PROCEEDINGS OF THE MADRAS GOVERNMENT,

dlowing papers are to be recorded, dated 31st March 1862, No. 713:-

rctary to the Government of Punjab, Public Works Department, d
February 1862, No. 4,172.

ng for information copy of a report (with appendices) on the operati
a Canals for the year 1860-61.

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oceedings of the Board of Revenue, dated 13th February 1862, N

mitting with reference to the Proceedings of Government, date
opy of a letter from the Collector of Tinnevelly, informing that due prov
in the Budget of 1861-62, for the probable disbursements in connection with the
&c., until the next Pearl Fishery.

Proceedings of the Madras Government in the Financial Railway Department, dated 18th February 1862, No. 86.

Authorize the value of the materials actually taken from the bund of the Vedulacherroo tank for Railway purposes, being disbursed to the Cavetnuggur Zamíndár.

Proceedings of the Board of Revenue, dated 25th February 1862, No. 1,297.

Submitting letter from the Collector of Tinnevelly, forwarding one from Captain Phipps, Superintendent of the Pearl Banks, conveying his thanks for the increase of salary and gratuity awarded to him by Government.

Proceedings of the Board of Revenue, dated 26th February 1862, No. 1,352.

Requesting him to dispose of Mr. Copleston's application to redeem certain land when detailed instructions for the sale of waste land reach him.

Proceedings of the Madras Government in the Financial Railway Department, dated 3rd March 1862, No. 113.

Sanctioning Rupees 13-0-3 paid by Trichinopoly Collector during the fourth quarter of 1861, on account of compensation for the lands taken up for the Railway.

Proceedings of the Board of Revenue, dated 3rd March 1862, No. 1,453.

Communicating with remarks to the Deputy Chief Engineer, Southern Circle, letter from the Collector of Coimbatore, requesting sanction for 30,000 Rupees for the relief of the poorer classes.

Letter from the Secretary to the Board of Revenue, dated 4th March 1862, No. 1,482.

Statement showing the average Bazar price of Grain and Salt per Madras Garce, and Rain Report for the month of January 1862, Fasli 1271.

Proceedings of the Madras Government in the Financial Railway Department, dated 6th 1862, No. 120.

Sanction Rupees 99-7-6 compensation paid for lands taken up for Railway, Cud District, for second quarter in 1861.

Proceedings of the Madras Government in the Judicial Department, dated 6th March 18 No. 373.

Communicating to Revenue Department, letter from Registrar Sudder Court, reporting o the subject of the possession of landed property in India by public servants.

the Madras Government in the Financial Railway Department, 1862, No. 121.

nction Rupees 213-3-8, paid by Salem Collector during first and second qua
unt of compensation for lands, &c., taken up for the Railway.

Proceedings of the Board of Revenue, dated 7th March 1862, No. 1,51[illegible].

ting a letter from the Collector of Nellore, forwarding certain informati
receipts for Arts, Trades and Dealings.

[illegible]gs of the Board of Revenue, dated 10th March 1862, No. 1,597.

[illegible]or information a letter from the Collector of Tinnevelly, reporting on the prospects of the season.

Proceedings of the Board of Revenue, dated 10th March 1862, No. 1,575.

Submitting letters from the Collectors of Bellary and Kurnool, explaining the cause of the delay in submitting the statement of Demand, Collection and Balance for certain months.

Proceedings of the Madras Government in the Public Works Department, dated 11th March 1862, No. 402.

Passing orders on the Report on the injury done to the Murdyaur under tunnel in the District of Trichinopoly by the high flood in that river on the 5th November 1861.

Letter from Government Pleader, Sudder Adálát, dated 11th March 1862, No. 31.

Enclosing a copy of the notice issued by the Court of Sudder Adálát fixing the 9th April 1862. for the hearing of the Appeal Suit No. 136 of 1857.

Letter from the Officiating Conservator of Forests, dated 18th March 1862, No. 862.

Submits explanation as to why no progress has as yet been made in exploring the Nullamallai Forests.

Proceedings of the Madras Government in the Public Department, dated 19th March 1862, No. 354.

Granting Collector of Nellore authority to disburse the travelling allowance of the 1st Dresser of his Kacheri.

Proceedings of the Madras Government in the Public Works Department, dated 22nd March 1862, No. 537.

Passing orders on Endorsement of Deputy Chief Engineer, Southern Circle, recommending that the whole amount of 30,000 Rupees applied for by Collector of Coimbatore may be placed at the disposal of the District Engineer, for expenditure upon such works as the Collector and he may deci[illegible] on in view to finding employment for the suffering poor.

Exd. S. T. Augustin.

Copy of above forwarded to the Secretary to Government Madras ~~P.W.D.~~ for information

by command
and by order Lieut-Col
for Secretary to Govt Punjab
P.W.D.

the Madras Government in the Financial Railway Departmen
1862, No. 121.

nction Rupees 243-0-8, paid by Salem Collector during first and seco
unt of compensation for lands, &c., taken up for the Railway.

Revenue 1862 Deptt
Pro: of Govt for March.

No. 713.

Pro: of the Madras Govt
2-3rd March/62.

Fitly Recorded
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Exd. S. T. Augustin.

Govt. No. 63

No. 1901 of 1861-62.

From LIEUTENANT-COLONEL A. D. TURNBULL,
Supdt. Genl. of Irrigation N. W. Provinces,

To THE SECRETARY TO GOVERNMENT, PUNJAB.

Roorkee, 14th September 1861.

SIR,

I have the honor to forward herewith for submission to His Honor the Lieutenant Governor, my report on the operations of the Western Jumna Canals for the year 1860-61, with appendices as follow :—

1—Statement shewing land irrigated and water rent levied in the various districts of the Western Jumna Canals during 1860-61.

2.—Comparative abstract of income and current expenditure for Rubbee 1859-60 and 1860-61.

3.—Comparative abstract of income and current expenditure for the years 1859-60 and 1860-61.

4.—Statement showing area of cultivation and amount and value of produce on lands irrigated during 1860-61.

2.—I regret that I am unable to accompany this Report with the Annual Statement of remunerative works as I am most anxious to adjust the outstanding balance against original works, by bills, which cannot be prepared or submitted till completion Survey reports reach me. The expenditure on *works* as shown in my Progress report differs slightly from that given by Captain Glover in the accompanying Statement, as his calculations for materials expended on works vary in a few instances from those adapted by the central office, but the totals in either case are approximately correct, and will answer all purposes, till such time as the *exact* sum is shown in my statement of remunerative works, which will be submitted at the earliest possible date.

I have the honor to be,

Sir,

Your most obedient servant,

A. D. TURNBULL, *Lt.-Colonel.*

Supdt. Genl. of Irrigation N. W. Provinces,

Punjab.

No 4672
Copy of above forwarded to the Secretary to Government Madras P.W.D. for information—
pr Secretary
ambdey Lieut-Col.
pr Secretary to Govt Punjab
P.W.D.

Lahore
5th Feby 1862

REPORT

ON THE

OPERATIONS OF THE WESTERN JUMNA CANALS,

DURING THE YEAR 1860-61.

THE Report of operations of this Canal during the last year, may be peculiarly interesting at the present time, when from the failure of the periodical rainy season, the suspension of all cultivation over an immense tract of country in the Punjab and the North Western Provinces has immersed thousands in the horrors of famine, which visitation has been averted by this canal over an area of about 4,500 square miles through which it flows, and which tract, from the produce it has been enabled to rear, has been the means of mitigating the evil in no inconsiderable degree in its own immediate neighbourhood.

2.—The amount of rain which fell during the last year was only 16·51 inches according to the Register kept at Dadoopoor, at the head of this canal; which amount is less than has been recorded during any year, since 1834, at which date the register commences. The largest recorded fall of rain was in 1856, when 60·75 inches fell, but the average quantity is about 40 inches, so that not more than between one-half and one-third of the usual quantity has fallen this year. There are two other years of failure of rain recorded, viz. in 1837, when 22·25 inches only fell, and 1848, when 20·68 inches fell, but it will be seen that they are neither so small as the last year's fall. Both these years were famine years, or years in which great distress prevailed, and it is a fact worthy of note that the dearth which periodically visits this country appears to be increasing in intensity, or, in other words that the recurring period of such visitation shows a less amount of rain fall than the preceding one showed.

3.—It may be found also that the river supply will be similarly affected, and that the periodical deficiency of rain will be accompanied by a decreased volume in the rivers. The supply of water in the Jumna was particularly small during the last year, its surface being much lower than was ever known by any one residing in its vicinity. Captain Glover almost immediately after assuming charge of these canals, finding the supply failing, and having had his attention drawn to the subject, ascertained the discharge of the Jumna on the first February 1860, to be 2,854 cubic feet per second from actual measurement. It was determined by Colonel Abbott in February 1849, to be 3,488 cubic feet. In November 1860, Captain Glover again measured the discharge of the river in conjunction with Major Brownlow, Superintendent Eastern Jumna canal, and found it to be only 2,570 cubic feet, at that early period of the season, and it subsequently fell very considerably, but owing to his presence being required on other parts of the canal he was unfortunately unable to make any more measurements at the season of lowest supply, which would have determined the minimum discharge on record. Captain Glover does not think, however, that it could have exceeded 1,900 cubic feet per second in March 1861, which according to his judgement allows 1,250 cubic feet as the discharge of the Western Jumna, and 650 cubic feet for that of the Eastern Jumna canal at that time.

4.—As the irrigation of this, as also of the Eastern Jumna canal, has extended very considerably of late years, and the amount of water carried by each has been consequently increased, and as the river invariably fails in affording a full supply to each canal according to the present standard, the measurement of the river becomes an important object, and Captain Glover recommends that the discharge be ascertained annually about February and recorded. Such measurements would doubtless be valuable, and, I shall, in future years, endeavour to obtain them, but as the work at the heads is generally over by the month of February, and the Superintendent is visiting other portions of the canal where his presence is urgently required during this month, he may not often be able to make them.

5.—The proportion of the river's supply due to each canal has been a source of considerable difficulty for some years, and rules have been laid down from time to time regulating the division, but as the supply in each canal was due, above a certain limit, to the exertions of the individual establishments, it followed that a constant straining arose to benefit one canal at the expense of the others, leading to increased and unnecessary expense without any corresponding benefit to Government, as any gain on the one was counterbalanced by a loss on the other. During the last year, therefore, finding the supply likely to fail to an unprecedented extent, Major Brownlow and Captain Glover agreed to a mutual scale of regulation; any fall in the supply of one canal being adjusted by a corresponding decrease of supply in the other. As there were no correct returns of the respective discharges of the two canals at different heights of water surface, these officers were obliged to arrive only at a rough conclusion, but it has been found to work very well, and owing to the low state of the river it may be considered to have had a fair trial. By the present agreement the regulation is left in the hands of the Eastern Jumna canal establishment, who, by opening their escape dam at Fyzabad, are enabled to send down more water to the lower heads of the Western Jumna, and thus increase the supply if requisite; reports of the height of water in each canal are exchanged daily by the officials entrusted with its regulation, and according to these reports the supply in the Eastern Jumna canal is either increased or lowered, every fall of one inch of surface below full supply in these Canals being met by a fall of 2 inches on their guage.

6.—The guage at Dadoopoor, with full supply in the canal, stands at 4 feet 4 inches, shewing a discharge of 2,544 cubic feet per second, but during a great part of January and February last, the guage only showed 3 feet one inch, and during the latter part of February, and first half of March, it fell even to 2 feet 10 inches, so that Captain Glover calculates that during the very height of the Rubbee crop the discharge of the canal was not more than one-half its full amount. The failure of supply moreover commenced unusually early, about the middle of October, and no increase took place till the middle of April, so that it will be seen that during the most important crop of the year the supply has been most lamentably deficient.

7.—During the last year the extension of irrigation has been very great, no doubt caused by the demand for water consequent on the failure of the periodical rainy season. Cultivators had been attracted in very large numbers from all the surrounding districts to the various villages which have been in the habit of using canal water, every available spot in each village had been rented in order to rear a small crop for the support of their families, moreover owing to the great drought many plots which formerly were mere swamps had dried up, and advantage was taken to put them under cultivation so that crops were raised in places where none had been seen for many years.

8.—The benefits of the canal have been felt to a very great degree in 605 villages, bordering its course, and situate in the districts of Umballa, Thaneysur, Kurnaul, Delhie, Rohtuc, Hissar, and the independent territory of Jheend. The total amount of land brought under cultivation, and for which irrigation has been afforded from the canal during the past year is the large number of 7,33,267 beeghas, or about 730 square miles, scattered over an area of about 10 times that extent, estimating the sphere of irrigation to extend on an average about 5 or 6 miles in width on each side of the canal throughout its whole length.

9.—The amount of irrigation during the Rubbee crop was 1,62,377 beegahs, and Captain Glover calculates that the discharge of the canal during a great part of the time did not exceed 1,250 cubic feet per second, so that we are enabled to arrive at a close approximation of the amount of land that can be irrigated by one cubic foot of water per second for one crop, which in this case is about 370 beegahs, a fair conclusion and sufficiently accurate to serve as a basis for future calculations. Captain Glover proposes to ascertain the discharge of this canal for every decrease of one inch in height of surface, in the hope of being able annually to calculate the value of a cubic foot of water, and to ascertain whether it has been employed to the full advantage by comparison with former years.

10.—In addition to the water-rent there are other sources of revenue on the canal, consisting of mill rent, fees on navigation, and rafting of timber, and sale of canal produce, each of which Captain Glover notices as follows:—

"The mill rent is levied by letting out the corn mills constructed in the city of "Delhie and town of Hansie, the revenue from this source has, however, fallen off this "year on account of the great demand for water for the more important object of irriga- "tion not admitting of a constant supply being sent into the city of Delhie where it is "employed as a motive power for these mills, and afterwards allowed to run to waste into "the Jumna. At Hansie the demand for the use of the mills has declined considerably "of late years since the breaking up of the Military Cantonments there."

"Fees are levied agreeably to the scale laid down in the *Government Gazette* of "1st July 1845, on all timber which is rafted down the canal from the forests, where it "is cut in the hills near the banks of the Jumna; the amount realized on this account "has, however, fallen off very considerably of late years owing to the exhaustion of these "forests, the extent of which may be inferred from the fact that sal timber of larger "scantling than 6 inches square, and that only in small quantity, is not now procurable "at Dadoopoor near the head of the canal whereas formerly the largest timbers were "obtainable there. On a late occasion I was obliged to send to the Ganges, a distance of "40 or 50 miles, for timber which was required for the use of the canal."

"The revenue realized by the sale of canal produce is very precarious, and varies "considerably in amount, it is derived from the sale of timber and grass grown on the "canal banks."

"Fines are inflicted for the infringement of Canal regulations, and are credited to "Government. I have, however, endeavored to decrease their amount as much as possible, "but in a year like the last when water was worth its weight in silver, the crime of water "stealing became more than usually frequent, so that I was not able to reduce the amount "of the fine account so much as I could have wished, but I think that the total sum levied "under this head is very moderate. The total of the fines levied last year amounted "only to rupees 5,424-4-8, of which rupees 249-1-0 were inflicted on the canal

"establishment, so that rupees 5,175-3-8 only are due to the breach of Canal regulations, "and are spread over 695 villages, giving an average of rupees 7-7-1 only to each."

"Water rent is levied on the actual area irrigated, and is assessed at different rates "according to whether the water is capable of flowing naturally over the ground irrigated, "or whether it is raised artificially. The crops usually grown are divided into two classes "and are charged at different rates according to their classification, the amount of water "rent per beegah, under different circumstances, being laid down in the *Government Ga-"zette* North Western Provinces, 1st July 1845."

