

Govt. of 188 | Madras.

(4)

To

The PWD

B

No 2214. Wd 15th August 1889

Proceedings, dated 14th Aug 1889
No. 340

Subject.

Sanctioning the works of the work of revetting the bank near the P.W.D. warehouse at Cochin.

Communicated to

the Suply Engineer to Circle and the Examiners of P.W. Accounts

2. The amount to be placed at the disposal of this Department will be Rs 243 as shown below.

Works	Rs 195
Establishment	45
Tools & Plant	3
Total	Rs 243

mem
O.S. 59

Recd
14. 8. 89

Sd/- W. C. C. Circle
Sd/- W. C. C. Circle
Sd/- W. C. C. Circle
Sd/- W. C. C. Circle

5/8.
With Order

9/8. 12. 2. 1889

To

Proceedings, dated
No.

188

Subject.



PROCEEDINGS OF THE MADRAS GOVERNMENT.

READ the following paper :—

From the Presidency Port Officer, Madras, 7th July 1889,
No. 535 G.
294

Work — Rs 184 — " — "
Contingencies — 6 — " — "
Petty Supervisions — 5 — " — "
Rs 195 — " — "

An estimate from the Executive Engineer, West Coast Division, amounting to Rupees (195) one hundred and ninety five as per margin for reuniting the bank near the Hotel foreshore at Cochin having been approved by me, I have desired the Accountant General to allot the amount from Port Funds, and to enable him to do so, I beg that the sanction of Government may be accorded to the transfer of the work in question to the Agency of the Public Works Department.

Order:— 1st August 1889 No. 340.

The transfer of the work to the Public Works Department is sanctioned.
(True extract)

WMB addn — Capt. R. E.

Under Secretary
For Chief Secretary

The Public Works Department.
The Accountant General.
The Presidency Port Officer

Paper taken out of the Records from the charge of the Referencer,

at. P.W.D. Press No. 2467-68, dated 5-9-1891, Rack No. Range.

Date taken out.	FOR WHAT PURPOSE.			Initials of Referencer.	Date returned.	Initials of attender.
	Department	C. No.	Year.			
22/9/10	PWD MR	2458 2459		RH	8/10/10	RH

INDEX

TO THE

TABLE OF CONTENTS AND TABULAR STATEMENT OF MISCELLANEOUS PROCEEDINGS AND MATTERS OF ROUTINE, BUILDINGS AND ROADS, FOR THE MONTH OF SEPTEMBER 1889.

	—	Page.
A		
<i>Accounts</i> received by Examiner, Public Works Accounts	Regular.	4
<i>Additional Barrack Accommodation</i> in Fort St. George	Regular.	5
<i>Accountant</i> for No. I, Periyár division	Regular.	6
<i>Army Clothing Office, Mount Road, Madras</i>	Routine.	1
<i>Administration Reports</i> of General Buildings and Roads Branch for 1888-89	Routine.	2
<i>Administration Reports</i> of Military and Civil Works of the Bombay Public Works Department for 1888-89	Routine.	2
<i>Appropriation Return</i> for July 1889	Routine.	3
<i>Accounts</i> of the Presidency division	Routine.	3
<i>Additional Accountant</i> for No. I, Periyár division	Routine.	3
<i>Accountant Jaganathan, Kistna Eastern division</i>	Routine.	4
<i>Administration Report</i> of Hyderabad for 1888-89	Routine.	5
<i>Amount</i> due to a contractor, Pennér works	Routine.	5
<i>Amounts</i> due to contractors in Nellore division	Routine.	5
<i>Appointment</i> of a sluice lascar, Kurnool canal	Routine.	6
<i>Accounts</i> of the Chingleput division	Routine.	7
<i>Administration Report</i> of the Court of Wards	Routine.	7
<i>Advances</i> to Civil officers	Routine.	14
<i>Administration Report</i> of Madras Public Works Department	Routine.	16

	—	Page.
<i>Articles of European Manufacture.—Purchase of —</i>	Routine.	17
<i>Appropriation Return for August 1889</i>	Routine.	19
<i>Anicut Superintendents on Kurnool canal</i>	Routine.	20
<i>Archæological works.—Progress reports on —</i>	Routine.	20
<i>Accounts Branch of the Public Works Department</i>	Routine.	20
<i>Amrito Lal Roy Chowdry, Executive Engineer</i>	Routine.	22
B		
<i>Bridgework for Pótinghi-Koraput road</i>	Regular.	2
<i>Barrack Accommodation in Fort St. George</i>	Regular.	10
<i>Bi-monthly return of stores</i>	Routine.	2
<i>Bridges.—Type designs of —</i>	Routine.	3
<i>Buildings connected with the old Jail at Tranquebar</i>	Routine.	7
<i>Bi-monthly return of stores</i>	Routine.	9
<i>Buildings and Bridges in Madras Presidency</i>	Routine.	10
<i>Budget Estimates of expenditure in Public Works Department</i>	Routine.	21
C		
<i>Compensation for quarters</i>	Regular.	1
<i>Cast iron hydrant stand posts for Bazaar Street, Ootacamund</i>	Regular.	7
<i>Classified list required by Punjab Government</i>	Routine.	3
<i>Confidential reports on foreign officers</i>	Routine.	4
<i>Compensation for quarters</i>	Routine.	7
<i>Colundasami Naidu, late overseer</i>	Routine.	8
<i>Charge allowance for Sub-Conductor Heinig</i>	Routine.	9
<i>Cemetery Rules</i>	Routine.	11
<i>Colonel Vibart, R.E.</i>	Routine.	12
<i>Correspondence.—Despatch of — to Simla</i>	Routine.	13
<i>Chinese Commission to inspect Government offices</i>	Routine.	13
<i>Clerk for Mannárgudi Sub-division</i>	Routine.	14
<i>College of Engineering, Madras</i>	Routine.	15
<i>Commissioner of Police vested with power to sanction up to Rs. 500</i>	Routine.	15
<i>Charges for advertisement</i>	Routine.	16

	—	Page.
<i>Compensation for quarters for Medical Warrant officers</i>	Routine.	17
<i>Condition of Ganjam district</i>	Routine.	17
<i>Condition of Ganjam district</i>	Routine.	17
<i>Collector's residence at Chittoor</i>	Routine.	18
<i>Completion report for temporary shed at Madura</i>	Routine.	19
<i>Contract forms</i>	Routine.	21
<i>Colonel Vibart, R.E.</i>	Routine.	22
<i>Colonel Vibart, R.E.</i>	Routine.	22
D		
<i>District Munsif's Court-house at Paramakudi</i>	Regular.	4
<i>District Munsif's Court-house at Tiruválúr</i>	Regular.	4
<i>District Munsif's Court-house at Ellore</i>	Regular.	5
<i>District Munsif's Court-house at Chávakád</i>	Regular.	6
<i>Dumagudiem Navigation Works</i>	Regular.	6
<i>Dowlaiswaram Workshops</i>	Regular.	7
<i>Demolition of buildings</i>	Regular.	9
<i>District Munsif's Court-house at Amalápuram</i>	Regular.	9
<i>Deeds of conveyance of certain lands taken up in Ganjam district</i>	Routine.	2
<i>Deeds of conveyance of certain lands taken up in Ganjam district</i>	Routine.	3
<i>Dock works at Kidderpore</i>	Routine.	4
<i>Drawings and specifications of bridges</i>	Routine.	4
<i>Dynamite.—Carriage of —</i>	Routine.	6
<i>Dr. Moore's Manual of Family Medicine</i>	Routine.	8—12
<i>District Court at Tanjore</i>	Routine.	10
<i>District Munsif's Court at Márkápúr</i>	Routine.	14
<i>District Munsif's Court at Tiruválúr</i>	Routine.	19
<i>Delay in submission of accounts of Vizagapatam division</i>	Routine.	19
<i>Dr. Moore's Manual of Family Medicine</i>	Routine.	21
E		
<i>Engineer Establishment</i>	Regular.	4
<i>Examination in Native languages</i>	Regular.	6

	—	Page.
<i>Estate Works</i> in the Salem district	Routine.	3
<i>English Stores</i> required for Public Works Workshops, Madras ...	Routine.	8
<i>English Stores</i> required for Kurnool Canal	Routine.	8
<i>Efficiency and discipline</i> in Educational Institutions	Routine.	21
F		
<i>Funds.</i> —Certain transfer of —	Regular.	3
<i>Furniture</i> for Government Houses	Routine.	8
<i>Funds.</i> —Certain transfer of —	Routine.	10
<i>Funds.</i> —Modifications of allotments of —	Routine.	10
<i>Funds.</i> —Transfer of —	Routine.	12
<i>Funds.</i> —Transfer of —	Routine.	12
<i>Famine Batta</i>	Routine.	15
<i>Famine Batta</i>	Routine.	15
<i>Funds</i> for telegraph works	Routine.	20
<i>Funds</i> required by Superintending Engineer, I Circle	Routine.	22
G		
<i>Gun-shed</i> for Royal Artillery at Bellary	Regular.	3
<i>Goods-shed</i> at Calingapatam	Routine.	4
<i>Government Press, Madras</i>	Routine.	6
<i>Ganjam-Gopálpur Canal.</i> —Relief Works	Routine.	11
<i>Ganjam-Gopálpur Canal.</i> —Relief Works	Routine.	12
<i>Griffith's Bath Enamel Paint</i> for V Circle	Routine.	14
<i>Government House, Ootacamund</i>	Routine.	18
H		
<i>Hospital shed</i> at Itikavalsa	Regular.	1
<i>Hospital Assistant Moothiappa Pillai</i>	Routine.	4
<i>Hotel foreshore</i> at Cochin	Routine.	5
<i>Head-quarters</i> of Executive Engineer, Tungabhadra Project ...	Routine.	8
<i>Hospital Assistant Rungasawmy Naidu</i>	Routine.	9
<i>Hospital shed</i> at Itikavalsa	Routine.	11
<i>Head Munshi to Canarese Translator.</i> —Employment of —	Routine.	14

	—	Page.
<i>Hospital Assistant quarters</i> at the Penitentiary	Routine.	16
<i>Head-quarters</i> of No. II Periyár division	Routine.	18
I		
<i>Imperial Civil Works</i> for 1890-91	Regular.	5
<i>Income Tax</i>	Regular.	6
<i>Imperial Military Works</i>	Regular.	10
<i>Indents</i> for departmental forms	Routine.	13
<i>Inspection notes</i> of Godávári Central division	Routine.	16
<i>Indian Bradshaw</i> for Consulting Engineer for Railways	Routine.	20
J		
K		
<i>Kumbakónam drainage scheme</i>	Routine.	6
<i>Karakarampatti tank</i> , Salem district	Routine.	13
<i>Khan Saib's Canal</i>	Routine.	15
L		
<i>Lock Hospitals</i> —Repairs to —	Regular.	5
<i>Lieutenant Ellis, R.E.</i>	Regular.	8
<i>Lascars</i> employed on Vaigai bridge works	Routine.	2
<i>Last pay certificate</i> of Mr. Smith, Assistant Engineer	Routine.	3
<i>Lights and lighthouses</i> on the Madras Coasts	Routine.	3
<i>Lighthouse</i> at Negapatam	Routine.	5
<i>Land and trees</i> acquired for new Pykara road	Routine.	6
<i>Last pay certificate</i> of Mr. Malet	Routine.	6
<i>Lighthouse</i> at Negapatam	Routine.	7
<i>Local Fund Report</i> of Tinnevely district	Routine.	8
<i>Lightning conductor</i> attached to magazine in Bellary Fort ...	Routine.	11
<i>Land compensation claims</i> in Nellore district	Routine.	11
<i>Local Fund Report</i> of Nilgiri district	Routine.	12
<i>Local Fund Report</i> , Tanjore district	Routine.	14
<i>Land</i> required for Government Brickfields, Egmore	Routine.	14

	—	Page.
<i>Local allowances for Wynaad, &c.</i>	Routine.	18
<i>Last Pay certificate of Lieutenant Nicholson, Assistant Engineer</i> ...	Routine.	18
<i>Local Fund Report of the Salem district</i>	Routine.	20
M		
<i>Madras Harbour Works—Progress report of —</i>	Regular.	1
<i>Museum room of Forest Department, Chepāk</i>	Regular.	1
<i>Magulrazapuram quarry, Kistna district</i>	Regular.	1
<i>Machinery available in Rushikulya division</i>	Regular.	1
<i>Municipal drain near General Post and Telegraph Offices, Madras</i> ...	Regular.	3
<i>Madras Harbour Works</i>	Regular.	4
<i>Minor Works connected with the Coimbatore District</i>	Regular.	6
<i>Madras Harbour Works—Reconstruction of—</i>	Regular.	7
<i>Majors of Royal Engineers</i>	Regular.	10
<i>Mr. Malet, Executive Engineer, granted furlough</i>	Routine.	1
<i>Macoorchy bridge at Naduvatam</i>	Routine.	2
<i>Mr. Murray, Assistant Engineer, granted a charge allowance</i>	Routine.	2
<i>Mr. Clerk, Executive Engineer, presidency allowance of —</i>	Routine.	2
<i>Military Female Orphan Asylum, Madras</i>	Routine.	3
<i>Mr. Jopp, Executive Engineer</i>	Routine.	3
<i>Mr. Target, Executive Engineer</i>	Routine.	4
<i>Maistry Adakalam, Nilgiri division</i>	Routine.	4
<i>Mr. Smyth, Assistant Engineer</i>	Routine.	4
<i>Mr. Lewis, Executive Engineer, granted privilege leave</i>	Routine.	5
<i>Messrs. Francis and Gray, Public Works Stores and Workshops</i>	Routine.	8
<i>Mr. Garrett, Executive Engineer</i>	Routine.	10
<i>Mr. Brassington, Consulting Architect</i>	Routine.	10
<i>Mr. Ewing's punkah-pulling machinery</i>	Routine.	11
<i>Mr. Target, Executive Engineer</i>	Routine.	13
<i>Machinery for working the machines at the Government Press</i>	Routine.	13
<i>Manle's patent earth closets for Government House, Ootacamund</i>	Routine.	14
<i>Medical certificates</i>	Routine.	17
<i>Mr. Smith, Executive Engineer</i>	Routine.	21

	—	Page.
<i>Military Works.—Funds for—</i>	Routine.	21
<i>Mr. Scott, Temporary Overseer</i>	Routine.	22
N		
<i>New High Court Buildings, Madras</i>	Regular.	2
<i>Native Newspapers</i>	Routine.	4
<i>Notes of inspection of Ganjam division</i>	Routine.	6
<i>Native Newspapers—Report on —</i>	Routine.	8
<i>New High Court Buildings at Madras</i>	Routine.	8
<i>Notes of inspection of Presidency Division office</i>	Routine.	10
<i>Notes of inspection of Vizagapatam Division office</i>	Routine.	10
<i>New Madras Cricket Pavilion</i>	Routine.	15
<i>New sub-division in the Madura division</i>	Routine.	15
<i>Narayanasaamy Pillay, late lascar, Madras division</i>	Routine.	16
O		
<i>Old Chunambar Bridge</i>	Routine.	4
<i>Ordnance map for Tank Restoration Scheme office</i>	Routine.	9
<i>Outstanding under Miscellaneous advances</i>	Routine.	11
<i>Old European Barracks at Ranipet</i>	Routine.	12
<i>Officers competent to appoint and dismiss</i>	Routine.	18
<i>Ootacamund-Kandal Drainage Scheme</i>	Routine.	20
<i>Old District Jail at Trichinopoly</i>	Routine.	21
<i>Old College buildings in Nungumbakum</i>	Routine.	21
P		
<i>Pumping station near upper lake, Ootacamund</i>	Regular.	2
<i>Presidency Public Works Workshops</i>	Regular.	4
<i>Police stations in the South Canara district</i>	Regular.	5
<i>Packing shed, Army Clothing Department, Madras</i>	Regular.	9
<i>Police station-house on Ice-house road, Madras</i>	Regular.	9
<i>Presidency allowance</i>	Routine.	1
<i>Pensionary and leave contributions</i>	Routine.	1
<i>Post Office at Ootacamund</i>	Routine.	1

	—	Page.
<i>Pension granted to Mr. D'Costa, Clerk, Office of Examiner, Public Works Accounts</i>	Routine.	2
<i>Pension granted to a Messenger, Coimbatore division</i>	Routine.	2
<i>Progress report of relief works, Ganjam district</i>	Routine.	2
<i>Punkah-pulling machinery</i>	Routine.	2
<i>Progress report of relief works, Ganjam district</i>	Routine.	2
<i>Progress report of relief works, Ganjam district</i>	Routine.	3
<i>Periyár Project Works—Lieut.-Colonel Smith, R. E., to visit the—</i> ...	Routine.	6
<i>Post Office at Ootacamund</i>	Routine.	6
<i>Pálghat High School building</i>	Routine.	9
<i>Parados for Agram entrenchment, Bangalore</i>	Routine.	9
<i>Public Works Administration Report of Assam</i>	Routine.	10
<i>Post office building at Venkatagirikota</i>	Routine.	11
<i>Pension granted to a clerk, North Arcot division</i>	Routine.	11
<i>Pension granted to a lascar, Godávari district</i>	Routine.	12
<i>Passage money of temporary clerk, Ganjam-Gopálpur canal</i>	Routine.	15
<i>Powers of sanction of Superintending Engineers</i>	Routine.	17
<i>Port Officer's bungalow at Pámban</i>	Routine.	19
<i>Prickly-pear—Experiments with—</i>	Routine.	20
<i>Police Superintendent's office at Madura</i>	Routine.	20
<i>Public servants suffering from leprosy</i>	Routine.	21
<i>Periyakolam School building</i>	Routine.	22
Q		
<i>Quarters for Non-Commissioned and Warrant Officers at Madras</i> ...	Regular.	3
<i>Quarters for men of Army Hospital Native Corps</i>	Regular.	9
<i>Quarters for Hospital Assistants</i>	Regular.	10
<i>Quarters in the Ordnance lines, Madras</i>	Routine.	6
<i>Quarters for Sergeant Mills at Wellington</i>	Routine.	8
<i>Quarrying stores for Sangam Head works</i>	Routine.	15
<i>Quarterly army list for Superintending Engineer, Periyár</i>	Routine.	22
R		
<i>Residence for Assistant Superintendent of Police, Nandyál</i>	Regular.	1
<i>Road from Someswaram to Lolla, Godávari district</i>	Regular.	2

	—	Page.
<i>Rents for buildings at the Periyár</i>	Regular.	3
<i>Record racks</i>	Regular.	7
<i>Rushikulya Project relief works</i>	Routine.	4
<i>Rents.—Recovery of — from civil officers</i>	Routine.	7
<i>Rushikulya Project relief works</i>	Routine.	8
<i>Ramnád Estate works</i>	Routine.	9
<i>Rushikulya Project relief works</i>	Routine.	11
<i>Remount Agent's quarters at Matigiri</i>	Routine.	14
<i>Ramaswamy Naidu, late channel maistry, Hospet taluk</i>	Routine.	15
<i>Record racks for Collector's office, Nellore</i>	Routine.	16
<i>Revised Ecclesiastical rules</i>	Routine.	18
<i>Ruthna Moodally, piece-worker, South Arcot division</i>	Routine.	8
S		
<i>Stores required for Dowlaishweram Workshops</i>	Regular.	2
<i>Storekeeper, Presidency Public Works Stores</i>	Regular.	3
<i>Sub-Collector's bungalow at Ongole</i>	Regular.	4
<i>Sanitary works in Native lines</i>	Regular.	5
<i>Stores required by the Public Works Workshops, Madras</i>	Regular.	7
<i>Subordinate Forest officers</i>	Regular.	9
<i>Suryanarayana, Temporary Clerk, Rushikulya division</i>	Routine.	1
<i>Stores required for works in Nellore division</i>	Routine.	2
<i>Stores.—Statement of payments in England on account of —</i> ...	Routine.	2
<i>Statement of objectionable items in accounts of III Circle</i>	Routine.	2
<i>Stationery articles purchased by Superintending Engineer, V Circle</i> ...	Routine.	4
<i>Suit connected with Támbraparni left bank</i>	Routine.	5
<i>Senate House, Madras</i>	Routine.	5
<i>Staff Serjeant's-quarters in Vellore Fort</i>	Routine.	5
<i>Sadasivam Pillai, Temporary Clerk, Negapatam division</i>	Routine.	5
<i>Stores from England short delivered</i>	Routine.	7
<i>Sanitary Board at Bangalore</i>	Routine.	8
<i>Statement of officers and subordinates in the Public Works Department.</i>	Routine.	8

	—	Page.
Store-shed at Ralli	Routine.	9
Service Registers	Routine.	10
Sea Custom house at Cochin	Routine.	10
Statement of Objectionable items, I Circle	Routine.	10
Sergeant Green, late Supervisor	Routine.	11
Statement of Objectionable items, V Circle	Routine.	12
Statement of Objectionable items, Consulting Architect division	Routine.	12
Statement of Objectionable items, I Circle	Routine.	12
Service books	Routine.	13
Sweeper in West Coast division	Routine.	14
Supply of tents to Surveyors	Routine.	15
Sea Custom house at Calicut	Routine.	16
Subscriptions from Native chiefs	Routine.	16
Subscriptions from Native chiefs	Routine.	16
Statement of Objectionable items, IV Circle	Routine.	19
Sanitation of Native lines	Routine.	19
Steam launch for Periyár	Routine.	19
Statement of Objectionable items, IV Circle	Routine.	19
Suit.—Defence of certain —	Routine.	20
Senate House latrine, Madras	Routine.	22
T		
Telegraph line from Vellore to Chittoor	Regular.	5
Timber shed in Bellary Arsenal	Regular.	6
Type-designs of rivetted girders	Regular.	9
Temporary Irrigation Superintendents, Kurnool canal	Routine.	5
Taluk offices in Anantapur district	Routine.	6
Travelling allowances of certain Delta Superintendents	Routine.	6
Tools and Plant	Routine.	7
Temples in the Madura district	Routine.	7
Telegraph stores	Routine.	7
Travelling allowance of Balasundrum Pillai, Temporary Clerk, Periyár.	Routine.	11
Transfer of funds	Routine.	12

	—	Page.
Transfer of tools, &c., to Ramnad estate	Routine.	12
Tidal Observatory at Tuticorin	Routine.	14
Trichinopoly Municipal Report	Routine.	20
Timber shed in Bellary Arsenal	Routine.	21
Temporary clerk for Cuddalore bridge office	Routine.	21
U		
Unanswered references	Routine.	1
Unclaimed Deposit outstanding in Chingleput district	Routine.	3
Unanswered references	Routine.	11
V		
Vouchers overdue	Regular.	3
Vessels and Boats.—Plans of —	Regular.	4
Vouchers for payments	Regular.	7
Vizagapatam District Jail	Routine.	15
Vessels borne on the books of the Public Works Department	Routine.	19
Vyasarpady Expense Powder Magazine	Routine.	21
W		
Water-supply Scheme, Ootacamund	Regular.	2
X		
Y		
Z		

GOVERNMENT OF MADRAS.
PUBLIC WORKS DEPARTMENT.
TABLE OF CONTENTS.
BUILDINGS AND ROADS.
FOR THE MONTH OF SEPTEMBER 1889.

