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MADRAS RECORD OFFICE

Government of Madras

Public works. DEPARTMENT

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*Proceedings of the Madras Government, Public Works Department,
20th October 1874.*

Read the following :—

No. 456A. From T. MOSS, Esq., Officiating Controller of Public Works Accounts, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, dated Fort St. George, 28th October 1873, No. 4,782 :—

I HAVE the honour to forward herewith, for submission to Government, a Note drawn up by Lieutenant Christie, R.E., Deputy Controller, Irrigation Branch, on the various points connected with Accounts of Irrigation Works (as prepared in Range Offices and audited, etc., in the office of the Controller of Public Works Accounts. Many of the points having been already discussed with you by Lieutenant Christie, you will probably find it convenient to make your remarks and suggestions in the half margin space which has been reserved for this purpose in the Note.

2. Lieutenant Christie has so fully and clearly explained the object with which his Note has been drawn up, that I have nothing to add on that subject except to express my satisfaction that the Accounts Branch has gained the services of that Officer.

3. The following are the heads under which the Note may be considered as divided :—

I.—Classification of Expenditure	...	...	...	Paras. 2 to 5
II.—Do. of Works	...	...	...	" 6 to 11
III.—Do. of Establishment	...	...	...	" 12 to 15
IV.—Distribution of Establishment charges	...	...	...	" 16 to 36
V.—Revenue Establishment	...	...	...	" 37
VI.—Tools and Plant	...	...	...	" 38 to 39
VII.—Receipts on Revenue Account	...	...	...	" 40 to 44
VIII.—Progress Report at present used and nature of audit	...	...	...	" 45 to 65
IX.—Proposed form of Progress Report	...	...	...	" 66 to 75
X.—Register of Works	...	...	...	" 76
XI.—Cash Account Current	...	...	...	" 77
XII.—Abstracts of Estimates	...	...	...	" 78 to 80
XIII.—Sanctions communicated to this office	...	...	...	" 81
XIV.—Irrigation Registers	...	...	...	" 82 to 85
XV.—Land Registers	...	...	...	" 86
XVI.—Separate series of Irrigation correspondence	...	...	...	" 87
XVII.—Monthly volume of Proceedings	...	...	...	" 88
XVIII.—Public Works Code and Manual of Accounts	...	...	...	" 89
XIX.—Working of Control Office	...	...	...	" 91
XX.—Interchange of Accountants between Central office and Range offices	...	...	...	" 92 to 100

4. The few remarks that I have to make may well follow in the order of the heads detailed above.

I.—CLASSIFICATION OF EXPENDITURE.—Lieutenant Christie has intentionally confined his remarks to the classification of works for which Capital and Revenue accounts will have to be kept. But of course there will be expenditure on works for which no Capital and Revenue Accounts will be kept, as for example on isolated

tanks which may not be included in any series of Irrigation works. For recording such expenditure no special instructions are necessary, the existing orders on the subject being sufficient.

II.—CLASSIFICATION OF WORKS.—As regards "cost of land" it seems to me that in the case of a canal it will be sufficient to have the charges for land condensed under the two great heads, viz. :—

I.—Main Canal and Branches.

II.—Distributing channels as provided for in the present form.

A third head required for drains, which in the deltas will occupy a good deal of land.—J. M.

All subsidiary or minor works would have their origin in, or be subordinate to, the above great heads, and all land for such works might, as stated above, be included in the one item "cost of land" under each of those heads. A third head might be opened specially for Madras, thus :—

TANKS.

COST OF LAND.

The combination of sub-heads under *earthworks* recommended by Lieutenant Christie, has apparently been already effected, for in the Accountant-General's form* (No.1) of Capital Account the sub-heads do not appear.

* Circular No. 19 of 1873.

IV.—DISTRIBUTION OF ESTABLISHMENT CHARGES.—Admitting that it is necessary to distribute Establishment charges with strict regard to supervision bestowed on works in each Taluq, Range, and District, I do not think the object will be gained without securing the aid of District Engineers, who should be best able to judge in what proportion the several funds and works should bear the Establishment charges of their respective districts. It has often been remarked by Superintending and Executive Engineers of experience that the Account Department steps in and applies hard and fast rules which bring out results very different to those that consideration of actual facts in each division would produce, and there has been complaint that officers who should know best, have no voice in determining distribution of charges. As District Engineers get copies of the monthly Progress Reports (schedules of expenditure) they could with their knowledge of details and arrangements in each charge (Range) easily fix on the distribution. The distribution thus made would be added to by this office to the extent of a fair proportion of the general charges for Secretariat, Accounts, etc.

My own opinion relative to distribution of Establishment charges is against the course proposed by Lieutenant Christie. According to the principle advocated in his Note, no fairer distribution than that proposed by Lieutenant Christie could be made, but as even that distribution would not be exact, and as the Public Works Establishment is of an Imperial character, or, in other words, is maintained for the good of the country without reference to particular sources of supply of funds, I think it would be useless refinement to do more than fix a per-centage according to which other than Imperial Funds should contribute towards meeting the cost of Establishment. Thus I hold that the charge to Local Funds for Establishment should be at a lower rate than the charge to Imperial Funds. The Public Works Establishment is, so to say, an Imperial necessity, and

is organized on a far more expensive scale than would be thought necessary by Local Fund Boards, and I therefore think that for the work the Public Works Establishment does for Local Funds, it would be sufficient to get such a return as would not form an excessive charge against those funds, and yet be a sensible relief to Imperial in bearing the cost of Establishment. I do not think that 25* per cent. would be too much to expect from Local Funds, and I believe it would be satisfactory to all concerned to have a fixed per-centage. The Local Authorities would, under this arrangement, know that for every 100 Rupees given to the Public Works Department for Work, the outlay on the work would be 80 Rupees, and the department would reserve 20 Rupees to meet Establishment charges. Periodical statements of cost showing fluctuations in Establishment charges would be unnecessary, and, given the expenditure on Work (always easily done), it would be easy at any time to ascertain the balances of grants and the liability of Local Funds. Instead of working, as now, without any knowledge of what the charge for Establishment will be at the end of the year, there will be absolute certainty and greater freedom of action in allotting funds.

In the same way I would fix a per-centage to regulate the charge for Establishment against Extraordinary. All that seems necessary is that Loan Funds shall be charged at a fair rate for Establishment and not in excess of the charge borne by Imperial Funds. By Imperial Funds I mean all funds not got by loans or from local sources. I include Provincial Funds in the term because, in point of fact, those funds are Imperial administered provincially.

I think it would be fair to fix 25 per cent. as the charge for Establishment against Extraordinary plus charges for special Survey Establishments.

The balance of Establishment charges after debiting Local and Loan (Extraordinary) Funds as above, and after debiting the entire cost of Conservancy (Irrigation) Establishment to Imperial, I would charge off to Imperial and Provincial in proportion to the outlay on works and repairs under those heads. The charge under these two heads would be at a higher rate than under Local and Extraordinary, but this would be in accordance with my view expressed above, viz., that having regard to the imperial character of the establishment the Government should be satisfied with a return that on the one side would be considered reasonable, and on the other side be regarded as a sensible relief to imperial in bearing the cost of establishment.

VI.—TOOLS AND PLANT.—The proposal under this head will shortly be met by instructions from the Accountant-General, Public Works Department, *vide* paragraph 30 of his Circular No. 19 of 1873.

VII.—RECEIPTS ON REVENUE ACCOUNT.—The information connected with land revenue and water-rates realized by the Civil Department could, I imagine, be furnished to this office by the Accountant-General of Madras.

The heads under which revenue derived from Irrigation Works for which no Capital and Revenue Accounts are to be kept is to be classed should also be

prescribed. Probably the two heads "Sales of Produce" and "Miscellaneous" would suffice for the classification of such receipts.

VIII.—PROGRESS REPORTS AS AT PRESENT USED AND NATURE OF AUDIT.—Having already written on this subject, I need only refer to the Government Orders marginally quoted, in which my opinion and remarks are recorded. Should any change be made in the present system, I would suggest that the following rule be adopted, in communication with the Controller, to the nature of the work in hand, so as to carry out the object in view, a really effective audit of expenditure on its merits, without undue elaboration of unimportant details on the one hand, or the omission of essential information on the other.

No. 1,480 of 4th June 1873.
" 1,730 of 4th July "
" 1,988 of 11th Aug. "

The Progress Reports in this Presidency are prepared more for the information of District Engineers than of this office, and even by a recent order (No. 1,480 of 4th June 1873) of Government they are made to give information which is of no use to this office, though no doubt useful to District Engineers in compiling their annual reports, etc. In some cases, as noted in my letter printed with G. O., No. 2,226 of the 8th September 1873, Range Officers consider it more important that the District Engineers should receive the first copy of the Progress Report, that is, be supplied before the Controller.

I am not surprised that, in this Presidency, Range Officers prefer to refer to their Progress Reports rather than to their Registers of Works. These Registers were not always kept, and now that they are kept they do not include works costing Rupees 2,500 and under each, and as the questions of District Engineers refer to numbers, etc., of Progress Reports, it is not surprising that Range Officers have got into the habit of making the Progress Reports their books of reference. Another reason for this is perhaps the fact that in the form of Register of Works there is no column to show the allotment of the year, while there is a column for this information in the Progress Report. But the Register for Works is unquestionably intended to be the permanent record of expenditure, and I hope Range Officers will soon come to regard it in that light. The information regarding allotments could be easily entered in the Register of Works, as done in other parts of India.

I am decidedly of opinion that information connected with allotments, past expenditure, etc., should be given by Range Officers in their Progress Reports as done at present, and as done under the Government of India. The furnishing of such information does not—or should not—relieve the Central Office of any work or duty, but is the means of securing complete agreement between the two offices. A Range Officer must not be allowed to incur expenditure under a misapprehension as to past outlay and present allotments, and the only way to prevent this is to require that his Progress Report should show monthly what he regards to be the past expenditure, latest allotment, etc.

IX.—PROPOSED FORM OF PROGRESS REPORT.—I hope it will be found practicable to try the experiment of using detailed printed forms. If it should prove successful—and I think it will—great relief will be afforded to all concerned.

X.—REGISTER OF WORKS.—My remarks above regarding Progress Reports (Section VIII.) refer also to the Register of Works.

XIII.—SANCTIONS COMMUNICATED TO THIS OFFICE.—I have already asked Government for copies of Indents on England and of the letters submitting them to the Secretary of State. If we get these we shall have full particulars regarding stores. If all sanctions as given were eventually followed by complete monthly volumes of Proceedings, as suggested in Section XVII. by Lieutenant Christie, this office would never be in doubt, as it often is now, by the non-receipt orders, which though not appearing to affect the Accounts Branch at the time of issue, are often necessary hereafter. In numerous instances copies of orders not communicated to this office at the time of issue have been obtained by demi-official application afterwards.

XV.—LAND REGISTERS.—The first step towards opening these has been taken by requiring that no land shall be paid for by Civil Officers till receipt of audited bill. Bills are to be submitted to this office and will be prepared in a form which will give the necessary information.

XVI.—SEPARATE SERIES OF IRRIGATION CORRESPONDENCE.—It will not be difficult to arrange for this separation. As regards Range Officers, they might be asked to use paper printed with the word *Irrigation* for their correspondence on Irrigation subjects.

XIX.—WORKING OF CONTROL OFFICE.—I have recently received the orders of Government to propose the remodelling of this office after I shall have been able to judge of its working, by the employment of additional men recently admitted, and, therefore, I need not make any further remarks now.

XX.—INTERCHANGE OF ACCOUNTANTS BETWEEN CENTRAL OFFICE AND RANGE OFFICES.—My opinion that the Accountants should be transferable from one office or charge to another has been already expressed in the letter printed with G. O., No. 637 of the 23rd June 1873. The authority of the Controller would in no way affect or lessen the authority of Range Officers, but there must be some exercise of authority on the part of the Controller if men are to pass from the Range Office to the Central Office and *vice versa*. I think it highly desirable that there should be, not exactly a graded Establishment, but a rising scale of salaries by which deserving men could get a small yearly increase up to a certain limit.

5. As Lieutenant Christie has to meet the Accountant-General, Public Works Department, in Calcutta on the 25th November, it would be very satisfactory were he able, by that date, to inform that officer of all that had been settled towards working the Irrigation Branch of Accounts, and I therefore venture to beg that, if possible, you will at least inform me of the proposals you may make to Government with reference to Lieutenant Christie's report.

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"And generally the mode of exhibiting expenditure in the schedule should be adapted, in communication with the Controller, to the nature of the work in hand, so as to carry out the object in view, a really effective audit of expenditure on its merits, without undue elaboration of unimportant details on the one hand, or the omission of essential information on the other."

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Note by the Deputy Controller of Public Works Accounts, Irrigation Branch.

Remarks by Chief Engineer for Irrigation.

THE object of this Note is to call attention to the different points on which orders are required with a view to putting the Capital and Revenue Accounts of Irrigation Works on a proper footing. I have endeavoured to put each question as clearly and fully as possible, but I can hardly suppose that I have made each point as intelligible to others as it appears to me; I therefore trust that before this Note is finally disposed of, I may be allowed an opportunity of personally discussing with the Chief Engineer or the Chief Engineer for Irrigation any points on which my remarks or suggestions may be considered open to objection. I would also express a hope that these questions may be disposed of as soon as possible. To set the Accounts right as regard the future is, in my opinion, the first thing to be done. As for the past, it matters very little whether it is taken up now or twelve months hence.

2. CLASSIFICATION OF EXPENDITURE.—In paragraphs 11 to 13 of the Note accompanying Government of India Circular No. 80 of 1871, it is laid down that all expenditure in connection with Irrigation Works shall be classed under two heads, Capital and Revenue; and it is further ordered that—

I.—Capital shall comprise all original projects and extensions that may be authorized to be charged to this head.

II.—Revenue shall include all repairs, all renewals and extensions costing not more than Rupees 5,000 each for separate objects, and any others in excess of that sum which may not be sanctioned against Capital.

The Circular here referred to was circulated with G. O., dated 30th April 1872, No. 1,102, and, as the orders of Government take no exception to the rules furnished by the Government of India in this matter, it was supposed by this office that these rules were accepted, and that all expenditure on renewals and extensions estimated to cost not more than Rupees 5,000 each for separate objects should accordingly be treated as a charge against Revenue. I now understand that the Chief Engineer for Irrigation does not

The rule of the Government has been accepted as applicable to all the great works or systems of Irrigation for which detailed Capital and Revenue Accounts are kept; but it has been pointed out that it is not applicable to the irrigation works of this Presidency generally, as the 5,000 Rupees limit would represent frequently more than the entire Capital cost of the works.

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classification of expenditure on—

- (1.) Capital Account.
- (2.) Revenue do.
- (3.) Works for which no Capital or Revenue Accounts are kept.