11.—The total amount of water rent is determined twice annually at the expiry of each half-yearly crop, and is ascertained by the actual measurement of each field irrigated. These measurements are made under the superintendence of 3 darogahs, or superior officers, assisted by a staff of moonshees and chainmen. Formerly a great number of villages took water by paying a certain fixed sum, according to the number and sizes of their water courses, but these contracts which were made in 1840, for a period of 20 years, expired at the commencement of the past year, and as Captain Glover did not wish to renew them without thorough investigation, he has been obliged to measure all lands irrigated during this year, which has greatly increased the amount of work. In 1859-60, when contracts were in operation, the area of land to be measured amounted to 296,252 beegahs only, and this was much in excess of ordinary years, whereas in 1860-61 it amounted to 733,267 beeghas; in consequence of this great increased area, Captain Glover was obliged to entertain some extra ameens and chainmen for a few months. The total cost of the measuring establishment for the year 1860-61 amounted to rupees 6,078-2-8, giving a cost for measurement of rupees ·0082, or about 1½ pies per beegah, or 1·37 rupees per cent on actual total amount of water rent collected.

12.—Owing to the great increase of area to be measured, great delay has occurred in completing the measurements of irrigated areas. The establishment commenced their field operations in September, which was very early in the season, and when they suffered much from fever; the last measurement not being completed till the end of June, during the whole of which period they have been solely employed in measuring the irrigation. Captain Glover had the subject of expediting the measurements constantly under his consideration; and early in the year recommended that the village field Maps or Shujrahs should be made use of, and authority was obtained for copies to be made of them for the use of this department. In these maps each field is marked and numbered, and the area is ascertained from other documents kept by the village accountant or putwarrie; it appears, however, that the maps now in use in the greater part of the districts through which the canal flows are very old, and were made at the time of the settlement some 20 years ago, since when considerable changes have taken place in the distribution of land, and the boundaries of the fields, so that in most cases these maps are useless for the purpose to which he proposed to put them. In the Hissar district however a new settlement is now being made, and new maps are being prepared in the Rohtuc and Delhi districts also. I believe many of the maps were destroyed in 1857, so that new ones are required and are now being made. Captain Glover proposes therefore as soon as they are completed to obtain copies from the district officers, and trusts no difficulty may then be experienced in introducing the new system. By the old plan each moonshee was accompanied by a chaining party, and he was only able to measure and calculate the contents of about 200 beeghas daily in the Khureef and 300 beegahs in the Rubbee, but by the new system nearly all chaining and calculation will be avoided, and he will merely have to walk over the ground with his map in his hand, taking down the numbers of the fields irrigated and the nature of the crops, and on his return to his tent in the evening, he will, by looking at the

Khusrah or Index, be able to ascertain the area of each field. Captain Glover calculates therefore, that he will be able to do from 800 to 1000 beegahs daily, which will reduce the time of measurement to between 2 and 3 months only annually. During the last year Captain Glover attempted to introduce this system by using the Collectory maps, but owing to the changes that had taken place which have been before referred to, in the boundaries of fields, and the want of acquaintance on the part of the establishment with maps, he did not succeed as he had wished, but he intends to keep the Darogahs and Moonshees hard at work during the recess between their working seasons in learning the construction of maps of this description and also the use of the plane table, and he trusts that with a little practice they may be able to introduce the system as soon as the new maps may be ready in the different districts, should it be found practicable to use these village field maps, and that the annual measurement of irrigation is expedited to the extent anticipated. Captain Glover is of opinion that the system of measurements of actual area of irrigation is the fairest mode of levying a water tax that can be introduced and in this opinion I entirely concur.

13.—The total income of the canal from all sources for the past year amounts to rupees 163,344-9-2 being an increase of rupees 97,010-3-4 above the greatest revenue yet realized since the opening of the canal. The expenditure for maintenance, repairs, and establishment for the year amounts to rupees 205,752-2-11 or 44·4 per cent. on the revenue; so that net revenue after deduction of all charges amounts to rupees 257,592-6-3, which is not far short of the gross income of ordinary years, a most gratifying result when it is considered that during a great portion of the most important crop, the volume of water was but little more than half of the full supply of the canal, and proving I think most clearly that the water has been turned to the utmost account during this year of drought and famine.

14.—Since the opening of the canal in 1821, the total expenditure incurred in construction and improvement has amounted to rupees 16,84,624-13-2 and the net profit derived by the Government after repaying its original cost, and deducting the amount of the annual expenses of maintenance and establishment, has amounted to Rs. 37,75,695-15-9, so that this Canal has actually repaid 325 per cent. on the original outlay, and the profit returned to Government for the last year in direct taxation amounted to 18 per cent. on the capital invested. This does not, however, represent one tithe of the indirect benefit accruing to Government from the increased land tax, and the general improvement in the prosperity and wealth of the country.

15.—The total value of staple products of the canal irrigation will be seen from the return annexed, vide appendix, and Captain Glover estimates it at no less a sum than 312¾ lacs of Rupees or upwards of 3 millions of £ sterling, the whole of which we may fairly assume would have been lost to the country in a year like the last, had it not been for the influence of these canals. I think Captain Glover's estimate is somewhat high when we consider the vast space over which, and the inferiority of much of the land upon which, these crops are raised, and I would reduce their value to about 2½ or 2¾ millions of £ sterling, a sum sufficiently large to show the enormous advantages derived by the community from these canals in a famine year. The amount of grain affording food for man thrown into the market amounts to 72,51,685 maunds; and allowing a man to consume 1 seer daily, the canal will have raised sufficient food to support about 8,00,000 of people for one year; or, allowing 2lb to a man and child, will have kept at least 12,00,000 of people alive for the same period, to say nothing of the fodder thus obtained for the cattle. These facts speak for themselves, and serve to show the importance to the coun-

try of even so primitive a canal as this. But when it is shewn that the Government can combine a benefit to the country with actual gain to themselves by establishing works of irrigation it is to be hoped that the subject may receive the great attention which it undoubtedly deserves.

16.—Among the more valuable products may be observed, sugar, which has been grown to the value of nearly 30½ lacs of rupees, Indigo 55,901 rupees, and cotton upwards of 20 lacs of rupees. With reference to that last named, I may mention that some improved descriptions of seed have been kindly furnished to me by Mr. L. Berkeley, Extra Assistant of the Delhie division, forwarded on to Captain Glover who will distribute them amongst the Zemindars for sowing during the present season, and will forward specimens of their produce when the crops shall have arrived at maturity. Captain Glover thinks it may be worthy of consideration, "whether with the increased facilities of transport afforded by the Railroad now rapidly approaching Delhie, advantage might not be taken of a means of irrigation such as the canal guarantees to establish a large cotton growing country in this neighbourhood; the subject might be worthy, the attention of those interested in it."

17.—To shew the benefits conferred by the canal on individual communities, Captain Glover instances the village of Bhutgaun in the Soneput district where the area of land under rice cultivation, amounted last year to 3,094 beegahs, yielding an estimated outturn of 46,410 maunds which, supposing it sold at the rate of 12 seers to the rupee, bears a money value of upwards of 1½ lacs of rupees for this one village alone; and for which the amount of water rent taken by the canals amounts to the inconsiderable sum of 2,469 rupees or 16 per cent. only on the value of crop.

18.—It is a most remarkable fact which should be well remembered, that this village of Bhutgaun was the first, and foremost among the 3 villages which petitioned the Commissioner in the previous year to have the canal stopped, in consequence of the supposed loss which they had sustained by it from over saturation in ordinary seasons. There is no doubt that this village suffers from supersaturation for five out of six, or, perhaps six out of eight years, but a remission of the land revenue has been made to it on this account, and in ordinary years therefore its gains are not nearly such as have been shewn above. But when the moist land is rendered fit for cultivation by drought, and the rates at which grain sells are high, as they are always in a season like the last, the village profits accordingly, and I believe last year was enabled to pay off debts which had been hanging over it for many years past. The case of Bhutgaun is not solitary, but many villages on the canals have similarly profited by last years increased produce and enhanced prices.

19.—Of late years a white efflorescence commonly called by the Natives "Rêh" but whose chemical name is Sulphate of Soda has been observed to make its appearance in the neighbourhood of the canal, rendering the land on which it is observed, quite unfit for cultivation. The subject has received considerable attention from time to time, but no remedy of practical value has apparently been adopted. Captain Glover considers "that this salt exists in the ground itself, but having a great antipathy to damp, it has in order to escape, forced itself to the surface, as the height of the water level of springs has been raised by the influence of the canal; and that the only real remedy is to provide complete surface drainage, so as to allow the water during the rainy season to flow off readily, washing the soil and carrying away with itself this efflorescence, by which means the supply would in course of time become exhausted. This however is a very difficult and expensive operation and must be the work of time."

20.—Mr. Edward Brandreth the Commissioner of the Delhie Division writes as follows on the subject: "In Mr. Sherer's report; the injury to the land is principally ascribed to the salt being brought near the surface from below, where it has always existed, by the raising of the springs. This theory no doubt accounts for a good deal of the damage which has been, sustained, but there are other parts that have been injured by "Shor" where the springs are so deep especially in the neighbourhood of Delhie where the canal is very shallow, that the origin of the saline efflorescence cannot be accounted for in this way. In these cases it is to be attributed, it appears to me, to excessive irrigation, the soil is damp for several feet below the surface, and its mere dampness is sufficient to cause the salt to rise to the surface. Saltpetre, in the same way, may often be observed to get into the lower parts of the walls of houses, especially in damp situations."

21.—I believe myself that the causes of the appearance of this destructive salt, are the great height of canal supply above the level of the country, and defective drainage due to obstructions formed by the ill-constructed water courses which cover this tract, and, therefore, that lowering the bed of the canal, placing the water's surface under soil, where now it runs far above soil, a redistribution and a re-alignment of the numerous water-courses which are led off from this line, added to careful and proper arrangements for passing off surface drainage under them, will either entirely remedy or at all events arrest the progress of the evil; and in reference to Mr. Brandreth's remark "that there are other parts that have been injured by "Shor" especially in the neighbourhood of "Delhie," I would observe that however much these parts may be affected now, and may be suffering from the injurious effects of "Shor," many of the lands in the lower part of the Delhie canal from below Gungatowlee, on both sides of it, and especially in the neighbourhood of the Nujufgurh jheel have much improved of late years; lands which in my recollection bore only the most scanty crop, have of late years yielded crops far above the average.

22.—The keekur or *Mimosa Arabica* being well known as a most hardy tree, common in that part of the country, and capable of growing in land infected to a certain extent with "Rêh," Captain Glover recommended that plots of waste land should be taken up enclosed and sown with the seeds of this tree, and the Government has accorded sanction to the experiment being made on a small scale.

23.—One of the great difficulties in establishing the Railroad between Delhie and Lahore is the great want of fuel existing along the whole line, and if therefore we can succeed in sowing this tree in large quantities at a trifling expense, we should be rearing a large supply of this commodity which would have arrived at maturity, simultaneously with the completion of the Railroad, moreover Captain Glover considers "that the large increased amount of vegetation would have a salutary effect on the country in decreasing the excessive heat by the protection and shade afforded, and also in preserving the natural humidity by preventing evaporation." If convenient seasons, such as the periodical rains, are seized, the experiment might be carried on in any part of the country, while on the canal it might be commenced at any time. Captain Glover's object in bringing this subject to notice was "to shew that these lands partially infected with "Reh" are still capable of being turned to practical use and are not entirely useless as is supposed."

24.—The total cost of all establishment employed on these canals during the last year including the pay of officers and office establishment, amounts to Rupees, 96,894-8-4 of which Rupees 61,787-11-1 are chargeable to the Executive Department, leaving Rupees 35,106-13-3, or about 7·5 per cent only on the income for the expenses of measure.

ment, collection of Revenue, and Police, which is a most satisfactory result; and which I can conceive no method of reducing, as the different duties are so intimately connected that the removal of any one description would not admit of a reduction of Establishment.

25.—The total expenditure on works of all kinds on these canals for the last year amounts to Rupees 165,950-4-0, and the establishment employed to 61,787-11-1, or 37 per cent on the expenditure; which appears a large proportion, but when it is considered that this included the pay of all the Officers, Overseers, and office establishment, usually chargeable to the Public Works Department, it will, I hope, be seen that the charge is not large. It must be considered that constant supervision has to be maintained over a length of canal of 435 miles, of which both the banks have to be patrolled and kept in repairs, besides a considerable length of Rajbuhas and drainage lines, which probably double this extent. And as an accident to any portion of the line would entail heavy losses to Government in reimbursing the country for damages committed by the water, and entail a direct loss in canal revenue, it will be seen that heavy interests are at stake, and that it would be false economy to reduce the present scale of establishment; last year the Government sanctioned the division of the whole line into 4 executive charges and I have little doubt that the extra supervision thus obtained, and the more ready means of access to European officers thus afforded to the cultivators has greatly tended to bring about the splendid results of the past season.

Original Works, ...	34,964	13	4
Ordinary Repairs, ...	64,596	8	6
Plantations	3,862	11	0
Contingencies, ...	40,428	7	1
Tuckavee Works, ...	22,127	12	1
Total, ...	165,950	4	0

26.—The expenditure on original works for the past year amounts to Rs. 31,961-13-1. The principal works are a large cut in the Jumna at Dadoopoor for carrying off the floods of the Sombe and Patralla rivers into the branch of the Jumna, commonly called Blane's cut: a new cut in the Kanjnoon Escape channel, nearly a mile in length, giving improved means of regulating the canal supply: a large drainage line excavated nearly 2 miles in length for removing the swamps existing on the left bank of the canal between Indree and Kurnaul: and the regulating bridge at Rer has been considerably improved. On the Delhie line upwards of a mile of new canal in different places has been excavated: a new 2nd class chowkee has been erected at Durriapoor: and the Poolchudder Aqueduct near Delhie, as well as several bridges destroyed by the British Forces in 1857, have been repaired.

27.—On the Hansie branch a new cut of nearly a mile in length has been excavated, and a bathing ghat constructed for the village of Shera. The new cut above referred to, is in substitution of an old tortuous channel at the head of the Rohtuc canal, which used to collect silt in such vast quantities, that silt clearances were constantly required to keep the head of the Rohtuc branch open. These silt clearances which had to be excavated in running water were very expensive, and even in spite of them it was a matter of extreme difficulty to maintain the supply of water in that canal. The new cut will, I trust, entirely remedy this serious evil, and enable the supply of the Rohtuc canal to be maintained with regularity. The cost of all these works is chargeable to the original construction of the canal, thereby increasing the amount of the capital.

28.—The total cost on annual repairs, including plantations and contingencies, amounts to rupees 108,857-10-7, giving a cost of about rupees 250 per mile for the cost of maintenance and repair, a charge susceptible of considerable reduction, as the state of the canal generally becomes improved. This charge includes repairs to banks, masonry works, and canal bed itself.

29.—There are several new projects under consideration, some of which have been submitted to Government, and some are still awaiting details, to admit of their being

forwarded. Among the principal may be noticed a new line of about 40 miles in length on the Delhi branch, the details of which are being elaborated, and by which it is hoped to reduce the surface level of the water, and get rid of many of the evils to which the present high level gives rise.

30.—The next project is for a new line about 12 miles in length between Indree and Booda Khera, by which it is hoped to effect a saving of about 8 miles in the length of the canal, and to bring into utility about 300 cubic feet per second of water which now runs to waste in feeding jheels, bordering the present line of canal. The cost of this project is estimated at rupees 1,75,000, and it is anticipated that it will return a direct income of rupees 50,000 annually. This has received conditional sanction from Government, and is now under construction.

