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TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

P. W DEPARTMENT

G.O. No. B.P. No.	562 W	Press. Mis.
Dated	20. 2. 1883	~~198~~.

Not to be folded or roughly handled

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

No. 139.

Read—the following paper:—

From the Committee convened in Proceedings, Madras Government, No. 612 I., of 5th August 1882, dated 12th October 1882.

Memorandum by the Chief Engineer for Irrigation, dated 6th November 1882, No. 117 I.

„ „ Executive Engineer, Buckingham Canal Division, dated 18th December 1882.

„ „ Chief Engineer, Public Works Department, dated 26th January 1883.

No. 140.

Order—dated 20th February 1883, No. 562 W., Public Works.

The Government accept the recommendations of the Committee, with the modifications suggested by the Chief Engineer for Irrigation, and the Chief Engineer, Public Works Department.

2. The Chief Engineer for Irrigation will submit, in time to admit of their introduction by the 1st April 1883, a revised draft of the rules for publication in the *Fort St. George Gazette* and communication to officers concerned.

3. The official, instead of the calendar, year will in future be adopted in regard to the preparation of navigation returns, &c., and from 1st April next all matters relating to the Buckingham Canal will be dealt with in the Irrigation Branch.

(True Extract.)

Major, R.E.,
Under Secy. to Govt., P.W.D.

To the Chief Engineer for Irrigation.
„ Superintending Engineer, First Circle.
„ „ „ Second „
„ „ „ Third „
„ Board of Revenue.
„ Revenue Department.

Exd. A. F. Goodall.
Spare Copies.

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of {1883} Madras.
PUBLIC WORKS.

Dated February, 20th.

Recd. *Encl.*

G.O., 20th Feb. 1883, No. 562 W.

FEBRUARY.
Nos. 139-140.

Navigation Rules

Revised — for the Canal System East Coast.

562/2

From the Committee convened in accordance with Proceedings of Madras Government, No. 612 I., of the 5th August 1882, to the Chief Engineer for Irrigation, dated Camp, Ellore, 12th October 1882.

We have the honor to report that having met at Pedda Ganjam we have discussed the matters referred for our consideration regarding the modifications of the Navigation Rules for the canal system of the East Coast.

2. As regards the first point to which our attention was directed, we have agreed that tolls cannot be entirely abolished, but that tolls should be charged on the basis of time rather than on that of distance or direction of journey. This would admit of the number of toll stations at present existing being considerably reduced.

3. We consider it necessary to maintain a system of tolls in the interests of the public, for although annual licenses are simpler and less harassing to frequent users of the canals, yet the occasional use of the canals of a system should not necessitate the taking out of a whole year's license.

4. We think that if tolls are kept within reasonable limits as to rate and frequency of collection, boats which otherwise would confine themselves to the one system for which they were licensed would make occasional use of the canals of other systems to the general advantage of the public.

5. We therefore recommend the retention of tolls, but on a modified system.

6. Our proposals are that tolls shall be paid at the rate of one-fourth the annual license fee for each separate system, and that a toll once paid at any station of a system shall clear the vessel through all the canals of that system and in any direction for a period of six weeks.

7. We have fixed upon this period as that which would suffice for a through return trip for the greatest distance on the main line, and we have fixed the amount so that it shall be to the advantage of users of the canals for more than six months to take out a license.

8. It will be seen that tolls under this system are practically short licenses.

9. In considering the positions for toll stations, we have thought it advisable to place them as far as possible where there is a natural stop, not at places where artificial bars have to be placed across clear reaches of the canals at which all traffic is stopped, whether toll has to be taken or not.

10. We propose therefore that the only toll stations shall be the head locks of each section of the deltas, all tidal locks, the Ellore Lock, the Western Tammileru Aqueduct on the Kistna Ellore Canal, where the Godávari and Kistna Systems join, and the following places on the Buckingham Canal:—

(1.) Pedda Ganjam, where the Kistna and Buckingham Canal Systems join.

(2.) *Kandleru River.*—We propose this place, because a toll station intermediate between Pedda Gaujam and Shadayankupam Lock is required, so that boats working on the canal between these places can obtain toll tickets without being compelled to proceed for that purpose to either extremity of this long reach of 188 miles.

(3.) Shadayankupam Lock (north of Madras).

(4.) Adyar Southern Lock (south of Madras).

11. The toll stations on the three systems will be reduced from a present number of 47 to 20.

12. We propose that the period for which a toll ticket remains current shall in the case of *rafts* be only one month, as it is very necessary that they should not be allowed to linger in the canal to the inconvenience of the general traffic.

13. Under the rules for rafts sanctioned in G.O., No. 384, of the 8th May 1882, a fresh toll was charged at the end of three weeks, or when the raft changed its direction. We propose that as in the case of boats a toll once paid shall clear a raft throughout the system and in any direction, but that the toll should in consideration of the much greater length of canal which will be thus opened out by one payment be double the present Godávari and Kistna rates. This however will be a very considerable reduction on the present Buckingham Canal rates. The proposed rates form but a small proportion of the value of rafts, and hence will not be oppressive.

14. Points 2 and 3 mentioned in paragraph 5 of the Government Order as specially referred to us are so intimately connected that it is necessary to consider them together.

15. For through traffic it is essential that there shall be only one unit of measurement, and we consider the unit should be that formerly in use in the deltas, and still in use on the Buckingham Canal, viz., 50 cubic feet, which may for convenience be called a ton.

16. We consider that having fixed a measure of capacity and provided for uniformity in the system of measurement, it is unnecessary that any attempt should be made to reconcile this with the *weight* carrying capacity of various builds of boats.

17. As regards the rates of license fees having reverted to the previous unit we propose for the Godávari system to revert also to the previous rate of Rs. 2 per 50 cubic feet in the case of cargo boats.

18. In the case of the Kistna we consider it equitable to fix a rate somewhat higher than that in use with the old unit (Re. 1), because the main line of the system has recently been much improved and connected with the Buckingham Canal. We therefore propose a fee of Rs. $1\frac{1}{4}$ per 50 cubic feet.

19. Hitherto the rate for licenses for the whole of the Buckingham Canal has been nearly five times the Godávari rate, and nearly seven times the Kistna rate, the mileage on the Buckingham Canal being not so much as that of the Kistna system and about $\frac{4}{5}$ths of that of the Godávari. The result has been that boats working on the Buckingham Canal have found it to their advantage to work under the present very complicated system of tolls rather than to take out licenses.

20. Considering that the Buckingham Canal serves a great extent of country, and has a more important terminus than any in either the Godávari or Kistna systems, we consider it advisable to recommend a rate of Rs. 3 per 50 cubic feet for the amount of annual license fee.

21. In order to encourage through traffic we propose a considerable reduction on the total license fees of the three systems separately when boats take out through licenses. The rate for these through licenses for cargo boats we would fix at Rs. 5 per 50 cubic feet.

22. As regards passenger vessels we find that the type of boats in use in the deltas differs so much from those in use on the Buckingham Canal that it is necessary to classify them.

23. For the Godávari and Kistna systems, having reverted to the former unit of measurement, we propose, as in the case of cargo boats, to revert to the former rate.

24. For the Buckingham Canal the proposed rates for the corresponding classes of boats have been made the same as in the deltas.

25. In the case of passenger boats we have however proposed one important modification of present rules, viz., that the space to be allowed for a passenger be increased from 5 to $7\frac{1}{2}$ square feet. This we believe to be advisable in the interests of the public, as with five square feet boats carrying their full number are known to be

inconveniently crowded for long journeys. With through communication made cheaper and simpler it is hoped that the numbers undertaking long journeys may be increased.

26. We also propose that passenger boats should be allowed to take out through licenses at reduced rates.

27. Special provision has been made for a modification of the rule regarding the number of passengers, on the occasion of festivals near Madras, to suit the circumstances of the local traffic at those times.

28. We propose that the revenue derived from through licenses should be credited to each system on the following proportions:—

Cargo Boats.

				RS.
Amount of through license				5
Godávari System	1	8	0	
Kistna do.	1	4	0	
Buckingham Canal System	2	4	0	
				5

Passenger Boats.

(*a*) and (*c*) classes, through license				10
Godávari System	3	0	0	
Kistna do.	2	8	0	
Buckingham Canal System	4	8	0	
				10
(*b*) and (*d*) classes, through license				7
Godávari System	2	4	0	
Kistna do.	1	8	0	
Buckingham Canal System	3	4	0	
				7

As the proposed through license for steamers is Rs. 10 per 50 cubic feet, the amount to be credited to each system will be the same as in the case of (*a*) and (*c*) passenger boats.

29. In the case of steamers we propose that they shall, as heretofore, pay double the rates for cargo boats, both for licenses and for tolls.

30. Instead of keeping the existing division of rules and bye-laws, which as at present arranged is inconvenient and occasionally misleading, we propose that all the regulations shall be embodied into one set of rules, and that these should be applicable to all the three systems.

31. We have accordingly prepared the draft of a set of rules embodying our present proposals and such of the old rules and bye-laws as it is advisable still to maintain, and submit them herewith for approval. We believe that these rules will be found more concise than the old ones, and more easily intelligible by those whom they affect.

32. We have drawn out and appended to these rules license and toll ticket forms adapted to the new rules.

33. As the Buckingham Canal has been placed under Madras Act I of 1870 ("The Canals and Ferry Act"), whereas the canals of the delta systems have not been brought under that Act, there may probably be differences in their management which would be unadvisable and likely to lead to complications when attempting to work the three systems as one combined whole. We think all should be under the same rules. We are strongly of opinion, however, that the Delta Canal Officers should not be made Magistrates, as their work is important and always heavy. In the deltas there has been no practical difficulty in enforcing the navigation rules, because the numerous locks in both systems have enabled boats transgressing to be at once punished by stoppage.

34. We also desire to bring to notice that the Buckingham Canal is at present worked under the direct orders of the Chief Engineer, Public Works Department,

and the Delta Canals under the orders of the Chief Engineer for Irrigation. We would invite attention, if the navigation of the three systems is to be worked as a whole, to the advisability of ensuring uniformity of orders.

35. If the new rules are to be brought into force for the next calendar year, which seems very advisable, we are of opinion that the orders of Government should be received by the 30th November *at the latest.*

We have the honor to be,
Sir,
Your most obedient servants,
(Signed) J. W. RUNDALL,
Superintending Engineer.
(,,) G. T. WALCH,
Offg. Superintending Engineer.
(,,) W. S. OTTMANN,
Honorary Assist. Engr., P.W.D.

Draft of Revised Navigation Rules for the Godávari, Kistna, and Buckingham Canals.

SYSTEMS.

Reference to present Rules.

I. GENERAL.

Delta Rules I.
Buckingham Canal Rules III.

1. No vessel or raft will be allowed to enter or make use of any canal unless the owner shall have previously taken out a license, or unless toll shall have been paid as hereinafter provided.

II. LICENSES.

Delta Rules II.
Buckingham Canal Rules III.

2. Licenses will be issued for vessels for a calendar year only, and will entitle the vessel to navigate the canals of the system for which the license is issued from date of issue to 31st December following. The owner of a vessel desiring to obtain a license shall apply in person or by letter to an officer empowered to issue licenses, viz., the Executive Engineer of the division or officer authorised in writing by him. The owner shall give to the licensing officer the information required to fill up the license as shown in the license form.

Delta Rules III.
Buckingham Canal Rules III.

3. Every vessel licensed for the conveyance of cargo shall pay a license fee as follows:—

For the Godávari System	Re. 2	per ton of 50 cubic feet.
For the Kistna System	,, 1½	do.
For the Buckingham Canal	,, ¾	do.

N.B.—Godávari System Licenses and Toll Tickets hold good as far as the Western Tammileru Aqueduct on the Kistna Ellore Canal.

New Rule.

4. The annual license fees payable on cargo vessels for the three systems separately can be compounded for one through license available over all the three systems at the rate of Rs. 5 per ton. A boat which has already taken out a license for either of the three systems will not be permitted to compound for that calendar year.

Delta Rules V.
Buckingham Canal Rules VIII.

5. The gross tonnage of all vessels will be obtained by the following rule:—

$$\frac{L \times B \times D}{50}$$

L being the length between the stern and fore post at half the midship depth.

B being one-sixth of the sum of five widths taken at equal distances along the above length. The width to be measured from the rib on one side to the planking (skin) on the other side.

D being the depth measured amidship from the top of the kelson, or of the centre plank, to the underside of the deck planking, or to the top of the gunwale in open or passenger vessels.

The net or registered tonnage on which the fee will be charged will be—

For steamers, the gross tonnage less one-third.

For other vessels, the gross tonnage less 15 per cent.

Fractions of a ton above the half will be charged as one ton.

Delta Rule V.
Buckingham Canal Rules, none.

6. On payment of the license fee according to the rates fixed, a license will be issued which will entitle the vessel to the use of all the canals of the system named in the license without any other payment whatever. If a vessel after the issue of a license be enlarged, it shall not ply again until it has been remeasured, and a new license taken out. This will be granted on surrender of the previous license and on payment of the prescribed rate per ton for the difference between the old and new tonnage. The penalty for using on the canals an enlarged vessel without a new license being taken out will be the forfeiture of the license fee previously paid.

Delta Rules VI.
Buckingham Canal Rules IV and V.

7. The license number with the distinguishing letter * of the system must be painted conspicuously in English figures, not less than four inches in height, on each bow of the vessel.

* G. Godávari.
K. Kistna.
B. Buckingham Canal.

The tonnage of the vessel must be similarly marked in English figures on each side of the sternpost.

These marks must be put on the vessel before it commences to use the canals at the expense of the owner, who will be responsible that they are not defaced or obliterated.

Delta Rules VII.
Buckingham Canal Rules IX.

8. License will be issued to vessels adapted for the conveyance of passengers under the following conditions and at the following rates.

Such vessels will be measured for tonnage under Rule V, and they will be permitted to carry one passenger for every 7½ square feet of covered space. The covered space will be calculated from the following measurements:—

Length, over all of covered space.

Breadth, the mean of three widths taken at equal distances.

Passenger boats will be divided into the following classes:—

(a) Boats of the "*Ráhdári*" or transit boat type, taking a license which leaves optional to the owner the fares to be charged and the caste of the passengers to be carried.

(b) Boats of the "*Ráhdári*" or transit boat type, taking a license by the acceptance of which the owner undertakes to convey all passengers for whom there is room according to the rules, irrespective of caste, and at rates not exceeding the following maxima, viz., in the general cabin 2 pies per mile per passenger including one cooly head load of luggage; in the separate fore or aft cabins, for every 7½ square feet of cabin, 3 pies per mile per passenger, including one cooly head load of luggage. Any passenger wishing to reserve a separate cabin for his exclusive use will be entitled to do so on paying the full hire for the whole cabin.

A whole boat of this class shall not be hired out to one individual, except by permission of the Executive Engineer or officer authorised by him to issue licenses.

(c) Boats of the budgerow type, plying for hire, but not carrying cargo, the rate of fare and the passengers to be carried being optional with the owner.

(d) Boats of the "top boat" type, having a covered space for the protection of passengers, taking a license by the acceptance of which the owner undertakes to convey all passengers for whom there is room according to the rules, irrespective of caste, and at rates not exceeding 2 pies per mile per passenger, including one cooly head load of luggage.

During festivals in the neighbourhood of Madras, the rule limiting the number of passengers to be carried by this class of boat may, on application, be temporarily suspended by the Executive Engineer in charge of the division, or officer duly authorized by him to issue licenses.

The license fees for passenger boats will be as follows for each system:—

(a) Class, Rs. 4 per ton.
(b) ,, ,, 3 ,,
(c) ,, ,, 4 ,,
(d) ,, ,, 3 ,,

New Rule.

9. The annual license fees payable on passenger boats can be compounded for one through license available over all the three systems at the following rates:—

(a) Class, Rs. 10 per ton.
(b) ,, ,, 7 ,,
(c) ,, ,, 10 ,,
(d) ,, ,, 7 ,,

Delta Rules VIII.
Buckingham Canal Rules IV and V.

10. The number of the license issued for a passenger vessel must be painted on the bows in the manner prescribed for cargo vessels.

The tonnage of the vessel and the number of passengers which she is licensed to carry must be painted conspicuously on the stern of the vessel or on the afterpart of the cabin. The number of passengers will be preceded by the letter P.

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Delta Rules IX.
Buckingham Canal Rules IX.

11. Passenger vessels may carry cargo as well as passengers, subject to the following conditions:—

(1) That vessels of the types (b) and (d) must convey passengers, when required to do so, in preference to cargo.
(2) That the quantity of cargo be not greater than the registered tonnage less 400 lb. for each passenger on board.

Delta Rules X.
Buckingham Canal Rules, part of IX.

12. Vessels, the private property of individuals, making use of the canals, but not carrying goods or passengers, or plying for hire, will be licensed to use the canals of a system on payment of a fee of Rs. 12 for the calendar year.

Delta Rules XI.
Buckingham Canal Rules, none.

13. Pleasure boats used for rowing on the canals, but not carrying goods or passengers, will be licensed to use the canals of a system on payment of a fee of Re. 1 for the calendar year.

Delta Rules XV (8).
Buckingham Canal Rules, Schedule A.

14. All fees payable by steamers will be double those of ordinary cargo boats.

The number of the license and tonnage must be painted on steamers in the manner prescribed for cargo boats.

Delta Rules XII.
Buckingham Canal Rules XII.

15. No person who has taken out a license for the navigation of the canals shall have any claim to compensation, in consequence of the closure of all or of any of the canals for repairs, or because of insufficiency of water, or on account of any other impediment to navigation.

III. Tolls.

Delta Rules XIV.
Buckingham Canal Rules III (2nd).

16. Vessels not holding a license will be allowed to navigate the canals on payment of the hereinafter stated tolls and on the following conditions.

Delta Rules XIV (4).
Buckingham Canal, Schedule B.

The rates of toll per ton will be—

Cargo and Passenger Boats.	AS.
Godávari System	8
Kistna ,, ...	6
Buckingham Canal	12

Delta Rules XV (9).
Buckingham Canal Rules, Schedule B.

Steamers.	RS.
Godávari System	1
Kistna ,, ...	0¾
Buckingham Canal	1½

New Rule.

Private Boats referred to in Rule XII.

For each boat, for each system, Rs. 3.

A toll once paid at any toll station of a system will clear the vessel over all the canals of that system and in any direction for a period of six weeks, except in the case of rafts, which must either be removed from the canals *within one month* from the date of the toll ticket, or again pay toll.

Delta Rules XIV.

The toll stations in the Godávari and Kistna Systems will be—

The head lock of each section* of delta.
All tidal locks.
The Ellore Lock.
The Western Tammileru Aqueduct on the Kistna Ellore Canal.

The toll stations on the Buckingham Canal will be as follows:—

1. Pedda Ganjam.
2. Kandleru River.
3. Shadayankupam Lock.
4. Adyar Southern Lock.

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* *Godávari Sections.*
Eastern.
Central.
Western.
Kistna Sections.
Eastern.
Western.

To determine the tonnage for tolls vessels will be measured under Rule V.

A list of the toll stations for each system will be affixed to a notice board at each toll station in that system.

Delta Rules XIII.
Buckingham Canal Rules, Schedule B.

17. Rafts shall pay tolls at the following rates:—

	AS.
Logs of timber, rough or squared, for each unit of 100 square feet.	8
Bamboos for each unit of 100 square feet	4

New Rule.

