idem, from the Secretary to the Government of Madras, on the question of the utilization by the Durbar of the Cauvery Falls at Sivasamudram, for the generation of electrical power.

2. Before proceeding to reply to the letter under acknowledgment, I am to explain how the whole matter now stands

As stated in para 9 of the Dewan's Memorandum, dated 8th July 1899, there are two alternative methods of carrying out the proposed works—namely, the Mainland scheme and the Island scheme. Both these have now been investigated. In the Mainland scheme, the whole of the works will be in Mysore Territory, the required quantity of water will be taken on the left bank of the River from the existing Madhavamantri Anikat, and the power station, buildings, etc., will all be on the Mysore bank opposite the "Gangan Chucki Falls." In the Island scheme, new dams are required across both branches of the River at Sivasamudram, the channel and power station have to be on the Sivasamudram Island (British Territory), the other works required, including buildings, will be both in Mysore and British Territory, and, very probably, a new strong bridge will be required on the left branch of the River for transporting heavy machinery to site. Simultaneously with the above investigation of alternative schemes for the local works required, Captain A. Joly de Lotbiniere (whom the Durbar deputed for the purpose to England and America) has been engaged in elaborating the various details of the plant and machinery required, in consultation with experts and manufacturers. He is reported to be making very good progress in the business entrusted to him, and tenders for the plant and machinery including their erection and maintenance for one year are expected to be received by the end of next month (December 1899). The erection of the whole of the machinery and plant, both for the generation of electrical power and for its transmission to the Kolar Gold Fields, can be completed within fifteen months of the Durbar's acceptance of the approved tender.

3. Under such circumstances, the Durbar desire an early settlement with the Government of Madras, securing to the Government of Mysore full liberty to utilize the whole of the water-power in question, together with all necessary facilities for the proposed works.

4. In the letter under acknowledgment, the Government of Madras have been pleased to state that, even if the whole of the works were situated in Mysore Territory, the Mysore Government would have no right to utilize more than their own share of the water-power, except under a grant from the Government of

Madras. The letter then proceeds to specify the conditions on which the Government of Madras are willing to grant to the Mysore Government a concession to utilize the whole of the power at the Falls. While thanking His Excellency the Governor-in-Council for this offer of a concession, the Durbar beg to submit for his favourable consideration and final decision the representation contained in the following paragraphs. But pending such decision the Durbar at once agree to utilize the whole of the available power at the Falls, upon such terms as His Excellency may deem to be fair and equitable under all the circumstances of the case.

5. In the first place, the Durbar beg to represent that their previous communications on the subject were based upon their view of the right involved, namely, that they were entitled to use the whole of the power in question, so long as no injury was thereby caused to any existing interests in the Madras Presidency. In explanation of this view, I am to submit that, as between two States, both having the natural right to the use of the water of a river passing through their Territories, the generally recognized custom is that the right of the State situated upstream is limited by the sole condition that its use of the water shall cause no diminution of the supply required for the purposes for which water is being actually used in the State situated downstream. This custom is expressly recognized in Rule 3 of the "Rules defining the limits within which no new irrigation works are to be constructed by the Mysore State, without previous reference to the Madras Government." (*Vide* letter No. 1022—346-90, dated 26th March 1892, from the First Assistant to the Resident). This Rule is as follows:—

"The Madras Government shall be bound not to refuse such consent except for the protection of prescriptive right already acquired and actually existing, the existence, extent and nature of such right, and the mode of exercising it being in every case determined in accordance with the law on the subject of prescriptive right to use of water and in accordance with what is fair and reasonable under all the circumstances of each individual case."

The Durbar beg to submit that the principle of the above quoted rule has the same application and effect whether the water is used for irrigation or for generating power, and that no "prescriptive right already acquired and actually existing" can be said to exist as regards the power of the Cauvery Falls which is now running to waste. With the foregoing explanation of the precise ground upon which the Mysore Government had asked to be allowed to use the whole of the power, the Durbar beg to leave the matter in the hands of His Excellency the Governor for disposal in such manner as may seem reasonable to His Excellency, upon a consideration of all the circumstances of the case and in particular of the facts that the water diverted for the proposed Works will be returned undiminished to the River immediately below the Falls, that the proposed utilization of the whole of the power for these works can affect only future possibilities regarding the Madras Government's share of the power, and that the undertaking is likely to prove of great benefit to Mysore and to the rest of Southern India generally.

6. The next request which the Durbar beg to submit to His Excellency is that, in fixing the manner and amount of any payment required from the Mysore Government, as favourable a settlement as possible may be made, after due consideration of the circumstances hereunder stated:—

1st. *The rate payable by the Durbar.*—The proposal of the Madras Government is to charge Rs. 5 per "Electrical Horse Power per annum." Considering the novelty of the enterprise and its great cost, the Durbar beg to represent that a lower price than that proposed would be fair to all interests involved. No industries exist or are expected to spring up in the neighbourhood of the Falls. Before the power generated can be used for any industry, it has to be conducted over long distances not only at great expense but also with much loss of power by leakage.

2nd. *The mode of calculating the Durbar's payment.*—Upon this point, I am to observe that it would be reasonable to charge the payment not upon half whatever Horse Power is generated, but only upon such portion of the total Horse Power generated as may exceed the Horse Power which can be generated by using only the Durbar's half share of the water power in question. In this connection I am to invite

attention to the fact that the minimum supply passing over the Falls in the driest months has not yet been carefully ascertained. It is necessary that the power generated and transmitted should be continuous and, as with this object the Works have to be limited to the available minimum dry-weather supply in the River, the proposed installations of power have to be established in successive convenient units of say 3,000 or 5,000 Horse Power.

3rd. *The period for the Concession.*—Regarding this, I am to state that the period named by the Madras Government is thirty years, together with the condition that at the expiry of this period of thirty years the terms of the concession shall be liable to revision. The Durbar beg to represent that a period of thirty years is too short for the proposed Power Works, which have to be established and maintained at an expenditure which may eventually amount to many lakhs of Rupees and which, in the interests of the benefited industries, have to be permanently maintained. It is submitted that, in an exceptional case of this kind, the concession with all its terms may reasonably be in force in perpetuity. If, however, the Madras Government does not see its way to giving a perpetual concession, then the Durbar will feel obliged by the period being made as long as possible. At the expiry of the fixed period, the revision, I am to submit, should be restricted to the rate of the Durbar's annual payment. Probably this is intended, but the language used makes all terms of the concession liable to revision. Under such circumstances, I am to ask for an express understanding to the following effect:—

The concession to run without interruption during successive periods of whatever number of years may be fixed as reasonable; on the expiry of each such period the rate at which the Durbar's payment is to be made be liable to revision; and such revised rate not to exceed a specified percentage (say 25 per cent) above the rate which may have been in force during the previous (or expired) period, subject to a specified maximum rate not to be exceeded at any time.

An arrangement of this kind will, I am to submit, be quite reasonable in every way, and the Durbar hope that the proposal will commend itself to the Government of Madras.

And 4th. *The desirability of a fixed lump sum annual payment.* The Durbar think that a moderate lump sum annual payment would be better in many ways than payments at a fixed rate per Horse Power. Among other advantages, the lump sum payment would dispense with the need for complicated records and calculations of Horse Power available and used.

7. On the questions hereinbefore discussed, the Government of Mysore agree, as already stated, to acquiesce in whatever decision may be arrived at by His Excellency the Governor, and accordingly the Durbar now proceed to submit the various matters of detail on which a definite settlement is necessary for the successful execution and maintenance of the proposed works.

8. As under the terms of the letter from the Secretary to the Government of Madras (No. 3159, dated 1st September 1899), any scheme for the utilization of the whole of the Power of the Falls must necessarily be based on an agreement between the Governments of Madras and Mysore, the Durbar think that there is no advantage to be gained by adopting the Mainland scheme above described; on the other hand this scheme which takes off the supply from the existing Madhavamantri Anikat, involves the disadvantage of a long, difficult and costly channel; and the Durbar accordingly resolve to abandon it, in the hope that the Island scheme above described, of which the main features are indicated on the accompanying map,* is capable of speedy and satisfactory completion, with the help of such reasonable facilities as may kindly be afforded by the Government of Madras. I am to explain that in the Island scheme the works must, from the nature of the case, be necessarily on land within British Territory. It was in respect of such an Island scheme that the Durbar originally applied for the permission of the Madras Government (vide

* Not added to this compilation.

my letter No. 584—2975, dated 10th June 1899, and the Dewan's Memorandum, dated 8th July 1899), and that Government was pleased to offer the concession in question, and now, after full investigation, the Durbar are able to undertake to carry out this scheme as quickly as possible, commencing actual work in the field as soon as the sanction of His Excellency the Governor-in-Council can be obtained to an arrangement securing to the Mysore Government the necessary rights and powers, both for the erection and maintenance of the proposed works on the Island and for permanently assuring a continuous supply of water for these works when completed. The principal conditions of such an arrangement for which the approval of the Government of Madras is now sought are as follows:—

- (1) Control to the Durbar (for the purpose of the proposed Power Works) over the discharge in the River and its branches at and above the Falls.
- (2) An assurance against any diversion of the Summer supply in the River and its branches in the above mentioned locality, for irrigation or other purposes, the Mysore Government on its part guaranteeing non-interference with the supply required for existing irrigation in British Territory on the right bank.
- (3) Permission to erect and maintain dams and bridges across the River and its branches in the abovementioned locality.
- (4) The grant to the Mysore Government by the Government of Madras on

This condition was withdrawn by letter No. 148-931, dated 28th February 1900 (No 19 infra).

lease, upon a fixed annual rental and with jurisdiction, the uninhabited lands of the Island of Sivasamudram within boundaries to be defined and demarcated, the Mysore Government paying the Madras Government any compensation required for acquisition of existing

private interests within leased area.

9. Regarding the 1st and 2nd conditions abovementioned, I am to explain that the British Territory on the right bank of the River above the "Burr Chucki Falls" extends for a distance of 15 miles measured along the course of the River. Within this distance irrigation from the River exists only under a channel taken off from an anikat called "Dhanagiri." This anikat is in disrepair being breached in places. The total *achkat* (irrigable area) is said to be about 600 odd acres. The lands have recently been surveyed and the exact area is available in the Madras Survey Department. Only about one-half of the total *achkat* area appears to be cultivated this year owing to insufficient water-supply. The whole *achkat* area is situated in the Inam Village of Satyagal, belonging to the Minor Jaghirdar of Sivasamudram, whose estate in the Madras Presidency is under the management of the Madras Court of Wards. The Durbar will on their part guarantee non-interference with the irrigation required for the whole *achkat*, but the importance of an unfailing supply for the proposed Power Works makes it very desirable that the use of water for irrigation should be restricted to the actual requirements of the present *achkat*. With this object it should be expressly laid down that the Jaghirdar has no power, without the sanction of British and Mysore Engineers, to lower the level or increase the capacity of the existing Head Sluice. It is also of importance that the "Summer supply" should not be drawn upon in any way as the Power Works have to be established so as eventually to use the whole of this supply. By "Summer supply" is meant the discharge in the River between the close of the North-East Monsoon and the early part of the South-West Monsoon when the first floods in the River are received. In this part of the country the first floods of the year are generally received about the end of June or beginning of July, and as the paddy crop never takes more than 5 months, no irrigation will really be required after the 30th November. An understanding that no irrigation supply is to be given before the River is in flood (say 1st July) and that it is to commence then and will be liable to be stopped after 5 months, would safeguard the Power Works and would at the same time protect all cultivation interests.

10. On the 3rd condition above mentioned, it is only necessary to say that for the utilization of the "Summer supply" low anikats are required extending to, and abutting on, the British bank of the River and its branches. A new strong bridge is also probably required, as the existing bridge is believed to be too weak to carry the heavy machinery which would have to be brought to the Island from the mainland on the Mysore side.

Arbi.

11. In explanation of the 4th condition abovementioned the Durbar wish to

Paras 11 and 12 were cancelled by letter No. 148-931, dated 28th February 1900, (No. 19 *infra*).

state that the Island of Sivasamudram on which the channel, penstock, power station, etc., are proposed to be made belongs as Inam to the Minor Jaghirdar of Sivasamudram. The total area of the Island is probably about 2 or 3 square miles, but the exact area will be available to the Madras Government, as it has recently been surveyed by the Madras Survey Department. As the whole scheme will, under the circumstances explained in the preceding paragraphs, be on the basis of an agreement between the Governments of Madras and Mysore, and for the purpose of utilizing the water-power belonging to both, the former Government will be able to acquire the lands required for it, under the Land Acquisition Act. Most of the land required is waste and unfit for cultivation, and neither the Jaghirdar nor the Madras Government has derived any revenue from it. The Island is extremely feverish, and even the small area which is under wet cultivation by means of irrigation from the right branch of the River has but a very low market value. The acquisition of the lands required for the scheme, under the Land Acquisition Act, will be of distinct benefit to the Minor Jaghirdar, and he may never again have a similar opportunity for selling them. The Durbar wish to have, for their purpose, only the uninhabited parts of the Island. The land on which the temples, houses, etc., stand, with as much land around them as may be desired, may all be excluded from the proposed lease. But as much land as is available on the left bank of the right branch of the River is required for the scheme, for, although only two channels will now be made to generate the first unit of 3,000 or 5,000 Horse Power, yet other channels parallel to these first channels will be required hereafter to develop successive units of power as they come to be established. For this reason and also because it is undesirable, on the ground of a conflict of interests, to allow any irrigation so close to the channels conveying water to the Power Works, it is deemed necessary that the whole of the wet cultivation on the Island (amounting to a few hundreds of acres) should be included in the area to be leased. The Durbar desire the lease from the Madras Government and not from the Minor Jaghirdar, as, with the large interests which will spring up on the establishment of the works, it is most desirable that the State's title should possess the status which only a grant from the Paramount Power can convey. For this grant the Durbar are willing to pay a small annual rent in addition to whatever amount may be required as compensation for the acquisition by the Madras Government of the private interests of the Jaghirdar and of other individuals, if any. The Durbar are particularly anxious that the lease should grant also jurisdiction over the leased area. Such jurisdiction would not, of course, include criminal jurisdiction over British subjects, which, as elsewhere in the State, would be exercised by the British Government. But all other jurisdiction should, for the successful working of the scheme, vest in the Durbar. Within the leased area, the Durbar would have to build houses and to employ officers and workmen on a very large scale; they would have to grant all facilities required for their contractors and their officers. Special legislation would be necessary to regulate the use of the machinery employed and to control the electrical power generated. Special police protection would be needed for the proposed works and the various interests which will spring into existence with them. The leased area is now absolutely uninhabited, and, if any population comes hereafter to live on it and to carry on any business or work therein, it will be as the direct result of, and for the purpose of the proposed Power Works. For the successful erection and maintenance of these works on the large scale contemplated, it is, in the opinion of the Durbar, essential that the jurisdiction should vest in them. The Durbar

* The Island of Seringapatam belonged to the British Government in sovereignty by right of conquest on the fall of Seringapatam in 1799. In 1829 it was leased with full jurisdiction to the Mysore State on a fixed annual rent and continued in Mysore possession on such lease till 1881 when the Island was ceded in full sovereignty to the Mysore City.

are aware that precedents could be found (notably the Island of Seringapatam)* for a cession of territory—and inhabited territory—in full sovereignty by the British Government to Native States. Whether there is an exact precedent (other than that also of the Island of Seringapatam) for the less comprehensive transfer now suggested, namely, a lease with jurisdiction only over a small uninhabited area, the Durbar are not in a position to assert. I am to urge, however, that the present case is one of a very exceptional nature, the land being required for works calculated to confer a lasting

public benefit, and the Durbar accordingly hope that a lease with jurisdiction will commend itself to the British Government. Such a lease of course involves no transfer of British sovereignty, and there would be no transfer of British subjects to the State's jurisdiction, as the area is absolutely uninhabited. The accompanying map* shews the area which the Durbar ask may be leased to them. This area may be reduced, if it is desired to retain more land around the temples, existing houses, etc.

12. I am to add that the temples are the only institutions round which center all existing interests in the Island. The few houses all belong to an Agrahar (Brahmin Village) established as an adjunct to the temples. Both the temples and the Agrahar are maintained wholly from Inam Villages in Mysore Territory granted for the purpose by the Maharaja of Mysore. Thus the Durbar take a special interest in the due maintenance of the temples and Agrahar as public charities endowed by the State. The Agrahar has in part disappeared owing to the extreme unhealthiness of the Island, and the few remaining houses are, owing to the same cause, lived in only during a few months of the year. Under such circumstances, the Durbar will be very glad to have the whole Island transferred to their jurisdiction. Such transfer, I am to submit, will be of great administrative convenience and will therefore be for the real benefit of the temples and the Agrahar, and the Durbar are sure that all persons interested in these institutions will be glad of the transfer. The exclusion of the temples, houses, etc., was proposed in the preceding paragraph, merely because they could not be said to be really required for the proposed works, and because the exclusion might possibly tend to expedite the settlement. But at the same time, the Durbar wish to submit the transfer of the entire Island as an alternative arrangement well deserving of consideration by the British Government on the ground of administrative convenience. The temples and Agrahar will all participate in the era of prosperity for the Island, which is sure to arise with the successful establishment therein of the proposed works, with the residences and buildings connected with them.

13. The actual settlement of the details connected with the matters referred to in paras 7 to 12 above will probably occupy some time in the ordinary course of business. It will be a great convenience to the Durbar if, pending such settlement and any necessary reference to higher authority, the Government of Madras will be pleased to approve of the main conditions of the proposed arrangement and to record the same in a preliminary agreement. With such an agreement, the Durbar will be able to advance their negotiations with manufacturers and others, and to commence actual work on and about the Island. In the hope that it may prove of some help in the drafting of such an agreement I am to enclose herein the Durbar's rough draft of a Preliminary Agreement, which is an attempt to embody in one document the terms of the concession as offered by the Government of Madras together with the Durbar's proposals in the preceding paragraphs of this letter.

14. In conclusion, I am to request the favour of the Resident's help in obtaining for the Durbar a very early favourable settlement on the subject of this letter, which is of great and lasting importance to the State, and at the same time also one of special urgency under the circumstances already explained.

(ENCLOSURE IN No. 8).

Enclosure to letter No. 1082-5827, dated 17th November 1899, from the Secretary to the Government of Mysore, Public Works Department, to the First Assistant to the Resident in Mysore.

DRAFT PRELIMINARY AGREEMENT.

Whereas the Government of Mysore propose to establish Works with the object of utilizing the Water Power of the Falls of the River Cauvery at Sivasamudram for the generation of Electrical Power and whereas the Government of Madras have agreed to allow the Government of Mysore to utilize, for the purpose of the said proposed Works, the whole of the Water Power of the said Falls, it is hereby mutually agreed between the said two Government as follows:—

* Not added to this compilation.

(1) The Mysore Government to have full right and liberty to use the whole of the said Water Power, including the share of it belonging to the Madras Government and, for the purpose of such use of the said Water Power, to have full control over the discharge in the River and its branches at and above the said Falls, together with power to erect and maintain dams, weirs, [bridges] and other works across the River and its branches at and above the said Falls, such dams, weirs, [bridges] and other works being allowed where necessary to extend to, and to abut on, the British banks of the River and its branches.

(2) The Mysore Government not to interfere with the supply of water required for existing irrigation in British Territory on the right bank of the River, above the said Falls:

Provided that should any damage to existing irrigation on the right bank of the River above the Falls be caused by any works of the Mysore Government, that Government to pay to the Madras Government, on demand, any sum of money found due as compensation for such damage:

And provided further that for the purpose of this clause, a record be made and maintained of the area of the existing irrigation in British Territory on the right bank of the River above the said Falls, together with the period and quantity of the supply of water to which such irrigation is entitled.

(3) The Madras Government to permit the whole of the "Summer supply" in the River and its branches at and above the said Falls being used for the said works without any diversion for irrigation or other purposes on the right bank of the River and its branches.

For the purpose of this clause "Summer supply" to mean the discharge in the River between the close of one North-East Monsoon and the commencement of freshes in the River during the next South-West Monsoon.

[(4) The Madras Government to lease to the Mysore Government on a fixed annual rental the uninhabited lands of the Island of Sivasamudram (within boundaries to be defined and demarcated) together with full jurisdiction over the leased area. If, for the purpose of granting such a lease, the Government of Madras acquire any existing private interests within the leased area, the compensation required for such acquisition to be paid to that Government by the Mysore Government.]

(5) The use by the Mysore Government of the whole of the said Water Power shall be free of charge during five years from date of this Agreement.

(6) For using, after expiry of the five years specified in clause 5 above, any portion of the said Water Power over and above the half share of it belonging to the Mysore Government that Government shall make to the Madras Government, a payment to be calculated at a fixed rate per "Electrical Horse Power per annum" for such portion of the total "Electrical Horse Power per annum" actually generated as may exceed the amount of "Electrical Horse Power per annum" which can be generated by using only the half share of the said Water Power belonging to the Mysore Government: Provided that the payment under this clause shall be subject to a minimum of Rs. 2,000 per annum.

