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MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.
29460

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*Proceedings of the Madras Government, Public Works Department,
for the month of April 1860.*

No. 29. Read the following letter from Colonel J. H. BELL, Chief Engineer, to the Secretary to Government, dated Chepauk, 2nd March 1860, No. 10,914:—

In submitting for the approval of Government the Draft of Six Sections of the new Code for this Department, I have the honor to state that the Sections have already been submitted for the opinions of the respective District Engineers, and that the Draft now enclosed has been framed with due reference to their remarks and suggestions. The Sections are as follow:—

Designs and Estimates.

Plans, &c.

Selections of Projects, &c.

The Budget.

Execution of Work.

Revenue Authorities.

2. The authority for each Rule in the Draft is entered in the margin, except where the substance is new, or where it has been considerably modified.

3. On the subject of "Estimates" the Rules have been made as complete as possible. Many of the recent Orders of Government returning Estimates for additional information, have been abstracted, and their substance entered in the Rules. The very important subject of "Rates and Prices" has been fully provided for in paragraphs 27 to 31.

4. In paragraphs 52 and 74, I have slightly increased the powers of Executive Agents to undertake emergent repairs. Under the present Rules an Executive Officer may undertake works of this nature within Rupees 200, while an Executive Agent, with precisely the same duties and responsibilities, is restricted to a limit of Rupees 100. I think that all Members of the Department when in charge of Executive Ranges should have equal powers in this respect, and I have consequently fixed a limit of Rupees 200 in all cases.

5. No other material modifications have been made in this Section.

6. In the Section on "Plans" all the Rules are now in operation, and require no remarks from me.

7. The Section on "Selection of Projects, &c." is at present in abeyance,* pending the removal of the restrictions on expenditure on Public Works. The Rules in the Section are in general accordance with the established orders; nor is there any material modification to be noticed in the Section on "The Budget."

* Extract Minutes Consultation, 10th August 1857, No. 1,551.

8. In the Section on the "Execution of Work," Rule 11 is new. Its object is to modify the practice, at present too general in the Department, of indiscriminately plastering the outer walls of public buildings. The objections to the practice are that it serves as a cloak for bad materials and bad workmanship; that unless the plaster is well and expensively laid on, it is unsightly; and that in a short time it becomes defaced by dirt and by being repeatedly chipped and broken. In general, the only purpose served is that of offering a tempting surface for the pencil of mischievous and obscene scribblers.

9. In the Section on the Duties of Revenue Authorities, Rule 17 is intended to meet the difficulty noticed by Government in their Order marginally† entered, viz., that in the event of a flood or storm the calls on the attention of the Members of this Department were too numerous, and spread over too great an extent of country, to allow of their attending to all immediately; and that many very necessary repairs were in consequence deferred. Paragraphs 17, 21 and 24 empower the Revenue Authorities to take, in such cases, any necessary steps upon emergency.

† Extract Minutes Consultation, 13th November 1858, No. 2,356.

*Proceedings of the Madras Government, Public Works Department,
for the month of April 1860.*

10. Hitherto the Rules for the guidance of the Upper Revenue Officers have only referred to Collectors. In paragraphs 18 to 21 the same principles are extended to Sub-Collectors, and to Assistant and Deputy Collectors.

11. The remainder of the Draft requires no remarks from me.

Mo. 30. ORDER THEREON, 13th April 1860, No. 738.

Paragraph 1. The Draft Rules received with this letter are for the most part well and correctly drawn; a few amendments are required, as noticed in the following observations:—

2. Under the Orders published in the Official Gazette of the 27th March, Rules 83 and 84 respecting Military Buildings in the Garrison of Fort Saint George will not be necessary, and Rule 85 on the same subject will require to be modified.

3. Rule 113 promises too much, and more than is warranted by the Chief Engineer's Circular of the 6th August 1857, No. 84, referred to in the margin of that Rule. The Government will be found willing to afford aid in the construction of Churches when such aid appears to them to be necessary, but they cannot properly bind themselves to a promise of the character implied by the Rule as it stands.

4. The Section relating to the Duties of Revenue Officers, should be forwarded to the Board of Revenue for approval.

5. There are several typographical errors in the references given in the margin of the Draft Rules which will need to be corrected.

6. With these remarks the Government resolve to return the Draft Rules to the Chief Engineer with a request that he will submit a fresh Draft, revised and corrected accordingly.

(Signed) J. D. BOURDILLON,

Secretary to Government.

Central Office of Public Works
Sepakham 2nd March 1860

N^o 10944

From

The Chief Engineer

To
The Secretary to Government
Public Works Department.

Sir,

Enclosures
Six Sections of the
D.P.W. Code.

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Designs and Estimates

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Ex. Mins. Com. 10th
Augth 1871 No 1551

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Central Office of P. W.
Sephakham
2^d March 1860

J. L. C. D. Col.
Chief Engineer.

18738.13.2 April

7. The Chief Engineer shall submit to Government, without unnecessary delay, all subjects which require their special or immediate orders.

CHAPTER IV.

Authority of
Chief Engineer.

8. The Chief Engineer shall have authority

- I. To order the investigation of projects, and the preparation of surveys, plans and estimates for works: and to sanction any unavoidable expense connected with these preliminary operations.
- II. To sanction, duly recording his reasons, necessary alterations in the constructive details of works during their execution, provided that no increase of charge to the amount of more than 5 per cent. above the estimate shall be caused by such alterations.
- III. To sanction all estimates for repairs which cannot be sanctioned by any inferior authority, when within the general amount allowed for the purpose in the annual budget; with the exception, in the case of buildings, of estimates exceeding one-fourth of the value of the buildings.
- IV. To grant leave of absence to the members of the Department, according to the rules specified in chapter
- V. To pass indents for stores, machines, tools, instruments, and stationery, according to the rules specified in chapter
- VI. To sanction estimates submitted by the Departmental Officers for petty charges of a temporary character, not exceeding in amount Rupees 100.
- VII. To accept any tender for the execution of a public work by contract, when not in excess of the sanctioned expenditure.
- VIII. To advance, at his discretion, to any Subordinate in the Department who can show sufficient reason for requiring it, an amount not exceeding one month's salary; such advance to be recovered by instalments within six months.
- IX. To sanction the employment of any necessary extra establishment, under the rules laid down in chapter

New works, and repairs.

9. The Chief Engineer shall also submit for the sanction of Government, all estimates for new works, excepting those for minor new works which do not exceed Rupees 500; and all estimates for repairs of buildings, when exceeding one-fourth of the value of the building.

Abstracts of estimates.

10. The estimates submitted to Government by the Chief Engineer shall be in abstract only; but he will use his own discretion in calling for details from the District Engineers.

All estimates to be submitted through Chief Engineer.

11. All estimates for public works, originating in any Department, which are intended for submission to Government, must be sent through the Chief Engineer.

Authority to pass bills.

12. The Chief Engineer shall have authority to pass finally, upon the audit of the respective Deputy Chief Engineers, charges for expenditure upon public works, within the following limits:—

- I. Charges under Rupees 500 each, irrespective of the amount originally sanctioned.
- II. Charges above Rupees 500, and less than Rupees 2,000 each; when not in excess of the amount originally sanctioned by more than Rupees 100.
- III. Charges above Rupees 2,000 each; when not in excess of the amount originally sanctioned by more than 5 per cent.

Bills requiring the sanction of Government.

13. The Chief Engineer shall submit for the sanction of Government all bills for public works which do not come within the foregoing limits; and also all such bills as, on account of frauds, faults, or irregularities, require to be brought specially before Government.

Ordinary Departmental correspondence through Deputies.

14. The correspondence of the Chief Engineer with Officers of the Department shall be ordinarily conducted through the Deputy Chief Engineer of the Circle, according to the rules laid down in chapter ; but the Chief Engineer may personally take up, and dispose of any subject, at his discretion; and his Assistant may sign letters under his orders.

CHAPTER IV.

15. The Chief Engineer will keep as records in the Central Office, descriptive lists and drawings of the public buildings and works in the Presidency, to enable him to furnish promptly any information called for by Government. He will also prepare, and circulate to his Subordinates, a series of the standard designs approved by Government for buildings of most frequent occurrence.

Drawings and standard plans.

16. It will be the duty of the Chief Engineer to recommend to Government, such removals, transfers, and postings of District, and Assistant District Engineers, and Sub-Engineers, as may seem requisite; and to recommend properly qualified persons for all vacant situations in those grades.

Promotions, transfers, and postings.

17. The Chief Engineer will accompany the Head of the Government on tours of inspection, when required to do so. The Chief Engineer will, with the sanction, or on the requisition of the Government, make journeys to satisfy himself by personal inspection concerning any important question, project, or work, which may be in hand. Or, with the sanction of Government, he may detach for the same purpose one of the Deputy Chief Engineers, or his own Assistant. During the temporary absences of the Chief Engineer, the current duties of his office will be carried on by the senior Deputy.

Tours of inspection by Chief Engineer.

18. The general supervision of all ancient buildings, and of all interesting architectural remains, in the Madras Presidency, shall be vested in the Chief Engineer, whose duty it will be to recommend to Government whatever measures he may consider necessary for their preservation.

Ancient buildings, and architectural relics.

19. The powers of the Chief Engineer with regard to appointments, promotions, punishments and dismissals in the Department, are detailed in chapter

Powers of Chief Engineer.

DEPUTY CHIEF ENGINEER.

1. The Deputy Chief Engineer is the Officer next in rank to the Chief Engineer. Under the orders of the Chief Engineer, and through the District Engineers, he will superintend the whole of the executive operations carried on in the Circle assigned to him. He will conduct, under the rules specified in chapter , the correspondence between the Chief Engineer and the District Engineers in his Circle; and he will likewise superintend that branch of the office of account in the Central office in which the expenditure on the works in his Circle is checked and classified.

CHAPTER IV.

Duties of Deputy Chief Engineer.

2. The position of the Deputy Chief Engineer shall be that of a highly qualified and highly trusted Assistant to the Chief Engineer, charged with controlling the business of his particular Circle and ordinarily issuing instructions to the District Engineers on his own responsibility; but subject to the superior authority of the Chief Engineer, to whom he shall refer in every matter of doubt.

His responsibility.

3. The Deputy Chief Engineers shall ordinarily transact their business in the Central office at Madras, with an independent allotment of the establishment under each Officer's exclusive control; but all dismissals, new appointments, and promotions, must receive the approval of the Chief Engineer.

Ordinary mode of transacting business.

4. The Deputy Chief Engineers shall be regarded as the official advisers of the Chief Engineer on professional and departmental subjects; and when their opinions on any question may differ from those of the Chief Engineer, they shall have the right to record them. In the event of such questions coming before Government, these recorded opinions are to be submitted for their consideration.

The Deputy is the official adviser of the Chief Engineer.

5. Each Deputy Chief Engineer shall be responsible for the efficiency of the executive administration throughout the districts in his Circle; and it shall be one of his special duties to see, on the one hand, that the orders received from superior authority for the execution of work be promptly and effectually carried out, and on the other, that no unsanctioned outlay be incurred.

Efficiency of executive administration

CHAPTER IV.

Plans and estimates.

To audit expenditure within his circle.

To examine inspection reports and travelling allowance bills.

To promptly notice deviation from established system.

Incompetency of Subordinates.

To advise and communicate freely with District Engineers.

To communicate with local authorities.

Tours of inspection.

When on duty in Circle to give necessary orders to District Engineers and other Officers.

To suggest works and call for reports, plans and estimates.

On circuit to correspond with Heads of Departments.

To examine all books and cash chests.

To report alteration of sanctioned plans.

6. It will be the duty of the Deputy Chief Engineer to examine all reports, designs, and estimates, submitted by the District Engineers of his Circle. He will be responsible for the reasonableness and sufficiency of each estimate, and for the engineering character of each project, which he passes on with his approval to the Chief Engineer.

7. Each Deputy Chief Engineer shall audit all the expenditure incurred on public works within his Circle, by carefully scrutinizing every charge; and by comparing the rates at which works have been executed with the standard rates of each district. The subject of audit is more fully treated in chapter

8. It shall also be the duty of the Deputy Chief Engineer to examine carefully the inspection reports and travelling allowance bills of the District Engineers and Executive Officers and Agents within his Circle; and after minutely checking every claim, to countersign the bills, and to forward them to the Civil Auditor.

9. The Deputy Chief Engineer shall take summary measures for the correction of any deviation from the established system, in the execution of work, or in the preparation of accounts, which may come under his notice.

10. The Deputy Chief Engineer will bring specially to the notice of the Chief Engineer the case of any Officer or Subordinate of the Department, whom he may consider incompetent or disqualified, from any cause, for his public duties. In like manner he will bring prominently forward all instances of extraordinary zeal and ability.

11. The Deputy Chief Engineer shall communicate freely with the District Engineers in his Circle, and shall afford them the benefit of his advice in the performance of their duties.

12. The Deputy Chief Engineer shall communicate with any of the local authorities, civil or military within his Circle, under the rules laid down in chapter

13. Each Deputy Chief Engineer shall make tours of inspection within his own Circle, at proper intervals, with the approval of the Chief Engineer; and he will also make such inspections and inquiries in other Circles as may be directed by the Chief Engineer. During the temporary absence of a Deputy Chief Engineer, the Districts of his Circle shall be divided between the remaining Deputies, and the Assistant, at the discretion of the Chief Engineer.

14. The Deputy Chief Engineer, when on duty in his own Circle, shall give any necessary orders to the District Engineers, and, through them, or with their knowledge, to the other Officers; reporting his proceedings regularly to the Chief Engineer. When on duty in another Circle, he will act according to the special authority committed to him.