31.—In conjunction with the above Captain Glover suggests a new line of Rajbuha of 20 or 25 feet of width of bottom to leave the canal at Indree, the head of the cut referred to in the last paragraph, and run along the high land, skirting Kurnal and re-entering the canal in the Bullah branch near Moonuk, this would afford irrigation to a considerable tract of country where it would be much appreciated. I believe this line to be perfectly practicable, though the excavation at the head where it enters the Bangur or high land may be deep, and its cost may therefore be somewhat high, but the value of 300 cubic feet per second of water is too great to be thrown away, and would very soon cover the cost of the Rajbuha required for destributing it over the country. The superintendent of the Western Jumna canals has therefore been requested to pay his attention to this line of Rajbuha or branch canal, at an early period of the next working season, when the project will be submitted to the Government.

32.—Captain Glover has also submitted a project for a new supplementary head leaving the Jumna near the village of Kulsowra and entering the canal near Booda Khera above Kurnaul. The cost of this is estimated at about rupees 10,000, and it is calculated that in the lowest seasons of the river supply it would throw about 300 cubic feet of water per second into the canal, and be a most valuable aid to irrigation just at the time it was most required. Had this head been in existence during the last year, its assistance would have been incalculable.

33.—The upper portion of the Rohtuk branch for about 20 miles in length requires remodelling, and instructions have been issued to have the line examined early next cold weather.

44.—In the Northern division, Captain Glover proposes to alter the whole line and to divide the alteration into 3 or 4 portions, starting from the various bridges as obligatory points and remodelling the portions of canal between them. Great wastage of water occurs in this portion of the canal and great good effect would result from its improvement.

35.—In the Hansi branch also, much has to be done to bring it to perfection, and the impovements of this line will receive the attention of the officer in charge of it.

36.—I feel assured that the result of Captain Glover's operations during the past year will be considered highly satisfactory by the Punjab Government. Captain Glover from the time he took charge of the Western Jumna canals has labored most zealously and efficiently both for the welfare of agricultural community, with whom in this important charge he is thrown into such constant communication, and also for the interests of Government. We were visited last year both by His Honor the Lieutenant Governor, and also by the Financial Commissioner of the Punjab, and I trust that those visits will have left impressions that so far as the Canal officers' duties are concerned, the real in-

terests of the land holders are deeply consulted, and receive every attention at their hands. Captain Glover has thoroughly identified himself with the people he has had to deal with, and I feel convinced that while his efforts to do justice to all have been fully appreciated by them, his unvarying good nature and temper in listening to their complaints have left a strong impression for good upon their minds. It will be seen from the 29th and succeeding paragraphs of this report that Captain Glover has been actively engaged in the preparation of several projects of importance to the material benefit of the charge intrusted to him, while he has brought the Canal Revenue up to such a height as was never before reached. For these successful endeavours on his part to aid the Government and the country during such a trying season as the past, I consider him entitled to, and would venture to ask for, the special thanks of the Government.

37.—Captain Glover brings to notice the exertions of the Officers and Overseers under his orders, who have all performed their duties carefully and intelligently. He mentions those of Captain Earle, who was formerly superintendent in charge of the Delhi Canal, and is now in charge of the Hansi Branch; Lieutenant Jeffreys, Superintendent of the Rohtuk Canal; Lieutenant Moncrieff, Superintendent of the Delhi Branch; and Mr. Duncan in charge of the Upper or Northern Division of the Western Jumna canals; also Serjeants Corcoran, James Maloney, and Wilson, who have all been favorably noticed by the Officers under whom they have served. Captain Glover also mentions that Lieutenant Jeffreys, in addition to conducting his duties to his satisfaction, has also made himself particularly useful in lining out one or two additional works requiring a considerable amount of laborious application and judgment, which he has performed greatly to Captain Glover's satisfaction. I think that all these Officers and Overseers are entitled to the favorable notice of the Government.

A. D. TURNBULL, *Lieutenant-Colonel,*
Superintendent General of Irrigation,
N. W. Provinces.

P. S.—Since writing the above I have received from the Financial Commissioner of the Punjab, certain statements showing the additional value of the Western Jumna canals to the Government by reason of the increased assessments upon the land irrigated by them, and which has hitherto been credited only in the land Revenue Accounts.

These Statements condensed are as follows:—

Number of Villages.	Name of District.	Actual Assessment.	Assessment at Barani Rates.	Balance due to Presence of Canal.		
78	Delhie.	1,51,745	1,12,970	38,775	0	0
180	Kurnaul.	4,62,961	2,79,537-3-9	1,83,423	12	0
95	Rohtuk.	2,84,760	2,07,026	77,734	0	0
62	Hissar.	1,12,320	43,145	69,175	0	0
415		10,11,786	6,42,678-3-9	3,69,107	12	0

Shewing the net advantage derived by the Government from the presence of the Canals, in the land Revenue Accounts alone, after deducting the sum of Co.'s Rupees 22,802-15-3 for remissions permanently made for losses to certain lands from swamps arising from the proximity of the Canal.

Thus then in addition to securing the land revenue, amounting to upwards of 10 Lacs of Rupees, during a very severe famine year, the advantages to the Government are during the past year:

Increased land assessment,...	3,69,107	12	0
Water Rent, ...	4,63,344	9	2
Total Rupees,.....	8,32,452	5	2

It would appear therefore from the foregoing that the Canal account is entitled to credit for the large sum annually of 369,103 rupees with interest also at 5 per cent (as we have paid the Government interest annually at the rate of 5 per cent on the capital expended) since the several dates on which the existing settlements for the land revenue were made in the four districts through which the canal passes.

I am not aware of these dates, but as the District of Hissar is now being resettled, and as the last settlements were made for 20 years, I assume that the settlements in these adjoining districts all run for nearly this period. Hence we obtain a new credit to the canal west of the Jumna of 3,69,107-12-0 ×d. by 20 or 73,82,155 rupees on account of land rent. As shewn in the body of the report, the net profit to the Government derived from water rent, and other sources, after deducting all expenses for establishment, (which includes all salaries) and maintenance, since the canals were opened, amounts to 37,75,695-15-9 and the total of these two sums, viz. 1,11,57,850 rupees will shew the clear profit to the Government derived from these magnificent canals. Much however still remains to be done on them, and with these large figures before the Government, I feel assured that the 10 or 12 Lacs which will be required during the next few years will be willingly given to place them in first rate working order, and to render them even yet more productive, than they have been, and a still greater blessing to the country than they have proved to be during this severe year of famine of 1860-61.

A. D. TURNBULL, *Lieutenant-Colonel,*
Superintendent General of Irrigation,
N. W. Provinces.

APPENDIX I.

STATEMENT shewing the quantity of Land Irrigated and Water Rent levied in the various Districts of the Western Jumna Canals for 1860-61.

ZILLAH.	WATER RENT. 1st Class. Tor. Beegahs.	Biswas.	Dal. Beegahs.	Biswas.	2nd Class. Tor. Beegahs.	Biswas.	Dal. Beegahs.	Biswas.	Total. Beegahs.	Biswas.	Revenue on Water Rent. Rs.	A.	P.	MISCELLANEOUS. Rent on Water Mills. Rs.	A.	P.	Rent on Watering Cattle. Rs.	A.	P.	Rent on Rafting Timbers. Rs.	A.	P.	Sale of Canal produce. Rs.	A.	P.	Fines for breach of Canal Regulations. Rs.	A.	P.	Total of Miscellaneous Revenue. Rs.	A.	P.	GRAND TOTAL. Rs.	A.	P.
Northern, ...	5,966	6	3,842	7	1,063	...	1,841	9	12,713	2	7.414	4	5	...	...	...	...	...	...	5,694	11	2	1,238	11	8	792	12	2	7,726	3	...	15,140	7	5
Kurnaul, ...	48,142	2	19,575	...	19,660	1	12,226	15	99,603	18	57,906	9	11	...	...	..	83	11	5	1,954	15	5	1,220	...	...	218	11	1	3,474	5	11	61,380	15	10
Panipat, ...	54,078	11	19,522	7	14,113	18	9,068	15	96,783	11	59,034	13	10	...	...	...	52	12	2	...	...	...	555	...	3	204	7	...	812	3	5	59,847	1	3
Soneput, ...	70,827	3	5,166	18	24,139	12	6,493	18	1,06,627	11	67,791	5	1	...	...	...	...	...	...	32	8	...	663	9	9	224	9	...	920	10	9	68,711	15	10
Delhi, ...	44,473	18	585	16	22 557	12	2,492	11	70,109	17	43,835	3	11	1,244	6	5	9	13	6	...	...	...	2,689	10	9	177	9	...	4,121	7	8	47,956	11	7
Kohtuk, ...	57,141	17	4,772	3	24,341	1	5,820	18	92,075	19	57,255	9	7	...	..	..	50	14	6	...	..	...	631	11	...	724	1	...	1,406	10	6	58,642	4	1
Jheend, ...	43,944	2	11,201	16	17,769	14	7,866	2	80,781	14	48,421	2	9	...	...	...	177	8	1	...	..	...	515	8	3	358	...	...	1,051	...	4	49,472	3	1
Hansee, ...	51,843	16	12,607	11	34,317	8	13,956	6	1,12,725	1	63,846	14	2	21	11	...	50	1	10	...	...	...	634	6	9	345	1	3	1,051	4	10	64,898	3	...
Western, ...	937	14	524	13	1,376	5	2,907	4	5,745	16	2,447	8	7	...	...	...	131	15	13	...	...	...	231	14	11	70	11	...	434	9	9	2,882	2	4
Bootana, ...	31,195	11	3,194	10	19,205	18	2,505	11	56,101	10	33,779	5	8	...	..	...	5	...	...	...	...	...	289	2	2	339	...	11	633	3	1	34,412	8	9
Total, ...	4,08,551	...	80,993	1	1,78,544	9	65,179	9	7,33,267	19	4,41,712	13	11	1,266	1	5	558	13	4	7,682	2	7	8,669	11	6	3,454	14	5	21,631	11	3	4,63,344	9	2

(Sd.) T. G. GLOVER, *Captain*,
Supdt. Western Jumna Canals.

A. D. TURNBULL, *Lt.-Colonel*,
Supdt. Genl. of Irrigation N. W. P.

APPENDIX II.

COMPARATIVE Abstract of the Income and Current Expenditure of the Canals West of Jumna for the Rubbee Crop of 1859-60 and 1860-61.

Canal Office West of Jumna, 15th July, 1861.

Year.	Season.	CANAL INCOME COLLECTED BY THE SUPERINTENDENT. Water rent on irrigation of rubbee crops. Rs.	A.	P.	Rent on watering cattle. Rs.	A.	P.	Rent on water mills. Rs.	A.	P.	Transit duties on rafts of timber &c. Rs.	A.	P.	Sale of produce of the canal bounds. Rs.	A.	P.	Sundry collections, viz., filling tanks, fishing nets, &c. &c. Rs.	A.	P.	Fines for breaches of the canal regulations. Rs.	A.	P.	Total of the half-yearly income. Rs.	A.	P.	CURRENT EXPENDITURE AS PER BILLS. Establishment for Superintendence of works, collections of Revenue and all duties. Rs.	A.	P.	Cost of ordinary repairs, Plantations, Contingencies. Rs.	A.	P.	Total of half-yearly current expenditure of every description. Rs.	A.	P.
1859-60.	Rubbee ...	2,02,405	1	3	1,001	2	1	1,642	10	1	6,998	14	1	1,466	7	5	3	...	...	4,037	6	10	2,17,554	9	9	44,925	13	4	46,468	15	1	91,394	12	5
1860-61.	Rubbee ...	2,70,149	1	11	558	13	4	309	5	11	4,032	11	5	3,234	4	...	...	...	...	3,203	5	11	2,81,487	10	6	52,136	7	5	48,398	12	6	1,00,535	3	11
Difference excess, ...		2,67,744	...	8	...	...	...		.....		...	...	...	1,767	12	7	...	...	...	...	...	...	63,933	...	9	7,210	10	1	1,929	13	5	9,140	7	6
Difference decrease, ...		...	...	...	2,442	4	5	1,333	4	2	2,966	2	8	...	...	...	3	...	...	834	...	11	...	...	...	...	...	...	...	...	...	...	...	...

Remarks by the Superintendent Canals west of Jumna.

The increase of watering is due to the great increase of demand for irrigation on the failure of the periodical rains. The decrease on watering cattle is due to the villages taking increased quantities of water which absolve them from this tax. Decrease on water mills due to the water being employed in the more important object of irrigation. Decrease on rafting timber is due to the exhaustion of the forests. Increase of sale of canal produce accidental.

(Signed) T. G. GLOVER, *Captain*,
Supdt. Western Jumna Canals.

A. D. TURNBULL, *Lt. Colonel*,
Supdt. General of Irrigation N. W. P.

APPENDIX III.

COMPARATIVE ABSTRACT of the Income and Current Expenditure of the Western Jumna Canals for the years 1859-60 and 1860-61.

	Canal Income collected by the Superintendent.																				Curren Expenditure as per Bills.									
	Water rent on irrigation.			Rent on watering cattle.			Rent on water mills.			Transit duties on rafts of timber &c.			Sale of produce of the canal bounds.			Sundry collections viz. filling tanks, fishing nets, &c. &c.			Fines for breaches of the canal regulations.			Total of the yearly income.			Establishment for superintendence of work, collections of revenue and all duties.			Cost of ordinary repairs, plantations and contingencies.			Total of yearly current expenditure of every description.		
Years.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
1859-60	3,38,958	8	9	1,001	2	1	3,532	10	5	11,514	5	0	5,262	4	11	601	1	6	5,464	5	2	3,66,331	5	10	81,775	7	2	97,570	6	6	1,79,345	13	8
1860-61	4,41,712	13	11	558	13	4	1,266	1	5	7,682	2	7	6,688	5	3	12	0	0	5,421	4	8	4,63,311	9	2	96,894	8	4	1,88,857	10	7	2,05,752	2	11
Difference excess,	1,02,754	5	2	...	...	...	...	...	...	...	...	...	1,426	0	4	...	...	...	...	...	...	97,010	3	4	15,119	1	2	11,287	4	1	26,406	5	3
Difference decrease,	..	...	...	442	4	9	2,266	9	0	3,832	2	5	..	..	..	589	1	6	40	0	6	...	...	...	...	...	...	...	...	...	...	...	...

(Signed) T. G. GLOVER, *Captain*,
Supdt. Western Jumna Canals.

A. D. TURNBULL, *Lt.-Colonel*,
Supdt. General of Irrigation N. W. P.

APPENDIX IV.

STATEMENT showing the area of Cultivation, and amount and value of produce on Lands irrigated by the Western Jumna Canals, during the year 1860-61.