(7) For the purpose of the payment provided in clause 6 above, the fixed rate per "Electrical Horse Power per annum" shall be Rupees *a* for a period of *b* years from expiry of the five years specified in clause 5 above. The said fixed rate of Rupees *a* per "Electrical Horse Power per annum" shall be liable to revision at the end of the said period of *b* years and thereafter at the end of each successive like period of *b* years. Provided that no such revision shall add more than [say of *b* years and provided further that no revised rate shall at any time exceed Rupees *c* per "Electrical Horse Power per annum"

(8) The total quantity of "Electrical Horse Power per annum" which can be generated from the said Water Power shall, for the purpose of the payments under clause 6 above, be calculated upon the basis of the minimum discharge of the River at Sivasamudram during the driest season of the year, such minimum discharge being ascertained by careful investigation within five years from the date

NOTE.—The parts enclosed in brackets thus [] were cancelled by letter No. 148-9-31, dated the 28th February 1900 *Vide* No. 19 *infra*.

of this agreement in such manner and by such agency as may be approved by the Governments of Madras and Mysore.

NOTE.—In lieu of clauses 6 to 8 the Durbar recommend a simple clause providing a fixed moderate lump sum annual payment. *Vide* para 6 (4) of letter.

(9) This Agreement shall terminate in the event of a continuous cessation on the part of the Mysore Government to utilize any portion of the said Water Power for the generation of "Electrical Horse Power" during the period of *d* years.

Note.—In the above draft the blanks are marked thus:

a The rate per "Electrical Horse Power per annum" for which the Government of Madras propose Rs. 5 and the Durbar ask for a more favourable rate.

b The term of years. The Government of Madras propose 30 years for the concession, and the Durbar ask for a longer term and for a renewal at end of successive periods of the term fixed.

c The maximum limit proposed by the Durbar to the rate per "Electrical Horse Power per annum."

d The period of cessation of work which is to have the effect of terminating the Agreement. The Madras Government propose two years and the Durbar ask that it may be made four years,

No. 9.

OFFICE NOTE.—The following statements, dated Sivasamudram, 11th November 1899, regarding lands of the Jaghirdar of Sivasamudram in the villages of the Sivasamudram Island and Satyagal were obtained by the Sub-Division Officer of French Rocks from the local authorities:—

(a)—Statement showing the extent of Wet and Dry Lands in the Sivasamudram and Satyagal Villages as per accounts of Fasali 1308 (1898-99).

Name of village	Total area			Occupied area			Waste land			Remarks
	Extent		Assessment	Extent		Assessment	Extent		Assessment	
	Acres	cents.	Rs. a. p.	Acres	cents.	Rs. a. p.	Acres	cents.	Rs. a. p.	
Sivasamudram—										
Dry ...	1,567	16	1,786 0 0	151	86	187 5 7	1,415	80	1,598 10 5	Rate 0 12 0 per acre.
Under Sivasamudram Anikat—										
Wet ...	122	18	892 6 6	119	99	875 5 11	2	19	17 0 7	Rate 0 8 0 per acre.
Total ...	1,689	34	2,678 6 6	271	85	1,062 11 6	1,417	49	1,615 11 0	
Satyagal—										
Dry ...	9,056	6	5,062 7 6	1,987	70	1,841 0 6	7,068	36	8,221 7 0	Rate from 0 4 0 to 1 8 0 per acre.
Under Dhanagiri Anikat—										
Wet ...	684	6	3,216 1 9	373	88	2,458 10 2	310	18	757 7 7	Rate from 4 0 0 to 8 0 0 per acre.
Total ...	9,740	12	8,278 9 3	2,361	58	4,299 10 8	7,378	54	3,978 14 7	

Camp Sivasamudram, 11th November 1899.

Arbi.

(b)—Statement showing the Prices at which Dry and Wet Lands of Belakavadi Village were sold from 1894 to 1899.

Year	Dry			Wet			Remarks
	Acres	Guntas	Sale price	Acres	Guntas	Sale price	
			Rs. a. p.			Rs. a. p.	
1894	2	10	90 0 0	5	26	590 0 0	
"	4	31	825 0 0				
"	3	12	85 0 0				
"	5	19	90 0 0				
"	3	10	15 0 0				
"	4	12	100 0 0				
1895	1	19	22 8 0	1	54	495 0 0	
"	3	11	70 0 0		16	60 0 0	
1896	4	22	95 0 0	1		70 0 0	
"	2	33	100 0 0	1	30	250 0 0	
"	8	29	200 0 0		54	59 0 0	
"				2	25	100 0 0	
1897	8	22	460 0 0	2	30	100 0 0	
"	1	36	300 0 0				
"	3	20	260 0 0				
"	3	2	100 0 0				
"	4	29	200 0 0				
"	2	26	490 0 0				
1898	1		50 0 0	2	26	500 0 0	
"	9	27	200 0 0				
"	2	15	150 0 0				
"	2	7	200 0 0				
1899	2	20	240 0 0	1	174	200 0 0	
"		14	200 0 0				
Total	81	26	4,042 8 0	19	214	2,334 0 0	

Note.—This information is taken from the Registration Books.

No. 10.—Letter, No. 1175—6372, dated Bangalore, 16th December 1899, from the Secretary to the Government of Mysore, P. W. D., to the First Assistant to the Resident in Mysore.

Adverting to my letter No. 1082—5827, dated 17th November 1899, and pending the settlement of the questions therein raised, I am directed to request that you will be so good as to obtain the sanction of the Madras Government to the officials of the Mysore P. W. Department being permitted to dig trial pits and clear jungle on waste land in the Island of Sivasamudram, as this is necessary in order that estimates for the channels may be prepared. It is also requested that sanction may be obtained to the construction of low dams at the points marked A B, C D on the accompanying survey,* and for blasting the rock in the bed of the river at the point marked E.

2. The works in the river are urgent to enable the minimum discharge in the river to be gauged this dry weather.

3. I request reference to your letter No. 4454—302-94, dated 20th December 1894, in which the consent of the Madras Government was given to the erection of the works necessary for gauging the discharge in the river.

No. 11.—Telegram, dated Benares, 22nd January 1900, from the Dewan of Mysore, to the Chief Engineer of Mysore.

Your letter dated 15th, Madras decision will be expedited if channel can be made on Mainland. Is this possible? Wire detailed reply on 23rd to Bombay care of J. N. Tata, Esq., Victoria Buildings.

No. 12.—Telegram, dated Bangalore, 23rd January 1900, from the Chief Engineer and Secretary to the Government of Mysore, P. W. D., to the Dewan of Mysore.

Mainland channel possible. Cost 2½ times Island channel. Length 1 mile. One deep cutting maximum 48 feet. Average 29 feet for 3,000 feet length. Site, head sluice, power house, inferior. Loss of 2 feet head. Island channel much preferable.

* Not added to this compilation.

No. 13.—Telegram, dated Bombay, 24th January, 1900, from the Dewan of Mysore, to the Secretary to the Government of Mysore, P. W. D.

Ask Resident to obtain Madras Government immediately consent for gauging Cauvery River at Sivasamudram. Present season exceptionally favourable for gauging. Durbar most anxious not to lose opportunity.

No. 14.—Public Works Department Secretary's Note, dated Bangalore, 25th January 1900.

I saw the Resident yesterday and he told me he had already wired to the Madras Government, so nothing more need be done.

No. 15.—Telegram, dated Hunsur, 9th February 1900, from the First Assistant to the Resident in Mysore, to the Secretary to the Government of Mysore, P. W. D.

Madras Revenue wire begins "Sivasamudram Scheme consideration general question likely take more time, but as regards measuring water, Government prepared, consider separate application for this alone, provided Durbar assumes responsibility all damage done, and undertakes not to diminish flow of water even a day" ends.

No. 16.—Telegram, dated Bangalore, 10th February 1900, from the Secretary to the Government of Mysore, P. W. D., to the First Assistant to the Resident in Mysore.

Durbar hereby repeats its application for permission to erect temporary dams across Cauvery at Sivasamudram. Durbar agrees to accept responsibility for any damage done, and undertakes not to diminish flow of water even for one day. Very early reply requested.

No. 17.—Letter No. 110—692, dated Bangalore, 12th February 1900, from the Secretary to the Government of Mysore, P. W. D., to the First Assistant to the Resident in Mysore.

I am directed to acknowledge the receipt of your telegram, dated Hunsur the 9th instant, intimating copy of the telegram from Madras Revenue, asking that a separate application may be submitted by the Durbar for permission to measure the water in the Cauvery at Sivasamudram. In compliance with this demand, I have on the 10th sent you a telegram copy of which I enclose for information. At the same time, I am to submit the following observations for the consideration of the Resident. It would appear from the Madras Government's telegram that that Government have overlooked my letter No. 1175—6372, dated 16th December 1899, in which it was requested that pending the settlement of the larger question raised in my No. 1082—5827, dated 17th November 1899, permission might be given:—

1. For constructing low dams at certain points;
2. For blasting rock in the bed of the river at one point;
3. For digging trial pits; and
4. Clearing jungle on waste land in the Island.

The first two were for the purpose of gauging the minimum discharge in the river this dry weather.

II. It is not easy to see how any damage can be caused by the works it is proposed to carry out for gauging purposes, but of course, if any damage is caused, the Durbar is prepared to assume the responsibility, and though this was not stated in the application, it was thought that it would be understood by the Madras Government. The gauging works contemplated by the Durbar cannot possibly cause any diminution of the flow of water in the river.

No. 3 was necessary to ascertain the nature of the soil, and, as it was proposed only to dig trial pits in waste land and as these pits could be filled up again afterwards, it was not thought that there would be any delay in getting permission, which, however, has not yet been received.

No. 4 was for permission to cut jungle on waste land where necessary on payment of compensation, it having been ascertained that the owners have no objection to this being done.

III. The works required for gauging purposes were stated, in my letter No. 1175—6372, dated 16th December 1899, to be urgent, and I am to express regret that that letter seems to have been overlooked till so late that it is very doubtful if the necessary works can be carried out to enable the river to be accurately gauged this season, which is the most favourable one on record for ascertaining the minimum flow in the river. The Durbar will nevertheless make now the attempt to gauge the river and start the necessary works forthwith.

No. 18.—*Telegram, dated Mercara, 14th February 1900, from the Resident in Mysore, to the Secretary to the Government of Mysore, P. W. D.*

You can commence measuring discharge Cauvery on condition agreed to by you as announced to Madras.

No. 19.—*Letter No. 148—931, dated Bangalore, 28th February 1900, from the Secretary to the Government of Mysore, P. W. D., to the First Assistant to the Resident in Mysore.*

I am directed to inform you that the surveys and levels for the alternative lines of channels in connection with the Cauvery Falls Power Scheme having been completed, and the advantages of the different lines thoroughly investigated, the Durbar have determined to construct the channel on the mainland on Mysore side of the river, as shown by line A B on the accompanying plan. By adopting this line, the channel, power station and buildings required will all be in Mysore Territory, and I am accordingly to request that that portion of my letter No. 1082—5827, dated 17th November 1899, which relates to a lease with jurisdiction of a portion of the Island of Sivasamudram, as well as the request for permission to erect bridges across the river may be considered cancelled. The Durbar much regret that they did not arrive at their present decision earlier, and thereby save the Government of Madras the trouble of considering questions that need not have been raised. But a careful survey and examination of the difficult country on the Mysore bank of the river near Sivasamudram, necessarily occupied considerable time. And though we have not been able to estimate the probable cost of a channel on the Island, owing to the non-receipt of permission to dig trial pits and clear jungle, yet the information now at our disposal enables us to decide in favor of the mainland channel (A B on accompanying map) as offering the best prospect of success from all points of view.

2. The question of a lease with jurisdiction of a portion of the Island being thus eliminated from the discussion, the other questions on which the orders of the Government of Madras are now required are, I am to observe, all matters of detail incidental to the main terms of the concession as set forth in letter No. 3159, dated 1st September 1899, from the Secretary to the Government of Madras. These terms the Durbar have already accepted, subject to whatever decision His Excellency the Governor-in-Council may arrive at on the representations made in my letter above quoted. The Durbar hope that they may be favoured with such decision at an early date.

3. The accompanying plan shows also the position of the two low dams which the Durbar desire to be permitted to build, and the arrangements solicited in regard to the use of the supply of water in the river are fully described in para 9 of my letter above quoted. The Durbar solicit an early and favorable settlement upon these points.

No. 20.—*Letter No. 33—D, dated Camp Ootacamund, 15th April 1900, from the Dewan of Mysore, to the Resident in Mysore.*

As you are already aware, the Mysore Government is, and has for some days been, in a position to begin execution of the proposed Cauvery Electrical Power Transmission Scheme. The sanction of the Government of India has been obtained. The Agreements with Messrs. John Taylor & Sons and the Mining

Companies in the Kolar Gold Field are ready for immediate execution. The contract for machinery and plant with the General Electrical Company of Schenectady, whose tender the Durbar are prepared to accept, is also ready for immediate execution. That Company's Agent is now in Bangalore and can at once conclude the contract with the Mysore Government. Local works, such as the proposed low dams across both branches of the River, the Channel therefrom to the Power Station, the foundations for the turbines, the residential buildings, etc., have to be commenced immediately, with the object of completing them within the time fixed in the proposed contract with the General Electric Company. The abovementioned steps have to be taken at once, as otherwise the tenders from the General Electric Company and the manufacturers of turbines are likely to lapse, and new tenders will have to be invited. Such new tenders will very probably be for rates considerably higher than those quoted in the tenders now received.

2. Under such circumstances, I beg to submit that an understanding with the Government of Madras regarding the utilization by the Government of Mysore of the whole of the water power at the Falls is a matter of real urgency. Such an understanding already exists as explained hereunder:—

1st—The Government of Madras made to the Government of Mysore the offer of a definite concession on certain terms—*vide* para 7 of letter No. 3159, dated 1st September 1899, from the Secretary to the Government of Madras to the Resident in Mysore.

2nd—This offer was accepted by the Government of Mysore (*vide* paras 4 and 7 of letter No. 1082-5827, dated Bangalore, 17th November 1899, from the Secretary to the Government of Mysore, D. P. W., to the 1st Assistant Resident in Mysore) and, if necessary, I now beg to repeat the acceptance by the Mysore Government of the abovementioned offer made in para 7 of Madras Government Secretary's letter No. 3159, dated 1st September 1899.

3rd—The above offer and acceptance of the said concession constitute a definite agreement between the two Governments.

And 4th.—The Government of Mysore has submitted a request * for more favorable terms on some parts of the said concession,

* *Vide* Mysore D. P. W. Secretary's letter No. 1082—5827, dated Bangalore, 17th November 1899.

but it has at the same time agreed to bind itself to accept any decision which His Excellency the Governor-in-Council may be pleased to pass upon such request.

This request cannot qualify and was not intended to qualify the Mysore Government's acceptance of the offer. Nor can the fact that the request is still pending the orders of the Madras Government be a bar to the Mysore Government acting on the strength of it.

3. The above, in my opinion, is the real situation of the case and I accordingly beg to enquire whether the Mysore Government can proceed with the execution of the proposed scheme and the works connected therewith, upon the terms of the concession in question (as per para 7 of letter No. 3159, dated 1st September 1899, from the Secretary to the Government of Madras), it being distinctly understood that the Mysore Government leaves it entirely to His Excellency the Governor to decide hereafter whether any, and what, modifications of the said concession can be granted in compliance with the request for more favorable terms submitted by Mysore D. P. W. Secretary's letter No. 1082—5827, dated Bangalore, 17th November 1899. The above enquiry being answered in the affirmative, the Mysore Government will be in a position at once to enter into the necessary contracts and to begin the construction of dams, channels, etc., as described in the accompanying extract and plan.*

(ENCLOSURE IN No. 20.)

Extract from Col. D. McNeil Campbell's printed Note, forwarded with the Dewan's letter to the Resident, No. 23 D, dated Bangalore, 2nd March 1900.

15. Regarding the carrying out of the scheme, please refer to plan A, forming Appendix G. The whole of the proposed works will be in Mysore Territory, except

Plan 'A' attached

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the two low dams hereunder described, which will be partly in Mysore and partly in Madras Territory.

(a). It is proposed to erect a low dam at W X which will serve to divert the dry weather flow of the river into the western branch. Across this western branch at A, a low anikat or dam will be erected. This dam will serve as a barrier during the dry weather only and will not form an obstacle to the passage of flood water. A channel will take off from the left flank of the anikat, sufficient to carry 370 c.ft. per second. It is thought advisable to build a large channel once and for all, as the works will be enlarged in all probability soon after completion.

This channel, which will be in excavation throughout its length of $3\frac{1}{2}$ miles, terminates at the point B which is a high bluff overlooking in the river. From the tail of the channel three steel pipes 36 inches in diameter will carry the supply of water under pressure to the generating station, which will be situated on the margin of the river 6 feet above highest flood level and 400 below the tail of the channel.

No. 21.—Letter No. 37-D, dated Camp Ootacamund, 28th April 1900, from the Dewan of Mysore, to the Resident in Mysore.

In continuation of previous correspondence regarding the Cauvery Power Transmission Scheme, I have the honor to forward herewith for your information a statement shewing the results of the gauging of the river at Sivasamudram from the 24th March to 25th April.

2. The gauging has been done with the greatest possible care and the results have been a very great surprise to myself and to the Durbar Engineers. We had calculated upon a minimum supply of 500 cubic feet per second. The actual gauging is far below this calculation.

3. The enclosed statement gives the following information for each day:—

In column 3—The quantity of water gauged at the Falls in cubic feet per second.

In column 4—The amount of Horse Power which can be generated at the Turbines at the Falls.

In column 5—The amount of Horse Power which can be delivered at the Kolar Gold Fields.

In column 6—The subsidiary Steam Power required in order to make up the 4,000 H. P. which is the supply proposed to be given to the Mines in the Kolar Gold Field as a first instalment; and

In column 7—The cost in £ of subsidiary Steam Power required as above.

4. The above information besides being interesting in itself may be of use in enabling the Madras Government to arrive at a satisfactory decision upon some of the questions now pending before it.

5. The summer supply in the river in this year is obviously insufficient to generate the whole of the Electrical Power required for delivering at the Kolar Gold Field the quantity (namely 4,000 H.P.) which it is now proposed to supply to the Mines. The daily deficiency will have to be made good by means of Electrical Power to be generated by steam on the spot in the Field.

6. The need for this supplementary provision by means of steam-generated Electric Power is being investigated as to the probable quantity, time, cost and other conditions. It will have the effect of considerably modifying the scope of the Power Transmission Scheme as hitherto elaborated and of making an unanticipated addition to its cost.

7. After making every possible allowance for the exceptionally dry character of this season, I am of opinion that the present gauging proves that it would be unsafe to attempt any increase of supply beyond the 4,000 H. P. now proposed, if continuity of supply is to have that paramount importance which is claimed for it. Even for a continuous supply of only 4,000 H.P. we may have to resort to the use of steam, not only in an exceptional year like the present, but also in an ordinary year though to a smaller extent than is shown in the enclosed statement.

8. I beg that these facts may kindly be submitted for the consideration of the Government of Madras. They have an important bearing on the pending questions in two ways.

1st.—The success of the Scheme greatly depends upon the Durbar being able to utilize the whole of the Summer supply in the river without diminution for irrigation or other purposes during the dry months.

And 2nd.—In fixing the price to be paid to the Government of Madras for share of the Water Power, due consideration may be given to the need for supplementing the supply transmitted from the Falls by means of Steam Power in the Field. I hope the Government of Madras will see its way to accepting a lump sum annual payment instead of requiring a payment at so much per Electrical Horse Power representing the equivalent of its share of the Water Power at Falls. The lump sum payment will be most convenient in every way and it will dispense with complicated calculations of power generated, etc. The lump sum will admit of being fixed for 30 years with liability for revision within specified limits after 30 years.

9. I am most anxious for an early settlement and I sincerely hope that this letter will not be means of retarding it in any way.

ENCLOSURE IN No. 21.

Statement of Discharge over Gauging Dams, Cauvery River, commencing 24th March 1900.

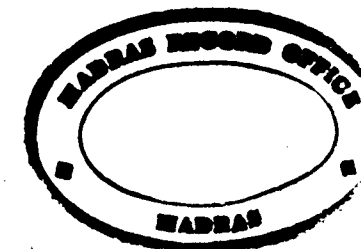
Month	Date	Amount in cft. per second	H. P. available at Turbines*	H. P. delivered at Kolar Gold Field†	Subsidiary steam required to make up 4,000 H. P. at Kolar Gold Field per day	Cost of steam per day‡	Remarks
1	2	3	4	5	6	7	8
March 1900	24	175	5,332	4,426	None		There have been slight showers of rain about Mysore and Hassan on 31st March and 1st April.
	25	175	5,332	4,426	None		More general showers in the catchment on the 10th, 14th and 21st and slight local showers on 22nd, 25th and 26th.
	26	138	4,218	3,501	500	17-70	
	27	141	4,320	3,585	415	14-70	
	28	141	4,320	3,585	415	14-70	
	29	148	4,365	3,623	377	13-35	
	30	143	4,365	3,623	377	13-35	
	31	143	4,365	3,623	377	13-35	
	1	123	3,759	3,120	880	31-75	
	2	178	5,438	4,515	None	.....	
	3	106	3,230	2,690	1,320	46-75	
April	4	128	3,938	3,269	781	25-90	
	5	95	2,925	2,425	1,577	55-75	
	6	107	3,328	2,758	1,242	44-10	
	7	111	3,394	2,817	1,183	41-90	
	8	125	3,921	3,255	745	26-40	
	9	134	4,211	3,495	505	17-90	
	10	134	4,211	3,495	505	17-90	
	11	252	8,283	6,875	Nil	.....	
	12	211	7,388	6,136	Nil	.....	
	13	242	7,388	6,136	Nil	.....	
	14	142	4,350	3,611	389	13-75	
	15	137	4,171	3,461	539	19-10	
	16	189	6,812	5,656	Nil	.....	
	17	131	4,000	3,320	680	24-10	
	18	120	3,660	3,037	963	34-20	
	19	125	3,840	3,188	812	28-75	
	20	139	4,230	3,511	489	17-30	
	21	152	4,650	3,860	140	4-96	
	22	157	4,800	3,985	15	0-53	
	23	171	5,228	4,388	Nil	.....	
	24	180	5,523	4,564	.....	.....	
	25	180	5,523	4,564	.....	.....	

