

Edl Lm (1916) Department.

Mis SERIES.

G.O. No. 58, 59 *Edl*

DATED 19-1-16

[Despatch Abstract.]

Honorarium Addressing the Government of India on the question of the grant of an aggregate of Rs 2,000 to Mr H E Morgan Undersecretary to Government in the PWD for writing the manuals on 'Irrigation Works' & 'River Training' respectively for use in the College of Engineering.

E. W. through E. I. ✓

E. W. recently asked me whether I would undertake to rewrite the manual on "Irrigation Works" now in use in the Engineering College for an honorarium of Rs 1500. I have looked into the matter & am prepared to do it for the amount offered provided the scope of the book is limited to that suitable for Upper Subordinates and I am allowed to make use of an office typist & draughtsman occasionally & also of the Photostat. The book will have to be completely rewritten and the subject matter that would be dealt with is given on pp. 3 & 5 infra. It will be seen that it is not proposed to deal with "Water Supplies of Towns" or "Lift Irrigation", chapters on which were included in Mr Reynolds' book. "Town water supplies"

is too big a Subject to deal with in a Chapter or two & if it forms part of the Course for the senior engineers a separate text book should be compiled. In the case of Lift Irrigation it is unnecessary to describe a number of primitive mechanical methods of irrigation with which all the students are familiar and Engines & pumps find a place in another Course of instruction. Though the book would be primarily for Upper Subordinates it is proposed to give references to papers & books, which are accessible to the students at the College, to guide the further reading of students of the Engineer class.

10/9/15

It would take about 6 months to compile the book.

Presented to the
Director of the
Bureau of
Agriculture
by the
Bureau of
Agriculture
10/9/15

TEXT BOOK OF IRRIGATION ENGINEERING.

Chapter 1.

1. SUPPLIES REQUIRED FOR IRRIGATION.

1. Amount of water required to raise and mature various crops.
2. Duty of water.

Chapter 2.

1. UTILIZATION OF WATER SUPPLIES FOR IRRIGATION.

1. Description of different methods of irrigation.
2. Considerations which determine the method of irrigation.

Chapter 3.

ESTIMATION OF WATER SUPPLIES AVAILABLE FOR IRRIGATION.

1. Measurement of rainfall.
2. Estimation of run-off from rainfall statistics.
3. Measurement of river discharge.
4. Evaporation and absorption.
5. Estimation of amount of available supply that can be utilized for irrigation.

6. Flood Discharge.

Chapter 4.

1. SILT/ROLLING SAND AND SCOUR.

1. Description of silt and rolling sand carried by rivers.
2. Measurement and quantity of silt carried by rivers.
3. Formation of deltas.
4. Critical velocity.
5. Sanding of canal heads.
6. Silting of tanks and reservoirs.
7. Causes of scour in rivers and channels.
8. Limiting velocities for canals and channels.
9. Effects of scour on irrigation works.

Chapter 5.

PERCOLATION.

1. Percolation defined.
2. Gradients through different materials.
3. Velocities of percolating water.
4. Methods of estimating gradients in sand by analysis
5. Effect of excessive percolation under works constructed on sand and through dams.
6. Methods of decreasing percolation.

Chapter 6.

HEADWORKS -- DIVERSION WEIRS. *locks*

1. Component parts and their relative location.
2. Types of weirs.
3. Design of different types of weirs.
4. Design of regulators.

Chapter 7.

HEADWORKS -- HEAD AND SCOURING-SLUICES.

1. Types of head-sluices.
2. Design of head-sluices.
3. Object of scouring-sluices *+ proper location*
4. Types of scouring-sluices.
5. Design of scouring and sand-sluices.

Chapter 8.

xx HEADWORKS -- STORAGE WORKS.

1. Types of masonry and earthen dams.
2. Selection of site for and design of masonry dams.
3. do do of earthen dams.
4. Examples and design of sluices.
5. Examples and design of surplus escapes.

Chapter 9.

Distribution System.

1. General lay-outs.

2. Design of Canals & Channels
3. Types & design of sluices
4. do drops
- 5- do regulators

Chapter 10.

Distribution system - Cons. drainage & drainage of ayacut

1. Various methods of dealing with drainage intercepted by canals & channels.
2. Conditions determining type of work to be adopted.
3. Design of inlets, outlets, siphons, aqueducts & superpassages.
4. Drainage of ayacut.
5. Tidal outfalls.