3. Colonel Mullins' opinion I understand to be that small additions and improvements, and improvements not of a durable and substantial nature, should generally be charged to repairs, but that it is not right to burden the Revenue Account of a work with charges of account of new works costing as much as Rupees 5,000 each. It is not for me to express an opinion as to the limit which should be fixed for new works chargeable to the Revenue Account; but I wish to observe that if any new works are to be charged to the Revenue Account—and Colonel Mullins himself considers that some new works should be so charged—there appears to be no reason why the distinction between "Extensions and Improvements" on the one hand, and "Maintenance and Repairs" on the other, should not be maintained as desired by the Government of India. "Repairs," in the sense in which the word has hitherto been used in connection with Public Works Accounts, is a technical word which includes in its technical meaning a number of works, which in a non-technical sense are not repairs; for the head "Repairs" is now substituted the head "Maintenance of Works;" under the main head "Maintenance of Works" it is proposed* that there should

* Vide forms accompanying Accountant-General's Circulars 6 and 15 of 1872.

be two minor heads, viz., "Extensions and Improvements" and "Maintenance and Repairs." I think that all original works, no matter how petty, or how unsubstantial, that is, all works which are not repairs in the non-technical sense of the word should, if charged to the Revenue Account, be classed as "Extensions and Improvements," and under "Maintenance and Repairs" I would class only such works as are strictly Repairs.

4. Under each of the great heads, Capital and Revenue, the Government of India, in their Circular No. 80 of 1871, slightly modified by Circular No. 40 of 1872, printed with G. O., dated 6th September 1872, No. 2,126, have prescribed other heads, sub-heads, and minor heads of classification. It is understood that the Government of Madras agree to adopt for certain large works, or rather systems of works, a classification

As I understand the intention, no works from which revenue is derived or intended to be derived should be classed under the third head, but only such works as river embankments and perhaps a few others, which are carried out for the general welfare and improvement of the locality concerned, and are of the nature rather of Miscellaneous Public Improvement though executed from Agricultural Funds. There are some works about which there may be some little doubt, as for instance, drainage works. These, if intended primarily as a means of securing or extending cultivation and revenue should, I think, be classed under the first or second head, while if not so intended they would properly fall under the third head. Thus the drainages of the lands generally of the Godavery and Kistna Deltas should, as is now being done, be charged to the Capital outlay of the Delta Irrigation Works, and the subsequent maintenance of these drains to Revenue. On the other hand, the drainage of the villages, recently ordered by Government to be undertaken, should so far as it may be provided for under Agricultural be classed under the third head as no returns in Revenue are expected from the outlay.

It follows from these remarks that all outlay on tanks should be classed under either Capital or Revenue. No Capital and Revenue Accounts in detail may be kept for these works individually, but there is no reason why general Capital and Revenue Accounts should not be kept by Districts in the first instance, and, afterwards as information becomes more complete, by groups. I see no objection to outlay under Revenue being divided into the two sub-heads—

- (1.) Extensions and improvements.
- (2.) Repairs.

It will in no way prevent Government deciding in particular cases whether the extensions and improvements should not be rather charged to Capital. As a rule I think Minor New Works, sanctioned for the improvement of the numerous petty irrigation works of this Presidency, should be charged to Capital. Such are new waste or surplus weirs, sluices, and revetments when

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The Circular here referred to was circulated with G. O., dated 30th April 1872, No. 1,102, and, as the orders of Government take no exception to the rules furnished by the Government of India in this matter, it was supposed by this office that these rules were accepted, and that all expenditure on renewals and extensions estimated to cost not more than Rupees 5,000 each for separate objects should accordingly be treated as a charge against Revenue. I now understand that the Chief Engineer for Irrigation does not

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It will in no way prevent Government deciding in particular cases whether the extensions and improvements should not be rather charged to Capital. As a rule I think Minor New Works, sanctioned for the improvement of the numerous petty irrigation works of this Presidency, should be charged to Capital. Such are new waste or surplus weirs, sluices, and revetments when

Remarks by Chief Engineer for Irrigation.

modelled upon that of the Government of India. The exact classification to be adopted has not yet been fixed. Until it is fixed it is useless for this office to attempt a classified booking of expenditure. District Engineers have been requested to furnish lists of works in progress or sanctioned for execution, in connection with schemes for which Capital and Revenue Accounts have been ordered to be kept; these lists will be forwarded, with any remarks which this office may have to make, to the Chief Engineer for Irrigation, who has undertaken to revise the classification adopted by District Engineers, and to place before Government a complete scheme of classification.

5. The question of classification is perhaps not one on which this office should advise; but, as the consideration of the question has been forced upon me in connection with the work of this office, I will here state the views which I have formed. My remarks may not be of any service. They can do no harm.

6. CLASSIFICATION OF WORKS. Under "Capital" it is proposed by the Government of India to class the expenditure as on Works, Miscellaneous, Plantations, Establishment, and Tools and Plant. I will first take "Works," which according to the Government of India scheme are classified as follows:—

A.—Temporary Works to maintain and regulate supply.

B.—Cost of land.

a. Main Canals and Branches.

b. Distributing channels.

C.—Masonry Works.

(1.) Main Canals and Branches.

a. Dams and regulating works.

b. Falls and weirs.

c. Aqueduct and works to divert or pass drainage across the canal.

d. Escapes.

e. Irrigation outlets.

(2.) Distributing Channels.

a. Head sluice and regulating works.

b. Falls and weirs.

c. Aqueducts.

d. Irrigation outlets.

entirely new works, new supplying channels with their head sluices, etc. On the other hand, altering calingulabs into surplus weirs, small extensions of revetments or their reconstruction on an improved section, remodelling supply channels, works for rendering old native, or other, anicuts more water-tight or bringing their crests to a level, etc., would come under extensions and improvement chargeable to Revenue.

The classification shown in the Note accompanying Government of India Circular No. 64 of 1871 has been adopted as regards the principal heads denoted by Capital letters, and the sub-heads indicated by numerals, *vide* Proceedings of Madras Government, No. 2,731, dated 10th November 1873, communicating that Circular to all District Engineers. The Budget of 1874-75 was prepared as far as time would admit in conformity with that order.

The anicuts have been classed under this head, as they occupy the place of the temporary works apparently referred to.

Another sub-head for drains required in the deltas; and, out of the deltas, land for tanks would have to be shown separately.

Under present orders these further subdivisions have not been adopted.

Do.

do.

Remarks by Chief Engineer for Irrigation.

- (3.) Drainage works.
- (4.) Supply of tanks.
- (5.) Road Bridges.
- (6.) Navigation works.
- (7.) Mills and application of water power.
- (8.) Buildings.
- (9.) River or protective embankments.

D.—Earthworks.

- (1.) Main Canals and Branches.
 - a. Excavation of bed.
 - b. Embankments or protection of banks.
 - c. Diversions of drainage crossing the canal.
 - d. Escape channels.
- (2.) Distributing channels.
- (3.) Drainage (surface of lands).
- (4.) Supply of tanks.
- (5.) Navigation channels.
- (6.) Supply channel to mills.
- (7.) River or protective embankments.

E.—Miscellaneous.

7. The head "Temporary Works to maintain and regulate supply" is not applicable to large schemes in this Presidency; I would substitute for it "Head Works," sub-divided into "Masonry Works" and "Earthworks."

Under "Cost of land" it may be necessary to provide for compensation for lands taken up for drainage works, supply of tanks, road-bridges (or diversions), navigation works, or buildings. The sub-heads given in the Government of India scheme make no provision for such a contingency. Such items of compensation would probably have to be entered under sub-head "a,—Main Canals and Branches" but this would be altogether inconsistent with the classification adopted under "Masonry Works," which requires a clear distinction between "Main Canals and Branches" and "drainage works," Supply of tanks, etc. I think the number of sub-heads "under cost of land" must be increased to provide for drainage works, supply of tanks, road-bridges, navigation works and buildings, or—and this seems to me the better plan—two sub-heads should be added under "cost of land" for drainage works and supply of tanks, whilst road-bridges, navigation works, and buildings should be made throughout minor heads of the sub-head.

Not in Circular 64 of 1871, and would generally be classed under works for which no Capital or Revenue Accounts are kept.

These sub-divisions have not been adopted.

Not in Circular No. 64 of 1871.

Anicuts or weirs, but not the head sluices which formerly were included under "Head Works," but which belongs to C. Masonry Works, Main Canals and Branches.

Drainage and tanks and buildings too may be added. "Supply of tanks" is not as applicable as "Tanks" only, which latter should be taken to refer to all land required for the tank or its connected works.

Land for road-bridges should be put down as (1) Main Canals and Branches, (2) Distribution, (3) Drainage or (4) Tanks according to the description of works in connection with which the bridges are built.

Navigation works are included in main canals and branches.

Navigation works should be, but not buildings which are not component parts of the canals.

Remarks by Chief Engineer for Irrigation

"Main Canals and Branches" under "Masonry Works." To "Main Canals and Branches" I think it will be necessary to add a minor head for "Inlets for local drainage." I say this on the supposition that the minor heads "dams and regulating works," "falls and weirs," "escapes" and "irrigation outlets," are to be maintained; but I certainly think it would be better, as being quite sufficient and much simpler, to merge these under the one head "Irrigation Works," that is works necessary to the canal *quâ* Irrigating Channel. The same remarks apply to the head "Masonry works—Distributing channels." There is a sub-head "road-bridges" under "Masonry Works," but no parallel sub-head under "Earthworks" so that there is no provision for road diversions, and metalled-crossings, which latter appear to be in common use in some districts. The classification should provide for these works. The sub-head "Mills and application of water power" is not required.

"Under Earthworks—Main Canals and Branches," I would combine the two first minor heads "Excavation of bed" and "Embankments and protection of banks," for I really do not see how the cost of the two can be kept separate; nor do I see what is gained by making two heads for drainage diversions and escape channels. I would have one head only.

8. I do not think that much advantage is gained by making "Masonry works" and "Earthworks" primary divisions. I would rather make "Head Works," "Main Channels," "Distribution Channels," etc., primary divisions, and have "Masonry Works" and "Earthworks" as sub-divisions under these. It will very often be convenient to have in one view the cost of all works on any main channel, but it can never, as it seems to me, be of much use to have in one view the cost of all masonry works comprised in any project. This view of the matter would now appear to have been taken by the Government of India, for the order which I here suggest is, in the Accountant-General's Circular 19 of 1873, prescribed for adoption in the annual appropriation returns.

9. I think it would be an advantage to keep the cost of preliminary surveys distinct from other items of expenditure, and for this purpose I would introduce a main head "Preliminary

As the minor sub-heads have not been adopted, the consideration of this suggestion is not necessary.

They may very well be placed under "earthworks" without any further sub-division.

This does not matter; it is merely a recognized sub-head, and it is ready for use when required.

Vide remarks on Classification.

I agree with Lieutenant Christie's remarks on this point, but the aim has hitherto been to conform as far as possible to the classification desired by the Government of India.

Hitherto Preliminary Expenses have not appeared, as a rule, in project estimates, but they might with advantage be brought forward therein. I do not think sub-heads are required.

Remarks by Chief Engineer for Irrigation.

It may be at any time.

No, and is not likely to be. I think sub-heads of Tools and Plant may be extended. Quarry plant is an important item sometimes. "Floating Plant" is perhaps better than "Navigation Plant" as it would more properly include dredges, etc.

Sub-heads not necessary, I think.

"Main Canals and Branches" would be preferable.

"Tanks" only better.

Not necessary usually as the navigation channels when charged to Agricultural are main canals and branches.

Anicuts or weirs.

This sub-head unnecessary, as the earthworks are usually petty, such as excavating foundations and forming temporary dams.

Vide remarks above on Classification.

Vide remarks above.

Not necessary.

Expenses," with sub-heads "Establishment," "Tools and Plant" and "Miscellaneous." The main head "Plantations" is not required. Under "Establishment" no change seems required. Under "Plant" the sub-head "Machinery for Mills" is unnecessary.

10. I have above detailed the changes I would propose in the classification adopted by the Government of India; below I give in one view the classification which I propose for adoption under "Capital":—

I.—Preliminary Expenses.

- A.—Establishment.*
- B.—Tools and Plant.*
- C.—Miscellaneous.*

II.—Land.

- A.—Head-works.*
- B.—Main Channels.*
- C.—Distribution Channels.*
- D.—Tanks and their supply channels.*
- E.—Navigation Channels.*
- F.—Drainages.*

III.—Construction.

- A.—Head-works.
 - 1. Masonry works.
 - 2. Earthworks.
- B.—Main Channels.
 - 1. Irrigation Works.
 - a. Masonry Works.
 - i.—Dams and regulating works.*
 - ii.—Falls and weirs.*
 - iii.—Irrigation outlets.*
 - iv.—Inlets for local drainage.*
 - v.—Escapes.*
 - vi.—Aqueducts and under-tunnels for passing drainage.*
 - b. Earthworks.
 - i.—Excavation and embankment.*
 - ii.—Escape channels and drainage diversions.*
 - 2. Navigation Works.
 - 3. Roads and Bridges.
 - a. Masonry Works.
 - i.—Bridges.*
 - b. Earthworks.
 - i.—Road diversions.*
 - ii.—Metalled crossings.*
 - 4. Buildings.
 - C. Distribution Channels.

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- a. Masonry Works sub-divided as above if necessary.*
b. Earthworks sub-divided if necessary.*

Sub-division not necessary beyond Masonry and earthworks.

D. Tanks and their supply channels.

a. Masonry Works.

b. Earthworks.

E. Navigation Channels.

a. Masonry Works.

b. Earthworks.

F. Drainages.

a. Masonry Works.

b. Earthworks.

G. River Conservancy and Improvements.

a. Masonry Works.

b. Earthworks.

IV.—Establishment.

A. Direction and Accounts.

B. Executive.

C. Medical.

D. Survey.

V.—Tools and Plant.

A. General.

B. Navigation.

VI.—Miscellaneous.—Experiments and contingencies.

In the above classification I have, in order to adhere as closely as possible to the Government of India scheme, introduced many minute sub-divisions which might, I think, with great advantage be omitted: these I have marked with an asterisk.

11. Revenue expenditure might, I think, be classified as follows:—

I.—Maintenance of Works.

A. Extensions and Improvements.

1. Head-works.

2. Main Channels.

3. Distribution Channels.

4. Tanks and their supply channels.

5. Navigation Channels.

6. Drainages.

7. River Conservancy and Improvement.

8. Miscellaneous.

B. Maintenance and Repairs sub-divided as above.

II.—Establishment.

A.—Direction and Accounts.

Vide remark above.

"Tanks."

Not required.

Not required.

This would come under either Executive Establishment or Preliminary Expenses.