* I allow 10 per cent of water as lost by percolation and evaporation in channel, and 75 per cent only of the theoretical return at the Turbines, head available 410, loss by friction 10 ft. allowing the above 1 cft. is = 30½ H. P. at the generator.

† The actual transmission loss will be approximately 17 per cent.

‡ From my note, dated 31st March 1900, on the cost of working 2,000 horse power of steam at Kolar, it will be seen that the actual transmission loss will be approximately 17 per cent. I calculate the cost from this and add 1 d. extra for coal costs 461 per day for 2,000 H. P. or 7-32 d. per H. P. say 7-5 d. I calculate the cost from this and add 1 d. extra for labour as the full number of stokers will be on duty. This runs it up to 8½ d. per H. P. per day = £13-00 per annum without counting interest, depreciation, repairs, etc.

A. JOLY DELOTBINIERE, CAPTAIN,
Dy. Chief Engineer.



No. 22. No. 2316—302-94, dated Bangalore, 14th May 1900, from the Resident in Mysore, to the Dewan of Mysore.

I have the honor to invite a reference to correspondence which ended with your letter No. 37-D, dated 28th April 1900, regarding the scheme for utilizing the power of the Cauvery Falls at Sivasamudram to generate electricity.

2. You were informed in this office letter No. 3927—302-94, dated 4th September 1899, that his Excellency the Governor of Madras in Council was prepared to allow the Durbar to utilize the whole power of the Falls subject to the following conditions:—

- (i) that no charge would be made for five years from the date of concession;
- (ii) that thereafter for a period of thirty years for half the total water power utilized a payment of Rs. 5 per Electrical Horse Power per annum should be made to the Madras Government by the Durbar, provided that the minimum annual payment should be Rs. 2,000;
- (iii) that at the expiry of this period of thirty years the terms should be liable to revision;
- (iv) that in the event of a dam or weir being constructed to divert the water from the right (or wholly Madras) channel, the Durbar should pay on demand by the Madras Government the sum found due as compensation for damage (if any) to existing private interests on the Madras side; and
- (v) that a cessation on the part of the Durbar to utilise the water of the Falls for the generation of Electrical Power for two years should operate to terminate the agreement.

3. With your letter above quoted were forwarded certain representations made by the Durbar with reference to the above terms, and these representations were transmitted by me to the Government of Madras. I have now received from the latter Government its decision on all the points under reference.

4. As regards condition (ii) requiring payment for half the total Power utilized, the Durbar observed that "it would be reasonable to charge the payment not upon half whatever Horse Power is generated, but only upon such portion of the total Horse Power generated as may exceed the Horse Power which can be generated by using only the Durbar's half share of the Water Power in question."

In regard to this proposal, His Excellency the Governor-in-Council is advised that it will be practically impossible to ascertain the amount of Horse Power that can be generated by using only the Durbar's share of the power of the Falls, which share is confined to half the power generated by the western (or left) Falls alone and does not extend to the eastern Falls. His Excellency the Governor-in-Council therefore still remains of opinion that it will be a fair and reasonable course to take half the total water power utilized as the basis on which to calculate the payments to be made by the Durbar to the Madras Government.

5. As to the rate of Rs. 5 per Electrical Horse Power proposed by the Madras Government, the Durbar, while urging that a lower rate would be fair to all interests involved, suggest the advisability of substituting for a rate per Horse Power a moderate lump sum annual payment. This suggestion I have to state, His Excellency the Governor-in-Council regrets he is unable to accept. No reliable data are available for determining what consolidated annual payment would be reasonable. Considering all the circumstances, His Excellency the Governor-in-Council is of opinion that the rate of Rs. 5 per Electrical Horse Power is moderate and should be adhered to; but he will, after the scheme has been completed and brought into full operation, be prepared to reconsider the rate if he should be satisfied that it is excessive in consideration of the outlay incurred by the Durbar as compared with the returns.

6. Next, the Durbar while urging that the concession with all its terms may reasonably be in force in perpetuity, requests that if this proposal cannot be accepted the period of the concession may be made as long as possible, and asks for an understanding to the following effect:—"the concession to run without interruption during successive periods of whatever number of years may be fixed as payment is to be made be liable to revision; and such revised rate not to exceed a

specified percentage (say 25 per cent) above the rate which may have been in force during the previous (or expired) period, subject to a maximum date not to be exceeded at any time." His Excellency the Governor-in-Council has carefully considered the representations made by the Durbar on this head, but regrets to be unable to accede to their request in view of the fact that the whole future of water-power, and its value as a prime mover for the development of electricity is uncertain. His Excellency-in-Council would leave the terms of the renewal of the concession after the period of thirty-five years from its inception to be decided upon at the time, and upon such terms as may be mutually arranged, reference to the Government of India being reserved in the case of differences which cannot be otherwise settled.

7. In regard to condition (v) specified in paragraph 2 of this letter, that a period of cessation of work of two years shall have the effect of determining the concession, the Durbar proposes that the period be extended to four years. His Excellency the Governor-in-Council regrets that he cannot perceive sufficient reason to extend the period as proposed.

8. For the purpose of the power works, the Durbar request to be vested with the control over the discharge in the river and its branches at and above the Falls, and ask for permission to build two low dams. His Excellency the Governor-in-Council has no objection to these proposals, subject to the stipulations, (1) that the Durbar shall not limit, restrict or interfere with the amount of water for irrigation or other purposes, to which amount the Jaghirdar of Sivasamudram may be legally entitled, and (2) that the Durbar shall reimburse and make good to the Madras Government all loss or damage which under the decision of a competent Civil Court may accrue in consequence of the Durbar's operations through the infringement of the legal rights of private persons.

9. In your letter No. 37-D, dated the 28th ultimo, you withdrew the proposal made in a previous communication that the Madras Government should acquire and lease to the Durbar with jurisdiction the whole or part of the Island of Heggura. It is therefore unnecessary to discuss this proposal. The Durbar will doubtless bear in mind their guarantee that all water diverted from the river for the power works shall be returned to the river below the Falls without being fouled or diminished in quantity.

10. I have the honour to request that I may be favoured at a very early date with a statement as to whether the Durbar accept the decision of the Government of Madras on all the points involved.

No. 23.—Letter No. 150—D. C., dated Camp Mysore, 26th May 1900, from the Secretary to the Government of Mysore, Public Works Department, to the First Assistant to the Resident in Mysore.

I have the honor to acknowledge the receipt of the Resident's letter No. 2316—302-94, dated 14th instant, to the address of the Dewan of Mysore, and am directed to reply as follows:—

2. In your letter No. 3927—302-94, dated 4th September 1899, the Durbar were informed that the Madras Government was prepared to allow them to use the whole power of the Falls, subject to certain conditions. In reply, the Durbar suggested some modifications of these terms, and the decision of the Madras Government upon these suggestions is conveyed in the letter now under acknowledgment.

3. According to this decision the concession from the Government of Madras to the Government of Mysore will be as follows:—

The Government of Madras to allow the Government of Mysore to utilize the whole power of the Falls subject to the following conditions:—

- (i) that no charge be made for five years from the date of the concession;
- (ii) that thereafter for a period of thirty years for half the total water-power utilized a payment of Rs. 5 per Electrical H.P. per annum shall be made to the Madras Government by the Durbar, provided that the minimum annual payment shall be Rs. 2,000;
- (iii) that at the expiry of this period of thirty years the terms shall be liable to revision, the concession being renewed upon such terms as may be

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mutually agreed upon, reference to the Government of India being reserved in the case of differences which cannot be otherwise settled;

(iv) that cessation on the part of the Durbar to utilize the water of the Falls for the generation of electrical power for two years shall operate to terminate the agreement;

(v) that for the purpose of the power works, the Durbar to be vested with the control over the discharge in the river and its branches at and above the Falls and to be permitted to build two low dams, subject to the following stipulations:—

(a) that the Durbar shall not restrict or interfere with the amount of water for irrigation or other purposes, to which amount the Jaghirdar of Sivasamudram may be legally entitled; and

(b) that the Durbar shall reimburse and make good to the Madras Government all loss or damage which, under the decision of a competent Civil Court, may accrue in consequence of the Durbar's operations, through the infringement of the legal rights of private persons.

4. I am to convey the acceptance by the Durbar of the concession as described above.

5. In thus accepting the terms offered by the Madras Government and in embarking accordingly upon the great undertaking of the proposed power works, the Durbar rely upon the kind help of that Government to secure for them always the full enjoyment of the rights granted by the concession. The two main rights thus granted are—

1st.—The right of control over the discharge in the River and its branches at and above the Falls; and

2nd.—The right to utilize the whole power of the Falls.

It is by the vigilant exercise of these rights that the Durbar have to secure that continuous and adequate supply of water upon which the success of the power works so entirely depends. The Durbar on their part undertake (by the stipulations in clause (v) of the concession as above set forth) to respect all existing legal rights to the use of water for irrigation and other purposes by the Jaghirdar of Sivasamudram and other private persons, but on the other hand (by reason of the control over the discharge in the river and its branches which the concession vests in the Durbar) the Jaghirdar of Sivasamudram and other private persons would not have the power, without the consent of the Durbar, to construct *new* irrigation works, or *extend* existing ones, or restore those which have been in disuse for twenty or more years, so as in any way to diminish the present discharge in the river and its branches. Under such circumstances it seems to the Durbar to be desirable, for the purpose of preventing future differences and doubts, to place upon record in some way the whole of the facts relating to the quantity, nature and conditions of the existing irrigation in British Territory above the Falls. Such a record will be of value as evidence merely, and the framing of it need not, it is submitted, delay the grant of the concession, the terms of which, as offered by the Madras Government, have been fully accepted by the Durbar as already stated.

6. In conclusion, I am to state that, if no objection exists, the Durbar will, in anticipation of the execution of the formal agreements between the Government of Madras and Mysore, begin at once to carry out the scheme by entering into the necessary contracts with manufacturers and others and by beginning actual work on the two low dams, the channel and the head works.

7. The Resident is already aware of the extreme urgency of the case, and the Durbar would feel much obliged by being allowed immediately to commence work, in anticipation of the execution of formal agreements and on the terms of the concession as now mutually agreed upon.

No. 24.—Letter No. 2990-302-94, dated the 25th June 1900, from the First Assistant to the Hon'ble Resident in Mysore to the Dewan of Mysore.

I am directed to acknowledge the receipt of your letter No. 150—D. C., dated the 26th May 1900, regarding the scheme for utilising the power of the Cauvery Falls to generate electricity.

2. A copy of your letter was forwarded to the Government of Madras whose reply has now been received. They observe with regard to the enumeration contained in paragraph 3 of your letter that a most important condition has been omitted, namely that all water diverted from the river for the power works shall be returned to the river below the Falls without being fouled or diminished in quantity; this condition, His Excellency the Governor-in-Council, regards as essential and I am to enquire whether it is accepted by the Durbar. It was contained in paragraph 9 of my letter No. 2316, dated the 14th May last.

3. With reference to paragraph 5 of your letter under reply, the Government of Madras state that they will not permit the construction of any new irrigation work or the extension of an existing one above the Falls so as to divert water from the Cauvery in so far as that Government may have legal power to prevent such construction or extension. The Government of Madras has promised to instruct the Superintendent, Madras Survey, to have a map prepared showing all existing irrigation on the British side above the Falls.

4. As regards paragraph 6 of your letter, I am to say that His Excellency the Governor-in-Council has no objection to the conditions agreed upon being incorporated in a separate formal statement; but at the same time he does not consider such course to be necessary as the conditions are stated with sufficient clearness in the correspondence that has already taken place. His Excellency-in-Council has no objection to the Durbar's commencing operations as early as may be convenient, provided it is prepared to accept the terms offered by the Madras Government in their entirety.

No. 25.—Letter No. 428—2684, dated the 2nd July 1900, from the Secretary to Government, Public Works Department, to the First Assistant to the Hon'ble Resident in Mysore, Bangalore.

I am directed to acknowledge the receipt of your letter No. 2990—302-94, dated Bangalore, the 25th June 1900, and in reply to state that the Durbar agree to the condition that "all water diverted from the river for the power works shall be returned to the river below the Falls without being fouled or diminished in quantity". This condition, may, it is submitted, be construed as subject to the natural rights of the present and prospective population of the neighbourhood, to the reasonable use of the water of the river and the proposed channel for their requirements for drinking and other domestic purposes.

2. Under the circumstances stated in para 4 of your letter under reply, the Durbar agree to withdraw their former suggestion for a separate formal agreement of the conditions agreed upon, as the same are already stated with sufficient clearness in the correspondence.

3. Having accepted the whole of the terms offered by the Government of Madras, the Durbar now propose to proceed with the carrying out of the scheme in accordance with the permission conveyed in para 4 of the letter under acknowledgment.

No. 26.—Letter No. 4221—302-94, dated the 24th August 1900, from the First Assistant to the Resident in Mysore, to the Dewan of Mysore, Bangalore.

I am directed to invite a reference to letter No. 428—2684, dated the 2nd ultimo from the Secretary to the Government of Mysore, Public Works Department, communicating the acceptance of the Durbar of the terms proposed by the Madras Government in regard to the scheme for utilizing for electrical purpose the power of the Cauvery Falls at Sivasamudram.

2. With reference to the suggestion contained in paragraph 1 of the letter cited above in regard to the condition requiring the return to the river below the Falls of all water diverted for the Power works, I am to state that the Madras Government will not regard the condition as infringed so long as the supply of water in the river below the Falls is not materially or sensibly diminished by the quantity drawn for drinking or domestic purposes.

No. 27.—Letter No. 930-6483, dated the 20th September 1906, from the Secretary to Government, Public Works Department, to the First Assistant to the Hon'ble the Resident in Mysore, Bangalore.

Referring to para 5 of your letter No. 2316-302-94, dated 14th May 1900, I have the honor to submit for reconsideration, the question of the payment to be made to the Government of Madras on account of the concession to the Durbar by that Government of the right to utilize for 35 years the total power available at the Cauvery Falls at Sivasamudram.

II. The terms of the concession, as accepted in P. W. Secretary's No. 150 D. C., dated 26th May 1900, include the followings:—

- (1) that no charge be made for five years from the date of the concession;
- (2) that thereafter for a period of thirty years for half the total water power utilized a payment of Rs. 5 per Electrical H.P. per annum shall be made to the Madras Government by the Durbar, provided that the minimum annual payment shall be Rs. 2,000;
- (3) that at the expiry of this period of thirty years the terms shall be liable to revision; the concession being renewed upon such terms as may be mutually agreed upon, reference to the Government of India being reserved in the case of differences which cannot be otherwise settled.

III. In submitting the question for reconsideration, the Government of His Highness the Maharaja of Mysore bring to notice the following points:—

- (a) Owing to the periodical deficiency of supply in the river during the period from 1st March to the end of June in each year, it is practically impossible to generate the power required, the supply for commercial purposes being restricted by the minimum flow in the river.
- (b) During the remaining 9 months of the year the water power available is enormously in excess of the amount which is now being used by the Government or of the amount ever likely to be used.
- (c) The Government of His Highness is now conducting preliminary investigations for the construction of a large reservoir on the Cauvery; which, if carried out, will, while increasing the minimum supply and therefore increasing the power practically available for commercial purposes, at the same time benefit the Government of Madras considerably by increasing the hot weather supply below the falls. This scheme will, of course, when ready, be submitted for the acceptance of the Government of Madras.
- (d) Further expenditure is about to be undertaken by the Government of His Highness in increasing the plant to supply 2,000 additional H.P. to the Kolar Gold Field, and to supply power for commercial purposes, and for lighting Mysore City.

IV. The finances of the State have not so far been so materially benefited by the scheme as was originally estimated, for the following reasons:—

- (1) An expenditure of nearly Rs. 13,00,000 was incurred on a 2nd Installation by which 2,000 H.P. was added to the 4,000 H.P. originally supplied to the Gold Field, and which additional power is also being utilized in part for Commercial purposes, and for the lighting of Bangalore City and the Civil and Military Station of Bangalore.
- (2) Owing to shortage of water in the early part of the present year, the supply of power to the Gold Field realized Rs. 2 lakhs short of the revenue which would have been earned if there had been sufficient water in the river to generate full power. And there was, in addition, a further loss of Royalty on 14,000 oz. of gold; as the output of the Mines was short of the previous years output by this amount, on account of insufficient water-power being available.
- (3) And after August 1907, the rate per H.P. per year paid by the Mines for power will be reduced to £10.

V. It will be apparent from a consideration of these facts—

- (1) that the concession given by the Government of Madras is in reality of much less value than would, at first sight, appear to be the case. As a matter of fact, it is only the right to use the Madras Government's

share of the water in the river during the hot weather; at other times the supply in the river is much in excess of what would probably ever be used by both Governments,

- (2) and that the Government of His Highness the Maharaja has so far not been benefited by the concession to any great extent.

VI. It may also be stated that compensation is being paid to the Jaghirdar of Sivasamudram for depriving him of the hot weather supply and that therefore no one suffers loss by the concession.

VII. Under the circumstances, His Highness' Government submit that the payment of Rs. 5 per H.P. generated per annum (which will amount when the 3rd Installation is completed to the very considerable sum of Rs. 25,000) is excessive; and that a rate of Re. 1 per H.P. generated per annum may perhaps be considered a sufficient safe guard to the interests of the Government of Madras.

VIII. It is trusted that the Hon'ble the Resident will take such steps as may be necessary to obtain a reconsideration of the question and acceptance of the terms proposed above.

No. 28.—D.O. letter No. 5654, dated the 6th October 1906, from the First Assistant to the Hon'ble the Resident in Mysore, to the Secretary to Government, Public Works Department, Bangalore.

Will you please refer to your letter No. 930-6483, dated the 20th September 1906, regarding the payment to be made to the Madras Government for the utilization by the Durbar of the power of the Cauvery Falls at Sivasamudram.

2. I am desired to say that the Resident will be in a stronger position to support the Durbar's case, if supplied with the following further information:—

- (a) From what date is the payment to Madras due?
- (b) To what extent, in figures, is the proportionate return of the scheme to its capital cost less than was anticipated when the terms were made with Madras?

3. To Mr. Fraser the position seems to be this—Madras have agreed to reconsider the terms if the rate of Rs. 5 per H.P. per annum is excessive in consideration of the outlay incurred by the Durbar as compared with the returns. The question is whether these circumstances have occurred and it lies with the Durbar to prove. The strongest argument appears to be that the hot weather water supply of the river when alone there is need to utilize the Madras half of the river is much less than was estimated. (This fact makes it more than ever indispensable to Mysore (until the tank is built when the case will be completely altered) but would justify, he thinks, some reduction in the rates. Are the Durbar prepared to maintain on the strength of the last year's experience that their hot-weather supply was permanently miscalculated? Unless the fact be referred to, it will, of course, be open to Madras to say that last season was exceptional and that further experience was to be waited for.

4. The Resident's object in raising these points is not to throw difficulties in the way of the Durbar's request to Madras, but to elicit information which may strengthen the case.

No. 29.—D.O. letter dated the 23rd October 1906, from the Secretary to Government, Public Works Department, to the First Assistant to the Hon'ble the Resident in Mysore, Bangalore.

I submit the following remarks in reply to the D. O. No. 5654, dated 6th instant from Moore regarding payment to Madras Government on account of Cauvery Power, for the information of the Hon'ble the Resident.

2. The date from which payment is due to Madras is possibly open to question. The wording of Residency No. 2316-302-94, dated 14th May 1900 and of this office letter No. 150 D.C., dated 26th May 1900 to the Residency is "from the date of concession", and this might be argued to be from date of letter quoted which accepts the terms. The Durbar, however, hold that the concession should begin from the date the water was first used; and this would make payment to commence from 6th August 1907.

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3. Another point which is open to discussion is, how much power we are to pay for from the 6th August 1907. Only the first Installation (approximately 4,000 H.P.) will have been in action for 5 years on that date; as the 2nd Installation (approximately 2,000 H.P.) will have only been 3 years at work; and the proposed 3rd Installation of 2,000 H.P. will not commence work till 1908.

4. It appears to have been the intention that power should only be paid for after it had been 5 years in action and under the circumstances, the Durbar trust that if it is decided that payments are to be made on the quantity of power generated, such payments will only be levied on each block of power after it has been 5 years in action.

5. In reply to para 3 of Moore's letter, as to the returns actually realized from the Scheme as compared with the original forecast of probable revenue; please refer to Col. McNeil Campbell's note dated 1st March 1900 at commencement of the brief history and principal documents in connection with Cauvery Power Transmission Scheme, forwarded to your office with Dewan's No. 23, dated 2nd March 1900. It will be seen from that, that after 10 years, it was anticipated that the returns would cover the repayment of the Capital and Interest, etc., on the whole outlay on the First Installation of 4,000 H.P. and give, in addition, a clear profit of £2,13,144 and that when a Second Installation of 4,000 H.P. was added, this profit would be doubled; or that we should make clear profit in about 12 years of over £. 4,00,000, say Rs. 60,00,000. If a comparison is made between this forecast and the figures furnished in para 5 of General Secretary's No. Pol. 782-G. M. 246-05-1, dated 29th March 1906 in which it is stated that the Capital Rs. 66,00,000 will be paid off by 1908-09, and a clear profit of Rs. 39,00,000 realized by 1912; it will be evident that only about 65 per cent of the profit anticipated in the forecast will be realized.