Rafts of timber and bamboos mixed will be charged at the rate for timber.

Delta Rules XIII (1).

All fractions of the unit will be charged for as a full unit.

IV. REGULATIONS.

Delta Bye-law 13.
Buckingham Canal Rule VII.

18. The extreme dimensions of any vessel allowed to navigate the canals will be 90 feet in length and 13 feet in breadth over all.

Boats built before the 31st December 1880, which exceed the above dimensions, may receive a special license at the discretion of the Executive Engineer of the division.

No boat drawing more than 3½ feet will be admitted into any lock.

Buckingham Canal Rule VII.

To suit the conditions of masonry works on the southern sections of the Buckingham Canal, the height of fixed fittings such as the roofs of boats, steps of masts, funnel sockets, &c., shall be there limited to 6½ feet above water level. A similar limit shall be applied to piled cargo.

Delta Bye-law No. 9.
Buckingham Canal Rule X.

19. No raft of larger dimensions than 90 feet in length, by 12 feet in breadth, or of more than 2′ draught will be allowed on the canals. Rafts exceeding these dimensions will be stopped until they are reduced and a fresh toll paid on the then measurement under Rule XVI.

Buckingham Canal Rules VII.

20. Boats carrying cargo must have a free board of not less than 9 inches; boats carrying passengers must have a free board of not less than 1 foot.

Delta Bye-law 1.
Buckingham Canal Bye-law 1.

21. No vessel or raft shall moor on the towing-path side if there be only one tow-path, or on the windward side of a canal if there be two tow-paths, except when actually loading or unloading.

Delta Bye-law 2.
Buckingham Canal Bye-law 2.

22. No cargo shall be loaded or unloaded and no passengers be shipped or landed at any lock, or on any masonry work other than the quays or wharfs specially provided for the purpose.

New Rule.

23. No goods shall be stacked on any tow-path or on the canal side of any tow-path under any circumstances, nor shall they be stacked on canal lands without special permission of the canal officers.

Delta Bye-law 3.
Buckingham Canal Bye-law III.

24. No vessel shall be repaired in any canal at any time, without the written permission on the Divisional Executive Engineer, and then only at the place and during the time named in the written permission. Materials used in the repair of vessels will, unless removed from the canal before, or at the time of, the vessels departure, be confiscated, and any expense incurred in their removal must be paid by the owner of the vessel under penalty of suspension of license until it be paid.

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Delta Bye-law 4.
Buckingham Canal Bye-law IV.

25. At any lock, or other masonry work, no vessel or raft shall moor within the limits fixed by notice boards.

Delta Bye-law 5.
Buckingham Canal Bye-law V.

26. Every vessel when moored in any canal shall have its masts down, shall be made fast stem and stern to the bank and in a single line.

Delta Rules, part of Bye-law 12.
Buckingham Canal Rules, part of Bye-law X.

Every vessel when thus moored shall be in charge of at least one man, and must between sunset and sunrise exhibit a clear bright light, at not less than 4′ above the water level, visible all round.

Canal Rules XIII (5).
Do. Bye-law 12.

Rafts when moored must be securely fastened to the canal bank at both ends, and between sunset and sunrise must exhibit a clear light at each outer corner.

Delta Bye-law 12.
Buckingham Canal Bye-law X.

27. Vessels when moving must between sunset and sunrise exhibit the following lights:—

All boats one clear bright light at the fore-end, fixed not less that 4 feet above the water.

Canal Rule XV (3).

Steamers, three lights as follows:—One clear white light on the upper deck abaft the funnel, a bull's-eye bright red light on the post (left) side, a bull's-eye bright green light on the starboard (right) side.

The bull's-eye to be not less than 8 inches in diameter. The lights to be so placed and fitted that both may be visible only from a point ahead of the vessel, and so as not to be obscured by any of the fittings, cargo, or passengers. Subject to these provisions the lights may be placed on the front or on top of the cabin, at the sides of the vessel near the bow, or on supports specially provided for the purpose.

Delta Bye-law 13.
Buckingham Canal Bye-law X.

Passenger boats must, in addition to the outside light, keep at least one bright light in the general cabin.

Delta Bye-law 6.
Buckingham Canal Bye-laws VI, VII, and VIII.

28. When vessels meet on the Godávari and Kistna Canals, those going with the current shall give way. In the Buckingham Canal vessels going north shall give way. Vessels under sail shall give way to vessels being towed, and steamers shall give way to all boats.

New Rule.

29. The licenses of cargo boats in an unsafe condition may be suspended by any officer authorized to issue licenses until the vessels be put into a proper state of repair.

Delta Bye-law 14.
Buckingham Canal Bye-law XIII.

30. All passenger vessels shall, whenever it may appear to him to be advisable, be inspected by the Executive Engineer in charge of the Division, or other officer duly authorized by him. The licenses of such as are not maintained in a proper state of repair and cleanliness shall be withdrawn until the vessels are fit for use by the public.

Delta Bye-law 8.

31. No person unless duly authorized shall interfere with the locks or any part of their machinery.

Delta Bye-law 11.

32. Any passenger vessel apparently overloaded must, when required by the Executive Engineer, or by an officer duly authorized by him, by the Superintendent or Assistant Superintendent of Police, or by a Magistrate, stop at

any place to have the number of its passengers counted and its cargo examined.

Delta Bye-law 10.
Buckingham Canal Bye-law XII.

33. Every vessel and raft must have its license or toll ticket always on board. These shall be produced when called for by any Lock or Toll Superintendent or other duly authorized officer.

Delta Bye-law 10.
Buckingham Canal, Schedule A.

34. In the case of a license or toll ticket being lost, and a duplicate copy being required, the fee for its issue will be Rs. 2.

Delta Rule XV (1).

35. All steamers using the canals shall be inspected by the Executive Engineer or officer authorized by him, who will see that the machinery is in fair working order, that the boilers are provided with proper gauges, and are apparently in safe working order. The Executive Engineer or other officer will issue an inspection certificate in the form appended, which will hold good for six months.

Delta Rules XV (4).
Buckingham Canal Bye-law XI.

No steamer shall travel at a greater speed than 8 miles per hour by day-light and 5 miles per hour at night.

Steamers shall reduce their speed to three miles an hour when they come within half a mile of a lock, and shall then whistle to give notice of their approach to the lock establishment. Steamers must be warped into and out of locks, and will not be allowed to use their propellers until quite clear of the locks.

Delta Rules XV (7).
Buckingham Canal Bye-law XI.

Steamers shall whistle when within a 100 yards of any boat, and reduce speed to 5 miles an hour.

Delta Rules XV (11).
Do. XVI.

36. Any vessel or raft damaging the works of the canal or any Government property on them shall have its license or toll ticket taken away and shall not be allowed to use the canals until the cost of repairing the damage has been estimated and the amount has been paid. A pass shall be given by the officer suspending the license to enable the vessel to proceed to its destination.

Buckingham Canal Rule XIII.

37. Sea-going vessels brought into rivers and backwards for shelter, for repair, or for any other purpose except to ply for hire, shall anchor or lay up outside the fair way of canal traffic, which will be defined by the canal officers; such vessels will not be allowed to enter the main line of the canals for the purpose of proceeding from one river or backwater to another river or backwater, or for any other purpose, except in accordance with the rules prescribed for the use of the canals.

Buckingham Canal Rules III.

38. All boats used solely for fishing purposes which have to pass through any portion of the Buckingham Canal must be registered, but will not be charged any fee.

Delta Bye-law 13.

39. Officers in charge of canals are empowered summarily to remove vessels which may have sunk in a canal waterway of any system, or rafts which have been in the canals for more than one month, and shall have failed to pay on demand the fresh toll leviable under Rule XVI, and to recover cost of removal afterwards.

Vessels sunk, abandoned, or left for more than three days without a man in charge will be dealt with as follows:—

(a.) If the vessel be licensed a notice will be sent by post, by the officer in charge of the canal, to the registered owner requiring him to remove the vessel within 15 days. Failing such removal the vessel will be sold by auction after giving not less than 15 days' notice of intended sale in the District Gazette.

(b.) In the case of unlicensed vessels a notice will be published in the District Gazette requiring the removal of the vessel within 15 days, and stating that if not so removed the vessel will be sold by auction. Such sale may be fixed to take place on any date not prior to 30 days from the date of the publication of the notice to remove. Vessels removed under this rule lie at the owner's risk.

Owners applying to recover possession of vessels or rafts referred to in this bye-law must, before their removal will be permitted, pay all expenses which may have been incurred.

The sale-proceeds of a vessel sold under this bye-law will be available to meet all expenses incurred in the removal and sale of such vessel, and to repair all damage which may have resulted to the canal from its being sunk or abandoned therein. Any balance remaining will be paid to the owner if claimed within three months from the date of the sale; otherwise such balance will be carried to the credit of Government.

Delta Bye-law 15.
Buckingham Canal Bye-law XIV.

40. Executive Engineers in charge of sections of the deltas and of the Buckingham Canal and other officers duly authorized by them will have power to suspend the license of any vessel on account of the infringement of any of the rules and regulations for periods not exceeding—

15 days for a first offence,
30 days for a second offence in the same calendar year,
60 days for a third offence in the same calendar year,

and for a fourth offence in the same calendar year the license may be cancelled.

Vessels plying under a toll ticket may be punished by the suspension of the toll ticket for 15 days for a first offence, and by the withdrawal of the toll ticket for a second offence.

Delta Bye-law 16.

41. Superintending Engineers will exercise the same powers as Executive Engineers in respect of any of these rules.

(Signed) J. W. RUNDALL,
President for Committee.

12th October 1882.

Memorandum regarding the different Forms of Licenses.

It is proposed that the license and toll tickets shall be on different colored paper for each system—

Godávari	White.
Kistna	Red.
Buckingham Canal	Blue.

Through licenses will be printed on green paper.

When a license is taken out, a copy of the navigation rules in the vernacular is to be given to every boat-owner who has not already got one.

When printed for issue, the license forms and tickets will have a counterfoil separated from the original by perforations.

All license forms and toll ticket should be printed on good stout paper.

12th October 1882. (Signed) J. W. RUNDALL.

.... System

TOLL TICKET FOR RAFT.

తెప్ప పన్ను చీటి.

No. ....

నెం

Dimensions .... Length } .... feet.

కొలతలు .... పొడుగు } .... అడుగులు.

Breadth } .... feet.

వెడల్పు } .... అడుగులు.

Superficial Area } .... square feet.

చతురపు కొలత .... } .... చతురం అడుగులు.

Description of Raft } ....

తెప్ప వివరం .... } ....

Amount of Toll paid. Rupees .... Annas ....

చెల్లించిన పన్ను మొత్తం. రూపాయలు .... అణాలు ....

Issued at ....

చీటీయిచ్చిన స్థలం ....

Date of issue ....

చీటీయిచ్చిన తారీఖు ....

This ticket will hold good for *one month only.*

Toll Superintendent.

This ticket is issued subject to the Navigation Rules sanctioned in S. O.
No .... dated ....

.... System

TOLL TICKET FOR RAFT.

తెప్ప పన్ను చీటి.

No. ....

నెం

Dimensions .... Length } .... feet.

కొలతలు .... పొడుగు } .... అడుగులు.

Breadth } .... feet.

వెడల్పు } .... అడుగులు.

Superficial Area } .... square feet.

చతురపు కొలత .... } .... చతురం అడుగులు.

Description of Raft } ....

తెప్ప వివరం .... } ....

Amount of Toll paid. Rupees .... Annas ....

చెల్లించిన పన్ను మొత్తం. రూపాయలు .... అణాలు ....

Issued at ....

చీటీయిచ్చిన స్థలం ....

Date of issue ....

చీటీయిచ్చిన తారీఖు ....

This ticket will hold good for *one month only.*

Toll Superintendent.

This ticket is issued subject to the Navigation Rules sanctioned in S. O.
No .... dated ....

Rafts not to exceed 90 feet in length, 12 in breadth, 2 feet in draught.

RATES OF TOLL.

	annas.
Logs of timber, rough or squared, per unit of 100 square feet	8
Bamboos per unit of 100 square feet	4

Fractions of the unit will be charged for as a full unit.

Rafts of timber and bamboos mixed will be charged for at the rate for timber.

తెప్పలపొడుగు 90 అడుగులు, వెడల్పు 12 అడుగులు, 2 అడుగుల నీటిలోతేలేవికంటె ఎక్కువగావుండకూడదు.

పన్ను రేట్లు.

అణాలు.

License for Passenger Vessel, Class (A) or (C), for 18 .

System — No. of License
Owner's name — Residence
Vessel built at — in the year

Maximum number of passengers ; less one for every 400 lb. of cargo carried.
Fares to be charged and caste of passengers to be carried, *optional.*

Extreme Dimensions over all.		Dimensions for Tonnage.				Gross Tonnage.	Deduction of 15 per Cent.	Net Tonnage for License.	License Fee paid.	Date of Issue.	Place of Issue.
Length.	Breadth.	L.	B.	D.	Cubic Feet.						
FEET.	FEET.	FT. IN.	FT. IN.	FT. IN.					RS. A.		

Signature of Licensing Officer.

This License is issued subject to the Navigation Rules sanctioned in G.O., No.
dated

License for Passenger Vessel, Class (B) or (D), for 18 .

System — No. of License
Owner's name — Residence
Vessel built at — in the year

Maximum number of passengers ... ... { In the general cabin
In the fore cabin
In the aft cabin }

Total No. less one for every 400 lb. of cargo carried.

The holder of this license is required to convey all passengers, for whom there may be room, irrespective of caste, at rates for each passenger (including one cooly headload of luggage) not exceeding 2 pies in the general cabin, and 3 pies in the separate fore and aft cabins, per mile.

Extreme Dimensions over all.		Dimensions for Tonnage.				Gross Tonnage.	Deduction of 15 per Cent.	Net Tonnage for License.	License Fee paid.	Date of Issue.	Place of Issue.
Length.	Breadth.	L.	B.	D.	Cubic Feet.						
FEET.	FEET.	FT. IN.	FT. IN.	FT. IN.					RS. A.		

Signature of Licensing Officer.

This License is issued subject to the Navigation Rules sanctioned in G.O., No.
dated

Cargo Boat License for 18

No. of License

System
Name of owner
Residence of owner
Boat built at

in the year

Extreme Dimensions over all.		Dimensions for Tonnage.				Gross Tonnage.	Deduction of 15 per Cent.	Net Tonnage for License.	License Fee paid.	Date of Issue.	Place of Issue.
Length.	Breadth.	L.	B.	D.	Cubic Feet.						
FEET.	FEET.	FT. IN.	FT. IN.	FT. IN.					RS. A.		

Signature of Licensing Officer.

NOTE.—This License is issued subject to the Navigation Rules sanctioned in G.O., No. dated

Private Boat License for 18

No. of License

System
Name of owner
Residence of owner
Boat built at
Description of boat
Amount of license fee paid Rs.
Date of issue
Place of issue

in the year

Signature of Licensing Officer.

N.B.—The License fee for private boats not carrying goods or passengers is Rs. 12 per cent.
The fee on pleasure boats used for rowing is Re. 1.

This License is issued subject to the Navigation Rules sanctioned in G.O., No. dated

License for Steam Vessel for 18

No. of license
Owner's name
Vessel built at
Description of propeller
Do. of engines
Do. of boiler
Maximum pressure of steam

Residence
in the year

Extreme Dimensions over all.		Measurements for Tonnage.				Gross Tonnage.	Deduction of one-third.	Net Tonnage.	License Fee paid.	Date of Issue.	Place of Issue.
Length.	Breadth.	L.	B.	D.	Cubic Feet.						
FEET.	FEET.	FT. IN.	FT. IN.	FT. IN.					RS. A.		

Signature of Licensing Officer.

This License is issued subject to the Navigation Rules sanctioned in G.O., No. dated

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Inspection Certificate.

This vessel has been inspected under Navigation Rule No. 35, and is passed for navigation of the canals for a period of six months from this date

Signature of Inspecting Officer.

Station
Date
Certificate *renewed* on

Signature of Inspecting Officer.

Toll Ticket.

System
Name of owner

No.

Extreme Dimensions over all.		Measurements for Tonnage.				Gross Tonnage.	Deduction.	Net Tonnage.	Toll paid.	Date of Issue.	Place of Issue.
Length.	Breadth.	L.	B.	D.	Cubic Feet.						
FEET.	FEET.	FT. IN.	FT. IN.	FT. IN.					RS. A.		

Signature of Issuing Officer.

This ticket is issued subject to the Navigation Rules sanctioned in G.O., No. dated , and will hold good for *six weeks only.*

This ticket is to be surrendered on renewal.

No. 117 I.

Memorandum by the Chief Engineer for Irrigation.

Submitted to Government.

2. The first line of navigable canal opened on the Eastern Coast of the Madras Presidency was the Cochrane's Canal from Madras to the Ennore backwater, and from the Ennore backwater to Pulicat Lake. The work was completed in 1806 on contract, the terms being the exclusive possession of the canal by the contractor for forty-five years, with right to levy toll on all goods carried upon it at certain rates laid down. In 1837 the canal came into the possession of Government, who fixed a rather elaborate system of tolls. The annual receipts from tolls at this time were about Rs. 32,000. In the year 1855 the East Coast Canal to the south of Madras from the Adyar to the Pálár was commenced; this portion of the line was opened to traffic in 1857, and a separate system of tolls was adopted on it.

The extension of the Northern Canal was commenced in the year 1854, and was pushed on from time to time until, in the year 1875, it reached the Kistnapatam backwater, 90 miles to the north of Madras. This was the limit in the year 1876 immediately before the famine. The annual receipts were then—

	RS.
In the Northern Section	39,869
„ Southern „	5,720

In 1877, when it was necessary to find work for thousands of starving people, the connection of the northern and southern sections of the canal through Madras, which had been planned many years before, was undertaken, and the northern extension from Kistnapatam to Pedda Ganjam to join the Kistna Delta Canals being also pushed on vigorously under the government of the Duke of Buckingham, the canal was opened throughout, in 1878, from the Pálár, 47 miles south of Madras, to Pedda Ganjam, 196 miles north, under the name of the Buckingham Canal.

In 1879 the navigation rules for this canal now in force were introduced, under which the canal was divided into six sections. Copy of these rules is attached. Generally speaking they imposed a license fee of Rs. 2 per ton for all boats, except fishing and pleasure boats, the license clearing the boat for one section only. On entering any other section, the boat had to pay a toll of four annas a ton, or boat-owners were allowed to compound for a year's tolls throughout the canal for Rs. 10 a ton.

The navigation receipts have been as follows:—

	RS.
1880	1,09,805
1881	1,20,056

2. The Godávari Delta Canals navigation commenced in the year 1853, the anicut having been completed in 1852. The navigation was started under the auspices of Government officers, but before long the natives were out of leading strings and took up the navigation with a will, so that in 1863-64, ten years after the navigation commenced, the number of boats on the Delta Canal was 1,200, and the annual receipts amounted to Rs. 24,493. On first opening the navigation no tolls were charged, as was noticed in 1859 by the then Governor, Sir Charles Trevelyan, in a minute on the Godávari irrigation and navigation. He says: "The canals are all toll-free, for it has been wisely determined that it is better to take the Government dues in a consolidated form on the crops than to harass and mulct the people by exactions which cannot be confined to those demanded on behalf of the public." In November 1863, however, a license fee of one rupee per ton was charged.