15. The Deputy Chief Engineer, when on circuit, will suggest any works which are essential, or which promise to be profitable to the people, or to Government. He will bring such works to the notice of the District Engineer; and will order detailed examinations, and call for reports, plans, and estimates, according to the nature of the case.

16. The Deputy Chief Engineer on a tour of duty shall correspond with all Heads of Departments; and shall receive on application, whatever species of information would, under the same circumstances, be furnished to the Chief Engineer.

17. The Deputy Chief Engineer shall also examine the books and cash chests of all members of the Department whose stations he may visit in his tours; and he shall see that all the accounts and records are kept in the manner prescribed in the rules.

18. It will be the duty of the Deputy Chief Engineers when on circuit, to report at once, for the information of Government, every case in which sanctioned designs are altered, without special authority.

19. The powers of the Deputy Chief Engineers to sanction expenditure are detailed in chapter

DISTRICT ENGINEERS.

CHAPTER IV.

1. The District Engineers shall be the heads of the Public Works Department in the Collectorates, or portions of Collectorates, severally assigned to them.

2. The District Engineers shall be under the immediate orders of the Deputy Chief Engineer of the Circle to which they belong; and all their communications with the Chief Engineer and Government will be ordinarily addressed to him.

3. It shall be the duty of a District Engineer

I. To suggest public improvements within his district, and to project such new works, as in his opinion, will conduce either to the welfare and the convenience of the inhabitants, or to the security and increase of the public revenue.

II. To prepare in communication with the local Heads of Departments suitable designs and approximate estimates for such projects, or for any other works which may be specially called for by superior authority.

III. To control all public works in progress within his district, and to superintend, through his Subordinates, the details of their construction: to maintain a strict control over all the cash operations of his Subordinates, and to take care that they are sufficiently, but not lavishly provided with funds.

IV. To inspect from time to time, the works in progress in all parts of the district, and especially every large and important work, according to the special rules on the subject.

V. To submit to the Deputy Chief Engineer bills for the expenditure upon every work, either upon its completion, or periodically, according to the rules laid down in chapter ; and generally, to be responsible for the exact performance of all duties of every description connected with the Department, and for the punctual execution of all orders issued by his superiors.

4. The District Engineer will be responsible for the good condition and efficient repair of every public work and building within his district. In the case of buildings occupied by members of another Department, he will act upon any reports or representations which he may receive from the occupants. He will execute, through his Subordinates, all the necessary repairs and preservative works which have been entrusted to his discretion, and will forward timely estimates for those which require superior sanction.

5. The District Engineer will report on the condition of all public monuments, and all buildings of historical or architectural interest within his district; and he will suggest measures for the protection of those which appear likely to fall into decay.

6. The District Engineer will consider himself to be, ex-officio, the professional adviser of all Departments of the administration within his district. He will habitually transact business of this nature with the chief military and civil authorities in his district, according to the detailed rules contained in chapters ; but it will be incumbent on him to see that no undue formalities interfere with the performance of those duties which are essential or pressing.

7. A District Engineer shall receive positive orders only from the Government of Madras, the Chief Engineer, or the Deputy Chief Engineer of the Circle. The duty of yielding implicit obedience to the positive orders of his Superiors must be clearly understood; but in the interpretation of general instructions, an Engineer shall be not only authorized, but bound to act upon his own judgment, when he sees what he may consider sufficient ground for deferring compliance with those instructions, or even, in cases of emergency, for acting decidedly at variance with them. Such a course, however, involves entire responsibility, and should only be followed when it is not possible to await the result of a further reference.

District Engineer the Head of P. W. D. in Collectorate.

Under immediate orders of Deputy Chief Engineers.

Duties of District Engineers.

District Engineer responsible for condition of all public works and buildings.

Monuments, historical, and architectural relics.

Channel of communication.

Authority and discretionary power.

CHAPTER IV.

District Engineer not under orders of Military authorities but will impartially judge of the importance of works whether Military or civil.

Executive ranges.

To take no personal charge, without special permission.

Labour and materials.

Cordial co-operation of Collector and District Engineer.

Trivial quarrels between Subordinates of the Revenue and Engineer Departments.

Amount of Budget.

Responsibility for correct accounts.

Materials and prices.

District Gazettes.

Contingent charges.

Inspection of works and examination of accounts.

8. A District Engineer, even though a military man, shall be considered to be purely a civil officer, and shall not be under the orders of the military authorities, except in so far as all members of the Department alike are bound to observe the usual forms of etiquette and respect towards the higher military authorities in the district. In his dealings with all functionaries, civil or military, he will, except in those cases where a special authority has been vested in those Officers, honestly exercise his judgment of what he deems conducive to the public interest. He will neither hold military works to be primarily more important than civil, nor civil than military; but will bestow his attention on them, either according to the peculiar circumstances of his charge, or the instructions which he may receive from superior authority.

9. A District Engineer shall arrange for the supervision of the executive ranges in his district under the rules laid down in chapter , and he shall be guided by those rules in the distribution of the Officers and Subordinates placed under his orders.

10. The special permission of the Chief Engineer, conveyed through the Deputy Chief Engineer of the Circle, shall be necessary to enable a District Engineer to take upon himself the personal charge of any executive duties.

11. The District Engineer will use his utmost endeavours to ascertain the exact cost of labour, and of materials of all kinds, in different parts of his district, according to the rules contained in chapter

12. The District Engineer shall be in frequent communication with the Collector on all Departmental subjects, and shall aid and promote his views with regard to improvements; the cordial co-operation of the Collector and the District Engineer being essential to the efficient prosecution of the duties of the Public Works Department.

13. It shall be the special duty of the District Engineer to discourage, by every means in his power, all grievances which may tend to produce a bad feeling between the members of the Revenue and the Public Works Departments; and, in conjunction with the Collector, to put an immediate stop to any trivial quarrels which may have arisen between the Subordinates of the two Departments.

14. The total sum, allowed in the annual budget for expenditure on public works during the official year, will be placed by the Accountant General to the credit of the District Engineer, who will assign, at his discretion, certain sums to his Subordinates, under the rules laid down in chapter

15. The District Engineer will be responsible that all accounts of works are kept strictly according to the prescribed rules and forms, without any arrears.

16. The District Engineer will be responsible for enforcing the use of good materials at the lowest prices, and the efficient and economical performance of work. He will also endeavour to bring economically into use, on all occasions, the articles procurable in the local markets, and the natural resources of his district.

17. District Engineers will avail themselves as fully as possible of the facilities afforded by the District Gazettes, for the communication of orders and information to their Subordinates.

18. It shall be the duty of the District Engineer to scrutinize most strictly all contingent charges incurred in his district, before he forwards the bills for sanction.

19. When inspecting the work of his Subordinates, the District Engineer shall enter his remarks and orders in the station books, for the guidance of the Executive Officers, Agents, and Subordinates concerned. In examining the records and accounts of works in progress, he shall enforce strict attention to the standing rules for the regular and punctual entry of each receipt and expenditure of money and materials. The District Engineer shall also, upon every opportunity, examine the cash chests of those of his Subordinates, to whom the duty of making payments shall have been intrusted.

20. When inspecting a large work, the District Engineer will report specially to the Deputy Chief Engineer upon the quality and description of materials used, and on the style of workmanship.

21. When new masonry works are in progress, or when any considerable additions or alterations are being made to existing works, the District Engineer will see that the immediate working Executive is supplied with an accurate working plan, and transcript of the estimate, duly signed by him.

22. District Engineers shall correspond with all local authorities, civil and military, within their district, addressing General Officers and Brigadiers through their staff Officers.

23. District Engineers shall have authority to exercise immediate action on all subjects properly disposable by the Chief Engineer, or the Deputy, when delay would be injurious to the public service: but they shall report, without delay, every case in which they shall exercise this discretionary power.

24. The District Engineer shall communicate freely and frequently with all the executive Officers and Agents under his orders; and shall afford them the benefit of his advice in the performance of their duties.

25. District Engineers shall not interfere directly with works not under their charge; but they shall offer their advice to any unprofessional Officer carrying out public works; and they shall report to superior authority any bad work, or important defects, which may come under their cognizance in such cases.

26. District Engineers shall be responsible that the rules, under which current and special repairs may be sanctioned, be strictly adhered to. These rules are detailed in chapter

27. The powers of the District Engineer to sanction expenditure, are detailed in chapter

28. The powers of the District Engineer with regard to appointments, promotions, punishments, and dismissals in the Department, are detailed in chapter

EXECUTIVE OFFICERS AND AGENTS.

1. The term "Executive Officer" shall include all Assistant, and Probationary Assistant District Engineers. Each of these Officers will, in general, be placed in charge of an executive range. They will, however, be available for the charge of particular works, or for other duties, when required.

2. A certain number of the best qualified among the Upper Subordinates shall also, at the discretion of the District Engineer, be placed in charge of executive ranges. The Subordinates thus employed shall be styled Executive Agents.

3. The supervision of the executive ranges will, in general, be distributed according to the rank of each Officer or Subordinate, and the class of each range: thus, the most important range shall be placed under the Officer of highest rank, and so throughout the number of ranges; unless there are special reasons for a different arrangement.

4. A District Engineer shall have the power, with the permission of the Chief Engineer, to separate any important work from the general duties of the range in which it may be situated, and to place it under the special executive charge of an Officer or Subordinate.

5. Executive Officers and Agents shall be under the orders of the District Engineer, to whom they will address all their returns and communications on Departmental subjects. They will also communicate, when necessary, with the Revenue Officers of the district; and will attend to their requisitions, to the extent of their own ability and means, within the rules.

CHAPTER IV.

Large works.

Accurate plans and transcript of estimates.

Channel of correspondence.

When delay injurious, District Engineers may promptly act.

District Engineers to advise their Subordinates freely.

Works not under charge of District Engineers.

Responsibility and power of District Engineers.

CHAPTER IV.

Term "Executive."

Executive ranges.

The most important to be entrusted to highest Officer.

Important works.

To communicate with District Engineer and with Revenue authorities when necessary.

CHAPTER IV.

Charge of works in range.

6. Executive Officers and Agents shall, except in special cases, have charge of the execution of all works within their respective ranges. They shall be responsible for the goodness of their materials; for the general style of workmanship, and for the details of construction; for proper economy in prices and in wages of labour; and for strict accuracy and punctuality in accounts.

Duty of Executive Officers.

7. Executive Officers and Agents shall, when necessary, prepare, and forward to the District Engineer, estimates for the repair of all public works within their respective ranges, and also for any minor new works and improvements which they may deem advisable, and which are beyond their own power to sanction. They shall take up projects for important new works only by the direction of the District Engineer; but it shall be their duty to bring to his notice any such work which, in their opinion, is much required, or which may have been suggested to them by the local authorities, or by the inhabitants.

Labour and materials and local market.

8. Executive Officers and Agents shall obtain, by public competition in the open market, whatever they may require in the prosecution of their duties, whether labour, carriage, or materials. Only in cases of emergency, such as breaches of irrigation works, or similar accidents, or when there is imminent danger of such occurring, shall they have the right to call on the local authorities for assistance; in such cases they will be guided by the provisions of Act I. of 1853.

Available for duty without their ranges.

9. Executive Officers and Agents shall be available, in cases of necessity, at the discretion of the District Engineer, for the inspection and measurement of works in all parts of the district, without reference to their proper executive charges.

Executive Officers responsible for their Subordinates.

10. Executive Officers and Agents shall have the control, under the orders of the District Engineer, of the Subordinates employed in their respective ranges. They will be responsible that the rules laid down on all subjects are duly observed by all under their orders, and shall bring to the notice of the District Engineer all cases of repeated neglect or carelessness.

Pecuniary responsibility of Executive Officers.

11. It shall be the duty of Executive Officers and Agents to maintain a strict control over the cash operations in their respective ranges. They shall be at liberty to intrust the payment of workmen, and for materials, to any of their Subordinates above the grade of Sub-Overseer, 2nd class, and to members of that grade when the measure is indispensably necessary; but they will be held personally responsible for any loss which Government may sustain, unless it shall be clearly proved that every possible precaution had been taken, and strict attention paid by them to the rules laid down on the subject.

Etiquette to Military authorities.

12. Executive Officers and Agents, whether military men or not, are bound to show, and to see that their Subordinates show, the usual etiquette and respect to all military authorities within their respective ranges.

Resources of district.

13. Executive Officers and Agents will take every opportunity of making themselves acquainted with the resources and capabilities of the district in which they may be employed; and they will endeavour to bring the local products economically into use, on all possible occasions.

SUBORDINATE AGENTS.

CHAPTER IV.

Employment of Upper Subordinates.

1. All members of the Upper Subordinate Establishment, when not in charge of executive ranges, shall, in general, be employed under the orders of the Executive Officer or Agent in charge of the range, in the immediate superintendence of particular works, or portions of large works, or in the charge of the works of a Tálug or other Subordinate division.

Sub-Overseers.

2. Sub-Overseers shall also, for the most part, be employed on similar duties; but their charges will generally be less extensive and less important than those assigned to the higher grades of Subordinates.

CHAPTER IV.

Duty of a Subordinate Agent.

3. It shall be the duty of a Subordinate Agent to see that materials supplied are of good quality, and in sufficient quantity; that work is done in a substantial and work man-like manner, and agreeably to the instructions he may have received from the Executive Officer or Agent; that the work-people are diligent, and economical in the use of materials; and, generally, to strive in every way that the works intrusted to him shall be executed as rapidly, efficiently, and economically, as possible.

