

C.S.

METEOROLOGICAL

(Stanley)

1921.

No. 744/21

Harbour Master

SUBJECT.

192 1

8th August

Previous Paper.

Meteorological Station at Stanley

Harbour Master suggests Establishment of:

Indent No 85. + Indent 166

G.O. 146/20

MINUTES.

Minute from Harbour Master, 8th August, 1921.....Encl..1

H.E. the Governor

Submitted

K. L. Thompson

A.C.A. 9/8/21

I the circular from Sgs about instrument which Meteorological office has for disposal in your office?

Yes.

10 August 1921

H.E. the Governor

At 351/20 I of S Cir of 11/2/20 submitted

K. L. Thompson

A.C.A. 15/8/21

H.E.S.

*Will you please let me have G.O. 357/20
Please: I think it is still with you*

Yes.

6 Sept 1921.

Subsequent Paper.

H.E. the Governor

I think it is G.O. 146/20 submitted

W. Thompson
A.C.S. 7/9/21

H.E.

Harbour Master should prepare an indent

for instruments required: it should go by the mail of ^{11th} ~~8th~~ Sept

2. Para 3 of Sgs circular of 11th July 1920: they

are to be purchased through Crown Agents.

3. I should like to see indent before despatch.

W.

7 Sept 1921.

Harbour Master

For your information & guidance

W. Thompson
A.C.S. 7/9/21

Minute from Harbour Master, 9th September, 1921..Encl..(2)

H.E. the Governor

Indent submitted for approval

W. Thompson
A.C.S. 9/9/21

Draft letter to go to Crown Agents by

Mail of 12th Sept. W.

10 Sept 1921.

Letter to Crown Agents, 12th September, 1921.....Encl..(3)

Harbour Master

For necessary Special Warrant plan

W. Thompson
A.C.S. 12/9/21

The Hon. Col. Secretary

Special Warrant for £13 attached.

In the Estimates for 1921 under VI PORT & MARINE there is no item to cover this expenditure and would therefore suggest that a new item be made, 10 METEOROLOGICAL STATION AT STANLEY.

Colin Crook

Harbour Master

14/9/21

y.f.

Submitted.

2. This does not appear to be a proper charge to make against the H.M.'s Department. Would *y.f.* appear if it being charged to a new sub-head under "miscellaneous"? As the H.M. is responsible there is no reason why the sub-head should not be under his control for the purpose of signing vouchers S.W. H.

y.f.

15/9/21
15 Sept 21

Harbour Master,

Please note for necessary alteration in S.W. initialling and return

15/9/21

The Hon. Col. Secretary

Alteration effected.

Colin E. Moody
Harbour Master

16/9/21

Y.B. Special Warrant submitted
for favour of approval

H.H.H.H. 18/9/21

Dr.
17 Sept 1921

Special Warrant No 28/21 registered
& filed. Copies sent to Treasurer. G.H. 03

Letter from Crown Agents d/25/11/21 Encl (4)

Copy of letter from Bureau Ethnological
Office d 9/11/21 (4a)

Harbour Master

In advice please

As I.V. for £30 will be necessary
if the purchase is approved

H.H.H.H. 20/1/22

The Hon. Col. Secretary.

I would suggest that the purchase
of Meteorological Instruments be proceeded
with.

2. Special Warrant for £30 is attached.

Colin E. Moody
Harbour Master
6/2/22

There are three orders to choose from. Will you please say which you advise.

~~ttttt~~ 8/1/22

The Hon. Col. Secretary.

Encl ⑤

Submitted, that order as in T.O. Encl. N° 85.
be asked for, Items 1 to 8, Excluding anemometer.

2. The provision of an anemometer might be deferred until a later date.

Colin Grockley.
Harbour Master
8/2/22.

Y.S.

Submitted.

2. As the wind is about the most ^{or obtrusive} important element of life in the Falklands it is safe to assume that an anemometer will eventually be purchased. It would therefore perhaps be as well to get it now and to take the cup anemometer at £6.10 as suggested by the Port Office.
3. If Y.S. approves the S.W. should be increased to £36.

~~ttttt~~ 9/2/22

Ex.
10 Feb 1922

For telegrams to C.A.
Telegram to Crown Agents 13 Feb 1922

Am
Accordingly + to amend S.W. please
ttdt 14/2/22

The Hon. Col. Secretary.

Amended Special Warrant
for £36-000 - submitted.

Colin Crockerly
Harbour Master
14/2/22

Y.S.
S.W. submitted

ttdt 16/2/22

Am
16 Feb 1922

Hon Treasurer }
Harbour Master }

To note & withd from Gov. 4/22.
G.W. 13
for CS
17th Feb 1922

Harbour Master.

Noted. S. W. 4/22 withdrawn.

Anthony
Treasurer,
18-2-22.

The Hon. Col. Secretary.

Notes & returned herewith.

Colin Crockerly
Harbour Master
20/2/22

Advice of Orders placed ----- Encl (7)

Original Advice of shipment ----- Encl (8)

Harbour Master

For usual action and to report
on instrument and date of first use

22/4/22

The Hon. Col. Secretary.

Items 1 to 7, inclusive, on Indent N° 85, have
been received.

Item N° 5. Thermometer. Minimum. by
A.C. Gessner Son. London. was found to be
broken.

2. Broensons Screen. with 2 Thermometers
fixed as a Hygrometer. & 1 Maximum
Thermometer. has been placed on ground
adjacent to Harbour Masters House.

Barometer has been hung in Harbour
Masters office.

3. Meteorological Log Books. Item N° 8 of
Indent N° 85. have not yet been received.
4. It is suggested that daily observations
of all instruments be recorded from
Wednesday. 17th May 1922.
5. Anemometer. as in Indent 6 has not yet
been received.

Colin E. Hockley.
Harbour Master.
15/5/22

Y.B. Submittal.

2. Captain Hockley showed me the case
in which the minimum Thermometer
was found broken. The appearance
was that the case thermometer was broken
before it was shipped. The bulb had disappeared
and only a few shreds of glass were found in the case.

The box with the thermometer might
be returned.

Y. L. M.

I think the anemometer arrived by
Ortega

TTTTT 16/5/22

18 May 1922

H. M.

Will you please repack the
thermometer and post it telling
me how a ~~the~~ report for forwarding
in the condition in which it was
received

TTTTT 17/5/22

Minute from Harbour Master 17.5.22 - Incl. (9)

Letter to Crown Agents 19.5.22. - Incl. (10)

Original Advice of Shipment _____ Incl. (11)

Report on Stowage _____ Incl. (12)

Y. L. M.
Submitter

2. The anemometer sent is that
described on p. 168 of the enclosed
Meteorological Handbook. The lower
part below the recorder has been sent
as shown in the illustration on p. 168 of the book.

3. As shown on p. 79^a of the Receipt
attached to (4^a) herein the instrument
should be exposed 40 ft. above the ground
- away from tall buildings. There is no
means of obtaining the record from ground

level. It is therefore necessary to put up a scaffolding and the Harbour Master is preparing to do this.

TTTTT 24/5/22

H.C.S.

When does H.M. propose to erect scaffold & what will it cost?

JA

31 May 1922

H.M.

Refused

TTTTT 21/5/22

The Hon. Col. Secretary

It was suggested to erect a pole at least 30 feet of which should be above ground in the paddock on the West side of the Harbour Masters house.

2 I have been able to procure if necessary a 35 foot pole from the O/C Works at the Naval Depot, but I am of the opinion that the old Beacon from William Point would be more suitable owing to it being thicker.

3 A landing has not up to the present been effected at William Point to procure this Beacon.

4 The cost would be approximately £25.

Colin E. Hockley

Harbour Master
17/6/22

Hm.

Will you please make further
recommendations necessary for facilities
for proving the anemometer

TTTTT 5/6/22

The Hon. Col. Secfetary.

The Anemometer received from the
Meteorological Office is "The Robinson Anemometer"

2. From the Copy of a letter from the
Superintendent of Instruments to the Crown Agents
dated the 9th November 1921. (between Encl 6/7,
it would appear impracticable, with this
instrument, to take the run of the wind other than
between successive observations.

3. In the Seaman's Handbook of Meteorology,
herewith enclosed, page 168, appears a description ~~of this Anemometer and it states:-~~
of this Anemometer and it states:-.

" & its revolutions are registered either ~~upon dials or upon a sheet of paper round~~
upon dials or upon a sheet of paper round ~~a drum the rotation of which is effected~~
a drum the rotation of which is effected
by clockwork "

4. I have been unable to ascertain the
method of this clockwork but would respectfully
suggest that the Meteorological Office be
approached upon the subject & if a continuous
record of the run of the wind can be obtained ~~by this instrument, through the medium of~~
by this instrument, through the medium of
" clockwork ", such clockwork be obtained.