As the canals have been extended, the navigation rules have been, from time to time, revised, and the license fees raised, and toll stations have been instituted generally at the head and tail locks of each canal, so that boats are not compelled to take out licenses for the year, but may, if it suits their convenience, pay by the trip. Up to 1882 the rates for license fees were generally speaking (taking 50 cubic feet to represent a ton)—

Cargo boats	2 rupees per ton.
Passenger boats—	
First class	4 " "
Second class	3 " "
Rafts, timber ...	4 annas per 100 square feet.
" bamboos, &c. ..	2 " " "

The measurement of boats was, up to that time, much the same in the Godávari and Buckingham Canals, and the unit of measurement, 50 cubic feet to a ton, was the same, but in 1882 revised rules for the Godávari and Kistna Canals were sanctioned by Government, in which the unit of measurement was altered to a ton of 75 cubic feet, and, as in the Buckingham Canal 50 cubic feet were still continued the unit, there arose difficulties in the case of through traffic, which have brought to notice the necessity for introducing rules of general applicability.

In introducing new rules for navigation in the Delta Canals, the rule has been laid down that navigation should be made to pay, that is, not only should the receipts cover the working expenses, but also interest on the original cost of works constructed solely in the interests of navigation. In a system of canals which combine irrigation and navigation there is, of course, great difficulty in apportioning the share of cost, but under instructions that have been issued from this office, this has been settled, and the yearly accounts show the maintenance charges and interest compared with the receipts. The accounts of last year, ending 31st December 1881, show the following results:—

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	RS.
Maintenance charges	55,106
Interest	24,504
Total ...	79,610
Receipts	55,670

that is, the receipts more than covered the working expenses, but were insufficient to meet the charge for interest. It was contemplated that, as the canals approached completion, the maintenance charges would become lighter, and the receipts would increase until they were sufficient to cover all charges. It is, however, to be noticed that, when the Godávari completion estimates were submitted to the Government of India, all that was claimed for navigation receipts was that they should cover maintenance charges.

3. The Kistna Delta Canal navigation, which was opened a few years later than the Godávari, was started in the same way, and has been generally under the same rules, but as in the Kistna Delta the canals are less advanced than in the Godávari, the license fees charged are less per ton than in the Godávari. In the last revised rules, 1882, cargo boats were charged 2½ rupees against 3½ rupees a ton in the Godávari.

The accounts of last year ending 31st December 1881 show the following results:—

	RS.
Maintenance charge	60,330
Interest	8,054
Total ...	68,384
Receipts	21,788

but the maintenance charges were much higher than they should have been, in consequence of damage caused by floods.

4. The length of navigable canal now open is—

	MILES.
In the Godávari Delta	458
" Kistna "	278
" Buckingham Canal	243
Total ...	979

The through line from Pálár south of Madras to the port of Cocanada in the mouth of Godávari is—

	MILES.
In Godávari	78
" Kistna	110
" Buckingham Canal	243
Total ...	431

When the Delta Canals are completed there will be the following lengths of canals navigable :—

	MILES.
In Godávari	502½
„ Kistna	349

while the Buckingham Canal may possibly be extended southwards to near Point Calimere, a distance of 156 miles from the Pálár.

5. Under the rules as they at present stand, it will be seen that there are considerable obstacles in the way of through navigation. The rates of license fee for each system of canals are now certainly not oppressive in the deltas, but 10 rupees a ton per annum for the use of 243 miles of the Buckingham Canal seems very heavy. Supposing a boat to ply between Madras and Cocanada continually, and to take out licenses for all canals, it would pay—

Buckingham Canal	10	rupees per ton	of 50	cubic feet.
Kistna Canals	2½	„ „	of 75	„
Godávari Canals	3½	„ „	of 75	„

or a license might be taken out for one section, and tolls paid at entering each other section, which would clear the boat for one trip. In any case, at each toll station on the through journey, 5 on the Buckingham Canal, 3 on the Kistna, and 2 on the Godávari, the boat would be stopped to exhibit its license, and a door would be opened for "exactions which cannot be confined to those demanded on behalf of the public." Taking into account the very incomplete state of the Buckingham Canal, and the difficulty which is at times experienced in navigating it, the high rate of license fees, and the interruptions to traffic caused by the frequent toll stations, it is surprising that navigation has extended as it has. It must also be noticed that the Kistna Canals are closed for repairs for three months yearly, and the through traffic is necessarily interrupted for that time.

6. The Committee appointed by Government in G.O., No. 612 I., dated 5th August 1882, was instructed to take the following points specially into consideration :—

(1) The abolition, as far as possible, of tolls ;
(2) The license fees to be charged for the canals throughout ;
(3) The measurement of boats with reference to the adoption of one unit of measurement ;

and in their report now submitted they have embodied their proposals attaching a revised set of rules to be applicable to all the canals on the East Coast if their proposals are approved.

7. The Committee originally appointed consisted of Mr. Rundall, Superintending Engineer, Second Circle ; Mr. Walch, Officiating Superintending Engineer, First Circle, and Major Drake-Brockman ; but in consequence of the latter officer having taken leave before the Committee could meet, Mr. Ottmann, Honorary Assistant Engineer, who was acting for him, was appointed in his place. Mr. Ottmann has submitted a separate memorandum calling attention to some additions, which on further consideration he suggests should be made to the rules proposed by the Committee, and these will be considered further on. The whole of the papers were on the return of Major Drake-Brockman from leave sent for his consideration, and he has stated his concurrence generally with the Committee's views.

8. Regarding the first point referred to them, the Committee consider that tolls cannot be entirely abolished, but that to allow of the occasional use of the canals without taking out a license, toll stations must be maintained at the head locks of each section of the deltas, all tidal locks, at Ellore near the junction of the Godávari and Kistna Canals, and four places on the Buckingham Canal, for the public convenience, thus reducing the number of toll stations from 47 to 20. To these proposals I agree on the understanding that the toll stations are maintained for the public convenience only, that no obstructions such as now exist in the shape of a chain drawn across the canal shall be allowed, and that the toll taker has no authority to stop any boat or call for the production of its license unless there is some apparent infringement of

the rules. A subordinate in the position of a Lock Superintendent or toll-keeper should never be allowed the powers of an Inspecting Officer. It apparently was contemplated by Mr. Ottmann that, at the proposed toll stations on the Buckingham Canal, all licenses would be produced for examination as at present, and in his memorandum he specially notices that some examination of the boats will be necessary, while the canal remains as at present one open reach from Shadayankupam Lock to Pedda Ganjam. There is of course an opening for boats to ply in this reach without licenses to get in by paying a toll and remain at work for an indefinite period, but this will be impossible when flood-gates are constructed at several places, and meanwhile I consider that the Division and Sub-division officers should, as Inspecting Officers, pay special attention to the subject, and endeavor to prevent evasions of fees. Under no circumstances would I allow the toll-keepers to have any thing to do with this duty ; they should be restricted to issuing toll tickets when called upon to do so. It is better to risk some loss than to harass the traffic. As to the amount of toll I shall have to make some remarks further on.

9. The Committee recommend that one unit of measurement should be adopted for all canals, and that the ton should consist of 50 cubic feet. It is only lately, in August 1881, that, on the recommendation of Colonel Mullins, a ton of 75 cubic feet was introduced into the Godávari and Kistna Canals. The reasons for this change are given in the note printed with G.O., No. 484 I., dated 3rd August 1881, and I am unwilling to propose any radical alterations, but I quite agree with the Committee that to avoid confusion there must be only one unit of measurement, and I consider it quite unnecessary to make any attempt to reconcile the weight of cargo with the cubic space it occupies. For some years a ton has been considered to be 50 cubic feet, and I would retain this measurement, charging license fees by this unit, and only providing in the rules for a certain safe free board in all cases.

10. The Committee next proceed to give the rates at which they propose to fix license fees and tolls, and here they follow the system at present in force to some extent. They propose a separate license fee for each system, and a compound rate for all these systems, but they do not propose to retain the present plan of charging a separate fee for each section of the Buckingham Canal. Passenger boats of both classes are dealt with in the same way as cargo boats, also steamers. I am prepared here to go a great deal further than the Committee. What I desire to see is one demand to clear all the canals. I would remove all obstacles in the way of navigation that I possibly could, believing that the interests of Government will be best served by improving the communications, stimulating consumption, and consequently extending production.

The argument that, if 2 rupees is charged for carriage of 100 miles, more should be charged for carriage of 500 miles is not here I think applicable. In the case of the Godávari and Kistna Delta Canals, the irrigation gives a splendid return on the expenditure without any receipts from navigation, and the Buckingham Canal has been carried out as a Protective Public Work, and a return is to be looked for, from free and extended use of it. I consider that all that should be looked for is that the navigation receipts should cover the working expenses, by which I mean the cost of the navigation establishments and of maintenance of navigation works, and this I believe will soon be the case on all three of the existing systems. It must be remembered that the canals of two of these systems are still in a very incomplete state, and it should not be expected that as soon as a canal is opened it will pay its way.

11. The following statement shows at a glance the present rates of license fees, those proposed by the Committee, and those which I propose, and I have endeavored to make a comparison in statements appended between the actual receipts of last year, those to be expected if the Committee's rates are introduced, and if the rates I propose are adopted. The receipts should, I think, be credited to the system to which the boat belongs ; that is, a Kistna boat might be licensed in the Buckingham Canal, but the license fees would be credited to the Kistna system. I do not look for an immediate return, but I do expect that the opening of the canal to traffic in this way will eventually prove remunerative to Government, and I allow that it will be practicable to raise those rates at some future time :—

Cargo Boats.	Present Rates per Ton of 50 Cubic Feet.	Rates proposed by Committee.	Rates proposed by Chief Engineer for Irrigation.
	RS.	Rs. per Ton of 50 C. Feet.	Rs. per Ton of 50 C. Feet.
Godávari	2⅓	2 } 5	2½
Kistna	1⅔	1⅓	
Buckingham Canal ...	2 per section, 10 for whole canal.	3	
Passenger Boats, 1st Class.			
Godávari	4⅔	4 } 10	5
Kistna	4⅔	4	
Buckingham Canal ...	2 per section, 4 for whole canal.	4	
Passenger Boats, 2nd Class.			
Godávari	3⅓	3 } 7	3
Kistna	3⅓	3	
Buckingham Canal ...	2 per section, 4 for whole canal.	3	
Steamers.			
Godávari	5	4 } 10	5
Kistna	5	3	
Buckingham Canal ...	As cargo on passenger boats.	6	
Rafts, Timber.			
Godávari	4 annas per 100 square feet each canal.	8 annas per 100 sq. feet.	8 annas per 100 sq. feet.
Kistna	Do. ...	Do. ...	Do. do.
Buckingham Canal ...	1 anna per sq. yard...	Do. ...	Do. do.
Rafts, Bamboo.			
Godávari	2 annas per 100 sq. feet.	4 annas per 100 sq. feet.	4 annas per 100 sq. feet.
Kistna	Do. ...	Do. ...	Do. do.
Buckingham Canal ...	1 anna per sq. yard ..	Do. ...	Do. do.
Tolls for Vessels.			
Godávari	4 annas per ton each canal.	8 annas per ton per system.	8 annas per ton per system.
Kistna	Do. ...	6 do. ...	Do. do.
Buckingham Canal ...	4 annas per ton each section of canal.	12 do. ...	Do. do.
Tolls for Steamers.			
Godávari	Same as vessels ...	1 rupee per ton per system.	1 rupee per ton per system.
Kistna	...	12 annas do. ...	Do. do.
Buckingham Canal ...	...	1½ rupees do. ...	Do. do.

If my recommendations are approved, revised rules and bye-laws, which shall be applicable to all canals, will be drawn up. I agree with the Committee in considering that the navigation must be worked in the same way on all three systems, but I see the difficulty that there will be in enforcing the rules by stoppage of license on the Buckingham Canal where the open reach is so long, and I think it will be necessary, until the proposed improvements to the canal are carried out, to continue to the Buckingham Canal Divisional Officer the powers of a First-class Magistrate.

12. As regards the difficulty referred to by the Committee in consequence of the Delta Canals being under the orders of the Chief Engineer for Irrigation, and the Buckingham Canal under those of the Chief Engineer, Department Public Works, I may state my opinion that the Buckingham Canal should be under the Chief Engineer for Irrigation. It would tend to uniformity, and I am disposed to think that all water works should be in charge of the Irrigation Branch. I say this without expressing any personal feelings in the matter.

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13. The Committee ask for early orders, so that the new rules may be introduced on the 1st January 1882. This opens another question, viz., whether it is necessary that the navigation rates should continue to relate to the calendar year. The arrangement necessitates the figures in the accounts being shown for receipts in the calendar year, and for charges in the official year, and as I have lately recommended that the revenue year should be made to correspond with the official year, so I now recommend that the navigation year should be made to correspond with the official year. The change may occasion trifling inconvenience at first, but there are, I believe, no insuperable difficulties in the way.

14. In preparing revised rules I propose to take into consideration the addition proposed by Mr. Ottmann to be made to Section I.

CHEPAUK,
6th November 1882.

(Signed) J. O. HASTED, Col. R.E.,
Chief Engineer for Irrigation.

To the Joint Secretary to Government, Public Works Department, Irrigation Branch.

STATEMENT showing the Navigation Receipts and Charges of the Godávari, Kistna, and Buckingham Canals.

Year.	Receipts.	Year.	Maintenance Charges.	Balance.	Interest.
Godávari Canal.					
	RS.		RS.	RS.	RS.
1876	39,952	1875-76	37,713	2,239	23,372
1877	44,742	1876-77	37,959	6,783	25,154
1878	53,386	1877-78	43,855	9,531	27,125
1879	63,348	1878-79	40,582	22,766	28,128
1880	51,315	1879-80	47,307	3,908	28,994
1881	55,670	1880-81	55,106	564	24,504
Kistna Canals.					
1876	18,377	1875-76	31,963	— 13,586	300
1877	14,876	1876-77	29,584	— 14,708	308
1878	16,396	1877-78	25,262	— 8,866	373
1879	23,294	1878-79	34,653	— 11,359	2,916
1880	23,834	1879-80	35,980	— 12,146	5,807
1881	21,788	1880-81	60,330	— 38,542	8,054
Buckingham Canal.					
1880	1,09,805	1879-80	82,519	27,286	...
1881	1,20,056	1880-81	1,56,734	— 36,678	...

The maintenance charges on the Kistna and Buckingham Canals during 1880-81 were unusually high, owing to the damages caused by extraordinary floods and cyclone. The increase in the interest charges to the Kistna Canals is owing to the cost of the locks recently constructed on the Commamur Canal having been included in the amount on which interest was calculated.

562/14

STATEMENT showing the Estimated Receipts from Navigation at the Rates now in force compared with those proposed by the Committee and the Chief Engineer for Irrigation.

—	Actual Collection for 1881.			Estimated Collection at the Rates now in force.			Estimated Collection at the Rates proposed by the Committee.			Estimated Collection at the Rates proposed by the Chief Engineer for Irrigation.		
	Tons.	Rate.	Amount.	Tons.	Rate.	Amount.	Tons.	Rate.	Amount.	Tons.	Rate.	Amount.
Godávari Canals.												
		RS.	RS.		RS.	RS.		RS.	RS.		RS.	RS.
Cargo boats	21,530	2	41,935½	14,354	3½	50,239	16,148	2	32,296	21,530	2½	53,825
Do. by compounding ..	..	..	..	..	..	..	10,710	1½	16,065	..	..	..
Passenger boat, 2nd class	1,913	3	5,702¾	1,275	5	6,375	1,435	3	4,305	1,913	3	5,739
Do. by compounding ..	..	..	..	..	..	..	1,486	2⅓	3,470	..	..	..
Steamers	21	5	105	14	7½	105	21	4	84	21	5	105
Tolls	10,319	¼	2,579¾	6,880	¼	1,720	10,319	½	5,160	..	..	1,000
Rafts	..	..	4,909	..	..	4,985	..	..	9,970	..	..	9,970
Miscellaneous Revenue ..	..	..	358	..	..	358	..	..	358	..	..	358
Total ..	..	..	55,676	..	..	63,782	..	..	71,705	..	..	70,997
Kistna Canals.												
Cargo boats	14,957	1	14,972	9,971	2½	24,927	11,218	1½	16,827	14,957	2½	37,392
Do. by compounding ..	..	..	..	..	..	..	10,710	1¼	13,387	..	..	..
Passenger boat, 2nd class	793	3	2,379	529	5	2,645	595	3	1,785	793	3	2,379
Do. by compounding ..	..	..	..	..	..	..	1,486	2⅓	3,470	..	..	..
Tolls	10,996	¼	2,749	7,331	¼	1,833	10,993	⅜	4,123	..	..	1,000
Rafts	..	..	1,484	..	..	1,484	..	..	2,968	..	..	2,968
Miscellaneous	..	..	204	..	..	204	..	..	204	..	..	204
Total ..	..	..	21,788	..	..	31,093	..	..	42,764	..	..	43,943
Buckingham Canals.												
Cargo boats	6,352	2	12,704	..	..	..	4,764	3	14,292	6,352	2½	15,880
Do. by compounding ..	..	..	..	..	..	..	10,710	2¼	24,097	..	..	..
Passenger boats, 2nd class	3,240	2	6,480	..	..	..	2,455	3	7,365	3,240	3	9,720
Do. by compounding ..	..	..	..	..	..	..	1,486	2⅓	3,470	..	..	..
Tolls	..	..	95,667	..	..	..	..	..	..	..	..	1,500
Rafts	..	..	100	..	..	..	..	..	750	..	..	75
Miscellaneous	..	..	5,104	..	..	..	..	..	5,104	..	..	5,104
Total ..	..	..	1,20,055	..	..	..	..	..	54,343	..	..	32,279

Memorandum by the Executive Engineer, Buckingham Canal, replying to questions put by the Chief Engineer, Public Works Department.

(1.) What the annual maintenance charges may, on completion of the work, amount to?

The allotment for maintenance during the current year is—

	RS.
For Southern Canal, 61 miles, at Rs. 110	6,710
,, Northern ,, 207 ,, at ,, 275	56,925
	63,635
Minor repairs to masonry works	5,000
	68,635

The allotment hitherto made for the Southern Canal has been found sufficient, and I think when the canal reaches have been remodelled throughout, the whole canal will be put into a condition that as regards the cost of maintenance, will compare favorably with the present condition of the Southern Canal. The immunity the Southern Canal enjoys from inordinate silting, results from the drainage flowing into its backwater in numerous small drainages, and not in a concentrated form through large streams or rivers which carry down large quantities of silt, and backing into the several still-water reaches of the Northern Canal, form large shoals at their entrances and for considerable distances upwards from their mouths. I consider therefore that when the improvements to the canal have been effected that no greater expenditure per mile will be necessary for its maintenance than has been found requisite for the Southern Canal even in its present unimproved condition. For the 266 miles therefrom an allotment of Rs. 30,000 should prove sufficient, but taking into account the number of river crossings on the Northern Canal that are liable to obstruction, a sum of Rs. 10,000 may be added, bringing the sum total to Rs. 40,000.