	Khureef, 1860.	Rubbee, 1860-61.	Total areas, 1860-61.	Estimate of Produce.		Average price in Bazaar.	Total value of Crops.		
	Area in Beegahs.	Area in Beegahs.	Area in Beegahs.	Per Beegah.	Total.				
				Mds. S. C.	Mds. S. C.		Rs.	As.	P.
Ajwain,	22 18	12 0	34 18	0 15 0	13 3 8	5 Seers per R.	104	11	2
Barley,	.....	33,022 13	33,022 13	12 0 0	396,271 32 0	16¼	975,438	4	5
Cheenab,	.....	589 2	589 2	8 0 0	4,712 32 0	20	9,425	9	6
Chillies,	0 2	.....	0 2	1 0 0	0 4 0	8	0	8	0
Chuaree,	.....	1,156 17	1,156 17	3 Rs. per Bh,	1,156 17 0	3	3,470	8	10
Cotton,	69,925 7	.....	69,925 7	2 20 0	174,813 15 0	3 S. 6 C. p. R.	2,071,862	3	6
Fruits,	3,024 4	3,289 2	6,313 6	50 Rs. per Bh.	6,313 6 0	50	3,15,665	0	0
Goor (The measurements show the amount of Sugar-cane grown, and the produce is given in Sugar.)	41,763 2	.....	41,763 2	20 0 0	835,262 0 0	11 Seers,	30,37,316	5	10
Gram,	.....	111,678 12	111,678 12	12 0 0	13,40,143 8 0	11½ Seers,	36,96,916	12	1
Indian Corn,	3,192 18	.....	3,192 18	15 0 0	47,893 20 0	15¼ Seers,	1,25,622	4	8
Indigo,	2,236 3	.....	2,236 3	0 10 0	559 1 8	100 R. per Md.	55,903	12	0
Jowar,	71,802 17	.....	71,802 17	12 0 0	861,631 8 0	12¼ Seers p. R.	28,13,499	6	10
Koosumbah,	.....	1 10	1 10	0 30 0	1 5 0	3 Seers,	15	0	0
Lucerne and Country grass,	139 7	.....	139 7	3 per Beegah.	139 7 0	3 Seers,	418	0	9
Methee,	.....	17 18	17 18	7 0 0	125 12 0	10 Seers,	501	3	3
Murwah,	130 11	.....	130 11	8 0 0	1,044 16 0	20 Seers,	2,088	12	6

APPENDIX NO. IV.—*(Continued.)*

Kharreef, 1860.	Rubbee, 1860-61.	Total areas 1860-61.	Estimate of Produce.		Average price in Bazaar.	Total value of Crops.
Area in Beegahs.	Area in Beegahs.	Area in Beegahs.	Per Beegah.	Total.		
			Mds. S. C.	Mds. S. C.		
.....	1,141 5	1,141 5	30 0 0	31,237 20 0	1¼ Md.	22,825 ... ...
0 18	.....	0 18	8 0 0	7 8	10 Seers,	28 12 9
0 0	18 3	18 3	0 0 0	1 32 9	6 Rs. per Sr.	550 8 ...
71,944 4	.....	71,944 4	15 0 0	10,79,163 0 0	8 Seers per R.	53,95,815 ... ...
284 19	.....	284 19	50 0 0	14,247 20 0	2 Md.	7,123 12 ...
.....	88 0	88 0	5 0 0	440 0 0	12 Seers,	1,406 10 8
611	.....	6 11	8 0 0	52 16 0	20 Seers,	101 12 9
.....	0 8	0 8	8 0 0	3 8	16 Seers,	8 ... ...
2,167 2	1439 11	3,606 13	50 0 0	180,332 ½	2 Mds.	90,166 4 ...
.....	289,920 8	289,920 8	12 0 0	34,79,044 32 0	11 Seers,	12,651,072 ... ...
266,641 3	442,375 9	709,016 12	.....	.....	.....	31,277,469 3 9

Oats,
Coorud,
Opium,
Rice,
Singharrah,
Tobacco,
Tona or Oil seed,
Ulsee,
Vegetables,
Wheat,

Total,

(Signed) T. G. GLOVER, *Captain,*
Superintendent W. Jumna Canals.

Roorkee,
4th September 1861.

A. D. TURNBULL *Lieutenant Colonel,*
Supt. General of Irrigation N. W. P.

No. 3,238.

FROM

SECRETARY TO GOVERNMENT, PUNJAB,

Public Works Department.

To

THE SUPERINTENDENT GENERAL OF IRRIGATION

N. W. PROVINCES.

Dated Lahore, 14th December, 1861.

SIR,—Your "Report on the operations of the Western Jumna canals during the year 1860-61," has been perused by his Honor the Lieutenant Governor with much interest. The results you have described are, in the highest degree, satisfactory, and fully establish the importance and great value of these canals. They have, by the successful operations of the past official year, though with a supply diminished by the drought of that season, afforded the means of cultivation over a very extended area, preserving it from the effects of the famine, which its produce helped to mitigate in surrounding districts.

2.—The progressive improvement of these canals, the extension of cultivation due to their agency, their success in a financial view, and the general results you have reported upon, may here be briefly reviewed.

3.—The area irrigated in 1859-60 amounted to 2,96,253 beegahs, (185157·5 acres or 289·3 square miles) and this is said to have been much in excess of ordinary years, while in 1860-61 it arose to 7,33,267 beegahs (458291·8 acres or 716 square miles) scattered over an area of probably ten times that extent of country, benefiting 695 villages in districts which bordered upon those where the famine was most severely felt.

4.—That this vast increase of irrigation was caused by the demand for water consequent on the failure of the periodical rains is doubtless the correct view; the circumstances were exceptional; and it is probable the increase may not be maintained, now that the occasion for such a demand has passed away; but it is satisfactory that these canals were capable of meeting such a drain at a period of such necessity, and this at a time when the effect of drought had been to reduce the ordinary discharge of the Jumna from nearly 3,500 cubic feet per second as determined by Colonel Abbott in February 1849, to about 1,900 cubic feet as calculated by Captain Glover in March 1861.

5.—The financial results of the above increase of irrigation are stated in the 13th para. of your report, which shews that the total income of these canals for the past year amounted to Rs. 4,63,344, (£46,334) an increase of nearly one lakh (£10,000) above the largest revenue realized since they were opened, and giving a *net* return, after payment of all charges, of Rs. 2,57,592 (£25,759) an amount said to be not far short of the gross income of ordinary years.

6.—That these canals in addition to the benefits they confer upon the Districts through which they run, afford a large return for the money spent upon their construction is exhibited by the figures in para. 14. An expenditure of Rs. 16,84,624-13-2 (£ 168,462) has been incurred upon the construction and improvement of these canals. This amount *has been repaid;* and a net profit has accrued to Government of Rs. 37,75,696 (£ 377,569) after reimbursing it for all outlay on account of original cost, subsequent improvement and maintenance. Government has thus been repaid 325 per cent on original outlay; and direct taxation during the year under review, gave a profit of 18 per cent on the Capital invested.

7.—From the following para. (15), taking the lowest estimate, it would appear that the value of the produce from the lands irrigated by these canals, must have been last year between 2½ and 2¾ millions of £ sterling, and the amount of the grain thrown into the market amounted to 72,51,685 maunds (5,179,775 cwt. or nearly 259,000 tons) sufficient for the support of 8,00,000 people for one year; or by a more sparing distribution, sufficient to keep 12,00,000 human beings alive for the same period. Important results, when it is borne in mind that in a year like the past, the produce valued at so much, and capable of sustaining so many, might have been lost, but for the means of irrigation afforded by these canals.

8.—The produce also of sugar, grown to the value of more than 30 lakhs (£3,00,000) Indigo, 55,901 (£5,590) and Cotton, upwards of 20 lakhs, (£200,000) form important items in an estimate of benefits derived from these canals.

9.—The subject of Cotton growing alluded to in para. 17 is one of great interest at the present moment. His Honor will be glad to receive the promised specimens of the Cotton grown from the seed supplied by Mr. Berkeley, and they should be accompanied by some details of the sowing, treatment, picking, &c.

10.—Adverting to your 19th para. an examination of the water of the Ravee taken from the river at Madhopoor has led to an interesting report by Mr. Medlicott of the Thomason College at Roorkee on the subject of "Reh" efflorescence, of which report a copy is forwarded for your information. At the suggestion of Captain Dyas, His Honor the Lieutenant Governor has directed Dr. Brown, the Chemical Examiner for the Punjab, to extend this examination to the waters of each of the Punjab rivers.

11.—It is doubtful whether this efflorescence can be accounted for in the ways suggested in your report. In the Lahore district it makes its appearance on lands irrigated from wells, where the water is very far from the surface. It appears probable that it is not due either to the water alone, or to the soil alone, but that water holding certain matters in solution or suspension, combining with soil containing certain constituents, produces in time a sufficient quantity of the Reh to interfere with cultivation.

12.—In para. 20 of the report, the *Reh* and *Shor* or Saltpetre appear to be considered similar in their effects, and are spoken of almost indiscriminately. But in this district, the latter is actually employed successfully to neutralize the former, being scraped up where it is found abundantly, and cast over fields suffering from *Kullur* or *Reh*. They thus appear to be in a measure antagonistic in their action on vegetation.

13.—It is not impossible that the growing of *Keekur** or other trees or plants on Reh lands may itself be found a remedy, and that after a time, the lands so used, may be restored to cultivation of grain or other ordinary crops. Meantime the Keekur sown over a considerable area will itself be valuable. In your letter of the 10th July last, you reported that you had directed Captain Glover to confine his experiment for the past season to the sowing of 50 beegahs of Reh land with Keekur seed. The approval of his Honor the Lieutenant Governor was communicated in my letter No. 653C, of the 19th July last.

14.—I am to request that you will report what has been done, and take into consideration whether it would be advisable to sow Keekur over a larger area, or whether it would be well to try other seeds. In the Lahore district, Tobacco and some kinds of vegetables, are grown on land affected with "Reh." The experiment might also be tried with these on the land so affected in the neighbourhood of the Western Jumna canals.

* Acacia Arabica.

15.—His Honor desires that Captain Glover's recommendation to have the discharge of the Jumna measured annually in February should be attended to. He fully enters into the difficulties adverted to in your 5th para. with regard to the regulating the proportion of the waters to be taken from the Jumna for the Eastern and Western Canals. The arrangements for this described by you are probably the best that can be made under present circumstances. It is presumed that the distribution would be much facilitated by the construction of the masonry dam and head works for both canals proposed by you in April last.

16.—It is observed in para. 10 of your report that the demand for water for the use of the mills at Hansi has declined considerably of late years, since it ceased to be a military station. As mills are useful and profitable appendages of a canal, His Honor would wish you to consider and report, whether there are any other places where new ones might advantageously be established.

17.—In the same para. is noticed the diminution in the amount of fees on timber rafted down the canal, in consequence of the exhaustion of the forests on the Jumna; which also rendered it necessary for you on a late occasion to send to the Ganges for Sal.* It is suggested that Deodar† might be brought into general use on the canal, as it is believed that it could be obtained with less difficulty and at a smaller cost from the Simla hills. The Commissioner Cis-Sutlej States has reported that arrangements are in preparation for procuring supplies of Deodar from the valleys of the Pubhur and Tonse, and floating it down the Jumna to Delhi. If these arrangements are carried out, the canal will obtain timber readily, and may be able to aid and encourage this endeavour to establish a regular supply.

18.—Allusion is made in your 32nd para. to Captain Glover's project for a new supplementary head for the canal, leaving the Jumna near the village of Kulsowra: but no reference is made to my letter No. 589 C. of the 1st July last, returning the project, and pointing out that this was a work attempted by Colonel Colvin in 1828, and abandoned after some progress had been made with the preliminary operations, in consequence of the river at that part being found unsuitable for the construction of a canal head. It was asked whether there was reason to believe that the circumstances were in any way changed, so that the scheme which Colonel Colvin was obliged to relinquish might now be undertaken with good prospect of success. This has not yet been replied to.

19.—There can be little doubt of the great advantage of the improvements contemplated in your 34th para.

20.—His Honor the Lieutenant Governor in expressing his satisfaction with the favorable results reported upon, fully concurs in the commendation bestowed upon Captain Glover in para. 36. This Officer has shown a hearty and right appreciation of the importance of his position, and his opportunities of usefulness in relation alike to the welfare of the people, and to the interests of Government. He bestowed much earnest care and labour on the work whilst he was Superintendent of these Canals, to which he may still, in his new position, have an opportunity of giving some attention.

21.—I am also desired to convey His Honor's acknowledgments to those officers and subordinates, of whom Captain Glover has reported so favorably, and have to request that you will communicate this recognition of their services to

Captain Earle, as Superintendent Delhi Canal and subsequently of the Hansi branch.

Lieutenant Jeffreys, Superintendent Rohtuk branch.

* Shorea Robusta.

† Cedrus Deodara.

Lieutenant Moncrieff, Superintendent Delhi branch.

Mr. Duncan, in charge of the Upper Division.
as also to Sergeants Corcoran, James Malony, and Wilson.

22.—In conclusion I am to express His Honor's high sense of the services you have rendered in the general supervision of these Canals, to which in no slight degree is due those results which have called forth his satisfaction, and the successful working of the establishments to whom he has tendered his acknowledgments.

I have, &c.,

ROBERT MACLAGAN, *Lieutenant Colonel,*

Secretary, Government of Punjab,

Public Works Department.

Copy of a letter, dated 21st May 1861, from Mr. H. B. Medlicott, Professor of Geology, Thomason College, to Director of Canals Punjab, (referred to in para. 10 of the above letter.)

With reference to your letters Nos. 1478 and 1590 of 28th March and 11th April, I will not delay the following memo. any longer, that it may be in time, as you desire, for your Annual Report in June. Such analyses are, you must be aware, very tedious. I could, by taking a larger quantity of water, and spending much more time over it, give a more exact account of its contents, but I have already done enough to give a clue to the question you proposed, namely, the possible injurious effects of the water upon vegetation. Should you think it worth while to quote my remarks, I would recommend that it be done in full, so that any future examiner may know how far they are reliable.

One gallon of the water taken from the Head Regulator in equal portions on the 1st and 18th of September, 3rd and 15th October, 15th November, and 1st and 15th December 1860, filtered and evaporated, gave 7·[illegible] grains of matter that had been in solution. Of this 3·44 was re-dissolved by water. This latter quantity gave 0·50 chloride of sodium, equivalent to 0·20 of table salt in the water. It gave a further precipitate of sulphate of soda 2·36, equivalent to 1·43 of glauber salt, or to 1·22 of anhydrous soda alum, or to 2·31 of the hydrous alum. Even taking the latter value, it leaves ·93 of the 3·44 unaccounted for. I had not time to repeat the operation, or, I believe, I could have traced this deficit to insufficient burning of the total residue, the quantity 3·44 being in consequence too high. I believe the sulphates in the water to be glauber salt and alum, principally the former.

The portion of the residue not re-dissolved in water, consisted of 3·16 carbonate of lime, and about ·40 sulphate of lime. The soluble ingredients then are in 70,000 grains of water.

Common salt, Glauber Salt (Sulphate of Soda), with some alum (Sulphate of Alumina and Soda)	1·43
Carbonate of Lime,...	3·16
Sulphate of Lime, ...	·44
	5·23

Besides the source of deficit above pointed out, there quantities of other substances that exist in all waters. I be be of any influence in the present question.

The salt separated from the gallon of water by filtr grains dried at 212°. In burning it lost ·69 :—boiled f acid, there was an insoluble residue 12·89; the 2· roxide of iron with a little silver and alumina, and ·

Water, ...	
Silt, ...	
Organic matter or Water, ...	...
Poroxide of iron, silica, alumina, ...	...
Lime, ...	...
Insoluble residue	..

It is only in the soluble element that any possible noxious substan and there I confess the result has surprised me. After the carbonate and s which are harmless, there are the two highly soluble alkaline salts in the — per cent glauber salt and 12 per cent culinary salt. Now thi the well known Rêh, that does so much damage Jumna Canals. Two samples that I analysed f chloride, and the other 25 per cent, the proj

The source of this Rêh has always bee clue to it; at least to a source of it. The $\frac{23}{1,000,000}$. I cannot give my own authority, sible effects upon vegetation of s› very dilut and by accumulation from evaporation almost study on the ground can settle the point, and a canal officers of these provinces. I will at once e to see if they contain the same ingredient.