6. It may also be pointed out that Rs. 5 per H.P. per year represents 3.38 per cent of the gross-revenue per H.P. when the price of power is £10 per H.P. per year (which is the price paid by the Mines after the first 5 years for the 1st and 2nd Installations, and from the commencement for the 3rd Installation), this the Durbar consider a very high charge for the concession under the circumstances enumerated in this office No. 930-6483, dated 20th September 1906.

7. Regarding the minimum discharge in the river, it will be seen from para 14 of Col. Campbell's note already referred to, that the anticipated minimum discharge was 500 cft. a second, whereas the actual minimum gauged last year was 94 cft. a second. Every year but one since 1900 the minimum discharge has been less than 500, as will be evident from the figures given on the margin. Last year was certainly exceptionally bad; but there is no doubt that the minimum supply was over estimated when the terms under discussion were accepted.

Years.	Quantity in Cft. per second
1901	161
1902	293
1903	197
1904	569
1905	302
1906	94

No. 30.—D. O. letter No. 6549, dated the 16th November 1906, from the First Assistant to the Hon'ble the Resident in Mysore, to the Secretary to Government, Public Works Department.

With reference to your D. O. letter dated the 23rd October 1906, regarding the rate of payment to be made by the Durbar to the Madras Government in respect of the Cauvery Power Scheme, which raises several points not referred to in your official letter No. 930-6483, dated the 20th September 1906, Mr. Fraser thinks that the following remarks may be worth consideration by the Durbar.

2. The case for a reduction of the rate of payment to the Madras Government for their share of the water must rest upon the agreement of that Government to reconsider the terms if the disproportion between the capital outlay and the actual returns should make the rate of Rs. 5 per H. P. so obviously excessive as to be no longer maintainable. Of this, however, the burden of proof lies on the

Durbar. The two strongest arguments which they can bring forward appear to be,

- (1) the fact, now explained, that only 65 per cent of the profit anticipated in the forecast will be realized (paragraph 5 of your demi-official letter).
- (2) the fact that the minimum supply of water was over estimated as shown by the figures of the last six years (para 7 of the D. O. letter).

3. With regard to the first point, it appears to Mr. Fraser that some of the arguments adduced in the Durbar's letter of the 20th September 1906 do not materially strengthen the case, and he cannot help observing the different tone in which the Mysore Government spoke of the promising nature of the scheme in their letter Pol. No. 782, dated the 29th March 1906.

4. Thus, referring to para IV (1) of your letter of the 20th September 1906, the Resident would remark that the use by the Durbar of part of the power generated by the 2nd Installation for other than commercial purposes, viz., to light Bangalore City, does not establish any ground for their lenient treatment by the Madras Government, for indemnity. The Durbar cannot both use the power themselves and sell it.

5. As regards paragraph IV (3) of the same letter, it does not appear to Mr. Fraser that the reduction of the rate per H. P. to £10 from August 1907 is any new factor in the situation, but was on the other hand contemplated by the Durbar when they agreed to the terms in 1900. In the case of the 3rd Installation, the similar low rate, which has been settled with the Mining Authorities, has been considered to be to the advantage of the Durbar because it gives them the first claim to a certain amount of power for other than commercial purposes, the co-existence of which must not be lost sight of in estimating the value of the whole scheme to the State. The proportionate cost of such non-commercial services should, it might be argued, be set aside in considering whether the condition laid down by the Madras Government for a reduction of their terms has or has not been satisfied.

6. With regard to paragraph V (2) of your letter can it be said that Mysore has not so far benefited by the concession to any great extent? The Durbar may well argue that they have not got so much water as they and the Madras Government expected, but the very contraction of the hot weather supply made the Madras half of the river of enormous value to the Durbar, and without it the Durbar's pecuniary loss referred to in paragraph IV (2) of your letter would have been very much greater.

7. Turning now to minor points I am to add that, since the Madras Government did not in 1905 claim payment for their water, it may be assumed that they take the Durbar's view and will frame their calculations in regard to payment from the date the water was first used to generate electricity. It does not appear advisable therefore to raise the point.

With regard, however, to the question put forward in paragraphs 3 and 4 of your D. O. letter of the 23rd October 1906, as to how much power the Durbar are to pay for from 6th August 1907, it would seem best to state the Durbar's contention at once, and the Resident will be happy to forward their representation for the equitable consideration of the Madras Government.

8. In these circumstances, you may think it best to substitute another letter, which can be forwarded to the Madras Government for your letter of the 20th September 1906.

No. 31.—D. O. letter dated the 11th January 1907, from the Secretary to Government, Public Works Department, to the First Assistant to the Hon'ble the Resident in Mysore, Bangalore.

Your D. O. of the 16th November last. I attach a fresh draft for Mr. Fraser's opinion and beg to thank Mr. Fraser for his present criticisms.

In para 2 of your D. O. you say the case must rest upon the Agreement of Madras Government to reconsider the terms "If the disproportion between the capital outlay and the actual returns should make the rate of Rs. 5 per H. P. so

obviously excessive as to be no longer maintainable." The original Agreement, in my opinion, would hardly convey the idea that the Madras Government wished to claim as much as we could possibly pay them. The Rs. 5 per H. P. seemed to us a very small charge compared with the returns anticipated when the terms were made; so small indeed, that it was looked upon more or less as a nominal payment; but the actual returns being as stated in my D. O. letter dated 23rd instant 65 per cent less than those then anticipated, the Rs. 5 per H. P. assume a very different aspect; as it will amount to 2 per cent of our gross income after 1908.

I do not in the least wish to make out that the Cauvery Power Scheme is not a paying enterprise; what I wished to convey is that it is not nearly so good as was anticipated when the terms under reference were considered, and that the Durbar are continuing to spend large sums in further installations not only for the benefit of the Mines but for the benefit of the inhabitants of Bangalore and Mysore.

Referring to your para 4, surely the Durbar is entitled to considerable credit, in that, instead of selling all the power available at the highest price obtainable to the Mines, they have introduced electric light, and power for commercial purposes into the City, and propose to supply it to the Cantonment of Bangalore at a price which is less than half that charged in any other City not only in India, but as far as I know, in the Empire. This can hardly be considered as the Durbar using the power themselves, it may surely be considered a public benefit and a step forward in civilization, which in this particular case affects not only Mysoreans, but the 80,000 odd inhabitants of the Cantonment who are British subjects.

Your para V, no doubt it was contemplated that after 5 years the payment for power would be only £10 per H. P. year; but the original calculations of revenue from the scheme were based on the assumption that the same higher rates of £18 and £24 for the first 5 years would be paid for the whole 8,000 H. P. where ~~the rate would be only £10 per H. P.~~ The advantage gained by the Durbar in return for the sale of 2,000 H. P. 3rd Installation power at only £10, from the commencement is not a pecuniary advantage to the Durbar, far otherwise in fact. The reduced rate was accepted for the benefit of the public, including the Cantonment, as the first claim on this 1,500 H. P. is essential for the lighting and power supply to Bangalore and Mysore Cities. There appears to be a misunderstanding of my meaning as Mr. Fraser appears to look upon power sold to the Mines is the only commercial power, whereas in para IV (1) of my letter of the 20th September, it is stated that power not supplied to Gold Fields is utilized in part for commercial purposes, i. e., the supply to the Bangalore Woollen Mills and to the Hajee Ismail Sait's Saw Mills and other demands on account of power for purely commercial purposes may hereafter arise. Such supply of cheap power cannot, I think be considered a use of it by the Durbar, but a public benefit; in that it enables, or should enable the commercial concerns supplied to reduce their cost of production; and the electric lighting to the towns is a benefit to the population.

In regard to para 6, I agree with Mr. Fraser that the pecuniary value of the Madras Government's share of the supply in the river for about 3 months in the year is considerable; but, in my opinion, it is more to the point that this supply is of absolutely no value whatever to the Madras Government. We pass it through our turbines and back into the river again, and do not deprive the Madras Government of any of it. For the concession, it would to my mind be sufficient if a nominal rate were paid to secure the lien upon their half share of the water in case they might wish to generate electrical power at the falls at some future date.

With reference to para 7 of your D. O. in regard to the dates from which payment is to commence, Mr. Fraser's opinion "that it may be assumed that the Madras Government will take the Durbar's view, etc.," is noted, and I have added a para in the fresh draft letter stating our views in regard to the amount of power to be paid for.

No. 32.—Letter No. 23-268, dated the 11th January 1907, from the Secretary to Government, Public Works Department, to the First Assistant to the Hon'ble the Resident in Mysore, Bangalore.

Referring to para 5 of your letter No. 2316-302-94, dated the 14th May 1900, I am directed to submit for re-consideration the question of the payment to be made

to the Government of Madras on account of the concession to the Durbar by that Government of the right to utilize for 35 years the total power available at the Cauvery Falls at Sivasamudram.

2. The terms of the concession, as accepted in Public Works Secretary's No. 150-D.C. dated 26th May 1900, include the following:—

- (1) that no charge shall be made for five years from the date of the concession;
- (2) that thereafter for a period of thirty years, for half the total water power utilized a payment of Rs. 5 per electrical H. P. per annum shall be made to the Madras Government by the Durbar, provided that the minimum annual payment shall be Rs. 2,000;
- (3) that at the expiry of this period of thirty years, the terms shall be liable to revision, the concession being renewed upon such terms as may be mutually agreed upon, reference to the Government of India being reserved in the case of differences which cannot be otherwise settled.

3. In the para above referred to, it is stated that His Excellency the Governor will be prepared to reconsider the rate if he should be satisfied that it is excessive in consideration of the outlay incurred by the Durbar as compared with the returns.

With reference to this promise I am desired to submit for consideration, the following circumstances which show that the outlay has very much exceeded the anticipated amount and that the returns are proportionately lower.

4. In 1900 it was anticipated that in 10 years the net returns would cover the repayment of the capital of £280,000 with interest of £11,200, etc., on the whole outlay on the First Installation of 4,000 H. P., and give in addition a clear profit of £213,144; and that when a Second Installation of 4,000 H. P. was added this profit would be doubled; and that the Durbar should make a clear profit in about 12 years of over £400,000, or Rupees 60,00,000. The actual facts are that the capital expenditure amounts to Rs. 66,00,000, (£440,000) will be paid off in 1908-09, and that a profit of Rs. 39,00,000 (£260,000) will be realized by 1912; that is to say in 12 years only 65 per cent of the anticipated profit will be made.

5. Further expenditure is about to be undertaken by the Government of His Highness in increasing the plant to supply 2,000 additional H. P. to the Kolar Gold Fields, to supply power for other commercial purposes, and for lighting Mysore City. The power supplied for commercial purposes and lighting municipal and private, in Bangalore City and that intended to be similarly supplied to the Civil and Military Station, Bangalore, and Mysore City, will not bring in the same rate of revenue as the power supplied to the Mines. Still, the Durbar considers that in supplying cheap power at the two chief towns in the State, at a rate less than half that charged in any other city in India, they are contributing to public convenience, not only in their own cities but also in the Civil and Military Station, and giving an impetus to commercial enterprise, which in time is bound to be productive of good results to the whole country.

6. The Government of His Highness are also conducting preliminary investigations for the construction of a large reservoir on the Cauvery, which, if carried out will, while increasing the minimum supply and therefore increasing the power practically available for commercial purposes, at the same time benefit the Government of Madras considerably by increasing the hot weather supply below the Falls. This scheme will entail a large expenditure, and if carried out, will, while no doubt ensuring a continuous supply of power, largely add to the cost of the whole scheme and curtail the percentage of income.

7. After August 1907, the rate received from the Mines for all power (about 8,000 H. P.) supplied will only be £10 per H. P. a year, giving a gross income of Rs. 12 lakhs. A payment of Rs. 5 per H. P. on half the power generated as per terms under discussion, will amount to Rs. 25,000, as the power generated at Sivasamudram is much greater than that supplied at Kolar, owing to loss due to line resistance, etc. Rs. 25,000 will amount to over 2 per cent of the gross earnings, which the Durbar venture to submit, is an excessive charge, especially taken into consideration the fact that except for 3 months in the year there is infinitely more water in the river than is required.

8. Regarding the minimum discharge in the river, it will be seen from para 14 of Col. Campbell's note dated the 1st March 1900, *vide* brief history and principal Arbi.

documents in connection with Cauvery Power Transmission Scheme, forwarded with Dewan's No. 23, dated the 2nd March 1900, that the anticipated minimum discharge was 500 cft. a second, whereas the actual minimum gauged last year was 94 cft. a second.

Every year but one since 1900 the minimum discharge has been less than 500, as will be evident from the figures given in the margin. Though last year was certainly exceptionally bad, there is no doubt that the minimum supply was over estimated when the terms under discussion were accepted. This circumstance has an important bearing on the value of the Scheme as affecting the continuous supply of power and the variation between the anticipated and actual quantity of the minimum flow in the river, affords in the Durbar's opinion, a strong ground in support of their present representation.

Minimum flow in the river.	
Years	Quantity in cft. per second
1901	161
1902	293
1903	197
1904	569
1905	302
1906	94

9. His Highness' Government were, from the first under the impression that the levying of a charge for the half share of water was only intended to safe-guard the rights of the Government of Madras and that the rate would be only nominal; and even Rs. 5 appeared at that time a merely nominal rate compared with the percentages of revenue to returns anticipated in 1900. The Durbar trust that in view of the facts now brought forward the Government of Madras will see their way to agree to a substantial reduction in the rate to be charged.

10. Another point on which the Durbar desire to obtain the views of the Government of Madras is in regard to the dates on which payment is to be made for power generated by the three different Installations, which commenced to generate power on different dates, as given below :—

First Installation, approximate 4,000 H. P. 6th August 1902.

Second Installation, approximate 2,000 H. P. from 1st July 1905.

Third Installation, work just started, power will probably be supplied by the end of 1908.

11. The Durbar presume that the free period of five years will apply to each block of power from the date on which it came into operation, and that the payments will commence as follows :—

First Installation, from 6th August 1907.

Second Installation, from 1st July 1910.

Third Installation, from end of 1913 (approximately).

12. I am desired to request that you will kindly move the Hon'ble the Resident to be so good as to place these representations before the Government of Madras for their favourable consideration, with his kind support.

No. 33.—Letter No. 3431, dated the 1st May 1907, from the First Assistant to the Hon'ble the Resident in Mysore, to the Dewan of Mysore.

I am directed to acknowledge the receipt of Mr. McHutchin's letter No. 23-268, dated the 11th January 1907, regarding the payment to be made to the Government of Madras for utilizing the power of the Cauvery Falls at Sivasamudram.

2. In reply, I am to say that His Excellency-in-Council has given his careful consideration to the representations of the Durbar on the subject, but regrets his inability to reduce the charge per electrical horse power fixed in 1900 which does not appear, in the opinion of the Madras Government, to be excessive.

3. In paragraphs 10 and 11 of Mr. McHutchin's letter, the Durbar refer to the date from which payment for power generated from the Falls should commence and presume that each installation will be free of charge for five years from the date on which it came into operation. On this question, I am to invite a reference to conditions (i) and (ii) laid down in paragraph 2 of this office letter No. 2316, dated the 14th May 1900. It is there stated that no charge will be made for five years from the date of the concession, and that thereafter payment shall

be made to the Madras Government by the Durbar. These words do not, it is argued, support the interpretation suggested by the Durbar. The full annual payment became due upon the expiry of five years from the 2nd July 1900, the date on which the Durbar accepted the concession of the terms proposed by the Government of Madras. This acceptance was communicated in Col. McNeil Campbell's letter No. 428—2684, dated the 2nd July 1900 and consequently, it is pointed out that the payment fell due from 2nd July 1905. I am accordingly to request at the instance of His Excellency the Governor-in-Council that arrangements may be made for the payment to the Madras Government of the amounts due since that date.

No. 34.—Note dated the 3rd June 1915, by the Secretary, Public Works Department, on the Royalty to be paid to the Madras Government for Power generated at Sivasamudram.

The conditions under which the Government of Madras allowed the Government of Mysore to utilise the former's share of the power of the Cauvery Falls below Sivasamudram are specified in the Residency letter No. 2316-302—94, dated the 14th May 1900.

These are :—

(i) No charge shall be made for 5 years from the date of concession. (2nd July 1900).

(ii) that thereafter for a period of 30 years, for half the total power utilised Rs. 5 per H. P. per annum shall be paid to the Madras Government subject to a minimum of Rs. 2,000.

(iii) that at the expiry of 30 years the terms shall be subject to revision.

2. The second is the most important condition and requires careful examination. The Madras Government can only claim a Royalty of the sort indicated provided their direct or indirect interests are materially affected by the Mysore Cauvery Power Scheme. It is admitted that the diversion of the more or less scanty flow in the hot weather months from January to May would materially diminish the flow in the portion of the river belonging to Madras. But during the remaining months between 15th June to 1st January generally, the natural flow in the river is so abundant that a very small fraction of the proportionate flow even in the portion of the river belonging to Mysore, would be quite sufficient to generate all the power required. Hence it is reasonable that no Royalty should be paid to Madras for at least 6 months in the year July to December inclusive.

3. Viewed in this light, an all round rate of Rs. 5 per H. P. for the whole year does not appear to have been based upon correct data. If only half the year, for which any claim of Madras can be reasonably be admitted, is taken as the basis, this rate of Rs. 5 per H. P. really means double the amount, i.e., Rs. 10 per H. P. It is on this account that a reconsideration of the rate already arrived at has become necessary.

4. It should also be noted that the amount of power at present generated is very fluctuating depending upon the natural flow of the river subject to great variations. This condition precludes the possibility of any extensions to the power works notwithstanding the demand for additional power. It has therefore been found necessary to devise some means of storage for supplementing the hot weather flow of the Cauvery. Accordingly, the Durbar have at a very heavy outlay been constructing a reservoir dam across the Cauvery.

5. As the question of such a reservoir was not contemplated at the time, the Royalty was settled in 1900, it is natural that a reconsideration of this matter can be claimed now as the Reservoir Scheme comes into operation in July next. This opportunity may therefore be taken to revise the conditions under which an all round rate of Rs. 5 per H. P. was fixed, although the full period of 30 years mentioned in the original agreement has not elapsed.

6. Since the Agreement of 1900 with Madras, the installation of power works at Sivasamudram was developed in three stages of which the last was completed in the year 1909 and after this no further additions have yet been made.

The following amounts have been paid to Madras Government during the years 1905-06 to 1913-14:—

	Rs.		
1905-06	...	...	...
1906-07	...	...	...
1907-08	...	...	...
1908-09	...	...	...
1909-10	...	...	...
1910-11	...	...	...
1911-12	...	...	...
1912-13	...	...	...
1913-14	...	...	...

7. It will be seen from these figures that the amount paid in the year 1913-14 is less than that of the three successive preceding years although the generating capacity of the plant during the 4 last years under comparison has remained the same. This clearly establishes the fact that the installations have already over-run the limit of power development possible out of the natural flow and that any further additions to the power works at Sivasamudram could only be secured by means of an expensive reservoir.

8. The questions for settlement now are:—

- Whether time has not arrived for fixing a consolidated annual payment in recognition of the rights of Madras for power generated out of natural flow which has now reached its maximum limit as indicated above; and
- what payment if any should be made to the Madras Government when extra power comes to be generated purely by the aid of a very expensive storage reservoir.

9. At the time when the negotiations were first opened on this subject, the Durbar suggested that it would be fair to all interests involved that a moderate annual lumpsum payment would be a reasonable compensation to the Madras Government. It was then contemplated to generate only 4,000 H. P. by the first Installation and actually a lumpsum payment to Madras of Rs. 500 annually was proposed by the Durbar.

10. To this, His Excellency the Governor-in-Council then replied (*vide* paragraph 5 of the Residency letter noted in paragraph 1 above) that "no reliable data are available for determining what consolidated annual payment should be reasonable." Though this was so at the time, full and reliable data are now available for fixing a consolidated annual payment. In fact, the figures shown in paragraph 6 above furnish clear data for arriving at a settlement under the natural flow conditions of the river.

11. It is therefore suggested that the payment to be made to the Madras Government may be fairly commuted into a fixed annual payment based on the average of the four years 1910-11 to 1913-14 when the maximum conditions under natural flow had reached. The sum paid to the Madras Government at the rate of Rs. 5 per H. P. per annum has averaged during this period to Rs. 29,276-5-0 or in round figures Rs. 29,000. It has however, been shown that the rate of Rs. 5 practically means Rs. 10 and requires a material reduction. But until such time as the rate of Rs. 5 per H. P. per annum should be reduced by mutual consent the Madras Government may be requested to accept the amount of Rs. 29,000 per annum as due to them by the Durbar in final settlement of their right to the natural flow at the Sivasamudram falls. It may be stated that this amount should be liable to a reduction if the demand from the Gold Mines materially diminishes; when the amount of power generated and the consequent revenue to the State will also be correspondingly reduced.

12. Now coming to the second point noted in paragraph 8 above, *viz.*, "what payment if any should be made to Madras for power generated under the reservoir conditions," it has already been noted in paragraph 2 above, that any payment at all becomes due to Madras if really their interests are affected. Now by the construction of the reservoir the best interests of Madras are in every way secured inasmuch as the hot weather flow is generally increased and made steady. This latter condition offers great advantages to Madras by way of developing their hot weather crops directly and improving the water supply conditions to all the towns and villages situated along the Cauvery indirectly.