4. Any Subordinate Agent at the discretion of the Executive Officer or Agent shall be intrusted with the duty of making cash payments, whether for the higher of work-people, or for materials: a Sub-Overseer of the 2nd class being intrusted with this duty, only when the measure is indispensably necessary. Those to whom this duty is confided, will be held personally responsible for any loss which Government may sustain through their carelessness, or neglect of the rules laid down for their guidance.

To be intrusted with money on emergency.

5. It shall be the duty of Subordinate Agents to keep, regularly and accurately, the station books of the works under their charge: and those intrusted with cash payments will keep their cash books, in the prescribed form, duly balanced from day to day; and will be answerable for punctuality and accuracy in submitting their accounts to their immediate Superior.

Accurate Station books and accounts.

6. Subordinate Agents shall, at the discretion of the District Engineer, be employed in surveying, levelling, and other similar duties.

Exd. T. O'Connor.

DESIGNS AND ESTIMATES.

GENERAL.

1. The operations of the Public Works Department shall be divided into two classes, "new works," and "repairs."

2. The term "new works," shall include all new construction, whether of works entirely original, or of additions and extensive alterations to existing works. It shall also include the improvement of existing works, and the restoration, or extensive repair, of works which have been temporarily abandoned because of their inefficient condition.

3. The term "repairs," shall include all operations which are necessary to maintain in a proper and efficient condition all public works in ordinary use. Repairs shall be sub-divided into two classes, "current," and "special." Under the head of "current" will be included all the usual periodical repairs of works maintained at the charge of Government, for which provision has been made in the Budget; and under the head of "special," all repairs rendered necessary by fires, floods, storms, &c., for which the special sanction of Government must be obtained. The terms "new works," and "repairs," are further defined hereafter.

4. No proposal for the execution of public works will be entertained unless it be accompanied by a design and estimate prepared agreeably to the rules. The only exceptions to this rule are those contained in paragraphs 19 and 21 of this chapter. The object of an estimate is two-fold: to enable the sanctioning Authority to judge of the sum which will be required to carry out the proposed work; and to insure that the scheme shall have been carefully and attentively considered before it be carried into execution.

5. In the preparation of projects every care shall be taken that the designs for new works are thoroughly suitable to the purpose for which they are intended; well contrived; and arranged on scientific principles, with a regard to economy: and that repairs are such as are necessary and proper.

6. Sanctioned designs shall not, except on emergency, be modified or altered without special permission; and heavy responsibility will attach to any breach of this rule. When an alteration in a sanctioned design may appear necessary, the exact facts of the case shall at once be specially reported, and the proposed modifications submitted for the approval of superior authority, with a revised estimate, if necessary.

7. The estimate for every work shall be prepared according to the form prescribed for the particular class of work. The object and necessity for a work must be clearly stated on the submission of the estimate.

8. Every estimate shall be in two parts, in detail, and in abstract. The detailed estimate shall contain a statement of the particular measurements, with calculations of the entire quantity of each kind of work to be done,—the nature of the work being fully and clearly explained.

9. In the abstract estimate, the total quantity of each kind of work in every separate part of the project shall be entered from the detailed estimate,—the rates shall then be entered (see paragraph 30),—and the cost calculated. The details of different parts of the estimate shall not be clubbed together, so that the cost of each building or work included in the estimate may be distinctly shown.

Circular Order Book, page 554, para. 21.
Do. do. 150—Note.
Ex. Mins. Cons. 1294, 6th July 1853.
Ch. Engr.'s Cir. CLX, 26th Nov. 1853.
Do. II, 5th May 1859.

Circular Order Book, page 10.

Ch. Engr.'s Cir. CCXVIII, 23d Feb. 1859.
Bengal Code VIII, 1-7.

Circular Order Book, pages 23-46.
Ch. Engr.'s Cir. IX, 14th May 1858.
Do. XCI, 20th Aug. 1858.

G. O. G. 2161, 9th September 1859.

Circular Order Book, page 190, where the forms are given.
G. O. G. 2349, 1st October 1859.

Work 577/60

Bengal Code XIX, 4-2.

Ch. Engr.'s Cir. CCVI, 29th Mar. 1859.
Circular Order Book, pages 524-525.
G. O. G. 2034, 25th August 1859.

Circular Order Book, page 177.
G. O. G. 1525, 9th November 1859.

Circular Order Book, page 16.
G. O. G. 1375, 6th January 1859.
Do. 1772, 22nd July 1859.
Do. 2104, 2nd September 1859.

Circular Order Book, page 210, para. X.
G. O. G. 1896, 8th August 1859.

G. O. G. 1914, 10th August 1859.

G. O. G. 2241, 17th September 1859.

Circular Order Book, page 369.
Bengal Code XIX, 4-9.

Circular Order Book, page 140.

Ch. Engr.'s Cir. CCIII, 22d Mar. 1859.

G. O. G. 1939, 12th August 1859.

Bengal Code XIX, 4-12.

Circular Order Book, page 434.

10. The heading of every estimate shall specify clearly, but in general terms, the nature of the work to be done, and the locality.

11. Every estimate shall include all the work necessary for carrying out the project, and every known item of charge. On the submission of an estimate, an assurance must be given by the submitting Officer that he considers the estimate to provide for every thing necessary, and that no supplementary works will afterwards be required.

12. Every estimate shall include compensation to persons whose rights or property will be interfered with by the proposed work. In the case of a new work it shall be specified whether the land required for its construction is Government property or not. In the latter case, the probable cost of the land must be stated. Private land shall not be taken for any public purpose, except either by the free consent of the owner given in writing, or under the provisions of Act XX. of 1857. See Appendix.

13. Every estimate for a new work, shall be accompanied by a sketch map of the localities; and when a standard plan is not followed, by plans and drawings of the work to be done, prepared according to the rules laid down in chapter

14. When the work for which an estimate is submitted forms part of a system of works, full explanation of the general arrangements proposed must be given.

15. When an estimate is submitted for any work, for which, or for any other work connected with which, an estimate has already been forwarded, the fact must be stated at the time of submission.

16. When provision for convict labour is made in an estimate, the duties upon which the convicts are to be employed shall be stated.

17. The cost of the extra Establishments, which, under the rules laid down in chapter , are allowed to be included in estimates, shall be charged as a per centage on the work; and a separate charge of 5 per cent. shall be added to the gross total of every estimate, to provide for unforeseen contingencies. In cases of peculiar difficulty this provision may be increased at the discretion of the local Officers.

18. Annas and pies shall never appear in the total of an estimate. When necessary, such a sum shall be added to the amount inserted for contingencies, as will bring the total of the estimate to an even sum in Rupees. In estimates exceeding 1,000 Rupees, the total shall be thus brought to even tens; and in those which exceed a lac, to even hundreds.

19. An estimate shall, if possible, be prepared and submitted for every emergent work: but if, before this can be done, the work shall have been completed, a bill only will be submitted.

20. In forwarding an estimate for a work which has been commenced on emergency, the portions of the work which have been thus commenced, and the sum spent, must be stated; and full explanation must be given of the reasons for anticipating sanction.

21. No estimate shall be submitted to the Central Office for any work or repair, of which the probable cost is less than 50 Rupees.

22. Every estimate for a new work shall be accompanied by a separate letter, and by a report prepared in the prescribed form. The letter should be as short as possible, quoting the orders of Government and of the Chief Engineer, under which the estimate has been prepared. The report shall be full and complete,—containing all the information requisite to enable the Authorities to judge of the merits of the project.

23. In estimating for the cost of any connected series of works, such as those on one line of road or canal, or one project of irrigation, which will come before Government as substantially one work, the whole cost must be included in one estimate: or, if it be more convenient to prepare separate estimates, they must be accompanied by an abstract showing the aggregate of all the connected works.

24. Except in the case of an emergent work, no estimate shall be retrospective, or shall include any items actually executed. When a supplemental estimate is required, the work done shall be valued at its actual cost, and the remainder only shall be included in the estimate.

25. Every revised or supplemental estimate shall be accompanied by a comparison with the original estimate; and the difference in quantity and cost, of each kind of work, must be detailed, and clearly explained. The date of the original estimate, and the name of the framer, shall always be given.

26. Every estimate for a proposed improvement, whether an alteration or an addition, to any work, shall be accompanied by a full and clear explanation of its necessity. It must be stated whether the proposed improvement was omitted from the original estimate, or, if estimated for, why it was left unexecuted. The respective amounts of the estimate and the bill for the original construction of the work must be mentioned; and whether the incompleteness of the work was reported by the Officer who submitted the bill. If not, his reasons for omitting to do so must be explained.

RATES AND PRICES.

27. Every Executive Officer and Agent shall forward to the District Engineer, on the 1st June and the 1st December of each year, a statement in the prescribed form, in which the rates for all kinds of labour, and the prices of all materials in common use, shall be distinctly specified for each of the taluqs in his Range. If, subsequent to the date of the last return, there has been a decided rise or fall in any of the items, the fact shall be noticed in the column for remarks, and the cause stated.

28. The District Engineer will carefully scrutinize these statements: which he will check by comparing them with previous statements, and with the rates at which works have been actually executed; by collating the rates said to prevail in contiguous taluqs and Ranges; and by his own local knowledge. He will call for explanation of any apparent errors or discrepancies; and he will then compile the several statements into one general schedule for the entire District, which he will submit to the Central Office, through the Collector, before the end of June and December in each year,—accompanied by full explanations of any decided alterations in any of the rates or prices.

29. These schedules will again be thoroughly scrutinized in the Central Office, and checked in the manner described above. The rates said to prevail in adjoining Districts will be carefully collated; and in case of any marked discrepancy, full explanation will be demanded.

30. The rates entered in these schedules will be adopted, in the preparation of estimates, as the standard rates of the several Districts. Whenever, in any estimate, it may be necessary to assume higher rates, a full explanation shall be submitted, with details of the cost of labour and materials.

31. In extraordinary cases, when an estimate includes items of work which have not been entered in the schedule of rates, the data upon which the prices have been calculated shall be mentioned. When an estimate is framed on data insufficiently ascertained, the fact shall be reported at the time of submission.

Bengal Code XIX, 4-13.

Ch. Engr.'s Cir. CLXXII, 2nd December 1859.

Bengal Code, XIX, 4-16.
G. O. G. 1565, 27th June 1859.

G. O. G. 2096, 1st September 1859.

Ch. Engr.'s Cir. CLXXXVII, 24th February 1858.
Do. CXXIII, 13th October 1858.

Bengal Code XIX, 4-13.

Circular Order Book, page 25.

WORKS OF IRRIGATION.

Circular Order Book, page 584, para. 22.

32. Estimates for new works of irrigation (including extensive improvements) shall be prepared by the District Engineers or their Subordinates; and shall be forwarded to the Collectors for their countersignature, and for such observation as they may consider necessary, particularly with reference to the expected returns of revenue.

Circular Order Book, page 584, para. 23.

33. Estimates for distinct works, or projects, shall be submitted on separate sheets. The term, project, shall comprehend all the subsidiary works, bridges, sluices, channels, tanks, &c., estimated for at the same time for one object.

Circular Order Book, page 585, para. 24.

34. All projects, the estimates for which exceed 10,000 Rupees, shall be submitted by the Chief Engineer for the opinion of the Board of Revenue, before being recommended for sanction.

Circular Order Book, page 585, para. 25.

35. Restorations of those irrigation works which have paid no revenue for five consecutive years, shall be considered as new works.

G. O. G. 2830, 5th December 1859.

36. Whenever it is expected that the proposed work will increase the revenue, full particulars must be given. In the case of a new work, or the restoration of an old work, a written engagement shall be taken from the ryots, both as to the extent of land which they will undertake to cultivate, and as to the rate of assessment. This engagement may be taken both from the ryots of the village itself, and from those of neighbouring villages, the former having the preference.

Ch. Engr.'s Cir. CLII, 8th Dec. 1857.

37. Every estimate for the improvement or repair of an irrigation work must be accompanied by an extract from the register showing the ayacut irrigable area, and the following particulars for each of the preceding five years,—the extent of cultivation,—the revenue derived from the work,—and the various sums which may have been spent on repairs.

G. O. G. 2617, 8th November 1859.

38. In the case of the restoration of an old work, the particulars specified in the foregoing paragraph must be given, if available, for each of the ten years prior to its destruction. Any reduction which has subsequently been made in the assessment must be stated. If the bed is now cultivated, the extent of cultivation, and the revenue derived from it, must be given.

Ch. Engr.'s Cir. CLXXX, 2nd Feb. 1858.

39. In all estimates for irrigation works, statements of area shall be in acres and fractions thereof. Statements of water supply shall be in cubic feet per second, and in cubic yards per hour.

G. O. G. 1565, 25th June 1859.

40. When it is proposed to construct a new work, or to restore an old work, the following particulars shall always be clearly and fully stated :—

The area of country which will drain into the work :—the annual rain fall in the neighbourhood ;—the sufficiency of the expected supply, and whether any further outlay will probably be required to improve the supply.

G. O. G. 1565, 25th June 1859.

41. In the case of an anicut proposed across a river, or any work which will depend principally upon a single stream for its supply, the number of days in the year during which the river is generally in flood,—its usual water section when full,—and the fall of the bed, must be stated.

G. O. G. 2792, 4th November 1850.

42. In all cases when the execution of the proposed work will cause the submersion of land, definite arrangements must be made with the holders or owners, as to the land to be taken by them in lieu of that submerged.

43. When it is proposed to improve, or to extensively repair, any work, a description of its present condition must be given, accompanied by full particulars of the proposed improvements or repairs. When it is proposed to replace a portion destroyed by flood, or otherwise, provision must be made that a similar fate will not again attend it, and a guarantee to that effect must be given.