"Quarry" might be added when necessary.

The kind of contingencies would need specification.

Unnecessary as not chargeable to Agricultural unless they are irrigation canals as well.

Chargeable usually to works for which no Capital and Revenue Accounts are kept.

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None in the Public Works Department.

"Quarry" also when required.

B.—Executive.

C.—Conservancy and Water Regulations.

D.—Navigation.

E.—Revenue collection.

F.—Medical.

III.—Tools and Plant.

A.—General.

B.—Navigation.

IV.—Miscellaneous.

It will be seen that the classification suggested for Revenue is as nearly as possible parallel with that suggested for Capital.

12. CLASSIFICATION OF ESTABLISHMENT.—

It is the wish of the Government of India that in the annual Budget Estimates and Appropriation Returns, the estimated and actual charges on account of establishments shall be detailed in a methodical manner according to a fixed scheme of classification. In the model form forwarded with Government of India Circular No. 64 of 1871, the following classification is given:—

I.—General.

1. Direction.

a. Office of Chief Engineer and Secretary.

b. Superintending Engineers.

c. Accounts.

2. Executive Establishment.

a. Engineer Establishments.

b. Upper Subordinate Establishments.

c. Lower Subordinate Establishments.

d. Petty Establishment.

3. Water Regulation.

4. Medical Establishment.

5. Survey.

a. Engineer Establishment.

b. Upper Subordinate Establishment.

c. Petty Establishment.

II.—Revenue.

III.—Navigation.

IV.—Mills.

V.—Plantations.

13. This classification is not, as it stands, quite applicable to the establishments of this Presidency. We have no Superintending Engi-

Remarks by Chief Engineer for Irrigation.

On the other hand we have Inspecting Officers and District Engineers. The distinction between Upper and Lower Subordinate Establishments is not known here; though, strangely enough, the term *Upper Subordinate* is still used. Water regulation is part of the duty of the Conservancy Establishment. We have no Revenue (Collection) Establishment worth speaking of; in fact, the Neeranikam establishment in Tanjore is the only establishment of this description so far as I am aware. Navigation establishments we have, but they have always been confounded — improperly I think — with Conservancy Establishments. We have neither Mills nor Plantations; and therefore no establishments in connection with them.

14. I think it is very desirable to take as the basis for the classification of our establishments the several gradations of charges or works, divisions into which the Presidency is divided. Of course it will be necessary to distinguish the different ranks and classes of officers and subordinates; but the basis of the classification should, I submit, be the nature of the charges into which the Presidency is divided. It seems to me useless to classify the establishment charges according to the grades and classes of the different officers, when these grades afford no indication of the nature of the duties performed. A charge which is held by a 3rd Grade Executive to-day may be held by an Overseer to-morrow, and by Assistant Engineer or a Supervisor six months hence. I subjoin a scheme of classification formed as far as possible upon this basis.

I.—Direction and Account.

1. General.
 - a. Chief Engineer and Secretariat.
 - b. Inspecting Officers.
 - c. Control Office.
2. District Engineers.

II.—Executive Establishment.

1. Range Officers.
2. Sub-divisional Officers.
3. Taluk Overseers.
4. Petty Establishments.

III.—Survey Establishment.

1. Engineer Establishments.
2. Surveyors.
3. Petty Establishments.

Chief Engineer for Irrigation?
Accounts?

I do not think it is of this description. There is a Conservancy Establishment for work implied in the name and for the main distribution.

The Navigation and Irrigation Establishments have recently been separated.

Remarks by Chief Engineer for Irrigation.

IV.—Conservancy and Water Regulation.

1. Superintendent.
2. Petty Establishment.

V.—Navigation.

VI.—Revenue Collection.

The expenditure under each sub-head of the above classification will have to be given, in the Budget Estimates and Appropriation Returns, under the four heads, Establishment, Office Establishment, Travelling Allowances, and Contingencies.

15. If the above scheme of classification is approved, District Engineers should be called upon to classify the existing establishments of their districts in accordance therewith, and Range Officers should be required to adopt the classification in their salary bills. A slight modification in the form of salary bill will probably be necessary in order to provide for showing clearly the above classification and certain other information which, as will be seen hereafter, is required to allow of a proper debiting of establishment charges.

16. DISTRIBUTION OF ESTABLISHMENT CHARGES.—The next point to be dealt with is that of the distribution of establishment charges. In dealing with this subject the most convenient plan will, I think, be to state, first, what is the plan of distribution according to present orders, then to point out the objections to that plan; and, lastly, to suggest a procedure for future adoption.

17. The establishments with which this office has to deal are as follows:—

- a. Chief Engineer and Secretariat.
- b. Inspecting officers.
- c. Control office.
- d. District Engineers.
- e. Range Establishments comprising—
 - i.—Construction Establishments.
 - ii.—Survey do.
 - iii.—Conservancy do.
 - iv.—Navigation do.
 - v.—Neeranikam or Revenue do.
- f. Presidency Store Department.
- g. Lithographic Department.

The charges on account of which are adjusted as follows:—

- a. Chief Engineer and Secretariat.—
The Chief Engineer for Irrigation

No sub-division required.

No charge in the Public Works Department.

This is, I think, only another name for Conservancy Establishments.

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and his immediate establishment are charged monthly to Irrigation Extraordinary. The uncharged balance of the Secretariat charges is at the end of the year distributed over the several other heads of service in proportion to the outlay on works under each head.

b. *Inspecting Officers.*—No orders have been passed with regard to the allocation of charges on this account.

c. *Control Office.*—The whole of the charges on account of the Controller's office have hitherto been distributed between the different heads of service, with the exception of Irrigation Extraordinary, in proportion to the outlay, under the several heads. No orders have been passed with regard to the treatment of the charges on account of the Deputy Controller, Irrigation Branch, and the pay of the Special Establishment entertained for the preparation of the Capital and Revenue Accounts of Irrigation Works.

d. *District Engineers.*—The charges on account of District Engineers and their establishments are ratably apportioned to all heads of service with the exception of Irrigation Extraordinary.

e. *Range Establishment.*—All Survey charges in connection with works which are expected to be carried out from Loan Funds, are debited to Extraordinary. All charges on account of Conservancy, Navigation, and Neeranikam Establishments are debited to Imperial, Ordinary. The balance of Range Establishment charges are then dealt with as follows:—

At the end of each month that portion of the Range charges which has not been previously dealt with as above is divided between (1) Extraordinary and (2) all other heads of service taken together, in proportion to the outlay under Extraordinary and under all other

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heads of service. As far as Extraordinary is concerned the monthly debits so made are final; but at the close of the year a further distribution is made, between the several heads other than Extraordinary, of the unallocated balance of establishment charges.

Apparently Irrigation Ordinary is charged too much as it has its special charges for Conservancy, and a full share of the General Establishments.

In making this final distribution the share debitable to Local Funds is first ascertained as follows:—All the balances of Range Establish-

Consulting Architect.
East Coast Canal Range.
Bangalore Range.
Temporary Survey
Establishments.
Local Funds Petty
Establishments.

ment charges (exclusive of those marginally noted) not previously charged off are added together and divided between Local Funds and all other heads of service

taken together in proportion to outlay on works; the outlay by Consulting Architect, and the outlay in the East Coast Canal, Presidency, and Bangalore Ranges being omitted from the total outlay on which the distribution is based. This determines the share debitable to Local Funds, which is afterwards distributed between the several Local Fund circles according to Rules with which this office has no concern.

The shares debitable to Extraordinary and Local Funds having been determined, the balance has still to be charged off. This is done as follows:—First of all a few Establishments are specially treated thus—

The Consulting Architect and the Presidency Store Department are distributed ratably between Provincial and Ordinary.

The Presidency and East Coast Canal Range charges are charged to heads of service in proportion to the outlay under the several heads in each of those Ranges.

The Bangalore Range and Conservancy charges are charged to Imperial, Ordinary.

Survey charges are debited to the head of service concerned.

The Lithographic Department is debited to Provincial and the Local Fund Petty Establishments to Local Funds.

The balance still remaining unadjusted is then divided between Imperial Ordinary and

Remarks by Chief Engineer for Irrigation.

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In making this final distribution the share debitable to Local Funds is first ascertained as follows:—All the balances of Range Establishment charges (exclusive of those marginally noted) not previously charged off are added together and divided between Local Funds and all other heads of service

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The balance still remaining unadjusted is then divided between Imperial Ordinary and

Remarks by Chief Engineer for Irrigation.

Provincial in proportion to the outlay under these two heads.

18. Under what authority the charges on account of the Chief Engineer for Irrigation are, and have been, debited to Extraordinary, I do not know. I feel almost certain that there is no authority for this course, for it is almost inconceivable that, if there were any such authority, neither the Auditor concerned nor the head of the audit branch would be able to produce the authority. I cannot, however, assert positively that there is no such authority; for although, after a search which has occupied more than two months, the Record Department have succeeded in collecting what are said to be all the orders on the subject of the allocation of Establishment charges, I am by no means certain that I have seen all the orders on the subject; for the most ordinary precautions are neglected in the Record Department; there is no attempt whatever to keep together the thread of a long correspondence; and, when the papers connected with any subject happen to be spread over four or five years, it is next to impossible to collect them. I am bound to add that I think this state of things is in some measure—but by no means altogether—due to the weakness of the Establishment.

19. I come now to what appears to me to be objectionable in the present method of dealing with establishment charges.

(a) *Chief Engineer and Secretariat.*—The practice of debiting to Extraordinary all charges on account of the Chief Engineer for Irrigation—setting aside the question of the authority under which this is done—is, I think, open to objection. In the first place the Chief Engineer for Irrigation performs the duties which were until very recently performed by the Consulting Engineer for the Madras Irrigation and Canal Company with a separate establishment, so that some portion at any rate of the pay of the Chief Engineer for Irrigation is fairly debitable to Control of Guaranteed Companies operations. In the next place the Chief Engineer for Irrigation is quite as much concerned and occupied with works carried out from Ordinary as with works carried out from the Extraordinary grant.

The system appears to be extremely complicated.

Yes, and at present more than three-fourths of the outlay supervised by him is from the Ordinary grant.

Remarks by Chief Engineer for Irrigation.

Nor do I think it is right that after debiting to Irrigation (under the head Extraordinary) the whole cost of that portion of the Secretariat which is specially concerned with irrigation, all the rest of the establishment should be ratably distributed between Irrigation (under the head Ordinary) and others. The results, must I think, be to overcharge Irrigation.

Apparently so.

(c.) *Control Office.*—The exemption of Extraordinary from any share of the accounts charge is ordered by the Government of India. I know of no rational justification for the exemption; the only object appears to be to limit the expenditure from the Extraordinary Grant; whether or not this exemption is maintained, I think every system of works should bear its fair share of establishment charges. If the Extraordinary grant is favoured, the Ordinary must suffer; but the charge should, I think, be borne by Irrigation Ordinary and not by Roads and Buildings, Local Funds, and Provincial.

I do not understand this.

(d.) *District Engineers.*—Extraordinary is exempted from all participation in the charges on this account, and the remarks made regarding the accounts charges apply here also.

(e.) *Range Establishments.*—The mode of distributing the cost of Range Establishments is complicated in the extreme. No single principle seems to regulate the process. The complication would matter very little if the results attained by it were approximately correct; but they are not. The cost of the Consulting Architect's Establishment is debited ratably to Imperial Ordinary and Provincial, so that Irrigation (so far as it comes under Imperial Ordinary) bears a portion of the charges on account of this officer, while it can derive no benefit whatever from his services. On the other hand, Conservancy (including Navigation and Neeranikam Establishments) being debited to Imperial Ordinary, instead of the whole charge being borne as it should be by Irrigation, it is to a great extent borne by Civil and Military Buildings, etc. Then again Irrigation is made to bear a share of the cost of the Bangalore Range Establishment, whilst Provincial escapes this charge altogether, although expenditure from Provincial Funds is incurred in that Range. Local Funds and Extraordinary

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Remarks by Chief Engineer for Irrigation.

Provincial in proportion to the outlay under these two heads.

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Nor do I think it is right that after debiting to Irrigation (under the head Extraordinary) the whole cost of that portion of the Secretariat which is specially concerned with irrigation, all the rest of the establishment should be ratably distributed between Irrigation (under the head Ordinary) and others. The results, must I think, be to overcharge Irrigation.

Apparently so.

(c.) *Control Office.*—The exemption of Extraordinary from any share of the accounts charge is ordered by the Government of India. I know of no rational justification for the exemption; the only object appears to be to limit the expenditure from the Extraordinary Grant; whether or not this exemption is maintained, I think every system of works should bear its fair share of establishment charges. If the Extraordinary grant is favoured, the Ordinary must suffer; but the charge should, I think, be borne by Irrigation Ordinary and not by Roads and Buildings, Local Funds, and Provincial.

I do not understand this.

(d.) *District Engineers.*—Extraordinary is exempted from all participation in the charges on this account, and the remarks made regarding the accounts charges apply here also.

(e.) *Range Establishments.*—The mode of distributing the cost of Range Establishments is complicated in the extreme. No single principle seems to regulate the process. The complication would matter very little if the results attained by it were approximately correct; but they are not. The cost of the Consulting Architect's Establishment is debited ratably to Imperial Ordinary and Provincial, so that Irrigation (so far as it comes under Imperial Ordinary) bears a portion of the charges on account of this officer, while it can derive no benefit whatever from his services. On the other hand, Conservancy (including Navigation and Neeranikam Establishments) being debited to Imperial Ordinary, instead of the whole charge being borne as it should be by Irrigation, it is to a great extent borne by Civil and Military Buildings, etc. Then again Irrigation is made to bear a share of the cost of the Bangalore Range Establishment, whilst Provincial escapes this charge altogether, although expenditure from Provincial Funds is incurred in that Range. Local Funds and Extraordinary

Remarks by Chief Engineer for Irrigation.

escape all charges on account of the Presidency Store Department. Add to this, that in one Range (Bangalore) the cost of establishments is made a charge against one head (Imperial) without any regard to the nature of the funds expended; in two Ranges (Presidency and East Coast Canal) the establishments are charged to different heads of service in proportion to the outlay under each of those heads in those ranges, and for all other Ranges the distribution of charges is made in proportion to the outlay under each head in all those Ranges taken together.

20. It has been explained that in calculating the charges debitable to Local Funds the Local Funds Petty Establishment is charged off at once to Local Funds; it is necessary to point out here that as no corresponding item is left out on the other side to balance Local Funds Petty Establishment, Local Funds are charged twice over for Petty Establishment; they are charged, first, for the whole of their own establishment, and again a ratable share of the general Petty Establishment. It would be very much better, I think, to make no distinction between Local Funds' and other Petty Establishment, but to distribute the whole ratably. If absolute theoretical accuracy be required the proper plan will be to charge off Local Funds' Petty Establishments to Local Funds; then to distribute all other petty establishment between Local Funds and other heads in proportion to the outlay under these heads, excluding from the calculation the outlay supervised by Local Funds Petty Establishment.