Colin G. G. G.
Harbour Master.

26/6/22

Letter to Crown Agents of 14th July 1921 - Encl. (13)

Letter from Crown Agents of 21st July 1922
Encl (14)

Crown Agents letter of 14th August 1922 — Encl (15)

Harbour Master

For note and to pass to
Treasury please

7/10/22

The Hon. Col. Secretary.

Noted & passed to Treasury.

Colin E. Stockley
Harbour Master.
2.10.22.

The Hon. Treasurer.

Passed to you accordingly — please.

Colin E. Stockley.
Harbour Master.
2.10.22.

Hon: Col: Sec.

Thanks. Noted.

The amounts will be credited to Head XV.
Item 17. Meteorological Instruments

Harbour Master.
3.10.22

advance of additional freight etc — Encl (16)

advance of Stores sent by post — Encl (17)

Harbour Master

Please acknowledge receipt

7/10/22

The Hon. Col. Secretary.

Thermometer, Minimum, No 15394, received.

r. This thermometer has been placed in position, within
Gibson's Screen.

Colin E. Stockley.
Harbour Master.
9 Oct. 1922

Hm.

Will you please say what meteorological records you are now keeping and from what date they have been so kept. I do not think that you have sent any yet.

ttttt 10/10/22

The Hon. Sec. Secretary.

Meteorological records now being kept
are observations taken daily at G^m:

Barometer, Temperature Hydrometer, Maximum
& Minimum Thermometers, Wind & Weather.

Rain Gauge - no Rain Gauge measure has to the
present been available.

2. Records have been kept since 17 May, 1922.
3. Meteorological Log Book, herewith.

Colin Estocquer.
Harbour Master.
12. Oct. 22.

Hm.

Thank you. Will you
please report on the position with
regard to the absence of records of
rainfall. Much importance is attached
to this. No weas are appears to
have been asked for. I suppose one
could be adapted temporarily!

ttttt 12/10/22

The Hon. Col. Secretary.

I would respectfully refer to
C.S. No 206/21.

2. These gauge glasses have not yet been received.

3. I do not think that any glass could be adapted to the purpose. Measuring glasses being constructed to hold half an inch of rainfall, an amount which corresponds with a weight of 5.67 ozs and are graduated to indicate hundredths of an inch,

Colin E. Hockley
Harbour Master

27/10/22

Crown Agents Letter of 25th Oct. 1922 — Encl (18)
with enclosure "A"

H. M.
*(18) for report as to when you
propose to put up the anemometer*
TTTTT 4/1/23

The Hon. Col. Secretary

Submitted

I would suggest that the Anemometer be erected at the extreme West end of the paddock to the West of the Harbour Master's Quarters.

This would I suggest guard against outside interference.

2 The old Beacon from William Point, now in the dockyard is 30 feet long and has a diameter of $7\frac{1}{2}$ inches at its head.

Colin E. Hockley
Harbour Master
8/1/23

Y.P.

Submitted

H. to proceed?

TTTTT 7/1/23

Mr

9 January 1923

Harbour Master

Accordingly. The expenditure
can be charged to miscellaneous
incidental, if under £5

TTTTT 9/1/23

The Hon. Col. Secretary.

Submitted.

Estimated cost of erection:-

Pole.

Materials for Tabernacle, timber.	£3:0:0
Carpenters labour	15:0
Excavating and preparing for footing	15:0
Concrete footing, cub.yard.	£1:16:6
Labour	£2:00:0

Guys.

2" Steel Wire, 4.	£3:10:0
Concrete blocks, and labour	£2:00:0

Ladder

Material. Angle Iron & 3ths Rd	£6:2 :6
Labour making	£1:10:0
Concrete block	10:0

Iron Work.

Anchors, bolts, platform, brackets etc.	£2:00:0
Labour making	£2:00:0
Red Lead & Paint	£2:00:0

£27:19:0

Colin Estockley

Harbour Master

11/1/23

Harbour Master,

Will there be any further
charges for Meteorological work this
year apart from the necessity of it
arises of repurchasing rain gauge frames
(Vide vol 206/21)

~~ttttt~~ 15/1/23

The Hon. Col. Secretary.

There should be no further charge
for Meteorological work during the current year.

Colin E. Hooley
Harbour Master

15/1/23

Yrs.

Submitter

An S.W. for £30 may be
submitted

~~ttttt~~ 17/1/23

18 January 1923

~~Submitter~~

&

The Treasurer

S.W. to you for same 1

Comments

~~ttttt~~ 22/1/23

C.S.
for S.W. under
miscellaneous

~~ttttt~~

3/1

~~Yrs.~~

Hon. Col. Secy

With Specie want for \$30

K. Thompson

Dr. 22/1/23

G.B.

P.W. submitted for payment of approval

OK

25 January, 1923

Hon. Treasurer

S.W. No. 2 herewith.

to Barlas.

for C.S. 25.1.23.

Hon. Col. Secy

S.W. No. 2 withdrawn.

K. Thompson

Treasurer,

27/1/23

G.B.

Submitted

It is essential that a pain paper
be kept may new frames be ordered?

Please see 108/21 attached

THLH 20/4/23

OK

30 March, 1923

Indent withdrawn for transmission to
Brown Agents 12th Feb 1923 —

Offc

An indent

Price 1/1. hinc. Cont.

THLH

Hon Treasurer.

For your information and
withdrawal of charge and pleaseG.R. 13
for C.S.
21/2/23

H.C. 1,

Withdrawn

K.H. Thompson

22.2.23.

Advice of Orders placed _____ Encl (21)

Advice of Stores sent by Post _____ " (22)

Colonial Engineer.

Will you kindly take
delivery of these parcels on behalf
of Harbort Master.

G.R. 13

Di. Sec.

18 July 1923

Will you also please pass this
paper to Treasurer for note of
cost

G.R. 13

18/7/23

The Hon. Col. Secy.,

One parcel said to contain

rain

3 five inch gauge glasses has been received.

W. Noye

for Colonial Engineer

26/7/23.

The Hon. Col. Treasury,

Passed to you accordingly.

W. Noye

for Col. Engineer.

26/7/23.

Hon. Col. Secretary

Noted.

R. K.

Hon. Col. Treasurer

26. VII. 23

FALKLAND ISLANDS.



MINUTE PAPER.

Departmental Number.

From The Harbour Master

Date 8th, August. 1921

To The Hon. Col, Secretary

SUBJECT.

Establishment of a Meteorological Station at Stanley.

Reference
Numbers. }

Sir,

I have, in accordance with the instructions of His Excellency the Governor, perused all the C.S.O. papers in connection with Meteorological observations recorded in Stanley.

The record of Meteorological observations taken at Cape Pembroke Lighthouse are taken under the directions of the Board of Trade, such observations differ very much from those taken in Stanley.

In the report of the Interdepartmental Committee in Research & Development in the Dependencies of the Falkland Islands, it is very strongly urged that Meteorological results are of economic application.

I would, therefore, suggest that to establish a recording station at Stanley the following instruments may be obtained from the Meteorological Office, London.

- 1 Barometer. Marine.
- 1 Stevenson Thermometer Screen.
- 2 Thermometers (Wet & Dry)
- 2 ---do--- Maximum & Minimum
- 1 ---do--- Sea Temperature
- 1 Hydrometer

MINUTE PAPER.

Departmental Number.

From

Date

To

SUBJECT.

Reference
Numbers. }

1

① Pressure Tube Anemometer

2 Meteorological Log Books (Rough & Fair)

I am, Sir,

Your obedient Servant.

Colin E. McCrory

Harbour Master.

FALKLAND ISLANDS.

C.S. No.....

MINUTE PAPER.

Departmental Number.

From The Harbour Master

Date 9th, September 1921

To The Hon. Col. Secretary

SUBJECT.

Meteorological Station at Stanley.

Reference
Numbers. }

Sir,

I beg to submit attached Indent in accordance with His Excellency the Governor's instructions.

I have omitted from the Indent an Anemometer as suggested in my Minute of the 3th, August and would beg to suggest that the Crown Agents be asked to make inquiries concerning the prices and make of such an instrument.

I have had no means of ascertaining the estimated cost of the various instruments as in the Indent with the exception of that for the Barometer but do not consider that they are under estimated.

I am, Sir,

Your obedient Servant

Colin Pittman
Harbour Master

FALKLAND ISLANDS.