GOVERNMENT OF MADRAS.
PUBLIC WORKS DEPARTMENT.

TABLE OF CONTENTS,
BUILDINGS AND ROADS,
FOR THE MONTH OF SEPTEMBER 1889.

1 Subjects.	2 Dates of Pro- ceedings.	3 Date of Report to Secretary of State for India.	4 Numbers and Dates of previous Proceedings.
<i>Compensation for quarters.</i> —Standing order to the Public Works Code to issue providing for the payment of compensation in lieu of quarters to Military medical pupils of the Warrant grade studying in the Medical College, Madras.	1889. 3rd Sept. No. 2422 W.	...	23rd July 1889, No. 561 D. 30th April 1889, Nos. 1152-53 W.
<i>Hospital shed, Itikavalsa.</i> —Orders sanctioning sale of the —, and approving proposals for disposing of the medicines and instruments and replacing services of the Civil apothecary at the disposal of the Public Department.	4th Sept. No. 2447 W.	...	13th July 1889, No. 1866 W. 14th April 1888, No. 1577 C. 5th Mar. 1888, No. 933 C.
<i>Madras Harbour Works.</i> —Progress report of the — for May 1889, recorded.	4th Sept. No. 2448 W.	...	27th May 1889, No. 1396 W. 19th Aug. 1889, No. 2277 W.
<i>Residence for the Assistant Superintendent of Police at Nandyál.</i> —Estimate for a —, sanctioned.	5th Sept. No. 2463 W.	...	18th June 1889, No. 2848 C. 21st Mar. 1889, No. 851 W. 27th Nov. 1888, No. 3742 W.
<i>Museum room of the Forest Department at Chepák.</i> —Estimate for draining the roof of the —, sanctioned.	5th Sept. No. 2464 W.	...	14th July 1887, No. 1896 W. 24th Sept. 1888, No. 2998 W.
<i>Magalrazapuram Quarry, Kistna Eastern division.</i> —Estimate for wagons for the —, sanctioned.	5th Sept. No. 2465 W.	...	
<i>Machinery.</i> —Orders issued for the disposal of certain — available in the Rushikulya division.	5th Sept. No. 2466 W.	...	18th July 1889, No. 3271 C. 13th April 1887, No. 1020 W.

1 Subjects.	2 Dates of Pro- ceedings.	3 Date of Report to Secretary of State for India.	4 Numbers and Dates of previous Proceedings.
<i>Bridgework for the Pótinghi-Koraput road.</i> —Ordered that the Director-General of Stores be furnished with particulars in regard to the —.	1889. 5th Sept. No. 2467 W.	...	17th June 1889, No. 1587 W. 23rd April 1889, No. 1078 W.
The Director-General of Stores addressed on the subject.	5th Sept. No. 2468 W.	...	
<i>Road from Someswaram to Lalla, Goddvari district.</i> —Estimate for metalling the — and constructing a lattice girder bridge and culverts on the same, sanctioned.	6th Sept. No. 2470 W.	...	
<i>Water-supply scheme, Ootacamund.</i> —Estimate for connecting private houses with the —, sanctioned.	6th Sept. No. 2471 W.	...	
<i>Pumping station near the Upper Lake, Ootacamund.</i> —Permission granted to the Murree Brewery Company to erect a —, on certain conditions.	6th Sept. No. 2472 W.	..	25th July 1889, No. 581 D.
<i>Stores.</i> —Ordered that the indent for — required for the Dowlaishweram Workshops during the current official year be forwarded to the Home Government.	6th Sept. No. 2473 W.	...	16th Aug. 1889, No. 3700 C. 1st Aug. 1889, No. 3465 C. 21st Feb. 1889, No. 529 W. 4th Aug. 1888, Nos. 2373-74 W. 30th Sept. 1886, No. 2567 W. 25th May 1886, No. 372 I. 28th April 1886, No. 1067 W. 30th Mar. 1886, No. 858 W.
Forwarded to the Director-General of Stores.	6th Sept. No. 2474 W.	...	
Copy forwarded to the Government of India.	6th Sept. No. 2475 W.	...	
<i>New High Court buildings, Madras.</i> —Ordered that the indent for steel plate girders required for the —, be forwarded to the Home Government.	6th Sept. No. 2476 W.	...	17th April 1889, No. 1058 W. 10th Sept. 1888, No. 2806 W. 9th Mar. 1889, No. 705 W.
Forwarded to the Director-General of Stores	6th Sept. No. 2477 W.	...	
Copy forwarded to the Government of India.	6th Sept. No. 2478 W.	...	

1 Subjects.	2 Dates of Pro- ceedings.	3 Date of Report to Secretary of State for India.	4 Numbers and Dates of previous Proceedings.
<i>Rents.</i> —Letter from the Government of India approving of proposal that — should be recovered with effect from the 1st July 1889 from members of the permanent establishment employed on the Periyár Irrigation Works, communicated to the officers concerned.	1889. 6th Sept. No. 2479 W.	...	9th Aug. 1889, Nos. 2148-49 W. 12th June 1889, No. 1561 W. 4th June 1889, No. 1472 W. 23rd Mar. 1889, No. 875 W. 30th Jan. 1889, No. 248 W. 22nd Sept. 1888, No. 2981 W.
<i>Quarters.</i> —Orders authorizing the Superintending Engineer, V Circle, to leave for one year one large or two moderate-sized houses in a convenient locality at Madras for accommodating Non-Commissioned and Warrant Officers and Medical subordinates for whom the Public Works Department is required to provide free.	9th Sept. No. 2489 W.	...	26th Sept. 1888, No. 3024 W. 28th Mar. 1889, No. 933 W. 8th Feb. 1889, No. 356 W.
<i>Vouchers.</i> —Orders on office note from the Examiner, Public Works Accounts, submitting a statement of — long overdue on the 15th July 1889.	9th Sept. No. 2491 W.	...	20th Mar. 1888, No. 916 W. 4th Oct. 1887, No. 2611 W.
<i>Storekeeper, Presidency Public Works Stores.</i> —Orders reducing pay of the — on retirement of the present incumbent and disallowing certain increases to the establishment.	11th Sept. No. 2524 W.	...	24th April 1889, No. 1988 C. 26th Mar. 1889, No. 1571 C. 24th April 1885, No. 974 W. 23rd May 1884, No. 1301 W.
Copy to the Government of India	11th Sept. No. 2525 W.	...	
<i>Funds.</i> —Certain transfer of —, sanctioned	11th Sept. No. 2526 W.	...	6th July 1889, No. 1795 W. 5th Aug. 1889, No. 2102 W.
<i>Municipal drain near the General Post and Telegraph Office, Madras.</i> —Orders on letter from the Consulting Architect regarding a claim on Government by the Madras Municipality for the cost of diverting a —.	11th Sept. No. 2527 W.	...	2nd Feb. 1887, No. 370 C. 14th Sept. 1881, No. 2264 W. 23rd Aug. 1881, No. 2090 W. 24th June 1881, No. 1507 W.
<i>Gun shed for Battery of Royal Artillery at Bellary.</i> —Type plan of —, communicated to the Military Department.	12th Sept. No. 2528 W.	...	

1 Subjects.	2 Dates of Proceedings.	3 Date of Report to Secretary of State for India.	4 Numbers and Dates of previous Proceedings.
<i>District Munsif's Court-house at Paramakudi, Madura district.</i> —Orders on letter from the Superintending Engineer, VI Circle, reporting the failure of the —.	1889. 12th Sept. No. 2529 W.	...	15th July 1889, No. 3215 C. 20th Sept. 1888, No. 2958 W. 1st May 1889, No. 1166 W.
<i>Sub-Collector's Bungalow at Ongole.</i> —Orders on letter from the Collector of Nellore submitting letter from the Sub-Collector appealing against the rate of rent fixed for the quarters occupied by him.	12th Sept. No. 2530 W.	...	22nd Sept. 1888, No. 2981 W. 26th July 1889, No. 2020 W. 12th Aug. 1889, No. 2181 W.
<i>Accounts.</i> —Orders on progress report submitted by the Examiner, Public Works Accounts, showing dates of receipt and disposal of — in his office for July 1889.	13th Sept. No. 2547 W.	...	12th Aug. 1889, No. 2182 W.
<i>Presidency Public Works Workshops.</i> —Orders on report on the results of the working of the — for 1888-89.	13th Sept. No. 2548 W.	...	15th May 1889, No. 1297 W. 28th Mar. 1889, No. 919 W. 1st Mar. 1889, No. 600 W. 12th Jan. 1888, No. 129 W. 2nd Dec. 1886, No. 3174 W. 16th Nov. 1888, No. 3632 W.
<i>Engineer establishment.</i> —Letter from the Government of India calling for a supplemental report of officers of the — who have attained or will attain the age of 50 up to December 1890, communicated to officers concerned.	13th Sept. No. 2549 W.	...	6th May 1889, No. 1200 W. 21st Oct. 1887, No. 2823 W. 17th Oct. 1887, No. 2766 W.
<i>Vessels and Boats.</i> —Letter from the Government of India requesting that a copy of the plans and specifications of — may be supplied to the Director of the Indian Marine when references are made to that officer regarding such vessels, recorded.	13th Sept. No. 2552 W.	...	
<i>District Munsif's Court-house at Tiruvallur.</i> —Orders stating that the — cannot be made available for a post office and approving proposal to accommodate the Deputy Tahsildar's office in the building.	13th Sept. No. 2554 W.	...	27th Mar. 1889, No. 908 W.
<i>Madras Harbour Works.</i> —Letter from the Director-General of Stores, India Office, forwarding copy of report by Sir A. Rendel regarding the spare boiler for a tank locomotive engine required for the —, communicated to the Chairman, Harbour Trust Board.	19th Sept. No. 2589 W.	...	24th June 1889, No. 1652 W.

1 Subjects.	2 Dates of Proceedings.	3 Date of Report to Secretary of State for India.	4 Numbers and Dates of previous Proceedings.
<i>Lock Hospitals.</i> —Correspondence relating to the expenditure on repairs to —, ordered to be forwarded for the orders of the Government of India.	1889. 19th Sept. No. 2590 W.	...	14th Aug. 1889, No. 2210 W. 7th June 1888, No. 1677 W. 21st Feb. 1888, No. 612 W.
Forwarded	19th Sept. No. 2591 W.	...	
<i>Imperial Civil Works.</i> —Schedule of requirements under — for 1890-91, ordered to be forwarded to the Government of India.	19th Sept. No. 2598 W.	...	1st Oct. 1885, No. 3064 W.
Forwarded	19th Sept. No. 2599 W.	...	
<i>Additional accommodation for British Infantry at Fort St. George.</i> —Telegram from the Government of India sanctioning conversion of the main guard with the adjoining officers' quarters with barracks, communicated to the Superintending Engineer, V Circle, with instructions.	19th Sept. No. 2600 W.	...	8th Aug. 1889, No. 2126 W. 22nd July 1889, No. 1968 W.
<i>Telegraph line from Vellore to Chittoor.</i> —Letter from the Director-General of Telegraphs stating that he has instructed the Examiner of Telegraph Accounts to consider the line as belonging to the Imperial system from 1st April 1889, recorded.	20th Sept. No. 2601 W.	...	14th Aug. 1889, No. 2203 W. 7th Aug. 1888, No. 2392 W. 13th Aug. 1887, No. 2155 W. 10th Sept. 1886, No. 2287 W. 4th Dec. 1882, No. 3184 W. 5th Sept. 1882, No. 2276 W.
<i>Police stations in the South Canara district.</i> —Transfer of certain — to certain Taluk Boards, sanctioned conditionally.	20th Sept. No. 2602 W.	...	17th July 1889, No. 1925 W. 26th July 1889, No. 2022 W.
<i>District Munsif's Court-house at Ellore.</i> —Revised estimate for a —, sanctioned.	20th Sept. No. 2603 W.	...	13th Dec. 1888, No. 3920 W. 10th Nov. 1887, No. 3019 W. 21st April 1887, No. 1098 W. 20th Sept. 1877, No. 778 W.
<i>Sanitary works.</i> —Orders on schedule of — proposed to be carried out in the lines of Native troops under the Madras command.	20th Sept. No. 2604 W.	...	10th Aug. 1889, No. 2156 W. 1st May 1889, No. 1159 W. 26th Nov. 1888, No. 3722 W. 7th Feb. 1888, No. 433 W.

1 Subjects.	2 Dates of Proceedings.	3 Date of Report to Secretary of State for India.	4 Numbers and Dates of previous Proceedings.
The Government of India addressed on the above subject.	1889. 20th Sept. No. 2605 W.	...	
<i>Income-tax</i> .—Question raised by Colonel Burton, R.E., as to deductions made from Presidency house rent on account of —, ordered to be forwarded for the orders of the Government of India.	20th Sept. No. 2606 W.	...	7th June 1888, No. 1679 W.
The above forwarded to the Government of India.	20th Sept. No. 2607 W.	...	
<i>Accountant for No. I Periyár division</i> .—Ordered that the Government of India be addressed on the subject of an additional —.	20th Sept. No. 2608 W.	...	5th Sept. 1889, No. 2461 W. 9th July 1888, Nos. 2206-7 W. 16th Sept. 1888, No. 1791 W. 10th April 1888, No. 1085 W. 1st Mar. 1888, Nos. 710-11 W. 16th June 1889, No. 1050 W. 11th Jan. 1888, No. 94 W.
The Government of India addressed on the subject.	20th Sept. No. 2609 W.	...	
<i>Minor Works connected with the Commissariat Department</i> .—Orders on letter from the Quartermaster-General regarding provision of funds for —.	20th Sept. No. 2610 W.	...	2nd Aug. 1889, No. 2095 W. 22nd July 1889, No. 1973 W.
<i>District Munsif's Court-house at Chávakád</i> .—Superintending Engineer, IV Circle, instructed to carry out the repairs to the —, in anticipation of allotment of funds.	20th Sept. No. 2611 W.	...	27th Mar. 1888, No. 988 W. 29th July 1884, No. 1841 W.
<i>Timber shed in the Bellary Arsenal</i> .—Orders on letter from the Director-General of Ordnance regarding funds for the construction of —.	20th Sept. No. 2612 W.	...	1st May 1889, No. 1159 W. 18th Dec. 1888, Nos. 3945-46 W.
<i>Examination in native languages</i> .—Orders of the Government of India regarding compulsory and voluntary standards for — of Public Works Officers, communicated to officers concerned with remarks.	20th Sept. No. 2613 W.	...	3rd July 1889, No. 444 D. 20th Oct. 1888, No. 3348 W. 8th Dec. 1888, No. 4946 C. 7th July 1881, No. 1675 W.
<i>Dumagudiem navigation works</i> to be dealt with in future in the Irrigation Branch and expenditure classed under 43. Provincial Minor Works and Navigation.	20th Sept. No. 2622 W.	...	2nd Sept. 1889, No. 3902 C. 20th Feb. 1883, No. 562 W. 21st Mar. 1883, No. 261 W.

1 Subjects.	2 Dates of Proceedings.	3 Date of Report to Secretary of State for India.	4 Numbers and Dates of previous Proceedings.
<i>Record racks</i> .—Estimate for providing — for the Office of the Examiner of Commissariat Accounts, Fort St. George, sanctioned.	1889. 21st Sept. No. 2636 W.	...	22nd May 1888, No. 1515 W. 12th April 1888, No. 1098 W. 5th Sept. 1887, No. 2391 W. 19th Dec. 1887, No. 3469 W.
<i>Stores required by the Public Works Workshops, Madras</i> , for 1889-90.—Indent for —, ordered to be forwarded to the Home Government.	21st Sept. No. 2637 W.	...	
Forwarded to the Home Government ...	21st Sept. No. 2638 W.	...	
Copy forwarded to the Government of India.	21st Sept. No. 2639 W.	...	
<i>Vouchers</i> .—Circular from the Government of India issuing instructions in regard to the check of calculations in — for payments submitted with the accounts of Executive Engineers and cancellation of these vouchers, communicated to officers of the department.	21st Sept. No. 2640 W.	...	
<i>Cast iron hydrant stand posts</i> .—Estimate for three — for main bazaar street, Ootacamund, sanctioned.	21st Sept. No. 2641 W.	...	18th June 1886, No. 1545 W. A
<i>Madras Harbour</i> .—Ordered that the Government of India be addressed on the subject of the reconstruction of the — and the position of the entrance.	23rd Sept. No. 2652 W.	...	1st July 1889, No. 1737 W. 28th Aug. 1889, No. 2370 W. 19th Aug. 1889, No. 2277 W. 12th Aug. 1889, No. 2193 W. 24th July 1889, No. 1995 W. 17th June 1889, No. 1583 W. 6th June 1889, No. 1492 W. 27th April 1889, No. 1139 W.
The Government of India addressed ...	23rd Sept. No. 2653 W.	...	
<i>Dowlaiswaram Workshops</i> .—Passing orders on letter from the Superintending Engineer, I Circle, forwarding a report on the working of the — for the year 1888-89.	24th Sept. No. 2671 W.	...	30th Aug. 1889, No. 3879 C. 8th June 1889, No. 1529 W.

TABLE OF CONTENTS—(BUILDINGS AND ROADS).

[PUBLIC WORKS]

1 Subjects.	2 Dates of Pro- ceedings.	3 Date of Report to Secretary of State for India.	4 Numbers and Dates of previous Proceedings.
	1889.		(Continued.) 7th May 1889, No. 214 I. 17th Oct 1888, No. 3305 W. 12th Oct. 1888, No. 3251 W. 6th Mar. 1888, Nos. 186 I.—167 I. 18th Dec. 1886, No. 3348 W. 20th Aug. 1886, No. 573 I. 20th Feb. 1885, No. 408 W. 5th Jan. 1883, No. 4 I. 10th Feb. 1882, No. 370 W. 25th Jan. 1882, No. 202 W. 12th Dec. 1881, No. 3079 W. 14th July 1881, No. 1729 W. 9th Aug. 1889, Nos. 2136-37 W. 20th Aug 1889, No. 2280 W. 18th June 1889, No. 1598 W. 7th June 1889, No. 1582 W. 22nd May 1889, No. 1373 W. 28th Mar. 1889, Nos. 925-26 W. 4th Mar. 1889, No. 637 W. 18th Sept. 1889, No. 480 W. 11th Feb. 1889, Nos. 382-83 W. 31st Jan. 1889, No. 473 C. 21st Dec. 1888, Nos. 5195-96 C. 11th Dec. 1888, No. 5,000 C. 7th Dec. 1888, No. 4919 C. 10th Dec. 1888, Nos. 3868-69 W. 5th Nov. 1888, Nos. 3510-11 W. 3rd Oct. 1888, No. 3093 W. 24th Sept. 1888, No. 2989 W. 18th Aug. 1888, No. 3153 W.
Lieutenant W. M. Ellis, R.E.—Declaring — to have joined the Madras Public Works Department for duty on the 5th December 1888 and granting the pay of his grade and travelling allowance from that date.	24th Sept. No. 2672 W.	...	