Very improper; the arrangements are altogether impractical.

Impracticable, because works so supervised are the exception, i. e., no one or very few members of either the General or the Local Fund establishments are exclusively employed on either class of work.

21. It is very possible that a distribution such as I have described may bring about equitable results, but it can only be owing to chance; there is no uniform principle in the rules regulating the distribution; nothing to lead one to expect fair results.

22. Before detailing proposals for the future systematic distribution of establishment charges, it will, I think, be well to see what it is that we want and what we can attain. Absolute accuracy in the allocation of charges is quite unattainable, but approximate accuracy can be attained; I take it for granted that the nearest attainable approach to accuracy is to be

Remarks by Chief Engineer for Irrigation.

This is a fair way, and it is the only way in which a judgment can be formed of the relative cost of establishment to work done in any particular district or range.

aimed at; and the nearest possible approach to accuracy will, I think, be attained by carrying out as far as possible the principle that the cost of any establishment operating in a defined area shall be borne by the works in that area supervised by that establishment.

23. I freely admit that it would be a very great deal simpler to have one general distribution for the whole Presidency; of this there can be no doubt, but the question is whether such a general distribution is of any use whatever; I think it is worse than useless; if establishment charges are to be made even all over the Presidency, why not make all other charges even also? Why not have one uniform rate for brickwork, and another for earthwork? It would only be going one step further. Supervision is as necessarily variable as any other element in the cost of a work. Why then should this element be made even all over the Presidency?

24. Of what use is it to compare the cost of, say, the maintenance of Irrigation works in different districts in relation to the area irrigated, when a very large proportion of the supposed cost of maintenance is quite fictitious? Such a comparison, it seems to me, is that attempted by the Chief Engineer for Irrigation in paragraphs 3 and 4 of his note, No. 397 B, printed with G. O., dated 21st August 1873, No. 2,089. It will be of some use perhaps to examine the figures on which the comparison is based and see how they are got out. The figures in columns 6 and 8 of the comparative statement are actuals for the districts against which they appear, and beyond the fact that the figures in column 6 include charges on account of navigation establishments* in certain districts and an item of charges for Neeranikun

* According to Budget Estimate for 1871-72.
Godavery ...Rs. 16,800
Kistna ... " 8,700
Tanjore ... " 1,344

Establishment in Tanjore; and that the figures in column 8 include the cost of repairs to navigation (a) works, there is no fault to be found with columns 6 and 8. But the figures in columns 4, 5 and 7, and therefore also the figures in columns 9, 10 and 11, are quite fictitious; they in no manner represent facts of the districts against which they appear. Let us see how columns 4 to 7 have been filled in. The starting point is the total—Rupees 3,61,869—

I was not aware of the way in which establishment charges were calculated until I read this paper.

Navigation Establishments may be omitted from Irrigation maintenance charges if navigation receipts are not included in Irrigation revenue.

(a) It will be an advantage to separate navigation receipts and charges so far as to admit of its being distinctly known what they amount to; otherwise, as their capital cost is included with irrigation, it does not matter.

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at the foot of column 7, which was arrived at by the following calculation:—

$$\frac{A \times B}{C} = \text{Rupees } 3,61,869,$$

Where A = total establishment charges of the Presidency, exclusive of sum charged to Extraordinary and the Civil Engineering College charges, but including Conservancy, Lithographic Press, Civil Architect, etc., etc.

Where B = outlay on Repairs Agricultural.

Where C = total outlay Agricultural, exclusive of Extraordinary. Column 6 was next filled in with actuals, and the total of column 6 being deducted from the total of column 7, the difference gave the total of columns 4 and 5. The result, which call 5 a, had next to be split up between these two columns; in order to effect this, the total—Rs. 83,667—at the foot of column 4 was first

$$\left\{ \begin{array}{l} \text{Total Direction} \\ \text{and Accounts of} \\ \text{Presidency exclusive} \\ \text{of Chief Engineer} \\ \text{for Irrigation.} \end{array} \right\} \times \left\{ \begin{array}{l} \text{Outlay on} \\ \text{Repairs} \\ \text{Agricultural.} \end{array} \right\} \times \left\{ \begin{array}{l} \text{ascertained by} \\ \text{calculating as} \\ \text{per margin the} \\ \text{ratable share} \\ \text{of Direction} \\ \text{and Accounts} \\ \text{chargeable to} \\ \text{Repairs Agricultural; the sum of} \\ \text{Rs. 83,667 so obtained was then} \\ \text{apportioned to districts ratably to} \\ \text{the outlay in column 8; the differ-} \\ \text{ences between columns 4 and (what} \\ \text{I have called) 5 a gave the figure} \\ \text{for each district under column 5.} \end{array} \right.$$

25. From beginning to end the figures are purely fictitious. There is a show of great accuracy, but nothing more than a show. I don't think the Chief Engineer for Irrigation would have been at the trouble of calculating to two places of decimals the Public Works charges per acre and the percentage on Revenue, had he known that the figures he was dealing with were all cooked. Of course it may very well happen that the results attained by such calculations as I have described differ very little from the actual charges in each district; but the coincidence must be quite accidental.

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that in future years such comparisons as have now been attempted by districts will be made by taluqs; I need scarcely remark that if establishment charges are to be calculated as they were for the year 1871-72, the discrepancies between figures and facts will be even more glaring than they are now.

26. While on this subject, I may refer to one or two other points in connection with comparative statements of Irrigation outlay and receipts which seem to require attention. The comparative statement for 1871-72 leaves out altogether one most important element in such a comparison, the interest on capital outlay. This is unavoidable at present. Another point is that in a few districts—Salem for instance—there are Conservancy Establishments under the control of the Revenue Authorities; such establishments should, I think, be taken into account in the comparison; they may be paid out of a special cess levied for the purpose; if so, it seems to me that to make the figures against the several districts truly comparable, the cess should be shown under receipts, and the establishments should be included under the outlay. It may also be a question whether the value of the inams held by Nirkatties should not figure under outlay in connection with irrigation.

27. The letter from the President of the Local Fund Board, South Arcot, printed in Proceedings of the Board of Revenue, dated 8th September 1873, No. 1,770, indicates an undesirable contingency which might easily occur under the present arrangements for the distribution of establishment charges. In paragraph 7 of his letter, Mr. Sullivan says:—“The cost of the Public Works Establishment in this district is Rupees 52,273 per annum, and this year the Local Funds of South Arcot are debited with a sum of Rupees 54,510 for the supervision given by the Government Engineers to Local Fund Works. This is in addition to the pay of what is known as the Petty Establishment, i.e., Local Fund Overseers, Lascars, etc. These figures speak for themselves.”

“The whole cost of the Public Works Establishment is more than defrayed from Local Funds, so that not one farthing of the cost of professional supervision of Agricultural Works is borne by Imperial Funds, although the greatest portion of the time and attention of the Engineers is given to the latter.”

Quite unnecessary for the purposes for which the statement is compiled.

Possibly so, but it is very doubtful whether they should be brought to account. No exact and complete comparison of the cost of maintenance relative to acreage and revenue is practicable. Assessments vary; customs vary. If the Salem Local Cess establishments are to be taken into account, how are the Ambravutney channels, which are cleared by the ryots, to be dealt with? The difficulty will be endless if an attempt be made to go beyond State expenditure.

I think there is more than enough for the Irrigation Accounts office to do without hunting up odds and ends of this kind. I doubt whether the cost of the office establishment so employed would not exceed the value of the inams.

Remarks by Chief Engineer for Irrigation.

Mr. Sullivan is wrong in his facts (as he subsequently admits) having taken the Budget provision for the actual debit of the year; but the point to be attended to is that the contingency which was supposed to have occurred is one which is not by any means unlikely to occur; and even if in no district Local Fund Circles are required to defray the whole cost of the Public Works Establishment, it must continually happen that one circle pays very much more, and another very much less, than its share of the establishment which supervises its outlay.

28. It may be well to point out that when one circle is thus made to pay for the benefits enjoyed by another circle, the probability will always be that the poorer circle pays for the benefits enjoyed by the richer; for this reason, the richer a circle, the more it has to spend; other things equal, the larger will the Local Fund outlay be in proportion to the total Public Works outlay within the circle; and inverting the terms, other things equal, the larger the proportion which the Local Fund outlay in any circle bears to the total Public Works outlay in that circle; or, in other words, the greater the share of establishment which ought to fall upon Local Funds, the richer, in all probability is that circle; evidently then, when the establishment charges are made even all round, the chances are that the rich circle is favoured at the expense of the poor.

It should also be remembered that ample and efficient supervision leads to economy in working; deficient supervision is sure to end in waste and extravagance; is it fair then to charge to a work which has suffered from want of supervision, and whose cost has probably been enhanced by that want of supervision, a part of the establishment actually engaged upon another work, the cost of which (under other heads) has been kept low by the very fact of the supervision having been ample.

29. It may be thought perhaps that I have been somewhat too prolix on this subject. I know it is often said that elaborate schemes for charging off establishment charges are mere waste of time. I think otherwise. If it be desirable to ascertain the cost of a work under heads other than establishment—and this I think no one disputes—I maintain that it is

A fact very commonly lost sight of.

The localization of charges will reduce, but not remove altogether the iniquity.

Remarks by Chief Engineer for Irrigation.

* Nothing but a time bill would, of course, really do this, but a fair approximation may be made.

The analogy is not complete. Masonry and earthworks belong to a particular work, whereas establishments supervise and are divisible among many works. If bricks were supplied from a single brickyard to many works, the cost of their manufacture would be distributed but, and here is the difference, according to the quantity taken; whereas it has been shown that the quantity of establishment used, even on such a group of works as those of a range, has not been attempted to be determined although it might be done.

Labour but not supervision.

Not so I think, but altogether second in importance to the outlay on the works themselves so far as the establishments were not specially engaged on these works.

I myself think that it would suffice to determine the charges by ranges in all cases in which there may not be establishments employed solely on particular works, but I see no objection to a further sub-division of such charges if this can conveniently be made.

If by petty establishment is meant the Maistries and Gumastas employed on individual works, the cost should be charged to those works only. It should, I think, be clearly

desirable to ascertain the sums fairly chargeable* to that work on account of establishment as nearly as possible. Superintendence is as necessary an element of work as are bricks and mortar; any argument which convinces me that it is quite enough to distribute the whole cost of the establishments of the Presidency in ratable proportion over all the works of the Presidency, will convince me that the cost of all masonry, all earthworks, all plastering, etc., should be distributed in the same way.

If any further argument is required, there is the commercial argument. What does every manufacturer do? Does he distribute the total cost of his employes over different articles of manufacture ratably to the cost of the material worked up? or does he keep a staff of clerks to work out according to an elaborate scheme, based on time sheets and similar returns, the actual cost of labour for every description of article?

30. An attempt is now being made to put the Capital and Revenue Accounts of Irrigation works on a proper footing; the responsibility for this devolves to some extent on me; I have therefore felt it my duty to insist strongly on what I think a very important point in connection with any attempt to ascertain the real cost of works, a point which has hitherto been treated as quite unimportant; establishment charges having been treated as if they were altogether in a different category from any other element in the cost of a work.

31. I start again now from the point from which I digressed in paragraph 21. I think that, without any difficulty and without throwing any extra work on Range Officers, the charges for establishments could be so distributed that the works in each taluq should bear the cost of the establishment (construction) in that taluq; the works in each sub-division bear the charges of the sub-division; the works in each range the charges of the range; and the works in each district the charges of the district; and, having said that it can be done, I need hardly say that I think it should be done. The distribution can be entirely done in this office if the petty establishments of a taluq are to be lumped together and ratably apportioned to the works of the taluq; but I myself think—and I understood Colonel Mullins to be of the same opinion—that petty establishments should be charged off to the works on which they are

employed. I do not think this would throw any appreciable amount of extra work on local officers, nor do I suppose that Taluq Overseers would often find any difficulty in making the charges; it might sometimes happen that, owing to slackness of work or some other cause, there might be no work to which to charge some portion of the petty establishment; in such a case the fact would be noted and the uncharged balance of petty establishment would be added to the general taluq establishment to be distributed over the works of the taluq.

32. I suggest the following rules for the systematic distribution of establishment charges on the supposition that the distribution must be made in this office according to hard and fast rules:—

a.—Chief Engineer and Secretariat.

I.—The Chief Engineer and Secretary to be charged, ratably to outlay, to all heads of service other than Irrigation.

II.—A fixed contribution from the pay of the Chief Engineer for Irrigation, and the travelling allowances of that officer when travelling on duty connected with the Madras Irrigation and Canal Company to be charged to control of Guaranteed Companies' operations; the rest of the pay and allowances of the Chief Engineer for Irrigation and Joint-Secretary to Government and the establishment of clerks, draughtsmen, and office servants employed immediately under him to be charged to Irrigation.

III.—The remainder of the establishment to be charged to all heads of service in proportion to outlay.

b.—Inspecting Officers.

I.—The pay and allowances of the Inspecting Engineer for Civil and Military Buildings and his establishment to be charged to Imperial, Provincial, and Local Funds in proportion to the outlay on Civil and Military Buildings under each head of service.

II.—The pay and allowances of the Inspecting Engineer for Ports and Communications and his establish-

Remarks by Chief Engineer for Irrigation.

understood that establishment charges, which are to be divided ratably, are to be those only which appertain to establishments employed on all works within a given area. The distinction is a clear and definite one, and to obtain fairly accurate results the difference between general and special establishments must be attended to.

This ought not to happen, and, should it occur, it would be well that it should come under notice. If establishments of any kind have no work to do in one part of a district, they should be transferred elsewhere.

This may not be absolutely correct, but comparatively little of the Secretary's time is occupied by Irrigation work, and so this proposition may be accepted.

Ten per cent. of the salary of the Chief Engineer for Irrigation might be charged to the control of the Madras Irrigation and Canal Company; the travelling allowances when engaged on duty connected with the Company, and the office establishment as provided in the Budget of State control.

Extraordinary and Ordinary ratably.

That is the establishment of the Secretariat.

Remarks by Chief Engineer for Irrigation.

ment to be charged to Imperial, Provincial, and Local Funds in proportion to the outlay on Ports and Communications under each of those heads.

c.—Controller's Office.

Until some separation of the Irrigation accounts from the general accounts is effected, the following rules will be sufficient:—

1.—The special establishment for the preparation of the Capital and Revenue Accounts to be a charge against Irrigation Capital, and to be eventually divided among the different groups or schemes, for which separate accounts are kept, in proportion to the sums finally taken as Capital outlay on those groups or schemes.