* Give No. and date to be used in correspondence with the Crown Agents.

† Brief description of the goods required.

‡ Department of the Colonial Government ordering the goods.

Indent No. 85.

Date 9 September 1921.

Indent on the Crown Agents for the Colonies for †

METEOROLOGICAL INSTRUMENTS.

required by the ‡ PORT & MARINE

Department.

ADDRESS.

Requisition

O. H. M. S.

C A A

O. A. G.,

STANLEY.

If necessary that goods be shipped by a fixed date or by a particular vessel enter instructions here and briefly indicate reason for necessity

Estimated total cost in sterling exclusive of packing and freight £ 12.5.0

Any other instructions to the Crown Agents as to the execution of this indent as a whole

No tin-lined cases to be supplied.

Space for local use only.

I hereby certify that the above requisition is made for the current supply of an established and customary service sanctioned by His Majesty's Government, and that the expenditure has been duly sanctioned by

Approved,

J. H. Brown

Colonial Secretary

Ag. Colonial Secretary

Colin Brodie

Head of Department.

Harbour Master.

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FALKLAND ISLANDS.

Page 1.

Indent No.* _____ Date* 9. September.
* To correspond with No. and date at head of first sheet.

Item No.	Quantity.	Description of Articles.	ESTIMATED COST IN ENGLAND.			Remarks.
			Rate.	Total. £ s. d.		
1.	1.	Barometer. Station. (Kew pattern with Millibar Scale)		7 5 0		
2.	1.	St. Evenson Thermometer Screen.		2 10 0		
3.	2	Thermometers. Fahrenheit.	5/.	10 .	Megretti & Lambra.	
4.	1.	Thermometer. Maximum	7/6	7 6	— do —	
5.	1.	Thermometer. Minimum	7/6	7 6	— do —	
6.	1.	Thermometer. Sea Temperature (Metal Case)	7/6	7 6	— do —	
7.	1.	Hydrometer.	7/6	7 6		
8	2.	Met Ecological Log Books.	5/.	10 .		
Total estimated cost of the Indent				12 5 0		

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744/21

12th September,

21

Gentlemen,

With reference to Colonel Amery's Circular Despatch of the 11th February, 1920, I am directed by the Governor of the Falkland Islands to transmit to you an Indent for Meteorological Instruments and to request that you will be so good as to ascertain whether these instruments can be obtained from the stocks available for disposal by the Meteorological Office.

2. I am further to request that the Meteorological Office may be informed that as there appears to be considerable variations between the meteorological conditions at Stanley and on the coast at Cape Pembroke, which is distant seven miles and is the only station in the Colony, it is proposed to establish a station at Stanley under the supervision of the Harbour Master who is a Lieutenant in the Royal Naval Reserve.

3. It is also desired that the station should be provided with an anemometer, if the Meteorological Office so advise and if a suitable instrument can be obtained at a moderate price.

The Crown Agents for the Colonies

4, Millbank,

London, S.W. 1.

4. If the cost of the instruments greatly exceeds the estimate given on the Indent I am to request that you will be so good as to inform me of the actual cost before purchasing them.

I am, Gentlemen,

Your obedient servant,
(sgd) W. A. Thompson,
Ag. Colonial Secretary.

129. W
Falkland Is.1525.

ALL COMMUNICATIONS
TO BE ADDRESSED TO THE
CROWN AGENTS FOR THE COLONIES,
THE ABOVE REFERENCE AND THE
DATE OF THIS LETTER BEING QUOTED.

TELEGRAMS, "CROWN, LONDON."
TELEPHONE, 7730 VICTORIA.



4, MILLBANK,
WESTMINSTER,
LONDON. S.W. 1.

25th. November 1921.

Requisition No.1525.Indent No.85.

Sir,

I have the honour to acknowledge the receipt of your letter No.744/21 dated 12th. September enclosing indent No.85 for meteorological instruments required by the Port and Marine Department.

9.11.21.

2. In reply I enclose a copy of a letter from the Meteorological Office, together with the extract from the Observer's Handbook referred to. A schedule of the costs of items 1 to 8 of the indent is also enclosed, from which you will note that the total cost will be approximately £26 excluding the anemometer referred to in paragraph 3 of your letter under reply.

3. I shall be glad if you will inform me whether items 1 to 8 of the indent should be put in hand, also whether the small cup anemometer for indicating the run of the wind between successive observations at the price of £6.18.0 or the anemometer arranged for indicating electrically the velocity of the wind at any moment at the price of £4.6.3 should be supplied.

4. If you consider it necessary to telegraph a reply to this letter I suggest the use of one of the following codewords:-

"EIGHTO". meaning:- Order items 1 to 8 of indent No.85
excluding anemometer.

The Colonial Secretary,
Falkland Islands.

"EIGHTO"/

"ANEIGHTO" - meaning:- Order items 1 to 8 of indent
No.85 including anemometer at £6.18.0.

"ELANEIGHTO" - meaning:- Order items 1 to 8 of indent
No. 85 including anemometer at £4. 5. 3.

I have the honour to be,

Sir,

Your obedient servant,



for Crown Agents.

Meteorological Office to Crown Agents

4a

South Kensington,

London, S.W. 7

37543/21 (M.O.4)

9th November, 1921

Gentlemen,

In reply to your letter W/Falkland Is.1525/1 of 3rd November, I am instructed by the Director to say that the instruments specified on indent No.85 are available in stock for supply, but the prices quoted are in general considerably less than those now applicable. One copy of the indent is returned showing the prices at which supplies could be made.

A small cup anemometer for indicating the run of the wind between successive observations could be supplied from stock at £6-18-0 while a similar anemometer arranged for indicating electrically the velocity of the wind at any moment could be supplied as an alternative at £4-6-3d. These two instruments are described in the enclosed extract from the Observer's Handbook. Probably the former would be more suitable for use in the Falkland Islands.

No action is being taken on the indent, pending the receipt of your reply.

I am, etc.

(sgd) ?

Superintendent of Instruments.

Tilting Bucket Gauges.

In these instruments the rain water passes from the collecting funnel to the "tilting bucket" in which it is measured. The latter consists of an elongated flat bottomed trough with open ends which is divided into two parts by a central transverse partition and pivoted about its central point like the beam of a balance. When the left-hand end of the trough is depressed the rain-water is collected on the right-hand side of the partition. The balance is so adjusted that the weight of the water collected causes the bucket to tilt over as soon as it reaches the amount of .01 inch, or in more sensitive instruments, .005 inch. This tilting causes the water to flow from the bucket into a small receiving funnel whence it passes to a collecting vessel or runs away. If rain continues to fall it is now received in the trough on the left-hand side of the partition until another .01 inch has fallen, when a second tilt will occur.

The instrument is made autographic by arranging for each tilt of the bucket to raise an arm bearing a pen which records on a revolving drum, through a short step. The height through which the pen is raised is thus proportional to the amount of rain which has fallen. A simple arrangement allows the pen to fall back to the zero of the scale when it reaches the top of the drum. If desired the tilting bucket and the reading apparatus may be put in separate cases and connected electrically. With this form of apparatus the gauge may be suitably exposed, while the recorder is placed within doors in any place that happens to be convenient. It will be perceived that the record is not continuous; each step on the chart corresponds with a fall of .01 inch during the interval between it and the previous step.

This type of gauge gives fair results for heavy falls, but is useless for measuring the duration of gentle rain.

Balance Gauge.

A third pattern of autographic raingauge depends on the principle of maintaining the equilibrium of the receiver by a curved lever bearing a weight. As water accumulates in the receiver it sinks at a rate proportional to the rate of rainfall, and when full it empties automatically, either by the inversion of the vessel or by the agency of a syphon.

With all these types of instruments the precautions detailed on pp. 67 to 70 must be observed. In some float and balance pattern gauges the motion of the pen is along a straight line, and hence the ordinates on the charts are also straight lines and no trouble can arise in consequence of their being drawn with a wrong radius. (See p. 68.)

It is desirable to test the instruments at regular intervals by pouring measured quantities of water through them and observing whether they are working satisfactorily. This test is specially necessary when no rain has fallen for some time.

Anemometers.

The question of exposure enters into all matters connected with the measurement of wind to a very large extent, so much so, that it may without exaggeration be said that the exposure is of more importance than the actual instrument. At many stations the orographical features are such that the provision of an anemometer is not to be recommended, unless it be intended to investigate such special points as the effect of the configuration of the land on the wind.