Copy of demi-official letter from Mr. Medlicott,

I have just completed my examination of the cally the same composition as that of the Rivee, viz., and sulphate of soda 1·12, or of Rêh 1·16, being $\frac{2}{1,000}$

The other ingredients are also equivalent. I about the constant composition of the waters of the must be easy to settle on the ground if the injury com and if not, there is no other ingredient in the water t

Revenue Department

No 1031

Proceedings of the Board of Revenue
dated 15th February 1862
Read the following

No 353

From
J. Silver Esqre
Collector
To
W. Huddleston Esqre
Secretary to the Board of Revenue
Fort St George

Sir,

With reference to para 8 of the Proceedings of the Madras Government under date the 30th January 1862 communicated to me by the Board, on the same date, I have the honor to report for the information of Government, that no provision has been made in the Budget of 1861/62 for the probable disbursements in connection with the guard schooners &c until the next Pearl fishery.

Tinnevelly 6 February 1862. I have &c

(Signed) J Silver
Collector

No 713

Read 5th March 1862

No 2192.

Ordered to be submitted to Government with reference to their Proceedings quoted by the Collector.

/ Alex. Copy Wedderburn

Secretary

To

I. D. Sir Geo. Esqre
Secretary to Government
Revenue Department

FINANCIAL RAILWAY DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following Observations by Lieutenant Colonel C. C. JOHNSTON, Consulting Engineer for Railways, dated 6th February 1862, No. 23, on letter from the Agent and Manager of the Madras Railway Company, No 78, dated 4th February 1862.

With this letter the Acting Agent and Manager furnishes the information called for in paragraphs 11 and 12 of the Order of Government, No. 864, dated 24th December 1861.

2. The materials from the Vedulacherroo tank bund likely to be required for Railway purposes were estimated * in quantity by Mr. Going, and in value by the Deputy Collector as follows:—

* Order of Government No. 533, dated 12th September 1860.

Earth—79,806	@ 5	Annas per cubic yard,	Rupees	24,939	6 0
Stone— 7,349¾	„ 8	„ „ „ „		3,674	14 0
		Total Rupees...		28,614	4 0

3. The statement now received of materials taken from the tank bund, shows the quantity of earth and loose stone to be 49,153 cubic yards, and of stone pitching from the slopes 2,420 cubic yards. The value of the former at 5 Annas per cubic yard, will be Rupees 15,360-5-0, and of the latter, at 8 Annas per cubic yard, Rupees 1,210. The total amount to be paid to the Cavetnuggur Zemindar being Rupees 16,570-5-0.

4. No compensation, it will be observed, can be claimed for loss caused by letting off the water from the tank, while the Railway operations were going on, as the Chief Engineer observes: "that at no time has Mr. Going had occasion to request the Zemindar to let off the water of the tank to enable him to proceed with the construction of the bank."

To the Chief Secretary to Government, Fort Saint George.

ORDER THEREON, 18th February 1862, No. 86.

The Government authorize the value of the materials actually taken from the bund of the Vedulacherroo tank for Railway purposes, estimated at Rupees (16,570-5-0) sixteen thousand five hundred and seventy, and Annas five, being disbursed to the Cavetnuggur Zemindar. This sum will be received by the Consulting Engineer from the Agent of the Madras Railway Company, and remitted to the Collector of North Arcot for payment to the Zemindar; or Lieutenant Colonel Johnston will adopt any other course in respect to the disbursement of the money that may seem to him most convenient. The Collector, on making the payment, should take from the Zemindar a receipt to the effect that this is the value of all the materials of the tank bund that the Railway Company have taken.

2. As it is positively asserted that the Zemindar had at no time been requested to let off the water of the tank while the Railway operations were going on, he can have no claim to compensation for loss alleged to have been caused by it.

(True Extract.)

Chief Secretary.

To the Consulting Engineer for Railways,
(with enclosures returned.)
„ Board of Revenue.
„ Collector of North Arcot.
„ Revenue Department.

Exd. F. Cartledge.

No. 1,297.

PROCEEDINGS OF THE BOARD OF REVENUE, dated 25th February 1862.

Read the following letter from J. SILVER, Esq., Collector of Tinnevelly, to W. HUDLESTON, Esq., Secretary to the Board of Revenue, Madras, dated 10th February 1862, No. 59:—

1. I have the honor to request that the Board will be pleased to lay before Government the accompanying copy of a letter from Captain Phipps, Superintendent of Pearl Banks, dated the 8th February, expressing his thanks for the increase of salary and gratuity awarded him.

2. Captain Phipps is an excellent zealous Officer; he has always conducted the duties of his Office to my entire satisfaction, and I have reason to know he is much esteemed by the community at Tutacorin.

ENCLOSURE No. 1.

From G. A. PHIPPS, Esq., Superintendent of Pearl Banks, to J. SILVER, Esq., Collector of Tinnevelly, dated Tutacorin, 8th February 1862, No. 11.

1. I have the honor to acknowledge the receipt of your letter, No. 137, dated 5th instant, forwarding a copy of the Proceedings of the Madras Government, dated 30th January, No. 142, with reference to which I beg you will be good enough to tender my most respectful acknowledgment for the increase of Rupees 50 per mensem to my salary, and for the liberal gratuity of Rupees 2,000 awarded me. I beg you will also assure His Excellency and the Members of Council, that no exertions or pains will be spared on my part, in promoting future Pearl Fisheries, and towards keeping a careful conservancy over the Banks now stocked.

2. I beg also to tender to yourself my warmest thanks, for the kind manner in which you have been pleased to place on record my services, and trust that my exertions may long continue to meet with your approval.

(True Copy.)

(Signed) J. SILVER, Collector.

Ordered to be submitted to Government as desired.

(True Copies and Extract.)

Secretary.

To J. D. Sim, Esq., Secretary to Government, R. D.

Copy to J. Silver, Esq., Collector of Tinnevelly.

Exd. J. Wright.

No. 1,352.

PROCEEDINGS OF THE BOARD OF REVENUE, dated 26th February 1862.

Read the following letter from A. PURVIS, Esq., Collector of the Godavery District, to W. HUDLESTON, Esq., Secretary to the Board of Revenue, Madras, dated Ramachendrapuram, 18th February 1862, No. 26:—

1. I have the honor to state that Mr. F. Copleston has applied to be permitted to redeem, under the Resolution of the Supreme Government of the 17th October 1861, the land tax,* which he is now paying annually to Government on certain Zerati land, measuring Acres 48-97, under his occupation in the village of Rajahmundry. The greater portion is used for grazing, but Acres 13-65 have within the last two or three years been planted with Cocoanut trees.

* 20 Rupees.

2. Of the total extent, a considerable portion was purchased a few years ago by Mr. Copleston from a party, to whose father it had been given in 1835 by a former proprietor of Rajahmundry on an assessment of 2 Rupees per annum. This assessment was raised to 6 Rupees by a former Collector on the complaint of a subsequent proprietor. This latter assessment has continued to be paid since the village became the property of the State. The remaining land was obtained from Ryots who were holding it at the time.

3. As this is the first application of the kind, and as no detailed instructions on the subject have yet been promulgated, I refer the question for the orders of the Board.

The Collector will dispose of the application under the Resolution of the Governor General on the subject, so soon as the detailed instructions of the local Government reach him.

(A true Copy and Extract.)

(Signed) W. HUDLESTON,
Secretary.

To A. Purvis, Esq., Collector of the Godavery District.

Copy to J. D. Sim, Esq., Secretary to Government, R. D., for information.

Exd. J. Wright.

1862. Department.

No. 5/8.

PROCEEDINGS OF THE BOARD OF REVENUE,

Dated 25th February 1862.
Despatched.
Received.

No. 1,297.

Submitting letter from the Collector of Tinnevelly forwarding one from Captain Phipps Superintendent of the Pearl Banks, conveying his thanks for the increase of salary and gra tuity awarded to him by Government.

FINANCIAL RAILWAY DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following Proceedings of the Board of Revenue, dated 25th February 1862, No. 1,323.

Read Register, from the Collector of Trichinopoly, dated 15th February 1862, of land taken up for Railway purposes in his District in the Quarter ending 31st December 1861, No. 19.

(In Consultation, 19th February 1862, No. 980.)

Resolved that the above Register be submitted to Government with the Board's recommendation that the amount of compensation, viz., Rupees ~~13~~ 0-3 paid by the Collector of Trichinopoly in the 4th Quarter of the year 1861 for 2 cs., 75 gs., 8 as. of land assessed at 8 Annas, 10 Pice, taken under class B or for the diversion of a Nullah in connection with the permanent works of the Railway in his District be sanctioned.

(A true Extract.)

(Signed) W. HUDLESTON,
Secretary.

To J. D. Sim, Esq., Secretary to Government,
Revenue Department, with a Register.

ORDER THEREON, 3rd March 1862, No. 113.

The Government sanction the sum of Rupees ~~13~~ 0-3) thirteen and Pice three, paid by the Collector of Trichinopoly during the 4th Quarter of 1861, on account of compensation for lands taken up for the Railway.

(True Extract.)

Chief Secretary.

To the Board of Revenue.
" Consulting Engineer for Railways,
(with a Statement.)
" Revenue Department.
" Deputy Auditor and Accountant General.
" Civil Paymaster.

Exd. F. Cartledge.

No. 1,323.

1862 Department.

PROCEEDINGS OF THE BOARD OF REVENUE.

Dated 26th February 1862.
Despatched 2 [illegible]
Received [illegible]

No. 1,352.

Requesting him to dispose of Mr. Copleston's application to redeem certain land when detailed instructions for the sale of waste land reach him.

5 Feb 1862.

3 March 1862.

RECD.

No. 1,452.

PROCEEDINGS OF THE BOARD OF REVENUE, dated 3rd March 1862.

Read the following letter from E. B. THOMAS, Esq., Collector of Coimbatore, to W. HUDLESTON, Esq., Secretary to the Board of Revenue, Madras, dated 27th February 1862, No. 48 :—

1. In reply to the Proceedings of the Board of Revenue, dated 21st instant, No. 1,252, I beg to inform you that it is desirable that the sum of 30,000 Rupees applied for, should be sanctioned as early as practicable, in order that the works upon which it is proposed to be spent, may be undertaken immediately.

* Without Estimate.	
Coimbatore...	1
Palladom....	2
Pollachy.....	3
Chuckragherry.	4

2. This amount should be laid out in the repair of roads* and tanks generally, but more particularly in the Taluks noted in the margin, where the pressure of the high prices of grain is aggravated by the almost entire failure of dry crops.

3. As the work will chiefly consist of earth and gravel work, such as raising and strengthening the bund of tanks, metalling roads, clearing drains on either side of them, &c., &c., no immediate superintendence of a professional character appears necessary; and consequently the whole amount may be held at the disposal of the Collector to be expended by the Tahsildars; the District Engineer will of course be consulted before undertaking any large work.

4. Any small establishment which may be required to superintend the repairs, can be paid from the sanctioned amount, and a correct account of expenditure will be eventually rendered to the Department of Public Works.

5. If the Board are of opinion that the sum proposed is too great to be spent by the Collector, half of it might be placed at his disposal as previously recommended, leaving 15,000 Rupees in the hands of the District Engineer, to be laid out in any repairs he deems best.

6. The high prices of grain, the failure of dry crops in some of the Taluks, the decreasing expenditure in the Railway Department, render the immediate disbursement of the proposed amount very desirable.

7. Some may be also beneficially spent in deepening *dry wells* for drinking water; employing the *poor* for labour and only at *large* common wells, or Teppacolums not private wells; 3,000 to each Taluk might be sent (12,000) to be so employed most usefully; reports having come in from several directions, that the springs are failing, and drinking water for both the villages and cattle hardly attainable; many large public wells on which the community depends are already dry.

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1. Ordered to be communicated to the Deputy Chief Engineer, Southern Circle, with reference to his letter, dated 15th February 1862, No. 10,585, with the Board's request that no time may be lost in rendering the sum asked for, available for employment in the District.

2. The Board consider it most desirable that the Collector and the District Engineer should act together in this matter, but at the same time as the first object is to afford work to the suffering poor and to secure the earliest and largest amount of relief by this expenditure, the agency of the Tahsildars will probably be found the most economical and efficient.

3. The Board specially approve of the proposal to devote a considerable portion of the grant to the improvement of public wells.

(A true Copy and Extract.)

Secretary.

To Colonel W. I. Birdwood, Deputy Chief Engineer, S. C.

Copy to J. D. Sim, Esq., Secretary to Government, R. D., for information.
„ to Lieut.-Colonel W. H. Horsley, Secretary to Government, P. W. D., for information.
„ E. B. Thomas, Esq., Collector of Coimbatore.

Exd. J. Wright.

Rev: 1862 Department

Pro: of Govt for March.

No. 716.

PROCEEDINGS OF THE BOARD OF REVENUE.

Dated 3rd *March* 1862.
Despatched 13th —
Received 14th —

No. 1,452.

Communicating with remarks to the Deputy Chief Engineer, Southern Circle, letter from the Collector of Coimbatore, requesting sanction for 30,000 Rupees for the relief of the poorer classes.

Rs. 713.

RECORDED.

31st March 1862.

31st March 1862.

reaped, and in the former the sugar cane crops had been
cut, and Gingilly oil seed was being sown. In the latter District
the outturn of the wet crops in the Vellar Valley was good.
The Cotton crops were not in a good condition owing to the
heavy fall of rain, but the Indigo plants were thriving.
In Vellore the Jonnah crops &c. suffered much. The Gingam
District was healthy, but Small-pox and Murrain among
Cattle, prevailed in all the remaining Districts except
Vizagapatam and fever in all except Godavery. Cholera
prevailed in Vizagapatam and Vellore.

Ceded Districts. There were slight falls of rain in some
parts of these Districts. In Cuddapah the harvest had com-
menced. Indigo had been extensively cultivated. Cotton
was not thriving. In a few parts of the District the grain
pulse and oil seeds cultivation was suffering from disease.
The Southern Sections suffered from want of water. In Bellary
the irrigated lands were being sown. In Kurnool the second
crops on wet lands as well as the Indigo and Cotton crops
were thriving well. While Jowary &c. crops were being reaped.
Small-pox and Cholera prevailed in parts of Cuddapah
and Fever in parts of Kurnool. In the former District
Cattle suffered from epidemics and from want of water.

East Centre. There were partial showers of rain in these
Districts, but in Madras the crops to a large extent had
withered. Indigo and Cotton had been cultivated to some extent.
In North Arcot the wet and dry crops had been harvested.

In

In South Arcot Gingilly and Indigo seeds were being sown.
Cholera prevailed in Madras and North Arcot; the price
of grain continued high.

Cauvery. Rain fell in these Districts and was of
essential service in Tanjore to the Gingilly, Cotton, Indigo,
and the Sumba Peshanum crops. This latter crop as well as
some dry crops were being reaped. In Trichinopoly the
rivers were unusually low, the Navigah and Punjah Culti-
vation was in progress. The Sumba rice crops were being
harvested. The Season was unfavorable to agriculture;
much of the Punjah Cultivation in the dry Talugs had
perished, but the price of grain had fallen slightly.
Cholera prevailed to a slight extent in Tanjore and also
in Trichinopoly, where Fever was prevalent. In the latter
District cattle were suffering from want of pasture.