(2.) What at the end of the remaining eight or nine years required for completion of the works under the lately revised Estimate the sums levied for licenses and tolls under the revised scale should, making due allowance for all reasonable increase, amount to?

With regard to this subject it may not be out of place, to give here a few particulars regarding the progress of navigation on the Buckingham Canal, and show the effect that the raising of tolls thereon of late years has had upon its development.

Prior to the assumption in October 1879, of the duty of levying tolls upon or issuing licenses for boats that were plying on the canal, the Collector of the Chingleput District was accustomed to levy, under the orders of the Board of Revenue, a toll of four annas per ton upon every cargo boat, and four annas per trip on every passenger boat passed through the Shadayankupam Lock towards Madras. No tolls were levied on boats entering Madras from the southward. The receipts from these aggregated respectively in 1875, 1876, 1877 and 1878 Rs. 51,113, 39,869, 23,110, and 47,130. The falling off in 1876, 1877 may be attributed to the famine. The receipts from the licenses issued to boats on the Southern Canal amounted to an average collection of Rs. 1,400. In October 1879 this system was abolished, and licenses and tolls began to be levied under the new Navigation Rules which still continue in force.

The collections in 1880, 1881 and up to November 1882 amounted to Rs. 1,09,808, 1,16,527, and 1,00,037, respectively, or to more than twice the amount previously collected. Instead, however, of the number of boats decreasing, consequent upon the multiplying of toll stations and the introduction of a more complicated system of tolls under the rules, the number has actually progressively increased as is shown from the table hereto appended:—

Years.			UNCOVERED CARGO BOATS.		COVERED CARGO, PASSENGER AND RADARI BOATS.		DECK AND DINGHEE BOATS.		FISHING BOATS.		MISCELLANEOUS BOATS.		TOTAL.	
			Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.
1879	..	..	252	3,974	282	1,919	4	70	144	232	41	92	723	6,287
1880	..	..	369	6,206	463	3,567	19	315	90	110	46	80	992	10,278
1881	..	..	379	6,352	533	3,240	29	367	155	* 211	32	45	1,128	10,215
1882	..	..	377	6,394	554	3,522	22	283	62	* 152	40	200	1,055	10,561

The establishment of tolling stations does not appear therefore to have had a prejudicial effect upon the number of boats that use the canal. The brunt of paying the tolls comes upon the well-to-do merchants who hire the boats for carrying their goods to market, and this they can always afford to do without difficulty, and the boat-owner who builds his boat to earn a livelihood is in no way affected. The principle, however, of abolishing toll stations, and removing the powers from petty subordinates of extorting more than they are authorized to collect is a correct one, and should if possible be carried out. But the retention of two tolling stations on the canal, say, at Shadayankupam and another at Adyar Lock, would not be objectionable, as these stations would from their proximity to the headquarters of the division be open to frequent check and scrutiny. I would recommend, therefore, as a direct means of simplifying the method of collection of revenue that a modification of the original system of collections, viz., 4 annas per ton on all boats, be established. The number of boats that passed through the locks at Shadayankupam and the Adyar during 1881 amounted to 241,207 tons, which at 4 annas per ton would give 60,000 and odd rupees. This added to the expected revenue from Licenses as per statement given by the Chief Engineer for Irrigation would bring up the receipts of the Buckingham Canal to about 93,000 rupees.

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* These do not pay tolls nor fees.

The charge under the establishment proposed under this scheme in the accompanying table would be 11,500 rupees, which added to the amount required for maintenance would bring the sum total of charges to Rs. 51,500.

BUCKINGHAM CANAL.

TABLE showing the Establishment proposed for Toll Offices, Locks and Flood-gates.

Locality.	Establishment. No.	Establishment. Nature of Appointment.	Average Salary per Month.	Amount per Annum.	Total.
			RS.	RS.	
Toll Office at Shadayankupam.	1	Clerk, IV Class, 2nd Grade ...	35		
	1	Do. 3rd	25		
	1	Clerk, V Class, 1st Grade	17½		
	1	Do. 2nd ,, ...	12½		
	2	Peons at Rs. 7 each	14		
			104	1,248	
Lock at Shadayankupam.	1	Head Lascar	8		
	4	Lascars at Rs. 7 each	28		
			36	432	
Junction Canal Lock at Adyar.	1	Head Lascar	7		
	4	Lascars at Rs. 6 each	24		
			31	372	
Sadras Canal Lock at Adyar.	1	Head Lascar	7		
	4	Lascars at Rs. 6 each	24		
			31	372	
Toll Office at Adyar Lock.	1	Clerk, IV Class, 3rd Grade ...	25		
	1	Clerk, V Class, 1st Grade	17½		
	2	Peons at Rs. 7 each	14		
	2	Lascars at Rs. 6 each	12		
			68½	822	
47 Flood-gates, 2 Lascars at each.	94	Lascars at Rs. 6 each	564	6,768	
Basin at Madras ...	1	Clerk, IV Class, 2nd Grade ...	35		
	3	Peons at Rs. 6 each	18		
			53	636	
Division Office at Madras.	1	Clerk, IV Class, 3rd Grade ...	25		
	1	Clerk, V Class, 1st Grade	17½		
	2	Peons at Rs. 6 each	12		
			54½	654	
		Contingencies	...	196	
		Total ...	...	...	11,500

CHEPAUK,
16th December 1882.

(Signed) R. E. E. DRAKE-BROCKMAN, Major, R.E.,
Executive Engineer, Buckingham Canal.

Note by the Chief Engineer, Public Works Department.

It having been brought under the notice of Government that hindrance to the traffic between Madras and the northern deltas was caused by the navigation rules of the Buckingham Canal differing from those applicable to the Godávari and Kistna deltas, and to the possible abuses from the through traffic being called upon to pay frequent tolls, the following Committee was, under G.O., of 5th August 1882, No. 612 I., appointed to consider and report on the matter, viz. :—

J. W. Rundall, Esq., Superintending Engineer, Second Circle, President.
G. T. Walch, Esq., Officiating Superintending Engineer, First Circle, } Members.
Major Drake-Brockman, Executive Engineer, Buckingham Canal, }

2. The points to which the attention of the Committee was specially drawn were—

(1) The abolition, as far as possible, of tolls.
(2) The license fees to be charged for the canals throughout.
(3) The measurement of the boats with reference to the adoption of one unit of measurement.

3. Major Drake-Brockman being absent on leave, his place was taken on the Committee by his *locum tenens*, Mr. Ottmann, Honorary Assistant Engineer; but as will be observed from the printed collection now submitted, the Executive Engineer has had every opportunity for expressing his opinion.

4. The accompanying papers are in themselves so full and complete that it will be needless to do more than summarize the conclusions arrived at by the Committee, and those of the Chief Engineer for Irrigation, who has noted at length on the case.

5. On the first point referred to them the Committee consider that although tolls cannot be entirely abolished, the number of existing stations may with advantage be reduced from 47 to 20. To allow of the occasional use of the canals without taking out a license, toll stations must, they consider, be maintained at the head locks of each section of the deltas, at all tidal locks, at Ellore near the junction of the Godávari and Kistna Canals, and at four places (viz., Pedda Ganjam, Kundaleru, Shadayankupam, and Adyar) on the Buckingham Canal.

6. In regard to the second point the Committee propose a very considerable reduction on the license fees, especially on the Buckingham Canal, which are nearly five times those for the corresponding lengths of the Godávari Canals.

7. By paragraph 28 the proposed through rates, and the proportions in which the revenue should be credited to each system should, they consider, be as follows :—

Cargo Boats.

		RS. A. P.
Amount of through licenses		5 0 0
Godávari system	1 8 0	
Kistna ,, ...	1 4 0	
Buckingham Canal	2 4 0	
		5 0 0

Passenger Boats.

(*a*) and (*c*) classes, through license		10 0 0
Godávari system	3 0 0	
Kistna ,, ...	2 8 0	
Buckingham Canal	4 8 0	
		10 0 0
(*b*) and (*d*) classes, through license		7 0 0
Godávari system	2 4 0	
Kistna ,, ...	1 8 0	
Buckingham Canal	3 4 0	
		7 0 0

8. On the third point the Committee definitely recommend that the unit hitherto adopted for the Buckingham Canal, viz., that 50 cubic feet should represent

a registered ton, instead of 75 cubic feet, as not long since introduced on the Godávari and Kistna Deltas.

9. The Chief Engineer for Irrigation accepts the Committee's recommendation on the first head, with the proviso that no obstruction such as a chain drawn across the canal (as at present) shall be allowed at the tolling stations; also that the toll-taker shall have no authority to stop any boat for the production of its license unless there is some evident infringement of the rules. He would confine all such action to the Inspecting Officers alone, considering it better to risk some loss than harass traffic.

10. Under the second head Colonel Hasted, while agreeing to the general principles, is prepared to go much further than the Committee by making one demand for license to clear all the canals, and by otherwise removing all possible obstacles to navigation, believing that the interests of Government would best be served by improving the communications, stimulating consumption, and extending production. All he considers that should be looked for is that, the navigation receipts should cover the working expenses when the canals have been completed and brought into normal condition, excluding interest charge on capital outlay.

11. The scales of license fees as suggested by Colonel Hasted (see paragraph 11 of his Note) for cargo boats, passenger boats, and steamers, are just one-half those recommended by the Committee, while for rafts the scale is the same.

12. In the matter of tolls, he would substitute the uniform rate of 8 annas per ton for boats, and one rupee per ton for steamers for each system, in lieu of the Committee's rather heavier rates, and the existing ones on the Buckingham Canal, which are acknowledged to be both heavy and vexatious.

13. Major Drake-Brockman, to whom the question of licenses and tolls was referred, chiefly in view to show what would be the probable financial effect of the suggestions made by the Committee, and by the Chief Engineer for Irrigation, has recorded his opinion in a memorandum of the 16th December.

14. The main point brought prominently into view by this officer, is the large outlay now required for the maintenance of the Buckingham Canal in its present incomplete condition, and the sensible reduction which must occur when the improvement works, which have been estimated for and are being carried out, shall have been completed. The total future annual charge for the 266 miles open, he considers, should not exceed Rs. 40,000.

15. While showing what the collection from tolls has been during the past four years, he has taken no credit for future increase, which, when the trade has been freed from the present harassing system of tolls, may reasonably be expected to show itself. The growth of the revenue in the last few years does not, it is thought, prove that tolls are acceptable to boat-owners or others engaged in trade, so much as that the vitality of the traffic is so great that, the revenue has increased in a very marked manner in spite of all obstacles.

16. In addition to the license fees proposed by the Chief Engineer for Irrigation, Major Drake-Brockman would establish only two toll stations, viz., at the Adyar lock, the head of the southern branch, and at Shadayankupam, the southern extremity of the north branch of the Buckingham Canal.

17. With a toll of 4 annas per ton on the whole outward and inward traffic passing the locks (aggregating 241,207 tons) he calculates on a revenue from this source only of Rs. 60,000 per annum.

18. The plan, though apparently simple, would have the objection that the rate charged on boats plying near the extremities of the canals would be unduly heavy, while others might escape all tolls, e.g., a boat making three outward trips would pass the toll station six times, and pay 1½ rupees per ton, which is certainly very heavy, while any boat plying within the full length of the canal beyond the toll station, would pay nothing.

19. Colonel Hasted, on a further reference made to him regarding the cost of establishment, gives the following for his scheme:—

Toll Stations.	Establishment.	Pay.	Total.
		RS.	RS.
Shadayankupam Lock	1 Superintendent ... ... 2 Lascars at Rs. 7 ... ... 2 Do. at „ 6	15 14 12	41
Adyar Lock	1 Superintendent ... ... 2 Lascars at Rs. 7 ... ... 2 Do. at „ 6	15 14 12	41
Pedda Ganjam Lock	1 Superintendent ... ... 1 Lascar	15 6	21
Kundaleru	1 Superintendent ... ... 1 Lascar	15 6	21
Wharf at Madras	1 Superintendent ... ... 1 Clerk ... ... 2 Lascars at Rs. 6	50 17½ 12	79¼
Total per Mensem ...	......	...	~~258~~ 204
Total per Annum ...	......	...	3,096 2448

20. Assuming the maintenance charges at Rs. 40,000, the amount estimated by Major Drake-Brockman, allowing for contingencies, establishment and maintenance, would not exceed Rs. 45,000 per annum when the canal shall have been completed.

21. As even with the present imperfectly developed traffic the license fees and tolls would on Colonel Hasted's scale amount as shown to over Rs 32,000 per annum, it would only need a wharfage charge of about 1 anna a ton levied at Madras, to bring receipts and disbursements into equilibrium.

22. A wharf is now being constructed near the basin at Madras, and it may be desirable to build another to south of the Adyar lock. A charge such as that indicated at both places would be in every way reasonable, and it certainly would be necessary to prevent all discharge of cargo excepting at the selected places.

23. On the whole, therefore, the proposals put forward by the Chief Engineer for Irrigation, supplemented by the small wharfage charge which he himself has suggested, would, it is thought, prove most suitable.

24. It is of the utmost moment that a work which holds out such promise of success in ordinary years, and of proving itself of inestimable value during famine, should be freed in its infancy from all needless trammels.

25. Among other points which have incidentally entered into the questions raised, is one regarding the branch of this department, by which in future the work should be controlled.

26. Reasons have hitherto existed, needless here to state, which have made it advisable to retain the control in the general branch of the department. These, however, do not now exist in the same force as formerly, and certainly if in future complete uniformity of management is to be introduced for all the canals as forming part of a general system, it would be desirable to transfer the management of the Buckingham Canal to the Irrigation Branch.

27. Another point has reference to the period covered by the annual returns, which hitherto has been the calendar and not the official year. There seems no reason why the latter should not now be reverted to as being in every way the most convenient. Should the above approve themselves to Government, orders might issue at a sufficiently early date to admit of the introduction of the new system in its entirety from the 1st April next.

MADRAS,
26th January 1883.

(Signed) R. H. SANKEY, Colonel, R.E.,
Chief Engineer, P.W.D.

562/17

C. A. W.

This Collection should better be printed at once to be ready by 20th inst. — omitting portions marked.

When completed I will submit a note which will allow of the whole subject being freely discussed with Colonel Brownlow on his arrival about 25th inst.

10/1/83

To W

Proof submitted

17.1.

Cor C 6/2 R. 9/2

[illegible] 7/ R. 18/

562/12

Note by the Chief Engineer

It having been brought under the notice of Government ~~that~~ hindrance to the traffic between Madras and the Northern deltas was caused by the navigation rules of the Buckingham Canal differing from those applicable to the Godavari & Kistna deltas and to the possible abuses from the through traffic being called upon to pay frequent tolls, the following Committee was under G.O. 6 of 5th August 1882 No 612 I appointed to enquire and report on the matter viz.

J W Rundall Esqr
SE 2nd Circle President
G. T. Walch Esqr
Offg SE 1st Circle
Major Beale-Browne
EE Buckingham Canal } Members

The points to which the attention of the Committee was specially directed were

Cir C 6/2 Rd 9/2
Com 7/2 R 18/

1 The abolition as far as possible of tolls

2 The license fees to be charged on the canals ~~[illegible]~~

3 The measurement of the boats with reference to the adoption of one unit of measurement

Major Drake Brockman being absent on leave his place was taken on the Committee by the locum tenens Mr Stevenson Asst Engineer, but as will be observed from the printed Collection now subsequently ~~[illegible] the Executive~~ Engineer has had an opportunity for expressing his opinion

The papers submitted are in themselves so full and complete that it will be needless to do more than summarize the conclusions arrived at by the Committee and those of the Chief Engineer for Irrigation who has noted at length on the case

On the first point referred for their consideration the Committee consider that although tolls cannot be entirely abolished the number of [illegible] stations may be with advantage be reduced from 47 to 20

To close of the occasional use of the Canals without taking out a license toll stations must they consider be maintained at the head locks of each section of the deltas, at all tidal locks, at Ellore near the junction of the Godavari & Kistna Canals and at four places (viz. Pedda Ganjam [illegible] Shedayenkuppam and Adyar) in the Buckingham Canal

In regard to the second point the Committee propose a very considerable reduction in the license fees especially in the Buckingham Canal which are nearly five times ~~that~~ of the corresponding lengths of the Godavari Canals

By para 28 the proposed through rates and the proportions in which the revenue should be credited to each system should they consider be as follows

On the third point the Committee definitely [illegible]

[illegible] C 6/2 No 9/2
[illegible] 7/ No 14/

Command that the units hitherto adopted for the Buckingham Canal viz: that 58 cubic feet should represent a ~~[illegible]~~ registered ton instead of 75 cubic feet as at long since introduced in the Godavari & Kistna deltas

The Chief Engineer [illegible] ~~[illegible]~~ accepts the Committee's resolution on the first head with the proviso that no obstruction such as a chain drawn across the Canal (as at present) shall be allowed at the tolling stations, also that the toll taker shall have no authority to stop any boat for the production of its license unless there is some evident infringement of the rules — he would confine all ~~[illegible]~~ such action to the inspecting officers alone considering it better to risk some loss than harass traffic

Under the second head Colonel Hasted while agreeing to the general principles is prepared to meet further than the Committee by making no demand for license to clear all the Canals [illegible] [illegible]

removing all possible obstacles to navigation believing that the interests of Government would best be served by improving the communications, stimulating consumption, and extending production — All he considers that should be looked for is that the navigation receipts should cover the working expenses when the canals have been completed and brought into normal condition, excluding interest charge on capital outlay

The scale of license fees as suggested by Colonel Hasted (see para 11 of his note) viz for cargo boats, passenger boats, and steamers are just one half ~~that recommended~~ by the Committee while for rafts the scale is the same

In the matter of tolls he would substitute the uniform rate of 3 annas per ton for boats and 1 Rupee ditto for steamers for each system in lieu of the cumulative mileage rate and the existing ones on the Buck

Cir C 6/2 No 9/2
[illegible] 7/ No 18/

-ingham Canal which are acknowledged to be both heavy and vexatious

Major Drake-Brockman to whom the question of licenses & tolls was referred chiefly in view to show what would be the probable financial effect of the suggestions made by the Committee, and by the Chief Engineer for Irrigation, has recorded his opinion in a memo of the 16th December

The main points brought prominently into view by this opinion is the large outlay now incurred for the maintenance of the Buckingham Canal in its present incomplete condition and ~~[illegible]~~ the sensible reduction which must occur when the improvement works which have been estimated for and are being carried out shall have been completed; The total future annual charge for the 266 miles open be considered should not exceed Rs 40000

While showing what the collection from tolls has been during the past 4 years he has taken no credit for future increase which when the trade has been freed from the present vexatious system of tolls may reasonably be expected to show itself - The growth of the revenue in the last few years does not, it is thought, prove that tolls are acceptable to boat owners or others engaged in trade so much as ~~[illegible]~~ that the vitality of the traffic is so great ~~[illegible]~~ that the revenue has ~~[illegible]~~ increased in a marked manner in spite of all obstacles

In addition to the license fees proposed by the Chief Engineer for Irrigation Major Drake Brockman would establish only two toll stations viz at the Adyar lock at the head of the Southern branch and at [illegible] the southern extremity of the North branch of the Buckingham Canal -

Under a toll of 4 annas per ton on the whole external and inward traffic passing the locks (~~[illegible]~~ aggregating 241 267 tons) he calculates on a revenue from this source only of Rs 60000 per annum

The [illegible] [illegible] apparently

Cor C 6/2 R 9/2

Recd 7/2 R 17/

48/22

Principle would have the objection that the rate charged on boats plying near the extremities of the canals would be unduly heavy while others would escape all tolls e.g. a boat making three outward trips would pass the toll station 6 times and pay 1½ Rs per ~~trip~~ which is certainly very heavy while any boat plying within the full length of the canal beyond the toll ~~station~~ would pay nothing.

