

Proceedings of the Madras Government, Revenue Department,
24th October 1867.

No. 459. Read the following Proceedings of the Madras Government in the
Public Works Department:—

Communicating to the Superintending Engineers,
for their information and guidance, letter from
Government of India offering observation on
the project for the extension of irrigation from
the Pennair anicut, in Nellore District. } (Here enter 21st October 1867, No. 3,264.)

No. 460. ORDER THEREON, 24th October 1867, No. 2,496.

Irrigation, No. 12.

Communicated to the Revenue Board.

(True Extract.)

(Signed) F. H. WILKINSON,
Acting Under Secretary to Government.

To the Board of Revenue, with Proceedings Public Works Department, No. 3,264.

Exd. S. T. Augustin.

Read the following papers:—

No. 437. From the Secretary to the Government of India, Public Works Department, (Irrigation,) to the Secretary to the Government of Madras, in the Public Works Department, dated Simla, 18th September 1867, No. 147 I.

1. I am directed to acknowledge the receipt of your communications, Nos. 1,845, dated 20th June, and 2,359, dated 5th August last, submitting a project for the extension of irrigation from the Pennair anicut, in the Nellore District, at an estimated cost of 4,12,100 Rupees.

2. This being the first project of importance received from Madras since the Government has declared its readiness to allow of approved works of irrigation being carried out with money obtained by loan, the Governor General in Council directs me to take the occasion of making a few remarks as to the manner in which projects for works so to be constructed should be sent up for sanction, and as to the views which the Government of India adopts in dealing with those projects.

3. The Government of Madras will be furnished, in a few days, with a full statement of the measures which the Government of India considers it necessary to take in proceeding to give effect to the determination to supply funds by loan for Irrigation Works. For the purposes of the present discussion it will suffice to say that, among the conditions which the Secretary of State has prescribed for determining the character of works which may be assisted by loans, are the following:—That the work should be shown to be satisfactory in an engineering point of view; that its estimated cost should be reasonable; and that there is a fair prospect of its being properly remunerative. Further, the responsibility for seeing that these conditions are complied with, is, by the same high authority, placed on the Governor General in Council.

4. It will be apparent that the Government of India can only approach the examination of the technical and fiscal character of projects sent up for its approval, on which it is bound by its duty to give a judgment, through the medium of its professional advisers. It is also plain that in such matters the only effectual means a Government has by which to protect itself, is to place a full personal responsibility on the officers on whose advice works of importance are undertaken.

5. These considerations have led to the adoption by the Government of India of the practice of requiring the Secretary in this department, or some other superior officer, to review, in a complete manner, every project of importance submitted for sanction, and to record distinctly his conclusions regarding it. In

like manner the Government of India has, from time to time, prescribed,* to local Governments and Administrations

* See more particularly Circular No. 123 of 1862.

the necessity for adopting a like course before accepting any project of such magnitude as to require the approval of the Government of India. In the Provinces more immediately under the Government of India this practice has been generally adopted, but the Government of Madras does not seem to appreciate what the Governor General in Council considers an essential security for the due scrutiny of large projects, and for fixing personal responsibility on the professional advisers of the Government.

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6. With reference to Irrigation Works, the newly appointed Inspector General of Irrigation Works, in accordance with the views expressed regarding his functions in Public Works Resolution No. 60, dated 2nd July 1867, will henceforth, as a rule, be required to report on all new projects. He will be held fully responsible to the Government of India for the character of every work which he recommends for their sanction. He must satisfy himself by careful examination into the details of the projects put forward, that the essential requirements before-mentioned are fully met. He will of course receive with proper attention the opinions of the local Engineers by whom the projects are prepared and approved, but such opinions cannot be prescribed to him as authoritative, even if they have been accepted by the local Government. The Government of India cannot assent to the position that in dealing with works to be carried out by borrowed money, it will suffice to be satisfied that there is no very obvious objection to what is proposed by the local Officers, with the approval of the local Governments. The grounds for final sanction in these cases must be positive, and not negative only.