The site selected for the instrument should be such that it is not sheltered by trees or buildings, and it should be remembered that the eddies caused by such obstacles extend both vertically and horizontally to great distances. In a perfectly open and flat situation, a scaffolding some 30 feet in height affords an excellent exposure.

Anemometers may be divided into three main types :—

Type.	Instrument used by Meteorological Office.	
(1.) Windmill anemometers	Robinson anemometer.
(2.) Pressure tube anemometers	Dines anemometer.
(3.) Pressure plate anemometers	The ratchet pressure plate.

The Cup Anemometer.

The cup anemometer consists of four hemispherical cups attached to the ends of two crossed metal arms. The cross is pivoted at its central point, in such a way that it is free to rotate in a horizontal plane. The difference of pressure of the wind on the convex and concave surfaces of the cups, causes the cross to spin round.

The number of revolutions of the cups in a given time is usually assumed to be proportional to the amount of wind which passes them, although this assumption is not strictly justified. The ratio of the distance travelled by the wind to the distance travelled by the cups is known as the "factor" of the anemometer.

The ratio of the distance travelled by the wind to the distance travelled by the cups is known as the "factor" of the anemometer. The original experiments made by Dr. Romney Robinson* with an anemometer provided with 3 in. cups and arms $5\frac{1}{2}$ ins. long (measured from the centre of the cups to the centre of rotation) led him to adopt the factor 3 for all his instruments. He was led by further experiments† to the conclusion that the same factor could not be used in all cases, but the tradition having been established, the constant factor 3 was used for the standard pattern of Robinson anemometer, with 9 in. cups and 2 ft. arms, at the Meteorological Office Observatories until 1904‡. On the recommendation of the Wind-Force-Committee of the Royal Meteorological Society, the constant factor 2.2 was adopted for these instruments at the beginning of 1905. Recent investigations have shown that the factor depends on

* Royal Irish Academy.

† Phil. Trans. 1880, p. 1069.

‡ A small correction for friction was applied to the readings at low speeds.

the speed. For the 9 in. cups the factor is approximately 3 at 2 m/s, 2.5 at 5 m/s, 2.2 at 9 m/s, and extrapolation indicates that the factor would be 2 at about 25 m/s. Readings based on constant factors require correction. The following table may be regarded as indicating the order of magnitude of the correction.

	Metres per Second.							
Tabulated Wind ... (Assumed Factor 2.2.)	1	2	4	6	8	10	12	14
True Wind ...	1.5	2.7	4.7	6.5	8.2	9.9	11.6	13.4

It is not proposed to depart from the use of the constant factor 2.2 in the statistical tables in the publications of the Meteorological Office until the corrections have been determined with greater certainty. It will be noted that the largest proportional error is at low speeds.

The figures which have been given apply to the standard 9 in. cup anemograph, which is described in the Report of the Meteorological Committee, 1867. Instructions for the care of this instrument are given in a pamphlet printed for the Office in 1882.

A smaller cup anemograph in use at some stations has 5 in. cups and 1 ft. arms. The factor 2.8 has been used for reducing the readings since 1905. The anemographs are arranged to give a continuous record on which the run of the cups during any desired interval can be read off, and hence the average speed of the wind during that interval can be determined.

The portable cup anemometer, adopted by the Office in 1910, after an exhaustive comparison by Mr. R. H. Curtis of instruments with 9 in. and 3 in. cups, has 3 in. cups and $7\frac{3}{8}$ in. arms. The counter, reading in nominal miles, is consistent with a constant factor 2.73, each mile corresponding with 500 turns. The following is a typical correction table. It is based on the test in the wind channel at Bushy of anemometer M 90.

Instrument Reading	mi/hr	5	10	15	20	25	30	35	40
True Wind-Speed ...	mi/hr	5.8	11.0	15.8	20.2	24.2	28.1	31.7	35
	m/s	2.6	4.9	7.2	9.0	10.8	12.6	14.2	15.6

The friction between the wheels of the counting mechanism should be reduced as far as possible. The anemometer should spin for at least seconds when put in rotation at one turn a second.

Cup anemometers are suited for use with electrical transmission. The following instructions are issued with the instruments issued by the Office.

Form 4660.

Instructions for the use of Electrical Cup Anemometers.

Standard Dimensions.

Diameter of cups, 3.05 ins.

Radius of path, 4 ins.

Weight of cups and arms, $9\frac{1}{2}$ oz.

The cups turn a contact-maker which completes the circuit once in every 25 turns of the cups. It should be noted that the accompanying table does not apply to anemometers with other dimensions.

Exposure.—The standard exposure for an anemometer is at the height 40 ft. above the ground at the top of a mast or a skeleton tower and well removed from all buildings or trees. If such an exposure cannot be obtained the anemometer should be not less than 10 ft. above the top of buildings and trees in its neighbourhood. The ridge of a steep roof should be avoided.

Connexions.—The anemometer is to be connected in series with the battery, an electric-bell and a bell-push.

The bell-push is included in the circuit so as to economise electricity. If a lighting circuit is available the anemometer may be connected to it through two incandescent lamps, the apparatus being arranged in the order—switch, lamp, anemometer, bell, lamp, switch.

Lubrication.—The anemometer should be lubricated at intervals of about two months with clock oil. The lubricating hole will be seen when the brass knob at the top is removed. If the cups are set revolving in a calm at the rate one turn per second they should continue in motion for 60 seconds.

Note.—The wind-speed given by an anemometer with a good exposure 40 ft. above the ground is normally from half to three-quarters of that of the wind at 1,000 ft. The increase of wind with height is comparatively rapid in light winds, at night, in winter and over the sea, whereas under conditions which produce greater turbulence the rate of increase of the wind is reduced, as the effects of friction against the earth's surface are felt to greater heights.

Accurate information as to the movements of the upper air can be obtained most readily by pilot balloon observations.

To take a Reading.

Time the interval from the end of one ring of the bell to the end of the next, or take the average time for five or ten rings.

Speed Table.

Time for 10 contacts.	Run of air passing cups between contacts.	Speed.		
		ft./sec.	mi./hr.	m./s.
seconds.	feet.			
10	—	126	86	38
11	—	115	79	35
12	—	106	72	32
13	—	98	67	29
14	—	91	62	28
15	128	85	58	26
16	—	80	55	24
17	—	75	52	23
18	—	72	49	22
19	—	68	47	21
20	130	65	44	20
21	—	62	42	19
22	—	60	41	18
23	—	57	39	17½
24	—	55	37	16½
25	—	53	35½	16
26	—	51	34½	15½
27	—	50	33½	15
28	—	48	32½	14½
29	—	46	31½	14
30	133·5	44	30½	13½
32	—	42	28½	13
34	—	40	27	12
36	—	38	26	11½
38	—	36	24½	11
40	137	34	23½	10½
42	—	33	22½	10
44	—	31	21½	9·6
46	—	30	20½	9·2
48	—	29	20	8·9
50	140·5	28	19	8·6
52	—	27	18½	8·2
54	—	26	18	8·0
56	—	25½	17½	7·7
58	—	24½	17	7·5
60	143	24	16	7·3
Time between contacts.				
6	143	24	16	7·3
7	145·5	21	14	6·3
8	148	18½	12½	5·6
9	150	16½	11½	5·1
10	151·5	15	10½	4·6
11	153	14	9·5	4·2
12	155	13	8·8	3·9
13	156	12	8·2	3·6
14	157·5	11	7·7	3·4
15	159	10½	7·2	3·2
16	160	10	6·8	3·1

Meteorological Office,
South Kensington,
London, S.W. 7.

April, 1917.

The Dines Tube Anemometer.

The standard mounting of a Tube Anemometer is with the vane 40 ft. above the ground. When the instrument is provided with a direction recorder the mast may be supported by a skeleton tower which does not interfere appreciably with the flow of air past the vane. When a site well away from trees or buildings cannot be secured the vane should be at least 20 ft. above them.

THE HEAD.—In the Dines Tube Anemometer the receiving apparatus consists of a comparatively light head, which is mounted on the top of a long pole, and connected with the recording apparatus by means of flexible tubing.

