

M.O. 1-17,596-3 B.P.

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MADRAS RECORD OFFICE.

Government of Madras.

DEPARTMENT.

G.O. No.	1670	Press
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Dated	18/11/51	

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
22nd June 1871.*

No 391. Read the following endorsement of the Secretary to the Government of India, No. 209—15 I.—

Despatch from the Government of India, Public Works Department, (Irrigation,) to the Right Honourable the Secretary of State for India, dated Simla, 2nd June 1871, No 65 P. W.

In continuation of our despatch (Public Works) No 56, dated the 19th May last, we have the honour to request that a self-registering hydrometer on Colonel Sankey's design be sent to Calcutta for trial in Bengal, to the address of the Officiating Chief Engineer for Irrigation in that Province. Copies of reports received from the Government of Bengal, pointing out a few defects in the instrument as at present designed and the way in which they might be remedied, are herewith enclosed and might be forwarded to the manufacturer with a view to such improvements or alterations as may be necessary, when preparing the instruments which have already been ordered.

Memorandum by H C LEVINGE, Esq., Superintending Engineer, Sone Circle, on COLONEL SANKEY'S Self-registering Hydrometers for rivers

The hydrometer, as designed, appears to me to be open to the following objections —

First, and most important, the orifice for the admission of water to the pipe is placed at the level of the river-bed, any silting up of which would cause the opening to be choked, when, of course, the water in the pipe would cease to rise and fall with that outside

Second If orifices are provided at different heights as proposed alternatively, the pipe would gradually become choked with silt, and the float would be stranded when the water fell

2 These difficulties might, I think, be got over if a flexible tube were inserted near the bottom of the pipe, this tube should be buoyed up by a float sliding on a vertical bar attached to the side of the pipe, the mouth being kept a few inches below the surface of the water It should be of small diameter, compared to that of the pipe

3 In this way the water in the pipe would remain always at the same level as that outside, while there would be no flux and re flux of water, except at the time of rise and fall of the river, and there would be a comparatively small change of water inside the pipe, and consequently an insignificant deposit of silt If orifices are made at intervals in the side of the pipe, there would be a considerable interchange of water, which would thus cause a large amount of silting

4 The hydrometer should not, I think, be placed in the open river, but rather in a sheltered nook, so as to be out of the way of boats and floating objects during the time of flood, a severe knock from a floating tree or a boat would probably disarrange the apparatus, if it did no more serious damage

5 And I am of opinion that it should be observed at least once a week, and on each occasion the pipe should be cleared of any silt which might have deposited in it This could easily be done by a simple scoop made for the purpose, something in the shape of a cork-screw

6 I see no reason why the hydrometer should not work perfectly well if these precautions are taken There is an objection in this country to any complicated arrangement the clock work and mechanism should, therefore, be made as simple and substantial as possible The cost of the apparatus is against its general adoption, and, I think, it should be tested practically before it is generally introduced

To The Acting Secy. Govt. of Madras
P.W. Department.

Proceedings of the Madras Government, Public Works Department.
22nd June 1871.

From J. CAMPBELL, Esq., C. E., Executive Engineer, Pooree Division, to the Superintending Engineer, Orissa Irrigation Circle, dated Cuttack, 26th April 1871, No 307

In reply to your memorandum No 1,023, I have the honour to state that I think Colonel Sankey's self-registering hydrometer a very good idea, and, with slight modifications, would be a very useful instrument.

The self-registering machinery is very much like Morse's Telegraph reader, which is largely used on the Continent, but the contrivance for getting rid of the slack band B is very defective for anything like a range of 30 feet. The circumference of the drum A is 25 13 inches, and the drum would, therefore, make $\frac{30 \times 12}{25 \times 13} = 14.3$ revolutions for a range of 30 feet. At low water the spiral spring AA would be wound up, and the float would be slightly lifted out of the water. At high water, the band would be rolled on itself 14.3 times, and the circumference of the drum considerably increased, which would affect the accuracy of the machine.

This might be got over by letting the band go simply over a drum without a spring, and be attached under water to a ball, whose weight under water equals the float when immersed to the proper depth. This arrangement would require the zero to be half the height of the range read above the bed of the river.

2. Considering the expense of the instrument, the chance of the registering paper being wrongly attached to the drum, the machinery getting out of order, and the whole thing being knocked to pieces by a boat or a floating tree, I would recommend the Government to employ Native gauge readers instead.

Copies of the reports and of the despatch forwarded also to the Governments of Madras, Bombay, North-Western Provinces, Punjab; Central Provinces, British Burmah, and Mysore in the Irrigation Branch, for information.

(Signed) C. A. DICKENS, Colonel, R. A.,
Secretary to the Government of India.

No 392. ORDER THEREON, 22nd June 1871, No 1,680

IRRIGATION, No. 18

COMMUNICATED to the Chief Engineer for Irrigation in continuation of G. O., No. 1,564, dated 12th June 1871.

(True Extract)

Captain, R.E.,

Actg Joint-Secretary to Government.