2.—The remainder of the establishment to be charged to all heads of service in proportion to the outlay under each head.

d.—District Engineers.

The cost of each District Engineer and his establishment to be distributed over all heads of service, the funds of which have been expended in his district, ratably to the outlay under each head on works in his district.

e.—Range Establishments.

1.—All petty establishments, which can be so dealt with, to be charged off directly to the works on which they are engaged.

2.—The cost of each Taluq Overseer and his establishment, together with any uncharged balance of petty establishment, to be distributed over all heads of service ratably to the outlay under each head on works in that taluq.

N.B.—Local Fund Overseers in independent charge rendering their accounts directly to the Range Office and not through the Taluq Overseer, will be treated as Taluq Overseers.

3.—The cost of each sub-divisional officer and his establishment to be distributed over all heads ratably to the outlay under each head on works in his sub-division.

In the first place it is not clear why establishment employed on Capital and Revenue Accounts should be charged only to Capital. In the next place when will the sums to be taken as Capital outlay be finally determined—not for some years probably.

Again, the Deputy Controller for Irrigation has been, and probably will again be, employed on the general duties of the Control Department. I should say therefore that, at any rate for the present, all the Accounts Department charges should be distributed annually over all heads of service.

Remarks by Chief Engineer for Irrigation.

4.—The cost of each Range Officer and his establishment to be distributed over all heads of service ratably to the outlay under each head on works in his range.

5.—Survey establishments to be charged to the head of service concerned and, in the case of surveys connected with Irrigation projects, to the particular account concerned.

6.—Establishments for conservancy and water regulation, navigation, and revenue collection (Neerani-kam) to be charged to the Revenue Account of the irrigation group or scheme concerned.

Proposals for putting the Presidency Stores on the footing of a self-supporting institution are now before Government. If they are adopted the establishment of the Store Department will not require to be distributed over heads of service.

II.—The debits to heads of service other than irrigation, determined according to the rules detailed above, will be final; but the sums charged to irrigation will be further distributed among the different groups and schemes for which separate Capital and Revenue Accounts are kept; this distribution will be made separately for each taluq, and will be based upon the outlay in each taluq in connection with the several groups or schemes.

III.—When the establishment charges of any taluq have been ratably apportioned to the heads of service concerned, the shares of establishment charges thus determined will be added to the sums expended on works, and the totals so obtained will be taken as the sums on the basis of which the establishment charges of the next higher division are to be distributed; a similar course being followed for each sub-division, range, and district; and in any case in which establishment charges (as for surveys) have been incurred in connection with projects (in connection with which there may have been no outlay on works), these establishment charges will be taken into account in distributing the charges of the next higher division.

IV.—All absentee and sick allowances, and the travelling allowances and batta of officers and subordinates proceeding from one district to another on duty will be distributed over all works in the Presidency in the same manner as

It is probably not of much consequence, but Irrigation works will have to bear somewhat more than their fair share of establishments, owing to their being debited with the cost of the Conservancy Establishments and a full share of the general establishments.

I think it will be found more convenient in the case of the deltas, to divide establishments by ranges rather than by taluqs, seeing that so many individual canals run in more than one taluq, and on the other hand taluqs lie partly in one and partly in another range.

Remarks by Chief Engineer for Irrigation.

the charges on account of Secretariat, etc. The absentee and sick pay of the petty establishments and office establishments and the travelling allowances and batta of officers and others proceeding from one part of a district to another part of the same district will be treated as a charge against the works of the district and will be distributed in the same manner as the charges on account of the District Engineer and his establishment.

33. Rule III. is proposed with a view to correcting to some extent the present anomalous arrangement under which no part of the pay of the Chief Engineer for Irrigation or the Inspecting Engineer for Ports and Communications can be debited to the preliminary operations in connection with the investigation of Irrigation schemes, projects for ghauts, etc., matters which necessarily occupy a considerable—in some cases a very considerable—share of the attention of those officers.

34. The rules proposed above are designed to secure as perfectly as possible a proper incidence of establishment charges, and they necessarily entail a little more calculation than is required for the rough methods of distribution hitherto adopted. At the same time the rules being all based on one principle are easily intelligible, whereas the rules at present in force rest, so far as I can see, on no principle whatever. It should be distinctly understood that the scheme of distribution here proposed is not put forward as calculated to attain a perfect allocation of charges, but simply the most perfect that can be obtained under a hard and fast system. I have no doubt that a more perfect distribution would be attained if every Range Officer were to distribute the cost of his own establishment, every District Engineer the cost of his establishment, and so on, provided that every one of these individuals would be at the trouble of doing so.

35. It remains to be considered whether the distribution should be made monthly or yearly. It seems to me that some monthly distribution is imperatively required; for I hold it to be necessary that the various Local Fund Boards, to say nothing of those who administer all other funds, should, as the year progresses, have some idea of the liabilities they are incurring; proper management of Local

I am afraid the results would be more curious than satisfactory.

I do not see any necessity; the average cost of establishments may very well be taken, or the Budget provision for establishments in relation to the Budget provision for works.

A half yearly distribution would suffice for all purposes of management.

Remarks by Chief Engineer for Irrigation.

Funds can hardly be expected if Local Fund Boards are left until some months after the year has closed, in complete ignorance of the amount for which they have severally become liable for so considerable an item as establishment. I do not however think it is necessary that a monthly distribution should be made in all the detail suggested for the final allocation of charges; I think all essential requirements would be met by a monthly distribution ratably to the outlay in each district; to be corrected by proper detailed distributions at the end of September and at the end of March. Moreover, to obviate undesirable inequalities which must otherwise inevitably arise from slackness of work at certain seasons, I would make each monthly distribution a correction of the previous monthly distributions by basing it on the total expenditure up to the end of the month; thus the distribution for April would be based on the outlay of April, May, and June. It will be seen at once that the inequalities which I here seek to avoid are essentially different from the inequalities obtaining between different ranges or different districts; there may be at certain times of the year scarcely any works in progress in a range, but the establishment of the range may be engaged collecting materials and making necessary preparations for works; it would be unfair to charge the whole cost of the establishment to the few works actually in progress at the time; therefore, while I recommend a distribution at the end of the first half of the year with a view to keeping the different individuals concerned approximately informed of the extent of their accruing liabilities, I would make the final distribution at the end of the year correct that at the end of September, by basing it on the expenditure of the whole year, instead of on that for the last six months only.

36. If the Government of India are not willing to modify the rule under which the extraordinary grant is excepted from all charges on account of District Engineers and Accounts, the rule need not, I think, be a bar to a fair allocation of charges to works; any portion of the establishment charges which, under the rules proposed above, would be debitable to a work carried out from the Extraordinary Grant

The simplest plan will be to treat all alike. The distinction between Loan Fund and Ordinary outlay on the same work is merely a matter of convenience, and the financial merits of the work must be judged with refer-

Remarks by Chief Engineer for Irrigation.

might remain as a charge against that work, but should be met from the Ordinary Grant. This could be arranged without difficulty. Hence to the total outlay from whatever source the money may come.

37. REVENUE ESTABLISHMENTS.—I have now I think exhausted the question of establishments of the Public Works Department, and I have only further to point out that if the net revenue from irrigation is to be properly ascertained all charges on account of establishment paid for and controlled by the Revenue Authorities must be taken into account. The largest item under this head will of course be that for collection of revenue; the cost of which must, I presume, be taken at a percentage on the revenue collected; what that percentage should be I will not presume to suggest. Then there are in each district certain inams to village servants, styled Nurkatties, who are charged with the distribution of water; the value of these inams should, I think, appear as a charge against irrigation. Lastly, there are in some districts — not I believe in all — salaried servants, Monigars and Lascars in charge of anicuts, etc., who are paid by the Revenue Authorities; whether they might not with advantage be absorbed into the Public Works Establishment is, I think, a question to be considered; in any case they are a fair charge against the Irrigation works in connection with which they are maintained; in cases in which such establishments are paid from a special cess on the land revenue, the gross revenue of the work must of course be taken to include this cess if the establishments paid out of it appear on the expenditure side of the account.

38. TOOLS AND PLANT.—In G. O., dated 22nd August 1873, No. 2,094, Government directed that “the cost of all Tools and Plant obtained for use on specific works shall be at once charged against the head of account benefited. And that in the case of Tools and Plant obtained for general purposes or sold as unserviceable, the Range Officer will use his discretion as to which head of account shall be debited or credited.” In the case of Tools and Plant purchased for Irrigation works, or at the discretion of the Range Officer charged to irrigation, it will not be quite sufficient that the head of service benefited shall be charged with the cost of the Tools and Plant in

*In my opinion this should be entirely excluded from the accounts of individual works, and should be referred to only in the annual review of the results of irrigation generally. If, however, for purposes of comparison with the irrigation in other parts of India where revenue establishments form part of the canal administration, a percentage for districts may be fixed and added to the charges in the Public Works Department.

If there be such, and if they are paid by salary bills, it will be best to include them in the Public Works Budget even if they remain under the orders of the Revenue Officers.

It is not necessary to take these village institutions into account. In one locality a cess is levied and expended on labour and petty establishment; in another place the labour is supplied by the ryots and there is no cess. The cess where levied is sometimes also based on custom, and has no legal foundation.

question; the account—Capital or Revenue as the case may be—of the group or scheme concerned must be charged with the cost of the Tools and Plant.

Remarks by Chief Engineer for Irrigation.

Yes.

39. When Tools and Plant are transferred from one head of service to another, or from one irrigation group or scheme to another, they should be transferred at a valuation, the account to which the tools are transferred being debited, and that from which they are transferred being credited with the value so placed upon them.

Yes.

40. RECEIPTS ON REVENUE ACCOUNT.—The heads under which receipts are classed in the model forms of accounts circulated by the Government of India (see Circular 80 of 1871) of—

- 1.—Special water-rates.
- 2.—Navigation.
- 3.—Water power.
- 4.—Plantations.
- 5.—Miscellaneous.

Heads 3 and 4 may be omitted in this Presidency.

41. Special water-rates only obtain in two districts, and even in those districts are not general; the main items of receipts in this Presidency will be the excess of the land revenue of irrigated lands over the amount adopted as standard.

42. The town of Masulipatam is supplied with water from the Kistna Delta canals, and owing to the attention which is now being given to sanitation and local improvements generally by Municipal and Local Fund Boards, it is not improbable that such cases as that of Masulipatam will become common; I would, therefore, suggest that such receipts be separately classed.

43. In some districts the Public Works Department realizes certain sums by the sale of fruit, grass, and other produce raised on canal and river banks; it is however understood that in many cases such receipts are realized by the Revenue Department and fail to be carried to the credit of the projects concerned. It is understood that in certain districts there are fisheries in connection with canals, the revenues of which are realized by the Revenue Officers and carried to the credit of certain Local Funds. The use to which such receipts are put is not very material, but certainly the canals or tanks whence the produce is derived should get credit for its value. Such receipts might be classed

Not required at present, but there can be no harm in retaining them.

No. 1 in this Presidency will be divided where necessary into—

- a. Water-rates.
- b. Land revenue irrigated.

Vide the orders on the subject of Revenue Statements.

Collections under "Town supply" may be exhibited separately.

Miscellaneous can be explained by a schedule or memorandum of receipts under various sub-heads.

Now that Irrigation works accounts are to be kept in so much detail, all items of revenue therefrom derived should be credited to them. Local Funds appear to have no valid claim to any receipts from Imperial works. They were formerly given as grants in aid, but this arrangement would seem to be no longer tenable. There is for instance no apparent reason either of convenience or otherwise for a Nanul Grass

as "receipts from canal produce," reserving the head "Miscellaneous" for items which are not classifiable.

The heads of classification for receipts in connection with Irrigation works would then be—

- 1.—Increase of land revenue irrigated.
- 2.—Special water-rates.
- 3.—Water-supply of towns.
- 4.—Navigation.
- 5.—Canal produce.
- 6.—Miscellaneous.

44. Items of receipts coming under heads 3, 4, 5, and 6 would be realized by the Public Works Department and pass through the books of this office; but the land revenue and water-rates being realized by the Revenue Department, it will be necessary that the sums realized under these heads shall be communicated to this office for incorporation in the Capital and Revenue Accounts which are to be submitted to the Accountant-General, Public Works Department, as accompaniments to the annual Appropriation Accounts. It appears to be very doubtful whether this information can be furnished at a sufficiently early date to admit of the Capital and Revenue Accounts being submitted with the Appropriation Accounts which are due in July. It is desirable that this office should know to whom it is to look—to the Board of Revenue or to Collectors of Districts—for the information in question, and by what date it can be furnished.

45. PROGRESS REPORT.—The progress report, being the foundation of the audit by this office of Range Officer's accounts, is a very important form, and one which I cannot leave out of consideration in discussing the requisites for placing on a proper footing the Capital and Revenue Accounts of Irrigation works. I am quite aware that in raising this question here I am taking up a question on which the Government have already passed orders, and that they have quite recently (Government Order, No. 2,226, of 8th September 1873) stated that they have no intention of sanctioning any modification of the form of progress report prescribed in G. O., No. 2,413, of 19th August 1865; but it appears to me that I should fail in my duty were I to refrain on this account from distinctly pointing out that while much of the information

Remarks by Chief Engineer for Irrigation. Fund. It would be much better to credit receipts to Revenue Miscellaneous and draw funds for expenditure under the same head, or rather sanction estimates against the Budget provision under that head.

Omit "Increase of"

This means collections apparently, see paragraph 14 of memorandum enclosed in letter, No. 103A—I, dated 11th April 1874, from Government of India. It appears to be desired that collections as distinguished from assessments should be brought into the accounts, but it would seem that for all practical purposes the assessment after allowing for remissions might be taken as the revenue. The difference is usually quite immaterial to the financial results of a work.

Board of Revenue.

Remarks by Chief Engineer for Irrigation.

now furnished in the progress reports is perfectly useless to, and never has been utilized by, this office, a very slight modification of the form of progress report will place this office in the possession of information of great utility.

46. I have moreover less hesitation in again raising this question, because it appears to me that in passing orders on the subject, the Government had not before them the full information which they appear to have desired. In paragraph 2 of G. O., dated 20th January 1873, No. 178, the Government call on the Controller "to analyse carefully the forms proposed by the Government of India, and to send forward his own proposals to the Government showing how the information required by the Government of India can best be furnished." I cannot find that any such careful analysis was ever submitted to Government; I shall therefore endeavour to bring out clearly here the points of similarity and difference between the form of progress report which the Government of India suggest for adoption, and that in general use in this Presidency.

47. I should also observe that in their Proceedings of 14th May 1872, the Government prescribed the adoption of the new form of progress report for certain works; so that there are in use at the present moment two distinct forms of progress report. I trust that this fact also will justify me in bringing forward this question. It appears to me that if the new form is really obnoxious to all the objections which have been urged against it, it is a mistake to introduce it even for a few works in a few ranges.