7. There must be complete direct proof in the designs, or in the reports submitting them, that the project is what it is represented to be, in all respects, and the data furnished must have these characteristics, or the Inspector General will be justified in declining to support any scheme, whatever may otherwise be its probable merits.

8. The Governor General in Council believes that in fact, there should be no sort of difficulty in sending up projects in a form which shall meet these demands. It will always be the wish of the Government of India to give its assent to proposals for the extension of irrigation, and it may fairly be presumed that such also will be the desire of the Inspector General. Further, it will be the obvious duty of the Secretary in the Public Works Department to indicate, and of the Governor General in Council to check, any disposition which may appear on the part of the Inspector General to take captious objections, or to require detailed information on points of minor importance, and should occasion require it the Government of India will not hesitate to give its sanction to undertakings on its own judgment alone. The discretion of the Government of India is of course in no degree limited by the advice of the Inspector General or of its professional Secretary, though, as a rule, that advice may be considered sound, and therefore be adopted by the Government.

9. I am, therefore, again to request that the Government of Madras may, for the future, require their Chief Engineer and Secretary in the Public Works Department, to record his opinions in due detail on all the more important elements of any irrigation project sent up for the sanction of the Government of India, so that a complete personal responsibility may be placed on him, for all advice he gives in connexion with any project, in an open and indisputable manner, to which reference may at any time be made. If his opinion is adverse it should be forthcoming, even if it be set aside by the Government. The report of the Chief Engineer on every such project should contain a review of its engineering features, as well as an examination of the probable profits to be derived from it. The necessity for preparing such a report will commonly ensure the submission of the project to the Government of India in a form which shall obviate the necessity

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of any further inquiry on any point. For ready reference a copy of Circular No. 123 of 1862 is annexed.

10. The Government of India has already intimated its readiness to strengthen the Public Works Department at Madras by the appointment of a Special Chief Engineer for Irrigation Works, who shall also become Joint Secretary, in the manner which already obtains under the Governments of Bombay, Bengal, the North-Western Provinces, and the Punjab. The adoption of this arrangement should entirely meet all difficulties arising either from the extension of the Irrigation Works, which the Governor General in Council trusts may soon form a marked feature in the operations of the Public Works Department in all parts of India, or from any increased labor which might otherwise have been put on the head of the Madras Public Works Department, by the requirements which it has been found necessary again to make, and due compliance with which the Government of India must, under present circumstances, especially request for the future.

11. Turning now to the project submitted for present consideration, I am directed to observe that, on a reference to the Inspector General of Irrigation Works, he has stated his opinion that although the designs have obviously been prepared with much care, and the project may very possibly be quite unexceptionable, yet the data on which it is based are so imperfectly explained, that he does not accept the responsibility of recommending it in its present position. On a careful examination of the grounds assigned by Colonel Strachey, the Governor General in Council, with much regret, feels constrained to withhold his sanction to the project till the doubtful points are cleared up. The following remarks will indicate what these are:—

12. The general nature of this project is simple. It is to draw off from the Pennair ancient a portion of the surplus water which now runs off to waste, and to store it in a reservoir which is to be enlarged for the purpose. The existing main supply channel is increased in capacity to admit of the additional volume of water passing down it.

13. The account of the project by the Superintending Engineer, first sent up, is little more than a statement of what is proposed, in which it is assumed that the main features are suitable, instead of giving a proper description of the projected works and explaining the precise grounds on which the details have been arranged. The description of the project by the Executive Engineer who drew it out, was not included among the papers first forwarded. It was asked for, and it throws a little more light on the scheme, but it also is much more a statement of conclusions come to, than of the grounds on which they were arrived at.

14. Taking a general view of the whole subject of the extension of irrigation from the Pennair ancient, the first question which naturally suggests itself, is, does this project deal with the matter in a complete manner, and in the best manner possible? Does this project apply the *whole* of the available water supply now in excess of present wants? If not, why should not the whole be dealt with at once?

15. As there seems to be an excessive fall in the irrigating channels, it is likely that if there be more water at command the proposed new channel could be carried further to the west and made to command more ground.