Chapter 11.

Navigation

1. Limiting velocities in Navigation Canals.
2. Effect on design of navigation canals when combined with navigation.
3. Design of locks & lock weirs.
4. Design of wharves.

PUBLIC WORKS DEPARTMENT.

C. N. 15240 O. 1/2

Dated 30/9/1915.

E. W.

E. I. who has perused the foregoing notes is of opinion that the book should deal with the investigation of small irrigation projects & river training. The subject matter that would have to be dealt with is given on pp. 7 to 10 *supra* & I am afraid that the work entailed in compiling the portion on "River Training" would be so considerable that I am only prepared to undertake it for an additional fee over & above Rs 15.00.

17/9/15

H. M.

Mr Morgan has outlined above what should be a very useful Irrigation Manual, and a distinct improvement on the book now in use at the Engineering College. Mr Morgan proposes that the book should be intended for the training of upper Subordinals, and with this I agree. I do not think it necessary therefore to have

a chapter on "Investigation of small projects" as an upper subordinate would not be put in charge of such work unless he had shown special aptitude for project making, and this would develop from his practical work and experience in the Department, and not from a course of lectures on the subject in the college before he had gained any experience -

I do not think either that "River Training" should be included. It is quite a separate branch of engineering, and a very difficult and baffling one at that -

The fee that Mr Morgan asks for writing the Manual is a very modest one, and I support his request that he may be allowed to make occasional use, if it does not interfere with Government work, of his office typist and draftsman, also of the photostat. He may also be allowed to use any designs, reports, or other information which are available in any of the Offices of the Department

from
30/9/15

Box M-7
1-10-15

Investigation of small projects.

Ancient Project

- 1) Selection of site for ancient.
- 2) Examination of site.
- 3) Location of materials of construction.
- 4) Surveys & levels required.
- 5) Estimation of proportion of supplies available that can be diverted.
- 6) Estimation of flood discharge.

Tank Project

- 1) Selection of site for tank.
- 2) Examination of site for bund.
- 3) Testing of bed of tank for porosity.
- 4) Testing of suitability of earth available for construction of bund.
- 5) Location of materials of construction.
- 6) Surveys & levels & required.
- 7) Estimation of yield from catchment.
- 8) Fixing of storage capacity & outlet.

9) Estimation of flood discharge

Canals & Channels

- 1) Surveys & levels required.
- 2) Collection of information for design of cross-drainage works.
- 3) Trial pits.
- 4) Location of materials of construction.

General

- 1) B.M.s
- 2) Miscellaneous information to be collected
- 3) Permanent marks to be left.
- 4) Extract from Chap. VII Vol. I. P. W. & D. Code. (Rules for Preparation of Irrigation Projects)
- 5) Working Tables.

River Training.

Chap. I.

- 1) General features & tendencies of Indian rivers.
- 2) Slopes & velocities.
- 3) Eddies & currents.
- 4) Formation of shoals, permanent & shifting.
- 5) Course of bed.
- 6) Erosion of banks.
- 7) Sand bars.
- 8) Influence of bends.
- 9) Tendency to short cut.
- 10) Permanent regime of a navigable river.

Chap. II.

- 1) Objects of Conservancy.
- 2) General principles governing conservancy.
- 3) Limits of improvement.
- 4) Flood banks.
- 5) Training rivers at sites of permanent works such as ancient bridges.
- 6) Flood regulation.
- 7) Training of river outlets.

1) Maintenance of banks.

Chap. III.

1) Examples of methods adopted to cause accretions.

Chap. IV

2) Examples of purely protective works.

1540.6/A

NOTES.

Page 11

Routine Note

13

See

This case will have to go to the Educ^l dept so please explain how it arose, viz. from conversation I had with Col. Ellis, yourself & Mr James about the inadequacy of the present text book. That inadequacy should be briefly explained from the professional point of view.

Hus
2.10.15

Wm R.S. kindly prepared with
for Educational

Wm
10/15

R.S. W

Please find the notes
in the "Engineering College Manual"
of "Brighton works" which I
sent to Mr James early this
year & to Mr James's correspondence.
This is sent to you.
Hus 7/10/15

Wm
10/15
R.O.

Wm
10/15

P.W.U.O. No. 1540-1
DATED 1.10.15

WORKS DEPT. LEBRIDGE
OCT 1915
7783/15
GOVERNMENT OF INDIA

Wm
10/15
R.O.