To the Acting Chief Engineer for Irrigation
,, General Superintendent of Public Works Stores and Workshops

Exd S. T. Augustin

No. 65 PUBLIC WORKS.
GOVERNMENT OF INDIA
PUBLIC WORKS DEPARTMENT.
IRRIGATION

TO HIS GRACE

THE RIGHT HON'BLE THE DUKE OF ARGYLL, K.T.,
Secretary of State for India

SIMLA, JUNE 2, 1871.

MY LORD DUKE,

In continuation of our despatch (Public Works) No. 56, dated the 19th May last, we have the honour to request that a self-registering hydrometer on Colonel Sankey's design be sent to Calcutta for trial in Bengal, to the address of the Officiating Chief Engineer for Irrigation in that Province. Copies of reports received from the Government of Bengal, pointing out a few defects in the instrument as at present designed and the way in which they might be remedied, are herewith enclosed and might be forwarded to the manufacturer with a view to such improvements or alterations as may be necessary, when preparing the instruments which have already been ordered.

We have the honor to be,

MY LORD DUKE,

Your Grace's most obedient, humble Servants,

MAYO.

NAPIER OF MAGDALA.

JOHN STRACHEY.

R. TEMPLE.

J. F. STEPHEN.

B. H. ELLIS.

H. W. NORMAN.

No. 209—15 I.

Copies of the reports and of the Despatch forwarded also to the Governments of Madras, Bombay, North-Western Provinces, Punjab, Central Provinces, British Burmah, and Mysore in the Irrigation Branch, for information.

Colonel, R. A.,

Secretary to the Govt. of India.

4.2099

To The Acting Secy. Govt. of Madras
P.W. Department.

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~~Enclosure for Despatch No. 65 Public Works~~

Memorandum by H C LEVINCE, Esq., *Superintending Engineer, Sone Circle, on COLONEL SANKEY'S*
Self-registering Hydrometers for rivers

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First, and most important, the orifice for the admission of water to the pipe is placed at the level of the river-bed, any silting up of which would cause the opening to be choked, when, of course, the water in the pipe would cease to rise and fall with that outside.

Second If orifices are provided at different heights as proposed alternatively, the pipe would gradually become choked with silt, and the float would be stranded when the water fell

2 These difficulties might, I think, be got over if a flexible tube were inserted near the bottom of the pipe, this tube should be buoyed up by a float sliding on a vertical bar attached to the side of the pipe, the mouth being kept a few inches below the surface of the water. It should be of small diameter, compared to that of the pipe

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6 I see no reason why the hydrometer should not work perfectly well if these precautions are taken. There is an objection in this country to any complicated arrangement the clock-work and mechanism should, therefore, be made as simple and substantial as possible. The cost of the apparatus is against its general adoption, and, I think, it should be tested practically before it is generally introduced.

No 307, dated Cuttack, the 26th April 1871

From—J. CAMPBELL, Esq., C E, *Executive Engineer, Pooree Division.*
To—To the *Superintending Engineer, Orissa Irrigation Circle*

In reply to your memorandum No 1023, I have the honor to state that I think Colonel Sankey's self-registering hydrometer a very good idea, and, with slight modifications, would be a very useful instrument.

The self-registering machinery is very much like Morse's Telegraph reader, which is largely used on the Continent, but the contrivance for getting rid of the slack band B is very defective for anything like a range of 30 feet. The circumference of the drum A is 25 13 inches, and the drum would, therefore, make $\frac{30 \times 12}{25 \times 13} = 14.3$ revolutions for a range of 30 feet. At low water the spiral spring AA would be wound up, and the float would be slightly lifted out of the water AA high water, the band would be rolled on itself 14 3 times, and the circumference of the drum considerably increased, which would affect the accuracy of the machine

This might be got over by letting the band go simply over a drum without a spring, and be attached under water to a ball, whose weight under water equals the float when immersed to the proper depth. This arrangement would require the zero to be half the height of the range read above the bed of the river

2 Considering the expense of the instrument, the chance of the registering paper being wrongly attached to the drum, the machinery getting out of order, and the whole thing being knocked to pieces by a boat or a floating tree, I would recommend the Government to employ Native gauge readers instead.

Pr 2744/71

GOVERNMENT OF INDIA
PUBLIC WORKS DEPARTMENT.
IRRIGATION

To

No 2091

Dated Simla, 2nd June 1871

Received 14th June/71

Enc. 1 ✓

W.B.

N: 1680.

Communicated to the Chief Engineer for Irrigation
in continuation of G. O. No. 1564 of 12th June 1871 - *W.B.*

Engineer

Forwards copy of a Despatch addressed to the Secretary of State, requesting the transmission to this country of a self-registering hydrometer by Lieut-Col Sankey, together with reports pointing out certain defects in the instrument as at present designed.

*N: 1680-22nd Dec 1871
With an order*

*For L.S. George
22nd Dec 1871*

*Order for Sankey's
and list of Mr. Sankey's*

Recd 22/6/71

Oct of 1871 Madras.

PUBLIC WORKS.

5. *Hardy Chief Crops for Irrigation*

7741016

Rec 1

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U. S. DISTRICT COURT, No. 1670.

Nos. 291892

[Faint handwritten notes, possibly bleed-through from the reverse side.]