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16. These questions have no light thrown on them by the papers before the Government at this time, but it is necessary to ask them.

17. It is said, incidentally, that it is not likely that these canals should ever be used for navigation. No reason is assigned for this, and in the absence of any reason, the expediency of constructing the works so as to prevent the possibility of navigation may be questioned. Considering that the canal projected would have a greater or less volume of water in it for fully five months in the year, the value of navigation could not well be disputed.

18. The project is carefully prepared in its details, and no doubt the Engineer had his reasons for all he proposes. It is unfortunate that he should have given so few of them in his report.

19. The first thing proposed is to increase the head sluices on the south flank of the anicut, and to enlarge the main irrigating channel, so as to admit of a discharge of 255,900 cubic yards per hour, instead of 145,000 cubic yards, the original volume. Why this quantity is fixed on in preference to any other is not alluded to. How the exact nature of the alteration to the head sluices, and the addition to them, have been determined is not referred to.

20. Of the increased volume, amounting to 110,900 cubic yards per hour, 6,373 cubic yards is given to the first branch canal, Jaffer Sahib's, and 8,772 cubic yards to the second, or Kistnapatam canal. Why these particular quantities are fixed is not referred to. Nor is it said whether the water is wanted in those canals, or that it will extend irrigation, or that the canals, as now existing, can carry, in the first case, an increase of one-eighth, and in the second of one-third, as proposed. Nor is it shown how, without increased head or depth, the volume of these branch canals can be increased.

21. But it is further to be asked whether the river will really supply this additional quantity of water. On this essential point not a word is said. There is nothing to show what is the discharge of the river when the water is flush with the crest of the anicut, nor with any greater or less depth. It is shown that on an average of five years the water has risen to the crest of the anicut, or above it, for sixty-one days in the year between May and December. But this of course refers to the anicut as it is, and is based on the existing size of the irrigating channels. If these are enlarged considerably as proposed, the depth of water on the anicut will, of necessity, be reduced in a corresponding degree. Perhaps in calculating the discharge of the channels this has been allowed for, but no reference is made to the point.

22. Again, it not being stated what is the volume discharged when the river is flush with the anicut crest, it is not possible to say whether, with this volume, there is any excess of water not required for the existing irrigation. The whole of the calculations essentially depend on these points, regarding which nothing is said.

23. Following the figures given, it appears that the existing Survapully canal carries a volume of 69,119 cubic yards per hour, and that the enlarged channel will carry 164,875 cubic yards, or an addition of 95,756 cubic yards. This probably means the absolute maximum volume, with a maximum fresh in the river, which seems to be about five feet on the anicut. The volume, with the water

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level with the crest, is stated to be (for the enlarged channel) 131,125 cubic yards, or an increase of 62,000 cubic yards over the old supply.

24. This increased volume, it is said, will be got by increased depth as well as breadth. It may be supposed that the calculations of discharge are properly made, but none of them are given.

25. Reference may be made to the annexed extracts from the Inspector General's Report, paragraphs 17 to 21, as to the capacity of the reservoir and the probable area of irrigation from it. On the whole, the supply said to be available would seem to be sufficient to irrigate 20,000 acres below the tank, and adding the other 10,000 acres, otherwise provided for, or assumed to be provided for rather, and the 12,000 acres from the other calculation, we have 42,000 acres as the whole area that could be watered. But this, it must be noticed, is not all gain, for we have already a volume of a little over 69,000 cubic yards per hour in the old channel, which at the rate of $2\frac{1}{4}$ yards per acre, would give about 30,000 acres as the present irrigated area. There is nothing to show, however, what the *actual* area is which is irrigated from the channel as it now exists. There is, it is true, a return showing the whole area within reach of these new works, from which it is seen that 16,000 acres are now irrigated from some source or other in this vicinity. If this be taken as the existing irrigated area due to the 69,000 cubic yards present supply (probable maximum and not mean), instead of 30,000 acres as above reckoned, the estimated increase of area irrigated will be 26,000 acres, which is nearly what the Executive Engineer reckons.