G. O. G. 2034, 25th August 1859.
Do. 2349, 1st October 1859.

44. A register, in the prescribed form, of all irrigation works, shall be kept up in each District by the Collector and District Engineer. These registers shall be written in English, and shall contain the particulars of revenue and expenditure regarding each work, during a series of years.

45. At the close of every fusly year, the District Engineer shall forward to the Collector his copy of the register, having entered in it the sum spent in the repairs of each work during the past official year: and the Collector will return it, after entering the revenue which has been derived from every work, and the extent of cultivation beneath it, during the fusly. Before returning it, the Collector will transcribe, into his copy of the register, the sums spent on repairs.

Circular Order Book, page 572.

46. Tanks and channels which irrigate two or more villages, shall bear the prefix "hissa." When such a tank or channel is first entered in the register, the numbers of all the villages which share its benefits shall be entered immediately after the work; and opposite to those villages, only the number of the village in which the work is first entered shall be noted for reference. When there are more than one irrigation work in a village, they shall be entered, in succession, opposite to that village.

47. Every new work of irrigation upon its construction, and every old and ruined work upon its restoration, shall be entered in the register.

48. The register of revenue shall be the basis of the District Engineer's proceedings in the repair of works; and he shall be strictly responsible for the correct use of the information before him, according to the rules.

Circular Order Book, page 586, paragraph 32.

49. The District Engineer will select works for repair; but he shall attend as far as possible to requisitions from the Collector for the repair of particular works.

Circular Order Book, page 586, paragraph 34.

50. The repair of an irrigation work shall consist of the restoration of its decayed parts of earth, stone, or masonry; with such additions to their strength, or alterations of their form, as may be indispensably necessary.

Circular Order Book, page 585, paragraph 28.

51. Every estimate for the repair of an irrigation work shall be countersigned by the Collector before the work can be begun. Whenever the amount of an estimate exceeds the highest annual revenue during the preceding five years, it must also receive the Chief Engineer's approval before the commencement of the work.

Circular Order Book, page 586, paragraphs 35-36.

52. Emergent repairs may be ordered by District Engineers and Executive Officers and Agents to any necessary amount for the prevention or repair of breaches in irrigation works. Other emergent works which are immediately necessary, either to prevent accident or injury, or to arrest damage, may be undertaken by Executive Officers and Agents to the amount of 200 Rupees; their proceedings, in each case, being immediately reported to the District Engineer, who will notify them, without delay, to the Collector.

Circular Order Book, page 587, paragraphs 42-43.

53. The aggregate of the expenditure on repairs of irrigation works in a District shall not, in any year, exceed the total sum allowed in the annual Budget for the purpose.

Circular Order Book, page 586, paragraph 34.

54. When a private individual wishes to construct a new irrigation work, of a permanent character, at his own expense, he shall apply to the Collector for permission, stating distinctly the nature and dimensions of the proposed work, and the precise locality selected. If, upon inspection, and on careful inquiry, it be ascertained that the construction of the proposed work will not in any way prejudice any existing work or interests, the Collector will grant permission to the applicant to proceed with the work, subject to the approval of its plan by the District Engineer, whether before, during, or after its execution, according to circumstances.

55. The District Engineer will state whether, in his opinion, for the security of other interests, the work requires to be strengthened, or in any way altered or extended; as for instance by constructing additional facilities for drainage, or extra sluices; and any such work which he may deem necessary shall be executed by the owner.

WORKS OF COMMUNICATION.

56. When a communication is required between any two points, the nature of the country, and of the traffic, shall be carefully considered, so that the most suitable and appropriate means of communication may be chosen.

57. Roads shall be classed under two heads, "Government," and "District."

These shall be subdivided as follows:—

Government Roads.

- 1st Class 10 yards wide, 8 yards metalled.
- 2nd Class 8 yards wide, 6 yards metalled.
- 3rd Class 6 yards wide, 5 yards metalled.

District Roads.

- 1st Class 6 yards wide, 4 yards metalled.
- 2nd Class 5 yards wide, 4 yards metalled.

58. The space which may be allowed on either side of the road for the construction of side drains and channels, and for a line of avenue trees, &c., will vary according to the locality and the nature of the soil through which the road is to pass. The diagrams at page show the dimensions allowed for the margins of roads under different circumstances.

59. Estimates for new roads, or for extensive improvements to existing roads, shall require the concurrence and countersignature of the Collector, who will report on them at his discretion. Each road estimate shall be a separate document, including the portions of road to be made or repaired, with all its appurtenances of bridges and drains, &c.

60. Each such estimate shall be accompanied by a report on the state of the road, drawn up in the prescribed form, and mentioning the places through which it passes; the past expenditure on it, if any; and the reasons for recommending its construction or improvement. A survey map of the line in question shall also be sent, and a sketch map of the neighbouring country.

61. Estimates for bridges unconnected with other proposed new works, shall be prepared and submitted separately. Such estimates shall always be accompanied by a report on the nature of the road, and on the amount of traffic. When a bridge is meant to replace a previous structure, the fact should be stated, with all particulars regarding the original bridge.

62. Every estimate for a bridge, with a span of more than 20 feet, whether submitted separately, or as part of a road project, shall be accompanied by a detailed report in the prescribed form.

63. Estimates for those canals which are intended for navigation purposes only, shall be under the same general rules as roads.

Chief Engineer's Circular CLIV, 16th November 1859.

G. O. G., 1646, 6th July 1859.

Circular Order Book, page 487.

Circular Order Book, page 488.

Circular Order Book, page 585, paragraph 26.

Circular Order Book, page 435.

Circular Order Book, page 585, paragraph 26.

64. The estimate for every new road or canal, shall contain an item for planting and fencing a line of avenue trees on either side. A list of the trees suited to particular kinds of soil is given at page

Circular Order Book, page 160.

65. The repair of a made road shall consist of the restoration of its decayed or wasted parts of earth, gravel, metal, stone, or masonry. In repairing bridges and drains, the dimensions may be altered when necessary.

Circular Order Book, page 585, paragraphs 29-30.

66. Every Government road shall be kept in repair by means of an annual maintenance grant from Government, which shall be allotted to each road upon its completion.

Circular Order Book, page 413, paragraph 4.

67. Every application for a maintenance allowance for a Government road shall be based on an estimate of the quantity of material required annually for each mile, (with reference to the amount of traffic and the quality of the material available), and the cost of preparing, bringing, and spreading it.

Circular Order Book, page 370.

68. Every application for a maintenance allowance shall specify whether there is any existing grant for the same purpose; and if so, whether it is superseded by the present application. Every application shall be accompanied by a full report upon the condition of the road, specifying the dates on which it was commenced and completed, the cost of its construction, and any sums which may have been spent on repairing it.

G. O. G., 2149, 7th September 1859.

69. Estimates for repairing District roads shall be prepared, when necessary, by the District Engineer or his Subordinates. They shall be forwarded, with the Collector's countersignature, to the Chief Engineer, who shall be empowered to sanction them.

Circular Order Book, page 446, paragraph 10.
Circular Order Book, page 586, paragraph 39.

70. A certain fixed grant from the public revenue shall be allotted annually to each District, from which the cost of repairing the District roads shall be defrayed. The amount of this grant shall be included in the Budget, and shall on no account be exceeded.

71. When it is necessary to replace ferry boats, the cost shall be defrayed from the maintenance allowance, if there is one. If not, an estimate of the cost shall be submitted to Government, accompanied by an explanation of the cause of decay of the old boats.

G. O. G., 2697, 13th December 1859.
Do. 2829, 5th do.

72. The discretionary allowances shall provide, not for the repair and maintenance of made roads, but for minor improvements of all kinds on any roads. Works, which may properly be considered municipal improvements, such as widening the streets, or improving the drainage of a town, shall not be executed from this source. Such works must be provided for locally, by the inhabitants.

Circular Order Book, page 586, paragraph 40.
Chief Engineer's Circular CLX, 18th November 1859.

73. All works to be executed from the discretionary allowances shall receive the joint approval of the Collector and the District Engineer. In the event of a difference of opinion between these Officers, the question shall be decided by the Chief Engineer, who will report his decision to Government. The same rules shall apply to all local funds, available for the same purpose.

Circular Order Book, page 586, paragraph 40.

74. When the immediate repair of a road is absolutely necessary, either to avert damage, or to arrest its progress, it may be executed on emergency by an Executive Officer or Agent to the amount of 200 Rupees; his proceedings being immediately reported to the District Engineer, who will notify them, without delay, to the Collector.

Circular Order Book, page 587, paragraph 43.

BUILDINGS.

Military, in the Provinces.

75. When any new building, or the improvement of an old building, is required, the divisional or local Officer of the Department to which the building belongs, shall apply under the authority of his own Superiors, viz. the Head of his Department, or the Commandant of the Division, or Station, as the case may be, to the District Engineer, for a rough or proximate estimate of the cost, without any plan or detail.

76. This proximate estimate, if it exceed 500 Rupees, shall be submitted to Government by the Head of the Department to which the building belongs, through the Military Secretary; and Government, if approving of the proposition, will direct the Chief Engineer to cause a detailed estimate to be prepared.

77. If the new building is to be according to a standard plan, the estimate shall be made by the District Engineer, and submitted through the Chief Engineer for sanction. If not, a plan shall be prepared by the District Engineer, in communication with the local or divisional departmental Officer, by whom it shall be countersigned; such countersignature representing the approval, as far as that may be necessary, of the local or divisional authority to whom the departmental Officer is subject, as well as his own. The plan and estimate shall then be forwarded to the Chief Engineer, either by the District Engineer, or, at that Officer's request, by the Officer Commanding the Division; and the Chief Engineer shall submit them for sanction, after obtaining the approval of the Head of the Department, when necessary, and of the Commander-in-Chief in all cases.

78. If the proximate estimate be within 500 Rupees, the detailed estimate shall be prepared, with a plan, if necessary, without the previous permission of Government; and shall then be submitted for sanction, with the countersignature of the same Officer as before.

79. Estimates for the repair of Military buildings shall be made by the District Engineer or his Subordinates, either upon inspection, or at the requisition of the tenant of the building, or of the local or divisional Staff Officer.

80. If the estimate be within 500 Rupees, it may be sanctioned by the local departmental Officer, acting under the authority of his own Superior.

81. If above 500 Rupees, the estimate shall be countersigned by the divisional Officer of the Quarter Master General's Department, who shall be considered to act under the authority of his own Superiors; and the estimate, thus approved, shall be submitted to the Chief Engineer for sanction.

82. In matters affecting the health of troops, Commanding Officers of Divisions shall be authorized to order emergent work without estimate to Military buildings, to an amount not exceeding 500 Rupees in any one case. In such cases, the bill shall be accompanied by a statement of the work performed, and shall be passed by the Chief Engineer.

Military, at the Presidency.

83. With respect to those buildings which are under the separate authority of the Governor of Fort Saint George, the Town Major shall receive propositions for new works and improvements from the Heads of Departments through the Barrack Master; and he shall call on the Garrison Engineer for the preparation of estimates, which shall be submitted through him to the Chief Engineer, to be disposed of in the usual manner,

Circular Order Book, page 587, paragraph 45.

Circular Order Book, page 587, paragraph 46.

Circular Order Book, page 588, paragraph 47.

Circular Order Book, page 588, paragraph 48.

Circular Order Book, page 588, paragraph 49.

Circular Order Book, page 588, paragraph 51.

Circular Order Book, page 588, paragraph 50.

Circular Order Book, page 588, paragraph 52.

Circular Order Book, page 589, paragraph 55.

84. Alterations and repairs to the above buildings shall be made under the immediate orders of the Governor, communicated by the Town Major to the Garrison Engineer. In such cases, the Garrison Engineer shall proceed with the work, submitting copies of his instructions, with estimates, to the Chief Engineer. Estimates shall be essential for all work thus performed, except for such as may be of a strictly emergent character.

85. With respect to buildings at the Presidency, not within the separate authority of the Governor of Fort Saint George, but under the charge of the Barrack Master, propositions for new works or improvements shall be forwarded to the Chief Engineer by Heads of Departments, through that Officer; and the requisite estimates and plans will be prepared by the Civil Architect, under instructions from the Chief Engineer, to whom they shall be submitted.

86. Estimates for repairs shall be made by the Civil Architect at the request of the Barrack Master, and forwarded, with his countersignature, to the Chief Engineer, to be disposed of in the usual manner.

Revenue.

87. When a Collector is of opinion that any new building, or any enlargement, or extensive alteration or improvement, of an existing building, is necessary, he shall obtain from the District Engineer a rough or proximate estimate of the cost.

88. If the proximate estimate be above 500 Rupees, he will submit it to Government, through the Board of Revenue. Should the proposition be approved by Government, a detailed estimate shall be prepared by the District Engineer, together with a plan when a standard is not followed; and shall be forwarded with the countersignature of the Collector, to the Chief Engineer, who, after obtaining the approval of the Board of Revenue, when necessary, will submit them for sanction.

89. If the proximate estimate be within 500 Rupees, the detailed estimate shall be prepared, with a plan, if necessary, without the previous permission of Government; and shall then be submitted for sanction, with the countersignature of the Collector.

90. Estimates for the repair of Revenue buildings shall be made by the District Engineers and their Subordinates, in communication with the Collectors.

91. All repair estimates shall be countersigned by the Collector, who shall have power to sanction those below 500 Rupees. Those above that amount must be submitted for the sanction of the Chief Engineer. In every case, however, if the amount of the estimate exceeds one-fourth of the value of the building, it shall be submitted for the sanction of Government.