14

E.I.

No. 32-E dated 12-1-15 containing the notes on the "Engineering College Manual" as well as the connected correspondence referred to by E.I. on the previous page is put up.

T.V.S.
13-10-15

P.K.S.
13-10-15

1. I strongly disagree with Mr. Murray in regard to his remarks regarding the Chapter on "the Investigation of small Projects" and I think the reason adduced that an upper subordinate would not be put in charge of such a work is not a good one and would equally apply to half the subjects proposed to be treated of. Moreover I think it is quite an ordinary experience for upper subordinates to investigate small projects in the ordinary course of business and frequently fails to realize what should be the subjects for investigation. I press most strongly for the inclusion of this chapter.

2. In regard to extra chapters on "River Training" for which Mr. Morgan requires an additional fee the subject is an important and difficult one which is usually practised in this Presidency in connection with Irrigation works. It is however as Mr. Murray says a separate branch of Engineering and a very difficult and baffling one on which no instruction whatever is found in the College text books or course. On this ground I think it is desirable either as part of this work or in a separate small text book to endeavour to give some instruction and guidance in this branch of Engineering.

3. I add below separate note explaining how the subject of the Engineering College Text book of Irrigation

supp 14-17 supra

(with linked file)

Irrigation and proposals for writing a new one have been initiated in the Public Works Department, for transmission to the Educational Department.

Inf
23.10.15

Fluoro.

EW.

Submitted

WN
26.10.15
Mc
26.10.15

SM
31.1.15

Educational *W*

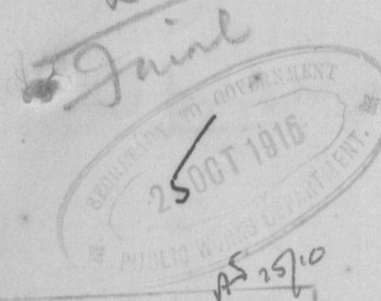


Educational Dept

~~Revised~~ The file is returned to the Hon. Mr. S. B. Murray as directed by the Secretary

La
24.11.15
CR
24.11.15

P. W. D. IRRIGATION.
U. O. No. 7783/15-1
Dated, 23.10.1915



PUBLIC WORKS DEPARTMENT.
C. NO. 2301 A. D.
DATE 25.10.1915.

P.W.U.O. No. 2301AS-1
DATED 3.11.1915

S. 5

CN No. 3868 *Eol*
8/11/15

La
8/11/15

Sp final
24.11

Eol no 3868-1

PUBLIC WORKS DEPARTMENT.
C. NO. 2604 A. D.
DATE 29.11.1915.

NOTES.
Compilation of a new Irrigation Manual for use as a text-book in the Engineering College, Madras.

14 P.W.D. Irrigation Page

Near the end of last year (1914) the Principal of the Engineering College drew my attention to certain remarks made by Mr. H.E. Clerk when Chief Engineer for Irrigation in regard to some inaccurate and misleading statements (e.g., para 142 where the maximum flood discharge is made to appear as the "yield of a catchment basin") in the Madras College of Engineering Manual "Irrigation works" by Mr. B.O. Reynolds and asked me to have the work examined with a view to correction of any such matter in the next edition of the work.

2. After examining the work I saw Mr. James on the subject and told him that in my opinion no alterations in the text could possibly make the work a suitable text book and that I thought that a new book dealing with Irrigation Works was required, as this work was unsuitable and could not by alteration be made a good text book. Mr. James agreed that the book was an unsuitable production but in view of the fact that no proposals for writing a more suitable one were under consideration and a reprint was required early he asked me to correct the more misleading statements so as at any rate to reduce the danger of the students getting wrong notions and ideas from the book.

3. In my opinion the book is a crude and badly arranged treatise. Many of the statements are misleading and it is not written keeping specially in view the requirements and practice of the Madras Irrigation. Many subjects of great importance are

treated

treated of in a cursory manner (e.g., yield of catchments, gauging discharges, percolation,) while on the other hand matters not much required in our irrigation practice are dealt with at a length which gives them from point of view of Indian practice an altogether exaggerated importance (e.g. American Irrigation).

4. The plans which students ~~no~~ doubt would consider to be inserted as types to be followed are in very many cases faulty and antiquated, and in few ~~instances~~ ^{cases} are the points and considerations embodied in the designs remarked on and explained in the text.