26. These conclusions, however, are of necessity exceedingly speculative, and they only show that there is a plausible case to be made out in favor of the project on the data submitted. If 25,000 acres be accepted as the increased irrigated area, it being stated that 47,000 acres are at present available for irrigation, and if the water rate be taken at 4 Rupees per acre, the gross income would be 1,00,000 Rupees yearly. From this must be deducted, however, for maintenance, &c., say 12 Annas per acre, or 18,000 Rupees, leaving 82,000 Rupees net on an estimated outlay of 4,12,000 Rupees, being about 20 per-cent. Considering that this result is obtained by help of the anicut, the cost of which, and of the old channel and other works still utilized, are not reckoned in the capital on which the profit is calculated, it seems no more than is reasonable to expect. It would have been more satisfactory if the whole cost of the entire system of works, with existing and expected income, had been also stated.

27. It may be remarked that no credit is taken for the increase of supply given to the two upper branch canals. Also that the estimate includes head sluices to these two canals, which works are not really parts of the tank supply project. This would somewhat reduce the cost of the separate scheme for the tank supply; but as the accounts of the income of the whole of the works will be kept together, it is not necessary to go into such details, though here again the propriety of taking a general view of the proceeds of the whole system of works is indicated.

28. As to the details of the works, Colonel Strachey has made certain comments which will be found in paragraphs 26 to 34 of his Report, annexed, to which attention is also requested.

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29. There is one other point to which I am to refer in relation to the general system of irrigation in the Pennine delta. It is, whether there is not generally considerable waste of land from the number of small reservoirs, and whether savings could not be got by raising the water level and capacity of a few and suppressing the rest, in the manner proposed for some of the minor ones below the large reservoir projected.

39. In conclusion, the Governor General in Council declares that the Madras Government has given authority to execute the works proposed, with a sanction signed in the Budget of this year, in anticipation of the sanction of the Government of India. This cannot be approved. If proposals are sent forward to the Government of India under the assumed condition that they can be sanctioned, and on such an assumption if they be begun without Government authority, it is plain that their submission becomes an idle form. If the desire of the Government of Madras is only to permit the preparation of materials for the works the Government of India has no objection to such an arrangement, within the limits of Budget sanction.

Extracts from a Note by the Inspector General of Hospitals, dated the 23rd May 1877.

Paragraph 17. It is said that the supply of water coming above the improved canal will be available for 1,000 acres on the main canal above the lock, and for 100 acres on a subsidiary channel called the Warburg, and the rest for 10,000 acres below the lock. A flow of 2,000 cubic yards per hour per acre the 1,000 acres will require 9,000 cubic yards, and the 6,000 acres 13,700 cubic yards, leaving 108,125 cubic yards per hour for the rest. This is a fair reference to the volume with the river level with ancient coast. But, for the six days of low water, the quantity which there will be a sufficient supply to raise to the crest of the canal will be less, say about 9-10 foot above the crest, and the supply will be more than the quantity above given. If we add 1-1/2 to the volume it will allow say 12,000 cubic yards per hour for the 6,000 acres for the six days available for the lock, and the remainder to be supplied from a river which we may call in round numbers 20,000 acres.

18. The 70,000 acres will require at 2½ cubic yards, 45,000 cubic yards per hour. Adding the sixty-one days there for after supplying this quantity there will remain 120,000 cubic yards less 45,000 cubic yards, equal 75,000 yards per hour available to be stored in the reservoir.

19. In order to estimate the probable working of the scheme proposed, I have calculated from the data given that the total amount of the six years' lives of excess fishing will be as follows:—

			May.	June.	July	August	Sept.	October	Nov.	Dec.
Days	...	..	1	3	4	9	15	13	11	8

I shall then assume that the irrigation begins in August and lasts till the end of December. We, therefore, have five days' full supply available before the 1st August, and afterwards there will be for the several months.