Judicial.

92. The foregoing rules for Revenue buildings shall apply to all Judicial buildings, except those connected with Jails: the Civil and Session Judge taking the place of the Collector, and the Court of Sudder and Foujdaree, Udalut, that of the Board of Revenue.

93. In the case of Jail buildings, the Inspector General of Jails shall have power to sanction all estimates for repairs, alterations and additions, if below Rupees 500. When above that sum, the estimates will be submitted for the approval of Government, in the usual course.

Ecclesiastical.

94. The rules for Revenue buildings shall apply to Ecclesiastical buildings also; the Venerable the Archdeacon being the departmental Head, and the Church Trustees, or, in the absence of such a body, the Civil or Military Officer in charge, being the local Authority.

Circular Order Book, page 589, paragraph 56.

Circular Order Book, page 589, paragraph 54.

Circular Order Book, page 589, paragraph 57.

Circular Order Book, page 589, paragraph 58.

Circular Order Book, page 590, paragraph 59.

Circular Order Book, page 590, paragraph 61.

Circular Order Book, page 159.

Circular Order Book, page 590, paragraph 62.

Educational.

✓ Circular Order Book, page 590, paragraph 64.

95. The same rule shall apply to Educational buildings; the Director General of Public Instruction taking the place of the Board of Revenue.

Marine.

✓ Circular Order Book, page 590, paragraph 63.

96. In the case of Marine buildings also the same rules shall apply; the Marine Board being substituted for the Board of Revenue.

✓ Circular Order Book, page 590, paragraph 60.

97. In the case of buildings under any other Department the above rules shall be observed; the local Authority taking the place of the Collector, and the departmental Head that of the Board of Revenue.

GENERAL RULES FOR BUILDINGS.

✓ Bengal Code, VIII, 2-3.

98. Careful consideration shall be given in the selection of a site for a building, especially when intended as a residence for a large number of men. The nature of the soil, and the facilities for drainage, should be thoroughly investigated; and the certainty of obtaining good water in sufficient quantity must be ascertained. Any defects in adjacent buildings should be observed; and the position of the neighbouring rivers, tanks, cultivation, hills, and jungles should be carefully examined. The direction of the prevailing winds, and the character of the country over which they blow, should be noted. The opinions of qualified Medical Officers should, if possible, be taken upon these points.

G. O. G., 1885, 6th August 1859.

99. Every estimate for a new building must be accompanied by an assurance that it provides for all the necessary accommodation. The proposed allotment of the rooms must be given; and the opinion of the intended occupant and of the Head of the Department concerned, as to the sufficiency of the accommodation, must be obtained.

G. O. G., 1676, 11th July 1859.

100. When a new building is required, and when the circumstances under which it is required have already existed for long, it must be explained how the want has hitherto been supplied, and why the existing arrangements cannot be continued.

G. O. G., 2529, 27th October 1859.

101. Every proposal for additional rooms to any building must be accompanied by a plan, showing the whole of the existing accommodation, and its allotment.

✓ Circular Order Book, page 590, paragraphs 65-66.

102. The repair of a building shall consist of the restoration of its decayed parts, with such alterations of form, dimension, and material, as may be indispensably necessary. Trifling improvements shall be considered as repairs, when so connected with them that the separate execution of each would be impracticable, or highly inconvenient.

✓ Circular Order Book, page 591, paragraph 67.

103. In every estimate for the repair of a building, all such repairs and trifling improvements as may seem necessary shall be included.

✓ Circular Order Book, page 591, paragraph 68.

104. When the estimate for the repair of any building exceeds one-fourth of the value of the building, as entered in the dead stock account, it shall be regarded as coming under the term "new works," and shall be dealt with accordingly.

G. O. G., 2800, 1st December 1859.
Do. 2810, 2nd do.

105. In submitting an estimate for the repair of any building, full particulars shall be given of the character and condition of the building. The nature of the repair required, and the necessity for it, shall also be explained, especially when the estimated cost bears a large proportion to the value, or the original cost, of the building.

✓ Circular Order Book, page 591, paragraph 69.

106. Emergent repairs to any building not Military, shall be made at the request of the occupant, or of his official Superior, addressed to the District Engineer; but only when the delay necessary for the preparation and sanction of an estimate would be injurious. In such a case, a District Engineer may incur expenditure not exceeding 200 Rupees on any one building.

107. In the case of a building not permanently occupied, the District Engineer shall act at his own discretion.

✓ Circular Order Book, page 591, paragraph 70.

108. The roofs of all public buildings of a permanent character, shall be either terraced, tiled, or arched. Thatched roofs shall be permitted only in cases of unimportant buildings, quite of a temporary character, and removed from other buildings.

✓ Chief Engineer's Circular, CLV, 18th November 1858.

109. In all buildings intended for dwellings adequate provision must be made for ventilation, on scientific principles.

✓ Chief Engineer's Circular, LXXXV, 16th August 1858.

110. All barrack fixtures, of every description, shall be considered as part of the buildings, and shall be furnished by the Public Works Department; leaving only such moveable appurtenances or drill apparatus as can be returned into store on buildings being vacated, to be supplied by the Barrack Department.

✓ Chief Engineer's Circular, CLVI, 19th November 1858.

111. Every estimate for a travellers' bungalow shall be accompanied by a statement of the distance from the nearest bungalow on each side. The number of travellers on the road must be mentioned; and whether any increase to the number is expected. As a general rule, stables will not be provided at a travellers' bungalow.

G. O. G., 2162, 9th September 1859.
Do. 2183, 12th September 1859.
Do. 2991, 24th December 1859.

112. Except under particular circumstances, Chuttrums will not be provided by Government, but it will be left to private speculation or benevolence to supply them. When it is considered advisable that a Chuttrum should be built by Government, the reasons for the exception shall be fully stated.

G. O. G., 2380, 6th October 1859.
Do. 2812, 2nd December 1859.

113. When it is proposed to erect a Church at any Station, Government will, in most cases, be prepared to contribute so much of the cost, as would suffice, on a liberal calculation, for the erection of a plain and substantial building calculated to afford the required accommodation; and the amount to be furnished from private sources, must be sufficient, not merely for the execution of the ornaments in detail, but also for the additional cost which may result from the adoption of a more elaborate and expensive style of architecture.

✓ Chief Engineer's Circular, LXXXIV, 6th August 1857.

114. Whenever Roman Catholic chapels are erected partly by a Government grant, and partly by private subscriptions, if the former preponderates in amount, the building shall be erected on sanctioned plans and estimates prepared by the District Engineer; but, in cases where private contributions equal or exceed the grant, the construction of the building may be entrusted to a committee, of which the District Engineer and the Officer Commanding the Station shall be ex-officio members.

✓ Chief Engineer's Circular, CLXXXV, 23rd January 1858.

115. Chapels belonging to any denomination of Christians, not originally erected by Government, but used for troops, may, with the sanction of Government, be kept in repair at the public expense; provided that the property in the buildings is first transferred to Government by the persons in whom it is vested.

✓ Bengal Code, V, 4-12.

116. When a Roman Catholic chapel shall have been transferred to Government in the above manner, the Priests' dwelling house may also be repaired at the public expense, provided that it form a part of the chapel: but Government will not undertake to repair such residences when separate from the chapel, though in the same compound.

✓ Chief Engineer's Circular, CXXXII, 23rd October 1858.

117. The countersignature of any departmental Officer to a plan shall imply only his approval of the arrangements for the required accommodation.

✓ Circular Order Book, page 591, paragraph 71.

118. When any proposition for a new building, or an improvement, involves an increase of establishment, the amount of additional establishment shall be reported to Government together with the proposition. For the observance of this rule, the Department in charge of the building, and the Engineer Department, shall be equally responsible.

✓ Circular Order Book, page 591, paragraph 72.

Circular Order Book, page 591, paragraph 74.

G. O. G., 2812, 2nd December 1859.

Chief Engineer's Circular, CLX, 26th November 1858.

119. The Chief Engineer may cause plans and estimates to be prepared in the Central Office when it may seem to him expedient to do so.

120. Whenever it is considered advisable to abandon a public building, the reasons for the proposal must be given in full, and the course which it is intended to adopt with the building shall be stated. In every case the opinion of the Head of the Department concerned should be given.

121. At the end of every month, the District Engineer will forward to the Central Office a list in the prescribed form;—showing the various repair estimates for works of all kinds sanctioned by the different Authorities during the past month;—also the sum spent on repairs during the month in question, and during the official year up to the end of that month.

MINOR NEW WORKS AND IMPROVEMENTS.

122. In the case of roads, canals, embankments, tanks, and other works under the sole control of the Public Works Department, when a work, or a system of works, requires some slight improvement or addition, which cannot be considered as a repair, the following course shall be adopted, provided that the cost shall in no case exceed 500 Rupees.

123. A definite design and estimate, with a report explaining the object of the work, shall be prepared by the Executive Officer or Agent, and forwarded to the District Engineer.

124. If the estimate be below 50 Rupees, the work may be commenced at once on the authority of the Executive Officer or Agent; but the District Engineer may, at his discretion, order it to be stopped or suspended.

125. If the estimate exceed 50 Rupees, the District Engineer will submit it with the design and report to the Collector, for approval; and he will then forward them to the Deputy Chief Engineer.

Chief Engineer's Circular, LXXX, 10th August 1858.

126. Should the estimate not exceed 200 Rupees, the District Engineer may then order the work to be begun; but in this case, the intention of commencing the work must have been mentioned in the report; and the Chief Engineer may, if he think fit, order any such work to be stopped, or suspended.

127. If the estimate exceed 200 Rupees, the work shall not be commenced until the Deputy Chief Engineer's sanction shall have been accorded.

128. The foregoing rules shall not be construed into a permission to carry out, in portions, any system of works or alterations, of which the cost, in the aggregate, shall exceed 500 Rupees. Neither shall any important alteration of design or arrangement be made in any existing work; nor shall any new work be undertaken at variance with an authorized standard, without the assent of the Chief Engineer.

129. A monthly list, in the prescribed form, showing all the minor new works and improvements which may have been sanctioned under these rules by the local Authorities, shall be submitted to the Chief Engineer by each District Engineer; and the Chief Engineer will submit a similar report to Government for the entire Presidency, showing all the works which may have been sanctioned under these rules, during each month, both by himself, and by the local Officers.

PLANS, &c.

1. All plans and drawings of every description, intended for submission to the Central Office, shall be mounted on thin cloth. Those of large size should be rolled: smaller ones may be sent in folded.

Ch. Engr's Cir. XXXIV, 9th June 1857.
Circular Order Book, page 236.

2. Drawings shall never be larger than is absolutely necessary to show the details essential to the project. A single sheet should never contain more than a few drawings. Sheets of a very large size should never be used.

Circular Order Book, page 87.
Do. do. page 236.

3. Every drawing and plan shall have a title, in legible characters, either written or printed, to show what it represents, and the occasion of its preparation. The title shall be repeated in an abbreviated form on the back, with a reference to the accompanying letter, on two opposite corners, so as to show outside whichever way the paper may be rolled or folded up.

Bengal Code, XIX, 3-3.

4. The following information shall be given on the face of all plans of proposed works:—

Circular Order Book, page 175.
Do. do. page 16.
Do. do. page 496.

Amount of estimate.

Nature of soil.

Description of proposed foundation.

Name of designer, when the plan is signed by another person.

Name of draughtsman.

5. One or more scales, as may be necessary, shall be laid down on every drawing and plan; and the principal dimensions shall always be marked in figures.

Bengal Code, XIX, 3-4.

6. The following scales shall be used in the Department:

For survey plans.

8 inches to the mile.
6 inches to the mile.
4 inches to the mile.
2 inches to the mile.

For sketch maps.

1 mile to the inch.
2 miles to the inch.
4 miles to the inch.
8 miles to the inch.

For drawings of designs.

10 feet to the inch.
15 feet to the inch.
20 feet to the inch.
30 feet to the inch.
40 feet to the inch.
60 feet to the inch.

For drawings of details.

1 foot to the inch.
2 feet to the inch.
3 feet to the inch.
5 feet to the inch.

For Sections.

The horizontal scale to be that of the corresponding survey or plan. The vertical scale will vary according to circumstances. In sections of country it shall not bear a larger proportion to the horizontal scale than may be necessary to give a correct idea of the ground.

Bengal Code, XIX, 3-5.

7. The intended position of every part of a proposed work shall be shown on the plan. Proposed additions to any work, as well as those portions which it is proposed to alter or to remove, shall be shown in the plan in a colour different from the rest of the work.

E. M. C., 910, 18th April 1859.
G. O. G. 2529, 27th October 1859.

Ch. Engr.'s Cir. XXXIV, 9th June 1857.

Circular Order Book, page 16.

Bengal Code, VIII, 3-21.

8. Whenever any drawing or plan is forwarded to the Central Office, a copy shall be retained in the District Office from which it is sent.

9. Every plan of a proposed bridge must contain a section of the stream, drawn on the same sheet of paper, but distinct from the plan of the work. This section must show the highest flood mark, and the level of the ground on either side.

10. In every case of a bridge with a span of more than 20 feet, the proposed centering shall be shown in detail on the plan.

11. Copies of all the standard designs for buildings, which have been approved by Government, shall be kept by every District Engineer, and shall be adhered to, as far as possible, in designing buildings. All deviations from the standard designs shall be expressly noticed in the covering letter.

12. The plan of every proposed building must be countersigned by the local Head of the Department for whose use it is intended, before being sent to the Central Office.