SEPTEMBER 1889.

DEPARTMENT.]

1 Subjects.	2 Dates of Pro- ceedings.	3 Date of Report to Secretary of State for India.	4 Numbers and Dates of previous Proceedings.
	1889.		(Continued.) 18th Aug. 1888, Nos. 2550-51 W. 28th Mar. 1888, No. 1005 W. 11th June 1883, No. 1637 W.
Subordinate forest officers—Orders in the Rev- enue Department regarding the instruction of — in levelling, communicated to Super- intending Engineers.	25th Sept. No. 2673 W.	...	3rd May 1888, No. 1308 W. 13th May 1889, No. 1268 W. 3rd Aug. 1889, No. 613 D.
Type designs of rivetted girders for bridges.— Despatch from the Secretary of State regard- ing the preparation of —, recorded.	25th Sept. No. 2674 W.	...	1st Aug. 1889, Des. No. $\frac{15}{2069}$ W. 20th July 1889, No. 1964 W. 28th June 1889, Des. No. $\frac{14}{1718}$ W.
Demolition of any structure for the construction of a new building.—Authorizing Superintend- ing Engineers to sanction, in the case of provincial buildings classed as Minor Works, the —.	26th Sept. No. 2688 W.	...	
Packing shed, Army Clothing Department, Madras.—Estimate for the construction of a —, sanctioned, with remark, that the ques- tion of providing funds for the work is under consideration.	26th Sept. No. 2704 W.	...	29th Mar. 1889, No. 937 W. 10th May 1889, No. 1241 W. 12th Aug. 1889, No. 2184 W. 30th Aug. 1889, No. 2399 W. 9th Sept. 1889, No. 2496-A W. 13th Sept. 1889, No. 4085 C. 17th Sept. 1889, No. 4156 C.
District Munsif's Court-house at Amalapuram.— Revised estimate for —, sanctioned.	26th Sept. No. 2705 W.	...	21st April 1887, No. 1098 W.
Police station house on the Ice-house Road, Madras. Estimate for —, sanctioned.	26th Sept. No. 2706 W.	...	
Quarters.—Estimates for — for men of the Army Hospital Native Corps at Wellington and Cannanore, sanctioned and the estimates for quarters at Malapuram and Calicut returned to the Superintending Engineer, for sanction.	26th Sept. No. 2707 W.	...	

1 Subjects.	2 Dates of Pro- ceedings.	3 Date of Report to Secretary of State for India.	4 Numbers and Dates of previous Proceedings.
<i>Majors of Royal Engineers.</i> —Letter from the Government of India regarding submission of reports on the Military qualifications of — serving in Civil Departments, communicated to the officers concerned.	1889. 27th Sept. No. 2719 W.	...	28th June 1889, No. 1713 W. 23rd Aug. 1889, No. 748 D. 21st Mar. 1889, No. 850 W. 30th April 1889, No. 109 D. 25th May 1889, No. 1352 W. 8th Mar. 1889, No. 678 W.
<i>Imperial Military Works.</i> —Orders on schedule of requirements on account of — for 1890-91.	30th Sept. No. 2730 W.	...	1st May 1889, No. 1159 W. 4th Oct. 1888, Nos. 3105-6 W.
Copy forwarded to the Government of India.	30th Sept. No. 2731 W.	...	
<i>Quarters for Hospital Assistants.</i> —Letter from the Government of India sanctioning the general adoption in the Madras Presidency of the revised plan of —, communicated to the officers concerned.	30th Sept. No. 2732 W.	...	16th Aug. 1889, Nos. 2237-38 W. 8th June 1889, Nos. 1535-36 W. 3rd May 1886, No. 1111 W. 21st Oct. 1887, No. 2826 W. 9th July 1887, No. 1839 W.
<i>Barrack accommodation in Fort St. George.</i> —Orders on letter from the Government of India requesting a report showing exactly what is required in regard to — beyond the conversion of the Main guard and adjoining officer's quarters into barracks.	30th Sept. No. 2733 W.	...	22nd July 1889, No. 1968 W. 19th Sept. 1889, No. 2600 W.

GOVERNMENT OF MADRAS.
PUBLIC WORKS DEPARTMENT.
TABULAR STATEMENT OF MISCELLANEOUS PROCEEDINGS
AND MATTERS OF ROUTINE,
BUILDINGS AND ROADS,
FOR THE MONTH OF SEPTEMBER 1889.

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
<i>Mr. A. A. G. Malet, Executive Engineer, granted furlough for 15 months.</i>	2nd Sept. 1889, No. 2421 W.	
<i>Unanswered References.</i> —Orders on letter from the Superintending Engineer, I Circle, explaining cause of omission of certain calls from the list of —.	3rd do. do. No. 2423 W.	15th Aug. 1889, No. 2217 W. 23rd Mar. 1889, No. 1539 C. 23rd Aug. 1882, No. 2163 W.
<i>Presidency allowance.</i> —Orders regarding the grant of —.	3rd do. do. No. 2424 W.	
<i>Pensionary and leave contributions.</i> —Proceedings in the Financial Department deferring the passing of orders on the reference as to whether the new rates of — should apply to certain officers and subordinates of the Public Works Department lent to foreign service, communicated to the Examiner, Public Works Accounts.	3rd do. do. No. 2425 W.	8th Aug. 1889, No. 647 D. 18th June 1889, No. 1603 W. 14th Feb. 1889, No. 425 W.
<i>B. B. Suryanarayana, Temporary Clerk, Rushikulya division.</i> —Proceedings in the Educational Department sanctioning temporary exemption of — from the examination rules, communicated to Superintending Engineer, I Circle.	3rd do. do. No. 2426 W.	
<i>Army Clothing Office, Mount Road, Madras.</i> —Charges for accommodating the — resanctioned under Imperial.	3rd do. do. No. 2427 W.	14th May 1888, No. 1406 W. 10th May 1889, No. 1241 W.
<i>Post Office at Ootacamund.</i> —Funds allotted for connecting the — with the water supply project, communicated to the Superintending Engineer, IV Circle.	3rd do. do. No. 2428 W.	

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
<i>Macoorchy Bridge on the Government Chinchona Estate at Naduvattam.</i> —Estimate for repairs to — returned to Superintending Engineer, IV Circle, for sanction.	3rd Sept. 1889, No. 2429 W.	21st Sept. 1883, No. 2657 W 13th Feb. 1882, No. 397 W. 12th Jan. 1882, No. 105 W.
<i>Lascars employed on the Vaigai Bridge works.</i> —Payment of —, sanctioned.	3rd do. do. No. 2430 W.	
<i>Stores required for works in the Nellore division.</i> —Purchase of certain —, sanctioned.	3rd do. do. No. 2431 W.	27th Jan. 1889, No. 1705 W. 2nd July 1886, No. 1679 W. 25th Jan. 1886, No. 202 W.
<i>Stores.</i> —Statement of payments made in England on account of — and freight and of invoices despatched to India during July 1889, communicated to Superintending Engineer, I Circle.	3rd do. do. No. 2432 W.	3rd Aug. 1889, No. 2097 W. 5th July 1889, No. 1785 W.
<i>Statement of objectionable items in the Accounts of the III Circle.</i> —Orders on — for the quarter ending 31st July 1889.	3rd do. do. No. 2433 W.	4th July 1889, No. 1768 W.
<i>Bi-monthly Return of Stores under provision up to 31st July 1889, communicated to the Chairman, Harbour Trust Board.</i>	3rd do. do. No. 2434 W.	
<i>Deeds of conveyance of certain lands taken up in the Ganjam district by Government, ordered to be lodged in the strong room, Government Office, Fort St. George.</i>	3rd do. do. No. 2435 W.	
<i>Administration Reports of the General, Buildings and Roads Branch for 1888-89, recorded.</i>	4th do. do. No. 2436 W.	
<i>Administration Reports of Military and Civil Works of the Public Works Department, Bombay Presidency, for 1888-89, recorded.</i>	4th do. do. No. 2437 W.	
<i>Pension granted to Mr. A. D'Costa, Clerk, Office of the Examiner, Public Works Accounts, Madras.</i>	4th do. do. No. 2438 W.	
<i>Pension granted to Chota Singh, late Messenger, Public Works Department, Coimbatore division.</i>	4th do. do. No. 2439 W.	
<i>Progress report of relief works on the Ganjam-Gopálpur canal, recorded.</i>	4th do. do. No. 2440 W.	
<i>Punkah pulling machine patented by Mr. Ewing of Barrackpore.</i> —Circular from the Government of India for description of —, recorded.	4th do. do. No. 2441 W.	8th Aug. 1889, No. 2128 W. 21st May 1889, No. 1362 W.
<i>Progress report of relief works on the Rushikulya project, recorded.</i>	4th do. do. No. 2442 W.	
<i>Mr. S. B. Murray, Assistant Engineer, granted a charge allowance for the period he held charge of the Godáviri Eastern Division.</i>	4th do. do. No. 2443 W.	
<i>Mr. H. E. Clerk, Executive Engineer.</i> —The Examiner, Public Works Accounts, authorized to pass the maximum Presidency allowance to —.	4th do. do. No. 2444 W.	

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
<i>Appropriation return for July 1889.</i> —Orders on —.	4th Sept. 1889, No. 2445 W.	15th Aug. 1889, No. 2219 W.
<i>Forwarded to the Accountant-General, Public Works Department.</i>	4th do. do. No. 2446 W.	
<i>Progress report of relief works on the Rushikulya Project, recorded.</i>	4th do. do. No. 2449 W.	
<i>Last pay certificate of Mr. C. A. Smith, Assistant Engineer, ordered to be forwarded to the Home Government.</i>	4th do. do. No. 2450 W.	
<i>Forwarded</i>	4th do. do. No. 2451 W.	
<i>Deeds of conveyance of certain lands taken up by Government in the Ganjam district, ordered to be lodged in the strong room of the Government Office, Fort St. George.</i>	4th do. do. No. 2452 W.	
<i>Lights and Light-houses on the Coasts in the Madras Presidency.</i> —Orders in the Marine Department recording report on — for 1888-89, communicated to Superintending Engineers, concerned.	4th do. do. No. 2453 W.	24th Aug. 1888, No. 2625 W.
<i>Accounts of the Presidency division for March 1889.</i> —The Examiner, Public Works Accounts, to report specially after the close of 1889-90 whether there is any delay in the submission of the —.	4th do. do. No. 2454 W.	31st July 1889, No. 3458 C. 13th Sept. 1888, No. 2855 W. 3rd Mar. 1888, No. 732 W. 4th Nov. 1887, No. 2930 W.
<i>Estate works in the Salem district.</i> —Proceedings of the Court of Wards sanctioning additional funds for certain —, communicated to the Superintending Engineer, IV Circle.	4th do. do. No. 2455 W.	26th June 1889, No. 1675 W.
<i>Unclaimed deposit.</i> —Outstanding in the accounts of the Chingleput division since 1887, ordered to be credited to revenue.	4th do. do. No. 2456 W.	
<i>Military Female Orphan Asylum, Madras.</i> —Superintending Engineer, V Circle, authorized to undertake the work of repairing roof of certain rooms in the —.	4th do. do. No. 2457 W.	7th Dec. 1886, No. 3230 W.
<i>Classified list.</i> —The Secretary to the Government of the Punjab informed of the supply of the —.	4th do. do. No. 2458 W.	
<i>Bridges.</i> —Proceedings in the Local and Municipal Department, communicating to District Boards, Public Works orders, regarding type designs and specification for —, recorded.	4th do. do. No. 2459 W.	20th July 1889, No. 1964 W. 28th June 1889, No. 1718 W.
<i>Mr. Jopp, Executive Engineer, permitted to visit the Periyár works.</i>	5th do. do. No. 2460 W.	
<i>Additional Accountant for No. I, Periyár Division.</i> —Orders on application for —.	5th do. do. No. 2461 W.	16th April 1889, No. 1050 W. 11th Jan. 1888, No. 94 W.

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
<i>Rushikulya Project relief work.</i> —Progress report of —, recorded.	5th Sept. 1889, No. 2462 W.	
<i>Native newspapers.</i> —Reports on —, recorded ...	6th do. do. No. 2469 W.	
<i>Mr. Target, Executive Engineer.</i> —Letter from — regarding retrenchment made from his salary, recorded.	6th do. do. No. 2480 W.	28th Aug. 1889, No. 2373 W. 4th July 1889, No. 1725 W.
<i>Confidential reports on foreign officers forwarded to the Government of India.</i>	6th do. do. No. 2481 W.	
<i>Confidential reports on foreign officers forwarded to the Government of India.</i>	6th do. do. No. 2482 W.	
<i>Goods shed at Calingapatam.</i> —Sale of — by public auction, sanctioned.	6th do. do. No. 2483 W.	11th Jan. 1889, No. 133 C. 26th Nov. 1888, No. 3725 W.
<i>Dock works at Kidderpore.</i> —Quarterly inspection report of —, communicated to Chairman, Harbour Trust Board.	6th do. do. No. 2484 W.	14th May 1889, No. 1282 W. 13th Feb. 1889, No. 405 W.
<i>Maistry Adakalam, Nilgiri division.</i> —Application for formal leave for one month for —, negatived.	6th do. do. No. 2485 W.	15th Mar. 1888, No. 854 W. 4th Feb. 1888, Nos. 405-406 W.
<i>Hospital Assistant Mothiappa Pillai.</i> —Orders in the Public Department dismissing — and prohibiting his re-employment in Government service, communicated to officers of the department.	7th do. do. No. 2486 W.	
<i>Drawings and specifications of Bridges.</i> —Cost of — received from England, ordered to be a contingent charge of the Public Works Secretariat.	7th do. do. No. 2487 W.	6th July 1889, No. 1802 W.
<i>Stationery articles purchased by the Superintending Engineer, V Circle.</i> —Cost of certain —, sanctioned.	7th do. do. No. 2488 W.	
<i>Accountant Jaganatham, Kistna Eastern Division.</i> —Orders on correspondence relating to the complaint made by the Executive Engineer of — and the inadequacy of the punishment awarded by the Examiner, Public Works Accounts.	9th do. do. No. 2490 W.	17th July 1889, No. 3244 C. 16th Mar. 1889, No. 805 W.
<i>Old Chunambar bridge.</i> —Proceedings in the Political Department, approving proposal to build a new south abutment to the —, recorded.	9th do. do. No. 2492 W.	9th Aug. 1889, No. 651 D.
<i>Mr. T. Smyth, Assistant Engineer.</i> —Ordered that the orders of the Government of India be requested in regard to certain points connected with the grant of increment to —.	9th do. do. No. 2493 W.	6th Aug. 1889, No. 3560 C. 22nd Oct. 1886, No. 2792 W.
The Government of India addressed	9th do. do. No. 2494 W.	

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
<i>Administration Report of the Hyderabad Assigned Districts for 1888-89,</i> recorded.	9th Sept. 1889, No. 2495 W.	8th Sept. 1888, No. 2790 W.
<i>Lighthouse at Negapatam.</i> —Letter from the Superintending Engineer, VI Circle, intimating that provision was made for carrying the lightning conductor outside the column of —, recorded.	9th do. do. No. 2496 W.	3rd Mar. 1888, No. 738 W. 21st Mar. 1889, No. 1497 C. 7th May 1889, No. 1209 W. 16th Aug. 1889, No. 2248 W.
<i>Suit.</i> —Payment of costs of the — connected with the Tambraparni Left Bank, sanctioned.	10th do. do. No. 2497 W.	2nd Aug. 1888, No. 2354 W. 26th July 1888, No. 2814 C. 23rd July 1888, No. 2250 W. 12th July 1888, No. 2109 W. 5th July 1888, No. 2026 W.
<i>Hotel foreshore at Cochin.</i> —Proceedings in the Financial Department providing funds for revetting the bank near the —, communicated to Superintending Engineer, IV Circle.	10th do. do. No. 2498 W.	15th Aug. 1889, No. 2214 W.
<i>Amount due to Abdul Karim Sahib, Pennér Works,</i> since July 1886 and remaining unclaimed, ordered to be written off to Provincial Revenue.	10th do. do. No. 2499 W.	
<i>Temporary Irrigation Superintendents, Kurnool Canal.</i> —Proceedings in the Educational Department exempting temporarily certain — from the operation of the examination rules, communicated to Superintending Engineer, III Circle.	10th do. do. No. 2500 W.	13th Aug. 1889, No. 675 D. 8th June 1889, No. 1532 W.
<i>Senate House, Madras.</i> —Proceedings in the Financial Department providing funds for repairs to the —, communicated to the Consulting Architect.	10th do. do. No. 2501 W.	6th Aug. 1889, No. 630 D. 29th July 1889, No. 2039 W.
<i>Staff Sergeant's quarters in the Vellore Fort.</i> —Orders on application from Superintending Engineer, V Circle, for funds for re-roofing the —.	10th do. do. No. 2502 W.	4th July 1889, No. 1762 W. 9th May 1889, No. 1225 W. 2nd Nov. 1881, No. 2705 W.
<i>Sadvisam Pillay, temporary clerk, Negapatam division.</i> —Proceedings in the Educational Department temporarily exempting — from the operation of the examination rules, communicated to Superintending Engineer, VI Circle.	10th do. do. No. 2503 W.	15th Aug. 1889, No. 695 D.
<i>Mr. W. Lewis, Executive Engineer,</i> granted privilege leave for three months.	10th do. do. No. 2504 W.	
<i>Amounts due to certain contractors for work done in the Nellore division and remaining unclaimed,</i> ordered to be credited to Provincial Revenue.	10th do. do. No. 2505 W.	

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
<i>Land and trees acquired for the new Pykara road.</i> —Proceedings in the Revenue Department directing the Collector of Nilgiris to disburse the amount of compensation for — to Mr. Bernard, communicated to Superintending Engineer, IV Circle.	10th Sept. 1889, No. 2506 W.	18th June 1889, No. 349 D. 23rd May 1889, No. 1386 W.
<i>Taluk offices in the Anantapur district.</i> —Superintending Engineer, III Circle, asked to submit estimates for —.	10th do. do. No. 2507 W.	
<i>Periyar Project Works.</i> —Lieutenant-Colonel Smith, R.E., Superintending Engineer, VI Circle, permitted to visit the —.	10th do. do. No. 2508 W.	
<i>Quarters in the Ordnance Lines.</i> —Letter from the Director-General of Ordnance in India stating that no funds are available for renewing the roofs of the —, recorded.	10th do. do. No. 2509 W.	20th Aug. 1889, No. 2278 W. 31st July 1889, No. 2059 W. 7th June 1889, No. 1514 W.
<i>Last Pay Certificate of Mr. A. A. G. Malet, Assistant Engineer, ordered to be forwarded to the Home Government.</i>	10th do. do. No. 2510 W.	
Forwarded	10th do. do. No. 2511 W.	
<i>Dynamite</i> —Proceedings in the Marine Department regarding rates for carriage of — by the B. I. S. N. Co., communicated to the Superintending Engineer, I Circle.	10th do. do. No. 2512 W.	31st July 1889, No. 3459 C. 11th April 1888, No. 1093 W.
<i>Travelling allowance of an overseer granted to certain Delta Superintendents, Nellore Division.</i>	10th do. do. No. 2513 W.	5th Nov. 1885, No. 2610 W. 2nd Oct. 1885, No. 2286 W. 21st April 1884, No. 1020 W.
<i>Kumbakonam drainage scheme.</i> —Proceedings in the Local and Municipal Department directing the Municipal Council to expedite application for the loan for the —, communicated to Superintending Engineer, VI Circle.	10th do. do. No. 2514 W.	
<i>Government Press, Madras.</i> —Proceedings in the Financial Department providing funds for working the printing machines at the — by steam power, communicated to the Superintending Engineer, V Circle.	10th do. do. No. 2515 W.	9th Aug. 1889, No. 2143 W.
<i>Post Office at Ootacamund.</i> —Report of grant of funds for connecting the — with the water-supply project, communicated to the Examiner, Public Works Accounts.	10th do. do. No. 2516 W.	
<i>Appointment of Rajamed as sluice lascar on the Kurnool canal, sanctioned.</i>	10th do. do. No. 2517 W.	21st June 1886, No. 1557 W.
<i>Notes of inspection by the Examiner, Public Works Accounts, of the office of the Executive Engineer, Ganjam Division, communicated to Superintending Engineer, I Circle, with remarks.</i>	10th do. do. No. 2518 W.	28th June 1889, No. 1712 W. 19th Mar. 1889, No. 820 W.