13. Even taking the 750 cusec of water likely to be passed by the first stage reservoir as the basis, at least 500 cusec may be advantageously used for hot weather irrigation in the Madras territory with a low duty of 40 for sugarcane and a rate of Rs. 10 per acre the annual revenue that can be derived will be $(500 \times 40 \times 10)$ Rs. 2 lakhs. Apart from this, the value of crops would be something enormous amounting to about 20 times the assessment or Rs. 40 lakhs which will be so much gain to the raiyat population of Madras.

14. Viewed in this light, the Madras Government will have no justification to claim any Royalty for power generated by means of the reservoir. Also Mysore has to spend a very large amount for constructing the storage reservoir required for the power works and when this is considered, it becomes all the more clear why there will be no justification whatever for Madras to claim any Royalty beyond the amount of Rs. 29,000 tentatively suggested under paragraph 11 in consideration of their natural right.

15. As regards the period of contract with Madras, it is true that the original agreement specifies 30 years. Although there might have been some reason for fixing this limit under natural conditions of the river, it is clear that the reservoir secures the possibility of generating power for perpetual time and on this account the period of contract should be made perpetual instead of 30 years only.

16. The question of the amount to be paid of course must depend on the power generated, and this averages to $2 \times 29,000 \div 5$, 11,600 H. P. under natural conditions; and as a fair settlement between Madras and Mysore it may be stipulated that as long as the power generated is greater than this amount, *viz.*, 11,600 H. P., the consolidated sum of Rs. 29,000 may be payable to Madras, and if the total power generated falls below 11,600 H. P., then the amount payable to Madras may be correspondingly reduced, the rate per H. P., being the same as at present, *viz.*, Rs. 5 per H. P. till such a time that this rate itself may be reduced by mutual consent of the two parties.

No. 35.—Letter No. 325—C. P. S., dated the 1st April 1916, from the Secretary to Government, Public Works Department, to the First Assistant to the Hon'ble the Resident in Mysore, Bangalore.

I am directed to refer you to the correspondence ending with Residency letter No. 2316—302-94, dated the 14th May 1900, addressed to the Dewan of Mysore, wherein the conditions under which the Government of Madras allowed the Government of Mysore to utilise the former's share of the power of the Cauvery Falls below Sivasamudram are specified.

2. Up to the year 1914, the installation of power works at Sivasamudram was developed in three stages, of which the last was completed in the year 1909.

The following amounts have been paid to the Madras Government year by year, in virtue of the understanding arrived at in 1900:—

	Rs. a. p.		
1905-06	...	...	...
1906-07	...	...	...
1907-08	...	...	...
1908-09	...	...	...
1909-10	...	...	...
1910-11	...	...	...
1911-12	...	...	...
1912-13	...	...	...
1913-14	...	...	...

3. It will be seen from the figures given above that the amount paid to the Madras Government in the year 1913-14 is less than that of the three previous years; and this fact clearly establishes that the installations have already over-run the limit of power development possible out of the natural flow and that any further additions to the Power Works at Sivasamudram could only be secured by the storage of water.

4. The Durbar have at a very heavy outlay been constructing a reservoir dam across the river Cauvery which, when raised to 80 feet above bed, will secure the storage necessary for ensuring full supply of water to the existing installations and for generating additional power up to 5,000 H. P.

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They have also since enlarged the Power Works at Sivasamudram by providing a IVth installation, which will supply the extra amount of power to the Gold Mining Companies under the reservoir scheme. Part of this power up to the extent of 2,500 H. P. has already been supplied.

5. On account of the altered circumstances brought about by the construction of the reservoir, the question naturally arises what modifications are necessary in the understanding arrived at with the Government of Madras in the matter of Royalty to be paid to them and of the period of currency of the agreement.

6. At the time when the negotiations were first opened on this subject, the Durbar suggested that a moderate annual lumpsum payment would be a reasonable compensation to the Madras Government.

To this, His Excellency the Governor-in-Council replied (*vide* paragraph 5 of Residency letter referred to in paragraph 1 above) that "no reliable data are available for determining what consolidated annual payment would be reasonable." It is admitted that it was so at that time. But full and reliable data are now available for fixing a consolidated annual payment.

7. As already stated, during the years 1910-11 to 1913-14 when the maximum limit under natural flow had been reached, the sum paid to the Madras Government at the rate of Rs. 5 per H. P. per annum has averaged Rs. 29,276-5-0 or, in round figures, Rs. 29,000. This affords a fair and adequate basis for commuting into an annual payment the royalty hitherto paid on the fluctuating supply of power dependent on natural flow conditions. Until such time as the rate of Rs. 5 per H. P. per annum could be reduced by mutual settlement, the Durbar request.—

- (1) that the Government of Madras may be moved to accept the amount of Rs. 29,000 per annum in lieu of the royalty at Rs. 5 per H. P. due to them by the Durbar for half the power that can be generated at the falls out of the natural flow;
- (2) that this sum should be subject to proportionate reduction in case the total power, generated at Sivasamudram should fall short of 11,600 H. P. upon the basis of which the amount of Rs. 29,000 has been fixed;
- (3) that no charge be made for any extra power that may hereafter be generated by means of costly storage works undertaken at the expense of the Durbar; and
- (4) that this agreement may be on a perpetual basis instead of for the period of 30 years originally fixed.

In regard to condition (3) above, the Durbar would invite a reference to the following extracts from Letter No. 3159, dated the 1st September 1899, from the Secretary to the Government of Madras, to the Hon'ble the Resident in Mysore, forwarded with Residency Endorsement No. 3927-302-94, dated the 4th September 1899:

"In other words, this (Madras) Government cannot without its consent be deprived of any portion of the volume of water flowing over the falls under existing conditions on the Madras side of the boundary, or of the right to utilise the power of its fall."

"The question remains whether and, if so, for what consideration and subject to what restrictions, this Government should give up its rights to certain water power to which it is entitled."

The right of the Madras Government to utilise the power of the falls having been clearly defined as above as arising from natural physical conditions, the Durbar trust that the payment of Rs. 29,000 as a royalty will be deemed adequate and the suggestion that no royalty should be leviable on any power that may be generated with the aid of storage secured at a heavy outlay, will be admitted by the Madras Government to be fair and reasonable.

9. I am to request that the Hon'ble the Resident may kindly be moved to address the Government of Madras and secure an early and fair understanding on the question at their very early convenience.

No. 36.—Memo No. 3700 dated the 25th May 1916, from the First Assistant to the Resident in Mysore, to the Dewan of Mysore.

A copy of the following letter No. 611-B-15-2, dated the 16 May 1916, from the Government of Madras is forwarded to the Government of His Highness the Maha-

raja of Mysore, for information, with reference to paragraph 6 of Mr. Karpur Shrinivasrao's letter No. 325—C. P. S., dated the 1st April 1916, and with the request that, if there is no objection the information asked for may kindly be furnished.

Enclosure in No. 36.

Letter No. 611, B.—16-2, dated the 16th May 1916, from the Secretary to the Government of Madras, Revenue Department, to the Hon'ble the Resident in Mysore.

With reference to your letter No. 2390, dated 3rd April 1916, transmitting letter No. 325—C. P. S., dated 1st April 1916, from the Mysore Durbar dealing with the payment of a fixed royalty to the Madras Government for the utilization of their share of the power generated at the Cauvery Falls, I am to request that this Government may be favoured with particulars of the full and reliable data on which the Durbar rely and to which an allusion is made in paragraph 6 of their letter.

No. 37.—Letter No. 582—C. P. S., dated the 21st June 1916, from the Secretary to Government, Public Works Department, to the First Assistant to the Hon'ble the Resident in Mysore.

With reference to letter No. 611—B. 16-2, dated the 16th May 1916, from the Secretary to the Government of Madras, Revenue Department, to the address of the Hon'ble the Resident in Mysore, copy of which has been received with your No. 3700, dated the 25th May 1916, regarding the payment of a fixed royalty to the Madras Government for the utilization of their share of the power generated at the Cauvery Falls, I am to state that the full and reliable data referred to in paragraph 6 of this office letter No. 325—C. P. S., dated the 1st April 1916, relate to the figures given in paragraph 2 of the same letter.

2. The conclusions that can be arrived at therefrom are shown in paragraph 3, viz:—

- (i) that the first three installations had already over-run the limit of power development possible out of the natural flow in the river;
- (ii) that any further additions to the power works at Sivasamudram could only be secured by the storage of water; and
- (iii) that, as explained in paragraph 7, the average of the last 4 years affords a fair and adequate basis for determining the amount of the consolidated payment proposed.

3. Under the circumstances, it is hoped that the proposals of the Durbar will be found acceptable to the Madras Government. The Durbar will be glad to furnish, as far as may be available, any further detailed information that may be specifically required by the Madras Government.

No. 38.—Letter No. 5787, dated the 16th August 1916, from the First Assistant to the Resident in Mysore, to the Dewan of Mysore, Bangalore.

With reference to Mr. Karpur Shrinivasrao's letter No. 582—C. P. S., dated the 21st June 1916, on the subject of payment of a fixed royalty to the Madras Government for the utilization of their share of the power generated at the Cauvery Falls, I am directed to forward a copy of letter No. 502-0—16-1, dated the 8th August 1916, from the Government of Madras and to request that, if there is no objection, the information asked for therein may kindly be furnished.

Enclosure in No. 38.

Letter No. 502-0—16-1, dated the 8th August 1916, from the Secretary to the Government of Madras, Public Works (Irrigation) Department, to the Hon'ble the Resident in Mysore.

With reference to para 3 of the letter from the Mysore Durbar No. 582-C. P. S., dated 21st June 1916, forwarded with your letter No. 4543, dated 28th June 1916

on the subject of the payment of a fixed royalty to this Government for the utilization of their share of the power generated at the Cauvery Falls, I am directed to ask that the Durbar be requested to favour this Government with information on the following points:—

- (a) The output of Electrical Horse Power as measured at the Sivasamudram Power Works before passing to the transformers per cusec diverted from the river at Sivasamudram Anicut.
 - (b) The daily computed discharges of the Cauvery at Sivasamudram, from 1st January to 30th June, for the years 1911 to 1915 inclusive
 - (i) through the right branch of the river through the vent for irrigation supply
 - (ii) through the right branch over the anicut and the anicut extension in the river bed
 - (iii) through the left branch of the river over the Sivasamudram anicut
 - (iv) through the left branch of the river through the scouring sluices
 - (v) through the headsluices of the Power Works channel
 - (vi) the total daily discharge (the totals of (i) to (v) above)
 - (vii) the daily gauge readings on which the above computations are based; and
 - (viii) the daily surplus over the surplus weir from the power station forebay.
 - (c) A detailed description of the methods and a statement of formulae used in computing the above discharges.
 - (d) The total mean monthly output of Electrical Horse Power for each of the years 1910-11 to 1914-1915; and
 - (e) An abstract showing how the yearly Electrical Horse Power on which payment due to Madras have been computed, has been arrived at.
2. It is observed from paragraphs 2 and 7 of the Durbar's letter No. 325 C. P. S., dated 1st April 1916, that they have excluded from consideration the power output during 1914-15 for which a payment of Rs. 33,034-1-7 was made, *vide* Durbar's letter No. 664, dated 6th September 1915. This Government are of opinion that it should be included in the computation of the average output.

No. 39.—Memo No. 6031, dated the 25th August 1916, from First Assistant to the Hon'ble the Resident in Mysore to the Dewan of Mysore

A copy of the following letter dated 17th August 1916, from the Government of Madras is forwarded to the Government of His Highness the Maharaja of Mysore, with reference to the correspondence ending with Mr. Karpur Shrinivasrao's Letter No. 664—C. P. S., dated the 6th September 1915, for favour of necessary action.

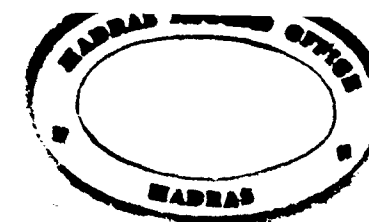
Enclosure in No. 39.

Letter No. 1361-B--16-1, dated the 17th August 1916, from the Acting Secretary to the Government of Madras, Revenue Department, to the Hon'ble the Resident in Mysore.

I am directed to request that you will be so good as to move the Mysore Durbar to intimate the quantity of electrical horse-power generated at the Cauvery Falls at Sivasamudram during 1915-16 and to arrange for the payment of the amount due to this Government for the utilization of the power.

No. 40.—Letter No. 803—C. P. S., dated the 12th September 1916, from the Secretary to Government, Public Works Department, to the First Assistant to Hon'ble the Resident in Mysore, Bangalore.

I am directed to acknowledge the receipt of your Memo No. 6081, dated the 25th August 1916, forwarding for necessary action, a copy of letter No. 1361-B. 16-1, dated the 17th idem, from the Government of Madras, Revenue Department, regarding the payment of the amount due to that Government for utilising the power generated at the Cauvery Falls at Sivasamudram during 1915-16.



2. As no decision has yet been reached on the points raised by the Durbar in correspondence ending with this office letter No. 582, dated the 21st June 1916, in the matter of the payment of a fixed sum as royalty to the Madras Government, I am to request the favour of being informed if the Government of Madras will accept tentatively without prejudice to any final settlement that may be reached, a sum of Rs. 29,000 for the utilization of their share of the power generated during 1915-16.

3. I am to add that, for reasons already adduced, the additional power generated at the falls during the year 1915-16 and the absence of shut-down during the past summer season were entirely due to the storage effected at the Cauvery Reservoir. The sum of Rs. 29,000 noted above is based on the average of previous four years ending 1914-15 when there was no reservoir, as already explained in this office letter No. 325—C. P. S., dated the 1st April 1916.

No. 41.—Letter No. 7478, dated the 24th October 1916, from the First Assistant to the Hon'ble the Resident in Mysore, Bangalore.

With reference to Mr. Karpur Shrinivasrao's letter No. 803—C. P. S., dated the 12th September 1916, on the subject of the payment due by the Durbar to the Government of Madras for power generated at the Cauvery Falls during 1915-16, I am directed to say the Madras Government consider that it will be inconvenient to make any change in the existing method of valuation of that liability during the consideration of the proposals made in the correspondence ending with Mr. Karpur Shrinivasrao's letter No. 582—C. P. S., dated the 21st June 1916. The Government of Madras would, therefore, prefer that the existing arrangement of paying for the actual amount of power generated should continue until the question of a change in that method has been definitely disposed of, and I am to request at the instance of the Government of Madras, that the actual quantity of power generated during the year 1915-16, may kindly be intimated at an early date and that arrangements for the payment of the amount due thereon, under the existing arrangement, may be made, at the early convenience of the Durbar.

No. 42.—No. 125—C. P. S., dated the 3rd November 1916:

Letter No. 7478 dated the 24th October 1916 from the First Assistant to the Hon'ble the Resident in Mysore.

Submitted to the Dewan of Mysore, with reference to his orders dated the 28th October 1916, in connection with the Residency letter noted above, regarding the royalty payable to Madras on the electric power generated.

2. A bill amounting to Rs. 34,485-12-0, being the amount due to the Government of Madras for utilising the power generated at the Cauvery Falls during 1915-16 received from the Chief Electrical Engineer, is attached against Rs. 29,000 tentatively proposed by Government till the question is finally settled, *vide* paragraph 2 of this office letter No. 803—C. P. S., dated the 12th September 1916.

3. If the view held by the Madras Government is accepted, *viz.*, that the existing arrangement of paying for the actual amount of power generated should continue until the question of a change in that method is definitely disposed of, then the amount payable to Madras will be Rs. 34,485-12-0 as shown above; and this will be Rs. 5,485-12-0 in excess of the sum of Rs. 29,000 proposed to be fixed as royalty to the Madras Government. It is suggested that the payment demanded by Madras may be made subject to the distinct proviso that, in the event of the sum now proposed, Rs. 29,000, as royalty is agreed to, the difference should be refunded to the Durbar.

4. For disposing of this question which is now under correspondence, the Madras Government have called for information on 12 distinct heads, most of which has been collected and the rest is being worked out. It will be disposed of as early as possible.

5. A draft letter to the Residency on the above lines is herewith submitted for favour of approval.

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No. 43.—Letter No. 991—C. P. S., dated the 4th December 1916, from the Secretary to Government, Public Works Department, to the First Assistant to the Hon'ble the Resident in Mysore.

I am directed to acknowledge the receipt of Residency letter No. 7478 dated the 24th October 1916, stating that the Madras Government consider that it will be inconvenient to make any change in the existing method of valuation of the liability of the Mysore Government in the matter of royalty to be paid to that Government for utilising their share of the Falls at Sivasamudram.

2. In reply, I am to point out that the power generated by the IVth Installation plant began to be supplied under a guarantee to the Mining Companies from 16th July 1915 and the giving of this guarantee has become possible only on account of the storage in the Kannambadi reservoir. The change in the method of calculation of royalty due to Madras has naturally to take effect from that date. It is for this reason that it was proposed that a sum of Rs. 29,000 be tentatively accepted by the Madras Government as royalty due to them, any adjustments being made after an agreement is reached in respect of the change in the mode of calculation.

I am to express the hope that, with this explanation, the Government of Madras will agree to the tentative arrangement proposed by the Durbar in the matter.

3. I am to add that the information called for by the Madras Government in their letter No. 502-0—6-1, dated the 8th August 1916, is being collected and will be furnished at an early date.

No. 44.—Letter No. 154—C. P. S., dated the 16th February 1917, from the Secretary to Government, Public Works Department, to the First Assistant to the Hon'ble the Resident in Mysore, Bangalore.

I am directed to invite reference to Residency letter No. 5787, dated the 16th August 1916, enclosing letter No. 502-0—16-1, dated 8th idem from the Government of Madras, asking for certain information in connection with the payment of a fixed royalty for power generated at Sivasamudram, and to forward herewith the required information.

2. The out-put of the electrical horse-power generated at Sivasamudram Power Works averages 25 H. P. per cusec of water diverted from the river into the Power Works channels (*vide para 1-a of the Madras Government letter*).

3. The information required by the Madras Government in para (1) (b), i to viii, and para (1) (c), (d) and (e) is also given in the accompanying statements (*vide Book No. 1 under columns 4 to 18 and No. II, pages i to v respectively*). The daily surplus over the forebay weir (item vii) has not been recorded prior to the year 1916.

4. In paragraph 2 of their letter, the Madras Government observe that the out-put of power for 1914-15, should also be included in the computation of the average. The reason for excluding this year from calculation is that the power generated during the year included a part of the power derived from the Fourth Installation. The Fourth Installation was designed to be worked by the storage effected in the Cauvery Reservoir, as the natural flow in the river during summer proved in the preceding years quite insufficient even to meet the demand of the first three installations.

5. The figures given in the accompanying statement make this point quite clear. It will be noticed that in the months of April and May of 1913-14, the quantity generated fell 50 per cent below the average for the corresponding months during the previous years. With such extreme variation due to natural flow conditions, the Mining Companies would not have asked for any extra power and it would not have been possible for this Government either to have undertaken the Fourth Installation without assured help from the reservoir.

6. The Gold Mines being assured that the power from the Fourth Installation as well as from the first three installations would be guaranteed with the help of the reservoir from July 1915, asked for additional power in instalments even

from the year 1913-14 under the Fourth Installation so long as there was the requisite flow in the river, pending an assured supply from July 1915. They installed new motors to take this additional supply of power, and ever since the power from the Fourth Installation was made available, these motors have been put into service and the power utilised from such motors is shown separately for 1914-15 in the accompanying statement. It will be seen that out of the total power of 13,213 H. P. generated in 1914-15, 11,830 H. P. was derived from the first three installations and 1,383 H. P. from the fourth installation.

7. If the year 1914-15 is also to be taken into account in calculating the average royalty due to Madras, then the amount paid for the power generated for the first three installations only during that year should be considered, *viz.* Rs. 29,575, as shown in column 6 of the statement. On this basis, the average royalty for the five years 1910-11 to 1914-15 amounts to Rs. 29,336, as shown in the margin, against Rs. 29,276, the average for the four years preceding the year 1914-15. It will thus be seen that the average amount already suggested by this Government, *viz.* Rs. 29,000 is reasonable and fair.

8. In this connection, it may be stated that the hot weather flow in the five years in question, as also in the two preceding years, was conserved for power purposes by temporary dams over existing anikats at considerable cost not to speak of the loss of revenue due to the stoppage of hot weather cultivation owing to such conservancy operations. If the natural flow alone had been taken without the conservancy operations, the power generated or utilised would have been much less and the royalty due to Madras would have consequently been reduced. These reduced figures would properly have formed a correct basis to fix the amount due to Madras. But by taking the larger figures due to the conservancy operations, a concession has already been made in favour of Madras.

9. In these circumstances, His Highness' Government trust that the proposal already made to fix the royalty at Rs. 29,000 per annum would be accepted by the Madras Government until such time as the rate of Rs. 5 per H. P. fixed in 1900 can be reduced by mutual agreement.

Enclosure in No. 44.

Letter No. 604, dated the 28th October 1916 from the Chief Electrical Engineer to the Secretary to Government, Public Works Department, Bangalore.

Referring to your letter No. 883—C. P. S., dated the 13th instant, I have the honour to inform you that in accordance with velocity observations made in the channels recently, the H. P. developed per cusec, as measured at the low tension busses at Sivasamudram is approximately 21.3 K. W.