13. Survey plans shall contain only those details which are required by the Authorities to whom they are to be sent. The names of villages, and other leading points, shall always be shown, both on the plans and sections. Should there be no large, well-known town in the plan, the bearing and distance of some one in the neighbourhood shall be given, with its latitude and longitude, as taken from the Indian Atlas.

14. The nature of the surface of the ground, and of the rock in the neighbourhood, should be stated. If any wells are seen, the strata in them should be mentioned. The depth of the soil should also be stated.

15. The area of cultivation in acres, and its nature, i. e. rice, sugar, betel, &c., should be stated generally. The average produce of grain, in bushels, should also be given.

16. The points at which lime and building stone are procurable, should be mentioned, and the quality of the material.

17. Any neighbouring prominent point, such as a hill, pagoda, &c., should always be intersected, and the direction of it marked on the plan.

18. The plan should be slightly shaded, so as to show the principal features of the ground.

19. In taking a line of levels, all the essential points, such as watersheds, saddles, drainage channels, &c. should be marked with especial accuracy and care. The particular object of the levels should be always kept in view, and those points which bear upon it should be carefully ascertained and noted.

20. When a river occurs, the following particulars shall, if possible, be noted. The fall per mile; the level of its water surface, and its deep bed at the spot; the depth of water at the nearest ford or shallow; and the date on which the observations were made, with the then state of the river, whether in fresh or not. A cross section should also be taken, when practicable; and the water level in the dry weather, in ordinary freshes, and in extraordinary floods, should be ascertained and marked.

21. Except in special cases, no line of levels shall be sent to the Central Office without being checked or otherwise verified. In cases when it may be necessary to send a single line of unchecked levels, the fact shall be distinctly stated; and it shall be explained what degree of confidence can be placed in them, considering the character of the Surveyor for experience, accuracy, &c., and the circumstances under which the levels were taken.

Ch. Engr.'s Cir. LX, 22d July 1859.

THE SELECTION OF PROJECTS AND SUBMISSION OF ESTIMATES TO GOVERNMENT.

SELECTION OF PROJECTS.

1. Immediately after the despatch of the annual Budget statements, i. e., on the 5th November in each year, every District Engineer shall proceed to determine, in communication with the Collector, and with his own Subordinate Officers, what important projects, whether of irrigation or of communication, shall be investigated and brought forward for entry in the following Budget.

2. The District Engineer will prepare a list, including every work of this nature whose cost is likely to exceed 7,000 Rupees; showing the nature, object, and probable cost of each; with the probable increase of revenue in the case of irrigation works; and the present traffic, and probability of increase, in that of works of communication. All these particulars shall be stated on careful consideration of the general circumstances of the case, and the best information procurable, but without detailed investigation.

3. The District Engineer will despatch the list to the Collector on or before the 15th December; and the Collector will forward it to the Chief Engineer not later than the 25th December; with his countersignature, in token of general concurrence; and accompanied by a letter, in which he shall briefly state his views on each project. The Collector will also suggest any project, not included in the District Engineer's list, which, in his opinion, should be brought forward and investigated at once.

4. The Chief Engineer will take into consideration, as early as possible, the lists received from the several Collectors; consulting his Deputies, particularly those of them who may be best acquainted with the localities in each case. He will then submit the lists to Government, singly or several together, as may be convenient; with the letters from the respective Collectors, and with his own concise opinion as to the expediency of undertaking, rejecting, or postponing each individual project. He will also bring forward any other project in any District, which, in his opinion, should be taken up in preference to any of those in the list. The whole of the lists ought to be before Government by the 25th January.

5. The lists shall then be considered by Government; and having been approved or corrected as the case may be, shall be returned to the Chief Engineer with their orders on every project, which shall be communicated without delay to the local Officers.

6. The District Engineer shall then enter thoroughly into the consideration of the approved projects; and shall prepare the plans, estimates, and all other necessary documents. He shall not, however, postpone all investigation until the receipt of the orders of Government; but immediately on the despatch of the list to the Collector, he shall enter on the consideration of the most pressing projects, the approval of which may seem to be most certain.

7. The District Engineer will endeavour to make his list as complete as possible before despatching it to the Collector; but he shall be at liberty to take up projects of pressing importance which may subsequently come under his notice. When thus taking up a project, not included in the preliminary list, the District Engineer will report the fact for the information of the Chief Engineer, who will, if necessary, notify it to Government.

8. It is the expectation of Government that all Officers of the Revenue and Public Works Departments will freely communicate and consult together as to the course to be pursued for the improvement of the District committed to the care of both.

Circular Order Book, page 250.
do. page 343.

Circular Order Book, page 385, paragraph 27.

9. When a project for a work of irrigation or communication is thoroughly complete in all its details, the District Engineer shall forward it to the Collector; accompanied by a letter addressed to the Chief Engineer, containing full explanations upon the proposed works; so that the Collector may, if he thinks proper, transmit the estimate and letter direct to the Chief Engineer: notifying the transmission at the same time to the District Engineer for his information.

SUBMISSION OF ESTIMATES TO GOVERNMENT.

E. M. C. 20, 4th January 1859.

10. All estimates for public works, originating in any Department, which are intended for submission to Government, shall be sent through the Chief Engineer.

Circular Order Book, page 209, paragraph 3.
E. M. C. 2149, 23rd November 1857, paragraph 4.

11. All estimates received in the Central Office, and which cannot be finally disposed of there, shall be prepared in proper form, with all the necessary information; and shall then be submitted for the orders of Government.

Circular Order Book, page 210, paragraph 5.

12. Estimates shall not be submitted to Government in detail; but in abstract, in the prescribed forms.

Circular Order Book, page 210, paragraphs 6-7.

13. A separate letter from the Chief Engineer shall accompany the estimate for every project; and all the reports of the local Officers, and the plans of the several works included in the project, shall be sent up with it. Every project submitted to Government must invariably be accompanied by a sketch map of the localities, in which every essential point shall be shown.

Circular Order Book, page 210, paragraph 9.

14. The Chief Engineer's letter on each project shall explain the nature, object, and necessity of the proposed work; stating the amount of the estimate, and other particulars; giving an abstract of the reports from the several local Officers; and briefly reciting past correspondence and proceedings connected with the proposed work.

Circular Order Book, page 210, paragraph 10.

15. When the estimate submitted refers to a portion of a large project, whether the first part of it, or a subsequent part, that general project shall be briefly described, and the connection with it of the proposed works shall be explained.

Circular Order Book, page 211, paragraph 11.

16. In every case, the Chief Engineer's letter shall notice the main features of the design represented in the estimate, and shall give his opinion as to the propriety of each such part, and of the whole.

Circular Order Book, page 211, paragraph 12.

17. The rates adopted in the estimate shall also be specially noticed, with the Chief Engineer's opinion on them. It shall be explained whether they are appropriate, i. e. moderate and yet sufficient; whether they are the usual rates of the locality; and, if not, what are the reasons for the deviation, and whether those reasons are sufficient.

Circular Order Book, page 211, paragraph 13.

18. The letters which accompany estimates for works of irrigation, in addition to the particulars of the project and the estimate, shall state the existing revenue from the works, if any; and the expected increase in consequence of the proposed works; with the data in each case on which the computation is based.

Circular Order Book, page 211 paragraph 14.

19. The letters accompanying estimates for roads shall give, besides the general description above specified, the length of the road proposed to be made or improved; the special considerations which make the work desirable; the nature and general features of the country; the gradients of any pass on the line; and the amount of existing traffic.

Circular Order Book, page 211.

20. The Chief Engineer's letters will vary in point of fulness and detail with the magnitude and importance of the several works under notice. Minor works will require but brief remark; though in every case all the points specified in the rules for that description of work should be noticed. The larger works, and more specially those which must be submitted for the sanction of the Government of India, should be dwelt upon at length.

THE BUDGET.

1. Every District Engineer shall forward to the Central Office, on or before the 5th November in each year, four Budget statements in the prescribed forms, prepared as follows:

2. No. 1 shall contain such projects for new works or improvements exceeding 25,000 Rupees each, as have not been sanctioned in a previous Budget. The estimates for these projects must have been previously sent up to the Central Office; and those projects only shall be included whose entry has been ordered by Government, or on which no orders have been received.

3. No. 2 shall comprise first, all projects for new works or improvements, whether above or below 25,000 Rupees each, which have been sanctioned in a previous Budget, but which are not expected to be completed within the current official year; and secondly, all projects of the same nature, not exceeding 25,000 Rupees each, which have not been included and sanctioned in any former Budget. The first part of this statement will be taken from the Budget of the preceding year, omitting such works as are likely to be completed before the close of the current official year. The second part will contain estimates under 25,000 Rupees each, already submitted, and either ordered by Government to be included in the Budget, or on which no orders have been received.

4. No. 3 will show the amount of the probable expenditure on repairs. As regards works of irrigation, the entry for each District shall be fixed with reference to the number and importance of the works; the revenue derived from them; and their state of repair; provision being made under this head for those minor new works which may be sanctioned without reference to Government, under chapter section . As regards communications, every maintenance allowance shall be shown which may have been sanctioned for the Government roads in each District; also all discretionary allowances and the annual grants for the District roads. This last sum shall correspond with the entry in the preceding Budget, unless there are reasons for its increase or decrease; in which case these reasons shall be mentioned. The entry for buildings shall be the average expenditure of the last three years, with any necessary addition; in which case the reasons shall be specified.

5. No. 4 shall be an abstract showing the proposed expenditure in the approaching official year under all heads; and shall be compiled from the foregoing three statements.

6. All the estimates included in these lists shall be arranged in three classes: 1st, Works of Irrigation; 2nd, Communications; and 3rd, Buildings.

7. Throughout these statements, all fractions of a Rupee shall be omitted: when the fraction does not exceed eight annas, it shall be struck off; when it is more than half, one shall be added to the sum of Rupees.

8. To facilitate the computation of the probable expenditure from the 31st October to the 30th April, and for the next official year, for entry in statements 1 and 2, the progress reports of the Executive Officers and Agents for October shall contain two additional columns, one to show the estimated expenditure for the remainder of the current official year, and the other the amount required for the expenditure of the ensuing official year. In the case of works not yet sanctioned, or works sanctioned but not yet commenced, the District Engineer shall use his discretion in determining the amounts to be entered under the two heads in question.

Circular Order Book, pages 212, 213, and 214.

9. The Chief Engineer will revise the statements received at his Office from the Districts, and shall compile them into general statements to be submitted to Government. The local statements Nos. 1 and 2 shall be compiled into general statements in the same forms respectively; with an index to each, in the prescribed form. The local statements Nos. 3 and 4 shall be compiled into general statements in the prescribed forms.

10. These statements shall be laid before Government on or before the 5th December in each year.

11. The Chief Engineer shall forward, along with the Budget statements, five copies of a general sketch map of the Presidency, showing the main features of the country, the existing roads, canals, &c., and those proposed in the Budget. The names of all places and rivers referred to in the Budget shall be entered in this map.

12. The general report to accompany the Budget will be prepared in the Government Office. It will be unnecessary, therefore, for the Chief Engineer, in sending up the Budget statements, to enter into their contents at any length. The separate reports submitted by him on each project will be used by Government as materials for the general report to accompany the Budget to the Government of India.

13. In submitting the Budget statements, the Chief Engineer will report whether there is, or will be, sufficient superintendence available for the due execution of all the works proposed; and some particulars of that superintendence shall be given.

14. When Government have approved of the general abstract of the Budget, and have sanctioned such parts of it as may be within their power, a copy of the abstract and of the order of Government shall be furnished to the Accountant General, to assist him in preparing his financial estimate. The Accountant General will also furnish the several Collectors and Paymasters concerned with instructions for the provision of the sums required, which they will hold at the disposal of the respective District Engineers. With respect to the amounts sanctioned for each District by the Madras Government, the orders to the Collectors and Paymasters shall be issued immediately: but as respects the amounts reserved for disposal by the Government of India, the necessary orders shall be issued only after receipt of the sanction of that Government. The Accountant General will furnish the respective District Engineers with copies of these orders, for their information.

15. Authority thus granted for the expenditure of an official year shall cease at the close of that year; and sums then undrawn out of such sanctions shall not be brought forward in the following year's accounts.

16. In addition to all the projects entered in the Budget, a special sum of one lac shall also be included; within which limit the Madras Government may authorize the commencement, at any time during the year to which the Budget refers, of works of an isolated character, the cost of each of which shall not exceed 10,000 Rupees.

EXECUTION OF WORK.

GENERAL.

1. When the execution of any work is ordered, there shall be an intimation of the period within which it is expected to be completed. In the case of work sanctioned by Government, or by the Chief Engineer, it shall, as a general rule, be left to the Deputy Chief Engineer to name the time within which the work is to be done; and, when more than one season will be required to complete the work, he will intimate the progress expected to be made in the first season.

Circular Order Book, pages 212, 213 and 214.

Ch. Engr. & Cir. CLXXIV, 23d Jan. 1858.

2. In the case of minor works done on the requisition of the local Authorities, the period of expected completion may be named in the requisition; and the Executive Officer or Agent will bring to the notice of the District Engineer any case in which the time fixed may be unreasonable; failing which, he will be held responsible for not finishing the work in time.

Ch. Engr. & Cir. CLXXIV, 23d Jan. 1858.