Colonel [illegible] in a further reference made to him regarding the cost of Establishment gives the following for his scheme

Toll station	Establt.	per	total
[illegible] Locks	1 Superintendt	15	
	2 Peons @ 7	14	
	2 do @ 6	12	41
Adyar Lock	ditto	"	41
[illegible] Lock	1 Supdt.	15	
	1 Peon	6	21
[illegible]	ditto	"	21
Wharf at Madras	1 Superintendt	50	
	1 Clerk	15½	
	2 Peons @ 6	12	77½
	Total per mensem Rs		258
	Total per annum Rs		3096

Assuming ~~the~~ maintenance charges at Rs 10,000 the

amount Estimated
by Major Brookman
~~[illegible]~~ allowing for contingencies
~~[illegible]~~
for Estab and maintenance
would not exceed Rs
45,000 per annum when the
Canal shall have been
completed ~~Completely~~
~~agreement~~

As soon as the present
imperfectly developed
traffic the ~~[illegible]~~ license
fees and tolls would on
a [illegible] Scale
amount as close to over
Rs 32,000 per annum it
would only need a clearance
Charge of about 1 anna
a ton levied at Madras
to bring receipts and
disbursements into Equilibrium

A wharf is now being
constructed near the basin
at Madras and it may
be desirable to build
another to [illegible] the
Adyar lock — A charge
such as that indicated
at ~~[illegible]~~ both places would be
in any way reasonable
and it certainly would
be necessary to [illegible]

Cor C 6/2 R 9/2
Recd 7/2 R 13/2

all discharge of cargo at other places

On the whole therefore the proposals put forward by the Chief Engineer for Irrigation supplemented by the wharfage charge which he himself has suggested would it is thought prove most beneficial

It is of the utmost moment that a work which holds out such promise of success in ordinary years and of [illegible] inestimable value during famine should be freed in its infancy from all needless trammels

Among other points which have incidentally entered into the question raised is one regarding the branch of the Department by which in future the work should be controlled

Reasons have hitherto existed, needless here to state, which have made it advisable to retain the control in the General branch of the Department

These reasons do not now exist in the same force as formerly, and certainly if in future complete uniformity of management is to be introduced in all the canals as forming part of a general system it would be desirable to transfer the management of the Buckingham Canal to the Irrigation branch

Another point was in reference to the period covered by the annual returns which hitherto ~~[illegible]~~ has been the Calendar and not the Official year

There seems no reason why the latter should not now be reverted to as being in any way the most convenient. Should ~~[illegible]~~ the above proposals therefore ~~[illegible]~~ be approved orders might ~~[illegible]~~ issue at a sufficiently early date to ~~[illegible]~~ permit of the introduction of the new system in its entirety from the 1st April next

Camp at Ellore. P 1
12th October 1882.

From 582/25

The Committee

Convened in accordance with

P. M. G. No 612 I. of the 5th August 1882

To

The Chief Engineer

for Irrigation.

Enclosures 1 Draft of rules

Sir,

1 We have the honor to report that having met at Peddapuram, we have discussed the matters referred for our consideration regarding the modifications of the Navigation Rules for the Canal System of the East Coast.

2. As regards the first point to which our attention was directed, we have agreed that tolls cannot be entirely abolished, but that tolls should be charged on the basis of time, rather than on that of distance or direction of journey. This would admit of the number of toll Stations at present existing being considerably reduced.

3. We consider it necessary to maintain

Cir C 6/2 R 9/2
7/2 R 15/

a System of tolls in the interest of the public, for although annual licenses are simpler and less harassing to frequent users of the Canals, yet the occasional use of the Canals of a System should not necessitate the taking out of a whole year's license.

4. We think that if tolls are kept within reasonable limits as to rate and frequency of Collection, boats which otherwise would confine themselves to the one System for which they were licensed, would make occasional use of the Canals of other systems to the general advantage of the public.

5 We therefore recommend the retention of tolls but on a modified System.

6. Our proposals are, that tolls shall be paid at the rate of $\frac{1}{4}$ the annual license fee for each separate System and that a toll once paid at any Station of a System shall clear the vessel through all the Canals of that System and in any direction for a period of six weeks.

7. We have fixed upon this period as that which would suffice for a through return trip for the greatest distance on the main line, and we have fixed the amount so that it shall be to the advantage of users of the Canals for more than 6 months to take out a license.

8. It will be seen that tolls under this System are practically short licenses.

9. In considering the positions for toll Stations, we have thought it advisable to place them as far as possible where there is a natural stop, not at places where artificial bars have to be placed across clear reaches of the Canals at which all traffic is stopped whether toll has to be taken or not.

10. We propose therefore that the only Toll Stations shall be the Head Locks of each Section of the Deltas, all tidal Locks, the Ellore Lock, the Western Tammileru aqueduct on the Kistna Ellore Canal where the Godavari and Kistna Systems join and the following places on the Buckingham Canal.

1. Pedda Ganjam where the Kistna and Buckingham Canal Systems join.

2 Kandleru River. We propose this place, because a toll Station intermediate between Peddaganjam and Shadyankupam Lock is required, so that Boats working on the Canal between these places can obtain toll tickets without being compelled to proceed for that purpose, to either extremity of this long reach of 188 miles.

3 Shadyankupam Lock (north of Madras)

4 Adyar Southern Lock (South of Madras)

11. The Toll Stations on the 3 Systems will be reduced from a present number of 47 to 20

12. We propose that the period for which a toll ticket remains current shall in the case of rafts, be only one month, as it is very necessary, that they should not be allowed to linger in the Canal to the inconvenience of the general traffic.

13. Under the rules for rafts sanctioned in G.O. No. 384 of the 8th May 1882, a fresh toll was charged at the end of 3 weeks or when the raft changed its direction. We propose, that as in the case of boats a toll once paid, shall clear a raft throughout the System and in any direction but that the toll should in consideration of the much greater length of Canal which will be thus opened out by one payment, be double the present Godavari and Kistna rates. This however will be a very considerable reduction on the present Buckingham Canal rates. The proposed rates form but a small proportion of the value of rafts and hence will not be oppressive

14 Points 2 and 3 mentioned in para. 5 of the G.O. as specially referred to us, are so intimately connected that it is necessary to consider them together.

15. For through traffic it is essential that there shall be only one unit of measurement, and we consider the unit should be that formerly in use in the Deltas, and still in use on the Buckingham Canal viz 50 Cubic feet, which may for convenience be called a Ton.

16. We consider that having fixed a measure of Capacity and provided for uniformity in the System of measurement, it is unnecessary that any attempt should be made

to reconcile this with the weight carrying capacity of various builds of boats.

17. As regards the rates of license fees, having reverted to the previous unit, we propose for the Godavari System, to revert also to the previous rate of Rs 2 per 50 Cubic feet, in the case of Cargo boats.

18. In the Case of the Kistna, we consider it equitable to fix a rate somewhat higher than that in use with the old unit (Rs 1); because the main line of the system has recently been much improved and connected with the Buckingham Canal. We therefore propose a fee of Rs 1½ per 50 Cubic feet.

19. Hitherto the rate for licenses for the whole of the Buckingham Canal, has been nearly 5 times the Godavari rate, and nearly 7 times the Kistna rate, the mileage on the Buckingham Canal, being not so much as that of the Kistna System, and about 7/9th of that of the Godavari. The result has been that Boats working on the Buckingham Canal, have found it to their advantage to work under the present any complicated System of tolls, rather than to take out licenses.

20. Considering that the Buckingham Canal serves a great extent of Country, and has a more important terminus than any in either the Godavari or Kistna Systems, we consider it advisable to recommend a rate of Rs 3 per 50 cubic feet for the amount of annual license fee.

21. In order to encourage through traffic, we propose a considerable reduction on the total license fees of the 3 Systems separately, when boats take out through licenses. The rate for these through Licenses for Cargo boats we would fix at Rs 5 per 50 Cubic feet.

22. As regards Passenger vessels, we find that the type of Boats in use in the Deltas, differs so much from those in use on the Buckingham Canal, that it is necessary to classify them.

23. For the Godavari and Kistna System, having reverted to the former unit of measurement, we propose, as in the case of Cargo boats, to revert to the former rates

24 For the Buckingham Canal, the proposed rates for the corresponding classes of boats have been made the same as in the Deltas.

25 In the case of Passenger Boats, we have however proposed, one important modification of present rules, viz that the space to be allowed for a passenger be increased from 5 to 7½ square feet. This we believe to be advisable in the interests of the public, as with 5 square feet, boats carrying their full number, are known to be inconveniently crowded for long journies. With through communication made cheaper and simpler, it is hoped that the numbers undertaking long journies may be increased.

26 We also propose that Passenger Boats should be allowed to take out through licenses at reduced rates.

27 Special provision has been made, for a modification of the rule regarding the number of passengers, on the occasion of festivals near Madras, to suit the circumstances of the local traffic at those times.

28 We propose that the Revenue derived from through licenses, should be credited to each System on the following proportions.

Cargo Boats

Amount of through License —— Rs 5.

Godavari System ——	Rs 1-8-0	Rs 5
Kistna do ——	" 1-4-0	
Buckingham Canal do ——	" 2-4-0	

Passenger Boats

(a) and (c) Classes, through license —— Rs 10.

Godavari System ——	Rs 3-0-0	Rs 10
Kistna do ——	" 2-8-0	
Buckingham Canal do ——	" 4-8-0	

(b) and (d) Classes through license —— Rs 7

Godavari System ——	Rs 2-4-0	Rs 7
Kistna do ——	" 1-8-0	
Buckingham Canal do ——	" 3-4-0	

As the proposed through License for Steamers is Rs 10 per 50 cubic feet, the amount to be credited to each System, will be the same as in the case of (a) and (c) passenger boats.

29. In the case of Steamers, we propose that they shall as heretofore pay double

the rates for Cargo boats, both for licenses and for tolls.

30. Instead of keeping the existing division of rules and byelaws which as at present arranged is inconvenient and occasionally misleading, we propose that all the regulations shall be embodied into one set of rules, and that these should be applicable to all the 3 Systems.

31. We have accordingly prepared the draft of a set of rules embodying our present proposals, and such of the old rules and byelaws, as it is advisable still to maintain, and submit them herewith for approval. We believe that these rules will be found more concise than the old ones, and more easily intelligible by those whom they affect.

32. We have drawn out and appended to these Rules, License and toll ticket forms adapted to the new rules.

33. As the Buckingham Canal has been placed under Madras Act I of 1870 ("The Canals and Ferry Act") whereas the Canals of the Delta Systems have not been brought under that act, there may probably be differences in their management, which would be unadvisable and likely to lead to complications when attempting to work the 3 Systems as one combined whole. We think all should be under the same rules. We are strongly of opinion however that the Delta Canal Officers should not be made magistrates, as their work is important and always heavy. In the Deltas, there has been no practical difficulty in enforcing the navigation rules, because the numerous Locks in both Systems, have enabled boats transgressing, to be at once punished by stoppage.

34. We also desire to bring to notice, that the Buckingham Canal, is at present worked under the direct orders of the Chief Engineer Public works Department, and the Delta Canals under the orders of the Chief Engineer for Irrigation. We would invite attention, if the Navigation of the 3 Systems is to be worked as a whole, to the advisability of ensuring uniformity of orders.

35. If the new Rules are to be brought into force, for the next Calendar year which

seems very advisable, we are of opinion that the orders of Government should be received by the 30th November *at the latest.*

We have the honor to be
Sir,
Your most Obdt Servants
J. W. Rundall
Supg Engr.

C. Stewart
Offg Supg Engineer.

Dy. Asst. Engr.

Draft of revised Navigation Rules for the Godavari Kistna and Buckingham Canals:

Systems.

T.D.

Reference to present Rules

Delta rules ——— I
Buckingham Canal do — III

[illegible]

I. *General*

1 No vessel or raft, will be allowed to enter or make use of any Canal, unless the Owner shall have previously taken out a License, or unless toll shall have been paid as hereinafter provided.

Delta rules — II
B. Canal do — III

[illegible]

II *Licenses.*

2 Licenses will be issued for vessels for a Calendar year only, and will entitle the vessel to navigate the Canals of the System for which the license is issued, from date of issue to 31st December following. The owner of a vessel desiring to obtain a license, shall apply in person or by letter to an Officer empowered to issue Licenses, viz the Executive Engineer of the Division or Officer authorised in writing by him. The owner shall give

to the licensing Officer the information required to fill up the License as shown in the License form.

Delta rules III
B. Canal do III

3. Every vessel licensed for the Conveyance of Cargo shall pay a License fee as follows:-

For the Godavari System Rs 2 per ton of 50 Cubic feet

For the Kistna System Rs 1½ do

For the Buckingham Canal Rs 3 do

N.B. Godavari System Licenses and Toll tickets hold good as far as the Western Lammileru Aqueduct on the Kistna Ellore Canal.

New Rule.

4. The annual license fees payable on Cargo vessels for the 3 Systems separately, can be compounded for one through license available over all the 3 Systems at the rate of Rs 5 per Ton. A Boat which has already taken out a license for either of the 3 Systems, will not be permitted to compound for that Calendar year.

Delta rules V
B. Canal do VIII

5. The gross tonnage of all vessels will be obtained by the following rule.

$$\frac{L \times B \times D}{50}$$

L being the length between the Stern and fore post at half the midship depth.

B being one sixth of the sum of 5 widths taken at equal distances along the above length. The width to be measured from the rib on one side to the planking (skin) on the other side

D being the depth measured amidship, from the top of the Kelson, or of the centre plank, to the underside of the deck planking, or to the top of the gunwale in open or passenger vessels.

The net or registered tonnage, on which the fee will be charged, will be.

For Steamers, the gross tonnage less onethird,

For other vessels, the gross tonnage less 15 per cent.

Fractions of a ton above the half will be Charged as one Ton.

Delta Rule V
B. Canal do none

6. On payment of the License

fee according to the rates fixed, a license will be issued which will entitle the vessel to the use of all the Canals of the System named in the License, without any other payment whatever. If a vessel after the issue of a License be enlarged, it shall not ply again until it has been remeasured, and a new license taken out. This will be granted on surrender of the previous license and on payment of the prescribed rate per ton for the difference between the old and new tonnage. The penalty for using on the Canals an enlarged vessel without a new license being taken out, will be the forfeiture of the license fee previously paid.

Delta Rules VI
B. Canal do IV and V

7. The license number with the distinguishing letter

G. Godavari
K. Kistna
B. Buckingham Canal

of the system, must be painted conspicuously in English figures, not less than 4 inches in height, on each bow of the vessels.

The tonnage of the vessel must be similarly marked in English figures on each side of the sternpost.

These marks must be put on the vessel before it commences to use the Canals, at the expense of the owner, who will be responsible that they are not defaced or obliterated.

Delta rules VII
B. Canal do IX

8. License will be issued to vessels adapted for the Conveyance of passengers, under the following Conditions, and at the following rates.

Such vessels will be measured for tonnage under rule V, and they will be permitted to carry one passenger for every $7\frac{1}{2}$ square feet of Covered space. The Covered space will be calculated from the following measurements

Length. Over all of Covered space

Breadth. the mean of three widths, taken at equal distances

Passenger Boats will be

divided into the following Classes.

(a) Boats of the "Rāhādāri" or Transit Boat type, taking a license which leaves optional to the owner the fares to be charged and the caste of the passengers to be carried.

(b) Boats of the "Rāhādāri" or Transit Boat type taking a license by the acceptance of which the owner undertakes to convey all passengers for whom there is room according to the rules, irrespective of caste, and at rates not exceeding the following maxima; viz, in the general Cabin 2 pies per mile per passenger including one cooly head load of luggage; in the separate fore or aft Cabins, for every 7½ square feet of Cabin, 3 pies per mile per passenger, including one cooly head load of luggage. Any passenger wishing to reserve a separate Cabin for his exclusive use,

will be entitled to do so, on paying the full hire for the whole Cabin.

A whole Boat of this class shall not be hired out to one individual, except by permission of the Executive Engineer or Officer authorised by him to issue licenses.

(c) Boats of the Budgerow type, plying for hire, but not carrying cargo, the rate of fare and the passengers to be carried being optional with the owner.

(d) Boats of the "top boat" type, having a covered space for the protection of passengers, taking a license by the acceptance of which the owner undertakes to convey all passengers for whom there is room according to the rules, irrespective of caste, and at rates not exceeding 2 pies per mile per passenger, including one Cooly head load of luggage.

During festivals in the neighbourhood of Madras, the rule limiting the number of passengers to be carried by this class of Boat may, on application, be temporarily suspended by the Executive Engineer in Charge of the Division, or Officer duly authorised by him to issue licenses

The license fees for passenger Boats will be as follows for each System.

(a) Class — Rs 4 per ton
(b) Class — 3 per ton
(c) Class — 4 per ton
(d) Class — 3 per ton.

New rule.

9. The annual license fees payable on passenger boats can be compounded for one through license available over all the 3 systems at the following rates.

(a) Class — Rs 10 per ton
(b) Class — 7 — do —
(c) Class — 10 — do —
(d) Class — 7 — do —

Delta rules VIII
B. Canal do IV and V.

10. The number of the license issued for a passenger vessel must be painted on the bows in the manner prescribed for Cargo vessels.

The tonnage of the vessel and the number of passengers

35

which she is licensed to carry must be painted conspicuously on the stern of the vessel or on the after part of the Cabin. The number of passengers will be preceded by the letter P.

Delta Rules — IX
Buckingham Canal do — IX

11. Passenger vessels may carry cargo as well as passengers, subject to the following conditions

(1) that vessels of the types — (b) and (d) must convey passengers, when required to do so, in preference to Cargo.

(2) That the quantity of cargo be not greater than the registered tonnage, less 400 lbs for each passenger on board.

Delta Rules X
Buckingham Canal rules partly IX

12. Vessels, the private property of individuals, making use of the Canals, but not carrying goods or passengers, or plying for hire, will be licensed to use the Canals of a system, on payment of a fee of Rs 12 for the Calendar year.

Delta Rules XI
Buckingham Canal do none

13. Pleasure Boats used for rowing on the Canals, but not

carrying goods or passengers will be licensed to use the Canals of a system on payment of a fee of Re 1 for the Calendar year.

Delta Rules XV (8).
Buckingham Canal Rules, Schedule A.

14. All fees payable by Steamers will be double those of Ordinary Cargo boats.

The number of the license and tonnage must be painted on Steamers in the manner prescribed for Cargo boats.

Delta Rules XII
Buckingham Canal do XII.

15. No person who has taken out a license for the navigation of the Canals, shall have any claim to Compensation, in consequence of the closure of all or of any of the Canals for repairs, or because of insufficiency of water, or on account of any other impediment to navigation.

III Tolls

Delta Rules XIV.
Buckingham Canal do III (2nd)

16. Vessels not holding a License, will be allowed to navigate the Canals on payment of the hereinafter stated tolls and on the following Conditions.