2. With reference to the surplus over the surplus weir for the power station forebay, it has been reported by the Chief Operator that he has no available data for the discharge over the waste weirs for the years 1911-1915. The gauging of the surplus was commenced early this year and the discharge in the channels has been so regulated that the percentage of loss over the waste weirs is from 3 to 4 per cent when the maximum load of the station occurs.

No. 45.—*Letter No. 1361-B—16-7, dated the 5th February 1917, from the Under Secretary to the Government of Madras, in the Revenue Department, to the First Assistant to the Hon'ble the Resident in Mysore.*

I am directed to acknowledge receipt of your letter 8834, dated 12th December 1916, and to state in reply that before dealing further with the Mysore Durbar's request in regard to the payment due by the Durbar for power generated at the Cauvery Falls during 1915-16, His Excellency the Governor-in-Council would be glad to be furnished with the information asked for in Mr. Bedford's letter 1361-B—16-1, dated 17th August 1916, as to the actual quantity of electrical horse power generated during the year 1915-16.

No. 46.—*Memo No. 1118, dated the 12th February 1917, from the First Assistant to the Hon'ble the Resident in Mysore to the Secretary to Government, Public Works Department.*

A copy of the foregoing letter is forwarded to the Secretary to the Government of Mysore, Public Works Department, for information, with reference to his letter No. 991—C. P. S., dated the 4th December 1916, and with the request that the information asked for may kindly be furnished to this Residency.

2. A copy of the letter referred to by the Madras Government was forwarded with endorsement No. 6031, dated the 25th August 1916.

No. 47.—*Letter No. 280—C.P.S., dated the 26th March 1917, from the Secretary to Government, Public Works Department, to the First Assistant to the Hon'ble the Resident in Mysore, Bangalore.*

Subject.—Royalty payable to the Government of Madras for the electrical power generated at the Cauvery Falls at Sivasamudram.

With reference to correspondence ending with your Memo No. 1118, dated the 12th February 1917, on the above subject, I am directed to state that the quantity of power generated at Sivasamudram during the 12 months ended 30th June 1916, aggregated 13,794.30 H. P.

2. Out of this amount 2,220.6 H. P. was supplied from the Fourth Installation depending on the storage of water secured in the Cauvery Reservoir.

3. In this connection, I am also to invite reference to this Government letter No. 154—C. P. S., dated the 15—16th February 1917.

No. 48.—*Letter No. 5999, dated the 10th August 1917, from the First Assistant to the Hon'ble the Resident in Mysore, to the Secretary to Government, Public Works Department, Bangalore.*

With reference to the correspondence ending with your letter No. 154—C.P.S., dated the 15th February 1917, regarding the proposals to pay a fixed royalty for power generated at Sivasamudram, I am directed to forward for the information of the Durbar a copy of letter No. 2270, dated the 26th July 1917, from the Government of Madras, expressing their views in the matter.

No. 49.—*Letter No. 2270, dated the 26th July 1917, from the Secretary to the Government of Madras, Revenue Department, to the Resident in Mysore.*

With reference to the correspondence ending with your letter No. 1690, dated 3rd March 1917, addressed to the Secretary to the Government of Madras, Public Works Department (Irrigation), in connection with the proposals of the Mysore Durbar for a modification of the agreement now in force as to the royalty payable to this Government for the utilisation of the latter's share of the power generated

at the Cauvery Falls at Sivasamudram, I am directed to state that His Excellency the Governor-in-Council, after a very careful consideration of the subject, regrets his inability to accept the proposed agreement. It appears that even if the view adopted by the Durbar, as to the liability to pay for the extra power produced by water from the Mysore Reservoir were acceptable, which His Excellency the Governor-in-Council is unable to admit is the case, conditions (2), (3) and (4) in paragraph 7 of the Durbar's letter No. 325—C.P.S., dated 1st April 1916, would be specially unacceptable. In the circumstances, His Excellency the Governor-in-Council considers that the existing arrangement, based on the actual amount of power generated annually, should continue during the currency of the present agreement.

No. 50.—*Letter No. 2344, dated the 1st August 1917, from the Secretary to the Government of Madras, Revenue Department, to the Hon'ble the Resident in Mysore.*

In continuation of my letter No. 2270, dated 26th July 1917, I am directed to request that you will be so good as to move the Mysore Durbar to arrange for the payment of the sum of Rs. 34,485-12-0 which represents the amount due to this Government for the utilisation of the power generated at the Cauvery Falls at Sivasamudram in 1915-16.

No. 51.—*Memo No. 6150, dated the 15th August 1917, from the First Assistant Resident in Mysore, to the Secretary to Government, Public Works Department.*

A copy of the foregoing letter is forwarded to the Secretary to the Government of Mysore, Public Works Department, for favour of necessary action, in continuation of letter No. 5999, dated the 10th August 1917.

No. 52.—*Note No. 102—C. P. S., dated the 22nd September 1917, from the Secretary to Government, Public Works Department to the Dewan of Mysore.*

I submit herewith the marginally noted two communications, received from the Madras Government, regarding the proposal of the Government of Mysore to fix at Rs. 29,000 the amount of royalty payable annually to the Madras Government for utilising their share of water in the river Cauvery for purposes of power generation at Sivasamudram.

(1) Letter No. 2270, dated the 26th July 1917, forwarded under Residency No. 5999, dated the 10 August 1917.

(2) Letter No. 2344, dated the 1st August 1917, forwarded under Residency Memo No. 6150, dated the 15th August 1917.

2. As the Madras Government find our proposal unacceptable, the matter will have to be placed before the Government of India for their decision. In this view, I am getting printed all the papers and correspondence on the subject. The case will be duly prepared for submission to the Government of India.

3. In the meanwhile, the actual amount due on this account for 1915-16, may be remitted to the Hon'ble the Resident's Treasury to be placed at the credit of the Madras Government, as advised by the Government Advocate to whom the case was referred.

4. Draft of a letter, recapitulating in brief the circumstances under which the proposal was put forward and advising payment of the royalty under protest, is herewith submitted for favour of your approval.

No. 53.—*Letter No. 880—C. P. S., dated the 28th September 1917, from the Secretary to Government, Public Works Department, to the First Assistant to the Hon'ble the Resident in Mysore.*

I am directed to acknowledge the receipt of your letter No. 5999, dated the 10th August 1917, forwarding a copy of letter No. 2270, dated the 26th July 1917.

from the Secretary to the Government of Madras, Revenue Department, in which it is stated that the proposal of the Durbar, to commute into a fixed sum of Rs. 29,000 per year the royalty payable to the Madras Government at Rs. 5 per horse power for half the power generated at the Cauvery Falls at Sivasamudram, is not acceptable to that Government.

2. In the correspondence that has taken place on the subject since April 1916, it has been made clear by facts and figures.

- (1) that the first three installations of power works at Sivasamudram, designed to generate 14,650 Horse power have already exceeded the limit up to which power could possibly be developed out of the *natural* flow in the river and that all further development of power supply is entirely dependent on extra storage of water effected by costly works undertaken by the Durbar;
- (2) that the Government of Madras can only claim proprietary right over half the quantity of the natural flow in the river, and on this the existing understanding is based, *viz.*, that the Durbar shall pay Rs. 5 per electrical Horse power for utilising the Madras Government's share of the water power;
- (3) that the IV Installation could not be and was not, worked with the help of the normal flow in the river during summer months, as the flow proved quite inadequate even to meet the demands of the first three installations, being subject to extreme variations during the period of low water; and
- (4) that, but for the conservancy operations on which more than half-a-lakh was expended year after year up to 1914-15, the royalty to be paid to the Madras Government during the hot weather would have been greatly reduced.

3. In these circumstances, it was represented that the proposal of the Durbar to fix the royalty at Rs. 29,000 per annum would be reasonable and fair, as it was the average amount due to natural flow conditions of the river, without the reservoir.

4. As His Excellency the Governor-in-Council is of opinion that the above proposal is not acceptable, His Highness' Government intend to place the whole matter before the Government of India for their decision.

5. As desired by the Government of Madras, in their letter No. 2334, dated the 1st August 1917, the Government of Mysore have, in the meanwhile, directed the Comptroller to remit to the Hon'ble the Resident's Treasury the sum of Rs. 34,485-12-0, claimed by the Government of Madras at the rate of Rs. 5 per Horse power on one half of 13,794'30 Horse power generated at Sivasamudram during 1915-16. This is done *without prejudice to any settlement that may be arrived at later.*

ANNEXURES
BOOK No. I.

Statement showing the daily discharges for the years 1911 to 1915 (both inclusive from 1st January to 30th June of every year.) *

[illegible]

Statement showing the daily discharges for the years 1911 to 1915 (both inclusive from 1st January to 30th June of every year.)

Year and month	Date	Gauge readings of										Discharges in c. ft. per minute					Total of 12 to 18		Forebay	Remarks	
		Kollegal anicut		Sivasamudram anicut		Scouring sluice		Power channels		Kollegal anicut	Kollegal extension	Irrigation sluice	Main anicut	Scouring sluice	Power channels		Per minute	Per second			
		Front	Rear	Right	Left	Area open	Head	Rear	Right						Left	Right					Left
1911	1	-1.75	3.33		40		7.30		4.72	4.72		5.119	61.066		13.990	14.551	98.322	1.639			Calculation for main anicut is made according to statement D.
	2	-1.75	3.33		40		7.30		4.72	4.72		5.119	61.066		13.990	14.551	98.322	1.639			do
	3	-1.75	3.33		40		7.30		4.72	4.72		5.119	61.066		13.990	14.551	98.322	1.639			do
	4	-1.75	3.33		40		7.30		4.72	4.72		5.119	61.066		13.990	14.551	98.322	1.639			do
	5	-1.75	3.33		40		7.30		4.72	4.72		5.119	61.066		13.990	14.551	98.322	1.639			do
	6	-1.75	3.33		40		7.30		4.72	4.72		5.119	61.066		13.990	14.551	98.322	1.639			do
	7	-1.75	3.33		40		7.30		4.72	4.72		5.119	61.066		13.990	14.551	98.322	1.639			do
	8	-1.75	3.33		40		7.30		4.72	4.72		5.119	61.066		13.990	14.551	98.322	1.639			do
	9	-1.75	3.33		40		7.30		4.72	4.72		5.119	61.066		13.990	14.551	98.322	1.639			do
	10	-1.75	3.33		40		7.30		4.72	4.72		5.119	61.066		13.990	14.551	98.322	1.639			do
	11	-2.00	3.45		35		7.25		4.72	4.72		4.762	45.790		13.990	14.551	98.322	1.639			do
	12	-2.00	3.45		35		7.25		4.72	4.72		4.762	45.790		13.990	14.551	98.322	1.639			do
	13	-2.00	3.45		30		7.20		4.72	4.72		4.768	42.572		13.990	14.551	98.322	1.639			do
	14	-2.00	3.45		30		7.20		4.72	4.72		4.600	21.097		13.990	14.551	98.322	1.639			do
	15	-2.24	3.28		25		7.10		4.72	4.72		4.600	21.097		13.990	14.551	98.322	1.639			do
	16	-2.24	3.28		25		7.10		4.72	4.72		4.600	21.097		13.990	14.551	98.322	1.639			do
	17	-2.24	3.28		25		7.10		4.72	4.72		4.600	21.097		13.990	14.551	98.322	1.639			do
	18	-2.24	3.28		25		7.10		4.72	4.72		4.600	21.097		13.990	14.551	98.322	1.639			do
	19	-2.24	3.28		25		7.10		4.72	4.72		4.600	21.097		13.990	14.551	98.322	1.639			do
	20	-2.24	3.28		25		7.10		4.72	4.72		4.600	21.097		13.990	14.551	98.322	1.639			do
	21	-2.06	3.06		30		7.20		4.72	4.72		4.78	32.572		13.990	14.551	98.322	1.639			do
	22	-2.06	3.06		30		7.20		4.72	4.72		4.78	32.572		13.990	14.551	98.322	1.639			do
	23	-2.06	3.06		30		7.20		4.72	4.72		4.78	32.572		13.990	14.551	98.322	1.639			do
	24	-2.34	2.84		25		7.10		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			do
	25	-2.35	2.85		25		7.05		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			do
	26	-2.35	2.85		25		7.05		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			do
	27	-2.50	2.60		20		7.05		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			do
	28	-2.50	2.60		20		7.05		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			do
March 1911	1	-2.50	2.60		20		7.05		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			do
	2	-2.50	2.60		20		7.05		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			do
	3	-2.50	2.60		20		7.05		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			do
	4	-2.50	2.60		20		7.05		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			do
	5	-2.50	2.60		20		7.05		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			do
	6	-2.50	2.60		20		7.05		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			do
	7	-2.50	2.60		20		7.05		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			do
	8	-2.50	2.60		20		7.05		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			do
	9	-2.50	2.60		20		7.05		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			do
	10	-2.50	2.60		20		7.05		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			do
	11	-2.50	2.60		20		7.05		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			do
	12	-2.50	2.60		20		7.05		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			do
	13	-2.50	2.60		20		7.05		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			do
	14	-2.50	2.60		20		7.05		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			do
	15	-2.50	2.60		20		7.05		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			do
	16	-2.50	2.60		20		7.05		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			do
	17	-2.50	2.60		20		7.05		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			do
	18	-2.50	2.60		20		7.05		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			do
	19	-2.50	2.60		20		7.05		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			do
	20	-2.50	2.60		20		7.05		4.72	4.72		5.8	21.097		13.990	14.551	98.322	1.639			

Statement showing the daily discharges for the years 1911 to 1915 (both inclusive from 1st January to 30th June of every year.)

[illegible][illegible][illegible]

Statement showing the daily discharges for the years 1911 to 1915 (both inclusive from 1st January to 30th June of every year.)

[illegible]

1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31																																							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36																																																																

xii

May 1913

Breach of sand bag dam
100.

xiii

June 1961

Sand bag dams are p t

Statement showing the daily discharges for the years 1911 to 1915 (both inclusive from 1st January to 30th June of every year).

[illegible]

xvi

Sand bag dam over Main Aricut is put in.

May 1914.

[illegible]

xviii

June 1914.

January 1915.

Statement showing the daily discharges for the years 1911 to 1915 (both inclusive from 1st January to 30th June of every year.)

Year and month		Gauge readings of										Discharges in c. ft. per minute						Total of 12 to 18		Forebay	Remarks
		Kollegal anicut			Sivassamudram anicut			Scouring sluice		Power channels		Kollegal anicut	Kollegal extension	Irrigation sluice	Main Anicut	Scouring sluice	Power channels				
		Front	Rear	Area open	Right	Left	Head	Rear	Right	Left	Right						Left				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
February 1915.	1	-2.14	-3.45		70	27	7.40	95	5.45	5.45		405	3.132	16,302	20,574	17,982	18,504	76,889	1,281	To raise the anicut S. B. Dam is put. So discharge L. = 184 do do do 184 do do 194 do do 194	
	2	-1.90	-3.40		80	40	7.40	1.90	5.45	5.45		1,390	3,394	19,916	33,036	17,982	18,504	94,882	1,583		
	3	-1.95	-3.40		80	40.50	7.40	1.10	5.45	5.45		1,088	3,340	19,916	30,496	17,982	18,504	91,281	1,520		
	4	-2.25	-3.60		72	10.00	7.40	40	5.45	5.45		38	2,997	16,874	7,920	17,982	18,504	64,315	1,372		
	5	-2.60	-3.60		50		7.40	10	5.45	5.45			2,700	9,841	3,015	17,982	18,504	49,027	817		
	6	-2.66	-3.66		50	3.75	7.40	10	5.45	5.45			2,700		3,015	17,982	18,504	42,901	763		
	7	-2.60	-3.60		50	3.30	7.40	10	5.45	5.45			2,700		2,653	17,982	18,504	41,839	667		
	8	-2.50	-3.60		50	13.5	7.40	10	5.45	5.45			2,808		10,368	17,982	18,504	41,623	827		
	9	-2.40	-3.60		55	18.00	7.40	1.00	5.45	5.45			2,943		18,008	17,982	18,504	63,037	884		
	10	-2.40	-3.40		65	36.00	7.40	1.80	5.45	5.45			2,700		25,380	17,982	18,504	64,566	1,476		
	11	-2.45	-3.60		50	21.00	7.40	1.80	5.45	5.45			2,700		18,360	17,982	18,504	57,546	959		
	12	-2.60	-3.60		58	4.50	7.40	1.5	5.45	5.45			2,700		3,631	17,982	18,504	42,817	714		
	13	-2.35	-3.45		50	6.75	7.40	30	5.45	5.45			2,700		5,405	17,982	18,504	44,592	743		
	14	-2.25	-3.50		70	38.25	7.40	1.30	5.45	5.45			2,997		26,736	17,982	18,504	66,227	1,144		
	15	-2.30	-3.55		65	33.75	7.40	1.50	5.45	5.45			2,997		24,502	17,982	18,504	63,965	1,466		
	16	-2.30	-3.55		65	33.75	7.40	1.50	5.45	5.45			2,997		24,502	17,982	18,504	63,965	1,466		
	17	-2.30	-3.55		65	32.00	7.40	1.30	5.45	5.45			2,997		24,166	17,982	18,504	63,541	1,461		
	18	-2.30	-3.50		60	27.00	7.40	1.20	5.45	5.45			2,970		20,084	17,982	18,504	59,544	993		
	19	-2.28	-3.50		65	40.5	7.40	2.40	5.45	5.45			3,078		26,001	17,982	18,504	65,457	1,491		
	20	-2.15	-3.45		75	55.0	7.40	3.00	5.45	5.45		212	3,078		34,650	17,982	18,504	74,416	1,944		
	21	-2.15	-3.45		70	46.5	7.40	2.70	5.45	5.45		212	3,078		33,132	17,982	18,504	69,908	1,125		
	22	-2.30	-3.55		60	27.0	7.40	1.00	5.45	5.45			2,997		20,483	17,982	18,504	59,972	999		
	23	-2.55	-3.55		60	1.50	7.40	1.00	5.45	5.45			2,700		1,315	19,966	19,015	41,286	686		
	24				65	3.00	7.40	1.5	5.60	5.60				2,457	19,770	20,521	42,749	713			
	25				70	6.00	7.40	30	5.60	5.60				4,686	19,770	20,521	45,187	753			
	26				70	6.00	7.40	30	5.60	5.60				4,686	19,770	20,521	45,187	753			
	27				70	6.00	7.40	30	5.60	5.60				4,686	19,770	20,521	45,187	753			
28				70	3.00	7.40	20	5.60	5.60				3,000	19,770	20,521	43,361	732				

xviii

Arbi.

March 1915.

April 1915

xix

Sand bag dam over Main Anicut is put in.

Statement showing the daily discharges for the years 1911 to 1915 (both inclusive from 1st January to 30th June of every year.)