5. I have no desire to reflect on the author of the work I criticise so adversely Mr. Reynolds rose from the position of a subordinate in the Madras P.W.D. He was a great many years (most of his service) in the College of Engineering and ~~written~~ ^{neither} from his educational qualifications ~~or~~ ^{nor from} his experience could he have been reasonably expected to write a good Irrigation Manual. Considering all ~~these~~ things I am rather surprised the book is not worse than it is. The production of a text book requires a really extensive and well grounded knowledge of the subject treated of as well as extensive experience and I do not think it was at all reasonable to expect a good or suitable book from the pen of Mr. Reynolds. At the present time when it is proposed to spend lakhs in a new Engineering College it appears essential that a suitable text book on Irrigation should be written with a view not only to instruction of the College classes but as a reliable guide for reference to officers and subordinates in the P.W.D. and Minor Irrigation Department. The book required cannot profess to ~~that~~ ^{treat} the subjects dealt with exhaustively, but it should give reference to books dealing in more detail with the various subjects.

A good treatise of this kind is one for which there is likely to be very large demand outside the Engineering College requirements. The College treatise on Hydraulics by Col. Love is an instance of a well written elementary treatise of much value to practising engineers and subordinates. It is a book well known and much used throughout India and is constantly referred to by most officers as well as subordinates of the Madras P.W.D. A similar book on Irrigation works with special reference to South Indian requirements and practices is badly wanted and would have a large circulation and would probably result in minimizing the number of errors in irrigation practice now occurring through want of a good work of this nature.

6. The facts in paras 1 and 2 above were mentioned in personal conversation to Sir Harold Stuart and I expressed to him how strongly I felt in regard to the unsuitability of the present text book as a basis of irrigation instruction in the Engineering College. Sir Harold Stuart, I understand, has taken up the subject with Mr. Murray and Mr. James who have concurred with me in regard to the unsuitability of the book. Mr. Murray has asked Mr. Morgan if he would undertake writing a new manual for use in the College. He is prepared to ^{undertake} the work and he has also outlined ^{the contents of such an} ~~what should be a useful irrigation manual and a~~ ^{distinct improvement on the book now in use.} The scope of the new book, the subjects to be dealt with in it and the remuneration proposed are discussed ^(in the routine notes below) ~~(in the routine notes below)~~. I wish to add that Mr. Murray's selection is an excellent one and if the Government accept the proposal they are likely to acquire a book which will both directly and indirectly repay outlay incurred.

on pp 1-5 and 7-10 infra

NOTES.

incurred. The case is one for consideration in the Educational Department and it is forwarded to that Department *thru P.W.D. (for)*

23/10/15

P.W.D. General.

Educational *W*

3.11.15

P. W. D. BRISTOL
U. C. 81/70/15
Dated 23.10.1915



PUBLIC WORKS DEPARTMENT.
C. No. 2302 A. D.
DATE 25.10.1915

P.W.D. No. 2302 A-1
DATED 3.11.1915

CN^o 3869 208
8/11/15

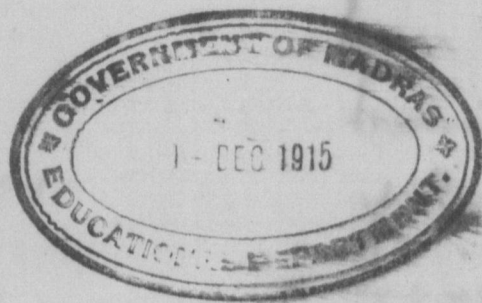


I asked for the file again in order to clear up two points. Mr Morgan has agreed to include in the Manual a chapter on the investigation of small projects without asking for an increase in his honorarium. As Colonel Ellis is very anxious I have this chapter I withdraw the objection I made to it.

2. Mr Morgan is willing to write a separate text book on "River Training" for a fee of Rs 50/- This I think is quite a moderate request, and Colonel Ellis agrees with me.

Educational up

from
27.11.15



PMU.O. No 2604 Hf-1.
DATED 29. 11. 15

CN^o 4246 Eos
1. 12. 15 (Onebook)

[Faint, mostly illegible handwritten notes in the left margin of the right page.]

Educational Department.

Submitted that the proposals to revise the book and entrust the work to Mr Morgan may be accepted in Educational and the remarks of Financial invited on the question of the grant of honorarium. This case seems to have a parallel in the revision of Mr Nally's sanitary hand book by undertaken by the Govt. in the Public (Medical) department. There the work is of revision, retaining very largely the original text. It has been decided to pay Captain Russell Rs. 1000 as honorarium and a reference has been made to the Govt. of India. Here the book is to be re-written and the remuneration of Rs. 1,500 asked for is considered by the Chief Engineer to be modest. Educational may accept.