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
		(Continued.) 21st Nov. 1888, No. 3687 W. 24th Aug. 1888, No. 2621 W.
<i>Lighthouse at Negapatam.</i> —Proceedings in the Financial Department providing funds for improvements to the —, communicated to Superintending Engineer, VI Circle.	11th Sept. 1889, No. 2519 W.	16th Aug. 1889, No. 2248 W.
<i>Accounts of the Chingleput division.</i> —Report of submission of certificate of examination of — by the Executive Engineer to the Examiner, Public Works Accounts, recorded.	11th do. do. No. 2520 W.	23rd Aug. 1889, No. 3799 C. 2nd Aug. 1889, No. 3496 C.
<i>Rents.</i> —Office note from the Examiner, Public Works Accounts, regarding recovery by Treasury officer of — from officers of the Civil Department for buildings occupied by them as residences, communicated to Superintending Engineer, IV Circle, with remarks.	11th do. do. No. 2521 W.	12th Aug. 1889, No. 2194 W. 6th July 1889, No. 475 D. 22nd Sept. 1888, No. 2981 W. 4th June 1888, No. 1612 W.
<i>Tools and Plant.</i> —Orders on application from the Consulting Architect for funds under —.	11th do. do. No. 2522 W.	
<i>Temples in the Madura district.</i> —Orders on letter from the Superintending Engineer, VI Circle, regarding repair of certain —.	11th do. do. No. 2523 W.	16th Feb. 1888, No. 529 W. 24th June 1889, No. 1651 W.
<i>Administration Report of the Court of Wards.</i> —Proceedings in the Revenue Department reviewing the — for fasli 1297, communicated to Superintending Engineers concerned with remarks.	12th do. do. No. 2531 W.	
<i>Stores.</i> —Circular from the Government of India with drawing order directing recovery from Agents of vessels of 3 per cent. for insurance and departmental charges on account of — from England short delivered, communicated to officers of the department.	12th do. do. No. 2532 W.	4th Sept. 1888, No. 2741 W.
<i>Telegraph Stores.</i> —Proceedings in the Military Department communicating letter from the Government of India stating that, pending consideration of the subject of the reorganization of the Telegraph sections in the Corps of Sappers and Miners, the supply of — to Sapper Corps should be deferred, communicated to officers of the department.	12th do. do. No. 2533 W.	
<i>Compensation for quarters.</i> —Letter from the Surgeon-General with the Government of Madras requesting early orders regarding — payable to Military Medical pupils, recorded.	12th do. do. No. 2534 W.	13th Sept. 1889, No. 2422 W.
<i>Buildings connected with the old jail at Tranquebar.</i> —Letter from the Superintending Engineer, VI Circle, regarding demolition of certain —, recorded.	12th do. do. No. 2535 W.	26th June 1889, No. 1678 W.

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
<i>Messrs. Francis and Gray, Public Works Stores and Workshops, Madras.</i> —Office note from the Examiner, Public Works Accounts, stating that — are not eligible for charge allowance, communicated to Superintending Engineer, V Circle.	12th Sept. 1889, No. 2536 W.	24th April 1889, No. 1091 W. 17th June 1889, No. 1581 W.
<i>Head-quarters of the Executive Engineer, Tungabhadra Project, fixed at Bellary.</i>	12th do. do. No. 2537 W.	
<i>Local Fund Report of the Tinnevely district.</i> —Proceedings in the Local and Municipal Department reviewing the — for 1888-89, communicated to Superintending Engineer, VI Circle.	12th do. do. No. 2538 W.	9th Dec. 1887, No. 3302 W.
<i>Quarters for Sergeant Mills at Wellington.</i> —Hiring of — in excess of the authorized scale, sanctioned.	12th do. do. No. 2539 W.	
<i>Dr. Moore's Manual of Family Medicine for India.</i> —Application to the Government of India for three additional copies of —.	12th do. do. No. 2540 W.	27th Aug. 1889, No. 2361 W. 17th Aug. 1889, No. 2274 W.
<i>Sanitary Board at Bangalore.</i> —The Executive Engineer, Presidency Division, permitted to serve on the proposed —.	12th do. do. No. 2541 W.	
<i>Statement of Officers and Subordinates in the Public Works Department.</i> —Codification of the circular of the Accountant-General, Public Works Department, requiring annual submission by the Examiner, Public Works Accounts, of a —, showing salaries, &c., drawn by each on the 30th June, approved.	12th do. do. No. 2542 W.	
<i>English stores required for the Public Works Workshops, Madras.</i> —Purchase of certain —, sanctioned.	12th do. do. No. 2543 W.	25th Jan. 1886, No. 202 W. 2nd July 1886, No. 1679 W. 27th June 1889, No. 1705 W.
<i>Native Newspapers.</i> —Report on —, recorded	12th do. do. No. 2544 W.	
<i>Furniture for Government Houses at Madras, Guindy, and Ootacamund.</i> —Budget estimate for — for 1890-91, recorded.	12th do. do. No. 2545 W.	17th June 1885, No. 1413 W.
<i>Rushikulya Project Relief work.</i> —Progress report of —, recorded.	12th do. do. No. 2546 W.	5th Sept. 1889, No. 2462 W.
<i>English stores required for lock gates on the Kurnool Canal.</i> —Correspondence regarding purchase of —, recorded.	13th do. do. No. 2550 W.	31st July 1889, No. 3456 C. 29th Aug. 1889, No. 2393 W.
<i>New High Court Buildings at Madras.</i> —Letter from the Consulting Architect reporting in regard to the expenditure on the —, recorded.	13th do. do. No. 2551 W.	24th Aug. 1889, No. 3809 C. 25th July 1889, No. 3383 C.
<i>P. Colundasarani Naidu, late Overseer.</i> —Memorial from — praying for re-instatement, recorded.	13th do. do. No. 2553 W.	23rd Aug. 1889 No. 2328 W.

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
<i>Ramnath Estate works.</i> —Proceedings of the Court of Wards communicating letter from the Collector of Madura intimating that the Executive Engineer has been requested to retain the temporary Public Works establishment employed on — till the 29th October 1889, communicated to Superintending Engineer, VI Circle, with remarks.	13th Sept. 1889, No. 2555 W.	7th May 1889, No. 1211 W.
<i>Bi-monthly return of stores under provision by the Director-General for India up to 31st July 1889, communicated to officers concerned.</i>	14th do. do. No. 2556 W.	23rd July 1889, No. 1988 W.
<i>Copy forwarded to the Government of India</i>	14th do. do. No. 2557 W.	
<i>Store shed at Ralli.</i> —The Examiner, Public Works Accounts, authorized to admit the excess outlay incurred on the conversion of the — into an office for the Godavari Central division.	14th do. do. No. 2558 W.	24th Aug. 1888, No. 2620 W. 2nd Aug. 1888, No. 2347 W. 3rd July 1888, No. 383 I. 2nd July 1888, No. 1968 W. 25th Jan. 1888, No. 302 W.
<i>Palghat High School building.</i> —Proceedings in the Local and Municipal Department passing orders on correspondence relating to the defects in the —, communicated to Superintending Engineer, IV Circle, with remarks.	14th do. do. No. 2559 W.	25th Feb. 1887, No. 572 W. 14th Feb. 1887, No. 463 W. 31st Aug. 1886, No. 2968 C. 25th Aug. 1884, No. 2091 W. 7th Jan. 1884, No. 15 W. 13th Dec. 1883, No. 3565 W.
<i>Ordinance Map.</i> —The Examiner, Public Works Accounts, authorized to pass the charge incurred in the purchase of a copy of — for use of the Tank Restoration Scheme office.	14th do. do. No. 2560 W.	21st Feb. 1889, No. 536 W.
<i>Charge allowance granted to Sub-Conductor Heinig for the period he held charge of the Bellary division.</i>	14th do. do. No. 2561 W.	18th July 1889, No. 3267 W. 24th June 1889, No. 1655 W. 13th June 1889, No. 2763 C.
<i>Parados for screening the interior of the Agramentrenchment, Bangalore.</i> —Proceedings in the Military Department communicating views of the Defence Committee regarding the construction of a — from fire from commanding ground outside the work, communicated to the Superintending Engineer, V Circle.	14th do. do. No. 2562 W.	
<i>Hospital Assistant Rungasawmy Naidu dismissed and his re-employment in the service prohibited.</i>	14th do. do. No. 2563 W.	7th Sept. 1889, No. 2486 W.

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
<i>Service Registers.</i> —The Examiner, Public Works Accounts, directed to afford facilities for verification of — of members of the Public Works Secretariat.	16th Sept. 1889, No. 2564 W.	22nd Aug. 1889, No. 3794 C. 22nd May 1889, No. 1381 W. 14th Jan. 1889, No. 80 W. 24th Sept. 1888, No. 2988 W. 21st July 1888, No. 2231 W.
<i>Mr. Garrett, Executive Engineer.</i> —Application from —, to visit the works at the Periyár, declined.	16th do. do. No. 2565 W.	
<i>Sea Custom-house at Cochin.</i> —Explanation of Superintending Engineer, IV Circle, as to omission of the amount required for the — in the statement of demands for incomplete works, recorded.	17th do. do. No. 2566 W.	29th Aug. 1889, No. 2387 W. 12th May 1887, No. 1296 W.
<i>Funds.</i> —Certain transfer of —, sanctioned	17th do. do. No. 2567 W.	6th July 1889, No. 1796 W.
<i>Notes of inspection of the Presidency Division office.</i> —Remarks of the Examiner, Public Works Accounts, on explanation of the Executive Engineer, in regard to certain points in the —, recorded.	17th do. do. No. 2568 W.	2nd July 1889, No. 1748 W. 29th Jan. 1889, No. 235 W. 13th Sept. 1889, No. 2855 W. 5th Mar. 1888, No. 746 W.
<i>Notes of inspection of the Vizagapatam division office,</i> submitted by the Examiner, Public Works Accounts, communicated to Superintending Engineer, I Circle, with remarks.	17th do. do. No. 2569 W.	15th June 1889, No. 2793 C. 7th Nov. 1888, No. 4348 C. 11th Dec. 1888, No. 3887 W. 4th July 1888, No. 2007 W.
<i>Statement of objectionable items in the I. Circle.</i> —Explanation of Superintending Engineer, I Circle, in regard to certain items entered in the — for March 1889, recorded.	17th do. do. No. 2570 W.	14th July 1889, No. 2558 W. 15th July 1889, No. 1881 W.
<i>Funds.</i> —Certain modification of allotments in the I Circle, sanctioned.	17th do. do. No. 2571 W.	
<i>District Court at Tanjore.</i> —Proceedings in the Judicial Department communicating letter from the Registrar, High Court, Madras, stating that iron railings should be erected for the windows of the record-room in the —, communicated to Superintending Engineer, VI Circle.	17th do. do. No. 2572 W.	5th July 1889, No. 466 D. 22nd Mar. 1889, No. 866 W. 27th July 1887, No. 2608 W.
<i>Public Works Administration Report of Assam for 1888-89,</i> recorded.	17th do. do. No. 2573 W.	28th Sept. 1888, No. 3054 W.
<i>Buildings and Bridges in the Madras Presidency.</i> —The Government of India addressed on the subject of the area and cost of —.	17th do. do. No. 2574 W.	16th Aug. 1888, No. 2505 W. 3rd Jan. 1878, No. 5 W.
<i>Mr. Brassington, Consulting Architect.</i> —Grant of privilege leave to —, declined.	17th do. do. No. 2575 W.	13th Sept. 1889, No. 4087 C.

DEPARTMENT.]

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
<i>Outstanding under miscellaneous advances in the accounts for March 1889.</i> —Statement of —, communicated to Superintending Engineers concerned.	18th Sept. 1889, No. 2576 W.	16th July 1889, No. 1902 W. 1st June 1889, No. 1446 W. 17th April 1889, No. 1054 W. 2nd Mar. 1889, No. 620 W. 5th Feb. 1889, No. 322 W.
<i>Post Office buildings at Venkatagirikóta.</i> —Funds allotted for repair of —.	18th do. do. No. 2577 W.	
<i>Mr. Ewing's punkah pulling machine.</i> —Papers relating to —, recorded.	18th do. do. No. 2578 W.	4th Sept. 1889, No. 2441 W. 8th Aug. 1889, No. 2128 W. 30th July 1889, No. 2054 W.
<i>Pension granted to A. Ramakrishna Mudali, late clerk, North Arcot Division.</i>	18th do. do. No. 2579 W.	
<i>Unanswered References.</i> —Orders on statement of — from the Board of Revenue.	19th do. do. No. 2580 W.	
<i>Sergeant T. Green, late Supervisor.</i> —Superintending Engineer, V Circle, to obtain from the widow of — a written statement that she forfeits her claim to passage to England.	19th do. do. No. 2581 W.	
<i>Lightning conductor attached to the Magazine in Bellary Fort.</i> —Report of testing of —, communicated to the Military Department.	19th do. do. No. 2582 W.	26th Aug. 1889, No. 3824 C.
<i>Travelling allowance of Balasundrum Pillay, temporary clerk, Periyár.</i> —Note by Examiner, Public Works Accounts, disallowing —, communicated to the Superintending Engineer, Periyár Project.	19th do. do. No. 2583 W.	3rd Sept. 1889, No. 3919 Q.
<i>Hospital shed at Itikavals.</i> —Report of the Superintending Engineer, I Circle, giving approximate value of —, recorded.	19th do. do. No. 2584 W.	4th Sept. 1889, No. 2447 W. 13th July 1889, No. 1866 W. 14th April 1888, No. 1577 C.
<i>Land compensation claims in the Nellore district.</i> —Proceedings in the Revenue Department passing orders on the subject of the delay in the settlement of —, communicated to Superintending Engineer, II Circle.	19th do. do. No. 2585 W.	10th April 1889, No. 33 D. 26th April 1889, No. 1131 W. 20th June 1889, No. 1621 W.
<i>Cemetery Rules.</i> —Proceedings in the Ecclesiastical Department regarding interpretation of the —, communicated to officers of the department.	19th do. do. No. 2586 W.	14th Aug. 1885, No. 1887 W.
<i>Ganjam-Gopálpur Canal Relief works.</i> —Progress report of —, recorded.	19th do. do. No. 2587 W.	
<i>Rushikulya Project Relief works.</i> —Progress report of —, recorded.	19th do. do. No. 2588 W.	

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
<i>Statement of objectionable items in the accounts of the V Circle.—Orders on — up to end of June 1889.</i>	19th Sept. 1889, No. 2592 W.	29th Aug. 1889, No. 2380 W.
<i>Statement of objectionable items in the accounts of the Consulting Architect Division.—Orders on — for quarter ending June 1889.</i>	19th do. do. No. 2593 W.	17th Aug. 1889, No. 2272 W. 21st June 1889, No. 1633 W.
<i>Statement of objectionable items in the accounts of the I Circle.—Orders on — for quarter ending June 1889.</i>	19th do. do. No. 2594 W.	26th June 1889, No. 1675 W. 29th Aug. 1889, No. 2381 W. 22nd July 1889, No. 1971 W. 8th June 1889, No. 1528 W.
<i>Funds.—Certain transfer of —, sanctioned</i> ...	19th do. do. No. 2595 W.	
<i>Funds.—Certain transfer of —, sanctioned</i> ...	19th do. do. No. 2596 W.	
<i>Colonel H. M. Vibart, R.E.—Orders on letter from — regarding his memorial.</i>	19th do. do. No. 2597 W.	
<i>Local Fund report of the Nilgiri division.—Proceedings in the Local and Municipal Department reviewing the — for 1888-89, communicated to Superintending Engineer, IV Circle.</i>	20th do. do. No. 2614 W.	
<i>Ganjam-Gopālpur Canal Relief works.—Progress report of —, recorded.</i>	20th do. do. No. 2615 W.	
<i>Transfer of funds.—Certain —, sanctioned</i> ...	20th do. do. No. 2616 W.	
<i>Dr. Moore's Manual of Family Medicine for India.—Application to the Government of India for one additional copy of —.</i>	20th do. do. No. 2617 W.	12th Sept. 1889, No. 2540 W.
<i>Transfer of tools, &c., to the Ramnad Estate.—Memorandum of instructions issued by the Superintending Engineer, VI Circle, to the Executive Engineer, Ramnad Division, for the —, recorded.</i>	20th do. do. No. 2618 W.	17th Sept. 1889, No. 4150 C. 29th Aug. 1889, No. 2383 W. 20th Aug. 1889, No. 3763 C. 16th Aug. 1889, No. 699 D. 22nd July 1889, No. 3329 C. 7th May 1889, No. 1211 W. 30th April 1889, No. 2086 C. 11th July 1888, No. 2629 C.
<i>Pension granted to F. Seshayya, late lascar, Godavari Eastern Division.</i>	20th do. do. No. 2619 W.	
<i>Old European Barracks at Ranipet.—Proceedings in the Military Department sanctioning conditionally transfer of the — to the District Board, North Arcot, communicated to Superintending Engineer, V Circle.</i>	20th do. do. No. 2620 W.	29th Aug. 1889, No. 2389 W.

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
<i>Correspondence.—Circular from the Government of India regarding despatch of — to Simla, recorded.</i>	20th Sept. 1889, No. 2621 W.	19th Oct. 1888, No. 3327 W.
<i>Mr. Target, Executive Engineer.—Retrenchment against —, ordered to be deferred.</i>	20th do. do. No. 2623 W.	17th Sept. 1889, No. 4158 C. 6th Sept. 1889, No. 2480 W. 28th Aug. 1889, No. 2373 W. 4th July 1889, No. 1765 W. 18th Mar. 1889, No. 814 W. 11th Aug. 1888, No. 2433 W. 11th May 1888, No. 1383 W. 25th Nov. 1886, No. 3128 W.
<i>Kavakarampatti tank, Salem district.—Proceedings of the Court of Wards sanctioning allotment of Rs. 100 for closing breaches in the supply channel of the —, communicated to the Superintending Engineer, IV Circle.</i>	20th do. do. No. 2624 W.	
<i>Chinese Commission to inspect Government establishments.—Proceedings in the Military Department communicating orders of the Government of India regarding visit of —, communicated to officers of the department.</i>	20th do. do. No. 2625 W.	
<i>Service Book.—Considering that when a Superintending Engineer asks for the — of an officer serving under him the Examiner should forward the same without delay.</i>	20th do. do. No. 2626 W.	2nd Sept. 1889, No. 797 D.
<i>Indents.—Proposals of the Examiner, Public Works Accounts, for the submission of yearly indents for supply of departmental forms instead of quarterly indents, approved.</i>	21st do. do. No. 2627 W.	
<i>Machinery for working the printing machines by steam power.—The Superintending Engineer, V Circle, informed that if the — can be obtained from Bombay firms from stock already there it may be purchased, otherwise to frame an indent on the Home Government for it.</i>	21st do. do. No. 2628 W.	7th Aug. 1889, No. 2143 W. 27th June 1889, No. 1705 W. 2nd July 1886, No. 1679 W. 25th Jan. 1886, No. 202 W.
<i>Clerk for the Mannārgudi Sub-division.—An additional — on Rs. 10 per mensem, sanctioned.</i>	21st do. do. No. 2629 W.	11th May 1889, No. 1250 W. 20th Aug. 1889, No. 723 D. 18th Jan. 1889, No. 128 W. 4th June 1888, No. 1613 W. 28th April 1888, No. 1004 W. 16th Feb. 1888, No. 537 W. 5th Nov. 1887, No. 2935 W.

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
<i>District Munsif's Court at Mārkapur.</i> —Proceedings, Judicial Department, approving the erection of the —, communicated to the Superintending Engineer, III Circle.	21st Sept. 1889, No. 2630 W.	(Continued.) 19th May 1887, No. 1376 W.
<i>Remount Agent's quarters at Matigiri.</i> —Office note from the Examiner, Public Works Accounts, regarding rate rent to be charged for —, communicated to Superintending Engineer, IV Circle	21st do. do. No. 2631 W.	28th Aug. 1889, No. 3852 C. 30th Jan. 1889, No. 248 W. 22nd Sept. 1888, No. 2981 W. 19th April 1883, No. 1169 W. 14th April 1883, No. 1127 W.
<i>Griffith's Bath Enamel Paints.</i> —Allotting Rs. 236 to the Public Works Workshops Division under "Stock" to meet the cost of — indented for by the Superintending Engineer, V Circle.	21st do. do. No. 2632 W.	7th Sept. 1889, No. 3982 C.
<i>Local Fund report of the Tanjore District.</i> —Proceedings, Local and Municipal Department, reviewing the — for 1888-89, communicated to the Superintending Engineer, VI Circle, and to the Consulting Engineer for Railways.	21st do. do. No. 2633 W.	
<i>Head Munshi to Canarese Translator.</i> —Proceedings in the Public Department communicating papers relative to the application of the — for employment, communicated to officers of the department.	21st do. do. No. 2634 W.	23rd Aug. 1889, No. 2327 W.
<i>Advances.</i> —Proceedings in the Financial Department regarding grant of — to Civil officers returning from furlough, communicated to officers concerned.	21st do. do. No. 2635 W.	
<i>College of Engineering, Madras.</i> —Proceedings in the Educational Department sanctioning the appointment of certain Examiners for conducting the examination in the —, recorded.	21st do. do. No. 2642 W.	27th Nov. 1888, No. 3726 W. 10th Oct. 1888, No. 3198 W. 4th Aug. 1888, No. 2470 W.
<i>Tidal Observatory at Tuticorin.</i> —Proceedings, Marine Department, sanctioning repairs to the roof of the —, communicated to the Superintending Engineer, VI Circle, and the Examiner, Public Works Accounts.	21st do. do. No. 2643 W.	
<i>Moule's Patent Earth Closets.</i> —Estimate for fitting — at Government House, Ootacamund, sanctioned.	21st do. do. No. 2644 W.	29th Aug. 1889, Nos. 2384-85 W. 29th Mar. 1889, No. 936 W. 3rd Sept. 1883, No. 2459 W.
<i>Land required for Government Brick-fields in Egmore.</i> —Revised notification of —, ordered to be published in the Fort St. George Gazette.	21st do. do. No. 2645 W.	
<i>Sweeper in the West Coast Division.</i> —The employment of a —, sanctioned.	21st do. do. No. 2646 W.	