Year and Month	Date	Gauge readings of										Discharges in c. ft. per minute				Total of 12 to 18		Remarks			
		Kollegal Anicut		Sivassudram anicut		Scouring sluice		Power channels		Kollegal anicut	Kollegal extension	Irriga- tion sluice	Main Anicut	Scouring sluice	Power channels		Per minute		Forebay		
		Front	Rear	Right	Left	Area open	Head	Rear	Right						Left	Right			Left		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	1					9.00	10.00	1.00	5.60	5.60					8.100	19.770	20.521	48.891	806		
	2					23.6	10.00	2.00	5.60	5.60					19.035	19.770	20.521	59.826	969		
	3					3.40	10.00	2.00	5.60	5.60					30.436	19.770	20.521	70.747	1,179		
	4					3.40	10.00	2.00	5.60	5.60					30.436	19.770	20.521	70.747	1,179		
	5					3.40	10.00	2.75	5.60	5.60					73.710	19.770	20.521	11.401	1,900		
	6					3.40	10.00	2.00	5.60	5.60					73.710	19.770	20.521	1,80,869	3,015		
	7	1.20				3.40	10.00	2.00	5.60	5.60				11.117	73.710	19.770	20.521	1,80,869	3,015		
	8	1.50				3.40	10.00	2.00	5.60	5.60				26.632	73.710	19.770	20.521	1,80,869	3,015		
	9					3.40	10.00	2.00	5.60	5.60					38.070	19.770	20.521	78.461	1,906		
	10					3.40	10.00	2.00	5.60	5.60					12.474	19.770	20.521	52.765	979		
	11					3.40	10.00	2.00	5.60	5.60					19.085	19.770	20.521	59.826	969		
	12					3.40	10.00	2.00	5.60	5.60					8.343	19.770	20.521	40.291	671		
	13					3.40	10.00	2.00	5.60	5.60						19.770	20.521	40.291	671		
	14					3.40	10.00	2.00	5.60	5.60						18.893	19.638	38.531	642		
	15					3.40	10.00	2.00	5.60	5.60						18.893	19.638	38.531	642		
	16					3.40	10.00	2.00	5.60	5.60						18.893	19.638	38.531	642		
	17					3.40	10.00	2.00	5.60	5.60						18.893	19.638	38.531	642		
	18					3.40	10.00	2.00	5.60	5.60						18.893	19.638	38.531	642		
	19					3.40	10.00	2.00	5.60	5.60						18.893	19.638	38.531	642		
	20					3.40	10.00	2.00	5.60	5.60						18.893	19.638	38.531	642		
	21					3.40	10.00	2.00	5.60	5.60						18.893	19.638	38.531	642		
	22					3.40	10.00	2.00	5.60	5.60						18.893	19.638	38.531	642		
	23					3.40	10.00	2.00	5.60	5.60						18.893	19.638	38.531	642		
	24					3.40	10.00	2.00	5.60	5.60						18.893	19.638	38.531	642		
	25					3.40	10.00	2.00	5.60	5.60						18.893	19.638	38.531	642		
	26					3.40	10.00	2.00	5.60	5.60						18.893	19.638	38.531	642		
	27					3.40	10.00	2.00	5.60	5.60						18.893	19.638	38.531	642		
	28					3.40	10.00	2.00	5.60	5.60						18.893	19.638	38.531	642		
	29					3.40	10.00	2.00	5.60	5.60						18.893	19.638	38.531	642		
	30					3.40	10.00	2.00	5.60	5.60						18.893	19.638	38.531	642		
	31					3.40	10.00	2.00	5.60	5.60						18.893	19.638	38.531	642		

May 1915

Year and Month	Date	Gauge readings of										Discharges in c. ft. per minute				Total of 12 to 18		Remarks			
		Kollegal Anicut		Sivassudram anicut		Scouring sluice		Power channels		Kollegal anicut		Irriga- tion sluice	Main Anicut	Scouring sluice	Power channels		Per minute		Forebay		
		Front	Rear	Right	Left	Area open	Head	Rear	Right	Left	Kollegal extension										
1	1-190	...	...	...	...	30	10.50	2.85	5.50	5.50				71.520	18.893	19.638	1,46,254	3,497			
2	1-180	-3.60				30	10.15	2.75	5.50	5.50				73.440	18.893	19.638	1,46,254	3,497			
3	1-180	-3.10				30	10.25	2.85	5.50	5.50				73.440	18.893	19.638	1,46,254	3,497			
4	1-170	-2.90	1.00			30	10.55	2.85	5.50	5.50				73.440	18.893	19.638	1,46,254	3,497			
5	-30	-1.80	1.30			30	10.75	3.10	5.50	5.50				73.440	18.893	19.638	1,46,254	3,497			
6	-30	-2.00	1.10			30	10.50	3.00	5.50	5.50				73.440	18.893	19.638	1,46,254	3,497			
7	-1.70	-3.30	.55			30	10.00	2.70	5.50	5.50				73.440	18.893	19.638	1,46,254	3,497			
8	-1.30	-3.10	.80			30	10.25	2.85	5.50	5.50				73.440	18.893	19.638	1,46,254	3,497			
9	-1.60	-3.40	.50			30	9.90	2.50	5.50	5.50				73.440	18.893	19.638	1,46,254	3,497			
10	-1.50	-3.20	.80			30	10.25	2.50	5.50	5.50				73.440	18.893	19.638	1,46,254	3,497			
11	-1.30	-1.90	1.30			30	10.00	2.10	5.50	5.50				73.440	18.893	19.638	1,46,254	3,497			
12	-90	-1.40	1.40			30	10.00	11.25	2.10	5.50	5.50			73.440	18.893	19.638	1,46,254	3,497			
13	-10	-1.50	1.50			30	10.00	11.00	3.50	5.50	5.50			73.440	18.893	19.638	1,46,254	3,497			
14	-90	-2.60	.85			30	10.00	10.50	2.85	5.50	5.50			73.440	18.893	19.638	1,46,254	3,497			
15	-60	-2.40	.60			30	10.00	10.00	2.65	5.50	5.50			73.440	18.893	19.638	1,46,254	3,497			
16	-50	-2.60	.70			30	10.00	10.10	2.70	5.50	5.50			73.440	18.893	19.638	1,46,254	3,497			
17	-1.10	-2.90	.10			30	10.00	9.90	2.40	5.50	5.50			73.440	18.893	19.638	1,46,254	3,497			
18	-1.30	-3.10	.30			30	10.00	9.75	2.30	5.50	5.50			73.440	18.893	19.638	1,46,254	3,497			
19	-10	-1.30	1.05			30	10.00	10.50	3.00	5.50	5.50			73.440	18.893	19.638	1,46,254	3,497			
20	-30	-1.80	.85			30	10.00	10.30	2.70	5.50	5.50			73.440	18.893	19.638	1,46,254	3,497			
21	-60	-2.00	.75			30	10.25	2.60	5.50	5.50				73.440	18.893	19.638	1,46,254	3,497			
22	-50	-2.10	.65			30	10.00	10.00	2.60	5.50	5.50			73.440	18.893	19.638	1,46,254	3,497			
23	-70	-2.40	.55			30	10.00	10.00	2.60	5.50	5.50			73.440	18.893	19.638	1,46,254	3,497			
24	-15	-2.05	.70			30	10.00	10.30	2.70	5.50	5.50			73.440	18.893	19.638	1,46,254	3,497			
25	-50	-1.80	1.30			30	10.55	3.00	5.50	5.50				73.440	18.893	19.638	1,46,254	3,497			
26	-1.80	-2.70	.20			30	11.30	1.20	5.50	5.50				73.440	18.893	19.638	1,46,254	3,497			
27	-2.30	-1.90	.20			30	10.00	1.90	5.00	5.50				73.440	18.893	19.638	1,46,254	3,497			
28	-1.80	-1.20	.85			30	10.00	13.00	6.30	5.50	5.50			73.440	18.893	19.638	1,46,254	3,497			
29	-1.40	-1.20	.85			30	10.00	6.30	6.30	5.50	5.50			73.440	18.893	19.638	1,46,254	3,497			
30	-3.80	-3.30	.30			30	12.00	5.70	5.70	5.50	5.50			70.200	20.085	21.481	50.01,633	83,350			

June 1915

BOOK No. II.

STATEMENT (A).

RIVER GAUGING.

Table of discharge in cubic feet per minute over a lineal foot of sill for depth up to two feet.

Sill in feet	Second place of a decimal of a foot										Remarks
	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	
0	00	162	0.46	1.30	1.823	2.31	3.02	3.68	5.15	5.92	
1	6.75	7.62	8.55	10.40	11.38	12.41	13.49	14.57	16.79	17.97	
2	19.16	20.34	21.58	24.10	25.44	26.78	28.12	29.56	32.14	33.78	
3	36.98	38.77	40.61	44.20	46.74	49.29	51.78	54.28	58.73	61.23	
4	54.07	56.62	59.18	64.53	66.63	68.73	71.89	74.99	80.34	82.44	
5	75.70	78.36	81.02	88.39	90.23	92.07	95.38	97.74	104.09	106.45	
6	99.54	102.30	105.06	113.90	116.30	118.70	123.00	125.40	132.75	135.15	
7	126.40	129.26	132.12	141.40	143.80	146.20	151.50	153.90	162.25	164.65	
8	153.20	156.06	158.92	168.80	171.20	173.60	179.00	181.40	190.75	193.15	
9	182.80	185.66	188.52	198.80	201.20	203.60	209.00	211.40	220.75	223.15	
1.00	214.1	216.70	219.40	229.80	232.20	234.60	240.00	242.40	251.75	254.15	
1.10	246.9	249.50	252.10	262.60	265.00	267.40	272.80	275.20	284.65	287.05	
1.20	281.4	284.00	286.60	297.20	299.60	302.00	307.40	309.80	319.25	321.65	
1.30	317.2	320.10	323.00	333.60	336.00	338.40	343.80	346.20	355.65	358.05	
1.40	354.60	357.50	360.40	371.00	373.40	375.80	381.20	383.60	393.05	395.45	
1.50	393.20	396.10	399.00	409.60	412.00	414.40	419.80	422.20	431.65	434.05	
1.60	433.20	436.10	439.00	449.60	452.00	454.40	459.80	462.20	471.65	474.05	
1.70	474.50	477.40	480.30	490.90	493.30	495.70	501.10	503.50	512.95	515.35	
1.80	517.00	520.00	523.00	533.60	536.00	538.40	543.80	546.20	555.65	558.05	
1.90	560.70	563.70	566.70	577.30	579.70	582.10	587.50	589.90	599.35	601.75	
2.00	605.50	608.50	611.50	622.10	624.50	626.90	632.30	634.70	644.15	646.55	
2.10	652.56	655.56	658.56	669.16	671.56	673.96	679.36	681.76	691.21	693.61	
2.20	697.64	700.64	703.64	714.24	716.64	719.04	724.44	726.84	736.29	738.69	
2.30	744.7	747.7	750.7	761.3	763.7	766.1	771.5	773.9	783.4	785.8	
2.40	795.65	798.65	801.65	812.25	814.65	817.05	822.45	824.85	834.3	836.7	
2.50	845.90	848.90	851.90	862.50	864.90	867.30	872.7	875.1	884.6	887.0	
2.6	896.66	899.66	902.66	913.26	915.66	918.06	923.46	925.86	935.3	937.7	
2.7	949.40	952.40	955.40	966.00	968.40	970.80	976.2	978.6	988.1	990.5	
2.8	1001.52	1004.52	1007.52	1018.12	1020.52	1022.92	1028.32	1030.72	1040.2	1042.6	
2.9	1057.16	1060.16	1063.16	1073.76	1076.16	1078.56	1083.96	1086.36	1095.8	1098.2	
3.00	1112.80	1115.80	1118.80	1129.40	1131.80	1134.20	1139.6	1142.0	1151.5	1153.9	
3.1	1168.01	1171.01	1174.01	1184.61	1187.01	1189.41	1194.8	1197.2	1206.7	1209.1	
3.2	1224.08	1227.08	1230.08	1240.68	1243.08	1245.48	1250.9	1253.3	1262.8	1265.2	
3.3	1281.86	1284.86	1287.86	1298.46	1300.86	1303.26	1308.7	1311.1	1320.6	1323.0	
3.4	1339.60	1342.60	1345.60	1356.20	1358.60	1361.00	1366.4	1368.8	1378.3	1380.7	
3.5	1401.70	1404.70	1407.70	1418.30	1420.70	1423.10	1428.5	1430.9	1440.4	1442.8	
3.6	1461.62	1464.62	1467.62	1478.22	1480.62	1483.02	1488.4	1490.8	1500.3	1502.7	
3.7	1523.68	1526.68	1529.68	1540.28	1542.68	1545.08	1550.5	1552.9	1562.4	1564.8	
3.8	1585.74	1588.74	1591.74	1602.34	1604.74	1607.14	1612.5	1614.9	1624.4	1626.8	
3.9	1648.01	1651.01	1654.01	1664.61	1667.01	1669.41	1674.8	1677.2	1686.7	1689.1	
4.0	1712.00	1715.00	1718.00	1728.60	1731.00	1733.40	1738.8	1741.2	1750.7	1753.1	
4.1	1776.2	1779.2	1782.2	1792.8	1795.2	1797.6	1803.0	1805.4	1814.9	1817.3	
4.2	1840.0	1843.0	1846.0	1856.6	1859.0	1861.4	1866.8	1869.2	1878.7	1881.1	
4.3	1906.74	1909.74	1912.74	1923.34	1925.74	1928.14	1933.5	1935.9	1945.4	1947.8	
4.4	1975.22	1978.22	1981.22	1991.82	1994.22	1996.62	2002.0	2004.4	2013.9	2016.3	
4.5	2043.7	2046.7	2049.7	2060.3	2062.7	2065.1	2070.5	2072.9	2082.4	2084.8	
4.6	2111.30	2114.30	2117.30	2127.9	2130.3	2132.7	2138.1	2140.5	2149.6	2152.0	
4.7	2180.4	2183.4	2186.4	2197.0	2199.4	2201.8	2207.2	2209.6	2219.1	2221.5	
4.8	2250.42	2253.42	2256.42	2267.02	2269.42	2271.82	2277.2	2279.6	2289.1	2291.5	
4.9	2321.47	2324.47	2327.47	2338.07	2340.47	2342.87	2348.2	2350.6	2360.1	2362.5	
5.0	2392.52	2395.52	2398.52	2409.12	2411.52	2413.92	2419.3	2421.7	2431.2	2433.6	

Q = 214. H³ when H is the depth of water in feet.
Q = Discharge in cft. per minute over a lineal foot of sill.

STATEMENT B.

Statement showing the calculated discharges of the Kollegal Anicut Extension towards the Eastern Branch of the River Cauvery at Sivasamudram.

R. L.	Length of sill in feet	Depth of water over sill	Calculated discharge per minute	Remarks
1000.18	15.00	0.05	35.1	
1000.28	30.00	1.10	202.5	
1000.38	45.00	1.15	558.4	
1000.48	60.00	1.17	1954.8	
1000.58	75.00	2.10	2017.7	
1000.68	90.00	2.25	3510.8	
1000.78	105.00	2.29	5506.1	
1000.88	120.00	3.31	7843.0	
1000.98	135.00	3.35	11223.0	
1001.08	150.00	3.42	15846.0	
1001.18	165.00	3.49	21978.7	
1001.28	180.00	3.55	27707.4	
1001.38	195.00	3.61	34340.8	
1001.48	210.00	3.67	41986.6	
1001.58	225.00	3.74	51740.9	
1001.68	240.00	3.81	61018.0	
1001.78	255.00	3.88	72181.7	
1001.88	270.00	3.95	83244.0	
1001.98	285.00	4.02	95002.2	
1002.08	300.00	4.09	101677.3	
1002.18	315.00	4.13	117120.8	
1002.28	330.00	4.11	132668.7	
1002.38	345.00	4.20	151505.7	
1002.48	360.00	4.24	169891.7	
1002.58	375.00	4.29	183245.9	
1002.68	390.00	4.38	205009.3	
1002.78	405.00	4.47	225724.7	
1002.88	420.00	4.55	248107.8	
1002.98	435.00	4.63	271118.2	
1003.08	450.00	4.72	295207.7	
1003.18	465.00	4.80	320229.8	
1003.28	480.00	4.88	346199.8	
1003.38	495.00	4.96	370794.0	
1003.48	510.00	5.05	...	
1003.58	525.00	5.13	...	
1003.68	540.00	5.21	...	
1003.78	555.00	5.29	...	
1003.88	570.00	5.36	...	
1003.98	585.00	5.43	...	
1004.08	600.00	5.50	...	
1004.18	615.00	5.55	...	
1004.28	630.00	5.63	...	
1004.38	645.00	5.67	...	
1004.48	660.00	5.72	...	
1004.58	675.00	5.78	...	
1004.68	690.00	5.84	...	
1004.78	705.00	5.89	...	
1004.88	720.00	5.95	...	
1004.98	735.00	6.00	...	
1005.08	750.00	6.05	...	
1005.18	765.00	6.10	...	
1005.28	780.00	6.15	...	
1005.38	795.00	6.19	...	
1005.48	810.00	6.24	...	
1005.58	825.00	6.30	...	
1005.68	840.00	6.36	...	
1005.78	855.00	6.40	...	
1005.88	870.00	6.46	...	
1005.98	885.00	6.51	...	

N.B. — Length of Kollegal Anicut Extension 940 above level 1005.86, the length of Kollegal Anicut Extension is assumed 940 feet and the depth same as that on the Kollegal Anicut.

Statement showing the Calculations and discharge of Right Channel.

Depth of water in channel	Perimeter	Area in sq. ft.	$r = \frac{A}{P}$	C	$S = \frac{R^2}{10000}$	Discharge per 1" in cft.
2-10	$2-84 + 2-84 + 12 = 17-68$	$\frac{15-75 + 12}{2} \times 2-1 = 29-13$	1-65	57-93	0-031	$29-13 \times 57-93 \times 0-031 = 52-31$
2-20	$2-98 + 2-98 + 12 = 17-96$	$\frac{15-93 + 12}{2} \times 2-2 = 30-73$	1-71	58-99	0-0320	$30-72 \times 58-99 \times 0-032 = 57-63$
2-30	$3-12 + 3-12 + 12 = 18-24$	$\frac{16-12 + 12}{2} \times 2-3 = 30-34$	1-77	59-44	0-0325	$32-34 \times 59-44 \times 0-0325 = 62-66$
2-50	$3-40 + 3-40 + 12 = 18-80$	$\frac{16-5 + 12}{2} \times 2-5 = 35-62$	1-89	60-76	0-0340	$35-62 \times 60-76 \times 0-0340 = 73-58$
2-75	$3-75 + 3-75 + 12 = 19-50$	$\frac{17 + 12}{2} \times 2-75 = 39-88$	2-04	62-28	0-0350	$39-88 \times 62-28 \times 0-0350 = 86-93$
2-80	$3-82 + 3-82 + 12 = 19-64$	$\frac{17-09 + 12}{2} \times 2-8 = 40-72$	2-07	62-57	0-0352	$40-72 \times 62-57 \times 0-0352 = 89-68$
2-90	$3-94 + 3-94 + 12 = 19-88$	$\frac{17-26 + 12}{2} \times 2-9 = 42-12$	2-13	63-26	0-0358	$42-12 \times 63-26 \times 0-0358 = 96-05$
3-00	$4-06 + 4-06 + 12 = 20-12$	$\frac{17-43 + 12}{2} \times 3-0 = 44-14$	2-19	63-85	0-0365	$44-14 \times 63-85 \times 0-0365 = 102-87$
3-20	$4-33 + 4-33 + 12 = 20-66$	$\frac{17-76 + 12}{2} \times 3-2 = 47-61$	2-30	64-88	0-0371	$47-61 \times 64-88 \times 0-0371 = 114-60$
3-40	$4-61 + 4-61 + 12 = 21-22$	$\frac{18-11 + 12}{2} \times 3-4 = 51-18$	2-41	65-84	0-0384	$51-18 \times 65-84 \times 0-0384 = 129-38$
3-50	$4-75 + 4-75 + 12 = 21-50$	$\frac{18-28 + 12}{2} \times 3-5 = 52-90$	2-46	66-30	0-0387	$52-99 \times 66-30 \times 0-0387 = 136-96$
3-70	$5-02 + 5-02 + 12 = 22-04$	$\frac{18-63 + 12}{2} \times 3-7 = 56-66$	2-57	67-13	0-0393	$56-66 \times 67-13 \times 0-0393 = 149-48$
3-80	$5-17 + 5-17 + 12 = 22-34$	$\frac{18-81 + 12}{2} \times 3-8 = 58-54$	2-62	67-56	0-0397	$58-54 \times 67-56 \times 0-0397 = 157-01$
3-90	$5-29 + 5-29 + 12 = 22-58$	$\frac{18-98 + 12}{2} \times 3-9 = 60-11$	2-68	68-03	0-0401	$60-11 \times 68-03 \times 0-0401 = 164-80$
4-00	$5-42 + 5-42 + 12 = 22-84$	$\frac{19-16 + 12}{2} \times 4-0 = 62-32$	2-73	68-43	0-0404	$62-32 \times 68-43 \times 0-0404 = 172-29$
4-10	$5-53 + 5-53 + 12 = 23-06$	$\frac{19-26 + 12}{2} \times 4-10 = 64-08$	2-78	68-79	0-0408	$64-08 \times 68-79 \times 0-0408 = 179-81$
4-20	$5-66 + 5-66 + 12 = 23-32$	$\frac{19-46 + 12}{2} \times 4-2 = 66-06$	2-83	69-10	0-0412	$66-06 \times 69-10 \times 0-0412 = 188-06$
4-25	$5-75 + 5-75 + 12 = 23-50$	$\frac{19-66 + 12}{2} \times 4-25 = 67-27$	2-86	69-36	0-0414	$67-27 \times 69-36 \times 0-0414 = 193-16$
4-30	$5-79 + 5-79 + 12 = 23-58$	$\frac{19-74 + 12}{2} \times 4-30 = 68-24$	2-89	69-58	0-0416	$68-24 \times 69-58 \times 0-0416 = 197-52$
4-40	$5-92 + 5-92 + 12 = 23-84$	$\frac{19-81 + 12}{2} \times 4-4 = 70-09$	2-94	69-63	0-0420	$70-90 \times 69-63 \times 0-0420 = 204-97$
4-50	$6-08 + 6-08 + 12 = 24-16$	$\frac{20-12 + 12}{2} \times 4-5 = 72-00$	2-98	70-22	0-0423	$72-00 \times 70-22 \times 0-0423 = 213-86$
4-60	$6-21 + 6-21 + 12 = 24-42$	$\frac{20-2 + 12}{2} \times 4-6 = 74-06$	3-03	70-51	0-0426	$74-06 \times 70-51 \times 0-0426 = 222-45$
4-70	$6-34 + 6-34 + 12 = 24-68$	$\frac{20-4 + 12}{2} \times 4-70 = 76-14$	3-08	70-88	0-0429	$76-14 \times 70-88 \times 0-0426 = 231-51$
3-75	$6-42 + 6-42 + 12 = 21-84$	$\frac{20-5 + 12}{2} \times 4-75 = 77-18$	3-10	71-01	0-0430	$77-18 \times 71-01 \times 0-0430 = 235-66$
4-80	$6-47 + 6-47 + 12 = 24-94$	$\frac{20-6 + 12}{2} \times 4-8 = 78-24$	3-12	71-14	0-0433	$78-24 \times 71-14 \times 0-0433 = 241-00$
4-90	$6-61 + 6-61 + 12 = 25-22$	$\frac{20-8 + 12}{2} \times 4-9 = 80-36$	3-18	71-53	0-0437	$80-36 \times 71-51 \times 0-0437 = 251-19$
5-00	$6-75 + 6-75 + 12 = 25-5$	$\frac{21 + 12}{2} \times 5-0 = 82-50$	3-23	71-86	0-0440	$82-50 \times 71-86 \times 0-0440 = 260-85$
5-40	$7-29 + 7-29 + 12 = 26-58$	$\frac{21-72 + 12}{2} \times 5-4 = 91-44$	3-42	72-50	0-0450	$91-44 \times 72-5 \times 0-045 = 297-31$
5-70	$8 + 8 + 12 = 28$	$\frac{23-25 + 12}{2} \times 5-7 = 100-46$	3-59	73-96	0-0461	$100-46 \times 73-96 \times 0-0461 = 314-75$

Statement showing the Calculations and Discharge of Left Channel.