48. In discussing this question of the progress report, there are three points to be considered:—

- 1.—The nature of the audit to be applied in this office.
- 2.—The information to be given in the progress report.
- 3.—The form in which it is to be given.

49. NATURE OF AUDIT.—It has, from the first, been the practice of this office in auditing the accounts of Range Officers to compare the total expenditure on each work with the total of the estimate for the work, no attention being given to the detail of the work, although the form of progress report originally prescribed for adoption

Remarks by Chief Engineer for Irrigation.

appears to have been designed with a view to a comparison between expenditure and estimate under each sub-head. In other provinces the practice is understood to be to compare outlay with estimate under each sub-head, and the form of progress report, the adoption of which is desired by the Government of India, and which has been sanctioned for adoption for a few Irrigation works, is designed to admit of such a comparison. It is necessary that definite orders shall be passed on this point, whether this office is to compare sub-heads of expenditure with sub-heads of estimate, or merely totals of expenditure with totals of estimate.

50. I am decidedly of opinion that much advantage would attend a comparison between expenditure and estimate for each sub-head of estimate. Even if it should not lead to closer attention to the details of an estimate on the part of a Range Officer, and to more strenuous endeavours to work within the estimate in every particular, it would certainly bring to light at the earliest possible date the fact that an estimate is likely to be exceeded; and would keep clearly in view the actual demands which are likely to be made on the funds of the State in connection with any particular work, instead of, as is now too often the case, allowing officers to work on until the total amount of the sanction has been expended and only then to call attention to the necessity of a revision of the estimate and the provision of further funds. Also it seems to me that it is of little use for this office to refuse audit to the expenditure of a single rupee on an item for which there is no provision in the estimate, while it passes unchallenged an expenditure of Rupees 10,000 on an item for which the estimate is Rupees 1,000 only.

51. Officers of the Department are very fond of asking how many rupees are saved by all this mass of accounts and audit, and appear—or pretend—to think that the absence of any such saving is complete evidence of the uselessness of accounts and audit. Now I do not for a moment imagine that the comparison of details of work with details of estimate will lead to any saving, but I am quite sure that it may be made the means of getting rid of much of the irregularity that now prevails.

52. INFORMATION TO BE AFFORDED BY PROGRESS REPORT.—The next point to be considered

Remarks by Chief Engineer for Irrigation.

is the nature of the information to be furnished in the progress report.

The old (Madras) form of progress report provides for the exhibition of the following items of information:—

- 1.—Description of work.
- 2.—Authority for work.
- 3.—Expenditure during month. { Cash, stock, total.
- 4.—Sub-heads of abstract estimate.
- 5.—Work executed during month, under each sub-head of estimate. { Quantity, rate, cost.
- 6.—Amount of estimate.
- 7.—Expenditure to end of past year.
- 8.—Expenditure during current year.
- 9.—Grant for current year. { Amount when authorized.

The new (Government of India) form provides for the following items of information:—

- 1.—Works and heads of estimate.
- 2.—Authority for work.
- 3.—Expenditure during month. { Cash, stock, total.
- 4.—Work executed to end of month. { Quantity, cost, rate.
- 5.—Sanctioned per estimate. { Quantity, rate, cost.
- 6.—Distribution of charges of month. { Capital { Extraordinary, Ordinary, Ordinary Agricultural Works, Suspense Accounts, Revenue.

53. Comparing, then, the two forms, it will be seen that 1, 2, 3, and 4 of the old form give exactly the same information as 1, 2, and 3 of the new form. No. 4 of the new form corresponds to No. 5 of the old form, the difference being that the old form provides for the exhibition of the work executed during the month, whilst the new form is intended to show the work executed up to the end of the month. No. 5 of the new form corresponds to No. 6 of the old, but provides for more detailed information. Nos. 7, 8, and 9 of the old form are not provided for in the new, and No. 6 of the new form is not provided for in the old.

I will now endeavour to show how, in my opinion, the several points of difference noted above affect the utility of the form as the foundation of the audit by this office. I shall not again refer to the points in which the two forms agree.

They are necessary for District Engineers and Supervising Officers.

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54. If the audit by this office is to be based only on a comparison of the total expenditure with the total of the sanctioned estimate, no attention being given to the details of work and estimate, it does not matter one straw whether the progress report shows the work executed during the month, or that executed to the end of the month; because, for the purpose of such an audit, both these pieces of information are *absolutely useless*. It is quite true that for years this office has, at considerable trouble to Range Officers no doubt, been furnished through the progress report with information as to the amount of "work executed during month;" but it is not pretended that this information has ever been utilized in the slightest degree, as a matter of fact it cannot possibly be utilized unless this office makes use of it for checking details of work against details of estimate, and then it would be necessary for this office to keep up registers of works similar to those supposed to be maintained in Range Offices, in order to bring out month by month the work executed to the end of the month. This information is still given, and I therefore think it right to state plainly that, in my opinion, *the time devoted in Range Offices to giving this information is simply wasted*, and I must also notice in connection a further waste of time in this office; it is the practice of this office, on receipt of this useless detail, to apply to it what is called an arithmetical check, and if the expenditure against a sub-head of estimate as calculated from the quantity and rate shown in the progress report differs by a few annas from the expenditure shown therein, the Range Officer is duly advised of the fact, and he makes — or is supposed to make — a correction accordingly. If the time of the Range Office must be wasted in submitting useless information, it would, I think, be well to take no notice of it, rather than to waste the time of this office by applying to it an equally useless check.

Necessary, however, for Supervising Officers.

55. If it is intended that this office shall compare expenditure with estimate, sub-head by sub-head, information as to work executed under each sub-head must be furnished, and there can be no doubt that the information to be given is information as to "work executed to end of month." Information as to "work

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executed during month" cannot be directly utilized. What is wanted for comparison with the estimate is "work executed to end of month." It can make no difference whatever in the work of a Range Office, whether the progress report is made to show work during month or to end of month, it is—at any rate it should be if the instructions contained in the Manual are carried out—simply a question of copying one line of the register of works instead of another line. On the other hand if the progress report is to show only work executed during the month, it will—if details of work are to be compared with details of estimate—be necessary to open in this office registers of works precisely similar to those ordered to be kept in Range Offices; which, I need hardly say, involve a very considerable increase of work.

56. The next point is that the new form provides for the exhibition of details of sanctioned estimate, whilst the old form gives only the total of the estimates. I think both pieces of information, not merely unnecessary, but objectionable. I think that all information regarding sanctions, whether of quantities or amounts, should be furnished to this office directly by the sanctioning authority, and the sanction being properly registered in this office, the Auditor should be taught to look to the sanctions so registered, and to them only. I think it is a very great mistake to look to the officer whose accounts are to be examined for the information required to check them; it saves trouble in this office, no doubt, but, in my opinion, at the expense of security, and whatever trouble it saves to this office it gives to the Range Office. If however it should be thought that this information is information proper to be given in the progress report, then, whether details of the estimate are to be given, as required by the new form, or merely the total of the estimate as required by the old form, must depend entirely upon whether the audit is to be extended to details of work or not.

57. Three items, namely:—

7.—Expenditure to end of past year,

8.—Expenditure during current year,

9.—Grant of current year,

provided for in the old form are not provided for in the new, but it is quite evident that each of these items can very easily be exhibited in

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the new form without devoting a separate column to each; indeed the intention is that this should be done. At the same time I must say that I think it a mistake to call upon the Range Officer to furnish repeatedly the same information. By all means let him give the total expenditure up to end of month that is necessary, and he has only to copy it from the register of works; but why should he repeat month after month the "expenditure to end of past year" which is actually entered in the sub-journals kept in this office, and why should not the Auditor make the subtraction required to arrive at the expenditure of the current year, it may be desirable that the progress report should show the current grant to guard against mistaken assumptions as to the amount of the allotment, but it is not absolutely necessary to provide a column to show this.

58. I cannot leave this point without referring to the opinion expressed by Mr. Brock in paragraph 11 of his letter, No. 2,525, of 29th January 1873, printed with G. O. of 27th May 1873, No. 1,437. Mr. Brock says,— "the Madras form of progress report contains special columns wherein Range Officers record the year's allotment as modified up to date, and the year's outlay. It is thus easy, when these returns are examined, at once to compare the grant and expenditure of the year; but as such a comparison is not provided for by the new form, I think it would be well, in giving effect to the orders which may be passed on preceding paragraph, to supply these omissions. Range Officers have now before them, in one view, two very important items of information, and cannot plead a satisfactory excuse, under ordinary circumstances, for not working up to the full extent of the available funds for each work, or for exceeding the sanctioned allotments."

59. I hope I shall not be thought to exceed my duty in criticising the above opinion, more especially is it necessary that I should ask for indulgence on this point, as Mr. Brock's opinion is accepted, if not endorsed, by Government in their order, and is made, along with another opinion of Mr. Brock's to which I shall return hereafter, the ground of a refusal to authorize the adoption of the new form. Mr. Brock's opinion appears to me to be based upon

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a misconception of the proper function of a progress report, and it seems to me to be necessary that I should endeavour to place the matter in what appears to me a proper light.

60. It is undoubtedly most important that Range Officers should "have constantly before them in one view" the two important pieces of information referred to by Mr. Brock; but I think it is undesirable to a degree that they should be taught to look to the progress report for this information. A Range Officer's record is, or should be if it is kept up, the register of works (*vide* Public Works Accounts, Manual, paragraph 29, Section 2,) and it is, I think, to the register of works that he should look for all information regarding outlay, estimate grant, &c. The register of works is, or should be, a neatly kept book, with an index for convenience of reference; whilst the progress report is about as inconvenient a document as can be imagined for reference; the register of works is a complete record and shows all details of works, whilst the progress report shows details only of items in progress during the month to which it relates; again, it is waste of time (so far as the usefulness of the information to this office is concerned) to enter in the progress report works not yet commenced and works completed, but this must be done if the progress report is to be regarded as the Range Officer's record; lastly, the register of works is an original record, the progress report gives only extracts from the register of works; this at least is the intention, if the Manual of Public Works Accounts is not to be treated as a dead letter.

61. The other reason given in G. O. of 27th May 1873, No. 1,437, for not authorizing the adoption, that is the general adoption, the partial adoption having been previously sanctioned, of the new form of progress report is that it "involves so important a change of principle, viz., the exercise of check over rates by the Controller's office;" I cannot imagine what can have been Mr. Brock's meaning when he stated that the new form of progress report involves the exercise of a check over rates by the Controller. I find it impossible to trace any connection whatever between the two. As a matter of fact the new form of progress report

Work sanctioned but not commenced require to be entered in Supervising Officers' Progress Reports. Works completed and paid for or done with, and the grants and expenditure on all such might be entered in one line under each main head.

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has been in partial use in eight ranges since April 1872, and most certainly there has been no question of a check over rates by the Controller, and most certainly no such questions will arise.

62. I suppose no one will maintain that a comparison of details of work executed with details of estimate, amounts to a check over rates, in the sense of constituting the Controller a judge of the sufficiency or insufficiency of rates. For, any one who maintains, rightly as I think, that the Controller whether an Engineer or not can seldom, if ever, be in a position to judge of the sufficiency or insufficiency of rates, must certainly also maintain that the Controller cannot be a judge of the sufficiency or insufficiency of quantities. But all excesses over estimates are referrible to one or both of two causes, divergence from the estimate in the matter of rates, and divergence from the estimate in the matter of quantities. If therefore a comparison of details of works with details of estimates amounts to the objectionable check over rates, a comparison of total of work executed with total of estimate must amount to an equally objectionable check over rates and quantities. It is, however, quite clear that this was not Mr. Brock's meaning, for he speaks of the check—whatever it is—as something which cannot be applied by any one but the Controller himself; whereas a comparison of details of work with details of estimate is purely mechanical work.

63. If there is no necessary connection between the new form of progress report and a check over rates by the Controller, and there really is no sort of connection between them, the formidable difficulties foreseen by Mr. Brock and described in paragraph 4 of his letter to the Chief Engineer for Irrigation, No. 1,508, of 5th October 1872,* need

*See G. O. of 20th January 1873, No. 178. hardly be allowed to stand in the way of putting an end to the anomaly of having in use in the same range two distinct forms of progress report; one of which forms — and that used for some of the most important works — is distinctly declared to be open to all manner of objections.

64. The last point to be noticed is the provision for showing the "distribution of the

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well to keep standing the arrangement of the columns, and such portions of the type as will not vary for different works; I understand that the value of the materials which would have to be set aside for this purpose would be under Rupees 30, and the cost of setting up the remainder of the type and striking off even as many as 100 copies would probably not amount to as much as 1 rupee for each work.

74. I must repeat that the specimen form herewith submitted is not put forward fulfilling all requirements; another form will be required for the abstract of the month's expenditure, as well as forms for exhibiting expenditure on petty works, establishments, stock, etc., which could not be conveniently shown in the specimen form, and blank forms will be required for use for works commenced in anticipation of estimate, but it is to be hoped such cases will not be very numerous. I may observe that the form now in use is no better adapted for this purpose.

75. If the Government determine to adopt a system of audit which compares details of work executed with details of estimate, it will be necessary to decide whether this is to be carried out for all works, or only for works estimated to cost more than a certain amount. According to present orders, details of work executed are not shown in the Progress Report for works estimated to cost less than Rupees 2,500 each; but, seeing that even where the details are given they are not and cannot be utilized, this distinction is not a very valuable one. I must say that I do not see why such a distinction should be made between major and minor works. Many minor works must present much more marked sub-divisions of work than do many major works; and whenever these sub-divisions do exist and are attended to in the preparation of the estimate, different descriptions of work being separately estimated for and the totals of all descriptions added together to arrive at the total estimate, it seems to me that, whether the work is estimated to cost more or less than Rupees 2,500, the officer who carries out the work should *work to the estimate*, which he cannot really do unless he keeps his station book in such a way as to show the expenditure against each sub-head of the estimate. To do this really involves only a very trifling increase

Lieutenant Christie has withdrawn the opinion expressed here, as he has since ascertained that the additional labour involved in dealing with works under Rupees 2,500 by sub-heads of estimates would be great.
Vide his letter of the 30th March 1874.

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of labour. As a general rule minor works are such as do not present distinct—or at most present very few distinct—sub-heads of work.

On this point I understood Colonel Mullins to agree with me.