August,	9 days excess, and	22 days deficient
September,	15 "	15 "
October,	13 "	18 "
November,	11 "	19 "
December,	8 "	23 "
Total...	56 ", excess,	97 "

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This will give the following results:—

will give the following results:—	Cubic yards.
To 1st August 5 days full supply at 120,000 yards per hour, or 2,880,000 yards per day	14,400,000
Add 9 days in August at 75,000 yards per hour, or 1,800,000 per day... ..	16,200,000
	<hr/> 30,600,000
Deduct 22 days at 45,000 yards per hour, or 1,080,000 per day...	23,760,000
	<hr/> 6,840,000
Tank balance, 1st September...	27,000,000
Add 15 days as above September	<hr/> 33,840,000
	16,200,000
Deduct 15 days	<hr/> 17,640,000
Tank balance, 1st October...	23,400,000
Add 13 days as above October	<hr/> 41,040,000
	19,440,000
Deduct 18 days	<hr/> 21,600,000
Tank balance, 1st November...	19,800,000
Add 11 days for November... ..	<hr/> 41,400,000
	20,520,000
Deduct 19 days	<hr/> 20,880,000
Tank balance, 1st December...	14,400,000
Add 8 days at 1,800,000 yards per day for December	<hr/> 35,280,000
	24,840,000
Deduct 23 days at 1,080,000 yards	<hr/> 10,410,000
Balance, 1st January...	

Showing a residue of about 10 millions cubic yards, which would suffice to cover waste from evaporation, &c.

20. It will be seen from these figures that the balance at the end of no month exceeds about 20 millions cubic yards, and that the greatest accumulation does not seem likely ever to go to 40 millions cubic yards. The actual capacity given is stated to be 52,600,000 cubic yards, though here too the calculation is not sent forward, nor the grounds for determining the capacity assigned to the enlarged tank.

21. It must be remarked that the above calculation of mine assumes, in the absence of all needful data, that the supply when the water falls below the crest of the anicut is reduced to nothing, which obviously is not the case. If the supply with the water level with the crest is 131,125 cubic yards per hour, it may be fair to regard the average supply when the water is below the crest at half of this quantity, or say 65,000 cubic yards. This supply would be available for about ninety days, and after deducting the quantity required for the 10,000 acres separately provided for, there would be 42,500 cubic yards left, which might be estimated as sufficient for 12,000 acres more.

26. The slope of the canal bed seems to be needlessly irregular, which is objectionable. The velocity seems too high, being over 3 feet per second in some places so far as I can gather. The banks are protected, but the bottom will erode in all probability with such a current. The proposal to leave the water to run loose over the country on one side of the canal is very objectionable, and a suitable bank should be formed on both sides. The bank top in the upper part of the canal should, in my estimation, be made wider, at least 10 or 12 feet, so as to serve for a road. This should any how be done on one bank. The width given to the top of the banks is only 6 feet. I am

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aware that this has been the fashion in these Delta works, but from what I saw at the Col. I am satisfied that it is not enough. The extra width may be got by reducing the height a little, and need cause no extra expense worth speaking of.

27. The roads over the masonry works on the canal banks are in like manner all too narrow, and should, I think, be increased to 10 or 12 feet, so as to admit of carts crossing safely.

28. There is nothing to show the data on which the capacities of the various channels have been calculated. This applies to the whole of them. The Walluru canal seems too large if it is only to carry 13,700 cubic yards per hour.

29. The necessity for the iron aqueduct is not shown. Could not the land be irrigated from the left bank of the new canal? The piers for these works seem needless, being obstructing the waterway greatly.

30. It is presumed that proper consideration has been given to the waterway of the aqueduct under the canal near Kanupurtipadu. Such a point should have been noticed.

31. The reservoir slope pitching seems needlessly costly from the slope being too flat. It might quite safely be reduced to one base to one height, and the thickness at the corners needlessly great.

32. There is nothing to show what has determined the height to which the end tank is to be raised, or the capacity given to the tank, or the extent of the escape weir. There is nothing to show that the tail of the escape weir is secure.

33. No allusion is made to the possible condition of the supply channel when the level in the reservoir is low and a high fresh is admitted into the canal. The necessary result of this would be to increase the surface slope of the water in the canal, and therefore the velocity to what would probably be a dangerous amount, unless the soil is very firm. The point should be noticed. Possibly a masonry work may be needed at the end of the canal to regulate the surface slope.