Delta Rules XIV (4)
Buckingham Canal. Schedule B.

The rates of toll per ton will be,

Cargo and passenger Boats.

Godavari System ——— 8 as.
Kistna System ——— 6 as.
Buckingham Canal ——— 12 as.

Delta Rules XV (9).
Buckingham Canal do Schedule B.

Steamers

Godavari System ——— Rs. 1
Kistna System ——— Rs $0\frac{3}{4}$
Buckingham Canal — Rs $1\frac{1}{2}$

New rule.

Private Boats, referred to in Rule XII.

For each Boat, for each System, Rs. 3.

A toll once paid at any toll station of a System, will clear the vessel over all the Canals of that System and in any direction for a period of 6 weeks, except in the Case of Rafts, which must either be removed from the Canals within one month from the date of the Toll ticket, or again pay toll.

Delta Rules XIV.

The toll stations in the Godavari and Kistna Systems will be,

The Head Lock of each

Section of Delta.	
Godavari Sections Eastern Central Western	All tidal Locks. The Ellore Lock. The Western Tammileru Aqueduct on the Kistna Ellore Canal.
Kistna Sections Eastern Western	

The toll Stations on the Buckingham Canal will be as follows:-

1 Pedda Ganjam.
2 Kandleru River.
3 Shadyankupam Lock.
4 Adyar Southern Lock.

To determine the tonnage for tolls, vessels will be measured under Rule V.

A list of the toll Stations for each System will be affixed to a notice board at each toll Station in that System.

Delta Rules XIII.
Buckingham Canal do Schedule B

17 Rafts shall pay tolls at the following rates:

Logs of timber rough or squared for each unit of 100 square feet	8 annas
Bamboos for each unit of 100 square feet	4 annas

New rule

Rafts of timber and bamboos mixed will be charged at the rate for timber.

Delta Rules XIII (1)

All fractions of the unit will be charged for as a full unit.

IV. Regulations.

Delta Bye-law 18.
Buckingham Canal Rule VII

18. The extreme dimensions of any vessel allowed to navigate the Canals will be 90 feet in length and 13 feet in breadth over all.

Boats built before the 31st December 1880, which exceed the above dimensions may receive a special license at the discretion of the Executive Engineer of the Division.

(?)

No Boat drawing more than $3\frac{1}{4}$ feet will be admitted into any Lock.

Buckingham Canal Rules VII

To suit the conditions of masonry works on the Southern Sections of the Buckingham Canal, the height of fixed fittings such as the roofs of Boats steps of masts, funnel sticks &c shall be there limited to $6\frac{1}{2}$ fee above water level. A similar limit shall be applied to piled Cargo.

Delta Bye-law No 9.
Buckingham Canal Rule X

19. No raft of larger dimensions than 90 feet in length, by 12 feet in breadth, or of more than 2' draught will be allowed on the Canals. Rafts exceeding these dimensions will be stopped until they are reduced and a fresh toll paid on the then measurement under Rule XVI.

Buckingham Canal Rule XII

[illegible]

20. Boats Carrying Cargo must have a free board of not less than 9 inches; Boats Carrying passengers must have a free board of not less than 1 foot.

Delta Bye-law 1
Buckingham Canal do 1

21. No vessel or raft shall moor on the towing-path side if there be only one tow-path, or on the windward side of a Canal if there be two tow-paths, except when actually loading, or unloading.

Delta Bye-law 2
Buckingham Canal do 2

22. No Cargo shall be loaded or unloaded and no passengers be shipped or landed at any lock, or on any masonry work other than the quays or wharfs specially provided for the purpose.

New rule.

23. No goods shall be stacked on any tow-path or on the Canal side of any tow-path under any circumstances, nor shall they be stacked on Canal lands without special permission of the Canal Officers.

Delta Bye-law 3.
Buckingham Canal do III

24. No vessel shall be repaired in any Canal at any time, without the written permission of the Divisional Executive Engineer and then only at the place and during the time named in the written permission. Materials used in the repair of vessels will, unless removed from the Canal before, or at the time of, the vessels departure, be confiscated, and any expense incurred in their removal must be paid by the owner of the vessel under penalty of Suspension of licence until it

be paid.

Delta Bye-law 4.
Buckingham Canal do IV.

25. At any Lock, or other masonry work, no vessel or raft shall moor within the limits fixed by notice boards.

Delta Bye-law 5.
Buckingham Canal do V

26. Every vessel when moored in any Canal, shall have its masts down, shall be made fast stem and stern to the bank and in a single line.

Delta rules part of Bye-law 12.
Buckingham Canal Rules part of Byelaw X.

Every vessel when thus moored shall be in charge of at least one man, and must between sunset and sunrise exhibit a clear bright light, at not less than 4' above the water level, visible all round.

Canal Rules XIII (5)
do Bye-law 12.

Rafts when moored must be securely fastened to the Canal bank at both ends, and between sunset and sunrise, must exhibit a clear light at each outer Corner.

Delta Bye-law 12
Buckingham Canal do X

27. Vessels when moving must between sunset and sunrise exhibit the following lights.

All Boats, one clear bright light at the fore end, fixed not less than 4 feet above the water.

Canal Rule XV (3)

Steamers, 3 lights as follows, 1 clear white light on the upper deck abaft the Funnel; a bulls-eye bright red light on the port (left) side; a bulls-eye bright green light on the starboard (right) side.

The bulls-eye to be not less than 8 inches in diameter. The lights to be so placed and fitted that both may be visible only, from a point ahead of the vessel, and so as not to be obscured by any of the fittings, cargo, or passengers. Subject to these provisions, the lights may be placed on the front or on top of the cabin, at the sides of the vessel near the bow, or on supports specially provided for the purpose.

Delta Bye-law 13.
Buckingham Canal do X

Passenger boats must, in addition to the outside light, keep at least one bright light in the general Cabin.

Delta Bye-law 6
Buckingham Canal do XI. XII & XIII.

28. When vessels meet on the Godavari and Kistna Canals, those going with the current shall give way. In the Buckingham Canal, vessels going North shall give way. Vessels under sail shall give way to vessels being towed, and Steamers shall give way to all Boats.

New rule.

29 The licenses of Cargo boats in an unsafe condition may be suspended, by any Officer authorised to issue licenses until the vessels be put into a proper state of repair.

Delta Bye-law 14.
Buckingham Canal do XIII.

30. All passenger vessels shall, whenever it may appear to him to be advisable, be inspected by the Executive Engineer in charge of the Division, or other Officer duly authorised by him. The licenses of such as are not maintained in a proper state of repair and cleanliness, shall be withdrawn until the vessels are fit for use by the public.

Delta Bye-law 8.

31. No person unless duly authorised shall interfere with the locks or any part of their machinery.

Delta Bye-law 11.

32 Any passenger vessel apparently overloaded must, when required by the Executive Engineer or by an Officer duly authorised by him, by the Superintendent or Assistant Superintendent of Police, or by a Magistrate, stop at any place, to have the number of its passengers counted and its Cargo examined.

Delta Bye-law 10.
Buckingham Canal do XII

33. Every vessel and raft must have its license or toll ticket always on board. These shall be produced when called for by any Lock or Toll Superintendent or other duly authorised Officer.

Delta Bye-law 10
Buckingham Canal. Schedule B.

34. In the Case of a License or toll ticket being lost, and a duplicate Copy being required, the fee for its issue will be Rs. 2.

Delta Rule XV (1)

35. All Steamers using the Canals shall be inspected by the Executive Engineer or Officer authorised by him, who will see that the machinery is in fair working order, that the boilers are provided with proper gauges and are apparently in safe working order. The Executive Engineer or other Officer will issue an Inspection Certificate in the form appended, "which will" hold good for 6 months.

Delta Rules XV (4)
Buckingham Canal Bye-law XI

No steamer shall travel at a greater speed than 8 miles per hour by day light, and 5 miles per hour at night.

Steamers shall reduce their speed to three miles an hour when they come within half a mile of a lock, and shall then whistle to give notice of their approach to the lock establishment. Steamers must be warped into and out of locks, and will not be allowed to use their propellers until quite clear of the locks.

Delta Rules XV (7)
Buckingham Canal Bye-law XI

Steamers shall whistle when within a 100 yards of any boat, and reduce speed to 5 miles an hour.

Delta Rules XV (8)
— Do — XVI

36. Any vessel or raft damaging the works of the Canal or any Government property on them shall have its license or toll ticket taken away and shall not be allowed to use the Canals until the Cost of repairing the damage has been estimated and the amount has been paid. A pass shall be given by the Officer suspending the license, to enable the vessel to proceed to its destination.

Buckingham Canal Rule XIII

37. Sea going vessels brought into rivers and backwaters, for shelter, for repair, or for any other purpose except to ply

for hire, shall anchor or lay up outside the fair way of Canal traffic, which will be defined by the Canal Officers. Such vessels will not be allowed to enter the main line of the Canals for the purpose of proceeding from one River or backwater to another River or backwater, or for any other purpose, except in accordance with the rules prescribed for the use of the Canals.

Buckingham Canal Rules III

38 All boats used solely for fishing purposes which have to pass through any portion of the Buckingham Canal, must be registered, but will not be charged any fee.

Delta Bye law 19.

39 Officers in charge of Canals are empowered summarily to remove vessels which may have sunk in a Canal waterway of any system, or rafts which have been in the Canals for more than one month, and shall have failed to pay on demand the fresh toll leviable under Rule XVI, and to recover cost of removal afterwards.

Vessels sunk, abandoned, or left for more than three days without a man in charge will be dealt with as follows-

(a) If the vessel be licensed a notice will be sent by post, by the Officer in charge of the Canal, to the registered owner requiring him to remove the vessel within 15 days. Failing such removal the vessel will be sold by auction after giving not less than 15 days' notice of intended sale in the District Gazette;

(b) in the case of unlicensed vessels a notice will be published in the District Gazette requiring the removal of the vessel within 15 days, and stating that if not so removed the vessel will be sold by auction. Such sale may be fixed to take place on any date not prior to 30 days from the date of the publication of the notice to remove. Vessels removed under this rule lie at the owners risk.

Owners applying to recover possession of vessels or rafts referred to in this bye-law must, before their removal will be permitted, pay all expenses which may have been incurred.

The sale-proceeds of a vessel sold under this bye-law will be available to meet all expenses incurred in the removal and sale of such vessel, and to repair all damage which may have resulted to the Canal from its being sunk or abandoned therein. Any balance remaining will be paid to the owner if claimed within three months from the date of sale; otherwise such balance will be carried to the Credit of Government.

Delta Bye-law 15
Buckingham Canal do XIV

40 Executive Engineers in charge of Sections of the Deltas and of

the Buckingham Canal, and other Officers duly authorised by them will have power to suspend the license of any vessel on account of the infringement of any of the rules and regulations for periods not exceeding

15 days for a first Offence,
30 days for a second Offence in the same Calendar year,
60 days for a third Offence in the same Calendar year,

and for a Fourth Offence in the same Calendar year, the license may be Cancelled.

Vessels plying under a toll ticket may be punished by the suspension of the toll ticket for 15 days for a first Offence, and by the withdrawal of the toll ticket for a second offence.

[illegible]
Buckingham Canal
the penalty [illegible]
[illegible]
Strike the [illegible] more powers
[illegible] Buckingham Canal [illegible]
Offrs having the power of inflicting
a fine, as Bye law XLII [illegible]
[illegible]

Delta Bye-law 16.

41 Superintending Engineers will exercise the same powers as Executive Engineers in respect

of any of these rules.

J. W. Rundall
President for Committee.

12th October 1882.

562/44
5/44
44

CHIEF ENGINEER
25 OCT
1882
FOR IRRIGATION

Draft of revised Navigation Rules for the Godavari, Kistna and Buckingham Canals

---

Memorandum regarding the different forms of Licenses.

It is proposed that 52/45 the License and Toll tickets shall be on different colored paper for each system.

Godavari - White.
Kistna Red.
Buckingham Canal Blue.

Through licenses will be printed on green paper.

When a License is taken out, a copy of the navigation rules in the vernacular, is to be given to every Boat owner who has not already got one.

When printed for issue, the License forms and tickets will have a counter foil separated from the original by perfora-tions.

All License forms and toll ticket should be printed on good stout paper.

J.W.R.
12/10

5
1

~~[illegible]~~

~~Delta~~ System

21/

582/45

81

TOLL TICKET FOR RAFT.

తెప్పపన్ను చీటి.

No.
నం.

Dimensions .... Length { .... feet.
కొల్తలు .... పొడుగు { .... అడుగులు.
Breadth { .... feet.
వెడల్పు { .... అడుగులు.

Superficial Area. { .... Square feet.
చతురంకొల్త { .... చతురంఅడుగులు.

Description of Raft } ....
వివరం } ....

Amount of Toll paid. Rupees .... Annas ....
చెల్లించినపన్ను మొత్తం. రూపాయిలు .... అణాలు ....

Issued at ....
చీటీయిచ్చినస్థలం ....

Date of issue ....
చీటీయిచ్చినతారీఖు ....

This ticket will hold good for One Month only.

Destination ....
[illegible] ....

J.W.R.
12/10.

Toll
~~Lock~~ Superintendent.

This ticket is issued subject to the Navigation Rules sanctioned in G.O. No. . . . . dated - - -

Rafts not to exceed 90 feet in length, 12 in breadth, ~~3~~ 2 feet in draught.

RATES OF TOLL. Annas.

Logs of Timber rough or squared per unit of 100 Sq. feet ~~Teak Timber per 100 Square feet~~ 8

Bambus per unit of 100 Sq. feet ~~Bazulu or Bamboo do.~~ 4

Fractions of the unit ~~of more than 50 Square feet~~ will be charged for a full unit ~~as 100 Square feet and less fractions will not be charged for~~.

Rafts of timber & bambus mixed will be charged for ~~See Navigation Rule XIII and Bye-laws 12 & 19.~~ at the rate for Timber

తెప్పలపొడుగు 90 అడుగులు, వెడల్పు 12, అడుగులు ~~3~~ 2 అడుగుల నీటిలోతేలేవికంటె యెక్కువగాకుండవలెను

పన్ను రేట్లు. అణాలు.

టేకుకర్ర 100 చతురం అడుగులకు 8

వెదుళ్లు లేక వెదురు డిటో 4

50 అడుగులకంటె యెక్కువభాగమును 100 అడుగులరేటు కట్టవలెను. అంతకంటె తక్కువకు రేటు కట్టవలెను.

~~న్యావిగేషన్ రూలు 13 న్ను బైలాసు 12 న్ను 19 న్ని చూడవలసినది.~~

562/47

.... ~~Delta~~ System

.... [illegible]

TOLL TICKET FOR RAFT.

తెప్పపన్ను చీటీ.

No........................

నెం........................

Dimensions........................ Length .... feet.

కొల్తలు .... పొడుగు .... అడుగులు.

Breadth .... feet.

వెడల్పు .... అడుగులు.

Superficial Area. .... Square feet.

చతురం కొల్త .... చతురం అడుగులు.

Description of Raft ....

తెప్పవివరం ....

Amount of Toll paid. Rupees........................ Annas ....

చెల్లించినపన్ను మొత్తం. రూపాయిలు........................ అణాలు ....

Issued at ....

చీటీయిచ్చిన స్థలం ....

Date of issue ....

చీటీయిచ్చిన తారీఖు ....

~~Destination~~ This ticket will hold good for one month only

రవానా ....

~~Lock~~ Toll Superintendent.

This ticket is issued subject to the Navigations Rules sanctioned in S. O. No. .... dated

No 72

License for Passenger vessel Class (a) or (c) for 18

System No of License.
Owner's name Residence 52/48
Vessel built at in the year
Maximum number of passengers ; less one for every 400 lbs of Cargo carried.
Fares to be charged and caste of passengers to be carried, optional.

Extreme dimensions over all		Dimensions for Tonnage							Gross Tonnage	Deduction of 15%	Net Tonnage for License	License fee paid		Date of Issue	Place of Issue.
Length feet	Breadth feet	L		B		D		Cubic feet				Rs	As		
		Ft	In	Ft	In	Ft	In								

Signature of Licensing Officer

This License is issued subject to the Navigation Rules sanctioned in G. O. W. dated

License for Passenger vessel Class (b) or (d) for 18

System No of License.
Owner's name Residence.
Vessel built at in the year

Maximum No of passengers
In the General Cabin.
In the Fore Cabin.
In the Aft Cabin:
Total No less one for every 400 lbs of Cargo carried.

The holder of this License is required to convey all passengers, for whom there may be room,

Cargo Boat License for 18..

AP 23

System
No. of License. 12/49
Name of Owner
Residence of Owner
Boat built at .... in the year.

Extreme dimensions overall		Dimensions for Tonnage							Gross Tonnage	Deduction of 15 p.c.	Net Tonnage for License	License fee paid		Date of Issue	Place of Issue.
Length	Breadth	L.		B.		D.		Cubic Feet				Rs.	As.		
Feet	Feet	F	I	F	I	F	I								

Signature of Licensing Officer.

Note. This License is issued subject to the Navigation Rules sanctioned in G.O. No. dated

Private Boat License for 18

System
No. of License.
Name of Owner
Residence of Owner
Boat built at in the year.
Description of Boat.

Amount of License fee Paid Rs.
Date of Issue
Place of Issue.

Signature of Licensing Officer.

N.B. The License fee for Private Boats not carrying goods or passengers is Rs 12/-.
The Fee on Pleasure Boats used for rowing is Rs1.
This License is issued subject to the Navigation Rules sanctioned in G.O. No. dated.

License for Steam Vessel, for 188....

No 24

562/50

No of License ....

Owner's Name .... Residence ....

Vessel built at .... in the year.

Description of Propeller ....

" " Engines ....

" " Boiler ....

Maximum pressure of Steam ....

Extreme Dimension over all		Measurements for Tonnage							Gross Tonnage	Deduction of 1/3rd	Net Tonnage	License fee Paid		Date of Issue	Place of Issue
		L		B		D		Cubic feet				No	As		
Length Feet	Breadth Feet	Ft	In	Ft	In	Ft	Ins								

(Signature of Licensing Officer) ....

This License is issued subject to the Navigation Rules sanctioned in S O No .... dated ....

Inspection Certificate

This Vessel has been inspected under Navigation Rule No 35 and is passed for navigation of the Canals for a period of Six Months from this date ..

(Signature of Inspecting Officer) ....

Station ....

Date ....

Certificate **renewed** on

[Signature of Inspecting Officer]

Toll Ticket

System - - - - - - - - - - - - No. $\frac{162}{57}$
Name of Owner - - - - - - -

Extreme Dimensions Overall		Measurements for Tonnage							Gross Tonnage	Deduction	Nett Tonnage	Toll paid		Date of Issue	Place of Issue
Length	Breadth	L		B		D		Cubic feet				Rs	As		
Feet	Feet	Ft	Ins	Ft	Ins	Ft	Ins								

(Signature of Issuing Officer)

This ticket is issued subject to the Navigation Rules sanctioned in G.O. No. . . . dated . . . . , and will hold good for Six weeks only. —

This Ticket is to be surrendered on renewal —

CHIEF ENGINEER
5 OCT
1882
FOR IRRIGATION

Proposed new forms of Licences

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562/52

Enclosure No. I

CHIEF ENGINEER
5 OCT
1882
FOR IRRIGATION

From

The Committee
Convened in accordance
with P.M.G. No. 612.I
of the 5th August 1882.