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
<i>Passage money of Temporary Clerk Narayanamurty, Ganjam-Gopālpur Canal.</i> —Claim for — sanctioned.	21st Sept. 1889, No. 2647 W.	20th Dec. 1888, No. 3986 W.
<i>New Madras Cricket Pavilion.</i> —Proceedings, Local and Municipal Department, recording Proceedings, Revenue Department, stating that there is no objection to the erection of the — on the south-west corner of the Chepāk ground.	21st do. do. No. 2648 W.	1st July 1889, No. 1722 W.
<i>Supply of tents to Surveyors.</i> —Directing that the rule in G.O., No. 1126 W., dated 16th April 1883, prohibiting the — be codified distinctly stating that the salary of surveyors will be fixed so as to cover the cost of tentage.	21st do. do. No. 2649 W.	
<i>D. Ramasawmy Naidu, late Channel Maistry, Public Works Department, Hospet Taluk.</i> —Orders on petition from — to be reinstated.	21st do. do. No. 2650 W.	
<i>Commissioner of Police.</i> —The Examiner directed to submit a draft standing order adding the — to the list of officers included in para. 1310 of the Public Works Code having power of sanction up to Rs. 500.	21st do. do. No. 2651 W.	31st July 1888, No. 2331 W. 9th July 1888, No. 2588 C. 6th Sept. 1887, No. 2986 C.
<i>New sub-division in the Madura Division.</i> —The opening of a — on the abolition of the Vaigai bridge sub-division, sanctioned.	23rd do. do. No. 2654 W.	10th Sept. 1889, No. 4022 C. 28th Aug. 1889, No. 2371 W. 10th Aug. 1889, No. 2161 W. 26th July 1889, No. 2025 W.
<i>Vizagapatam District Jail.</i> —Explanation of Mr. Ussher, Executive Engineer, in failing to take prompt action in the matter of the No. 1 block in the —, the condition of which was brought to his notice considered unsatisfactory.	23rd do. do. No. 2655 W.	27th June 1889, No. 416 D.
<i>Famine Batta.</i> —Proceedings, Financial Department, recording Proceedings, Revenue Department, sanctioning, subject to certain conditions, the grant of — to Government servants on Civil establishment in Ganjam district, communicated to the Superintending Engineer, I Circle.	23rd do. do. No. 2656 W.	
<i>Famine Batta.</i> —Proceedings, Financial Department, recording Proceedings, Revenue Department, directing that the above order shall not be held applicable to the rates of money wages and rations payable under sections 185 and 186 of the Famine Code, communicated to the Superintending Engineer, I Circle.	23rd do. do. No. 2657 W.	
<i>Khan Sahib's Canal.</i> —The sum of Rs. 5-14-0 incurred in the prosecution of the villagers of Nubiapuram for cutting the bund of —, sanctioned.	23rd do. do. No. 2658 W.	
<i>Quarrying stone required for the head works at Sangam.</i> —Estimate for —, sanctioned.	23rd do. do. No. 2659 W.	2nd Aug. 1889, No. 3489 C.

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
<i>Sea Custom House at Calicut.</i> —The Superintending Engineer, IV Circle, requested to submit a revised estimate for alterations to the roof of the — and approving instructions issued by the Superintending Engineer for stopping the work.	23rd Sept. 1889, No. 2660 W.	16th April 1889, No. 1044 W. 5th Jan. 1888, No. 15 W. 1st May 1889, No. 1166 W.
<i>Hospital Assistant's quarters at the Penitentiary.</i> —Stating that there is no objection to the use of Madras-made tiles for the roof of the new — and Sir S. Ramasawmy Mudaliar requested to submit the plans of the choultry which he proposes to build for railway travellers.	23rd do. do. No. 2661 W.	6th Aug. 1888 and 22nd Nov. 1888, Nos. 534 and 812, Rev. 4th Feb. 1889, No. 536 C. 3rd June 1889, No. 2608 C. 12th Mar. 1889, No. 741 W. 4th Feb. 1889, Nos. 536-37 C. 22nd Jan. 1889, No. 323 C. 10th Sept. 1888, No. 2815 W. 29th Nov. 1888, No. 3777 W.
<i>Record-racks required for the Collector's Office, Nellore.</i> —The Superintending Engineer, II Circle, requested to prepare an estimate for the —.	23rd do. do. No. 2662 W.	27th July 1888, No. 660 Procs., Board of Rev. 5th Sept. 1887, No. 2391 W.
<i>Inspection Notes by the Deputy Examiner, Public Works Accounts of the Office of the Executive Engineer, Godavari Central Division.</i> —Notes by the Examiner on the explanation of the division officer to certain items in the —, communicated to the Superintending Engineer, II Circle.	23rd do. do. No. 2663 W.	29th July 1889, No. 3407 C. 16th Aug. 1889, No. 3711 C. 29th May 1889, No. 1431 W. 15th June 1888, No. 1785 W. 15th July 1885, No. 1649 W.
<i>Administration Report of the Public Works Department, General Buildings and Roads Branch, Madras, for 1888-89.</i> —Certain officers furnished with the —.	24th do. do. No. 2664 W.	
<i>Subscriptions from Native Chiefs or officials of Native States towards private or semi-public objects.</i> —Resolution of the Government of India ruling that no officer of Government shall ask or accept pecuniary aid or — communicated to officers of the Public Works Department.	24th do. do. No. 2665 W.	
<i>Proceedings, Public Department, communicating the above Resolution of the Government of India, recorded.</i>	24th do. do. No. 2666 W.	
<i>Narainsawmy Pillay, late Lascar, Madras Division.</i> —Proceedings, Pension Department, granting — an invalid gratuity, recorded.	24th do. do. No. 2667 W.	
<i>Charges for advertisements calling for tenders for timber, V Circle.</i> —The —, sanctioned.	24th do. do. No. 2668 W.	10th Aug. 1889, No. 2172 W.

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
<i>Articles of European manufacture.</i> —The purchase of certain — by the General Superintendent of Public Works Stores in the local market, sanctioned.	24th Sept. 1889, No. 2669 W.	27th June 1889, No. 1705 W. 2nd July 1886, No. 1679 W. 25th Jan. 1886, No. 202 W.
<i>Powers of sanction of Superintending Engineers.</i> —Declining to authorise any further delegation of powers to Superintending Engineers than those granted under para. 267 (a), Public Works Code.	24th do. do. No. 2670 W.	11th July 1887, No. 3163 C. 16th July 1887, No. 3233 C. 11th June 1887, No. 1623 W. 3rd Nov. 1888, No. 3491 W. 19th Oct. 1888, Nos. 3333 W & 3334 D. 12th Mar. 1888, No. 810 W. 8th May 1888, No. 1351 W. 21st Dec. 1888, Nos. 3998-99 W. 7th Nov. 1888, No. 3561 W. 20th Oct. 1888, No. 3349 W. 5th June 1889, No. 1476 W. 21st Dec. 1888, No. 3997 W. 8rd Nov. 1888, No. 3490 W.
<i>Compensation in lieu of quarters admissible to War-rant Medical Officers.</i> —Proceedings, Military Department, communicating orders from the Government of India that — on general or sick leave in India and drawing full pay should be disbursed by the Military Accounts Department, communicated to the Examiner, Public Works Accounts.	25th do. do. No. 2675 W.	
<i>Medical Certificates.</i> —Proceedings, Public Department, pointing out that when a departmental superior sends one of his subordinates with the usual official credentials any District Surgeon within his range, the latter should examine the man without question, and desiring that the Surgeon-General with Government should accordingly alter his circular instructions on the subject, communicated to officers of the Public Works Department.	25th do. do. No. 2676 W.	15th Aug. 1888, No. 2498 W. 23rd May 1889, No. 1395 W.
<i>Condition of the Ganjam District.</i> —Orders of the Revenue Department on reports of the Collector on the — for week ending 17th August 1889, communicated to the Superintending Engineer, I Circle.	25th do. do. No. 2677 W.	
<i>Condition of the Ganjam District.</i> —Orders of the Revenue Department on reports of the Collector on the — for week ending 10th August 1889, communicated to the Superintending Engineer, I Circle.	25th do. do. No. 2678 W.	

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
<i>Revised Ecclesiastical rules.</i> —Proceedings, Ecclesiastical Department, recording endorsement from the Government of India forwarding an amendment to rule 1 (3) Part I of the —, communicated to Superintending Engineers.	25th Sept. 1889, No. 2679 W.	
<i>Local allowances for Wynaad and Vizagapatam Hill tracts.</i> —Revised rates of — to have effect from the 1st August 1889.	25th do. do. No. 2680 W.	23rd Aug. 1889, No. 2315 W. 19th July 1889, No. 1948 W. 3rd Oct. 1888, No. 3091 W. 12th Aug. 1889, Nos. 2180-81 W. 26th July 1889, Nos. 2019-20 W. 4th May 1889, No. 2192 C. 18th Jan. 1889, No. 241 C. 1st Nov. 1888, Nos. 659-60 I. 22nd Sept. 1888, No. 2981 W. 19th Aug. 1884, No. 1948 W. 23rd Jan. 1878, No. 391 W. 21st Jan. 1878, No. 337 W. 8th Aug. 1876, No. 2041 W. 7th April 1876, No. 907 W. 20th Aug. 1874, No. 155, Judl. 10th July 1874, No. 1266, Judl. 5th Sept. 1889, No. 3967 C.
<i>Collector's residence at Chittoor.</i> —Deciding that the rent of the — must be assessed and recovered in accordance with the rules contained in para. 1041 of the Public Works Code and that on receipt of a reply to a reference made to the Government of India regarding the relaxation of those rules, the rental of the building will be further considered.	25th do. do. No. 2681 W.	
<i>Head-quarters of the Executive Engineer, No. II, Periyár Division.</i> —The proposal of the Superintending Engineer to transfer the — from Madura to Natchikulam, sanctioned.	25th do. do. No. 2682 W.	
<i>Government House, Ootacamund.</i> —Letter from the Superintending Engineer, IV Circle, regarding expenditure on —, recorded.	25th do. do. No. 2683 W.	29th Aug. 1889, No. 2364 W. 1st Feb. 1889, Nos. 279-80 W. 22nd Aug. 1889, No. 2307 W.
<i>Officer competent to appoint and dismiss.</i> —The Examiner, Public Works Accounts, informed that the competent authority referred to in para. 681 Public Works Code is declared to be the —.	25th do. do. No. 2684 W.	
<i>Ruthna Mudaliar, deceased piece-worker, South Arcot Division.</i> —The sum of Rs. 10 due to — and not claimed since March 1888, sanctioned to be credited to "Provincial Revenue."	25th do. do. No. 2685 W.	
<i>Last pay certificate of Honorary Lieutenant Deputy Assistant Commissary J. Nicholson, Assistant Engineer, 1st Grade.</i> —The —, ordered to be forwarded to the Home Government.	25th do. do. No. 2686 W.	6th June 1889, Nos. 1502-3 W.
Forwarded	25th do. do. No. 2687 W.	

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
<i>Delay in the submission of accounts of the Vizagapatam Division for May 1889.</i> —Explanation by the Divisional officer of the —, recorded.	26th Sept. 1889, No. 2689 W.	
<i>Vessels borne on the books of Public Works Department.</i> —List of —, ordered to be forwarded to the Government of India.	26th do. do. No. 2690 W.	14th Aug. 1889, No. 3676 C.
<i>District Munsif's Court at Tiruvélú.</i> —Letter from the Superintending Engineer, VI Circle, recommending approval of the Collector's proposal that the — be utilised for the Deputy Tahsildar's office, and stating that this information was communicated in his letter No. 1164-T. J. of 30th August 1889, recorded.	26th do. do. No. 2691 W.	13th Sept. 1889, No. 2554 W.
<i>Statement of objectionable items in the accounts of the IV Circle for March 1889.</i> —Orders on explanation of Superintending Engineer in regard to certain items in the —.	26th do. do. No. 2692 W.	13th July 1889, No. 1882 W. 1st Aug. 1889, No. 2073 W.
<i>Port Officer's bungalow at Pámban.</i> —Revised estimate for repairing the —, returned to Superintending Engineer, VI Circle, for sanction.	26th do. do. No. 2693 W.	10th Sept. 1889, No. 2501 W. 29th July 1889, No. 2039 W. 24th June 1889, No. 1649 W. 22nd May 1889, No. 1377 W.
<i>Sanitation of Native lines at Secunderabad.</i> —The resident at Hyderabad instructed by the Government of India to provide funds for a sub-soil drainage of the lines.	26th do. do. No. 2694 W.	10th Aug. 1889, No. 2155 W. 10th Aug. 1889, No. 2156 W.
<i>Steam Launch.</i> —Orders on correspondence relating to the despatch from the Public Works Stores, Madras, to the Periyár Project works of the —, received from England.	26th do. do. No. 2695 W.	4th Sept. 1889, No. 3956 C. 15th Aug. 1889, No. 3681 C. 15th Oct. 1888, No. 327 W.
<i>Statement of objectionable items in the accounts of the IV Circle.</i> —Orders on — for the period ending 31st August 1889.	26th do. do. No. 2696 W.	29th Aug. 1889, No. 2382 W. 29th Aug. 1889, No. 2387 W. 26th June 1889, No. 1671 W.
<i>Appropriation Return for August 1889.</i> —Orders on —.	26th do. do. No. 2697 W.	4th Sept. 1889, Nos. 2445-46 W. 5th Sept. 1889, No. 2463 W. 20th Sept. 1889, No. 2612 W.
Forwarded to the Accountant-General, Public Works Department.	26th do. do. No. 2698 W.	
<i>Completion report for temporary shed at Madura.</i> —Office note from the Examiner, Public Works Accounts, regarding submission of —, communicated to the Superintending Engineer, Periyár Project.	26th do. do. No. 2699 W.	30th July 1889, No. 2047 W.

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
<i>Ootacamund-Kandal Drainage Scheme.</i> —Orders approving of the —.	26th Sept. 1889, No. 2700 W.	
<i>Indian Bradshaw.</i> —Application from the Consulting Engineer for Railways to include — in the list of periodicals, sanctioned and communicated to the Financial Department.	26th do. do. No. 2701 W.	3rd Sept. 1889, No. 805 D. 29th Aug. 1889, No. 778 D. 20th July 1888, No. 549 D. 13th July 1889, No. 515 D.
<i>Anicut Superintendents on Kurnool Canal.</i> —Proceedings in the Educational Department exempting certain — from examination rules, communicated to Superintending Engineer, III Circle.	26th do. do. No. 2702 W.	10th Sept. 1889, No. 2500 W. 29th Aug. 1889, No. 774 D.
<i>Archæology.</i> —Proceedings in the Public Department recording progress reports for April, May and June 1889, communicated to Superintending Engineer, I Circle.	26th do. do. No. 2703 W.	6th June 1889, No. 1499 W. 28th May 1889, No. 1418 W. 25th April 1889, No. 1102 W.
<i>Local Fund Report of the Salem District.</i> —Proceedings in the Local and Municipal Department reviewing the — for 1888-89, communicated to Superintending Engineer, IV Circle.	27th do. do. No. 2708 W.	22nd Nov. 1887, No. 3172 W.
<i>Accounts branch of the Public Works Department.</i> —Orders of the Government of India regarding recruitment of the Subordinate —, communicated to the Examiner, Public Works Accounts.	27th do. do. No. 2709 W.	4th Feb. 1889, No. 311 W.
<i>Prickly-pear.</i> —Correspondence relating to experiments for destruction of — by means of the Saul exterminator.	27th do. do. No. 2710 W.	
<i>Trichinopoly Municipal Report for 1888-89.</i> —Proceedings in the Local and Municipal Department reviewing the —, communicated to the Superintending Engineer, VI Circle.	27th do. do. No. 2711 W.	3rd Sept. 1889, No. 810 D. 26th Aug. 1889, No. 2352 W. 14th May 1889, No. 1293 W.
<i>Suit.</i> —Proceedings in the Revenue Department recording Board's Proceedings regarding defence of certain — filed in the District Munsif's Court at Madura, communicated to Superintending Engineer, VI Circle.	27th do. do. No. 2712 W.	29th Aug. 1889, No. 775 D.
<i>Funds.</i> —Letter from the Government of India intimating certain transfer of — on account of telegraph works, communicated to the Examiner, Public Works Accounts.	27th do. do. No. 2713 W.	
<i>Police Superintendent's Office at Madura.</i> —Proceedings in the Judicial Department sanctioning estimate for demolishing the —, and directing the Superintendent of Police to vacate his present office and to rent a hired one, communicated to the Superintending Engineer, VI Circle.	27th do. do. No. 2714 W.	28th Aug. 1889, No. 772 D. 16th Aug. 1889, No. 703 D.

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
<i>Timber shed in the Bellary Arsenal.</i> —Estimate for — returned to Superintending Engineer, III Circle, for sanction.	27th Sept. 1889, No. 2715 W.	
<i>Old District Jail at Trichinopoly.</i> —Report from Superintending Engineer, VI Circle, that owing to the transfer of the — to the Municipality no watchman is required for the building, communicated to the Examiner, Public Works Accounts.	27th do. do. No. 2716 W.	13th Aug. 1889, No. 2196 W. 29th Mar. 1889, No. 949 W.
<i>Dr. Moore's family medicine for India.</i> —Application to the Government of India for seven more copies of — for distribution to members of the department.	27th do. do. No. 2717 W.	20th Sept. 1889, No. 2617 W.
<i>Contract form.</i> —Note by the Examiner, Public Works Accounts, remarking on the reference as to amending para. 14 of —, recorded.	27th do. do. No. 2718 W.	29th July 1889, No. 2043 W. 29th Aug. 1889, No. 2391 W.
<i>Mr. C. A. Smith, Executive Engineer.</i> —Services of —, replaced at the disposal of the Public Works Department.	27th do. do. No. 2720 W.	23rd Aug. 1889, No. 742 D.
<i>Efficiency and discipline in Educational Institutions.</i> —Circular from the Government of India forwarding orders containing suggestions for improvement in —, communicated to the Consulting Engineer for Railways.	27th do. do. No. 2721 W.	
<i>Budget estimates of expenditure in the Public Works Department.</i> —Memorandum from the Financial Department fixing the amounts of the —, communicated to the Chief Engineer for Irrigation.	27th do. do. No. 2722 W.	
<i>Veysarapady Expense Powder Magazine.</i> —Superintending Engineer, V Circle, to inform Messrs. Best and Co. that the buildings known as the — are not for hire, but that Government are prepared to sell them on certain conditions.	27th do. do. No. 2723 W.	13th Oct. 1887, No. 2694 W. 20th Oct. 1887, No. 2806 W. 16th Dec. 1887, No. 3441 W.
<i>Temporary 2nd Clerk, Cuddalore Bridge Works Office.</i> —Exemption of the — from the examination rules, sanctioned conditionally.	27th do. do. No. 2724 W.	2nd Sept. 1889, No. 792 D. 4th June 1889, No. 1471 W. 29th July 1889, No. 3423 C.
<i>Public Servants suffering from Leprosy.</i> —Proceedings in the Public Department circulating orders on the subject of the retirement of —, communicated to officers of the department.	27th do. do. No. 2725 W.	
<i>Old College Buildings in Nungumbaukum.</i> —Proceedings in the Educational Department passing orders on the subject of the location of the Office of the Director of Public Instruction in the —, communicated to the officers concerned.	27th do. do. No. 2726 W.	10th Sept. 1889, No. 4017 C.
<i>Military Works.</i> —Orders on letter from the Quarter-master-General regarding allotment of funds for certain —.	27th do. do. No. 2727 W.	10th Sept. 1889, No. 2509 W. 22nd Feb. 1889, No. 544 W.