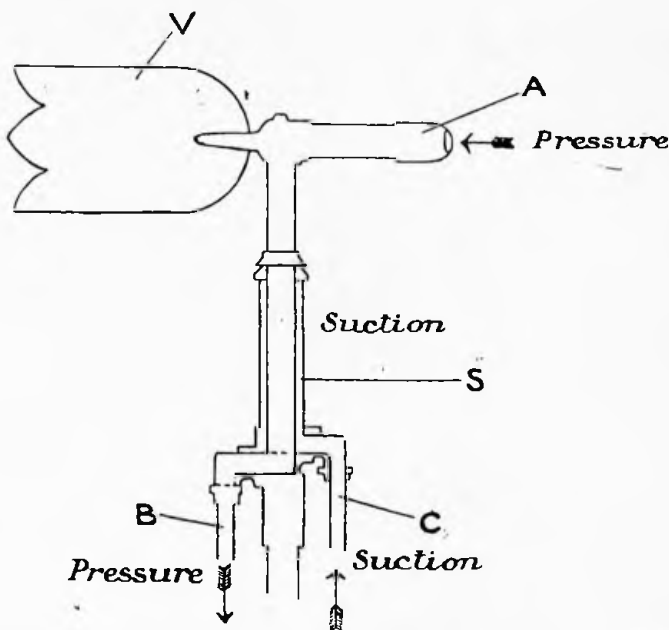


FIG. 23. HEAD OF DINES ANEMOMETER.

The construction of the head will be understood from the diagram, Fig. 23. The upper part is free to rotate, and the vane V thus keeps the horizontal tube A facing the direction from which the wind is coming. The wind blowing into this open tube A produces an increase of pressure inside it, which is transmitted through the central tube of the head to the recording apparatus by means of flexible tubing attached to the tube B. The fixed part of the central tube is surrounded by an outer tube S in which there are four rows of perforations. Wind blowing past these produces a diminution of pressure in the annular space between the two tubes, and this is transmitted to the recorder by means of a flexible pipe attached at C. The flexible pipes may be of considerable length, say 40 or 50 feet, so that the recorder can be placed a long way from the head.

W/Falkland Islands 1525/1

SCHEDULE OF COSTS OF ITEMS 1 to 8

<u>Item</u>	<u>Qty</u>	<u>Description of Articles</u>	<u>Cost</u>
1	1	Barometer Station (Kew Pattern with Millibar scale)	29. 7. 6.
2	1	Stevenson Thermometer Screen and Stand	10. 18. 6.
3	2	Thermometer Fahrenheit (Negretti & Zambra)	1. 4. 4.
4	1	Thermometer Maximum (Negretti & Zambra)	1. 4. 10.
5	1	Thermometer Minimum (Negretti & Zambra)	1. 3. 10.
6	1	Thermometer Sea Temperature (Metal cased) (Negretti & Zambra)	14. 4.
7	1	Hydrometer	5. 0.
8	2	Meteorological Log Books (Form 135)	7. 0.
			<hr/>
			£25. 5. 4. plus cost of packing cases and transmission

aw:

Port & Marine.....Department.

Date...6. February 1922

To

THE HONOURABLE COLONIAL SECRETARY.

I have the honour to apply for a Special Warrant for £.....30
on Head.....xv Subhead.....13

The present state of the Vote is as follows :-

	£
Amount provided in Estimates	-
Special Warrant already issued No.	-
" " " " "	-
Actual Expenditure to date	-
Outstanding Liabilities incurred.....	-
Balance remaining on vote	-
Estimated Expenditure to 31st December ...	£30

Colin E. Crockerly
Head of Department.
Harbour Master.

Comments of }
Treasurer. } vide C 744/21 No expenditure estimated in 1922
K. Thompson
7/2/22

EXPLANATIONS.

(If general authority has been given for the Expenditure the number of the Minute Paper and the Secretary of State's despatch, if any, should be quoted).

C.S. 744/21. Special warrant for £15 was authorised
Nº 28/21 but Meteorological instruments
have not yet been ordered.

FALKLAND ISLANDS,

19 22No. 4/22

SPECIAL WARRANT.

:0:

Governor.

Date _____ 19 _____

To THE HONOURABLE

THE TREASURER.

Whereas it has become necessary, in the interests of the Public service, to incur certain Expenditure, not sufficiently^a provided for in the Estimates, as set forth in the subjoined Schedule,^b in anticipation^c of a vote of the Legislature^d and of the approval of the Secretary of State:—

a. to remain only in case of an excess on a vote.

b. to be struck out if complete authority has been obtained or if either partial authority has been obtained.

You are hereby, on my personal responsibility, authorized and required to pay from the Treasury the sum of Thirty Pounds
_____ Shillings and _____ Pence and to charge it to the Heads and Sub-heads of the Expenditure specified in the Schedule.

And for so doing, this, together with the proper Accounts, Certificates and Acquittances, shall be your sufficient warrant and discharge.

Schedule.

Particulars.	To be charged to		£	s.	d.
	Head.	Sub-Head.			
To cover cost of Meteorological Instruments for Station at Stanley	XV	13	30	0	0

Signature of the Officer
submitting the Schedule
for Warrant.

Colin Brocely
Treasurer

Date 6. February 1922

(Special warrants are to be prepared in triplicate. One copy to be filed in the Office of the Colonial Secretary, one in the Treasury, and one to be furnished to the Audit.)

5
6

TELEGRAM.

From : The Colonial Secretary.

To : The Crown Agents for the Colonies.

Dispatched : 13th February..... 19 22 *Time.* 4 p.m.
Received : 19 ... *Time.*

STATIANUS ANEIGHTO.

SECRETARY.

Referring to Indent No. 85 order items 1 to 8 of indent
including anemometer at £6. 18/-

W

FALKLAND IS: 1525.

ADVICE OF ORDERS PLACED.

All communications to be addressed to the Crown Agents for the Colonies, the above reference and the date of this letter being quoted.



The Crown Agents for the Colonies present their

compliments to The Colonial Secretary,

FALKLAND ISLANDS.

and have the honour to enclose copies of the undermentioned accepted tenders in connection with the indent noted in the margin.

Indent No. 85.

Dated 9. 9. 21.

Dept. Port & Marine.

Unless a further advice is sent you it may be

Crown Agents' Req. No. 1525.

assumed that the date promised for delivery in England will be adhered to.

OFFICE OF THE CROWN AGENTS FOR THE COLONIES,

4, MILLBANK, LONDON, S.W. 1.

17th February 1922.

Firm.	Nature of Goods (and indent item numbers).	Date promised for delivery in England.	Approximate cost exclusive of incidental Charges. £
Meteorological Office.	Meteorological Requisites 1 to 8.	Ex stock.	32.
Vide Colonial Secretary's telegram dated 14th February 1922.			

ELF

ELF

Tokland Is. 1525/1

2-11-21

55

Port & Marine

The Director,
Meteorological Office,
Air Ministry,
Wingway,
W.C.

1	1	Barometer Station (New pattern with Millibar scale)	7	5	0	9	7	6
2	1	Stevenson Thermometer Screen	2	10	0	10	18	6
3	2	Thermometer Fahrenheit (Negretti & Zambra)	20	0		1	4	4
4	1	Thermometer Maximum (Negretti & Zambra)	7	6		1	4	10
5	1	Thermometer Minimum (Negretti & Zambra)	7	6		1	3	10
6	1	Thermometer Sea Temperature (metal cased) (Negretti & Zambra)	7	6			14	4
7	1	Hydrometer	7	6			5	0
8	2	Meteorological Log Books	10	0			7	-

plus cost
of packing
cases and
transmission

Anemometer.

6 18 -

32 3 4

plus packing.

COPY OF LETTER.

FROM:- The Director, Meteorological Office.
TO:- The Crown Agents for the Colonies.
DATED:- 9th November 1921.
REF:- 37543/21 (M.O.4.).

Sir,

In reply to your letter W/Falkland Is. 1525/1 of 3rd November I am instructed by the Director to say that the instruments specified on indent No: 85 are available in stock for supply, but the prices quoted are in general considerably less than those now applicable. One copy of the indent is returned shewing the prices at which supplies could be made.

A small cup anemometer for indicating the run of the wind between successive observations could be supplied from stock at £6.18.-., while a similar anemometer arranged for indicating electrically the velocity of the wind at any moment could be supplied as an alternative at £4.6s.3d. These two instruments are described in the enclosed extract from the Observer's Handbook. Probably the former would be more suitable for use in the Falkland Islands.

No action is being taken on the indent, pending the receipt of your reply.

I am, Sir,

Your obedient servant,

(sgd) P. Carlless.

Superintendent of Instruments.

ELF

ORIGINAL ADVICE OF SHIPMENT.

8

The Crown Agents for the Colonies have to report the undermentioned shipment.

" C 1525 " (This reference and the date of this letter should be quoted in all communications.)
B/L

Colony Falkland Is.
Indent No. 35
Dept. Port & Marine Special A/c (if any)
Steamer Oriana
From Liverpool
To Falkland Is.
Consigned to The O.A.C.
Date of shipment 1/3/22.