To

The Chief Engineer
for Irrigation

Dated 12th October 1882

Report on proposed Navigation Rules for Godavari Kistna and Buckingham Canal Systems.

Report of Committee appointed under G. O. No. 612 I, dated 5th August 1882

No. 117-I

562/53

Encl: 5

Committee's report
1 Letter from Mr S. Ottmann Re A/24/10/82
1 Navig. rules of Buckingham Canal
2 Statements
5

Submitted to Government.

2. The first line of navigable Canal opened on the Eastern Coast of the Madras Presidency was the Cochrane's Canal from Madras to the Ennore back-water, and from the Ennore back water to Pulicat Lake. The work was completed in 1806 on Contract, the terms being the exclusive possession of the Canal by the Contractor for forty-five years, with right to levy toll on all goods carried upon it, at certain rates laid down. In 1837, the Canal came into the possession of Government who fixed a rather elaborate system of tolls. The annual Receipts from tolls at this time were about 32,000 Rupees. In the year 1855, the East Coast Canal, to the South of Madras from the Adayar to the Palar, was commenced; this portion of the line was opened to traffic in 1857, and a separate

System of tolls was adopted on it.

The extension of the Northern Canal was commenced in the year 1854, and was pushed on from time to time until, in the year 1875, it reached the Kistnapatam back water 90 miles to the north of Madras. This was the limit in the year 1876 immediately before the famine. The annual receipts were then

	Rs:
In the northern Section ———	39,869
" Southern " ———	5,720

In 1877, when it was necessary to find work for thousands of starving people, the connection of the Northern and Southern Sections of the Canal through Madras, which had been planned many years before, was undertaken, and the northern extension from Kistnapatam to Peddaganjam to join the Kistna Delta Canals, being also pushed on vigorously under the government of the Duke of Buckingham, the Canal was opened throughout, in 1878, from the Palar, 47 miles South of Madras, to Peddaganjam 196 miles north, under the name of the Buckingham Canal.

In

In 1879, the navigation Rules for this Canal now in force were introduced, under which the Canal was divided into six Sections. Copy of these rules is attached. Generally speaking they imposed a license fee of 2 Rs: per ton for all boats except fishing and pleasure boats, the license clearing the boat for one Section only. On entering any other Section, the boat had to pay a toll of 4 annas a ton, or boat owners were allowed to compound for a year's tolls throughout the Canal for 10 Rs: a ton.

The navigation Receipts have been as follows:-

1880 ———	Rs: 109,805
1881 ———	" 120,056

2. The Godavari Delta Canals & navigation commenced in the year 1853 – the anicut having been completed in 1852. The navigation was started under the auspices of Government Officers, but before long the natives were out of leading strings and took up the navigation with a will, so that in 1863–64, ten years after

the navigation commenced, the number of boats on the Delta Canal was 1200, and the annual receipts amounted to Rupees 24,493. On first opening the navigation, no tolls were charged, as was noticed in 1859 by the then Governor, Sir Charles Trevelyan, in a minute on the Godavari Irrign. and Navigation. He says, "The Canals are all toll free, for it has been wisely determined that it is better to take the Government dues in a consolidated form on the crops, than to harass and mulct the people by exactions which cannot be confined to those demanded on behalf of the public". In November 1863, however, a license fee of 1 Rupee per ton was charged.

As the Canals have been extended, the navigation rules have been, from time to time, revised, and the license fees raised, and Toll Stations have been instituted generally at the head and tail locks of each Canal, so that boats are not compelled to take out licenses for the year, but may, if it suits their convenience, pay by the trip. Up to 1882, the rates for license fees were generally speaking (taking 50 cubic feet to represent a ton).

Cargo boats —— 2 Rs per ton

Passenger boats

1st Class —— 4 " "

2nd Class —— 3 " "

Rafts timber —— 4 as. per 100 sq. feet

" —— bamboos &c. 2 " " "

The measurement of boats was, up to that time, much the same in the Godavari and Buckingham Canals, and the unit of measurement, 50 cubic feet to a ton, was the same, but in 1882 Revised rules for the Godavari and Kistna Canals were sanctioned by Govt. in which the unit of measurement was altered to a ton of 75 cubic feet, and, as in the Buckingham Canal 50 cubic feet were still continued the unit, there arose difficulties in the case of through traffic, which have brought to notice the necessity for introducing rules of general applicability.

In introducing new rules for navigation in the Delta Canals the rule has been laid down that navigation should be made to pay, that is, not only should the receipts cover the working expenses, but also interest on the original cost of works constructed solely in the interests of navigation. In a system of Canals which combine irrigation and navigation there is, of course, great difficulty in apportioning the share of cost, but under instructions that have been issued from this Office, this has been settled, and the yearly accounts show the maintenance charges and interest compared with the receipts. The accounts of last year ending 31st December 1881 show the following results.

	Rs
Maintenance Charges	55,106
Interest	24,504
Total	79,610
Receipts	55,670

that is, the Receipts more than

covered the working expenses, but were insufficient to meet the charge for interest. It was contemplated that, as the Canals approached completion, the maintenance charges would become lighter, and the receipts would increase until they were sufficient to cover all charges. It is, however, to be noticed that, when the Godavari completion estimates were submitted to the Government of India, all that was claimed for navigation receipts was that they should cover maintenance charges.

3. The Kistna Delta Canals navigation, which was opened a few years later than the Godavari, was started in the same way, and has been generally under the same rules, but as in the Kistna Delta the Canals are less advanced than in the Godavari, the license fees charged are less per ton than in the Godavari. In the last revised rules 1882, cargo boats were charged 2½ Rs: against

3½ Rupees a ton in the Godavari.

The accounts of last year ending 31st December/81, show the following results.

Maintenance Charge	60,330 Rs
Interest	8,054 „
Total	68,384
Receipts	21788

but the maintenance charges were much higher than they should have been, in consequence of damage caused by floods.

4. The length of navigable canal now open is.

	Miles
In the Godavari Delta	458
„ „ Kistna „	278
„ „ Buckingham Canal	243
	979

The through line from Palar South of Madras to the Port of Coconada in the mouth of Godavari is

In Godavari	78 miles
„ Kistna	110 „
„ Buckingham Canal	243 „
Total	431

when the Delta Canals are completed

there

there will be the following lengths of Canals navigable.

In Godavari	502½ Miles
„ Kistna	349 „

While the Buckingham Canal may possibly be extended southwards to near Point Calimere, a distance of 156 miles from the Palar.

5. Under the rules as they at present stand, it will be seen that there are considerable obstacles in the way of through navigation. The rates of license fee for each system of Canals are now certainly not oppressive in the Deltas, but 10 Rs a ton per annum for the use of 243 miles of the Buckingham Canal seems very heavy. Supposing a boat to ply between Madras and Cocanada continually, and to take out licenses for all Canals, it would pay

Buckingham Canal	10 Rs:	per ton of 50 c ft
Kistna Canals	2½	„ 75 c ft
Godavari Canals	3½	„ „

or a license might be taken out for one section, and tolls paid at entering each other section, which would clear the boat for one trip. In any case, at each toll station on the through journey, 5 on the Buckingham Canal, 3 on the Kistna, and 2 on the Godavari, the boat would be stopped to exhibit its license, and a door would be opened for 'exactions which cannot be confined to those demanded on behalf of the public.' Taking into account the very incomplete state of the Buckingham Canal, and the difficulty which is at times experienced in navigating it, the high rate of license fees, and the interruptions to traffic caused by the frequent toll stations, it is surprising that navigation has extended as it has. It must also be noticed that the Kistna Canals are closed for repairs for 3 months yearly, and the through traffic is necessarily interrupted for that time.

6. The Committee appointed by Government in G. O No. 612 I, dated 5th August 1882, was

instructed

instructed to take the following points specially into consideration.

(1) The abolition, as far as possible, of tolls,

(2) the license fees to be charged for the Canals throughout.

(3) The measurement of boats with reference to the adoption of one unit of measurement,

and in their report now submitted they have embodied their proposals attaching a revised set of Rules to be applicable to all the Canals on the East Coast, if their proposals are approved.

7. The Committee originally appointed consisted of Mr Rundall, Superintending Engineer, 2nd Circle, Mr Walch, Officiating Superintending Engineer 1st Circle, and Major Drake-Brockman, but in consequence of the latter officer

having taken leave before the Committee could meet, Mr Ottmann Hony: Asstt Engr, who was acting for him, was appointed in his place. Mr Ottmann has submitted a separate memorandum calling attention to some additions, which on further consideration he suggests should be made to the rules proposed by the Committee, and these will be considered further on. The whole of the papers were on the return of Major Drake Brockman from leave, sent for his consideration, and he has stated his concurrence generally with the Committee's views.

8. Regarding the first point referred to them, the Committee consider that Tolls cannot be entirely abolished, but that to allow of the occasional use of the Canals without taking out a license, Toll Stations must be

be maintained at the Head Locks of each Section of the Deltas, all Tidal Locks, at Ellore near the Junction of the Godavari and Kistna Canals, and 4 places on the Buckingham Canal, for the public convenience, thus reducing the number of Toll Stations from 47 to 20. To these proposals I agree on the understanding that the Toll Stations are maintained for the public convenience only, that no obstructions such as now exist in the shape of a chain drawn across the Canal shall be allowed, and that the Toll-taker has no authority to stop any boat or call for the production of its license unless there is some apparent infringement of the rules ~~[illegible]~~. A subordinate in the position of a Lock Superintendent or Toll Keeper should never be allowed the powers of an Inspecting Officer. It apparently was contemplated by Mr Ottmann that, at the proposed Toll Stations on the Buckingham Canal, all licenses would be produced for examination as at present, and in his memorandum he specially notices that some examination of the boats will be necessary while the Canal remains as at present one open reach from Shadiem Cottam Lock to Peddaganjam. There is of course an opening for boats to ply in this reach without licenses, to get in by paying a toll and remain at work for an indefinite period, but this will be impossible when flood gates are constructed at several places, and meanwhile I consider that the Division and Sub-Division Officers should, as Inspecting Officers, pay special attention to the subject, and endeavour to prevent evasions of fees. Under no circumstances would I allow the Toll Keepers to have anything to do with this duty; they should be restricted to issuing Toll Tickets when called upon to do so. It is better to risk some loss than to harass the traffic. With the amount of toll, I shall have to some remarks further on.

9. The Committee recommend that one unit of measurement should be adopted for all Canals, and that the ton should consist of 50 Cubic feet. It is only lately, in August 1881, that, on the recommendation of Colonel Mullins, a ton of 75 Cubic feet was introduced into the Godavari and Kistna Canals. # The reasons for this change are given in the note printed with G.O. 484 I, dated 3rd August 1881, & and I am unwilling to propose any radical alterations, but I quite agree with the Committee that to avoid confusion there must be only one unit of measurement, and I consider it quite unnecessary to make any attempt to reconcile the weight of cargo with the cubic space it occupies. # For some years a ton has been considered to be 50 Cubic feet, and I would retain this measurement, charging license fees by this unit, and only providing in the Rules for a certain safe free board in all cases.

10

10- The Committee next proceed to give the Rates at which they propose to fix License Fees and Tolls, and here they follow the System at present in force to some extent. They propose a separate license fee for each System, and a Compound rate for all three Systems, but they do not propose to retain the present plan of charging a separate fee for each Section of the Buckingham Canal. Passenger boats of both Classes are dealt with in the same way as Cargo boats, also Steamers. I am prepared here to go a great deal further than the Committee. What I desire to see is one demand to clear all the Canals ~~of a System~~. I would remove all obstacles in the way of navigation that I possibly could, believing that the interests of Govt will be best served by improving the communications, stimulating consumption, and consequently extending production.

The argument that, if 2 Rs is charged for carriage of 100 miles, more should be charged for carriage of 300 miles, is not here I think applicable. In the case of the Godavari and Kistna Delta Canals, the irrigation gives a splendid return on the expenditure without any receipts from navigation, and the Buckingham Canal has been carried out as a Protective Public ~~[illegible]~~ Work, and a return is to be looked for, from free and extended use of it. I consider that all that should be looked for is that the navigation Receipts should cover the working expenses, by which I mean the cost of the navigation Establishments and of maintenance of navigation works, and this I believe will soon be the case on all 3 of the existing Systems. It must be remembered that the Canals of 2 of these Systems are still in a very incomplete state, and it should not be expected that as soon as a Canal is opened it will pay its way.

11

11. The following Statement shows at a glance the Present Rates of License-Fees, those proposed by the Committee, and those which I propose, and I have endeavoured to make a comparison in Statements appended, between the actual receipts of last year, those to be expected if the Committee's rates are introduced, and if the rates I propose are adopted. The Receipts should, I think, be credited to the System to which the boat belongs; that is, a Kistna boat might be licensed in the Buckingham Canal, but the license fees would be credited to the Kistna System. I do not look for an immediate return, but I do expect that the opening of the Canal to traffic in this way will eventually prove remunerative to Government, and I allow that it will be practicable to raise these rates at some future time.

Cargo boats	Present rates per ton of 50 C.ft	Rates proposed by Committee		Rates proposed by Ch: Engr. for freight
	Rs.	Rs. per ton of 50 C.ft.		Rs. per ton of 50 C.ft.
Godavari	$2\frac{1}{3}$	2	5	$2\frac{1}{2}$
Kistna	$1\frac{2}{3}$	$1\frac{1}{2}$		
Buckingham Canal	2 per Section, 10 for whole Canal	3		
Passenger boats, 1st Class				
Godavari	$4\frac{2}{3}$	4	10	5
Kistna	$4\frac{2}{3}$	4		
Buckingham Canal	2 per Section 4 for whole Canal	4		
Passenger boats, 2nd Class				
Godavari	$3\frac{1}{3}$	3	7	3
Kistna	$3\frac{1}{3}$	3		
Buckingham Canal	2 per Section 4 for whole Canal	3		
Steamers				
Godavari	5	4	10	5
Kistna	5	3		
Buckingham Canal	as cargo on passenger boats	6		
Rafts – Timber				
Godavari	4 as: per 100 S.ft: each Canal	8 as: per 100 Sq: feet		8 as: per 100 Sq: ft.
Kristna	do	do		do
Buckingham Canal	1 anna per Sq: Yard	do		do
Rafts – bamboo				
Godavari	2 as: per 100 Sq: feet	4 as: per 100 Sq: feet		4 as: per 100 Sq: feet
Kristna	do	do		do
Buckingham Canal	1 anna per Sq: Yd.	do		do
Tolls for Vessels				
Godavari	4 as: per ton each Canal	8 as: per ton for System		8 as: per ton per system
Kistna	do	6 – do		do
Buckingham Canal	4 as: per ton each Section of Canal	12 – do		do
Tolls for Steamers				
Godavari	Same as Vessels	1 Rupee per ton per System		1 Rupee per ton per system
Kristna		12 annas – do.		do
Buckingham Canal		$1\frac{1}{2}$ Rs do.		do.

If my recommendations are approved, revised Rules and Bye-laws, which shall be applicable to all Canals, will be drawn up. I agree with the Committee in considering that the navigation must be worked in the same way on all 3 Systems, but I see the difficulty that there will be in enforcing the rules by stoppage of license on the Buckingham Canal where the open reach is so long, and I think it will be necessary, until the proposed improvements to the Canal are carried out, to continue to the Buckingham Canal Divisional Officer the powers of a 1st Class Magistrate.

12. As regards the difficulty referred to by the Committee in consequence of the Delta Canals being under the orders of the Chief Engineer for Irrign., and the Buckingham Canal under those of the Chief Engineer, D P W, I may state my opinion that the Buckingham Canals should be under the Chief Engineer for Irrigation. It would tend to uniformity, and I am disposed to think that all water works should be in charge of the Irrigation Branch. I say this without expressing any personal feelings in the matter.

13. The Committee ask for early orders, so that the new Rules may be introduced on the 1st January 1882. This opens another question, namely, whether it is necessary that the Navigation rates should continue to relate to the Calendar year. The arrangement necessitates the figures in the Accounts being shown for receipts in the Calendar year, and for charges ~~[illegible]~~ in the Official year, and as I have lately recommended that the revenue year should be made to correspond with the Official year, so I now recommend that the navigation year should be made to correspond with the Official year. The change may occasion trifling inconvenience at first, but there are I believe no insuperable difficulties in the way.

14. In preparing Revised Rules I propose to take into consideration

the addition proposed by Mr Ottman
to be made to Section I.

Chepauk
6 Nov 82 } A. S. Russell
Col: R.E.

For Ch: Engr: for Irrigation

To
The Joint Secy to Govt P.W.D.

Enclosure 4.

Statement showing the navigation receipts and charges of the Godavari, Kistna, and Buckingham Canals.

52/65 55

Year	Receipts	Year	Maintenance Charge	Balance	Interest
		Godavari Canal			
1876	39,952	1875-76	37,713	2,239	23,372
1877	44,742	76-77	37,959	6,783	25,754
1878	53,386	77-78	43,855	9,531	27,125
1879	63,348	78-79	40,582	22,766	28,128
1880	57,315	79-80	47,347	3,968	28,994
1881	53,870	80-81	53,706	584	24,504
		Kistna Canals			
1876	18,377	1875-76	31,963	-13,586	300
1877	14,876	76-77	29,584	-14,708	308
1878	16,396	77-78	25,262	-8,866	378
1879	23,294	78-79	34,653	-11,359	2,916
1880	23,834	79-80	35,980	-12,146	5,807
1881	21,788	80-81	60,330	-38,542	8,054
		Buckingham Canal			
1880	109,805	1879-80	82,579	27,236 ~~82,579~~	~~27,236~~
1881	120,056	80-81	156,734	-36,678 ~~156,734~~	~~-36,678~~

The maintenance charges on the Kistna and Buckingham Canals during 1880-81, were unusually high owing to the damages caused by extraordinary floods and Cyclone. The increase in the interest charges to the Kistna Canals is owing to the cost of the locks recently constructed on the Commamur Canal having been included in the amount on which interest was calculated.

Enclosure No. 5

Statement showing the estimated Receipts from Navigation at the rates now in force compared with those proposed by the Committee and the Ch: Engr for Irrigation.