Southern. The rain which fell in these Districts proved
beneficial. In Madura the crops had suffered much from
a failure of the early rains. Tobacco cultivation was
advancing. In parts of the District preparations were
making for the cultivation of the Kodai solum. The
harvesting of the Navigah crops had commenced. In
Tinnevelly the early Navigah and Punjah crops were
being reaped. The cultivation of Rape was progressing.
The failure of the early rains reduced the extent of

The

the cotton cultivation, but the crops were flourishing in consequence of the rain that fell at a late period. Fever prevailed in parts of this District and both fever and Cholera were raging in Madura where Cattle also suffered from want of pasturage and water.

West Centre. There were very slight showers in these Districts. In Salem Paddy on wet lands as well as Cholum &c were being reaped. Paddy, Cholum &c were sown in parts of the District; the Cotton crops were thriving. In Coimbatore there had been a general failure of the Cholum crops in Punjah land, but in Garden lands both Cholum and Tobacco were flourishing, and so were the crops on irrigated lands. Sugar Cane and Betel Vines were thriving. Cholera prevailed in both these Districts

West. There was no rain in these Districts, except in North Canara where there were partial showers. The second Rice crop and the dry grain crops in North Canara, and the third Rice crop and Garden produce in South Canara had been harvested. In Malabar the harvesting of the Pingaram Crops had been completed. Fever, fever, Cholera and Small pox prevailed in parts of North Canara and fever in South Canara, where Cattle also suffered from murrain.

The following Statement shows the Cultivation of Indigo and Cotton ——— with their market prices up to January 1862 in Fasli 1271, compared with the same period in Fasli 1270. The Collector of Nellore ——— has

had not yet sent the return, and he has been requested to expedite its transmission

	Cotton						Indigo					
	Fasli 1270		Fasli 1271		Market rate		Fasli 1270		Fasli 1271		Market rates	
Districts	Ex lands	Assessment	Ex lands	Assessment	Per Candy	Per Candy	Ex lands	Assessment	Ex lands	Assessment	Per Maund	Per Candy
1	2	3	4	5	6	7	8	9	10	11	12	13
	Acres	Rs	Acres	Rs	Rs	Rs	Acres	Rs	Acres	Rs	Rs	Rs
Ganjam	3858	5389	4673	7016	Uncleaned 16-2 Cleaned 6-8	"	"	"	"	"	33440	"
Vizagapatam	8384	50393	9486	57562	"	28	1129	9810	1283	10040	37	"
Godavery District	5196	9041	3116	6493	Cleaned Cotton 3 Uncleaned 1	"	228	365	91	135	47	"
Kistnah do	124858	185888	99014	153786	"	13	6573	10475	6604	11552	45	"
Nellore												
Cuddapah	23113	28764	26253	30758	"	201650	20677	87341	22032	55876	"	82016 1280
Bellary	249691	256702	293973	305902	3-10-0	"	1856	2323	2614	3019	51-14-0	
Kurnool	115259	108777	65253	66034	"	80	12095	31718	16705	38057	"	1080
Madras	"	"	1	1	"	45	1920	5522	2275	6623	"	koodi 1000
North Arcot	6572	10779	1859	3556	4	"	26	42	6	9	43	"
South Arcot	19239	43264	15959	37014	"	20	23605	50224	19979	42054	"	150 Seed 125 2nd Seed 170
Tanjore	216	310	1070	1627	"	25	847	1416	1070	1643	"	246
Trichinopoly	4273	7621	4087	7807	1	"	737	1539	601	1330	35	"
Madura	56842	99271	41168	71188	1- 3-2 1- 8-0 1-12-0	"	43	60	48	64	"	"
Tinnevelly	168526	165015	165758	169272	"	105	238	264	282	219	"	74
Coimbatore	81435	77870	81853	83496	"	25	"	"	"	"	"	"
Salem	13220	19700	16011	26252	Cleaned Cotton 4-15-8 Uncleaned 2-2-64	"	1497	4914	1563	4599	50	"
North Canara	"	"	100	100	"	1056140	"	"	"	"	"	"
South Canara	"	"	"	"	"	"	"	"	"	"	"	"
Malabar	"	"	"	"	"	"	"	"	"	"	"	"
Total	880709	1071514	830284	1022163	"	"	71265	205933	75044	178221	"	"

Revenue Board Office Madras 3d March 1862

Secretary

To

J. D. Sim Esqr.
Secretary to Government R.D.

FINANCIAL RAILWAY DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following Proceedings of the Board of Revenue, dated 21st February 1862, No. 1,263.

Read letter from A. WEDDERBURN, Esq., Collector of Cuddapah; to W. HUDLESTON, Esq., Secretary to the Board of Revenue, Chepauk, dated 9th December 1861, No. 141.

1. I have the honor to submit herewith two Statements* in the prescribed form showing the particulars and the compensation paid on account of land taken up for Railway purposes, during the second quarter of 1861.

* Classes B and C.

2. The amount of compensation disbursed, for these lands, being Rupees 99-7-6 as per entry in column 9 of the enclosed Statements, I have the honor to request that you will obtain sanction for the same.

The Collector of Cuddapah is requested to insert in the Statement of lands falling under Class C the rent payable by the Railway Company, and re-transmit the Statement to this Office without delay.

(A true Copy and Extract.)

(Signed) W. HUDLESTON,
Secretary.

To A. Wedderburn, Esq., Collector of Cuddapah, with a Statement.

From A. WEDDERBURN, Esq., Collector of Cuddapah; to W. HUDLESTON, Esq., Secretary to the Board of Revenue, Fort Saint George, dated 2nd January 1862, No. 1.

I have the honor to re-transmit the Statement of lands falling under Class C with the rent payable by the Railway Company inserted, as required in the Board's Proceedings, dated 23rd December 1861, No. 7,176.

Resolved, that the above letters together with the Statements enclosed in them be submitted for the Orders of Government with the Board's recommendation that the amount of compensation, viz., Rupees 99-7-6 paid as shewn below for lands taken up under Classes B and C, for the Railway in Cuddapah in the 2nd quarter ending 30th June 1861 be sanctioned.

2. The rent payable by the Railway Company for the lands under Class C is 4 Rupees 10 Annas, calculated in the manner sanctioned in Circular Order, No. 263, dated 5th April 1861, (vide Board's C. O., 18th May 1861.)

	For what purpose taken.	Land.								Loss of produce, compensation.			Total cost to Government.			Rent payable to Government.		
		Extent.			Assessment.			Compensation.										
		A.	R.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
Class B..	Excavation of earth for the way... ...	0	0	26	1	12	7	16	4	0	50	0	0	66	4	0	...	...	...
Class C...	Brick-kilns...	0	1	33	2	15	4	33	3	6	...	...	...	33	3	6	4	10	0
		0	2	19	4	11	11	49	7	6	50	0	0	99	7	6	4	10	0

(A true Copy and Extract.)

(Signed) W. HUDLESTON,
Secretary.

To J. D. SIM, Esq., Secretary to Government, Revenue Department,
with 2 Statements.

ORDER THEREON, 6th March 1862, No. 120.

As recommended, the Government sanction the compensation paid for lands taken up under Classes B and C for the Madras Railway in the Cuddapah District for the 2nd quarter in 1861, amounting together to Rupees (99-7-6) ninety-nine, Annas seven and Pice six.

(True Extract.)

Chief Secretary.

To the Board of Revenue.
" Consulting Engineer for Railways,
(with a Statement.)
" Accountant General.
" Civil Paymaster.
" Revenue Department.

Exd. F. Cartledge.

JUDICIAL DEPARTMENT

edge.

Rev= 1862 Dept.
Rec:d 6th March
No 645.

Proceedings of the Madras Govt in the Financial Railway Dept.

Dated 6th March
Recd 7th " 1862.

No 120

Sanction Rs
99-4-6, compensation paid for lands taken up for Railway Cuddapah District for 2d Quarter 61.

No 713

31st March 1862.

9 inclosures.

RECORDED.

JUDICIAL DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following letter from C. F. CHAMIER, Esq., Registrar of the Sudder Court; to the Honorable T. PYCROFT, Chief Secretary to Government, Fort Saint George, dated Madras, 28th February 1862, No. 32.

I am directed by the Judges to acknowledge receipt of the Order of Government, dated 20th February 1862, and in reply to state that Rules already exist respecting the registration of lands acquired by Uncovenanted Servants in the Judicial Department. These were prescribed in the beginning of 1850 under instructions issued by the late Court of Directors, and will be found at page 119 of the Circular Orders of the Sudder Adawlut. In the case of lands acquired by Covenanted Judicial Officers, the Judges think that the declaration referred to in paragraph 8 of the Secretary of State's Despatch dated 10th August 1861, should be submitted direct to the Government, in whose archives the Registers of such lands are to be kept.

ORDER THEREON, 6th March 1862, No. 373.

Communicated to the Revenue Department in reference to the Order in that Department, No. 318, 14th February 1862.

(True Extract.)

Chief Secretary.

To the Revenue Department.

Exd. F. Cartledge.

FINANCIAL RAILWAY DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following Proceedings of the Board of Revenue, dated 20th February 1862, No. 1,235.

Read letter from H. A. BRETT, Esq., Collector of Salem; to W. HUDLESTON, Esq., Secretary to the Board of Revenue, dated 20th December 1861, No. 263.

I have the honor to submit 2 Statements shewing the compensation paid for lands, trees, &c., taken up for the Railway for the 1st and 2nd quarters of 1861.

2. The Board will observe from the Statements now submitted that the different descriptions of property for which compensation has been paid are situated in the Taluqs of Salem, Sankagiri, and Tripatur. The compensation in the first two Taluqs was settled by the Sub-Collector, and in the third Taluq by the Collector.

3. The amount of compensation paid during the 2 quarters for lands and other descriptions of property falling under class A, or payable by Government, amounts in the aggregate to Rupees 243-9-10; viz.

In the first quarter...	...	...	207 10 0
In the second quarter...	...	...	35 15 10
Total Rupees...			243 9 10

This sum having been paid out of deposit, I request that the sanction of Government may be obtained for my debiting the sum in the public accounts.

4. I also beg to state that no compensation was paid during the third quarter of the current year for any lands, &c., taken up for Railway purposes. No Statement will therefore be sent from my District for the third quarter of 1861.

Ordered to be submitted to Government with the Board's recommendation that the amount of compensation, viz., Rupees 243-0-8 (and not Rupees 243-9-10 as erroneously stated in the Collector's letter) paid for lands, &c., under class A. taken for the "permanent way" of the Railway in the Salem District in the 1st and 2nd quarters of the year 1861 be sanctioned.

The following is an Abstract of the two Statements forwarded by the Collector.

	Land.									Loss of produce.			Tanks, Wells, &c.			Total Amount of Compensation.		
	Extent.			Assessment.			Compensation paid.			Compensation paid.			Compensation paid.					
	Acres	G.	A.	RS.	A.	P.	RS.	A.	P	RS.	A.	P.	RS.	A.	P.	RS.	A.	P.
Statement for the 1st quarter..	...	14	5	...	...	...	0	12	0	76	4	10	130	0	0	207	0	10
Do. 2nd do.....	...	16	6	1	8	5	12	3	4	0	12	6	23	0	0	35	15	10
	...	30	11	1	8	5	12	15	4	77	1	4	153	0	0	243	0	8

(A true Copy and Extract.)

(Signed) W. HUDLESTON,
Secretary.

To J. D. Sim, Esq., Secretary to Government,
Revenue Department, with 2 Statements in original.

ORDER THEREON, 6th March 1862, No: 121.

The Government sanction the sum of Rupees (243-0-8) two hundred and forty-three, and Pice eight, paid by the Collector of Salem during the 1st and 2nd quarters of 1861, on account of compensation for lands, &c., taken up for the Railway,

(True Extract.)

Chief Secretary.

To the Board of Revenue.
" Consulting Engineer for Railways,
(with 2 Statements.)
" Revenue Department.
" Accountant General.
" Civil Paymaster.

Exd. F. Cartledge.

No. 1,517.

PROCEEDINGS OF THE BOARD OF REVENUE, dated 7th March 1862.

Read the following letter from J. W. B. DYKES, Esq., Collector of Nellore. to W. HUDLESTON, Esq., Secretary to the Board of Revenue, Madras, dated Kavali, 18th February 1862, No. 30:—

1. I have the honor to acknowledge the receipt of the Board's Standing Circular of the 7th instant, No. 855, and state that the Estimate for Arts, Trades and Dealings was fixed low for Nellore as the Moturpha was only Rupees 16,527* and the District is agricultural, rather than manufacturing, and commercial.

* Fasli 1270.

2. In imposing the tax I find however that the Moturpha, which I had taken as my basis, had been fixed in the inverse ratio to the means of those taxed. The Pariah weaver paid 8 Annas, the well-to-do Shopkeeper 4 Annas, perhaps less; and striking off those, who could not with propriety be raised to a Rupee, and remitting the assessment on those who have now been brought under the operations of the Income tax, we still shall have a revenue little if any short of what we previously collected in the Taluks I have made the Jamabandi of, whilst in the coast Taluks it will probably be in excess.

3. The Press estimates shall be submitted as soon as ready.

---

1. Ordered to be submitted for the information of Government, with reference to their Proceedings, dated 24th January 1862, No. 103, Revenue Department, paragraph 12.

In Cons. 27th January 1862, No. 416.

2. The Collector's attention will be called to paragraph 11 of the same Proceedings to which his reply is due.

(A true Copy and Extract.)

Secretary.

To J. D. Sim, Esq., Secretary to Government, R. D.

Copy to J. W. B. Dykes, Esq., Collector of Nellore.

Exd. J, Wright.

Revenue Department

No. 1597

Proceedings of the Board of Revenue
held 10th March 1862.

Read the following

No. 89.

From, J. Silver Esqr
Collector.

To, W. Huddleston Esqr
Secretary to the Board of Revenue.

Sir,

Adverting to my letter of 13th February 1862 No. 63, on the Agricultural prospects of the season in Tinnevelly, I have the honor to inform the Board, that the rain that fell on the 12th and 13th was general over the District except in the North, where there was only a drizzle. Some harm was done to the ripe crop in the Southern Talugs, but not to the extent that might have been supposed. The season for Cholamum altogether has been exceptional, but on the whole I should not pronounce it an unfavorable season. The Cudr season was a very good one, the south west monsoon having been abundant. The price of grain has risen since I last addressed the Board, but this is attributable to export to Madura.

I have the honor &c
(Signed) J. Silver.
Collector.

Tinnevelly Collectorate Cutcherry,
Palamcotta, 3rd March 1862.

Ordered

(illegible) 1862. Department,
Subject (illegible)
No. 1,517.

PROCEEDINGS OF THE BOARD OF REVENUE,

Dated 7th March 1862.
Despatched, 12 March 1862.
Received, 13 March 1862.

No. 1,517.

Submitting a letter from the Collector of Nellore forwarding certain information regarding the estimated receipts for Arts, Trades, and Dealings.

Recorded

RECEIVED.

Ordered to be submitted for the
information of Government.—

(Hector Bayly & Boehme.)

Secretary.

To
J. D. Gill Esqre
Secretary to Government
Revenue Department.