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
		(Continued.) 11th July 1889, No. 1845 W. 22nd June 1889, No. 1636 W. 13th Feb. 1889, No. 409 W.
Colonel Vibart, R.E.—Confidential report on — ...	30th Sept. 1889, No. 2728 W.	
Colonel Vibart, R.E.—Confidential report on — ...	30th do. do. No. 2729 W.	
Quarterly Army Lists, Madras.—Purchase of — for use of the Office of the Superintending Engineer, Periyár Project, sanctioned.	30th do. do. No. 2734 W.	26th Sept. 1889, No. 2701 W. 3rd Sept. 1889, No. 805 D. 26th June 1889, No. 2953 C. 13th July 1889, No. 515 D. 16th Aug. 1889, No. 704 D.
Amrito Lall Roy Chowdry, Executive Engineer.—Telegram from the Government of India stating the posting of — to Bengal.	30th do. do. No. 2735 W.	
Mr. H. Scott, Temporary Overseer, granted an advance of one month's pay.	30th do. do. No. 2736 W.	
Senate House Latrine.—Proceedings in the Educational Department approving of the proportion of the cost of the — to be charged to the University of Madras, communicated to the officers concerned.	30th do. do. No. 2737 W.	29th Aug. 1889, No. 777 D. 29th July 1887, No. 2029 W. 14th June 1887, No. 226 D. 2nd May 1888, No. 1275 W. 7th Sept. 1887, No. 2412 W.
Funds.—Orders on application from the Superintending Engineer, I Circle, for —.	30th do. do. No. 2738 W.	9th July 1889, No. 1823 W.
Periyakulam School building.—Proceedings in the Educational Department sanctioning proposals for making over the — to the Manager of the High School, communicated to Superintending Engineer, VI Circle.	30th do. do. No. 2739 W.	

Govt. of 1889 Madras.

REVENUE.

M 2506 W 4/10 Sept 1889

*Consd. to the S.E. IV
Circle for guidance
in suppression of the
previous orders.*

10, RR 200.

Issued

Recd.

Encl.

G.O., 12th August 1889, No. 692.

AUGUST.

New Pykara Road, Ootacamund.

Stating that the land and the trees thereon acquired from Mr. Barnard for the — should be considered to have been taken up for the Public Works Department and directing the Collector to disburse the amount of the compensation to Mr. Barnard and debit it to the Public Works Department.

*15. IV
24. M. A.*

A 4 B for de/h 1889
h

12TH AUGUST 1889, No. 692, REVENUE.

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

READ—again the following G.O., dated 15th July 1889, Mis. No. 4412, Revenue :—

Read—the following office-note from the Examiner of Public Works Accounts, to the Joint Secretary to Government, Public Works Department, dated Madras, 12th June 1889, No. 807 :—

With reference to G.O., No. 1386 W., dated 23rd May 1889, ordering the Superintending Engineer, IV Circle, to arrange for the disbursement of Rs. 250 allotted for payment of land to be taken over from Mr. Barnard, I beg to point out that the land in question should be acquired through the agency of the Collector (*vide* Public Works Department Code, paragraph 1032).

2. I would also point out that there is no necessity in any such case for any disbursement of money by the Public Works Department—indeed any such disbursement is irregular, as the Collector should debit the Public Works Department with the amount disbursed by him. It would probably prevent mistakes and complications if Government orders were not worded so as to suggest any disbursement by any officer of the Public Works Department in such cases.

Endorsement No. 349 D.

Please see the Examiner's office-note. It seems questionable whether the Public Works Department can even be debited by the Collector with the cost of compensation, as the trees and margin on which they are planted do not border a road in charge of this department. The road in question is understood to be a municipal one.

OOTACAMUND, (Signed) R. R. E. DRAKE-BROCKMAN, Lieut.-Col., R.E.,
18th June 1889. Ag. Joint Secy. to Govt., P.W.D.

To the Secretary to Government, Revenue Department.

Order—dated 15th July 1889, Mis. No. 4412, Revenue.

The Collector will be requested to report whether the road in question is maintained by the municipality, and, if so, whether they agree to pay the sum of Rs. 250 to Mr. Barnard if the Government makes over to him the land to be given in exchange for that taken up.

(True Extract.)

(Signed) C. A. GALTON,
Secretary to Government.

To the Collector of Nilgiris.

Copy to the Commissioners of Land Revenue.

READ—also the following letter from C. F. MacCARTIE, Esq., Acting Collector of Nilgiris, to the Secretary to Government, Revenue Department, dated Ootacamund, 20th July 1889, No. 52 :—

With reference to G.O., dated 15th July 1889, No. 4412, Revenue, I have the honor to report that the road referred to in the correspondence relating to the grant of compensation to Mr. Barnard is maintained by the Public Works Department and

A 4 E for de/h 1889
h

not by the municipality, the road being part of the Gúdalúr-Mettupálayam road which Government took over for upkeep under orders, dated 7th May 1884, No. 1025, Financial.

2. Under the above circumstances the municipality cannot reasonably be called on to pay the sum of Rs. 250 due to Mr. Barnard as compensation.

ORDER—dated 12th August 1889, No. 692, Revenue.

Land Revenue, No. 73.

Transferred to the Public Works Department with reference to their endorsement, dated 18th June 1889,

No. 349 D, with the remark that, in the circumstances reported by the Collector, the land and the trees thereon should be considered to have been acquired for the Public Works Department.

2. The Collector will now disburse the amount (Rs. 250) to Mr. Barnard and debit the amount to the Public Works Department.

(True Extract.)

(Signed) C. A. GALTON,
Secretary to Government.

To the Commissioners of Land Revenue.
" the Public Works Department.
" the Accountant-General.

Exd. A. D. Xavier.

60 Copies.

Gobt. of {1889} Madras.

REVENUE.

Issued

Recd.

Encl.

G.O., 12th August 1889, No. 692.

AUGUST.

New Pykara Road, Ootacamund.

Stating that the land and the trees thereon acquired from Mr. Barnard for the — should be considered to have been taken up for the Public Works Department and directing the Collector to disburse the amount of the compensation to Mr. Barnard and debit it to the Public Works Department.

No. 250 b w of 10 - Sept 1889

*Consd. to the S.E. to
Circle for guidance
in supersession of the
previous orders.*

(10), R.R.D.P.

Gobt. of {1889} Madras.

REVENUE.

Issued

Recd.

Encl.

G.O., 12th August 1889, No. 692.

AUGUST.

New Pykara Road, Ootacamund.

Stating that the land and the trees thereon acquired from Mr. Barnard for the — should be considered to have been taken up for the Public Works Department and directing the Collector to disburse the amount of the compensation to Mr. Barnard and debit it to the Public Works Department.

No. 250 b w of 10 - Sept 1889

*Consd. to the S.E.
to Circle for guidance
in supersession of
the previous orders*

(10), R.R.D.P.

*S.E. to
Mr. M. A.*

not by the municipality, the road being part of the Gúdalúr-Mettupálayam road which Government took over for upkeep under orders, dated 7th May 1884, No. 1025, Financial.

2. Under the above circumstances the municipality cannot reasonably be called on to pay the sum of Rs. 250 due to Mr. Barnard as compensation.

ORDER—dated 12th August 1889, No. 692, Revenue.

Land Revenue, No. 73.

Transferred to the Public Works Department with reference to their endorsement, dated 18th June 1889,

No. 349 D, with the remark that, in the circumstances reported by the Collector, the land and the trees thereon should be considered to have been acquired for the Public Works Department.

2. The Collector will now disburse the amount (Rs. 250) to Mr. Barnard and debit the amount to the Public Works Department.

(True Extract.)

(Signed) C. A. GALTON,
Secretary to Government.

To the Commissioners of Land Revenue.
„ the Public Works Department.
„ the Accountant-General.

ue Ex

Exd. A. D. Xavier.

60 Copies.

12TH AUGUST 1889, No. 692, REVENUE.

GOVERNMENT OF MADRAS.
REVENUE DEPARTMENT.

READ—again the following G.O., dated 15th July 1889, Mis. No. 4412, Revenue:—

Read—the following office-note from the Examiner of Public Works Accounts, to the Joint Secretary to Government, Public Works Department, dated Madras, 12th June 1889, No. 807:—

With reference to G.O., No. 1386 W., dated 23rd May 1889, ordering the Superintending Engineer, IV Circle, to arrange for the disbursement of Rs. 250 allotted for payment of land to be taken over from Mr. Barnard, I beg to point out that the land in question should be acquired through the agency of the Collector (*vide* Public Works Department Code, paragraph 1032).

2. I would also point out that there is no necessity in any such case for any disbursement of money by the Public Works Department—indeed any such disbursement is irregular, as the Collector should debit the Public Works Department with the amount disbursed by him. It would probably prevent mistakes and complications if Government orders were not worded so as to suggest any disbursement by any officer of the Public Works Department in such cases.

Endorsement No. 349 D.

Please see the Examiner's office-note. It seems questionable whether the Public Works Department can even be debited by the Collector with the cost of compensation, as the trees and margin on which they are planted do not border a road in charge of this department. The road in question is understood to be a municipal one.

OOTACAMUND, (Signed) R. R. E. DRAKE-BROCKMAN, Lieut.-Col., R.E.,
18th June 1889. Ag. Joint Secy. to Govt., P.W.D.
To the Secretary to Government, Revenue Department.

Order—dated 15th July 1889, Mis. No. 4412, Revenue.

The Collector will be requested to report whether the road in question is maintained by the municipality, and, if so, whether they agree to pay the sum of Rs. 250 to Mr. Barnard if the Government makes over to him the land to be given in exchange for that taken up.

(True Extract.)

(Signed) C. A. GALTON,
Secretary to Government.

To the Collector of Nilgiris.

Copy to the Commissioners of Land Revenue.

READ—also the following letter from C. F. MacCARTIE, Esq., Acting Collector of Nilgiris, to the Secretary to Government, Revenue Department, dated Ootacamund, 20th July 1889, No. 52:—

With reference to G.O., dated 15th July 1889, No. 4412, Revenue, I have the honor to report that the road referred to in the correspondence relating to the grant of compensation to Mr. Barnard is maintained by the Public Works Department and

26TH AUGUST 1889, No. 714, PUBLIC.

GOVERNMENT OF MADRAS.
PUBLIC DEPARTMENT.

READ—the following paper:—

From G. BIDIE, Esq., M.B., C.I.E., Surgeon-General with the Government of Madras, to the Chief Secretary to Government, dated Ootacamund, 5th August 1889, No. 471-O.

I have the honor to report that second-class Hospital Assistant N. Rungasawmy Naidu, No. 181, attached to the Central Jail, Coimbatore, who was selected, in common with other Telugu subordinates, for famine duty in Ganjam, has declined to proceed and tendered his resignation—*vide* copy enclosed.

2. He has since disappeared, and failed to acknowledge letters from this office. Having completed 11 years' service, he is not liable to any pecuniary penalty, and any punishment I could inflict would be utterly inadequate for such grave misconduct. I have learned that similar difficulty is being experienced in Bombay, in the administration of civil hospital assistants.

3. Such disgraceful conduct on the part of the hospital assistant at such a crisis deserves, in my opinion, to be visited by the highest punishment, and I therefore strongly recommend that he be dismissed from the service and declared unfit to hold any appointment under Government.

ENCLOSURE.

From M.R.Ry. N. RUNGASAWMY NAIDU, Hospital Assistant, No. 181, to the Secretary to the Surgeon-General with the Government of Madras, dated Coimbatore, 17th July 1889.

With reference to the extract from orders, No. 109, dated 12th July 1889, by the Surgeon-General with the Government of Madras, transferring me to Berhampore, I beg to inform that I was in the district of Ganjam from July 1882 to December 1886. After severe illness I was recommended sick leave by the then District Surgeon, Dr. Vangeyzel, the present Chemical Examiner. I suffered from enlarged spleen, and my child is still suffering from the same complaint. As I firmly believe that my going again to that district would endanger my life, I beg to request you will kindly accept this as my resignation to the service.

ORDER—dated 26th August 1889, No. 714, Public.

In the circumstances stated, Hospital Assistant N. Rungasawmy Naidu's resignation cannot be accepted. He is dismissed from the Government service for insubordination in refusing to proceed to a station to which he had been posted and failing to reply to the Surgeon-General's letters. His further re-employment in the public service will be prohibited.

(True Extract.)

J. F. PRICE,
Chief Secretary.

To the Surgeon-General with the Government of Madras.
" other Departments of the Secretariat.
" Accountant-General.

Exd. A. Raitt.

PUBLIC DEPARTMENT.

(Miscellaneous.)

G.O., 26th August 1889, No. 714.

Hospital Assistant N. Rungasawmy Naidu.—
Directing the dismissal from the Government
service of — for insubordination, and prohibiting
his further re-employment.

*Ch. p. d.
Ch. for Rs.
S. Es.
C. a.
Ext. p. u.
Ext. Ry. deos.*

26TH AUGUST 1889, No. 714, PUBLIC.

GOVERNMENT OF MADRAS.

PUBLIC DEPARTMENT.

READ—the following paper:—

From G. BIDIE, Esq., M.B., C.I.E., Surgeon-General with the Government of Madras, to the Chief Secretary to Government, dated Ootacamund, 5th August 1889, No. 471-O.

I have the honor to report that second-class Hospital Assistant N. Rungasawmy Naidu, No. 181, attached to the Central Jail, Coimbatore, who was selected, in common with other Telugu subordinates, for famine duty in Ganjam, has declined to proceed and tendered his resignation—*vide* copy enclosed.

2. He has since disappeared, and failed to acknowledge letters from this office. Having completed 11 years' service, he is not liable to any pecuniary penalty, and any punishment I could inflict would be utterly inadequate for such grave misconduct. I have learned that similar difficulty is being experienced in Bombay, in the administration of civil hospital assistants.

3. Such disgraceful conduct on the part of the hospital assistant at such a crisis deserves, in my opinion, to be visited by the highest punishment, and I therefore strongly recommend that he be dismissed from the service and declared unfit to hold any appointment under Government.

ENCLOSURE.

From M.R.Ry. N. RUNGASAWMY NAIDU, Hospital Assistant, No. 181, to the Secretary to the Surgeon-General with the Government of Madras, dated Coimbatore, 17th July 1889.

With reference to the extract from orders, No. 109, dated 12th July 1889, by the Surgeon-General with the Government of Madras, transferring me to Berhampore, I beg to inform that I was in the district of Ganjam from July 1882 to December 1886. After severe illness I was recommended sick leave by the then District Surgeon, Dr. Vangeyzel, the present Chemical Examiner. I suffered from enlarged spleen, and my child is still suffering from the same complaint. As I firmly believe that my going again to that district would endanger my life, I beg to request you will kindly accept this as my resignation to the service.

ORDER—dated 26th August 1889, No. 714, Public.

In the circumstances stated, Hospital Assistant N. Rungasawmy Naidu's resignation cannot be accepted. He is dismissed from the Government service for insubordination in refusing to proceed to a station to which he had been posted and failing to reply to the Surgeon-General's letters. His further re-employment in the public service will be prohibited.

(True Extract.)

J. F. PRICE,
Chief Secretary.

To the Surgeon-General with the Government of Madras.
„ other Departments of the Secretariat.
„ Accountant-General.

Exd. A. Raitt.

PUBLIC DEPARTMENT.

No. 2563 Wd/14 - Sept 1889

Comd. to officers of the P.W.D.

(Miscellaneous.)

101 W.C.B.

G.O., 26th August 1889, No. 714.

*Cl for I
Cl for Rys.
S: Es.
Ca.
Ev. Mr. A.
Ev. Rybaet*

Hospital Assistant N. Rungasawmy Naidu.—
Directing the dismissal from the Government
service of — for insubordination, and prohibiting
his further re-employment.

16TH AUGUST 1889, No. 1802 L., LOCAL AND MUNICIPAL.

GOVERNMENT OF MADRAS.

LOCAL AND MUNICIPAL DEPARTMENT.

READ—the following paper :—

G.O., dated 20th July 1889, No. 1964 W., Public Works.

Read—the following letter from H. M. WINTERBOTHAM, Esq., President, District Board, Malabar, to the Chief Secretary to Government, dated Calicut, 26th May 1889, No. 785 :—

With G.O., dated 10th August 1888, No. 1479 L., Local and Municipal, were forwarded, for adoption, certain standard designs furnished by the Secretary of State for iron bridges. I will refer to these hereafter as the new standard plans.

2. Mr. Anderson, the Board's Engineer, has made the construction of iron bridges a special study, and has shown himself, by the many iron bridges which he has designed and erected for this Board, to be an expert competent and entitled to criticize even designs of such high authority.

3. I beg to submit, for the consideration of Government, a memorandum drawn up by Mr. Anderson, in which he points out certain apparent defects in the new standard plans, and urges that the enormous loads which are provided for will never in fact come on the bridges, and that the acceptance of the designs will therefore saddle the Board with a great, and quite unnecessary, increase in the cost of construction.

4. The new standard plans provide for carrying a crowd-load of 120 lb. to the square foot, and for the crossing of elephants and of the heaviest field artillery.

5. Mr. Anderson advises that for Malabar it is sufficient to design our iron bridges to carry the following loads :—

bridges with spans under 40 feet	120 lb. per sq. ft.
With spans from 40 to 100 "	80 " "
Do. 100 to 152 "	70 " "

Each class of bridge to carry a wheel-load of $2\frac{1}{2}$ tons.

In statement A, Mr. Anderson shows that 78 iron bridges have been built on his designs, approved from time to time by Government in the Public Works Department, and that to have put these up on the new standard plans would have cost the Board an additional $1\frac{1}{4}$ lakhs of rupees.

In statement B, Mr. Anderson shows that the erection, on the new standard plans, of 48 important bridges (urgently required but not yet taken in hand for want of funds) will put the District Board to an unnecessary outlay of over $3\frac{1}{4}$ lakhs of rupees.

Lastly, in statement D, Mr. Anderson shows that there already exist in Malabar 5,106 masonry bridges, 263 wooden bridges and 86 iron bridges, not more than about a score of which are calculated to support the load for which the new standard plans provide.

6. I cannot help expressing my strong conviction that the new standard plans are quite unnecessarily massive and costly, and that to impose them on the Board will greatly retard the bridging of the district.

7. Is it necessary or expedient to provide for the passage of 64-pounder guns on wrought-iron carriages, or for elephant? If so, what is to be done with our 5,400 bridges and culverts which are not adapted for this traffic? In a chain of 5,000 links, what is the use of making a few links, here and there, twice as

strong as the rest? I would respectfully urge that the passage of heavy artillery is a contingency so improbable that it need not be provided for. As regards elephants, the difficulty is more real, but fortunately the custom of the district, and the wisdom of the elephants combine to prevent their passing over our bridges. Unless goaded to desperation, nothing will induce an elephant to set its foot on the wooden platform of a bridge; and the occasions on which an elephant has been forced across a bridge are so rare, and the danger is so well understood, that it is still universally believed to be punishable as an offence. Even when the elephant comes to a small masonry culvert it habitually makes a detour. Large streams and rivers it crosses by fording or swimming.

8. The legal advisers of Government held that a permanent order prohibiting the passage of elephants over bridges in Malabar could not be legally notified by Government under section 144 of the Code of Criminal Procedure (*vide* G.O., dated 10th May 1888, No. 1088), but I take it that the District Board, when opening a bridge for traffic, may notify that it is not intended for the passage of elephants, and that any person taking an elephant on to the bridge in the face of such notice, and against the custom of the district, might be convicted of criminal trespass. Elephants in Malabar are used for hauling timber from the forests, but never as beasts of burden on the roads except by the Commissariat Department. To build special bridges for elephants, which will never use them, would be sheer waste of money.

9. The defects pointed out by Mr. Anderson in the standard designs are—

- (a) the use in the smaller bridges of trough floor-plates filled in with broken stone for the floorway (in place of a timber platform) unnecessarily increasing the weight of the floorway and of the material to support it;
- (b) the use of granite bed-stones with dove-tail sockets, instead of the timber bed-plates hitherto used, and which are adopted even for small bridges on the railways. In a district like Malabar, where small timber is everywhere plentiful and cheap, Mr. Anderson's wooden platforms and wooden bed-plates would seem to be clearly preferable, both on the score of economy and facility of construction and repair.

10. In para. 20 Mr. Anderson points out an apparent error in the drawing of the planking in the designs for spans of over 40 feet which seems to be a slip on the part of the draughtsman, but which might lead to awkward results. The $4\frac{1}{2}$ -inch planking should apparently be laid transversely, and the $1\frac{1}{2}$ -inch planking above it longitudinally.

11. Seeing the very heavy extra cost which the acceptance of the new standard plans will throw upon the District Board, I would respectfully beg that the subject may be further investigated with a view to determine whether the lighter and cheaper class of bridge, advocated by Mr. Anderson for Malabar, does not amply provide for the very heaviest traffic that can, in all human probability, be expected to come upon it. I need hardly remind the Government that Mr. Anderson's designs for the Iritti and Merumpoya bridges were approved by Government, and that the Secretary of State made a tender to supply the iron-work.

ENCLOSURES.

Office-note from G. ANDERSON, Esq., M.I.C.E., District Engineer, District Board, Malabar, to the President, District Board, Malabar, dated Calicut, 20th May 1889, No. 527.