34. In the Walluru channel the principle that has regulated the excavation within the canal is not apparent, and an economical arrangement of the balance of the canal and excavation does not seem to have been adopted.

*Public Works Department Proceedings, November 1867.
General.*

Imperfect manner of submitting Projects.

[No. 52.] Circular from Lieutenant-Colonel R. STRACHEY, R. E., Secretary to the Government of India, Public Works Department, to Local Governments and Administrations, dated 20th November 1867, No. 123.

1. The Government of India having frequent cause to complain of the imperfect manner in which projects for works are submitted for its sanction, requests that greater care may be paid to the subject in future.

2. Every such project should comprise, 1st, a Report on the object and nature of the work; 2nd, the Specification; 3rd, the Estimate; 4th, the Plans. Further, the opinion of the chief professional authority of the Local Government or Administration should be distinctly recorded as to the merits of the design in an engineering point of view, and the letter to the Government of India should give a concise general review of the whole scheme, with a statement of the grounds on which the Local Government or Administration desires to support the proposal.

3. It is chiefly to the first and last of these requirements that the Government of India now desires to direct attention. The necessity for a very full discussion and consideration of the merits of every project of such magnitude as to call for its submission to the Government of India will be obvious; and it is equally clear that, to ensure such a close and searching investigation,

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the simplest and best course to adopt is to insist on the Engineer who prepares any such design submitting it in the most complete form, and giving the most complete account of the basis on which every part of his project has been framed in respect to the various considerations that have guided him in questions of engineering details, of economy of construction, or of the utility or practical working of the project when carried out; as well as to require him to state the reasons for preferring one possible plan rather than another. Besides the points noticed above, the Engineer should also consider by what agency and in what time the work may best be carried into execution, points which very materially affect the practical question of whether any work should be undertaken or not, at any particular moment.

4. The necessity for a distinct record of the opinion of the chief professional Officer of the Public Works Department is equally plain. It is by no means sufficient that the Chief Engineer should imply approval by silence. His avowed participation, so far as he is prepared to accept it, in the responsibility attaching to the proposal, is requisite, alike for the security of the local Government and that of the Government of India. There will always be many points, of local or technical detail, which must be left to the judgment of the Engineers on the spot, and in such matters the Local and Supreme Governments must trust to the professional heads of the Department.

5. The submission of every project to the Government of India with such an explanation, and in such a form as shall at once make it intelligible in all its main features, both as an engineering work, and as a work of public utility, is also very important. A design may be in itself unexceptionable, and to all Officers fully acquainted with local considerations may be obviously so, and yet, from want of attention in the manner of its submission, may fail to command the approval of the Government of India. Where a reference is made to a distant authority it is quite essential that nothing should be left to be taken for granted. The Government of India is bound, in exercising its power of sanction, to satisfy itself that the projects to which it appropriates the public funds are good and satisfactory projects. Its judgment must be formed, not on the authority of those who submit the schemes, but on the ultimate merits of the schemes themselves, as they appear in the explanatory Reports and Estimates. Were any other course adopted, the function of the Government of India in such matters would be altogether illusory.

6. The Government of India desires that it may be understood that in addressing these instructions to local Governments and Administrations, it has no wish to interfere in any way with a complete legitimate freedom of action on the part of the local Officers, whether Engineers or others. On the contrary its intention is to lead to the reduction, as far as possible, of all ground for interference, and there is no more certain way of accomplishing this end, in respect to the matter in hand, than to see that all projects are submitted in a form that shall at once show beyond question that they have been thoroughly considered by the projectors, and that shall at once enable the Government of India to appreciate and weigh the whole of the grounds on which they have been put forward by the local authorities. The number of projects that call for sanction from the Government of India is now so small, and their importance on the other hand is so great, that any additional elaboration required to ensure complete attention to the points that have been adverted to in this Circular, will, it is believed, not be practically onerous; while it most assuredly will lead to great improvement in the project themselves, as well as to the cessation of much criticism, which at present is quite unavoidable on the part of the Government of India, and very distasteful to the local authorities.