The documents enclosed will enable the consignee to obtain possession of and to check the goods. Complete documents shewing the total cost of this consignment will be sent with the duplicate advice.

NUMBER OF PACKAGES.	DESCRIPTION OF STORES.
1495, 1, 4661, 535	4 Pkgs. Thermometers

ENCLOSURES.

Bill of lading

Invoice :—

Meteorological Office

Packing
Partic-
ulars.

£

s.

d.

Will follow.

To The Colonial Secretary

FAULKLAND ISLANDS.

Date

27/2/22.GC

Office of the Crown Agents for the Colonies
4, Millbank, London, S. W. 1.

MINUTE PAPER.

Departmental Number.

From... *The Harbour Master*.....Date... *17 May 1922*.....To... *The Hon. Col. Secretary.*.....

SUBJECT.

Meteorological
(Stanley)

Reference
Numbers.

Sir,

I beg to report that upon the receipt of
Meteorological Instruments contained in a case

marked Regl
1525

O.H.M.S.

O.A.G.

N^o4583

Stanley

Falkland Islands.

Containing Thermometers, etc. the Minimum Thermometer
D115390 which was packed in a wood box with
wadding etc was found to have the bulb broken.

The bulb had disappeared and only a
few shreds of glass was to be found in the box.

2. Packing note found in case is attached.

3. Thermometer, D115390 has been repacked
and returned by post.

I am, Sir,

Your obedient servant,

*Colin E. Moody.**Harbour Master.*

744/21.

19th May,

22.

Gentlemen,

I am directed by the Governor to attach a report from Captain Hockly on the subject of a thermometer received from the Meteorological Office under indent 85, your reference being C.B/L 1525.

2. From the absence of broken glass in the case except for a few small shreds the thermometer bore the appearance of having been broken before package. The breakage was ^{not} at least due to faulty packing as it was contained in an outer case. I am to request that the Meteorological Office be asked to replace this without further charge.

I am,

Gentlemen,

Your obedient servant,

H. Henniker-Heaton,

Colonial Secretary.

The Crown Agents for the Colonies,
4, Millbank, Westminster,
London, S.W. 1.

ORIGINAL ADVICE OF SHIPMENT.

The Crown Agents for the Colonies have to report the undermentioned shipment:—

" $\frac{C}{B/L}$ 1525 " (This reference and the date of this letter should be quoted in all communications.)

Colony Falkland Islands
 Indent No. 85
 Dept. Port & Marine Special A/c (if any) --
 Steamer Ortega
 From Liverpool
 To Falkland Islands
 Consigned to The O.A.G.
 Date of shipment 11/4/22



The documents enclosed will enable the consignee to obtain possession of and to check the goods. Complete documents shewing the total cost of this consignment will be sent with the duplicate advice.

NUMBER OF PACKAGES.	DESCRIPTION OF STORES.
4594	1 Case Anemometer

ENCLOSURES.

Bill of lading

Invoice :—

Meteorological Office

Packing Particulars.

£

s.

d.

Will follow.

To The Colonial Secretary
 FALKLAND ISLANDS.

Date 11/4/22 JB.

Office of the Crown Agents for the Colonies,
 4, Millbank, London, S. W. 1.

THE CROWN AGENTS FOR THE COLONIES,
SHIPPING OFFICE,

130, Leadenhall Street, ~~13, Great St. Helen's,~~

LONDON, E.C.3.

2nd March 1922

Reqn. 1525 /1

Colony Falkland Islands.



REPORT ON STOWAGE OF
FRAGILE GOODS REQUIRING TO BE
CAREFULLY HANDLED.

Shipped per s.s. "ORIANA" LIVERPOOL." Sailed *2nd March 1922*

NOS.	PACKAGES	CONTRACTORS.
583	1 case Thermometers 22" x 11" x 12". Cwt. 0.0.19.	The Director Meteorological Office. Air Ministry. Kingsway. W.C.2.
1495.	1 case Mercurial Barometer. 38" x 5" x 5". Cwt. 0.0.14.	

Stowed

Chart Room

It is requested that the necessary steps may be taken to ensure careful handling in discharging and landing.

744/21

14th July,

32.

Requisition No. 1525 Indent No. 85.

Gentlemen,

With reference to your letter No. 129/Y/
Falkland Islands 1525 of the 25th November, I have the
honour to inquire whether any connection for the
anemometer forwarded can be supplied, which will enable
the wind force to be read from 5 or 6 feet above ground
level. The pamphlet enclosed in the letter from the
Meteorological Office lays down that the instrument
should be exposed at the height of 40 feet above the
ground level at the top of a mast or a skeleton tower
and well removed from all building or trees. The
anemometer supplied has provision for a rod below the
dial: it is presumed that this may be ^{provided} for the purpose
of transmitting the reading from the dial just below
the cups to a lower level

I am,

Gentlemen,

Your obedient servant,

H. Henniker-Heaton

Colonial Secretary.

The Crown Agents for the Colonies,
4 Millbank, Westminster,
London, S.W. 1.

1408

14

92 P2
Falkland Is. 1525/1.



ALL COMMUNICATIONS
TO BE ADDRESSED TO THE
CROWN AGENTS FOR THE COLONIES
THE ABOVE REFERENCE AND THE
DATE OF THIS LETTER BEING QUOTED.

TELEGRAMS, "CROWN, LONDON"
TELEPHONE, 7730 VICTORIA.

4, MILLBANK,
WESTMINSTER,
LONDON, S.W. 1.

21st July, 1922.

Sir,

I have the honour to report that a mercurial barometer, sent forward for shipment by the s.s. "ORIANA" with other instruments ordered under indent No. 85, was damaged in transit to Liverpool prior to shipment. The barometer was returned to the Meteorological Office, and a replacement was arranged in time to catch the steamer.

2. Although there is no evidence to show that the damage was due to a peril insured against, we have decided to pay from the Marine Insurance Fund the various expenses incurred in carriage and repairs due to the accident, amounting to 16/4d. This amount will be credited in our account for July.

I have the honour to be,
Sir,
Your obedient servant,

for Crown Agents.

The Colonial Secretary,
FALKLAND ISLANDS.

J. R.

FGB

Falkland Is.1525

ALL COMMUNICATIONS

TO BE ADDRESSED TO THE
CROWN AGENTS FOR THE COLONIES
THE ABOVE REFERENCE AND THE
DATE OF THIS LETTER BEING QUOTED.

TELEGRAMS, "CROWN, LONDON"
TELEPHONE, 7730 VICTORIA.



4, MILLBANK,
WESTMINSTER,
LONDON, S.W. 1.

14th August 1922.

Falkland Is. Requisition No.1525
Indent No.85 dated 9th September 1921.

Sir,

I have the honour to acknowledge the receipt of your letter No.744/21 dated the 19th May reporting that one thermometer supplied under the above indent was received broken.

11.7.22. 2. We have taken the matter up with the Meteorological Office and I enclose a copy of their reply from which you will note that they can accept no liability for damage which occurred during shipment. We have accordingly ordered a replacement at the cost of £1.2.7.

3. Although there is no evidence to show that the damage was due to a peril insured against, we have decided to pay from the Marine Insurance Fund the insured value of the broken thermometer, and the amount, viz. £1.10.7. will be credited in our account for August.

I have the honour to be,
Sir,
Your obedient Servant,

R. O. Willis
for Crown Agents.

The Colonial Secretary,
Falkland Islands.

u
JS

JCL

The Meteorological Office to Crown Agents.

358850/22 (M.O.4)

Meteorological Office,
South Kensington, London S.W.7
11th July 1922.

Gentlemen,

In reply to your letter W/Falkland Is.1525/1 dated 5th July, I am directed to inform you that the thermometer when it was packed in this Office was unbroken and that no liability can be accepted for damage which occurred during shipment. The bulb of the thermometer is made of exceedingly thin glass, and the liquid in the thermometer was spirit. On breakage the spirit would evaporate and the amount of glass found would be negligible.

I am etc.

(Sgd) P. Carless

Superintendent of Instruments.

ADVICE OF STORES SENT BY POST.

17

The Crown Agents for the Colonies have to report the despatch of the undermentioned stores by post.

" $\frac{C}{P.P.}$ 1525/1 " (This reference and the date of this letter should be quoted in all communications.)



Colony Falkland Islands
 Indent No. 85
 Dept. Port & Marine Special A/c (if any)
 Despatched from London
 Addressed to The O.A.G. Stanley, Falkland Islands.
 Date of posting 10th August, 1922.