Depth of water in channel	Perimeter	Area in sq. ft.	$r = \frac{A}{P}$	C	$S = \frac{R^2}{10000}$	Discharge per 1" in cft.
2-10	$2-98 + 2-98 + 12 = 17-96$	$\frac{16-20 + 12}{2} \times 2-1 = 29-61$	1-65	57-93	0-031	$29-61 \times 57-93 \times 0-031 = 53-17$
2-20	$3-12 + 3-12 + 12 = 18-24$	$\frac{16-40 + 12}{2} \times 2-2 = 31-24$	1-71	58-69	0-032	$31-24 \times 58-69 \times 0-032 = 58-67$
2-30	$3-26 + 3-26 + 12 = 18-52$	$\frac{16-60 + 12}{2} \times 2-30 = 32-89$	1-78	59-53	0-0327	$32-89 \times 59-53 \times 0-0327 = 65-02$
2-50	$3-54 + 3-54 + 12 = 19-08$	$\frac{17-0 + 12}{2} \times 2-50 = 36-25$	1-90	60-87	0-0337	$36-25 \times 60-87 \times 0-0337 = 74-36$
2-80	$3-97 + 3-97 + 12 = 19-94$	$\frac{17-5 + 12}{2} \times 2-80 = 41-30$	2-07	62-69	0-0352	$41-30 \times 62-67 \times 0-0352 = 91-10$
2-90	$4-11 + 4-11 + 12 = 20-22$	$\frac{17-67 + 12}{2} \times 2-90 = 43-03$	2-13	63-16	0-0356	$43-03 \times 63-16 \times 0-0356 = 95-87$
3-00	$4-25 + 4-25 + 12 = 20-50$	$\frac{17-84 + 12}{2} \times 3-0 = 44-76$	2-18	63-76	0-0362	$44-76 \times 63-76 \times 0-0362 = 103-31$
3-20	$4-53 + 4-53 + 12 = 21-06$	$\frac{18-08 + 12}{2} \times 3-2 = 48-12$	2-28	64-70	0-0370	$48-12 \times 64-7 \times 0-0370 = 115-19$
3-40	$4-82 + 4-82 + 12 = 21-64$	$\frac{18-32 + 12}{2} \times 3-4 = 51-51$	2-38	65-57	0-0378	$51-54 \times 65-57 \times 0-0378 = 127-74$
3-50	$4-96 + 4-96 + 12 = 21-92$	$\frac{18-44 + 12}{2} \times 3-5 = 53-27$	2-43	66-01	0-0382	$53-27 \times 66-01 \times 0-0382 = 134-82$
3-70	$5-21 + 5-21 + 12 = 22-42$	$\frac{19-5 + 12}{2} \times 3-7 = 57-62$	2-57	67-17	0-0392	$57-62 \times 67-17 \times 0-0392 = 151-71$
3-80	$5-35 + 5-35 + 12 = 22-70$	$\frac{19-47 + 12}{2} \times 3-8 = 59-79$	2-63	67-64	0-0397	$59-79 \times 67-64 \times 0-0397 = 160-55$
3-90	$5-5 + 5-5 + 12 = 23-0$	$\frac{19-74 + 12}{2} \times 3-9 = 61-89$	2-69	68-11	0-0402	$61-89 \times 68-11 \times 0-0402 = 169-45$
4-00	$5-66 + 5-66 + 12 = 23-32$	$\frac{20-12 + 12}{2} \times 4-0 = 64-00$	2-74	68-5	0-0405	$64-00 \times 68-5 \times 0-0405 = 177-55$
4-10	$5-8 + 5-8 + 12 = 23-60$	$\frac{20-2 + 12}{2} \times 4-10 = 66-01$	2-80	68-96	0-0409	$66-01 \times 68-96 \times 0-0409 = 186-17$
4-20	$5-94 + 5-94 + 12 = 23-88$	$\frac{20-4 + 12}{2} \times 4-20 = 68-01$	2-85	69-29	0-0413	$68-01 \times 69-29 \times 0-0413 = 194-7$
4-25	$6-01 + 6-01 + 12 = 24-02$	$\frac{20-5 + 12}{2} \times 4-25 = 69-06$	2-87	69-44	0-0415	$69-06 \times 69-44 \times 0-0415 = 199-71$
4-30	$6-08 + 6-08 + 12 = 24-16$	$\frac{20-6 + 12}{2} \times 4-3 = 70-09$	2-90	69-65	0-0417	$70-09 \times 69-65 \times 0-0417 = 203-57$
4-40	$6-22 + 6-22 + 12 = 24-44$	$\frac{20-8 + 12}{2} \times 4-4 = 72-16$	2-95	70-00	0-0421	$72-16 \times 70-00 \times 0-0421 = 212-65$
4-50	$6-36 + 6-36 + 12 = 24-72$	$\frac{21 + 12}{2} \times 4-5 = 74-25$	3-00	70-36	0-0424	$74-25 \times 70-34 \times 0-0430 = 221-50$
4-60	$6-5 + 6-5 + 12 = 25-0$	$\frac{21-10 + 12}{2} \times 4-6 = 76-13$	3-04	70-62	0-0427	$76-13 \times 70-62 \times 0-0427 = 229-56$
4-70	$6-64 + 6-64 + 12 = 25-28$	$\frac{21-3 + 12}{2} \times 4-7 = 78-25$	3-09	70-91	0-0430	$78-25 \times 70-96 \times 0-0424 = 238-69$
4-75	$6-71 + 6-71 + 12 = 25-42$	$\frac{21-5 + 12}{2} \times 4-75 = 79-56$	3-13	71-21	0-0433	$79-56 \times 71-21 \times 0-0433 = 245-31$
4-80	$6-78 + 6-78 + 12 = 25-56$	$\frac{21-6 + 12}{2} \times 4-8 = 80-64$	3-15	71-34	0-0435	$80-64 \times 71-34 \times 0-0435 = 250-24$
4-90	$6-92 + 6-92 + 12 = 25-84$	$\frac{21-8 + 12}{2} \times 4-9 = 82-82$	3-20	71-66	0-0438	$82-82 \times 71-66 \times 0-0438 = 259-94$
5-00	$7-06 + 7-06 + 12 = 26-12$	$\frac{22 + 12}{2} \times 5-0 = 85-00$	3-25	71-99	0-0440	$85-00 \times 71-99 \times 0-0440 = 269-21$
5-10	$7-61 + 7-61 + 12 = 27-28$	$\frac{22-8 + 12}{2} \times 5-1 = 90-96$	3-44	72-50	0-0450	$90-96 \times 72-50 \times 0-0454 = 306-54$
5-70	$8-45 + 8-45 + 12 = 28-90$	$\frac{24-5 + 12}{2} \times 5-7 = 104-02$	3-60	74-02	0-0465	$104-02 \times 74-02 \times 0-0465 = 358-02$

STATEMENT D.

Statement showing the average length and depth taken for calculation over the Main Anicut.

Actual depth of water above anicut	Average depth taken for calculation	Average length taken for calculation	Remarks
05	05	800	Above 150 up to 1'00 deduct 15 in height to get the proper discharge.
10	10	800	
15	15	800	
20	20	1500	
25	25	1700	
30	30	1700	
35	35	1900	
40	40	1900	
45	45	1900	
50	50	2137	

CALCULATION FOR REFERENCE.

DATED 28TH FEBRUARY 1911.

Gauge Readings.

Sivasamudram Anicut	...	...	30
Kollegal Anicut	...	...	-2'08
Head of S. S.	...	...	7'20
Channels	...	...	4'92

Main Anicut.

V. Length 1700 and A. V. Depth 20 as per statement D, attached in accompaniment
 $= 19'16 \times 1700$
 32572'00

Kollegal Extension.

Kollegal Anicut R. L. is	...	...	1002'42
Gauge is	...	...	-2'08

So the water level in K. A. is ... 1000'34
 $\therefore$ The L. and B in Kollegal Extension when water level in K. A. is 1000'34
 Length 42 Depth 14
 as per statement B.

So the discharge in K. A. is ... $11'38 \times 42$
 2276
 4552
 477'96 or 478

Channel discharges as per statement C attached.

R. C. = 13990
 L. C. = 14551

28541. Total

So the total discharge for that day is as below:—

Kollegal Anicut	...	Nil
Do Extension	...	478
Main Anicut	...	32572
Rt. and Lt. channels	...	28541
So total per minute	...	61591
Total per Second	...	61591 = 1026 60

31ST MARCH 1912.

Only channel discharges.

Channels depth 4'70

30TH JUNE 1914.

Gauge Reading.

Sivasamudram	...	...	2'30
Kollegal Anicut—	...	...	1'00
Front	...	...	...
Rear	...	...	...
Scouring Sluices—	...	...	9'20
Head of Scouring Sluice	...	...	18'00
Height of Scouring Sluice opened	...	...	1'00

Main Anicut.

Breach of Sand Bag Dam—

Length 2000. Depth 2'30

So discharge = $744'7 \times 2000$

1489400 cft. per minute.

Kollegal Extension—

Reduced level of Kollegal Anicut	...	...	1002'42
Gauge of do	...	...	1'00

So water-level in do ... 1003'42

$\therefore$ The L. D. of extension when water-level is 1003'42 = 636 and 202 as per statement B.
 So discharge is $= 614'3 \times 636$ Kollegal Anicut Gauge is 1'00. Length 306
 So discharge = $214'1 \times 306$

36858	12846
18429	6423
36858	65514'6
390694'8	cft. per minute

Irrigation Sluice in K. A.
 Water level in K. A. is ... 1003'42
 Reduced level of I. S. is ... 996'66
 So W. L. in I. S. ... 6'76
 To get the effective head Deduct
 half of vent way ... 1'50
 So the effective head in I. S. = 5'26
 So the discharge in I. S. = $5A\sqrt{h} = 5A\sqrt{5'26}$
 Scouring Sluice—
 Head of Scouring Sluice 9'20
 Vents opened is 1'00. So to get the effective head. Deduct $\frac{1}{2}$ of vent way opened = 50. So
 water head = 8'70
 So discharge per second is $5A\sqrt{h} = 5 \times 18 \sqrt{8'70} = 5 \times 18 \times 2'95 = 2'95 \times 90$
 $265'50$
 Area opened is 18.
 So discharge per minute = $265'50 \times 60 = 15950$
 Now total discharge for this day in the river is as below :—
 K. A. = 65514
 K. A. E. = 390694
 I. S. = 6180
 M. A. = 1489400
 S. S. = 15930
 R. c. = 16230
 L. c. = 16736
 As per statement C attached. Depth in channels 5'10.
 Total discharge per minute 2000684
 Do per second $2000'684 \div 60 = 33345$.

27TH JUNE 1915.

Gauge Readings.

M. A. R. G. ...	2'40	
" L. G. ...	2'40	
Head of Scouring Sluice ...	11'90	
Rear ...	5'00	
Area opened ...	90'00	
K. A. Front ...	2'50	
Rear ...	1'90	
Main Anicut. L. 2089		Return in M. A.
D. 2'40		Length 145 Depth = 1'70
= $795'65 \times 2089$		= $474'5 \times 145$
716085		23725
636420		18980
1529130		4745
1662102'85		68802'5
Kollegal Anicut h = 306. D = 2'50		Kollegal Extension.
= $845'3 \times 306$		R. L. of K. A. 1002'42
50718		Gauge of do 2'50
25359		W. L. of do 1004'92
258661'8		

Irrigation Sluice—
 K. A. Front Gauge is ... 2'50
 Do Rear is ... 1'90
 So the effective head is ... 6'0
 So length and depth of K. A. E. when W. L. is
 1004'92 is 808'1 & 2'92 as per statement attached
 So discharge = $1067'6 \times 808'1$
 10676
 85408
 454080
 $862727'56$

Discharge $5A\sqrt{h} = 5 \times 9 \sqrt{60} = 45 \times 775 = 34'87$ per second
 $\therefore$ Per minute = $34'87 \times 60 = 2092'20$

Scouring Sluice—
 F. Head of S. S. = 11'90
 Rear of S. S. = 5'00
 So the height of
 water of S. S. is = 6'90
 Area opened ... 90
 Discharge = $5A\sqrt{h}$
 $= 450 \times 2'62$
 900
 2700
 900
 per second 1179×60
 per minute 70740
 Channels
 5'70
 Discharge
 R. c. = 20685
 L. c. = 21481
 42196 as
 per statement C
 attached.
 So total Discharge is this day
 K. A. 258661
 K. A. E. 862727
 I. S. 2092
 M. A. 1662112
 Return = 68802
 S. S. 70740
 Rt. and Lt. channel 42166
 Discharge per minute $2967300 \div 60$
 Do per second 49455

Statement of Power generated at Sivassamudram during the years 1910-11 to 1914-15.

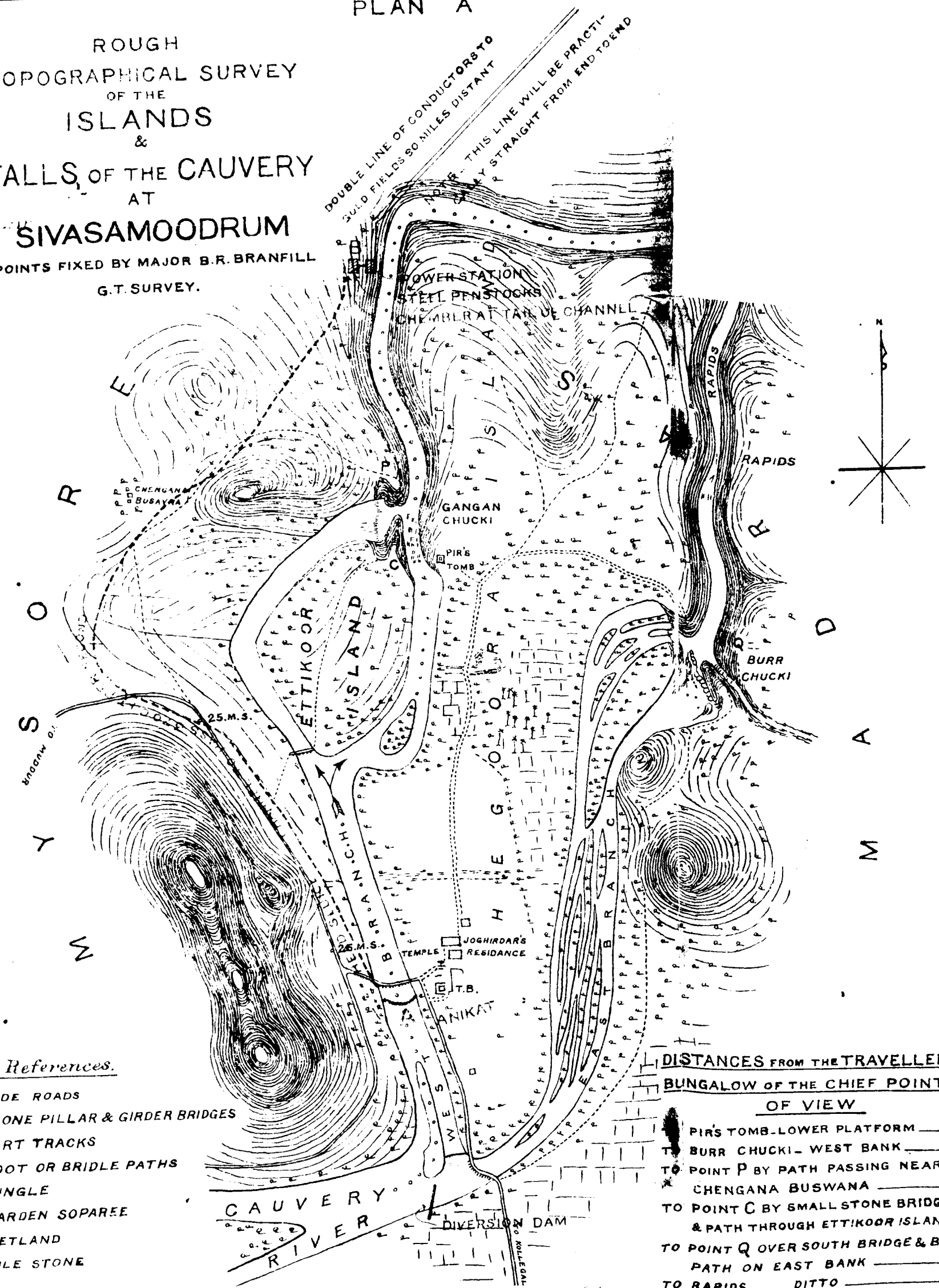
Months	1910-11	1911-12	1912-13	1913-14	1914-15			Remarks
	K. W. Hrs.	K. W. Hrs.	K. W. Hrs.	K. W. Hrs.	From the 1st 3 installa- tions K. W. Hrs.	From the IV installa- tion K. W. Hrs.	Total K. W. Hrs.	
1	2	3	4	5	6	7	8	9
July	6,286,008	6,286,490	6,618,890	6,984,580	6,773,987	527,273	7,301,210	
August	6,375,918	6,577,819	6,586,220	6,963,200	6,726,827	527,273	7,254,100	
September	6,179,510	6,469,940	6,481,750	6,751,125	6,318,270	728,500	7,041,770	
October	6,316,700	6,683,950	6,589,620	7,177,500	6,625,372	763,713	7,389,085	
November	6,102,490	6,592,190	6,475,090	7,069,920	6,618,083	739,077	7,357,110	
December	6,450,500	6,791,680	6,845,478	7,298,800	6,843,647	763,713	7,607,360	
January	6,442,898	6,602,390	6,929,268	7,329,380	6,473,016	763,713	7,236,729	
February	5,790,584	6,302,112	6,207,661	6,401,115	5,917,818	689,805	6,607,623	
March	6,427,890	6,610,840	6,801,875	6,761,925	6,685,997	904,707	7,590,704	
April	6,054,610	6,829,920	6,653,644	3,580,077	6,446,764	878,191	7,324,955	
May	6,292,290	6,476,921	6,876,689	3,550,085	5,999,779	896,920	6,896,699	
June	6,117,590	6,308,090	6,643,983	4,509,100	5,881,285	861,985	6,743,270	
Total	74,776,308	77,510,502	79,709,668	74,326,757	77,310,745	9,089,870	86,390,615	
Equivalent in H. P.	11442'5	11828'492	12197'422	11373'713	11690'392	1883'306	13213'64	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Amount due at the rate of Rs. 5 per H. P. per an- num on half the power generated.	28,606 4 0	29,571 3 8	30,493 8 10	28,434 4 6	29,575 13 3	3,458 4 4	33,084 1 7	

An abstract showing how the yearly Electrical Horse Power on which payments
 due to Madras have been computed has been arrived at.

Year	Equivalent H. P. hours	Equivalent H. P.	Assessable H. P.	Amount payable at Rs. 5 per H. P.
				Rs. a. p.
1910-11	$74,776,308 \times 1000$	$100,236,338 = 11442'5$	$11442'5 = 5721'25$	$5721'25 \times 5 = 28,606 4 0$
	746	365×24	2	
1911-12	$77,510,502 \times 1000$	$103,901,477 = 11528'49$	$11528'492 = 5914'246$	$5914'246 \times 5 = 29,571 3 8$
	746	366×24	2	
1912-13	$79,709,669 \times 1000$	$106,849,420 = 12197'422$	$12197'422 = 6098'711$	$6098'711 \times 5 = 30,493 8 10$
	746	365×24	2	
1913-14	$74,326,757 \times 1000$	$99,638,723 = 11373'713$	$11373'713 = 5686'856$	$5686'856 \times 5 = 28,434 4 6$
	746	365×24	2	
1914-15	$86,390,615 \times 1000$	$115,751,494 = 13213'64$	$13213'64 = 6606'82$	$6606'82 \times 5 = 33,084 1 7$
	746	365×24	2	

ROUGH
TOPOGRAPHICAL SURVEY
OF THE
ISLANDS
&
FALLS OF THE CAUVERY
AT
SIVASAMOODRUM
POINTS FIXED BY MAJOR B.R. BRANFILL
G.T. SURVEY.

PLAN A



References.

- MADE ROADS
- STONE PILLAR & GIRDER BRIDGES
- CART TRACKS
- FOOT OR BRIDLE PATHS
- JUNGLE
- GARDEN SOPAREE
- WETLAND
- M.S. MILE STONE

DISTANCES FROM THE TRAVELLERS
BUNGALOW OF THE CHIEF POINTS
OF VIEW MILES

- PIRS TOMB-LOWER PLATFORM — 1 1/4
- TO BURR CHUCKI- WEST BANK — 2 1/2
- TO POINT P BY PATH PASSING NEAR CHENGANA BUSWANA — 3 1/4
- TO POINT C BY SMALL STONE BRIDGE & PATH THROUGH ETTIKOOR ISLAND — 2 1/4
- TO POINT Q OVER SOUTH BRIDGE & BY PATH ON EAST BANK — 3 1/2
- TO RAPIDS — DITTO — 4
- TO JUNCTION POINT THROUGH HE — 3 1/2
- GOORA ISLAND — 3 1/2

FURLONGS 0 1 2 3 4 5 6 7 8 9 10 1 MILE

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