No. 438. Circular from the Secretary to the Government of India.
(Here enter No. 91, dated 18th September 1867.)

No. 439. ORDER THEREON, 21st October 1867, No. 3,264.

IRRIGATION, No. 17.

1. Ordered that the foregoing letter from the Government of India, together with its enclosures, be communicated to the Superintending Engineers for their information and guidance in continuation of the Order of the 15th instant, No. 3,189.

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2. The Superintending Engineer of the 2nd Division will be requested to re-submit the project for the extension of irrigation from the Pennair anicut, accompanied with fuller information than is afforded in his letters of the 3rd May and 23rd July 1867, and with a proper description of the works proposed, and explanations of the precise grounds on which the details have been arranged. He will also be careful to notice in detail the various points to which allusion is made in paragraphs 14 to 29 of the letter above recorded, and in paragraphs 26 to 34 of the Memorandum by the Inspector General of Irrigation Works.

3. As in paragraphs 11 and 18 the Government of India express themselves satisfied with the careful way in which the project has been prepared, and in a subsequent paragraph give it as their opinion that the proposed works are likely to prove highly remunerative, the Government would be sorry to see the progress of operations abruptly suspended, and, pending a reply to the reference which will be made to the Government of India, they resolve to direct the works to be proceeded with.

4. In hereafter submitting plans and estimates for large irrigational works, the Governor in Council expects that, bearing in mind the remarks of the Government of India, the Superintending Engineers will be careful to furnish the fullest information on all matters connected therewith, and to send up the projects in such a manner as will enable this Government without further enquiry to arrive at a correct opinion of the works proposed in all their bearings, and permit of the schemes being submitted to the Government of India in a thoroughly complete and practical form, accompanied with precise and detailed explanations of the nature indicated in the papers above recorded. The preparation of projects in this detailed shape, and the collection of the information which is now required to be furnished with them, will involve considerable labor and occupy time, but as it is absolutely necessary that the orders of the Government of India should be closely followed, His Excellency in Council desires it to be distinctly understood that no project will be received which fails to meet the requirements of that Government in every particular.

5. Colonel Strachey's Memorandum will show the nature of some part of the information which the Government of India will look for in all projects submitted for their sanction, and each officer will see that it is furnished in the most copious detail.

6. It will be the duty of the Secretary in this Department thoroughly to scrutinize each project as it is received, and, in bringing it under the consideration of Government, to accompany it with such a full review of it by himself in all its details as is required by the Government of India, and as will assist this Government in forming a judgment of its character both in a professional and fiscal point of view.

7. In accordance with the views expressed by the Government of India, His Excellency in Council resolves to appoint Lieutenant Colonel J. C. Anderson, of the Royal Engineers, to be Chief Engineer for Irrigation Works and Joint Secretary to Government in the Public Works Department, with the rank of Chief Engineer of the second class, subject to the approval by Her Majesty's Government of the creation of the post, and as, under this arrangement, the duties of the Under

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Secretary will be considerably lightened, His Excellency directs that the staff salary of that appointment be fixed at Rupees 400 per mensem on its being vacated by the present incumbent and another officer selected for the duty.

(True Extract.)

Colonel, R. E.,

Secretary to Government.

To the Superintending Engineers.
To Captain Kennedy.
To the Revenue Department.
Controller of Public Works Accounts.

Exd. S. T. Augustin.

Peavine 1867. D. N. H.
No. of Good Ford 107
41. 2853.

Proceedings of the
I. H. D. Society—

89-3266

Oct 21st 1857
Received 222.71 1857.

Commence writing
to the Supg. Genl. for
their instructions and
send me letter from
Dept of Justice telling
where in law on the pro-
ject for the extension
of copyright have the
Deemee Council in
Yellow District.

2152496-24 Dec 72

With order

10319

Commercial to the
Leisure Board.

Sept. 16

14 Ques. 17th. 2d of Dec. at the Ohio Co. 2d Nov. 26th Dec. 1824