Number of Parcels, &c.	Description of Stores.
1	Thermometer

ENCLOSURES

Invoice :—

Meteorological Office,

£ s d.

In duplicate

1 5 10

NOT INSURED.

To The Colonial Secretary,
 FALKLAND ISLANDS.

Office of the Crown Agents for the Colonies,
 4, Millbank, S.W. 1.

16th August 1922. VL.

FREIGHT ACCOUNT.

The Crown Agents for the Colonies.

Dr. to Messrs.

Date 12th July 19 22

Colony or Protectorate Falkland Islands Regn. No. 1525

Department

Account

Falkland Islands

Indent No. 85 of 19 22

Shipped by S.S. "Oriana" on March 19 22

From Liverpool To Port Stanley

Freight as below		Tons	ft.	ins.	Tons	Cwts.	qrs.	lbs.	Rate			
1	Case Wood Screen											
1	Covered Standard Ac											
1	Case Thermometer											
1	Case Barometer											
As per accounts dated 7/3/22												
For expenses incurred on 1 barometer damaged in rail transit to L'pool for shipment by the s.s. "Oriana".												
Carriage from Liverpool to Euston as per rect. (G.O. & Co)										-	3	11
Delivery from Euston to Meteorological Office) as per rect. (Petty Cash)										-	1	6
Delivery on replaced Barometer from Meteorological Office to Euston as per rect. (Petty Cash)										-	1	-

1140 W
Falkland Is. 1525

ALL COMMUNICATIONS
TO BE ADDRESSED TO THE
CROWN AGENTS FOR THE COLONIES
THE ABOVE REFERENCE AND THE
DATE OF THIS LETTER BEING QUOTED.

TELEGRAMS. "CROWN, LONDON"
TELEPHONE. 7730 VICTORIA



744/21
General File

18

4, MILLBANK,
WESTMINSTER,
LONDON, S.W. 1.

25th October, 1922.

Falkland Is. Regn. No. 1525
Indent No. 85 dated 9. 9. 21

Sir,

I have the honour to acknowledge the receipt of your letter No. 744/21 dated 14th July enquiring whether any connection for the anemometer supplied by the Meteorological Office under the above indent can be supplied which will enable the wind force to be read from 5 or 6 feet above ground level.

2. In reply I enclose a copy of a letter from the Meteorological Office which furnishes the information required. A copy of the letter No. 37543/21 (M.O.4) of the 9th November 1921 to which the Meteorological Office refer was enclosed with our letter 129 of the 25th November 1921.

I have the honour to be,

Sir,

Your obedient servant,

16.10.22
Attached to
(15)

The Colonial Secretary,
Falkland Islands.

Monom

for Crown Agents.

GP

18a

The Meteorological Office to Crown Agents.

South Kensington,
London, S.W.7.

358850/22 (M.O.4)

16th October, 1922.

Gentlemen,

In reply to your letter W/Falkland Islands 1525/1 of 29th September I am directed to inform you that the pamphlet to which reference is made is not appropriate to the instrument which was supplied, but refers to the alternative instrument mentioned in my letter 37543/21 (M.O.4) of 9th November 1921. The instrument which was supplied is not intended to be connected to any form of indicator by means of which the wind force could be read at about ground level.

It is suggested that easy access should be provided to within such a distance from the instrument that the reading indicated upon the dial at the foot of the instrument can be made either with the unaided eye or through a pair of binoculars. The provision for the rod below the dial referred to in the letter from the Colonial Secretary was made to simplify the erection of the anemometer in an exposed position.

I am, etc.,

(sd) P. Forbes

Superintendent of Instruments.

(19)

Colonial secretary's Department.

Date.. 22nd.. January, ..1923.

To

THE HONOURABLE COLONIAL SECRETARY.

I have the honour to apply for a Special Warrant for £30...0...0
on Head....XV.. MISC.. Subhead..18...New..Item, Meteorological
Instruments

The present state of the Vote is as follows :-

	£
Amount provided in Estimates	-
Special Warrant already issued No.	-
" " " " " "	-
Actual Expenditure to date	-
Outstanding Liabilities incurred.....	-
Balance remaining on vote	-
Estimated Expenditure to 31st December	30

H. H. H. H. H.

Head of Department.
Colonial Secretary

Comments of
Treasurer.

W. H. 744/21

W. H. Thompson
22.1.23.

EXPLANATIONS.

(If general authority has been given for the Expenditure the number of the Minute Paper and the Secretary of State's despatch, if any, should be quoted).

No provision made for in Estimates.

To meet the cost of labour and material in erecting Anemometer, and
in the previous rain gauge planes.

M.P. 744/21

FALKLAND ISLANDS.

20

* No. and date to be used in correspondence with the Crown Agents.

Indent No.* 186 Date* 7th February 19 23

† Brief description of the goods required.

Indent on the Crown Agents for the Colonies for † Rain Gauge Glasses

‡ Department of the Colonial Government ordering the goods.

required by the † Colonial Secretary's Department.

ADDRESS.

Requisition

O. H. M. S.

C A

O. A. G.,

STANLEY.

If necessary that goods be shipped by a fixed date or by a particular vessel enter instructions here and briefly indicate reason for necessity.....

Estimated total cost in sterling exclusive of packing and freight £ - 15/-

Any other instructions to the Crown Agents as to the execution of this indent as a whole

No tin-lined cases to be supplied.

Space for local use only.

Charge to:-

XvV XV. Miscellaneous

18 Meteorological Instruments
(New Item)

I hereby certify that the above requisition is made for the current supply of an established and customary service sanctioned by His Majesty's Government, and that the expenditure has been duly sanctioned by Special Warrant No. 2/23

Approved,

Head of Department.

~~XXXXXXXXXX~~

Colonial Secretary.

FALKLAND ISLANDS.

Page _____

Indent No.* 166 Date* 7th February, 1923.
• To correspond with No. and date at head of first sheet.

Item No.	Quantity.	Description of Articles.	ESTIMATED COST IN ENGLAND.			Remarks.
			Rate.	Total. £ s. d.		
1	3	5" Rain Guage Glasses Meteorological Office Pattern.....	5/-	15	-	
				15	-	
		Estimated Postage etc.,		5	-	
Total estimated cost of the Indent ...				1	0	0

ACED.

COLONIAL SECRETARY
- 6 JUL 1923
F. AND S.

s for the Colonies present t

compliments to The Colonial Secretary,

Falkland Islands.

Indent No. 166

Dated 7. 2. 23.

Dept. Col. Sec's.

OFFICE OF THE CROWN AGENTS FOR THE COLONIES.

4, MILLBANK, LONDON, S.W. 1.

18th April 1923.

Firm.	Nature of Goods (and indent item numbers).	Date promised for delivery in England.	Approximate cost.
J.J.Hicks Ltd.,	Rain Gauge Glasses. 1.	21 4. 23.	1.

L.B.

W. 11. 10,000/2/23. W. & S. Ltd.

100

W. 11. 10,000/2/23. W. & S. Ltd.

GENERAL CONDITIONS OF CONTRACT No. 1—(continued).

Provided that upon the due completion of the work all such materials as shall not have been actually used for the purposes of this Contract shall be relinquished to the Contractor. Immediately upon the payment of the said first instalment the Contractor shall affix the name of the Crown Agents upon the work in such conspicuous manner and place or places as may be directed by the Inspector and shall not remove the same without the consent of the Inspector.

Insurance.

24. When payment is made by instalments the Contractor shall until delivery has been taken by the Crown Agents at his own expense keep the work or such part thereof as shall from time to time be constructed insured in the name of the Crown Agents and to their satisfaction against all risks to which the same shall for the time being be subject in such first class Insurance as the Offices as may be approved by the Crown Agents in an amount at least equal to the full value of the work in respect of which payment is claimed. No money shall be paid to the Contractor hereunder except upon production and delivery to the Crown Agents of the Policies of Insurance which ought to be effected by the Contractor and the receipts for the payment of the premiums thereunder and in case the Contractor shall neglect to effect or to keep up any such insurance the Crown Agents may effect and keep up such insurance and deduct the expenses thereof from any moneys payable to the Contractor hereunder. In case the work or any part thereof shall be destroyed, damaged or lost, the Crown Agents shall receive the moneys paid in respect of the insurance and at their option either (a) such moneys shall be applied in rebuilding or reinstating the works so damaged, destroyed or lost in accordance with this Contract or as near thereto as in the opinion of the Inspector the circumstances will admit or (b) this Contract shall be determined, in which case the Crown Agents shall pay to the Contractor such amount as the Inspector shall certify to be fair and reasonable in all the circumstances.