2. The proposal to pay a fee of Rs 500 for writing a separate text book on "River Training" may also be accepted.

[Faint handwritten note:]
(Lapsed in Public - not available)
(Order under issue)

[Handwritten:] 1-6-15

ASSISTANT SECRETARY
3-DEC-1915
6-1
GOVT. OF MADRAS

2/12/15
(one book)

12/15
1.12.15

2.12.15

Fin - 11-6-

CHIEF SECRETARIAT
15
MADRAS GOVT

CURRENT NO.
7833
FINANCIAL

Regd. 13-12-15

1833

Submitted that the proposed work for the A.S. the work to be done is as follows:—
There are really two proposals in this case, viz,
(a) Mr Morgan to write a new manual on irrigation works including a chapter on the investigation of small projects for a fee of Rs 1,500.
(b) Mr Morgan to write a separate book on river training for a fee of Rs 500 (000 Rs. 500).
The sanction of the Secy of State is required for the fee of Rs 1,500 in the first case. (art 72(6) C.S.R.) and the consent of the G.O. in the second case must be obtained to the payment of the sum before the work is begun. (art 72(6) C.S.R.).
The sanction of the fee of Rs 500 in the second case is within the competence of the Local Govt. (art 72(6) C.S.R.)
74-6 1-12-15

Financial Department

Submitted that the proposed work for the A.S. the work to be done is as follows:—

There are really two proposals in this case, viz,

(a) Mr Morgan to write a new manual on irrigation works including a chapter on the investigation of small projects for a fee of Rs 1,500.

(b) Mr Morgan to write a separate book on river training for a fee of Rs 500 (000 Rs. 500).

2. The sanction of the Secy of State is required for the fee of Rs 1,500 in the first case. (art 72(6) C.S.R.) and the consent of the G.O. in the second case must be obtained to the payment of the sum before the work is begun. (art 72(6) C.S.R.).

3. The sanction of the fee of Rs 500 in the second case is within the competence of the Local Govt. (art 72(6) C.S.R.)

74-6 1-12-15

I think both proposals should be treated as one.

We may agree to Mr Morgan being added as a member.

7.12.15



Notes in CR 17.12.15

Final 7833-1 10.12.15

1-2225-1 10.12.15

W.P.W.D. (cc) Mr. C. E. D. 9/12

Educational Department.

Submitted that the file may now be

forwarded to P.W.D. for necessary action as made

14.12.15 14.12.15

16.12.15

P.W.D.

P.W. Dept.

D.W.
W

The proposed books are intended as text books for the students of the Engineering College and the proposed fees will be debited to the head "22. Educational". It, therefore, appears that further action has to be taken in the Educational dept.

Please see in this connection the Educational dept's notes on page 6 of the notes to C.O. No. 1498-99W 8 28.7.13.

2. The file may be perused and returned to Educational thro' P.W.D (I) for necessary action.

23.12.15
23.12.15

23/12

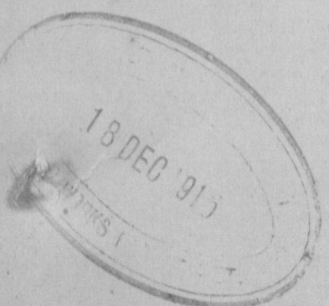
Educational, Thru P.W.D (S) W.

23/12/15

(with a book)

Col no 4246-2 (one book)
18/12/15

PUBLIC WORKS DEPARTMENT.
C. NO. 2749 A. D.
DATE, 20-12-15



*flag O.

(with a book)



DATED 23-12-15

S.A. 1915

P. W. S. (9)

~~89~~
~~8~~

The file may be removed and passed on to Educational for necessary action.

Yds
4.1.16

4/1/16

*with a book

2
to be done

Before passing this on I would like it to be noted that the matter is urgent.

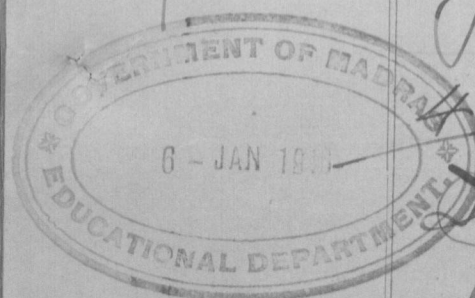
Mr. Morgan tells me he is only willing to undertake the work if he can do it while he continues to be employed in the Librarian's office where he has free access to books, reports &c which are required.