3. Verbal orders alone, as being liable to misapprehension, will not be received as a sufficient warrant for commencing any work, or incurring any expense. This shall not interfere with the prompt obedience of every Officer in the Department to the lawful orders of his Superiors, or the emergent requisitions of Military or Civil Authorities, when given verbally; but the written confirmation of all verbal orders which entail expenditure must be solicited by the Officer who receives them; and he will be held personally responsible for any expense which may thus be incurred, unless he can show that he applied, within reasonable time, in writing, to the Officer by whom the verbal order was given, stating in detail the work he was about to carry out, giving a rough estimate of the expense, and asking for a written confirmation of the original order.

Bengal Code, VIII, 1-9.

4. Every public work, carried on under the orders of Government, shall be discontinued on Sunday. Exception will be made only in cases of very urgent necessity, in which delay would directly prejudice the interests of Government, or the people; but in every such case an immediate report must be made for the information of the Chief Engineer.

Circular Order Book, page 22.

5. Whenever convict labour is employed in the execution of public works, the value of such labour shall be duly charged in the accounts of the work, and a corresponding credit allowed in account to the Civil Departments by which the convicts were supplied. The charge for convict labour shall be two-thirds of the usual rate paid for free labor of a like description.

6. No actual money payment shall be made on account of convict labor; but a memorandum in duplicate shall be prepared, countersigned both by the District Engineer and the Civil Officer, one copy to be rendered by the former with his accounts, the other by the latter, that the necessary adjustments may be made.

Ch. Engr. & Cir. CXXIV, 1st Oct. 1857.
Do. CXXVI, 15th Oct. 1858.

7. Materials prepared by convicts, the value of which would ordinarily be credited to the jail, or on which a commission is allowed to the Jailor, when supplied for public works, shall be paid for, and dealt with in the accounts, as though they had been purchased from any other source.

8. When details of the Sappers and Miners, or of any other Corps, are employed upon public works, all the working money and extra remuneration due to them shall be charged to the works upon which they are employed.

Ch. Engr. & Cir. CXXVI, 15th Oct. 1858.

9. All purchases exceeding Rupees 100, and all contracts, made at the Presidency on account of public works, shall be published in the Fort Saint George Gazette by the Officer concerned, with full details of the rates, &c. immediately on the close of each transaction. In the provinces, these transactions shall be notified in like manner in the respective District Gazettes, by the local Head of the Department.

Ch. Engr. & Cir. XXXVIII, 10th June 1858.

10. Members of the Department will use their utmost endeavours to substitute stone for brick, whenever practicable, in the construction of public works.

Ch. Engr. & Cir. CLXXXIII, 16th Feb. 1858.
Circular Order Book, page 235.

11. As a general rule, the outer walls of public buildings and other masonry works shall be pointed with chunam, not plastered.

Ch. Engr.'s Cir. CCXLI, 30th March 1859.
Circular Order Book, page 355.

Bombay Code, II, 8.
Circular Order Book, page 75.

Bengal Code, VIII, 1-19.

Circular Order Book, page 11.

Circular Order Book, page 16, paragraphs 8-9.

Ch. Engr.'s Cir. XIV, 25th May 1859.

Ch. Engr.'s Cir. LXXIX, 5th August 1858.

Circular Order Book, page 24, paragraphs 11-12-13-16.

Circular Order Book, page 44.

Ch. Engr.'s Cir. CXIII, 9th April 1858.

12. When earth, turf, lime, and other similar materials, are required for the construction of public works, they shall be taken from waste land, when available. If there be no waste land within a reasonable distance, the necessary materials shall be taken from private land; and if the owners of fields refuse to come to terms with the Engineer, the Collector may be asked to give his assistance; and if necessary, the land may be taken under Act VI of 1857.

13. No Member of the Department shall, without the sanction of Government, destroy or injure, for the sake of procuring materials, or any other purpose, any building, the preservation of which may be desired by the people, or which may possess historical or architectural interest. The special sanction of Government shall also be necessary before stones, or other building materials, can be removed from any fortifications, even when old and ruinous.

14. In the execution of works every care shall be taken that the safety and convenience of the public are duly attended to; and that all operations are carried on in such a manner as to cause the least possible interference with the traffic or the agricultural pursuits of the people. Temporary roads and bridges shall be provided when necessary; and the occupation of land shall, when practicable, be so timed as not to injure standing crops.

15. Whenever it appears probable that the expenditure upon any work will exceed the estimate, the District Engineer shall at once report the circumstance, with a full explanation of the cause of the excess, for the information of the Chief Engineer.

16. All unusual losses in the manufacture of materials, and all important accidents during the construction of works, shall be reported to the Deputy Chief Engineer immediately on their occurrence.

17. Personal violence, and the employment of terms of abuse, towards natives, whether in the service of Government or not, shall be most strictly prohibited on the part of all Members of the Department. It will be the duty of all Officers to discourage the ill treatment of natives by every means in their power, and to report to superior Authority any serious instance of it that may occur.

18. To prevent delay in the execution of emergent military works, the Executive Officer or Agent of the Range, or in his absence, the senior Subordinate actually present, will receive from the Military Authorities application for any works of that nature, and will proceed to execute them without delay, agreeably to the rules, forwarding to his immediate Superior a copy of the order acted on.

IRRIGATION WORKS.

19. In the construction or the repair of tank bunds, particular care should be taken that the soil used is of the best and most suitable description, and that the bund is well tamped as the work proceeds. When earth is required for the repair of bunds, it should, when possible, be taken from some convenient place outside the tank. The silt in the bed of a tank should never be used when other earth is procurable.

20. Trees should be planted along the foot of the outer slope of the bunds of tanks and channels. A list of the trees most suitable for the purpose is given at page .

21. Large trees should not be planted on the top of the bund of a tank or channel, nor on its inner slope. When the inner slope of an irrigation work is reveted with stone, special care should be taken to remove all trees.

22. Whenever a Member of the Department shall meet with a case in which the village Authorities have neglected to enforce the customary duties, detailed in chapter , paragraph , and shall fail to procure the remedy on the spot, it will be his duty to bring the circumstances, through the proper channel, to the notice of the Collector, who will enforce the obligation. No measures will be taken for the repair of a work so neglected, pending the remedy of the neglect.

23. In cases of emergency, when the safety of person or property is in immediate danger, and when it is not possible to procure voluntary labor sufficiently early to avert accident, Act I of 1858 may be enforced, see Appendix .

24. The powers conferred by this Act shall on no account be resorted to frequently, or on trifling grounds; and every other means to obtain the necessary labor or materials must be previously tried. Whenever the provisions of this Act are unavoidably enforced, especial care must be taken that payment for every thing be liberal and punctual.

WORKS OF COMMUNICATION.

25. Particular care shall be taken to plant a line of avenue trees on each side of every road. Trees suitable to the particular kind of soil should always be selected. So long as the trees are young, they must be carefully fenced and watered; and every instance of wanton damage to the tree or the fence shall be brought to the notice of the Magistrate.

26. Encroachments upon public roads and thoroughfares, of any nature, whether by ryots or others, shall on no account be permitted. It shall be the duty of every Member of the Department to report, without delay, any case which may come to his notice.

27. Heaps of gravel or metal for the repair of roads, shall never be placed in the centre of the roadway, but at the extreme edge, so as to leave room for traffic.

28. All large bridges should be carefully examined, and, if necessary, repaired, once at least in the course of every year. Especial care should be taken to fill up any holes which may have been caused beneath the arches by the current: to see that the foundations of the piers and arches are uninjured: and to take steps for checking or counteracting any irregular action of the current.

29. In the case of timber and iron bridges, the wood work and iron work shall be carefully painted, or tarred; and the paint or tar shall be renewed, when necessary.

30. All bridges and tunnels should be furnished with parapet walls, or with iron or wooden railings. A similar protection should also be provided at every precipitous or dangerous point in passes and ghâts, and at all places where a road may have been formed in the steep side of a hill.

31. In places where a road crosses a nullah or small stream, which is seldom or never impassable for more than a few hours at a time, after a heavy fall of rain in the immediate neighbourhood, a road dam may advantageously be used instead of a bridge.

32. In laying out a road particular attention must be paid to the gradients, which should be adapted to the nature of the traffic, in so far as the features of the country will permit.

33. When roads are under construction through country which is known to be unhealthy, particular care must be taken to fix the opening and the closing of the year's operations with regard to the peculiar circumstances of the country.

BUILDINGS.

34. Lightning conductors shall be provided for all powder magazines; and for all buildings which are either likely to be struck by lightning from their height or exposed situation, or which, either in themselves or an account of their contents, are more than usually valuable.

Ch. Engr.'s Cir. LIV, 15th July 1859.
Do. LXII, 27th July 1859.

Ch. Engr.'s Cir. XXV, 31st May 1858.

Ch. Engr.'s Cir. CXCI, 4th March 1858.
Do. XLVI, 16th June 1858.

Do. CIII, 15th September 1858.

Circular Order Book, page 160.

Circular Order Book, page 102.
Do. page 329.

Circular Order Book, page 202.

Ch. Engr.'s Cir. CXLII, 6th November 1858.

Bengal Code, VIII, 3, 10 and 11.

Ch. Engr.'s Cir. CXXXII, 9th October 1857.

Bengal Code, VIII, 3, 25.

Ch. Engr.'s Cir. CCXXXVI, 24th March 1859.
Bengal Code, VIII, 2-12.

Circular Order Book, page 295.

Ch. Engr.'s Cir. CCLVI, 19th April 1859.

Circular Order Book, page 336.

Ch. Engr.'s Cir. CLXXX, 20th December 1858.

G. O. G., 2115, 7th September 1859.

Circular Order Book, pages 203-204.

Ch. Engr.'s Cir. XXX, 8th June 1858.

Circular Order Book, page 224.

Circular Order Book, page 351.
Ch. Engr.'s Cir. LXXXV, 7th August 1857.

Circular Order Book, page 292.

35. It will be the duty of the District Engineer to apply for permission to pull down any public building which may seem to be in a dangerous state: and, in cases where the measure may be immediately necessary to the public safety, he will act at once, without waiting for orders.

36. Officers employed in the Department of Public Works will, when applied to, give their aid in designing, preparing, and hanging punkahs in public buildings, and also in repairing them: but the expense incurred will be included among the contingent charges of the Department concerned, and will not be debited to the Public Works Department.

37. All military buildings, upon completion, shall be handed over to the Quarter Master General's Department; and the Public Works Department shall have no further concern with them, except in so far as they may require repair, from time to time.

38. The Quarter Master General's Department shall make arrangements for the care of all unoccupied military buildings. All repairs to vacant regimental lines, which may be absolutely necessary, shall be carried out, as far as possible, by means of fatigue parties, or such public or regimental establishments as can be spared for the purpose. When no such means are available, the repairs may be executed by the Public Works Department, and the cost adjusted by contingent bills, in the usual manner.

39. When stables are used as temporary barracks for European troops, the earth shall be removed from the floor to a depth of 2 or 3 feet, and fresh earth shall be carefully relaid, before the troops are permitted to occupy the buildings.

40. All Government churches and cemeteries shall be under the exclusive charge of the church committee of the chaplaincy; who shall be responsible that no alteration is made in the church or church yard, without the sanction of Government being first obtained through the Archdeacon, or, in his absence, through the acting Archdeacon or special Commissary.

41. The bells of all Government churches and chapels shall be so swung as to insure their being rung with a wheel and rope. They shall on no account be struck with a hammer: and care shall be taken that the wheel is raised sufficiently high to prevent a man from reaching the bell with a hammer.

ACCIDENTS TO WORKMEN.

42. Officers in charge of public works shall take every possible precaution for the prevention of accidents among the people employed on the works, and shall compel them to take the proper means for sheltering themselves from the consequences of possible accidents.

43. In blasting operations, no man shall be employed to fire the charges, who has not been an assistant in similar operations for some time.

44. In excavations, whether to obtain gravel, or for other purposes, no pit shall be carried to a depth greater than is absolutely necessary. Care must be taken that the sides of the excavation are either sloped, or cut in steps; and that a berm of sufficient width is left between the edge and the heaped debris.

45. The Officer in charge of a public work shall make an immediate report to the Civil Authorities, and to the police, on the occurrence of any accident, causing injury to life or limb, among the people employed by him. In the case of death, whether on the spot, or in hospital, the body shall not be removed until an Inquest has been held.

46. To prevent delay, it shall be the duty of every Member of the Department to acquaint himself with the designation and place of abode of the nearest Official competent to hold an Inquest.

47. An immediate report, containing full details and particulars, shall also be made, through the District Engineer, to the Deputy Chief Engineer of the Circle; to whom the proceedings and the verdict of the Court of Inquest shall, as a matter of course, be communicated.

48. The following rules shall be observed in cases of application for gratuities to the families of lascars, coolies, and other workmen in the service of Government, who may happen to be killed, or to die in consequence of wounds, or accidents, sustained in the execution of their public duties:—

I. No application for a gratuity shall be received from the family of a deceased workman, unless he died within six months from the date on which the wound, or the accident which is supposed to have caused his death, was received.

II. Applications shall be confined to cases in which the deceased may have left a parent, widow, or legitimate offspring, dependent on him for support. If there are two or more survivors within these degrees of relationship, the claims of each shall be investigated, and preference accorded as follows:—son,—widow,—daughter,—father,—mother.

III. All claims shall be subjected to a regular enquiry by the local Head of the Department in which the deceased was employed.

IV. The claimants shall appear personally before the said Officer; and witnesses (unconnected with the claimants, if possible,) shall be examined in attestation of the validity of the claim. When the evidence of relatives or connections is taken, a note to that effect shall be entered upon the proceedings; and in all cases, the witnesses shall be warned to confine their evidence to circumstances within their own knowledge, and be made to understand that they will be liable to trial and punishment in the event of their evidence proving false.