The distinction, at present observed in the case of minor works, between labour and materials, seems to me quite useless. It corresponds to no distinction in the estimate, and is *not required for major works, that is for more important works.*

76. REGISTER OF WORKS.—The Register of Works is the Executive Officer's record of progress and the basis of the Progress Report furnished to this and other offices; and therefore, if the Progress Report is to give details of work executed, it becomes necessary that these details of sub-heads shall be recorded in the Register of Works. It should, however, be clearly understood that this does not really involve any increase of work over that required by present orders regarding these registers. For major works these details are *now* recorded in the registers; and the registers for minor works distinguish between labour and materials, and cash and stock; why these distinctions, which are not insisted on for major works,* should be prescribed for minor works, I cannot understand, and seeing that the four sub-heads thus made are as many as would, on an average, be required if the sub-heads were regulated by the description of work, as in the case of major works, it would, I think, be very much better to require the Register of Works to be kept in the same form for all works, major and minor. The only works for which it seems unnecessary to keep registers are *petty works begun and finished within the month.*

77. CASH ACCOUNT CURRENT.—There has been a good deal of correspondence on the subject of the new (?) form of Cash Account Current prescribed by the Government of India for adoption in Irrigation Divisions, and after considerable discussion it was ordered that certain Ranges should be classed as "*Irrigation*" (other also as Imperial, Provincial,

Vide the opinions above expressed, opposite paragraphs 68 and 69.

I would here add in connection with the subject so fully discussed by Lieutenant Christie, that I think one form of Progress Report should do for the District Engineer, Controller, Inspecting Engineers, and Chief Engineers. Then the multiplication of copies would be purely mechanical work and cheap, but varying forms involving compilation of information cost money and unless really necessary should be avoided. If information useful in one office is not needed in another, the columns in question in the copy for the latter office can be left blank. Supervising Officers need to see at a glance that works are sanctioned, that they have allotments, what progress they are making, and what they have made, and other items of information which may be useless to the Controller, but if so it is better, in my opinion, to use one form, and to fill in only those columns which are required by particular offices.

* There is a slight mistake here. The distinction between cash and stock is maintained for all works so far as the charges of the month, as shown in the Progress Report, are concerned; but in the Register of Works the distinction is only maintained in the case of minor works.

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etc.,) and the new (!) form should be used in these Ranges. I wish to observe that this distinction seems to answer no useful purpose whatever. I cannot see in what respect the new (!) form of Cash Account differs from the old. Of course certain heads of Account necessary in ordinary divisions will be unnecessary in purely Irrigation divisions, and *vice versa*, but the omission or introduction of one or two heads in the Account is not a very difficult matter. Moreover, we have no purely Irrigation divisions, and the Irrigation Cash Account Current, as printed by the Government of India, has to be modified before it can be used in our so-called Irrigation (!) divisions. I think it would be much better to keep to one form, instead of creating perfectly imaginary distinctions merely for the purpose of using two forms.

78. ABSTRACTS OF ESTIMATES.—In G. O., No. 1,988, dated 11th August 1873, it is directed that this office shall be furnished with abstracts of *all estimates sanctioned by Government*. I wish to observe that if the audit by this office is not to involve a comparison of sub-heads of work executed with sub-heads of estimate, it is perfectly useless to furnish this office with abstracts of estimates; if the abstracts are only furnished in order to enable this office to detect the execution of work of a description not provided for in the estimate—which appears to be the intention—it is quite unnecessary to give the quantities, rates, and amounts of the estimate; in fact, the time occupied in giving these details is *simply wasted*; a descriptive list of the items sanctioned is quite enough; at the same time I must repeat that the check here provided for seems to me useless. If, on the other hand, details of work are to be compared with details of estimates, it is necessary that this Office shall be furnished with abstracts of *all estimates* without regard to the sanctioning authority.

79. The heading of the abstract should give the following information:—

1. District
2. Range
3. Taluq
4. Brief description of work.
5. Head of Account to which the work is chargeable.
6. Classification of the work.

Just so, an abstract of items or individual works and not of the quantities of work or sub-heads of estimates of particular works.

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It would, I think, be very convenient, for purposes of reference, if in each Range the estimates of each *calendar* year were numbered consecutively from one upwards; an estimate could then be referred to shortly as 1 of 72 or 3 of 73, etc. There should be a separate series for Irrigation Estimates, which could be distinguished by prefixing the letter "I" thus I, 1 of 72, I, 3 of 73, and so on.

The body of the abstract should give the items of the estimate, and the quantity, rate, and cost of each item; all work of one description, and estimated for at one rate, being treated as one item. It should be distinctly understood that no two distinct works should be included in one abstract, even if included in the same sanction. There should be a separate abstract for every work. For convenience of filing for record, all abstracts should be prepared on printed forms; this is also desirable in order to ensure all necessary particulars being included in the abstract. It is the invariable practice in England, in making out bills of quantities, to observe a regular order in the sequence of the *dimensions*. Cubic dimensions are always taken first, then square, then linear, and, lastly, numbers; and the superior dimensions (not the larger quantities) are taken first, yards before feet, rods of brickwork before cubic yards, and so on. I think it would be an advantage to observe some such order in the preparation of abstract and detailed estimates; it tends to prevent confusion of dimensions and facilitates comparisons between work and estimate.

80. In the case of large Irrigation Projects, such as the project for the extension of irrigation in the Godavery Delta, Perryar Project, etc., it is desirable that estimates should be drawn up with strict reference to the classification adopted for capital outlay. The estimate for such projects should, I think, comprise four parts, thus—

1. General abstract estimate giving a brief description of the project and the estimated cost under each head and sub-head of classification.
2. Detailed abstract detailing under each head of classification the individual works comprised under that head, and showing the total estimated cost of each individual work.

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That is if the Controller's Office is to compare details of sanctioned estimates with details of work done.

3. Abstracts of estimates for every work in the order of the classification. These are the abstracts required by this office and should show the quantities, rate, and estimated cost for each description of work.

4. Detailed estimates for every work arranged in the order of classification.

For all these, printed forms might be very conveniently adopted. All estimates for works now in progress should, I think, be thrown into such shape. This could be done in this office if we only had the estimates, which we have not.

81. SANCTIONS COMMUNICATED TO THIS OFFICE.—It is very necessary that all sanctions communicated to this Office should specify distinctly the head of account to which the work sanctioned is chargeable; and in cases of indents on the Secretary of State for Tools and Plant, this Office should be advised of the heads of service, and in the case of Irrigation Works, the particular accounts, which should bear the charges.

Certainly.

Certainly.
Certainly.

82. IRRIGATION REGISTERS.—It appears to me essential that, in connection with the Capital and Revenue Accounts of Irrigation Works, there shall be opened in this office Irrigation Registers similar to those ordered by Government to be opened in District Engineers' Offices. Such registers cannot be posted in district offices except from information furnished by this Office: for, District Engineers have no knowledge of the charges actually passed against different works. The proper plan appears to me to be that this Office should maintain a complete Irrigation Register for the whole Presidency, communicating to District Engineers annually the new entries to be made in their registers. Some check would be necessary to guard against the omission to post in the District Registers the amounts communicated by this Office. One way of effecting this would be for this Office to call upon District Engineers, a month or two before the close of each year, to communicate the total expenditure works included in the last advice of yearly expenditure. A comparison of the totals communicated by District Engineers with the total

The District Engineers know or should know the outlay on works, and I suppose the Deputy Controller means that they have no knowledge of establishment and other charges which heretofore have not been entered in the District Registers of Irrigation Works. If in future these are to be entered in the Irrigation Registers at all, they must be shown in a separate column, otherwise comparison between, say, maintenance charges of 15 years ago and now will be impracticable.

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recorded in the register of this Office would disclose any error. If some such check is not adopted, the District Registers will very soon become as worthless as the remunerative statements now prepared in the District Offices.

83. In G. O., dated 21st March 1873, No. 886, the Government approved of a form of register circulated by the Board of Revenue to all Collectors, and directed the adoption of a similar form by District Engineers. This Register is intended to give for each work, and for each year, the following items of information:—

1. Actual extent of cultivation.
2. Assessment.
3. Expenditure ... { New Works
Repairs.
4. Per-centage of Repairs on Assessment.
5. Remarks as to season.

I venture respectfully to submit that it is quite useless to record the per-centage of the cost of repairs in any one year on the assessment of that year; I apprehend that what is wanted is a comparison of the expenditure during a series of years with the revenue during that period; and I think this requirement would be best answered by providing additional columns for showing under both New Works and Repairs the total expenditure up to date.

84. With reference to the distinction between New Works and Repairs, I must point out that the Government appear to have accepted the classification of expenditure as Capital and Revenue, as proposed by the Government of India. If this distinction is to be adopted it would be surely better to abandon completely the old terms New Works and Repairs. The maintenance of the double system of classification can only produce confusion.

85. As the order of Government above quoted appears to contemplate that in the Collector's copy of the register, the particulars of Public Works Expenditure shall be posted by the District Engineers, I must repeat that the District Engineers have at present no accurate information regarding those particulars.

86. LAND REGISTERS.—In order to carry out the requirements of the Government of India in

Except that the per-centage of a succession of years averaged will give the average per-centage of repairs. It is simply a question of the amount of labour involved in either case.

The distinction is not complete. The Government of India in the Budget form Part III. use the heading "Original Works," which is another name for "New Works" and perhaps less appropriate, as some works before they are completed have lost much of their original form. Again, Part IV. is called "Detail of the estimate for repairs."

They certainly ought to have information to the extent contemplated by Government—all indeed which is shown in the Progress Reports.

Remarks by Chief Engineer for Irrigation.

Works procedure and accounts. For my own part I have wished to do so and have not succeeded. I do not think there should be much difficulty in compiling a code embodying existing rules; and as regards future modifications what is required is that all new rules shall be issued as supplementary standing orders. At present there is nothing of the sort.

90. I have now, I think, exhausted all the special points which require attention with a view to placing the Irrigation Accounts on a proper footing, as regards the future; but there are one or two more general matters which, in my opinion, very seriously need to be attended to.

91. WORKING OF CONTROL OFFICE.—I do not believe that either the Irrigation Accounts or any other portion of the Accounts, will ever be on a really satisfactory footing unless there is introduced into this Office a very great deal more method and system than prevails at present, especially in the Record Department. It appears to me also that there should be a scale of establishment framed with some reference to the work to be done; and I think that the scale once fixed should be adhered to. It seems to me that an office cannot be long in good working order if the requirements of the office are subordinated to the supposed claims of individuals, arising from length of service; individuals of long service being allowed to draw the pay of posts, the duties of which they are incompetent to perform, while their more competent juniors who perform those duties are deprived of the pay which is supposed to be attached to them.

92. INTERCHANGE OF ACCOUNTANTS BETWEEN CENTRAL OFFICE AND RANGE OFFICES.—There is another point on which I desire to express an opinion, and the matter is one which appears to me to affect very seriously the efficiency of the whole Accounts Department, meaning thereby not the Central Office only but all Range Office Accountants also. I do not believe that any Auditor in this Office can be thoroughly efficient unless he has a practical knowledge of the system of Range Office Accounts and of the manner in which the requirements of this Office affect Range Offices; and I believe that every Range Office Accountant, in order to be thoroughly efficient, should have some practical knowledge of the working of this Office. I

The rest of this Note refers to matters with which the Chief Engineer for Irrigation is not concerned, and no opinion therefore on Lieutenant Christie's remarks is offered.
(Sd.) JOHN MULLINS, Lieut.-Col., R.E.,
Chief Engr. for Irrigation.
11th May 1874.

Remarks by Chief Engineer for Irrigation.

think that no person should be appointed Head Accountant in a Range Office who has not served for twelve months at least in the position of a Sub-Auditor or Assistant Accountant in this Office, and that no person should be appointed an Auditor or Accountant in this Office who has not served a certain length of time as Head Accountant in a Range Office.

93. This arrangement is substantially the same as that suggested in the Note accompanying the Under Secretary's letter, No. 169 of 21st October 1872, which was dealt with by Mr. Brock in his letter of the 12th November 1872, No. 1,849, printed with G. O. of 20th June 1873, No. 1,615, and in recurring to this matter I feel bound to state that the arguments urged by Mr. Brock against the proposed arrangement appear to me to have no support whatever in facts.

94. The arguments urged against the proposal are—

1. That the forms in use in Madras Ranges being so much simpler than those prescribed by the Government of India for use in Divisional Offices, the Madras Range Accountants are not required to possess the same qualifications as Divisional Accountants in other parts of India, and that they are therefore not competent to perform the difficult duties devolving on Accountants in the Central Office.
2. That the Range Accountants are men of such inferior education that they could never qualify for Divisional auditorships in this office.
3. That it is absolutely necessary that the men holding the higher appointments in this Office should have received the benefits of a good education, etc.
4. That in the exceptional cases in which Accountants are met with possessing the requisite qualifications they cannot possibly have any knowledge of the details of the work of this Office, which is so different from that devolving upon Range Establishments.

*Proceedings of the Madras Government, Public Works Department,
20th October 1874.*

Remarks by Chief Engineer for Irrigation.

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(Sd.) JOHN MULLINS, Lieut.-Col., R.E.,
Chief Engr. for Irrigation.
11th May 1874.

*Proceedings of the Madras Government, Public Works Department,
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Remarks by Chief Engineer for Irrigation.

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Remarks by Chief Engineer for Irrigation.

95. On the first point, Mr. Brock says—
“a glance at Part I. of the forms accompanying the Public Works Code of the Government of India, and a comparison of those forms with the forms in use in Madras, will show that, while the writing up of the former requires a thorough acquaintance with accounts and a knowledge of book-keeping, the latter may be maintained by persons of very ordinary ability and of experience in Range Offices.” I will not pretend to say what a glance at the Public Works Code of the Government of India will show, but I can assert most positively, after carefully comparing the two sets of forms, that setting aside the journals and ledgers, the adoption of which, as I understand, is optional with Divisional Officers under the Government of India, the forms in use in Madras are with two exceptions exact counterparts of those prescribed in Part I. of the Government of India Code. These two exceptions are the Progress Report (Schedule of Receipts and Expenditure) and the Cash-book. I trust I have already shown that the modifications introduced into the Progress Report have only resulted in making that return show information which is perfectly useless, and information which is already on record in this Office. I cannot say that the modifications introduced in the Cash-book appear to me to be for the better. One modification consists in leaving out the columns for showing transactions with treasuries, so that the Madras Range Officers' Cash-book is not what every Cash-book professes to be, a complete record of cash transactions. The other modification consists in so ruling the Cash-book that all transactions, whether debtor or creditor, appear on the same page, an arrangement which, I know, some people consider simpler than the ordinary arrangement, but which has the disadvantage of being opposed to the practice of almost the whole world, and which certainly seems to me more confused, instead of more simple than the ordinary plan. Surely these differences are not such as to entitle one to say that the Madras forms require for their compilation a class of men very inferior to those employed in the compilation of the Government of India Divisional Accounts.