Further it is highly desirable that the work should be started within the next month as it is much easier to get the ground work done at Madras where we are in touch with books of reference &c or above & also with the Drawing & Engraving Staff than in Botacammal where the same facilities do not exist —

2 Under these circumstances if the sanction of the Secy of State is awaited it is not improbable that the whole ~~work~~ arrangement will fall through & we will be left still with an unsuitable manual of Irrigation as a College of Engineering Text Book.

3. If sanction to start in anticipation is given W Morgan is prepared to start at once & agree to in the event of the fees not being sanctioned to forego any claim on the understanding that the work done up to ~~the date~~ that time ~~has~~ remains his property & he is at liberty to publish it if private arrangement.

CN^o 5881
7.1.16



P. W. D. IRRIGATION.
No. 1/16-C,
Dated 5-1-1916.

By order
CA
Treasurer
7/1/16

From the above the writer
thinks it will be understood & agreed

Ref
5/1/16

Director of A. S.

59/20/15/11

Educational Department.

A draft letter to the Govt. of India is submitted for approval.

2. There appears to be no objection to Mr Morgan being asked to begin the work at once on the conditions mentioned by the Irrigation Secretary in para. 3 of his note on page 23 *supra*. If approved, P. W. D. may be requested to instruct Mr. Morgan accordingly.

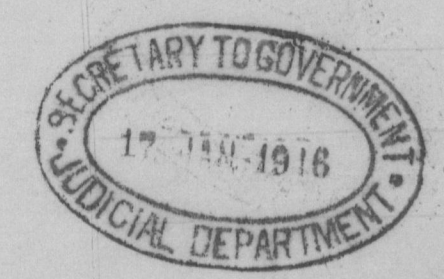
12.1.16

14.1.16.

15.1.16

H. E. the Governor.

P
16.1.

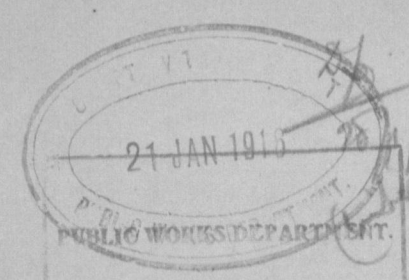


The letter to India has issued.
2. Submitted that the file may be sent to P. W. D. ^{for} further reference to para. 2 *supra*.

20.1.16

20.1.16

21.1.16



C. NO. 193 A. D.

DATE, 21.1.1916.

543
21.1.16

Pro D u.o.

P.W. Dept.

D.W.

The file may be sent to E.I. for perusal of the para. 2 of the Educational Dept's note of 14.1.16.

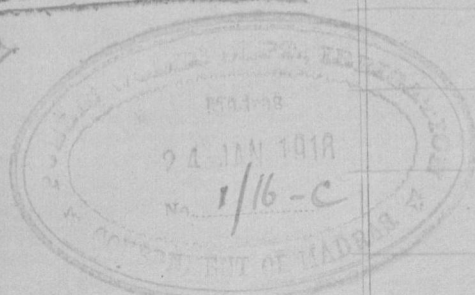
22.1.16.
WN
22.1.16

WGM
22/1

E.I. Uo.

W 2 (D)

P.W.D. No. 193 Ad-1.
DATED 24.1.16



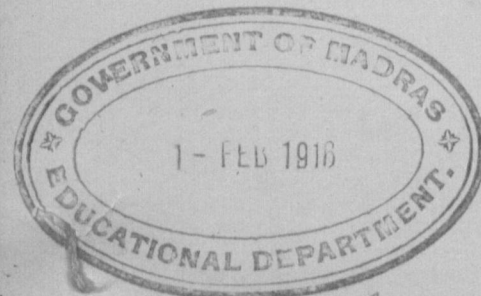
29
27/1/16
WN

Noted

27/1/16

E.I.

27/1/16



29

The file may be returned to Educational then P.W. Dept.

27/1/16
WN

27/1/16

P.W. D (92) u.o.

P.W. Dept.

D.W.