V. The proceedings shall be drawn up in the prescribed form, and shall contain a concise but full record of the evidence by which every claim is supported, the designation and duties of the deceased, the nature of the accident or injury which caused his death, and the precise degree of relationship and condition of the person or persons claiming the bounty of Government in consequence.

VI. The gratuity admissible under these rules shall be regulated according to the duties of the deceased, the circumstances attending his death, and the condition and prospects of his surviving relative or relatives. The maximum limit shall be six months' pay.

REVENUE AUTHORITIES.

BOARD OF REVENUE.

1. The Board of Revenue will, when necessary, correspond with the Chief Engineer, either direct, or through his Deputies, on all subjects connected with public works, or on questions which relate to the improvement, or the general interests, of the country.

2. The Board of Revenue will give their opinion on all important projects which may be submitted to them by the Chief Engineer: and they will furnish him, on application, with all the information on subjects connected with his Department which may be in their power.

Circular Order Book, page 292.

Circular Order Book, page 332.

Circular Order Book, page 144, Note 5.
Do. page 535, paragraph 24.

COLLECTORS.

✓ Circular Order Book, page 143, Note 236.

3. The Collector, as the guardian of the revenue, and the general representative of Government within his District, shall be the official Authority on the probable effect of every proposed work, with regard both to the revenue, and to the general interests of Government and of the people.

✓ Circular Order Book, page 592, paragraph 78.

4. The Collector will correspond, at his discretion, with any Member of the Public Works Department employed in his District; and he will bring to the notice of the District Engineer any case in which a Member of the Department shall fail to afford him information and assistance, as far as possible.

✓ Circular Order Book, page 144, Notes 7-8.

5. The Collector will also correspond with the Chief Engineer, or the Deputy Chief Engineer of the Circle, in any case in which he may deem it necessary: and it will be his duty to furnish either of these Officers, or the District Engineer, with any information on subjects connected with the Public Works Department, which he may be in a position to supply.

✓ Circular Order Book, page 592, paragraph 81.

6. As a general rule, the Collector shall address Government on any matter connected with public works, through the Chief Engineer; but he may address Government direct on such subjects whenever he may see occasion.

✓ Circular Order Book, page 156, paragraph 23.

7. A cordial understanding and co-operation between the Collector and the District Engineer shall be considered essential to the interests both of the public service and of the people: and any instance of a different feeling or conduct, on either side, will incur the serious displeasure of Government.

✓ Ch. Engr.'s Cir. CXLVIII, 15th November 1858.

8. It shall be the duty of the Collector to discourage all feelings of jealousy, and all imaginary grievances, which may tend to produce a bad feeling between the Members of the Revenue and the Public Works Departments; and, in conjunction with the District Engineer, to put an immediate stop to all trivial quarrels which may have arisen between the Subordinates of the two Departments.

✓ Circular Order Book, page 143, Note 235.

9. The Collector will make known to the District Engineer, or to any one of his Subordinates specially concerned, any case which may have come to his notice, in which the neglect to repair a work had caused, or was threatening, a diminution of the public revenue. Should the necessary steps not be taken for the timely repair, or protection, of the work, the Collector will bring the subject to the notice of higher Authority.

✓ Ch. Engr.'s Cir. LIV, 15th July 1859.

Do. LXII, 27th July 1859.

10. Whenever a case is brought to the Collector's notice, in which the village Authorities have neglected to exact from the ryots the performance of the usual minor works of conservancy and repair, it shall be his duty to enforce the obligation without delay; and no remission shall be allowed for any waste or loss which may have been occasioned by such neglect.

✓ Circular Order Book, page 143, Note 230.

Do. pages 247-248.

11. The Collector will suggest to the District Engineer all projects for new works or improvements which may seem to him worthy of investigation or prosecution: and if, in his opinion, the projects thus brought forward are neglected by the District Engineer, it will be his duty to lay them before the Chief Engineer. He shall also have the right of declaring his opinion on the merits of every project, which may not have originated with himself, for improving the irrigation or the means of communication in his District.

12. The Collector shall have power to sanction the execution of the following works:—

✓ Circular Order Book, page 586, paragraphs 85-86.
Do. page 146,
Do. page 590.

Repairs to irrigation works, when the estimate does not exceed the highest annual revenue from the work within the last five years.

Repairs to roads, within the total of the discretionary allowance, or local fund, when recommended by the District Engineer.

Repairs to revenue buildings, when the estimate does not exceed one-fourth of the value of the building, within the limit of 500 Rupees.

But all estimates for works of irrigation and communication, and for revenue buildings, whether for new works or repairs, must be countersigned by the Collector.

13. In countersigning an estimate, the Collector shall be held to signify only his approval of the general objects of the work; and he shall not thereby become in any degree responsible for the design or the details. But should he refuse to countersign any estimate, he will be held responsible for any injury or loss of revenue, which may arise in consequence of the non execution of the proposed work.

✓ Circular Order Book, page 592, paragraph 79.

14. The Collector shall receive a copy of the monthly progress report of the District Engineer; and he may address observations thereon to the District Engineer, Chief Engineer, or Board of Revenue, at his discretion.

✓ Circular Order Book, page 529, paragraph 80.

15. When fuel is required for public works, it shall be the duty of the Collector, on application from the District Engineer, to point out any place in which Government timber may be felled. The Collector will also give timely notice to the District Engineer of any public sale of Government timber about to take place.

✓ E. M. C. 2288, 29th October 1858.

16. The Collector shall afford every possible assistance to the Members of the Department in the conveyance of money for public purposes: and, on application being made, he shall permit their cash chests to be lodged in the taluq treasuries, for security.

✓ E. M. C. 2793, 23rd December 1858.

17. During the rainy season, or in the event of a flood, the Collector, in the absence of any competent Member of the Public Works Department, shall have power to order the execution, by his own Subordinates, of any work necessary for the protection, or the immediate repair, (where delay would be injurious,) of irrigation works, roads, bridges, and river bunds. In such a case, the bill for the work, countersigned by the Collector, shall be sent to the Executive Officer or Agent of the Range, who will verify the amounts by measurement; and, if correct, will pay the sum to the Revenue Subordinates; entering the expenditure in his own accounts. He will submit a bill to the District Engineer, as for any other emergent work, retaining the original bill as a voucher. Should the measurement of the work done account for only a portion of the amount charged, the Executive Officer or Agent will report the fact to the District Engineer; who will apply to the Collector for explanation.

✓ E. M. C. 2386, 13th November 1859, paragraph 6.

SUB-COLLECTORS, ASSISTANTS AND DEPUTY COLLECTORS.

18. The Sub-Collector, and all Assistant and Deputy Collectors, will, when necessary, correspond with the District Engineer, and with those Members of the Public Works Department who may be employed within their respective charges.

19. They will bring forward all cases in which repairs may be required to public works; and will suggest projects for those new works and improvements which may seem to them necessary or desirable.

20. They will use their utmost endeavours to preserve a good and cordial feeling between the Subordinates of the Revenue and the Public Works Departments.

21. They shall, at the discretion of the Collector, have power to order the execution of certain emergent repairs, under the circumstances detailed in paragraph 17. The course of procedure as regards measurement and payment, shall be the same as is there laid down.

INFERIOR REVENUE OFFICERS.

22. The Tahsildars, and all inferior Revenue Officers, will, when necessary, correspond with all Members of the Public Works Department who may be employed within their respective taluqs, or charges. The fullest and most cordial intercourse between the Members of the Revenue and the Public Works Departments, of all grades, will best promote the good of the public service.

23. The Tahsildars will bring to notice all cases in which repairs may be required to public works; and they will suggest any measures which they may deem likely to promote the interests of their respective taluqs.

24. The Tahsildars, and all inferior Revenue Officers, shall watch over the safety of the works of irrigation, roads, bridges, and river bunds, during the rainy season, or on the occurrence of floods: and in the absence of any competent Member of the Public Works Department, it shall be their duty to take any necessary measure to avert damage, and, if necessary, to repair it. In such a case, the work shall be measured and paid for as laid down in paragraph 17; the bill, signed by the Tahsildar, being sent to the Executive Officer or Agent of the Range, as soon as possible after the completion of the work.

25. In cases of injury, actual or imminent, to tanks or channels, or to river embankments, and such like works, caused by flood or heavy rain, where the safety of property or person may be in danger, Act I of 1858 shall, if necessary, be brought into operation; and the Tahsildar, or other Revenue Officer, shall pursue the course therein laid down, either on the requisition of the Public Works Officer in charge, or in his absence, without any requisition.

26. All communications between Members of the Public Works Department and Tahsildars, shall be by 'Yadast,' in the following form: it being understood that when the communication emanates from a Member of the Engineer Establishment, the same deference and attention will be paid to his wishes as if they were expressed in the form of an order.

No. of 1859-60.

Place and date.

From

Captain A. B.,
District Engineer of C.

To

M. N.
Tahsildar of O. Taluq.

The District Engineer requests that the Tahsildar will inform him of the date on which the W. tank was last repaired, and of the sum then spent.

A. B., Captain,
District Engineer.

G. O. G. 1833, 30th July 1859.

Circular Order Book, page 266.

Circular Order Book, page 502, paragraph 82.

Circular Order Book, page 532, paragraph 83.

Ch. Engr.'s Cir. CCLVII, 19th April 1859.

27. It shall be the duty of the village Authorities throughout the Presidency, to enforce the performance of those minor works of conservancy and repair which it has been customary for the villagers to discharge.

Ch. Engr.'s Cir. LIV, 12th July 1859.
Do. LXII, 27th do.
Circular Order Book, pages 50-51.

The following are some of the most usual of those works:—

I. To fill up gutters or other inequalities caused by rain, the treading of cattle, &c., upon the bunds of tanks and channels.

II. To check the growth on bunds of the prickly pear, and any similar rank and pernicious weed.

III. To clear away such trees and underwood from the bunds of tanks as may be considered by the District Engineer to be injurious.

IV. To clear out the deposits from tank sluices, and from river and spring channels.

V. To clear and repair petty and branch channels and all channels issuing from tanks.

VI. To keep in order the supplying channels of tanks.

VII. To watch the bunds of all tanks during rainy weather;—to turf the parts acted on by the waves which appear leaky; to open and close the calingulahs;—and generally to perform minor duties of this nature to prevent breaches and other accidents.

VIII. To construct ring-dams, and other temporary dams which may be required during the repair of portions of the bund. And, in general, by that constant care and attention which residents on the spot can alone exercise, to preserve the works of irrigation, in which they and the Government have a common interest, from those small injuries which, if unchecked, will lead to serious loss and expense.

28. It shall be the duty of all village Authorities to hinder the ryots of their respective villages from doing any thing which may tend to endanger an irrigation work; such, for instance, as throwing up a bund in front of the calingulah, to keep the water at a high level. The village authorities will be held responsible for any damage occasioned by their neglect of this rule.

Ch. Engr.'s Cir. CCVIII, 3rd February 1859.

29. It shall be the duty of the village Authorities to see that the ordinary articles of consumption are supplied to members of the Public Works Department, without delay, at fair market prices.

E. M. C. 112, 16th January 1857.
Circular Order Book, page 507.

Exd. T. O'Connor.

No 738.

P. W. D.

Proceedings of the Madras Government
Under date the 13th ^{April} 1860.

Recd the following letter
from the Chief Engineer -

Submitting with observations
and for approval six sections of (Here enter 2nd March 1860 No 10944)
the revised Code of the Public Works
Department.

MS 577/6

are for the most part well and
correctly drawn; a few amend-
ments are required, as noticed in

G.O. 124 of 1860.

[Signature]

[Signature]

1 The Government have
~~sent the~~ Draft Rules received
with this letter ~~under consider-~~
~~ation and record~~ the following
observations.

2 Under the orders publish-
ed in the Official Gazette of
the 27th March, Rules 83 and 84
respecting Military Buildings
in the Garrison of Fort St George
will not be necessary, and
Rule 85 on the same subject
will require to be modified.

3 Rule 113 promises too a
much ^{and} more ~~indeed~~ than is
warranted by the Chief Engineer
circular of the 6th August 1857, ^{referred}

referred to in the margin of
~~the Draft Rules~~ - The Government
will ^{be found} ~~certainly~~ be willing to
afford ~~their~~ ^{aid} in the con-
struction of churches when
such aid appears to them to
be necessary, but they cannot
~~properly~~ ~~consent~~ to bind themselves to
a promise of the character
implied by the Rule ~~in~~
~~question~~ as it stands.

4. The section relating
to the duties of Revenue officers,
should be forwarded to the
Board of Revenue for approval.

5. There are several typog-
raphical errors in the refer-
ences given in the margin
of the draft rules which will
need to be corrected.

6. With these remarks
the Government resolve to
return the Draft rules to the
Chief Engineer with a re-
quest that he will ^{submit} ~~forward~~
a fresh draft, revised
and

and corrected ^{accordingly} ~~in accordance~~
with them for final order.

[Signature]

10 Copies to the Chief Engineer Diff. 14

No. 11. Augt/57-72-7
-16. Nov/58-520,

July in a letter to the
of 29th May/60. No. 11.

Justice of the Peace 1850 of 11.
No. of 20th April

No 738-1

220 of the Madras Court.
of 13th April 1860.

From the Chief Engineer to
April 60 & 1860 in 11. 12. 11.
No 990.
From the Chief Engineer to
1860 & 1862. No. 11. 12. 11.
No 1085

Draft of the letter
of the new Code for the
Department Public Works
returned to Chief Engineer
for revision and case
- 11.

No 24. 530.