582/66

	Actual Collection for 1881			Estimated Collection at the rates now in force			Estimated Collection at the rates proposed by the Committee			Estimated collection at the rates proposed by the Ch: Engr for Irrigation.		
	Tons	Rate	Amt	Tons	Rate	Amt	Tons	Rate	Amt	Tons	Rate	Amount
Godavari Canals												
Cargo boats	21,530	2	41,93½	14,354	3½	50,239	16,148	2	32,296	21,530	2½	53,825
Do by Compounding	–	–	–	–	–	–	10,710	1½	16,065	–	–	–
Passenger boats, 2nd Class	1,413	3	5,702¾	1,275	5	6,375	1,435	3	4,305	1,913	3	5,739
Do by Compounding	–	–	–	–	–	–	1,486	2⅓	3,470	–	–	–
Steamers	21	5	105	14	7½	105	21	4	84	21	5	105
Tolls	10,319	1/16	2,979¾	5,503	1/16	1,720	10,319	½	5,760			1,000
Rafts			4,997			4,985			9,970			9,970
Miscellaneous Rs.			358			358			358			358
Total			55,670			63,782			71,708			70,997
Kistna Canals												
Cargo ~~boats~~	14,937	1	14,972	9,971	2½	24,927	11,218	1½	16,827	14,957	2½	37,392
Do by Compounding							10,710	1¼	13,387			
Passenger boats 2nd Class	793	3	2,379	529	5	2,645	576	3	1,785	793	3	2,379
Do by Compounding							1,486	2⅓	3,470			
Tolls	10,996	1/16	2,749	7,331	1/16	1,833	10,996	3/8	4,123			1,000
Rafts			1,484			1,484			2,968			2,968
Miscellaneous			204			204			204			204
Total			21,788			31,093			42,764			43,943
Buckingham Canals												
Cargo boats	6,352	2	12,704				4,764	3	14,292	6,352	2½	15,880
Do by Compounding							10,710	2¼	24,097			
Passenger boats 2nd Class	3,240	2	6,480				2,435	3	7,305	3,240	3	9,720
Do by Compounding							1,486	2⅓	3,470			
Tolls	–	–	9,567	–	–	–	–	–	–	–	–	1,500
Rafts	–	–	100	–	–	–	–	–	750	–	–	75
Miscellaneous			5,764						5,764			5,764
Total			32,455						54,343			32,279

792

562/67

(1.) What the annual maintenance charges may on completion of the work amount to.

The allotment for maintenance during the current year is

For Southern Canal 61 miles at 110 Rs. - Rs.	6,710
For Northern Canal 207 miles @ 275 Rs. - Rs.	56,925
	63,635
Major repairs to Masonry works	5,000
	68,635

The allotment hitherto made for the Southern Canal has been found sufficient and I think when the canal reaches have been remodelled throughout the whole canal will be put in to a condition that, as regards the cost of maintenance will compare favorably with the present condition of the Southern Canal. The immunity the Southern Canal enjoys from inordinate silting results from the drainage flowing into its backwater in numerous small drainages and not in a concentrated form through large streams or rivers which carry down large quantities of silt and breaking into the several still water reaches of the Northern Canal form large shoals at their entrances and for considerable distances upwards from their mouths. I consider therefore that when the improvements to the Canal have been effected that no greater expenditure per mile will be necessary for its maintenance than has been found requisite for the Southern Canal even in its present unimproved condition. For the 266 miles therefrom an allotment of Rs. 30,000 should prove sufficient,

but

but taking into account the number of river crossings on the Northern Canal that are liable to obstruction, a sum of Rs. 10,000 may be added, bringing the sum total to Rs. 40,000

(2.) What at the end of the remaining 8 or 9 years required the amount of licenses and tolls under your revised scale should, making due allowance for all reasonable increase amount to.—

With regard to this subject it may not be out of place to give here a few particulars regarding the progress of navigation on the Buckingham Canal and show the effect that the raising of tolls thereon of late years has had upon its development.—

Prior to the assumption in October 1879 of the duty of levying tolls upon or issuing licenses for boats that were plying on the Canal, the Collector of the

Chingleput District was accustomed to levy under the orders of the Board of Revenue a toll of 6 As per ton upon every Cargo boat and 4 As per trip on every passenger boat passed through the Shadayankuppam Lock towards Madras. No tolls were levied on boats entering Madras from the Southward. The receipts from these aggregated in 1875, 76, 77 & 78 Rs 57,113, 39,869, 23,110 and 47,130. The falling off in 1876, 77 may be attributed to the famine. The receipts from the licenses issued to boats on the Southern Canal amounted to an average collection of Rs 1400. In October 1879 this System was abolished and licenses and tolls began to be levied under the New Navigation Rules which still continue in force.

The Collections in 1880, 81 and up to November 1882 amounted to Rs 1,09,808, 1,16,327 and 1,00,937 respectively or more than twice the amount previously

previously collected. Instead however of the number of boats decreasing consequent upon the multiplying of toll Stations and the introduction of a more complicated System of tolls under the Rules the number have actually progressively increased as is shown from the table hereto appended

Years	Uncovered Cargo boats		Covered Cargo Passenger and Radari boats		Deck and Dinghee boats		Fishing boats		Miscellaneous boats		Total	
	Number	Tonnage	Number	Tonnage	Number	Tonnage	Number	Tonnage	Number	Tonnage	Number	Tonnage
1879	252	3974	282	1919	4	70	144	232	41	92	723	6287
1880	369	6206	468	3567	19	315	90	110	46	80	992	10278
1881	379	6352	533	3240	29	367	155	x211	32	45	1128	10215
1882	377	6394	534	3522	22	283	62	x152	40	200	1055	10551
							x these do not pay tolls nor fees					

The establishment of tolling stations does not appear therefore to have had a prejudicial effect upon the number of boats that use the Canal. The brunt of paying the tolls comes upon the well to do merchants who hire the boats for carrying their goods to market, and this they can always afford to do without difficulty, and the boat owner who lets his boat to earn a livelihood is in no way affected. The principle however of abolishing toll stations and removing the powers from petty Subordinates of extorting more than they are authorised to collect is a correct one, and should if possible be carried out. But the retention of two tolling stations on the Canal, say at Shadayrukuppam and another at Adyar Lock would not be objectionable, as these stations would from their proximity to the Head Quarters of the Division be open to frequent check and scrutiny. I would recommend therefore as a direct means of simplifying the

the Method of Collection of Revenue that a modification of the original System of Collections, viz. 4 As per ton on all boats be established. The number of boats passed through the Locks at Shadayrukuppam & the Adyar during 1881 amounted to 2,41,207 Tons which at 4 As per ton would give 60,000 and odd rupees.

512/20

The charge under the Establishment proposed under this Scheme in the accompanying table would be 11,500 rupees which added to the amount required for maintenance would bring the Sum total of charges to Rs 51,500.

Omit

~~There is every probability that the traffic will increase on the Canal under existing Conditions, but I must say that I view with alarm the proposal for carrying out a line of Railway to Ennore from the N. W. Line which is now engaging~~

engaging the attention of Government. The effect of this line will be to tap the Nellore District and draw away a considerable portion of the traffic that now finds its way down the Buckingham Canal

R. W. Drake-Brockman

Major R.E.

16 December/82 Executive Engineer B. Canal

Buckingham Canal

Table showing the Establishment proposed for Toll Offices, Locks and Flood Gates.

562/71

Locality	Establishment		Average Salary per month	Amount per Annum	Total
	No	Nature of appointment			
Toll Office at Shadayenkuppam	1	Clerk IV Class 2nd grade	35		
	1	Do Do 3rd grade	25		
	1	Do V Class 1st grade	17½		
	1	Do Do 2nd grade	12½		
	2	Peons @ 7 Rs each	14		
			104	1248	
Lock at Do	1	Head Lascar	8		
	4	Lascars at 7 Rs	28		
			36	432	
Junction Canal Lock at Adyar	1	Head Lascar	7		
	4	Lascars @ 6 Rs	24		
			31	372	
Sadras Canal Lock at Adyar	1	Head Lascar	7		
	4	Lascars at 6 Rs	24		
			31	372	
Toll Office at Adyar Lock	1	Clerk IV Class 3rd grade	25		
	1	Do V Class 1st grade	17½		
	2	Peons at 7 Rs each	14		
	2	Lascars @ 6 Rs	12		
			68½	822	
47 Flood Gates 2 Lascars at each	94	Lascars at 6 Rs each	564	6768	
Basin at Madras	1	Clerk IV Class 2nd grade	35		
	3	Peons at 6 Rs each	18		
			53	636	
Division Office at Madras	1	Clerk IV Class 3rd grade	25		
	1	Do V Class 1st grade	17½		
	2	Peons at 6 Rs each	12		
			54½	654	
		Contingencies	196		
		Total Rupees			11,500

Buckingham Canal Divl Office
Chepauk 16th December/82

R. W. Drake-Brockman

Major R.E.

Executive Engineer B. Canal

Dear Brockman

Please see this file and my note of 23/11/82

It will save time if you can prepare the needful forecasts showing the financial effects of the proposed changes

If you can bring me this subject, with the Report on the Rumbeyfa Canal Saturday or Monday afternoon at Office, both might be disposed of

Yours

D. W. [illegible]
Col R

30/11/82

562/73

Report of Committee appointed under G.O. No. 622 - dd 5th August 1882

Endorsement by the Ag: Chief Engineer for Irrigation No. 117 - dd 6 Novr. 1882.

—

pw 6

Submitted for orders through W.

A. S. Russell.

18 Novr. 82.

For Joint Secy: to Govt
P.W.D. I.B.

P. W. Department

Note by the Chief Engineer, P. W. Dept.

It having been brought under the notice of Govt. that hindrance to the traffic between Madras and the Northern deltas was caused by the navigation rules of the Buckingham Canal differing from those applicable to the Godavari and Kistna deltas, and to the possible abuses from the through traffic being called upon to pay frequent tolls, the following Committee was under G.O. of 5th August 1882 No. 612 I appointed to

Consider and report on the matter, viz^t

J.W. Rundall Esqre } President
S.E. Second Circle

G. T. Walch Esqre } Members
Offg S.E. First Circle
Major Drake-Brockman
Ex: Engr Buckingham Canal

2. The points to which the attention of the Committee was specially drawn were

(1.) The abolition as far as possible of tolls.

(2) The licence fees to be charged for the Canals throughout.

(3) The measurement of the boats with reference to the adoption of one unit of measurement.

3. Major Drake-Brockman

being absent on leave his place was taken on the Committee by his locum tenens Mr Ottmann, Honorary Assistant Engineer, but as will be observed from the printed collection now submitted the Executive Engineer has had every opportunity for expressing his opinion.

4. The papers submitted are in themselves so full and complete that it will be needless to do more than summarize the conclusion arrived at by the Committee and those of the Chief Engineer for Irrigation, who has noted at length on the case.

5. On the first point referred ~~for their consideration~~ to them the Committee consider that although tolls cannot be entirely abolished the number of Existing stations may with advantage be reduced from 47 to 20. To allow of the occasional use of the Canals without taking out a license, toll stations must they consider be maintained at the head locks of each section of the deltas, at all tidal locks, at Ellore near the junction of the Godavari and Kistna Canals and at four places (vizt. Pedda Ganjam, Kundaleru, Shedayankuppam,

and Adyar) on the Buckingham Canal. 562/76

6. In regard to the second point the Committee propose a very considerable reduction on the license fees especially on the Buckingham Canal which are nearly five times that for the corresponding lengths of the Godavari Canals.

7. By para 28 the proposed through rates and the proportion in which the revenue should be credited to each system should they consider be as follows:—

Cargo boat

5.

		Rs. a.
Amount of through license		5 " –
Godavari System	1 " 8 " 0	
Kistna "	1 " 4 " 0	
Buckingham Canal "	2 " 4 " 0	5 " 0 "

Passenger boats

(a) and (c) classes, through license		10 – "
Godavari System	3 " 0 " 0	
Kistna "	2 " 8 " 0	
Buckingham Canal "	4 " 8 " 0	10 – "
(b) and (d) classes, through license		7 " –
Godavari System	2 " 4 " 0	
Kistna "	1 " 8 " 0	
Buckingham Canal "	3 " 4 " 0	7 – "

8. On the third point the Committee definitely recommend that the unit hitherto adopted for the Buckingham Canal vizt. that 50 cubic feet should represent a registered ton instead of 75 cubic feet

as not long since introduced on the Godavari and 562/21 Kistna Deltas.

9. The Chief Engineer for Irrigation accepts the Committee's recommendation on the first head with the proviso that no obstruction such as a chain drawn across the Canal (as at present) shall be allowed at the tolling stations, also that the toll taker takers shall have no authority to stop any boat for the production of its license unless there is some evident infringement of the rules. He would confine all such action to the Inspecting Officers alone considering it better to risk some loss than harass traffic.

10. Under the second head Colonel Hasted while agreeing to the general principles is prepared to go much further than the Committee by making one demand for license to clear all the Canals, and by otherwise removing all poſsible obstacles to navigation believing that the interests of Government would best be served by improving the Communications, stimulating consumption, and Extending production. All he considers that should be looked for is that the navigation receipts should cover the working Expences when the Canals have been completed and brought into normal condition, Excluding interest charge on capital outlay.

11. The scale of license fees as suggested by Col: Hasted (see para 11 of his Note) for cargo boats, paſsenger boats, and steamers, are just one half that recommended by the Committee while for rafts the scale is the same.

12. In the matter of tolls he would substitute the uniform rate of 8 annas per ton for boats and 1 Rupee ditto for steamers for each system in lieu of the Committee's rather heavier rates and the Existing ones

on the Buckingham Canal which are acknowledged to be both heavy and vexations.

13. Major Drake-Brockmann to whom the question of licence and tolls was referred chiefly in view to shew what would be the probable financial effect of the suggestion made by the Committee, and by the Chief Engineer for Irrigation, has recorded his opinion in a Memo: of the 16 December.

14. The main point brought ~~permanently~~ prominently into view by the Officer is the large outlay now required for the maintenance of the Buckingham Canal in its present incomplete condition and the sensible reduction which must occur when the improvement works which have been estimated for and are being carried out shall have been completed, the total future annual charge for the 266 miles open he considers should not exceed Rs 40,000/

15. While shewing what the collection from tolls has been during the past 4 years he has taken no credit for future increase which when the trade has been freed from the present harassing system of tolls may reasonably be expected to shew itself. The growth

of the revenue in the last few years does not it is thought prove that tolls are acceptable to boat owners or others engaged in trade so much as that the vitality of the traffic is so great that the revenue has increased in a very marked manner in spite of all obstacles.

16. In addition to the license fees proposed by the Chief Engineer for Irrigation, Major Drake-Brockman would establish only two toll stations vizt, at the Adyar lock the head of the southern branch, and at Shedayankuppam the southern extremity of the north branch of the Buckingham Canal. 562/0

17. With a toll of 4 annas per ton on the whole outward and inward traffic passing the locks (aggregating 241,207 tons) he calculates on a revenue from this source only of Rs 60,000/- per annum.

18. The plan though apparently simple would have the objection that the rate charged on boats plying near the extremities of the Canals would be unduly heavy while others might escape all tolls, e.g. a boat making three outward trips would pass the toll station 6 times and pay 1 1/2 Rs

per ton which is certainly very heavy while any boat plying within the full length of the Canal beyond the toll station would pay nothing.

19. Col. Hasted on a further reference made to him regarding the cost of Establishment gives the following for his scheme:–

Toll Stations	Establishment	Pay	Total
		Rs	Rs
Shedayan Kuppum Lock	1 Superintendent .	15	41.
	2 Lascar @ Rs 7 ..	14	
	2 do @ " 6 ..	12	
Adyar Lock	Ditto	"	41
Pedda Ganjam Lock.	1 Superintendent	15	21
	1 Lascar . .	6	
Kundaleru	Ditto	"	21
Wharf at Madras	1 Superintendent	50	79½
	1 Clerk	17½	
	2 Lascars @ Rs 6-/	12	
	Total per mensem Rs		258
	Total per annum Rs		3,096.

20. Assuming the maintenance charges at Rs 40,000-/ the amount estimated by Major Drake-Brockman allowing for Contingencies, Establishment and maintenance would not Exceed Rs 45,000-/ per annum when the Canal shall have been completed.

21. As even with the present imperfectly developed traffic the license fees and tolls would on Colonel Hasted's scale amount as shewn to over Rs 32,000-/ per annum it would only need a wharfage charge of about 1 anna a ton levied at Madras to bring receipts and disbursements into equilibrium.

22. A wharf is now being constructed near the basin at Madras and it may be desirable to build another to south of the Adyar lock. A charge such as that indicated at both places would be in every way reasonable and it certainly would be neceſsary to prevent all discharge of cargo at ~~both places~~ the selected places

23. On the whole, therefore, the proposals put forward by the Chief Engineer for Irrigation supplemented by this wharfage charge which he himself has suggested would it is thought prove most beneficial.

24. It is of the utmost moment that a work which holds out such promise of Succeſs in ordinary years and of proving itself of inestimable value during famine should be freed in its infancy from all needleſs trammels.

25. Among other points which have incidentally entered into the question raised, is one regarding the branch of this Department by which in future the work should be controlled.

26. Reasons have hitherto Existed, needleſs here to state, which have made

it advisable to retain the control in the General branch of the Department.

27. These however do not now Exist in the same force as formerly, and certainly if in future complete uniformity of management is to be introduced for all the Canals as forming part of a general system it would be desirable to transfer the management of the Buckingham Canal to the Irrigation Branch.

28. Another point has reference to the period covered by the annual returns, which hitherto has been the calendar and not the official 82/83 year.

29. There seems no reason why the latter should not now be reverted to as being in every way the most convenient. Should the above approve themselves to Government orders might issue at a sufficiently early date to admit of the introduction of the new System in its entirety from the 1st. April next.

(Sd) R. H. Sankey Col. R.E.

Chief Engineer P. W. Dept

Madras
26 January 1883

Exd. Jno. J.

P. W. DEPARTMENT.

READ the following :—

Report of the Committee convened in G.O. No 6123 d/ 5th Augt 82, to consider modifications of the Navigation Rules of the Canal System of the East Coast.

Memo. by the Ch. Engineer for Irrigation No 1173 d/ 6.11.82.

—do —do— Ex. Engr Buckingham Canal d/ 16.12.82.

—do — do — Ch. Engineer P.W. Dept d/ 26.1.83.

FOR ORDERS.

Major R.E.

For Secy to Govt P.W.D.

I would accept the recommendations of the Committee with the modifications suggested by the Chief Engineer for Irrigation and a G.O. might issue on the lines of Mr. Sankey's note.

H.E.S.

8/2

Send to Hon. Mr Carmichael

FOR ORDERS.

GO 484 I d/3.8.81
" 4512 d/1.9.77
" 384 I d/8.5.82
" 1900 W d/26.7.82
" 612 I d/5.5.82
" 2256 W d/2.9.82

562 I.

Anr: 6/2 R: 9/2

No. 562 I

B & R
C.Wks.

Public Works Department.

382/85

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Order dated the 20th Feby /83

Read the following

[illegible]

From the Committee Convened in P.G. No 602 I d/ 5th Augt 1882	} H.S. No — d/12th Octr 1882
Memo by the Ch. E. for Irrn	— No 117 I d/ 6th Novr 1882
— do — do — Ex. Engr B. Canal Dn	— — d/16th Decr —
— do — do — Ch. Engr P.W. Dept	— — d/26th Jany 1883.

The Govt. accept the recommendations of the Committee, with the modifications suggested by the Ch. Engr for Irrigation, & the Ch. Engr P.W. Dept.

2. The Ch. Engr for Irrigation will submit, in time to admit of their introduction by the 1st April 1883, a

revised draft of the rules for publication in the Fort St George Gazette & communication to officers concerned.

3. The official, instead of the Calendar year will in future be adopted in regard to ~~all~~ the preparation of navigation returns &c, & from 1st April next all matters relating to the Buckingham Canal will be dealt with in the Navigation Branch.

S 13/2

20/2/83

Ch. E. for Irrgn	11	✓
S. E. First Circle	7	✓
" Second — " —	6	✓
" Third — " —	3	✓
Board of Rev.	21	✓
Rev. Dept —	21	✓
	50	

Despd 23/2/83.

Nos. 139-1

Navigation Rules

Revised — for the
Canal System of
the East Coast.

30
7