P. C. Gowan Esqre

Balance of Postage Labels received and issued during the last 3 years

	½ Annas Postage Labels	8 Annas Postage Labels	1 Anna Postage Labels	2 Annas Postage Labels	4 Annas Postage Labels	8 Annas Postage Labels	½ Anna Envelopes	1 Anna Envelopes	½ Anna Postage Labels for	Total Value
										Rs A P.
Received during 1859	21,20,000	"	4,80,800	"	"	"	64	64	"	114,05[illegible] " "
do 1860	198,80,000	320,000	80,6,000	320,660	480,000	"	34,660	"	"	670,[illegible]3 5 4
do 1861	38,40,000	"	6,40,000	256,000	288,000	"	"	"	"	264,000 " "
Total for 3 years	1,4,40,000	320,000	20,6,800	5,76,660	768,000	"	34,624	64	"	9,48,810 5 4
Issued during 1859	1,506,480	"	424,800	128,080	202,720	20,880	24,720	3,360	12,480	2,10,044 6 "
do 1860	5,69,200	88,000	4,20,[illegible]20	19[illegible],160	4[illegible],480	25,600	28,560	6,640	20,160	3,4[illegible],[illegible]4 "
do 1861	5,24,4,400	72,000	9,0,080	262,880	328,880	31,680	20,640	7,200	11,040	3,59,[illegible]8 "
Total for 3 years	16,20,080	1,60,000	19,84,400	5,8,720	818,560	78,240	73,920	19,200	43,680	9,[illegible]3,[illegible]9 2 8

Rs A P.

Contingent Charges for 1859-120 8 3.
Do for 1860-162-2-9.
Do for 1861-114-15-"

Total 397-10-"

E. E.
Superintendent

Dy Asst Accountant General
Stamp Office
24th February 1862

Accountant General's Office
Received for Rupees 1,83,
Rupees [illegible]
Head of Account

Dated 10th February 1862.
Rs. 183-[illegible]
Cred 11[illegible].

Rupees 1,83.
[illegible]
RECORDED.
24th February 1862.

Certified that the above is a correct account of Postage Labels issued to the Collector of Customs for stamping the Bills of Lading and Manifests of Vessels cleared outwards from the Port of Madras.

Asst Accountant General

1862 Dep^r

Rec^d 1^st

Ltr from the
Secretary of State
to the Secretary to
Govt Revenue Dept^t
No 158— d/24 Feb^y 1862

Revenue 324 of 62.

No 1.

Statement of Postage
Labels received and
issued during the
last 3 years—

Rev - 1862 Vol^o 1^o
Rec^d of Govt for Collar: &
No: 683.

Proceedings of the
Board of Revenue

Dated 13th March 1862.
Rec^d 10^th —
Rec^d 11^th.

Submitting for in:
formation a letter from
the Collector of Tinnevelly
reporting on the prov:
spects of the Season—

13 wicks 522.

No. 713.

RECORDED.

31st March
1862.

C^d 12^th March. R^d 13^th

No. 367.

PROCEEDINGS OF THE BOARD OF REVENUE, dated 16th January 1862.

Read the following letter from A. HATHAWAY, Esq., Collector of Bellary, to W. HUDLESTON, Esq., Secretary to the Board of Revenue, Chepauk, dated 12th December 1861, No. 212 :—

1. In reply to your letter of the 7th instant, No. 6,820, I have the honor to inform you that besides the Treasury, and Stamp, and Postage label Departments, Mr. Blake has magisterial charge of the Bellary Taluk, and is entrusted with the superintendence of the Printing Office, and making the Income tax assessments for the Bellary Taluk, under Section 22 of Act XXXII of 1860.

2. With reference to your remark that extreme and unreasonable delay has occurred in the submission of the periodical accounts of this District, I have the honor to observe, that of those accounts which are prepared in the Account Department (as some are prepared in the Serishtadar and Income Tax Departments) for submission to your Office, there has been delay only in regard to the Budget Estimate Charges for 1862-63 ; the reasons for which, I have explained in my letter to you of the 11th instant, No. 211. The cause of the Demand, Collection and Balance Statement from June, not having been submitted till this month, was owing as already reported, to the Demand on account of Muhtarafa and Income tax not having been settled till the end of October, so that no blame on that account is attributable to the Account Department.

3. The accounts which are submitted to the Accountant General, Civil Paymaster, and Civil Auditor, have been despatched punctually, with very rare occurrences of delay ; and in those instances the delay was owing either to the accounts from the Taluqs not having been received in proper time, or to their having been received in such a state as to render it necessary to call for explanation ; which after due notice taken by me, was intimated to the Officers to whom the accounts had to be submitted.

4. There does not appear to be any necessity for Mr. Blake's being relieved of any of the duties entrusted to him (excepting that which is already contemplated to be discontinued, the signing of Stamp papers, which, as reported on a former occasion, occupies several hours of his time daily) ; as the delay in the transmission of the accounts above alluded to is not owing to want of time to attend to the Treasury duties, but to causes beyond his control, as stated above. Mr. Blake has always been regular and attentive to his duties, and is desirous of making himself more generally useful ; and I trust that with this explanation the Board of Revenue will be pleased to exonerate him from blame.

Ordered to be recorded.

(A true Copy and Extract.)

(Signed) W. HUDLESTON,
Secretary.

To A. Hathaway, Esq., Collector of Bellary.

Exd. J. Wright.

No. 736.

PROCEEDINGS OF THE BOARD OF REVENUE, dated 3rd February 1862.

Read the following letter from J. I. MINCHIN, Esq., Acting Collector of Kurnool, to W. HUDLESTON, Esq., Secretary to the Board of Revenue, Chepauk, dated 18th December 1861, No. 141 :—

1. With reference to the Board's Proceedings, dated 9th December, No. 6,858, calling for the immediate submission of the Demand, Collection and Balance Statements for September and October, I have the honor to state that they were despatched this day, and to forward an explanation from the Deputy Collector in charge of the Treasury, of the delay remarked on by the Board.

2. The servants in the Account Department have of late been much worked with new Forms, and I trust the Board will accept the explanation now offered as a valid one for the delay which has occurred.

ENCLOSURE No. 1.

From D. TIMMAPAH, Deputy Collector in charge of Treasury, to J. I. MINCHIN, Esq., Acting Collector of Kurnool, dated Kurnool, 18th December 1861, No. 436.

1. With reference to the Proceedings of the Board of Revenue, dated 9th December 1861, No. 6,858, I have the honor to inform you that the revised forms of Demand, Collection and Balance Statement were received on the 28th October last, the Teloogoo translations thereof were forwarded to the Taluk authorities on the 9th November 1861, the Taluk accounts were completely received on the 23rd November, and the Statements from July to November were prepared and will be forwarded this day to the Board.

2. I further beg to state that almost all the hands having been engaged in preparing the Treasury account for November during the first week of this month, I was unable to prepare the Statements earlier than this.

(True Copy.)

(Signed) J. I. MINCHIN, Acting Collector.

Recorded.

(True Copies and Extract.)

(Signed) W. HUDLESTON,
Secretary.

To J. I. Minchin, Esq., Acting Collector of Kurnool.

Exd. J. Wright.

1862. Department.

No.

PROCEEDINGS OF THE BOARD OF REVENUE

Dated 16th January 1862.

Rev. 7 Jan. 62.

No. 367.

Recording letter from the Collector of Bellary reporting what duties besides those immediately connected with the Treasury charge Mr Blake is employed on, and explaining the cause of the delay in the transmission of the accounts.

No. 1,575.

PROCEEDINGS OF THE BOARD OF REVENUE, dated 10th March 1862.

Read Proceedings of the Madras Government, dated 8th January 1862, No. 26, Revenue Department, requesting the Board to submit to Government the explanations which the Collectors of Bellary and Kurnool may afford for their great delay in forwarding the Statement of Collections for September and October 1861.

(In Cons. 9th January 1862, No. 146.)

Resolved that the letters received from the Collectors of Bellary and Kurnool, dated 12th and 18th December 1861 respectively, explaining the cause of the delay in submitting the Statement of Demand, Collection and Balance for certain months be forwarded to Government with reference to the above Order. The returns for subsequent months are being received in due time, and no further notice appears therefore necessary.

In Cons. 16th and 23rd Dec. 1861, Nos. 8,014 and 8,178.

(A true Extract.)

Secretary.

To J. D. Sim, Esq., Secretary to Government, R. D.

Copy to A. Hathaway, Esq., Collector of Bellary.
„ to J. I. Minchin, Esq., Acting Collector of Kurnool.

Exd. J. Wright.

Captain Hathaway's letter dated 18th December 1861 with 15 enclosures.

1862. Department.

No.

PROCEEDINGS OF THE BOARD OF REVENUE,

Dated 3rd February 1862.

Read 7 Feb 1862

No. 736.

Recording letter from the Acting Collecto of Kurnool explaining the delay in transmit ting the D. C. B. Statements for Septembe and October.

PUBLIC WORKS DEPARTMENT.

Public.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following papers.

Endorsement of the Chief Engineer, dated Chepauk, 24th December 1861, No. 8,824.

Read the following letter from Captain W. C. PALMER, Acting District Engineer, Trichinopoly, to the Deputy Chief Engineer, Southern Circle, dated Trichinopoly, 12th December 1861, No. 1,362:—

SIR,

From the Acting District Engineer, No. 1,247, dated 19th November 1861.
From the Deputy Chief Engineer, No. 7,638, dated 26th November 1861.

1. Referring to the letters noted in the margin, I have the honor to forward you the following report on the injury done to the Murdyaur under tunnel by the high flood in that river on the 5th ultimo.

2. From enquiries made on the spot it appears that the flood in the river rose higher than was before experienced, and that it was caused by a very heavy local fall of rains and the bursting of some of the tanks in the Zamíndári of Arealur.

3. There was a fresh in the river on the 5th of 6 feet, but during the night it rose to 11½, burst the embankment above the under tunnel, and flooded the country on either side as far as the lines C. C. C. in the accompanying survey, the water forced its way across the Ponnairy Channel and burst the banks in several places to the east of the river.

4. At the under tunnel, as will be seen by the accompanying plan and sections, it scoured the bed in front of the tunnel to a depth of 5′ 3″ and in rear to the excessive depth of 18′ 4″ below the ordinary bed of the river.

5. The whole of the rear apron and retaining wall, was carried away, the abutment of the tunnel on the lower side and one-half of the arch were thrown down for a distance of 132 feet, but the rest of the body of the tunnel appears uninjured.

Vide Tunnel section.

6. The lower wings have suffered severely; the one on the right bank having fallen down for a distance of 25 feet as shown in the plan and elevation, and on the left bank there are two serious cracks right through the wing-wall which has been thrown forward* 1½ inches and will have to be re-built,† a breach was made round this wing-wall into the Channel, and on the opposite or right bank, the river has cut away the Padúgay and high embankment for a breadth of 91 feet to a depth of 4′ 5″ below even the ordinary bed of the river.

* At the point S.
† For a length of 19 feet.

7. Below the under tunnel the course of the Murdyaur takes a sharp turn to the left as shown in the survey and does not join the Coleroon for some distance, but during the late heavy flood it washed away the portion of the island A to B, and made for itself a new course direct to the Coleroon which it will take when there is more than 2 feet of water in the river.

8. The ordinary breadth of the Murdyaur is, as stated by Captain Ryves who laid out the project, 160 feet between the lips of the banks, whilst the length of the under tunnel is 200 feet between the wing-walls, and the crown of the work is 9 inches below the ordinary bed of the stream; and on my previous inspection in September last, when it had been well tried by ordinary high freshes, there was a good deposit of several inches over the tunnel and rear apron and there was no hole at all in the rear; and these facts would show that the level of the crown of the dam is not too high and that the length is sufficient to carry off all ordinary high freshes.

9. The precautions usually deemed necessary to protect works of this kind were taken, a rear apron 21 feet broad and retaining wall 6′ broad × 6′ deep were given, the masonry was good, and the mortar set well and was and is very hard.

10. The tremendous force of the flood and its destructive effects show that extra ordinary measures must be taken to secure the safety of the structure. The plan so generally adopted in

Dated 10th March 1862.
Despatched, 15th ——
Received, 17th ——

No. 1,575.

Submitting letters from the Collectors of Bellary and Kurnool explaining the cause of the delay in submitting the statement of Demand Collection and Balance for certain months.

Read, 1862. Department.
Proceedings of the Board of Revenue.
No. 540.

the Ganges Canal works of securing the rear apron with rows of piles and giving an extended apron of wooden boxes filled with rough stone would be the most effectual, but the scarcity and dearness of wood prevents its adoption.

11. I would therefore recommend the re-construction of the injured portions and the apron with masonry, and that a stronger retaining wall be built on two rows of wells which should be sunk as deep as they can be and until they reach firm soil with an extended apron beyond of cubes of masonry; should this plan be approved I will submit the necessary estimates.

12. I have to observe that on my visit to the under tunnel I temporarily closed the openings of the injured vent, and passed water through the other two vents which are uninjured and we shall be able to pass water through them for the cultivation of the lands in the first freshes next year, and as the full extent of land will not at that time be brought under cultivation, the supply through those two vents will be sufficient until the injuries can be repaired.

13. I consider the construction of the Head Sluice has been of essential benefit, for if it had not been built and the shutters closed and the Coleroon water had been allowed to pass down the Channel the bank at the head between the sluice and the under tunnel would in all probability have been seriously breached.

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1 Original letter.
2 Plans.

Submitted for the information of Government, with reference to their Proceedings, No. 2,276, dated 11th December 1861. The District Engineer will be called upon to submit the necessary Plan and Estimate for repairing the damaged portion and for extending the rear apron.

(Signed) W. I. BIRDWOOD, Colonel,
For Chief Engineer, D.P.W.

From Colonel W. I. BIRDWOOD, Deputy Chief Engineer, Southern Circle, to Lieutenant-Colonel W. H. HORSLEY, Chief Engineer, dated Chepauk, 10th February 1862, No. 10,426c.

SIR,

In compliance with the request contained in your letter No. 9,208, dated 10th January 1862, I have the honor to forward, the accompanying Report on the Murthayaur under tunnel works, in the District of Trichinopoly.

MURTHYAUR UNDER TUNNEL.

1. An under tunnel 200 feet in length, of three vents 4 feet by 3½ feet each, for the purpose of conveying water from the Coleroon under the Murthyaur (which is a brackish jungle stream) into the Ponairy Channel. This Channel is miles 16-6 in length, and has six branch Channels (total length 16 miles) for the irrigation of 2,940 acres of land yielding a revenue of Rupees 18,200.

2. As reported in the Chief Engineer's letter* during a heavy fresh the Murthyaur last year the apron 21 feet in breadth with a retaining wall 6 feet in breadth and 6 feet deep, was all destroyed, and 132 feet of the western extremity of its southern vent carried away, 25 feet in length of the lower western wing-wall has also been undermined and has fallen and a large portion of the river bank below has been washed away; 15 feet in length of the eastern wing-wall has been seriously cracked and thrown forward, clearly indicating that the foundation has given way.

* No. 8,824, 24th December 1861.

3. The river Murthyaur has a rapid fall, is about 160 feet broad and averages between 7 and 9 feet in depth. In great floods it tops its banks, chiefly the left one at several points, in a distance of between 2 and 3 miles above the site of the under tunnel.

4. About 250 yards below the work, the course of the stream turns to the east, its immediate junction with the Coleroon being prevented by a sand bank, and an island in the Coleroon, and thus diverted, it branches aside and ultimately falls into the Coleroon two miles lower down.

5. Considering the length and strength of the under tunnel being 200 feet in length, whereas the river is only 160 feet broad, the crown of the work 8 inches below the river bed with foundations between 9 and 10 feet in depth, and a good rough stone apron 21 feet in breadth, in rear supported by a retaining wall 6 feet broad and 6 feet deep, it is difficult to understand the cause of this accident, except that the river, as I said before, is in the habit of over-topping its banks, in high freshes, in this last fresh, over-topped its natural banks, and the water which had spread above the dam, to the breadth of the protecting embankments gradually gathered together again, as it neared the dam, and dashed over with sufficient force to tear up the apron in rear, and otherwise damage the work.