96. With regard to the second point, I can only say that almost all the individuals who are employed as Auditors and Sub-Auditors in

Remarks by Chief Engineer for Irrigation.

this Office have been drawn from the very class which is said to be so inferior; they have almost all begun as Accountants in Range and District Offices, or as copyists and writers in these and other offices, where they could not possibly acquire any knowledge of the details of work in this Office; and the most useful among the Auditors are found to be those who have some practical knowledge of the accounts outside the Office.

97. I certainly think that a man “of such inferior education that he could never qualify for a Divisional auditorship in this Office” is not a fit man to be employed as Head Accountant in a Range Office. In a Range burdened with such a man, the Range Officer would practically have to be his own Head Accountant. Certainly, if Range Accountants are such inferior beings something should be done to improve them; and the best way to get a superior class of men for these appointments—and it seems to me that these appointments require better men than Sub-Auditorships—the best way, I say, is to hold out to them some hope of advancement beyond Range Accountantships.

98. As to the third point, I really do not know what there is in the duties attached to the so-called auditorships to render it necessary that they should be held by persons of such superior education. Their duties are simply mechanical, and I cannot conceive how an Auditor can ever have to dispose of a difficult and complicated question. I may be wrong, but I certainly think that difficult and complicated questions should be disposed of by the Controller, or at any rate by one of his deputies. The most that the Auditor can have to do is to put the facts clearly together for disposal, and surely any man who has been for a length of time in responsible charge of the accounts of a Range ought to be able to state clearly any case arising out of the accounts of a Range. It seems to me a very great mistake to consider that Range accountantships require in their incumbents less capabilities than do auditorships in this office. I believe myself that the very reverse is the case; a Head Accountant in a Range is Head Accountant, an Auditor in this Office works under the Head of his branch and all the work of the former undergoes the scrutiny

Remarks by Chief Engineer for Irrigation.

of the latter—perhaps I ought rather to say that he is supposed to work under the Head of his branch. But if such very superior men are required to fill these appointments, I certainly think something should be done to secure their services. Certainly nothing of the sort is done at present.

99. The fourth objection applies quite as much to one individual as to another, to "intelligent men" introduced on probation or to Range Accountants; but Range Accountants have one sort of knowledge which intelligent probationers cannot possess, and that, as it seems to me, the very knowledge which it is most essential that Auditors should possess, a knowledge of Public Works Accounts outside this Office.

100. It will be understood that I am not proposing to place Range Accountants more under the authority of the Controller than they now are, or to withdraw them in any way from the authority of Range Officers. I simply wish—I cannot say, I hope—to see introduced some measure which will secure better Accountants for Range Offices and better Auditors (or examiners) and Accountants for this Office; and as part of such a measure it would in my opinion be very desirable to introduce a system of examinations, such as obtains in the Accounts Department under the Government of India. I do not think that examinations are an infallible test, but I do think them a better test than mere length of service; and they would at any rate be the means of ensuring that Accountants, whether in this office or out of it, should have some knowledge of book-keeping, knowledge which now appears to be regarded as superfluous.

101. I have felt it my duty to discuss in this Note certain questions which have already been before Government and—for the time at any rate—have been disposed of. I trust I shall not be thought to have exceeded my duty in doing so. My opinion is that these questions were not dealt with by this Office as they should have been; and, rightly or wrongly, holding this opinion, I consider it my duty to place the facts in what appears to me to be their true light.

(Signed) C. H. P. CHRISTIE, Lieut., R.E.,
Dy. Controller of P. W. Accounts,
Irrigation.

No. 314-A.

No. 456B.

Note by the Chief Engineer for Irrigation.

In submitting for the consideration of Government a letter, No. 4,782, dated 28th October 1873, from the Controller of Public Works Accounts and its accompanying Note by the Deputy Controller of the Irrigation Branch, it is not requisite in the margin of Lieutenant Christie's Note.

2. Lieutenant Christie had a long interview with me shortly before his Note was written, and most of the subjects therein noticed were discussed on that occasion. He has since been to Calcutta to confer with the Accountant-General, Public Works Department, and as a result of that conference the Government of India have with their letter, No. 103-A., dated 11th April 1874, now awaiting disposal, transmitted a memorandum showing the conclusions which have been arrived at as regards the arrangements for keeping proper Capital and Revenue Accounts.

3. Paragraphs I. to III. of that Memorandum require no remark.

Paragraph IV.—All the heads and the principal sub-divisions of outlay have been adopted, and the minor divisions of sub-divisions only have been omitted, as decided in G. O., No. 2,731, dated 10th November 1873, these having been left optional.

Paragraphs V., VI., and VII. need no remark.

Paragraph VIII.—Allotment of establishment charges. This subject will be found to have been fully discussed in Lieutenant Christie's Note, and it will be seen that he advocates the charge to works of the cost of any special establishment employed on them, and of a ratable share of the taluq, sub-divisional, and district establishments of the district to which they appertain, as also of the superior establishments of the Presidency, and the suggested mode of allotment appears to me to be fair and as accurate as is attainable.

The Controller, on the other hand, would—

1. Establish a fixed per-centage for Local Funds.
2. Do. another and apparently higher per-centage for Loan Fund Works.
3. Debit all Conservancy Establishments to Imperial (Irrigation).
4. Charge the rest of the cost of Establishment between Imperial and Provincial, ratably in proportion to the outlay for those services.

I have already shown that this plan would not be likely to give satisfaction, because per-centages vary considerably from year to year, and adjustments would be called for, thus upsetting those fixed in the case of certain funds to start with. Then the argument that Local Fund works do not need an expensive establishment, and should therefore, compared with Imperial works, be charged a less per-centage is to some extent admissible; but, on the other hand, it may be advanced that large works cost very much less for superintendence in proportion to outlay than small ones. Lastly, the division of the remainder between Imperial and Provincial works generally would continue that entire want of accordance between facts and figures which Lieutenant Christie has forcibly pointed out to be now

wanting under the similar arrangements now in force. A "hard and fast" rule is the only one that can be worked successfully where so many varying circumstances which would render the task, of allotting establishment in accordance therewith exactly, hopeless, were they to be taken into account, and Lieutenant Christie has shown how an allotment can be made which will agree very closely with the distribution of establishment and its actual employment.

Paragraph XIV.—Revenue. The difference between the assessment as finally settled and the collections is usually very small indeed, and as the former is determinable at the Jummabundy, and the latter are not actually known until long after, it would seem to be better to accept the assessment after all remissions have been deducted as the revenue, rather than to wait until all the collections have been made.

The other paragraphs need no comment from me.

OOTACAMUND, (Signed) JOHN MULLINS, Lieut.-Colonel, R.E.,
11th May 1874. Chief Engineer for Irrigation.

No. 456C. ORDER THEREON, 20th October 1874, No. 2,991-A.

IRRIGATION, No. 32A.

Account.

IN his memorandum submitted with Note by the Chief Engineer for Irrigation, No. 314-A, of 11th May, Lieutenant Christie calls attention to certain points on which orders are required with a view to putting the Capital and Revenue Accounts of Irrigation Works on a proper footing. Lieutenant-Colonel Mullins has remarked marginally on his suggestions. The following instructions are issued thereon:—

I.—Classification of Expenditure.

1. Colonel Mullins' definition of works for which no Capital or Revenue Accounts are kept is accepted, including his proposals as regards drainage works.

2. Capital and Revenue Accounts must be kept for each tank, that may have been materially improved under British rule, according to paragraph 4 of Note accompanying the new forms of Irrigation Accounts, which requires distinct record of the income and expenditure of each work that may have been separately sanctioned.

3. Tanks form one group of Irrigation Works as laid down in paragraph 9 of G. O., No. 1,102, of 30th April 1872. But to prevent confusion, such as has already arisen, with the term group applied to a series of tanks within the same catchment basin, the term class shall be used. Thus rain fed tanks form Class IV. of Irrigation Works.

4. General Capital and Revenue Accounts must be kept by districts only; there can be no minor sub-divisions or groups for purposes of account. Revenue Accounts may indeed be furnished by taluqs, but the attempt to render accounts of Capital and Revenue expenditure taluqwar would lead to confusion. So would it be if the attempt were made to group by ranges. Still taluqs or ranges are the only sub-divisions possible; grouping by catchment basins, except for professional treatment, is out of the question.

5. "Extensions and improvements" and "Maintenance and Repairs" shall be the two minor heads under the main head "Maintenance of works." The limit to be fixed both for the past and future, of the cost of extensions and improvements chargeable to the Revenue Accounts, shall be Rupees 500 for works of which the cost is not known but which is to be fixed arbitrarily, and Rupees 2,500 for works of which the cost is known; the limit of Rupees 5,000, proposed by the Government of India, being inapplicable to the works of this Presidency. A lower sum is fixed for the works of which the cost is not known, because it has been settled in paragraph 10 of G. O., No. 1,102, of 30th April 1872, and in paragraph 3 of G. O., No. 837, of 17th March 1873, that such cost shall be arbitrarily fixed as the expenditure made since 1856-57 only, which must result in a disproportionately small charge to Capital. The detailed rules proposed by the Chief Engineer for Irrigation may be correct enough in principle, but they would lead to perpetual references regarding individual small works of extension and improvement; and the object being to start a Capital and Revenue Account at once, arbitrary money limits are necessary to simplify and accelerate the process.

II.—Classification of Works.

This subject has been separately disposed of. Whatever departures from the classification of Government of India Circular No. 64 of 1871 may be found necessary should be agreed upon by the Controller and Chief Engineer for Irrigation, and adopted after reference to the Accountant-General, Public Works Department, if necessary. Special orders of this Government do not seem to be called for.

III.—Classification of Establishments.

The principle of Lieutenant Christie's proposals is correct and should be carried out. It is concurred in by the Chief Engineer for Irrigation.

IV.—Distribution of Establishment charges.

It has been proposed by the Government of India, and agreed to by this Government, that Public Works Establishments shall, for purposes of Account, be treated as Provincial, excluding the cost of Conservancy and Survey Establishments, and that of the Chief Engineer for Irrigation and his Establishment, which shall be Imperial charges, to which should be added the cost of the Deputy Controller for Irrigation and his separate Establishment. Twenty-five per cent. on Budget grants, or on actual outlay for Imperial Works, whichever may be greatest, will be the additional Imperial charge for Establishments. Twenty-five per cent. of actual outlay on Works, that against Local Funds; and the balance will be borne by Provincial. As a necessary sequel to this arrangement the existing Local Fund Petty Establishment will be amalgamated with the regular Public Works Establishment as a Lower Subordinate Establishment.

V.—Revenue Establishments.

The details of this matter should be arranged by the Controller in correspondence with the Accountant-General, Public Works Department, who must be in possession of the views of the Government of India, which will necessarily have to be adopted in working out a system of Irrigation Accounts on forms of their selection. Otherwise Lieutenant-Colonel Mullins' views may be acted on.

*Proceedings of the Madras Government, Public Works Department,
20th October 1874.*

VI.—Tools and Plant.

The practice of the Government of India will similarly be ascertained and adopted on this point.

VII.—Receipts on Revenue Accounts.

This subject will be dealt with by the Revenue Board, to which it properly belongs.

VIII.—Progress Report. Nature of Audit. Information to be afforded. Form Register of Works. Cash Account Current. Abstracts of Estimates. Communication of sanctions. Irrigation Registers. Land Registers. Separate Series of Irrigation Correspondence. Monthly Volumes of Proceedings. Public Works Code and Manual of Accounts. Working of Central Office. Interchange of Accountants between Central Office and Range Offices.

In mixing up these topics in one memorandum with those above disposed of, Lieutenant Christie has adopted a course eminently calculated to defeat what in his 87th paragraph he acknowledges to have been the immediate object of his appointment, viz., the preparation of the Capital and Revenue Accounts of Irrigation Works; for which, as pointed out in paragraph 7 of the Government of India Note of 16th August 1871, the first thing to be done was to make an arbitrary opening, and declaration of the sum which is to be held to constitute the Capital Account of each work. He has put aside those instructions, in conformity with his opinion declared in paragraph 1, that to set the accounts right as regards the future is the first thing to be done. Adding that, as for the past, it matters very little whether it be taken up now or twelve months hence. Twelve months or more have elapsed since he wrote, and the questions of which he requested an early disposal have not been answered yet. Had his report been limited to 44 paragraphs, bearing on the subject regarding which orders were more immediately needed, they would probably have been passed long ere this. They are now passed and will be acted on without delay, the Controller being personally responsible that such action is taken by his Deputy, who will be relieved of all current work. The remaining 57 paragraphs will be separately disposed of.

(True Extract.)

(Signed) G. W. WALKER, Colonel, R.E.,
Secretary to Government.

To the Officiating Controller of Public Works Accounts.
„ Chief Engineer for Irrigation.
„ Revenue Department.
„ Financial do.

Exd. S. T. Austin.

Spare Copies



Govt. of (1874) Madras.

PUBLIC WORKS.

To

THE OFFG. CONTROLLER OF PUBLIC

WORKS ACCOUNTS.

&c., &c., &c.

Dated October 20th.

Recd.

Encl.

G. O., 20th October 1874, No. 2,991A.

OCTOBER.

Nos. 456A-456C

Capital and Revenue Accounts of Irrigation Works.—Issuing detailed instructions for the guidance of the Deputy Controller in starting the accounts.

*Proceedings of the Madras Government, Public Works Department,
20th October 1874.*

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(True Extract.)

(Signed) G. W. WALKER, Colonel, R.E.,
Secretary to Government.

No. 456D.

(DOCKET No. 2,971-B, dated 20th October 1874.)

COPY of the above forwarded for the information of the Government of India in continuation of the papers transmitted with docket No. 2,973-B, dated 17th October 1874.

(True Extract.)

Colonel, R.E.,
Secretary to Government.

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in the

Govt. of 1874 Madras.
PUBLIC WORKS.

Noting

To
THE SECRETARY TO THE GOVERNMENT
OF INDIA.

Giving to
curry to

Dated October 20th.

Recd.

Encl.

G. O., 20th October 1874, No. 2,991B.

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be in the

OCTOBER.

Nos. 456A-456D

FORWARDING copy of Proceedings containing the detailed instructions issued for the guidance of the Deputy Controller of Public Works Accounts in starting the Capital and Revenue Accounts of Irrigation Works of the Madras Presidency.

69

No. 2991 A dated 2

Copy

forwarded

mark of the

Index in co.

the papers to

be made

of 17th Oct. 1874

Sign & 25 L. Copies despatched
7/12/74.

by the Govt.
of India

Dated

Recd.

Encl.

G. O. No. 2991 D
26 Oct 74

Nos. 15 Oct 456 D

Forwarding copy of
proceedings containing
the detailed instructions
issued for the guidance
of Controller of
Accounts in starting
Capital & Revenue
units of Irrigation
in the Madras
Agency -