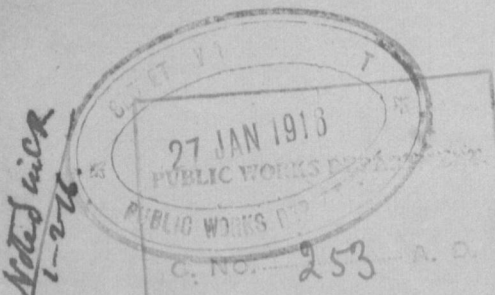
The file may be returned to Educational.

27.1.16.
WN
27.1.16

WGM
28/1
Uo

Educational

P. W. D. IRRIGATION.
U. O. No. 1/16-C.
Dated, 26-1-1916



Noted
1-27/1/16

DATE, 27.1.1916

P.W. No. 193 Ad-2
28.1.16

C.No.58.

ORDER :- No 58 Edl Mis 7/19-1-16
Mis.

The Government of India will
be addressed.

8.1.16.

LETTER :- No 59 Edl Mis 7/19-1-16

To

The Secretary to the Govt. of India,
Department of Education.

Sir,

I am directed to address you on the
question of the grant of an aggregate --
honorarium of Rs.2,000 to Mr. F.E. Morgan,
Under Secretary to Government in the Public
Works Department, Irrigation branch, for
writing two manuals on "Irrigation Works"
and "River training" respectively, in the
circumstances set forth below.

2. The Chief Engineer for Irrigation

has brought to the notice of this Government

that there is at present no suitable manual
on "Irrigation works", the existing manual,

compiled



Stamp
17/1
for file to me

Issued
as
19/1/16

Noted in CB
20.1.16

page 14 of notes

for use in

The Engin College of Engineering

27
29

which was

compiled by a former instructor in the
 Madras College, of Engineering having been
 found to be ^{out of date} ~~much antiquated~~ and to contain
 many inaccurate and misleading statements.
 It is also pointed out that at the present
~~time~~ time when it is proposed to spend lakhs
 in the construction of new buildings for the ^{Engineering}
 college, it is essential that arrangements
 should be made for the compilation of a ^A ~~suit-~~
 able text-book on ^{the subject is necessary} ~~Irrigation~~ for the use not
 only of the college students, but also ~~for~~
 the guidance of the officers and subordinates
 in the Public Works Department and the Minor
 Irrigation Department. As there is no
 chance of private enterprise ~~stepping forward~~
 to supply this want, His Excellency the
 Governor ^{in Council} has considered it necessary to
 request Mr. Morgan to undertake the compila-
 tion of a new manual ~~so as to meet present~~
 requirements.

3. The need for a text book on --
 "River Training" is also keenly felt. This
 subject is an important branch of Engineering
 and a very difficult and baffling one on
 which no instruction is at present ~~stated to~~
 be available in the college text books.

4. His Excellency the Governor in
 Council considers that Mr. Morgan is eminently
 fitted for this work and that the remunera-
 tion proposed, i.e., Rs.1,500 for the ^{book on} ~~A~~
 "Irrigation works" and Rs.500 for ^{that on} ~~the~~ "River
 training" is a modest one. ~~I am to add~~
 that the manuals will directly and indirectly
 repay the outlay incurred on their compilation.

p. 14 of notes

-15-

which is suited to the
 conditions of Southern
 India

-12-

-18-

-16-

28
30

I am accordingly to request that sanction may be obtained for the grant of the -- honorarium to Mr. Morgan and communicated to this Government as early as practicable. As the books are required urgently, Mr. Morgan has been instructed to begin the work in anticipation of sanction.

I have etc.

8.14.16.

12/1/16

19/1/16

Handwritten note in a circle:
 This is a list of the
 contents of the book
 which is being sent to
 the Government.

[Faint, mostly illegible text from the reverse side of the page, appearing as bleed-through. Some words like "River Training", "sanction", and "honorarium" are visible.]

n given for copying _____
 n copied _____
 en examined _____
 en signed _____

191 .

D AGAIN G.O. No. _____
 191 _____ DATED _____

CURRENT No. _____

ENCLOSURES TO C. No. _____

ORDER OF GOVERNMENT A A A A A A A

LETTER OF GOVERNMENT.

STATEMENT WITH DITTO.

PAPERS NOT FILED UP, BEING MEANT FOR DESPATCH IN ORIGINAL.

N.E.—
 A = Copy in full.
 B = Not to be copied.
 P = Copy abstract only.
 Q = Copy heading only.