After a very careful examination of the type-drawings supplied by Secretary of State for road bridges—*vide* G.O., 4th June 1888, No. 1025 L., Local and Municipal, and No. 2295 L., of 6th December 1888—and preparing estimates of quantities and costs of iron-work required for same, I find the costs so enormously in excess of the actual cost of bridges recently erected to my designs that I am forced to request you to ask Government to allow my designs to be adopted throughout the district.

2. I have the honor to invite your attention to the accompanying statement A, from which it will be seen that for the whole of the seventy-eight iron bridges including Iritti and Merumpoya completed up to date, according to designs prepared by me—entirely outside of office

hours—a saving of Rs. 1,28,000 has been effected compared with cost, if works had been carried out according to the type-designs and estimates supplied by Secretary of State.

3. For determining the dimensions and weights of the structures, as shown on the type-designs referred to, it is observed that Mr. James provides for a crowd-load of 120 lb. per square foot, or for artillery and elephants.

4. When I took up the design of bridges for Malabar, the matter of providing for concentrated loading was duly discussed with the President; and it was decided that no provision for passing elephants over any of our bridges should be made.

5. The weight of an elephant is 72 cwt., and this load may be concentrated on a central length of 6.5 feet of any beam causing equivalent central dead loads, ranging from 4.4 tons on 5 feet spans to 6.75 tons on 32 feet span on any single beam; while the 64-pounder on wrought-iron carriage and 7" B.L. guns and carriages weigh respectively—

	CWT.
on two fore wheels	22
two hind do.	83
and two fore do.	34
two hind do.	78

loads such as are adopted only for highway bridges carrying heaviest classes of city traffic.

6. The bridges as now designed by me are equal to the following loadings:—

- (a) *The Iron Trusses.*—Everyday working loads of 80 lb. per square foot, and 5 tons per axle which would more than meet field artillery requirements up to the 40-pounder gun, while with the admissible smaller factor of safety for such temporary or occasional service, in case of emergency, we can carry the heaviest classes of artillery, viz., 64-pounder gun carriage and horses, or a crowd of 120 lb. per square foot of roadway and also elephant. All guns heavier than the field 40-pounder, which would have to be run across the bridges by hand, or hauled over by means of ropes and tackle, or a packed crowd of 100 or 120 lb. per square foot, would of course be considered as a dead load; mere vibration might be caused by either of these loads, but no oscillation which could only be caused by the whole mass of the load lifting and pitching, could be set up sufficient to warrant their being taken as live loads.

- (b) *For all simple rolled beam (Iron) Bridges* up to 32 feet span, the safe working crowd loading is 120 lb. per square foot. As already pointed out, this loading cannot be taken as "live" for the simple reason that the crowd is packed so close that no motion sufficient to cause the whole mass of the crowd to rise sufficiently simultaneously could be got up. The design, size and weight of beams and platform in this case is governed by the heavy wheel loading which may at any time come upon any single beam; and thus the beams and platform are equal to the heavy crowd loading named which is 20 per cent. more than the best practice of the present day either warrants or adopts for such bridges. These bridges will also safely carry 1.75 tons live load per wheel (3.5 tons per axle) at centres of each beam, and therefore quite equal to carrying the ordinary field 40-pounder gun carriage (1.3 tons per hind wheel or 2.6 tons per axle and only 0.62 tons per fore wheel or 1.25 tons per axle) and horses. In cases of emergency, for temporary or occasional loading, with the admissible smaller factor of safety, or, say, higher working strains, they will safely carry the heavier classes of guns 7" B.L. weighing 78 cwt. on slides, the 64-pounder on wrought-iron carriage or the steam sapper and elephant.

- (c) *All Rail Girder Bridges.*—Five to 22 feet span will safely carry 120 lb. per square foot of roadway, or the 40-pounder field gun. To make these structures fit to carry heavier temporary loads, such as elephant and heavy artillery 64-pounder or the 7" B.L. guns in cases of emergency, a simple trestle must be erected at centre of each span. The cost of strengthening the whole of the bridges in this class (rail girders) would be about Rs. 2,000, and the work would be completed within 48 hours after notice was received.

7. It is observed that the type-designs submitted for all bridges under 30 feet span provide for a ballast covering, weighing 10 cwt. and $6\frac{1}{2}$ cwt. per foot run of bridges having, respectively, 14 and 9 feet roadways. In rail road bridges of small span subjected to heavy loads, compared with the mass of supporting structures, travelling at speeds of 30 to 60 miles per hour, it is advisable and customary to use such dead-weight; but, with such loads and service as we have to provide for, even the most trying, viz., the 40-pounder gun carriage, it must simply be looked upon as an encumbrance that calls for a large and unnecessary addition—about 40 per cent.—to the whole weight of the iron work in the bridges, and nearly 70 per cent. in excess of the metal required to carry the moving load, and this too without giving any benefit in return. This can be more easily understood when it is considered that the loading adopted by Mr. James is 120 lb. per square foot or 9.65 cwt. + ballast 6.75 cwt., thus making a total of 16.40 cwt. per foot run, or a difference of 7.40 cwt. in excess of the loads (crowd 100 lb. =

8 cwt. + planking 1 cwt. = total 9 cwt.) I have adopted and usually considered necessary, in the best practice of the present time for bridges under 30 feet span in such outlying and non-manufacturing districts as Malabar.

8. In the case of bridges over 40 feet and up to 100 feet span, the loading usually considered necessary, and adopted by me, is 80 lb. for outlying districts like Malabar, ranging up to 100 or 120 lb. in cities, while for bridges over 100 and up to 200 feet span, the loading ranges from 70 lb. in outlying districts to 80 lb. per square foot of roadway in manufacturing districts or towns.

9. Mr. James seems to think that bridges should be designed for an all round standard crowd-loading of 120 lb. for spans above 40 feet and up to 152 feet, irrespective of length of span, locality or description of traffic. This is going back with a vengeance to the very early and primitive system of designing bridges, but it is hardly economical, or what would be expected of any one who knows or is thoroughly at home in the best and latest theory and practice of bridge-design and construction.

10. Evidently a difference should be made in fixing the load for a bridge in a thinly-settled and non-manufacturing country like Malabar, where the chances of a crowd-load of the dimensions quoted occurring are very remote, and the load for a "London bridge," where there is a constant and heavy traffic and the possibility of the maximum crowd loading occurring frequently. A bridge that is strong enough is just as good, and just as safe as one that is ten times stronger and even better; for in a large bridge, if we make it too strong we also make it too heavy. The weight of the structure itself has to be sustained, and this part of the load is a perpetual drag on the material.

11. The system of bridge flooring and bearings of the beams in small spans (30 feet and under), as shown in the type-drawings, instead of offering advantages, will only simply handicap the executive here with a most troublesome and costly class of work. Such roadway plates when exposed to the atmosphere and damp, if not frequently repainted or tarred, will rapidly corrode and have a short life. The outside may, and probably will, be looked after as it should be; but as regards the upper and hidden sides of the plates covered by the ballast, from past experience, it is well known among bridge men that due attention is not always paid to such points in practice. This is more particularly the case with works, the property of local bodies who have not, for very obvious reasons, the necessary skilled supervision required to do full justice in the matter of examining, repainting or repairing and protecting such works.

12. Then, again, as regards the bedding of the beams on the abutments and piers—for each opening under 30 feet span—the amount of work that will have to be done in getting the stones prepared to fit and receive the bed-plates and connections which, by the way, cannot be said to offer any real merits of simplicity or of practical utility, will be about twice as much as required to seat the ends of the trusses for an opening of 100 or 150 feet span. In fact, it is very much like using a 10-inch hawser to hold a mouse, and certainly makes one feel that the designer can never have faced the difficulties that beset the average up-country constructor. Besides, it offers no preponderating advantages in the way of making the bridge platform more secure, commensurate with the amount of trouble and cost that must result in getting this work done in out-of-the-way places.

13. In the system of flooring adopted by me throughout the district, we have a simple plank platform resting directly on the needle beams which, in the case of spans under 32 feet, are of course the main beams; the planking (6 inches $\times$ 3 inches) is placed 1" apart nailed to spiking beams, bolted to the needle beams; and thus every bit of the platform can be thoroughly inspected. The system also offers great facilities for repairs as occasion requires; the condition of the materials can be judged with considerable certainty, and work can be inspected and carried out with ordinary local labor, such as can be obtained in any village in Southern India; and this too without interrupting the traffic in any way, whereas an iron floor would have probably to be renewed completely, and at one time causing long and serious delay and great inconvenience to traffic.

14. Then, as regards the bearing of the main beams, I have adopted the simple timber wall plate on all abutments and piers—a system that long and varied experience, not only of my own, but of many of the leading bridge men, has proved to be the most suitable in every way. It is a well-known fact that quick traffic over short spans causes vibration, and, in many cases, light abutments and piers have been shaken to pieces where light platforms or the small bearing plates on which they rest have been bolted down to, or merely rest on light bed-stones set on the edge of a 12-inch top course of pier masonry, and subjected to the action of fast and fairly heavy traffic. The timber bed-plate, however, acts as an elastic cushion, and takes up all or at least a considerable portion of the vibrations, thus preventing the masonry of the piers or abutments from being shaken to pieces or even distributed in any way. In addition to this advantage, we have the further benefit of a quick and easy means of bedding the beams, that is within the capacity of any ordinary village carpenter or even ordinary coolies, and thus entire freedom is ensured from all that heart-burning and anxiety—not to speak of greatly increased cost, that must result in most outlying districts from getting the troublesome, expensive and altogether

quite unnecessary bed-stones, and further, the chance—not by any means imaginary—of getting bed-plates that are too small to receive the ends of beams or otherwise incomplete and unsuitable, and therefore requiring alteration before they can be placed in permanent position. I know of one case where stones either exactly similar, or closely resembling the stones required for type-drawing bed-plates, have been brought in from places over 100 and 130 miles distant, and besides, have taken some weeks to get them finished, as the local workmen could not be got to take up and complete the work satisfactorily. In connection with the same work, a number of bed-plates were misfits; and the whole of the work was thrown out and delayed very considerably, because of the difficulty experienced in getting a competent blacksmith to go down to do the work—trim one-eighth of an inch off the jaws of some of the said bed-plates. This although a little matter apparently, and one that could easily have been rectified in England, or in any large manufacturing town—at short notice and with very little trouble—took quite a time to complete. It is not the actual amount of work that troubles one, but the way these skilled laborers spin the work out, knowing as they do right well—all the trouble the Engineer had in getting them to go to such an outlandish place, and therefore acting on the knowledge that you will most likely not be able to get another man to take up the work just at the time he is most wanted, or even supposing he could be got, it is more than likely that the new man will follow on the lines of the old one; and as this fact is known and felt both by the workman and the Engineer, the former calmly takes advantage of the situation, while the latter has to look on—not calmly—and see things slide, while he feels utterly helpless to move and force or mend matters.

15. If the bridges referred to had been designed with simple heavy timber wall-plates, the work could have been finished on each span in a single morning instead of being dragged out for something like a week or two.

16. Another and most important point that must strike any "iron man" or Bridge Engineer is the two types of roadway adopted in these type-designs—

- (a) the iron plates carrying a metal (broken stone) covering for all spans below 30 feet;
- (b) the plank roadway for all spans above 40 feet.

17. There cannot be two opinions about having some uniform design for the flooring, as for other systems or parts of the bridges, and the simplest, if equally effective and cheap or cheaper, compared with the other and complicated design, was surely the one to be adopted.

18. From what I have already pointed out, it is quite clear that, under existing circumstances, the timber platform offers the greatest advantages in every way for such a district as Malabar, I think, and it is impossible to see just what grounds, if any, Mr. James has for adopting two flooring systems, unless it may be viewed in the light of an experiment.

19. When one has to face the many difficulties that constantly result from unskilled supervision and labor in the matter of erecting works—where fitting of any kind has to be done in outlying localities with nothing more effective than that feeble link in the chain of circumstances or forces that governs the construction and completion of all important works—the native artists or craftsman in stone, wood or metal, to rely upon, and when you have seen some important work brought completely to a stand, and hundreds and even thousands of rupees lost owing to the failure of this "link," then you realize to the full the urgent necessity for simplicity and uniformity of design.

20. Looking at the planking as now shown on the type-drawings for all spans over 40 feet and up to 152 feet, the effective span between bearings on cross-girders is seen to be 10 feet in spans below and 19 feet in spans above 80 feet. Now an elephant may cause an actual load of 4.4 tons (upon one forefoot) resting on three 6-inch planks or 1½ feet width of planking at centre of 10 or 19 feet spans, and the 4½ inches thick planking is certainly not sufficient to meet this requirement. I fancy there must be some error in the drawings, and that 4½ inches planking is really intended to be laid transversely to longitudinal axis of bridge and resting directly upon the needle or stringer (rolled iron) beams. If this is not intended, it is difficult to understand what the many tons of needle beams have been introduced for.

21. Considering—

- (1) the finances of the district;
- (2) the large number of waterways still to be bridged;
- (3) the large number of existing bridges built prior to 1882 and not up to loads exceeding 2 to 2½ tons per axle;
- (4) the light nature of the axle loads generally carried over our roads—country carts and pair of bullocks weighing 5,000 lb. or 2.5 tons approximately;
- (5) the very small number of elephants to be considered;

I can only advise that the designs now submitted are quite out of place and unnecessarily heavy for a district like Malabar, and further that, if adopted, the Board will simply be sinking money to put up metal that will be lying inert for years; in fact, till time, and not work, has reduced the efficiency of the structure. It will also mean that before the remaining 48 important bridges are reconstructed according to the designs and estimates submitted by Secretary of State, the Board will be some Rs. 3,29,000 unnecessarily out of pocket—vide comparative statement B.

22. If my designs are still to be adopted throughout this district, the total savings will be nearly $4\frac{1}{2}$ lakhs of rupees on Capital account as per statements A and B. The cost of repairs, allowing four renewals of wooden platform in 40 years and a wear of 1-inch per annum on the metal covering as per Mr. James' designs, shows a saving of Rs. 60,000 in 40 years in favor of the latter thus, leaving net saving in favor of my designs of nearly 4 lakhs of rupees—see statement C, abstract of A and B.

23. As I was the means of calling for these type-designs (*vide* G.O., No. 269, of 1st February 1886, Public Works), I hope I will not be considered out of place in taking this opportunity of offering an opinion about them. I may mention that many of my suggestions as regards the designs for spans above 40 feet have been adopted by Mr. James in these type-designs.

24. As in the case of the tender for iron work for Iritti bridge, notified by the Secretary of State in his tender of 24th March 1886 (*vide* G.O., No. 1065, of 30th August 1886), and against which I protested in the Board's interests with, as we know, a clear saving of nearly Rs. 26,000 resulting, so now must I advise against these type-designs being accepted, as the best or in any way suitable or necessary for a district like Malabar.

25. The accompanying statement D gives particulars of bridges and waterways of the district.

APPENDIX A.

No. 528.

NOTE re crowd and cart loadings for highway bridges.

(a) With reference to paras. 9 and 10 of my office-note No. 527, dated 20th May 1889, I have to point out that a disorganized and packed crowd will average 150 lb. per man and may cause a load of 120 lb. per square foot of standing room.

(b) The annexed tables 1 and 2 show the approximate number of men required to cause loads of 120 and 80 lb. per square foot:—

Table No. 1.—Number of men required to cause a load of 120 per square foot of roadway.

One span.	9 Feet roadway.		14 Feet roadway.	
	Number of people.		Number of people.	
20 feet	..	..	144	224
30 "	..	..	216	336
40 "	..	..	288	448
50 "	..	..	432	672
80 "	..	..	576	896
100 "	..	..	720	1,110
150 "	..	..	1,080	1,660
200 "	..	..	1,440	2,220

Table No. 2.—Number of men required to cause a load of 80 lb. per square foot of roadway.

One span.	9 Feet roadway.		14 Feet roadway.	
	Number of people.		Number of people.	
20 feet	..	..	91	152
30 "	..	..	136	228
40 "	..	..	182	304
60 "	..	..	273	456
80 "	..	..	364	608
100 "	..	..	455	760
150 "	..	..	682	1,140
200 "	..	..	910	1,520

(c) The ordinary wheel loadings to be considered throughout the district are country carts with their loads and pair of draught bulls weighing on an average 2,300 lb. and occasionally rising to but never exceeding 5,500.

(d) Just how much chance there is of such crowds as come under 120 and 80 lb. per square foot as shown in tables 1 and 2, or again wheel loads heavier than the country cart occurring in any part of this district outside the limits of any of our large towns you can easily judge.

CALICUT,
20th May 1889.

(Signed) G. ANDERSON, M.I.C.E.,
District Engineer, District Board, Malabar.

No. 474.

Transferred to the Public Works Department.

(By order.)

FORT ST. GEORGE,
14th June 1889.

(Signed) W. S. MEYER,
Assistant Secretary.

To the Public Works Department.

Order—dated 20th July 1889, No. 1964 W., Public Works.

It is not incumbent upon any District Board to adopt the type-designs for iron bridges, which are intended merely to assist Engineers in the preparation of plans and estimates for such works. The loads provided for in the type-designs may possibly be met with in a few localities in the neighbourhood of large towns; but if these cases be allowed for, Mr. Anderson's designs will probably sufficiently provide for the ordinary requirements of Malabar. Copy of his note and of the President's letter will be forwarded to the Secretary of State in continuation of G.O., No. 1718 W., dated 28th June 1889.

(True Extract.)

(Signed) W. L. C. BADDELEY, Capt., R.E.,
Under Secy. to Govt., P.W.D.

To Superintending Engineers.
„ the Local and Municipal Department.

ORDER—dated 16th August 1889, No. 1802 L., Local and Municipal.

Communicated to all District Boards.

(True Extract.)

J. F. PRICE,
Chief Secretary.

To all Presidents of District Boards.
„ the Public Works Department.
„ the President, Municipal Commission, Madras.

Exd. W. H. French.

Govt. of {1889} Madras.

LOCAL AND MUNICIPAL.

Issued

Recd.

Encl.

G.O., 16th Aug. 1889, No. 1802 L.

AUGUST.

Bridges.

Communicating to all District Boards Government Order, Public Works Department, passing orders on letter from the President, District Board, Malabar, submitting remarks of the Board's Engineer on the type-designs and specification for — furnished by the Secretary of State for India.

16TH AUGUST 1889, No. 1802 L., LOCAL AND MUNICIPAL.

GOVERNMENT OF MADRAS.

LOCAL AND MUNICIPAL DEPARTMENT.

READ—the following paper :—

G.O., dated 20th July 1889, No. 1964 W., Public Works.

Read—the following letter from H. M. WINTERBOTHAM, Esq., President, District Board, Malabar, to the Chief Secretary to Government, dated Calicut, 26th May 1889, No. 785 :—

With G.O., dated 10th August 1888, No. 1479 L., Local and Municipal, were forwarded, for adoption, certain standard designs furnished by the Secretary of State for iron bridges. I will refer to these hereafter as the new standard plans.

2. Mr. Anderson, the Board's Engineer, has made the construction of iron bridges a special study, and has shown himself, by the many iron bridges which he has designed and erected for this Board, to be an expert competent and entitled to criticize even designs of such high authority.

3. I beg to submit, for the consideration of Government, a memorandum drawn up by Mr. Anderson, in which he points out certain apparent defects in the new standard plans, and urges that the enormous loads which are provided for will never in fact come on the bridges, and that the acceptance of the designs will therefore saddle the Board with a great, and quite unnecessary, increase in the cost of construction.

4. The new standard plans provide for carrying a crowd-load of 120 lb. to the square foot, and for the crossing of elephants and of the heaviest field artillery.

5. Mr. Anderson advises that for Malabar it is sufficient to design our iron bridges to carry the following loads :—

Bridges with spans under 40 feet	120 lb. per sq. ft.
With spans from 40 to 100 „	80 „ „
Do. 100 to 152 „	70 „ „

Each class of bridge to carry a wheel-load of $2\frac{1}{2}$ tons.

In statement A, Mr. Anderson shows that 78 iron bridges have been built on his designs, approved from time to time by Government in the Public Works Department, and that to have put these up on the new standard plans would have cost the Board an additional $1\frac{1}{4}$ lakhs of rupees.

In statement B, Mr. Anderson shows that the erection, on the new standard plans, of 48 important bridges (urgently required but not yet taken in hand for want of funds) will put the District Board to an unnecessary outlay of over $3\frac{1}{4}$ lakhs of rupees.

Lastly, in statement D, Mr. Anderson shows that there already exist in Malabar 5,106 masonry bridges, 263 wooden bridges and 86 iron bridges, not more than about a score of which are calculated to support the load for which the new standard plans provide.

6. I cannot help expressing my strong conviction that the new standard plans are quite unnecessarily massive and costly, and that to impose them on the Board will greatly retard the bridging of the district.