Contract time for delivery.

25. The Contract time for delivery shall be the period or periods named in the Tender or agreed upon with the Crown Agents reckoned from the date on which the work is ordered by the Crown Agents.

Contractor to give notice of delay.

26. Should the Contractor anticipate at any time during the execution of the Contract that he will be unable to deliver the work within the Contract time, he must at once give notice accordingly in writing to the Crown Agents explaining the cause of the delay.

Deductions for delay.

27. Failures to deliver within the Contract time will in addition to any other liabilities incurred by the Contractor under this Contract subject the Contractor to a deduction from the Contract sum as and for liquidated damages and not as a penalty of one per cent. per week on the value of any work which may be in arrears unless the Engineer shall be of opinion that such delay has arisen from causes which were unavoidable and could not be foreseen or overcome by the Contractor in which case the Engineer shall certify the extent, if any, to which the deduction should be remitted and they shall be remitted accordingly, but any deduction not so remitted shall remain in full force. Delays in the supply of materials to the Contractor will not be admitted as a ground for the remission of deductions except so far as they may be certified by the Engineer to have arisen from strikes or other causes which could not be foreseen or overcome by the manufacturers or vendors of such materials.

Drawings, etc.

28. Any drawings, tracings or descriptions specified must unless otherwise specified be furnished by the Contractor with the first consignment of the work to which they refer and no payment will be made by the Crown Agents until such drawings, tracings or descriptions have been furnished to the satisfaction of the Engineer.

Insolvency of Contractor and provisions in case of default.

29. Should the Contractor become bankrupt or insolvent or should he suspend payment or compound with his creditors or from any other cause whatever become unable or fail to carry on the Contract with efficiency; or should he not progress with the work in the manner intended by the Contract or not have work ready for delivery in conformity with the terms of the Contract; or should his preparations for commencement and his subsequent rate of progress be so slow from any cause whatever that in the opinion of the Crown Agents he will be unable to complete the work by the expiration of the specified period; or should he refuse or neglect to comply with the directions given him by the Crown Agents or the Engineer or Inspector or in any other respect act contrary to the terms of the Contract; then the Crown Agents shall have power to declare the Contract at an end and the Contractor shall only be paid for such portion of the work as shall have been actually delivered at the date of such declaration, after deduction of any sum leviable under the conditions of the Contract. The Contractor shall in addition be liable to pay to the Crown Agents or the Crown Agents shall be entitled to further deduct the value of any expense, loss or damage (including any excess difference between the Contract price of the work to be done under this Contract or of such portion thereof as may not have been delivered at the date of such declaration as aforesaid and the price which the Crown Agents may have to pay for similar work provided in lieu of such portion as may not have been so delivered) which the Crown Agents may be put to or sustain by reason of or in connection with the Contractor's breach of Contract. If at any time the Contractor shall in the opinion of the Crown Agents not be executing the work with due diligence or shall be otherwise making default in the performance of this Contract the Crown Agents may give to the Contractor written notice requiring him to remedy such default to their satisfaction and the Contractor shall forthwith comply with such notice and in case the Contractor shall not within seven days after the receipt of such notice have duly complied therewith to the satisfaction of the Crown Agents then and in any such case the Crown Agents in addition and without prejudice to any of their other rights or remedies under this Contract—

(a) May make good such default or cause the same to be made good in such manner as the Crown Agents may think fit and the expenses thereby incurred (as certified by the Inspector) shall be paid by the Contractor to the Crown Agents or may be deducted by the Crown Agents from any moneys payable or to become payable to the Contractor under this Contract, or

(b) May determine this Contract and thereupon the Crown Agents may take possession of or remove and dispose of for their own benefit the work in its then state and all materials then being the property of the Crown Agents under this Contract together with the benefit of any Sub-contracts for any part of the work without making any further payment to the Contractor than such (if any) as the Inspector shall certify ought to be paid to him having regard to his default and all the circumstances of the case, or

(c) May without determining this Contract take possession of the work in its then state and all materials intended for it and complete the work in accordance with this Contract and the costs incurred by the Crown Agents in the exercise of any of the powers contained in this sub-clause (as certified by the Inspector) shall be deducted from any moneys then payable or thereafter to be payable to the Contractor hereunder and if such moneys shall not be sufficient the deficiency shall be made good and paid by the Contractor to the Crown Agents.

Discrepancies in Conditions.

30. Should there be any discrepancy between the General Conditions and any Special Conditions or Specifications of this Contract the Special Conditions or Specifications shall be followed in preference to the General Conditions.*

No personal liability on Crown Agents.

31. Nothing in these General Conditions or in any part of the Contract shall be deemed to impose any personal liability on the Crown Agents or on any of them or on any of their officers or servants.

Members of House of Commons.

32. In pursuance of the Act 22 Geo. III. Cap. 45 no Member of the House of Commons shall be admitted to any share or part in the Contract or to any benefit to arise therefrom except so far as section 3 of the Act applies. This section runs as follows:—

"Provided always and be it enacted that nothing herein contained shall extend, or be construed to extend, to any contract, agreement, or commission, made, entered into or accepted, by any incorporated Trading Company in its corporate capacity, nor to any Company now existing or established and consisting of more than ten persons where such contract, agreement, or commission shall be made, entered into or accepted for the general benefit of such incorporation or company."

Contract an English one.

33. This Contract shall be deemed an English Contract and shall accordingly be governed by and construed according to English Law.

Marginal notes.

34. Marginal notes hereto are for the purposes of convenience only and shall not affect the construction or interpretation of this Contract.

Fair Wages Clauses.

35. The Contractor shall pay rates of wages and shall observe hours of labour not less favourable than those commonly recognised by employers and trade societies (or in the absence of such recognised wages and hours, those which in practice prevail amongst good employers) in the trade in the district where the work is carried out. Where there are no such wages and hours recognised or prevailing in the district those recognised or prevailing in the nearest district in which the general industrial circumstances are similar shall be adopted. Further the conditions of employment generally accepted in the district in the trade concerned shall be taken into account in considering how far the terms of fair wages clauses are being observed. The Contractor shall be responsible for the observance of the fair wages clauses by the Sub-contractor (if any).

36. The Contractor shall cause the preceding condition to be prominently exhibited for the information of his workpeople on the premises where work is being executed under the Contract. Printed copies of such notice will be supplied on application to the Crown Agents. In trades where it is the practice, the Contractor shall also cause to be exhibited or to be available for inspection a copy of any signed Agreement determining the rates of wages and hours of labour commonly recognised by employers and trade societies in the district.

37. The Contractor shall keep proper wages books and time sheets showing the wages paid and the time worked by the workpeople in his employ in and about the execution of the Contract and such wages books and time sheets shall be produced whenever required for the inspection of any officer authorised by the Crown Agents.

Certificates to be final.

38. Any decision, certificate or determination made or given by the Engineer or the Inspector in pursuance of this Contract shall be final and conclusive for all purposes and shall be binding on the Crown Agents and the Contractor.

Arbitration.

39. Any question, dispute or difference between the Crown Agents and the Contractor arising out of this Contract shall be referred to arbitration in accordance with the provisions of the Arbitration Act 1889 or any statutory modification thereof.

Dangerous goods.

40. Packages containing dangerous goods (see Section 446 Merchants Shipping Act, 1894) must be marked by the Contractor as provided in the Statute and specially reported to the Crown Agents' Shipping Office, attention being also drawn to them in the shipping particulars.

INSTRUCTIONS TO FIRMS TENDERING.

The original Tender Form is to be filled up complete in every respect and delivered, properly sealed, by hand or by post, not later than noon on the date named on the face of the form in the special green envelope when such is provided for the purpose. If no date is specified, the form should be returned as soon as possible.

The duplicate form is intended to be retained by the firm. Both forms should be returned to the Crown Agents at once if the firm is unable or unwilling to tender.

The Crown Agents do not bind themselves to accept the lowest or any tender and they reserve to themselves the right of accepting any tender wholly or in part.

Copies of any drawings referred to in the Specification can be seen at the Crown Agents' Office and can be obtained from Mr. W. J. Harrison, 7, Carteret Street, Westminster, S.W. 1, on a payment of a sum not exceeding 2/-, where only one print is required and 2/- for the first print and 1/- for the second and all succeeding prints when more than one drawing is quoted on the tender form. These rates are for prints not exceeding 40" x 29", larger sheets being charged at special rates.

* The following are the matters which will more usually form the subject of special conditions:—

Payment by instalments (cl. 22); provision of a sum to cover additional work (if any) (cl. 5); amount of liquidated damages (cl. 27).