6. The damaged portions of the work must at once be rebuilt, and in preparing the estimate, I have requested the Acting District Engineer to allow for increasing the length of the wing-walls below, the west wing 50 feet and the eastern wing 40 feet, and the extended wing-walls above, on the right bank 40×3 feet and on the left bank 25×3 feet for greater security in future; a large belt of Durbah grass on the right bank 50×20 feet and left bank 100×10 feet ought further to be planted in rear of the lower wing-walls for the protection of the river banks, the embankments, above the dam which have been slightly damaged must also be substantially repaired.

7. In the estimate for the necessary repairs to be made the item for baling out the water collected in the hollow scooped out below the dam to a depth of 22 feet in places, will be heavy, and Captain Palmer suggests with a view of reducing this expense, as far as possible, to disperse a portion of the water by a cut through the sand bank in the Coleroon mentioned above as diverting the junction of the Murthyaur and Coleroon. I agree with him that it would be both a cheaper and quicker method, but it would require great care in carrying out, as were the cut made too wide or ineffectually closed again, it would interfere with the prolonged course of the Murthyaur before its junction with the Coleroon, and which is an important safe-guard to the under tunnel, the Coleroon being on a much lower level than the Murthyaur, the abrupt junction at that point, would have the effect of increasing the fall and lowering the bed of the Murthyaur below the work to the risk of its foundations.

8. However in such hands as Captain Palmer's I believe there would be no risk. Government have already expressed their confidence in this Officer.

(Signed) W. I. BIRDWOOD, Colonel,
Deputy Chief Engineer, Southern Circle.

ORDER THEREON, 11th March 1862, No. 402.

1. In the foregoing report, dated 10th February 1862, on the Murthyaur under tunnel, the Deputy Chief Engineer explains the injury which has been sustained by that work and the cause. The latter he attributes to the occurrence of a very heavy fresh which, overtopping the bank of the river above the work, was, on its approach to the dam, confined between the protecting wing-walls, and so being headed back could only be discharged with an overfall which proved too strong for the protective flooring. This is probably the case; but in the remedies proposed, no provision seems to be made for guarding against a similar occurrence, as the mere extension of the wing-walls will not prove of any additional strength to the apron which, in the opinion of the Governor in Council, is the main point to be attended to. The apron should be broader, and the retaining wall protected by a rough apron beyond. Probably the extension of the upper and lower wings is desirable and may be carried out as proposed. The suggestion as to the mode of executing the work is a detail which may properly be left with the Executive Officer, who will receive such instructions from the Deputy Chief Engineer as may be necessary, and who will direct the plans and estimates for the proposed additions to be prepared without delay.

2. The Government observe that, even in its injured state, the under tunnel will be of use in supplying water to the lands dependent on the Ponairy Channel during the first freshes of the next year. A full report of the expenditure on this channel and of the present and prospective results to be expected from it should be furnished at an early date.

3. From the Chief Engineer's letter of the 24th December 1861, No. 8,824, above recorded, the Government observe that the accident which has occurred to the Murthyaur under tunnel in consequence of an unprecedentedly high flood in that river on the 5th November 1861, arose from the bursting of some of the tanks in the Zamíndári of Arealur. It is the duty of the Zamíndár to see that his tanks are kept in proper order and provided with Calingulahs, so that on the occurrence of heavy rain no damage may occur to works in the neighbourhood. The Board of Revenue will call upon the Collector of Trichinopoly to report how far, in his opinion, the Zamíndár is liable to make good the injury sustained by the abovementioned work.

(True Extract.)

W. B. Boreley Lieut.-Colonel,
Secretary to Government.

To the Deputy Chief Engineer, Southern Circle.
„ Board of Revenue.
„ Revenue Department.

Exd. S. T. Augustin.

Madras Regr 13th of 1857.

(Seal.)

Memt

Of Joint Claimants & Plaintiffs Petitioners

To The Hon'ble Board of Revenue for Government

Dated 11th March 1862

Sir

In continuation of my letters of the
15th February 1862 No 22
14th February 1862 No 25. the Petitioners have
in the manner & more as required by the Honorable
Secretary for the confirmation of the Honorable
the Governor in Council as per extracts issued
by the Court Kistna Bhalat during the 9 days
April succeeding the hearing of the Appeal No 42
1856 of 1857.

I have the honor to be
Sir
Your most Obedient
Humble Servants

Jas. Bruce

Govt. Pleader

Rev. 1862 Madras
Transmitted for Record.
No. 709.

Proceedings of the
Madras Govt. in
the Rev. Dept.

Dated 11th March
Recd 13th " 1862
No. 402.

Passing orders
on the Report on the
injury done to the
Murdyam under
Tunnel in the District
of Trichinopoly by the
high flood in that
river on the 5th Nov. 1861

15 Ind. Ds 522

RECORDED.

31st March 1862

16 Ind. Ab. 522

c. 29 Aug. 62 fr. Nº 451 & 453
Copy and Letter to Engd. Govt
of 28th June 1862 & 1863

Recd 1862 Octbr 4th
Rec. of Govt 11th March Nº 696.
From Govt Madras Dept
To Secretary to Govt
Dated 11th March 1862
Rec'd 12th — "

Nº 34

(with an Enclosure)

Enclosing a Copy of the Notice issued by the Colr Sudder Adlt fixing the 9th April 1862 for the hearing the Appl Nº 136 of 1857.

Nº 713. Etc

RECORDED.

First Entry
31st March 1862

16 Ind. Nº 522.

Chidambrum

Appeal No 136 of 1857.

Seal.

In the Sudder Court at Madras.

Collector of Masulipatam — Appellant

Versus

Canaly Venkata Narrainapah — Respondent

To The Appellant

Take notice that the above appeal has been remitted by the Lords of the Judicial Committee of the Privy Council for further hearing by the Sudder Court; and that the 9th day of April next has been fixed for such hearing.

By order of the Court.

(Sd) Thos Adl Chinn.

Aff Dy Registrar

Madras
8th March
1862.

Revd 26th Mar 1862

Secl 21

Copy forwarded to Major A. R. Morgan Offg Conservator of Forests for information and guidance in connection with his present duties

No. 862.

Ootacamund 18th March 1862.

From,

Major A. R. Morgan
Offg. Conservator of Forests.

To,

T. Pycroft, Esqr.
Chief Secretary to Government
(Revenue Department)
Fort St. George.

Sir,

I have the honor to acknowledge receipt of the Proceedings of Government No. 541, dated 12th March 1862, and with reference to Para 2 to submit the following explanation.

2. Government in their Proceedings No. 1382, dated 17th August 1860, Para 2, deputed, on the recommendation of Dr. Cleghorn, Captain Beddome to explore the Nalla Mallai Hills and to report on the measures necessary for conserving the Forests. Before, however, arrangeme

† Letter No. 102, dated 15 Augt. 1860.

could be made, Captain Beddome was obliged to proceed to England on Medical Certificate, and there being no officer in the Department available for the duty of exploring the Forests, the subject was allowed to lie over.

3. Captain Beddome was addressed on the 15th January 1862 requesting him, immediately after arrival, to proceed without delay to Karnul and examine the Forests in that neighbourhood. Captain Beddome having been obliged to obtain an extension of leave for three months, this duty has been further delayed, - I hope, however, to be able to submit a full report at an early date, as Captain Beddome is shortly expected.

I have the honor to be,
Sir,
Your Most Obedt. Servant.

W Meyer Major.
Offg: Conservator of Forests

PUBLIC DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following Proceedings of the Board of Revenue, dated 28th February 1862, No. 1,399.

Read letter from J. W. B. DYKES, Esq, Collector of Nellore; to W. HUDLESTON, Esq., Secretary to the Board of Revenue, Chepauk, dated Udayagiri, 16th January 1862, No. 8.

I have the honor to acknowledge the receipt of the Board's Order No. 191, of the 9th instant, communicating the Order of Government in the Public Department of the 7th iden sanctioning the disbursement of the Travelling allowance of the 1st Dresser attached to the Sub-Collector's Office as an advance to be adjusted on the sanction of the Supplemental Budget for 1861-62.

2. These Proceedings were subsequent to the despatch of my letter of the 24th ultimo, No. 281, wherein I brought to the Board's notice, the disallowment by the Civil Aud[illegible] of the 1st Dresser attached to this Kacheri, and requested sanction for the disbursement of the allowances of both the Dressers urging the hardship entailed by depriving these men of their allowances, especially as the Jamabundi was drawing near. And presuming that the omission to include both the Dressers in the sanction under acknowledgment was not intentional, I beg to state that I have ordered the Travelling allowance of the 1st Dresser attached to this Kacheri, to be paid also as an advance to be adjusted on receipt of sanction for the Supplemental Budget for 1861-62. And, for this course I beg the Board will be pleased to obtain the requisite authority of Government.

Ordered, to be submitted to Government, with the Board's request that the Collector be authorized to disburse the Travelling allowance of the 1st Dresser of his Kacheri in advance, pending the receipt of the sanction to the Supplemental Budget for 1861-62. The Order in the Public Department, dated 7th January 1862, No. 18, conveyed sanction for the allowance of the 1st Dresser attached to the Sub-Collector's Office; and the sanction now applied for refers to the 1st Dresser of the Collector's Kacheri.

In Consultation 8th January 1862, No. 107.

(A true Copy and Extract.)

(Signed) W. HUDLESTON,
Secretary.

To J. D. SIM, Esq., Secretary to Government, Revenue Department.

ORDER THEREON, 19th March 1862, No. 354.

Authority granted accordingly.

(True Extract.)

Chief Secretary.

To the Board of Revenue.
„ Collector of Nellore.
„ Accountant General.
„ Civil Paymaster.
„ Revenue Department.

Exd. F. Cartledge.

PUBLIC WORKS DEPARTMENT.

Revenue.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following Endorsement of the Deputy Chief Engineer, Southern Circle, dated 10th March 1862, No. 11,338.

Proceedings of the Board of Revenue, dated 3rd March 1862, No. 1,452.

Read the following letter from E. B. THOMAS, Esq., Collector of Coimbatore, to W. HUDLESTON, Esq., Secretary to the Board of Revenue, dated Coimbatore, 27th February 1862, No. 48:—

SIR,

1. In reply to the Proceedings of the Board of Revenue dated 21st instant, No. 1,252, I beg to inform you that it is desirable that the sum of 30,000 Rupees applied for, should be sanctioned as early as practicable, in order that the works upon which it is proposed to be spent, may be undertaken immediately.

2. This amount should be laid out in the repair of roads* and tanks generally, but more particularly in the Táluqs noted in the margin, where the pressure of the high prices of grain is aggravated by the almost entire failure of dry crops.

* Without Estimate.

Coimbatore	1
Pulladum	2
Pollachy	3
Chuckragherry	4

3. As the work will chiefly consist of earth and gravel work, such as raising and strengthening the bund of tanks, metalling roads, clearing drains on either side of them, &c., &c., no immediate superintendence of a professional character, appears necessary, and consequently the whole amount may be held at the disposal of the Collector to be expended by the Tahsíldárs, the District Engineer will of course be consulted before undertaking any large work.

4. Any small establishment which may be required to superintend the repairs can be paid from the sanctioned amount, and a correct account of expenditure will be eventually rendered to the Department of Public Works.

5. If the Board are of opinion that the sum proposed is too great to be spent by the Collector, half of it might be placed at his disposal as previously recommended, leaving 15,000 Rupees in the hands of the District Engineer, to be laid out in any repairs he deems best.

6. The high prices of grain, the failure of dry crops in some of the Táluqs, the decreasing expenditure in the Railway Department, render the immediate disbursement of the proposed amount, very desirable.

7. Some may be also beneficially spent in deepening dry Wells for drinking water; employing the *poor* for labor and only at *large* common wells, or Teppacolums, not private Wells, 3,000 to each Táluq might be sent (12,000), to be so employed most usefully—reports having come in from several directions, that the springs are failing and drinking water, for both the villages and cattle, hardly attainable, many large public Wells on which the community depends, are already dry.

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1. Ordered to be communicated to the Deputy Chief Engineer, Southern Circle, with reference to his letter dated 15th February 1862, No. 10,585, with the Board's request that no time may be lost in rendering the sum asked for, available for employment in the District.

2. The Board consider it most desirable that the Collector and the District Engineer should act together in this matter, but at the same time as the first object is to afford work to the suffering poor, and to secure the earliest and largest amount of relief by this expenditure, the agency of the Tahsíldárs will probably be found the most economical and efficient.

3. The Board specially approve of the proposal to devote a considerable portion of the grant to the improvement of public Wells.

(A true Copy and Extract.)

(Signed) W. HUDLESTON, *Secretary.*

1 Original Proceedings of Revenue Board, No. 1,452, dated 3rd March 1862.
1 Letter from District Engineer, No. 593, dated 3rd March 1862.

1. Submitted for the orders of Government, with reference to their Proceedings, No. 159, dated 7th February 1862.

2. Government will observe that the Board of Revenue are of opinion that the Collector and District Engineer should act together in this matter; but that as the main object is to find employment to the poorer classes, and to secure the earliest and largest amount of relief by the proposed outlay of Rupees 30,000, they consider that the agency of the Tahsíldárs will probably be found the most economical and efficient.

3. The Deputy Chief Engineer, Southern Circle, begs to recommend that the whole amount (Rupees 30,000) may be placed at the disposal of the District Engineer for expenditure upon such works, as the Collector and he may decide upon, making advances if necessary to the Tahsíldárs for giving effect to the object in view.

4. As there is no other source from whence the required funds may be obtained, the Deputy Chief Engineer would suggest that the amount* may be sanctioned from the Reserve Fund for 1862-63.

* Rupees 30,000.

(Signed) W. I. BIRDWOOD, Colonel,
Deputy Chief Engineer, Southern Circle.

ORDER THEREON, 22nd March 1862, No. 537.

1. As it is evident from the Collector's letter, No. 48, dated 27th February 1862, as well as from the Proceedings of the Board of Revenue thereon, that immediate action is necessary with a view to afford relief to the suffering poor in the Coimbatore District, the Chief Engineer will be requested to state whether funds are available from other Districts for transfer to Coimbatore, and if so, to what extent. In the meantime to avoid delay the Government sanction a grant of Rupees 10,000 from the Reserve Fund of the current year, provided it can be spared to be laid out in the manner recommended by the Board of Revenue.

2. The Reserve Fund for 1862-63 will not be available until the 1st May next, and the Government are therefore unable at the present time to sanction the grant from that source of the sum of 30,000 Rupees referred to in the Deputy Chief Engineer's Endorsement.

3. Colonel Birdwood will be requested to report immediately for the information of Government the amount expended by the District Engineer, Coimbatore, up to the latest date for which accounts have been received, and how much remains at the disposal of that Officer for the remainder of the current official year, and whether some portion of this balance might not also be expended in the way suggested by the Board of Revenue.

(True Extract.)

Lieut.-Colonel,
Secretary to Government.

To the Chief Engineer.
" Deputy Chief Engineer, Southern Circle.
" Board of Revenue.
" Revenue Department.
" Accountant General.

Exd S. T. Augustin.

R 5th Lefy. Ex No 84
85

Dr Foy Ex No 14 in No 57

Rev. 1863 (Bds)
Rec. of Govt. Fort St. George
No 839

Proceedings of the Madras Govt. on the Public Works

Mailed 22 March
Received 1863
No 713 No 537

RECORDED.

31st May 1862
Passing orders on Endorsement out of Dt. Chief Engr. P.W. recommending that the whole amount of ... applied ... the ...

Ordered to be recorded.

111/8/89/RH