7. Is it necessary or expedient to provide for the passage of 64-pounder guns on wrought-iron carriages, or for elephant? If so, what is to be done with our 5,400 bridges and culverts which are not adapted for this traffic? In a chain of 5,000 links, what is the use of making a few links, here and there, twice as

strong as the rest? I would respectfully urge that the passage of heavy artillery is a contingency so improbable that it need not be provided for. As regards elephants, the difficulty is more real, but fortunately the custom of the district, and the wisdom of the elephants combine to prevent their passing over our bridges. Unless goaded to desperation, nothing will induce an elephant to set its foot on the wooden platform of a bridge; and the occasions on which an elephant has been forced across a bridge are so rare, and the danger is so well understood, that it is still universally believed to be punishable as an offence. Even when the elephant comes to a small masonry culvert it habitually makes a detour. Large streams and rivers it crosses by fording or swimming.

8. The legal advisers of Government held that a permanent order prohibiting the passage of elephants over bridges in Malabar could not be legally notified by Government under section 144 of the Code of Criminal Procedure (*vide* G.O., dated 10th May 1888, No. 1088), but I take it that the District Board, when opening a bridge for traffic, may notify that it is not intended for the passage of elephants, and that any person taking an elephant on to the bridge in the face of such notice, and against the custom of the district, might be convicted of criminal trespass. Elephants in Malabar are used for hauling timber from the forests, but never as beasts of burden on the roads except by the Commissariat Department. To build special bridges for elephants, which will never use them, would be sheer waste of money.

9. The defects pointed out by Mr. Anderson in the standard designs are—

- (a) the use in the smaller bridges of trough floor-plates filled in with broken stone for the floorway (in place of a timber platform) unnecessarily increasing the weight of the floorway and of the material to support it;
- (b) the use of granite bed-stones with dove-tail sockets, instead of the timber bed-plates hitherto used, and which are adopted even for small bridges on the railways. In a district like Malabar, where small timber is everywhere plentiful and cheap, Mr. Anderson's wooden platforms and wooden bed-plates would seem to be clearly preferable, both on the score of economy and facility of construction and repair.

10. In para. 20 Mr. Anderson points out an apparent error in the drawing of the planking in the designs for spans of over 40 feet which seems to be a slip on the part of the draughtsman, but which might lead to awkward results. The $4\frac{1}{2}$ -inch planking should apparently be laid transversely, and the $1\frac{1}{2}$ -inch planking above it longitudinally.

11. Seeing the very heavy extra cost which the acceptance of the new standard plans will throw upon the District Board, I would respectfully beg that the subject may be further investigated with a view to determine whether the lighter and cheaper class of bridge, advocated by Mr. Anderson for Malabar, does not amply provide for the very heaviest traffic that can, in all human probability, be expected to come upon it. I need hardly remind the Government that Mr. Anderson's designs for the Iritti and Merumpoya bridges were approved by Government, and that the Secretary of State made a tender to supply the iron-work.

ENCLOSURES.

Office-note from G. ANDERSON, Esq., M.I.C.E., District Engineer, District Board, Malabar, to the President, District Board, Malabar, dated Calicut, 20th May 1889, No. 527.

After a very careful examination of the type-drawings supplied by Secretary of State for road bridges—*vide* G.O., 4th June 1888, No. 1025 L., Local and Municipal, and No. 2295 L., of 6th December 1888—and preparing estimates of quantities and costs of iron-work required for same, I find the costs so enormously in excess of the actual cost of bridges recently erected to my designs that I am forced to request you to ask Government to allow my designs to be adopted throughout the district.

2. I have the honor to invite your attention to the accompanying statement A, from which it will be seen that for the whole of the seventy-eight iron bridges including Iritti and Merumpoya completed up to date, according to designs prepared by me—entirely outside of office

hours—a saving of Rs. 1,28,000 has been effected compared with cost, if works had been carried out according to the type-designs and estimates supplied by Secretary of State.

3. For determining the dimensions and weights of the structures, as shown on the type-designs referred to, it is observed that Mr. James provides for a crowd-load of 120 lb. per square foot, or for artillery and elephants.

4. When I took up the design of bridges for Malabar, the matter of providing for concentrated loading was duly discussed with the President; and it was decided that no provision for passing elephants over any of our bridges should be made.

5. The weight of an elephant is 72 cwt., and this load may be concentrated on a central length of 6.5 feet of any beam causing equivalent central dead loads, ranging from 4.4 tons on 5 feet spans to 6.75 tons on 32 feet span on any single beam; while the 64-pounder on wrought-iron carriage and 7" B.L. guns and carriages weigh respectively—

on two fore wheels	..	..	..	..	..	..	..	..	CWT.
two hind do.	..	..	..	..	..	..	..	..	22
and two fore do.	..	..	..	..	..	..	..	..	83
two hind do.	..	..	..	..	..	..	..	..	34
									78

loads such as are adopted only for highway bridges carrying heaviest classes of city traffic.

6. The bridges as now designed by me are equal to the following loadings:—

(a) *The Iron Trusses.*—Everyday working loads of 80 lb. per square foot, and 5 tons per axle which would more than meet field artillery requirements up to the 40-pounder gun, while with the admissible smaller factor of safety for such temporary or occasional service, in case of emergency, we can carry the heaviest classes of artillery, viz., 64-pounder gun carriage and horses, or a crowd of 120 lb. per square foot of roadway and also elephant. All guns heavier than the field 40-pounder, which would have to be run across the bridges by hand, or hauled over by means of ropes and tackle, or a packed crowd of 100 or 120 lb. per square foot, would of course be considered as a dead load; mere vibration might be caused by either of these loads, but no oscillation which could only be caused by the whole mass of the load lifting and pitching, could be set up sufficient to warrant their being taken as live loads.

(b) *For all simple rolled beam (Iron) Bridges* up to 32 feet span, the safe working crowd loading is 120 lb. per square foot. As already pointed out, this loading cannot be taken as "live" for the simple reason that the crowd is packed so close that no motion sufficient to cause the whole mass of the crowd to rise sufficiently simultaneously could be got up. The design, size and weight of beams and platform in this case is governed by the heavy wheel loading which may at any time come upon any single beam; and thus the beams and platform are equal to the heavy crowd loading named which is 20 per cent. more than the best practice of the present day either warrants or adopts for such bridges. These bridges will also safely carry 1.75 tons live load per wheel (3.5 tons per axle) at centres of each beam, and therefore quite equal to carrying the ordinary field 40-pounder gun carriage (1.3 tons per hind wheel or 2.6 tons per axle and only 0.62 tons per fore wheel or 1.25 tons per axle) and horses. In cases of emergency, for temporary or occasional loading, with the admissible smaller factor of safety, or, say, higher working strains, they will safely carry the heavier classes of guns 7" B.L. weighing 78 cwt. on slides, the 64-pounder on wrought-iron carriage or the steam sapper and elephant.

(c) *All Rail Girder Bridges.*—Five to 22 feet span will safely carry 120 lb. per square foot of roadway, or the 40-pounder field gun. To make these structures fit to carry heavier temporary loads, such as elephant and heavy artillery 64-pounder or the 7" B.L. guns in cases of emergency, a simple trestle must be erected at centre of each span. The cost of strengthening the whole of the bridges in this class (rail girders) would be about Rs. 2,000, and the work would be completed within 48 hours after notice was received.

7. It is observed that the type-designs submitted for all bridges under 30 feet span provide for a ballast covering, weighing 10 cwt. and $6\frac{3}{4}$ cwt. per foot run of bridges having, respectively, 14 and 9 feet roadways. In rail road bridges of small span subjected to heavy loads, compared with the mass of supporting structures, travelling at speeds of 30 to 60 miles per hour, it is advisable and customary to use such dead weight; but, with such loads and service as we have to provide for, even the most trying, viz., the 40-pounder gun carriage, it must simply be looked upon as an encumbrance that calls for a large and unnecessary addition—about 40 per cent.—to the whole weight of the iron work in the bridges, and nearly 70 per cent. in excess of the metal required to carry the moving load, and this too without giving any benefit in return. This can be more easily understood when it is considered that the loading adopted by Mr. James is 120 lb. per square foot or 9.65 cwt. + ballast 6.75 cwt., thus making a total of 16.40 cwt. per foot run, or a difference of 7.40 cwt. in excess of the loads (crowd 100 lb =

8 cwt. + planking 1 cwt. = total 9 cwt.) I have adopted and usually considered necessary, in the best practice of the present time for bridges under 30 feet span in such outlying and non-manufacturing districts as Malabar.

8. In the case of bridges over 40 feet and up to 100 feet span, the loading usually considered necessary, and adopted by me, is 80 lb. for outlying districts like Malabar, ranging up to 100 or 120 lb. in cities, while for bridges over 100 and up to 200 feet span, the loading ranges from 70 lb. in outlying districts to 80 lb. per square foot of roadway in manufacturing districts or towns.

9. Mr. James seems to think that bridges should be designed for an all round standard crowd-loading of 120 lb. for spans above 40 feet and up to 152 feet, irrespective of length of span, locality or description of traffic. This is going back with a vengeance to the very early and primitive system of designing bridges, but it is hardly economical, or what would be expected of bridge-design and construction.

10. Evidently a difference should be made in fixing the load for a bridge in a thinly-settled and non-manufacturing country like Malabar, where the chances of a crowd-load of the dimensions quoted occurring are very remote, and the load for a "London bridge," where there is a constant bridge that is strong enough is just as good, and just as safe as one that is ten times stronger. The weight of the structure itself has to be sustained, and this part of the load is a perpetual drag on the material.

11. The system of bridge flooring and bearings of the beams in small spans (30 feet and under), as shown in the type-drawings, instead of offering advantages, will only simply handicap exposed to the atmosphere and damp, if not frequently repainted or tarred, will rapidly corrode and have a short life. The outside may, and probably will, be looked after as it should be; but as regards the upper and hidden sides of the plates covered by the ballast, from past experience, practice. This is more particularly the case with works, the property of local bodies who have not, for very obvious reasons, the necessary skilled supervision required to do full justice in the matter of examining, repainting or repairing and protecting such works.

12. Then, again, as regards the bedding of the beams on the abutments and piers—for each opening under 30 feet span—the amount of work that will have to be done in getting the stones prepared to fit and receive the bed-plates and connections which, by the way, cannot be said to offer any real merits of simplicity or of practical utility, will be about twice as much as required to seat the ends of the trusses for an opening of 100 or 150 feet span. In fact, it is very much like using a 10-inch hawser to hold a mouse, and certainly makes one feel that the designer can never have faced the difficulties that beset the average up-country constructor. Besides, it offers no preponderating advantages in the way of making the bridge platform more secure, commensurate with the amount of trouble and cost that must result in getting this work done in out-of-the-way places.

13. In the system of flooring adopted by me throughout the district, we have a simple plank platform resting directly on the needle beams which, in the case of spans under 32 feet, are of course the main beams; the planking (6 inches $\times$ 3 inches) is placed 1" apart nailed to spiking beams, bolted to the needle beams; and thus every bit of the platform can be thoroughly inspected. The system also offers great facilities for repairs as occasion requires; the condition of the materials can be judged with considerable certainty, and work can be inspected and carried out with ordinary local labor, such as can be obtained in any village in Southern India; and this too without interrupting the traffic in any way, whereas an iron floor would have probably to be renewed completely, and at one time causing long and serious delay and great inconvenience to traffic.

14. Then, as regards the bearing of the main beams, I have adopted the simple timber wall plate on all abutments and piers—a system that long and varied experience, not only of my own, but of many of the leading bridge men, has proved to be the most suitable in every way. It is a well-known fact that quick traffic over short spans causes vibration, and, in many cases, light abutments and piers have been shaken to pieces where light platforms or the small bearing plates on which they rest have been bolted down to, or merely rest on light bed-stones set on the edge of a 12-inch top course of pier masonry, and subjected to the action of fast and fairly heavy traffic. The timber bed-plate, however, acts as an elastic cushion, and takes up all or at least a considerable portion of the vibrations, thus preventing the masonry of the piers or tages, we have the further benefit of a quick and easy means of bedding the beams, that is within the capacity of any ordinary village carpenter or even ordinary coolies, and thus entire freedom is ensured from all that heart-burning and anxiety—not to speak of greatly increased cost, that must result in most outlying districts from getting the troublesome, expensive and altogether

quite unnecessary bed-stones, and further, the chance—not by any means imaginary—of getting bed-plates that are too small to receive the ends of beams or otherwise incomplete and unsuitable, and therefore requiring alteration before they can be placed in permanent position. I know of one case where stones either exactly similar, or closely resembling the stones required for type-drawing bed-plates, have been brought in from places over 100 and 130 miles distant, and besides, have taken some weeks to get them finished, as the local workmen could not be got to take up and complete the work satisfactorily. In connection with the same work, a number of bed-plates were misfits; and the whole of the work was thrown out and delayed very considerably, because of the difficulty experienced in getting a competent blacksmith to go down to do the work—trim one-eighth of an inch off the jaws of some of the said bed-plates. This although a little matter apparently, and one that could easily have been rectified in England, or in any large manufacturing town—at short notice and with very little trouble—took quite a time to complete. It is not the actual amount of work that troubles one, but the way these skilled laborers spin the work out, knowing as they do right well—all the trouble the Engineer had in getting them to go to such an outlandish place, and therefore acting on the knowledge that you will most likely not be able to get another man to take up the work just at the time he is most wanted, or even supposing he could be got, it is more than likely that the new man will follow on the lines of the old one; and as this fact is known and felt both by the workman and the Engineer, the former calmly takes advantage of the situation, while the latter has to look on—not calmly—and see things slide, while he feels utterly helpless to move and force or mend matters.

15. If the bridges referred to had been designed with simple heavy timber wall-plates, the work could have been finished on each span in a single morning instead of being dragged out for something like a week or two.

16. Another and most important point that must strike any "iron man" or Bridge Engineer is the two types of roadway adopted in these type-designs—

- (a) the iron plates carrying a metal (broken stone) covering for all spans below 30 feet;
- (b) the plank roadway for all spans above 40 feet.

17. There cannot be two opinions about having some uniform design for the flooring, as for other systems or parts of the bridges, and the simplest, if equally effective and cheap or cheaper, compared with the other and complicated design, was surely the one to be adopted.

18. From what I have already pointed out, it is quite clear that, under existing circumstances, the timber platform offers the greatest advantages in every way for such a district as Malabar, I think, and it is impossible to see just what grounds, if any, Mr. James has for adopting two flooring systems, unless it may be viewed in the light of an experiment.

19. When one has to face the many difficulties that constantly result from unskilled supervision and labor in the matter of erecting works—where fitting of any kind has to be done in outlying localities with nothing more effective than that feeble link in the chain of circumstances or forces that governs the construction and completion of all important works—the native artists or craftsmen in stone, wood or metal, to rely upon, and when you have seen some important work brought completely to a stand, and hundreds and even thousands of rupees lost owing to the failure of this "link," then you realize to the full the urgent necessity for simplicity and uniformity of design.

20. Looking at the planking as now shown on the type-drawings for all spans over 40 feet and up to 152 feet, the effective span between bearings on cross-girders is seen to be 10 feet in spans below and 19 feet in spans above 80 feet. Now an elephant may cause an actual load of 4.4 tons (upon one forefoot) resting on three 6-inch planks or 1½ feet width of planking at centre of 10 or 19 feet spans, and the 4½ inches thick planking is certainly not sufficient to meet this requirement. I fancy there must be some error in the drawings, and that 4½ inches planking is really intended to be laid transversely to longitudinal axis of bridge and resting directly upon the needle or stringer (rolled iron) beams. If this is not intended, it is difficult to understand what the many tons of needle beams have been introduced for.

21. Considering—

- (1) the finances of the district;
- (2) the large number of waterways still to be bridged;
- (3) the large number of existing bridges built prior to 1882 and not up to loads exceeding 2 to 2½ tons per axle;
- (4) the light nature of the axle loads generally carried over our roads—country carts and pair of bullocks weighing 5,000 lb. or 2.5 tons approximately;
- (5) the very small number of elephants to be considered;

I can only advise that the designs now submitted are quite out of place and unnecessarily heavy for a district like Malabar, and further that, if adopted, the Board will simply be sinking money to put up metal that will be lying inert for years; in fact, till time, and not work, has reduced the efficiency of the structure. It will also mean that before the remaining 48 important bridges are reconstructed according to the designs and estimates submitted by Secretary of State, the Board will be some Rs. 3,29,000 unnecessarily out of pocket—vide comparative statement B.

22. If my designs are still to be adopted throughout this district, the total savings will be nearly $4\frac{1}{2}$ lakhs of rupees on Capital account as per statements A and B. The cost of repairs, allowing four renewals of wooden platform in 40 years and a wear of 1-inch per annum on the metal covering as per Mr. James' designs, shows a saving of Rs. 60,000 in 40 years in favor of the latter thus, leaving net saving in favor of my designs of nearly 4 lakhs of rupees—see statement C, abstract of A and B.

23. As I was the means of calling for these type-designs (*vide* G.O., No. 269, of 1st February 1886, Public Works), I hope I will not be considered out of place in taking this opportunity of offering an opinion about them. I may mention that many of my suggestions as regards the designs for spans above 40 feet have been adopted by Mr. James in these type-designs.

24. As in the case of the tender for iron work for Iritti bridge, notified by the Secretary of State in his tender of 24th March 1886 (*vide* G.O., No. 1065, of 30th August 1886), and against which I protested in the Board's interests with, as we know, a clear saving of nearly Rs. 26,000 resulting, so now must I advise against these type-designs being accepted, as the best or in any way suitable or necessary for a district like Malabar.

25. The accompanying statement D gives particulars of bridges and waterways of the district.

APPENDIX A.

No. 528.

NOTE re crowd and cart loadings for highway bridges.

(a) With reference to paras. 9 and 10 of my office-note No. 527, dated 20th May 1889, I have to point out that a disorganized and packed crowd will average 150 lb. per man and may cause a load of 120 lb. per square foot of standing room.

(b) The annexed tables 1 and 2 show the approximate number of men required to cause loads of 120 and 80 lb. per square :—

Table No. 1.—Number of men required to cause a load of 120 per square foot of roadway.

One span.				9 Feet roadway.	14 Feet roadway.
				Number of people.	Number of people.
20 feet	..	..	..	144	224
30 "	..	..	..	216	336
40 "	..	..	..	288	448
50 "	..	..	..	432	672
80 "	..	..	..	576	896
100 "	..	..	..	720	1,110
150 "	..	..	..	1,080	1,660
200 "	..	..	..	1,440	2,220

Table No. 2.—Number of men required to cause a load of 80 lb. per square foot of roadway.

One span.				9 Feet roadway.	14 Feet roadway.
				Number of people.	Number of people.
20 feet	..	..	..	91	152
30 "	..	..	..	136	228
40 "	..	..	..	182	304
60 "	..	..	..	273	456
80 "	..	..	..	364	608
100 "	..	..	..	455	760
150 "	..	..	..	682	1,140
200 "	..	..	..	910	1,520

(c) The ordinary wheel loadings to be considered throughout the district are country carts with their loads and pair of draught bulls weighing on an average 2,300 lb. and occasionally rising to but never exceeding 5,500.

(d) Just how much chance there is of such crowds as come under 120 and 80 lb. per square foot as shown in tables 1 and 2, or again wheel loads heavier than the country cart occurring in any part of this district outside the limits of any of our large towns you can easily judge.

(Signed) G. ANDERSON, M.I.C.E.,
District Engineer, District Board, Malabar.
CALICUT,
20th May 1889.

No. 474.

Transferred to the Public Works Department.

(By order.)

FORT ST. GEORGE,
14th June 1889.

(Signed) W. S. MEYER,
Assistant Secretary.

To the Public Works Department.

Order—dated 20th July 1889, No. 1964 W., Public Works.

It is not incumbent upon any District Board to adopt the type-designs for iron bridges, which are intended merely to assist Engineers in the preparation of plans and estimates for such works. The loads provided for in the type-designs may possibly be met with in a few localities in the neighbourhood of large towns; but if these cases be allowed for, Mr. Anderson's designs will probably sufficiently provide for the ordinary requirements of Malabar. Copy of his note and of the President's letter will be forwarded to the Secretary of State in continuation of G.O., No. 1718 W., dated 28th June 1889.

(True Extract.)

(Signed) W. L. C. BADDELEY, Capt., R.E.,
Under Secy. to Govt., P.W.D.

To Superintending Engineers.
„ the Local and Municipal Department.

ORDER—dated 16th August 1889, No. 1802 L., Local and Municipal.

Communicated to all District Boards.

(True Extract.)

J. F. PRICE,
Chief Secretary.

To all Presidents of District Boards.
„ the Public Works Department.
„ the President, Municipal Commission, Madras.

Exd. W. H. French.

Govt. of {1889} Madras.

LOCAL AND MUNICIPAL.

B.N. 245908 4-9-89

Recorded

sd/RR.E.D.B

Issued

Recd.

Encl.

G.O., 16th Aug. 1889, No. 1802 L.

AUGUST.

Bridges.

Communicating to all District Boards Government Order, Public Works Department, passing orders on letter from the President, District Board, Malabar, submitting remarks of the Board's Engineer on the type-designs and specification for — furnished by the Secretary of State for India.

With order