

C.S.

SCIENTIFIC

(Meteorological)

NAT/MET/1#4

1922

No. 403/22

Governor

SUBJECT.

1922

14th May

Previous Paper.

Climatic Conditions of the Falkland Islands

MINUTES.

Minute from the Governor of 14 May 1922 — Encl. (1)

*Y.S.
Despatch submitted*

*15/5/22
22 May 1922*

Despatch to S. of S. No 70 of 16 May 1922 — Encl. (2)

S. of S. Despatch No 92 of 23rd August 1922 — Encl. (3)

*Y.S.
Submitted*

2. This is very interesting and the Air Council is to be thanked? The offer of a treatise in more popular form is welcome and fifty printed copies might be required, but it would I suggest be as well to wait for the typescript before definitely ordering the printing of it.

3. The only criticism I have to make is

Subsequent Paper.

Attach the publication

*Recd 27/5/22
Pa 24/5/22
27/5/22
27/5/22
1/6/22*

the combination of the Falklands and
South Georgia is a simple report. It
is about as sound as combining England
and Norway. Is it worth telegraphing?

4/10/22

H.C.S.

I think we may safely order 100 copies of
the treatise in more popular form. I am
anxious that every student should have a copy of
it & on view of para 1 of (2) I do not think
that news from S. Georgia will be included.
It may be a dispatch by next mail will
not reach England before end of December &
in interval the typescript copies of treatise should
have been received: if it is not considered suitable
for local requirements a telegram can be sent
cancelling order for printed copies.

2. The memoirs of the Council should be printed.

H.C.S.

5 Oct 1922

Despatch No. 124 of 5 Oct. 1922 to S. of S. — Encl. (4)

Note.

The memoir has been sent to Mr. Neave
at his request

12/10/22

S of S. despatch No 115 of 4th Oct. 1922 Encl (5)Y.S.
Submitted

This report is interesting and valuable. The last sentence of the first paragraph should be altered to "the climate is healthy". I have this to the Col. Surgeon who emphatically denies that there is any virulent form of an epidemic disease in the Falklands.

TTTT 10/11/22

Forest Officer.

TO Mr. & Mrs. Allen & Son

M.

20 Nov. 1922

Y.E.

Noted accordingly.

James Reid
Forest Officer2nd Jan. 1923.

H.S.

Last sentence of para 1 should be altered as proposed in all copies after they are received.

H.

2 January 1923

S of S despatch No 676 of 18th Aug 1923 - Encl 6
advise of Orders placed

Y.E. Submitted.

G.R.H.B.

Di C/Sec

19 Oct 1923

19/10/23

~~Mr. Treasurer.~~

Y.E.

May a special warrant under
Misc. XV Subhead 16. Printing on UK
issue for £14. in order to make
provision for this charge? At present
there is a balance of £11. 18/- on the
vote.

G.R.H.B.

Di C/Sec -

22 Oct 1923.

22 Oct. '23

San Treasurer.

S. W. here with

G.R.H.B.

Di C/Sec

23 Oct 1923

Hon. Cl. Sec.

Returned

K. H. Thompson

24. 10. 23.

3 E. Special warrant prepared
for favour of signature.

GRH:13
Di/Sec
25 Oct 1923

S. W. signed

ttttt 25 Oct '23

Hon Treasurer.

For usual act. in.

GRH:13
Di/Sec
27 Oct 1923

Hon. Col. Secretary.

S. to. pro. 39. for P. u. withdrawn.

S. to.
for Col. Treasurer
30 Oct 23.

Address of Stores sent by Post

of 17th October 1923 Encl (9)

3 E. Will your Excellency be pleased to
give directions as to disposal of
these copies.

GRH:13
Di/Sec
125 copies recd. 10 Jan 1924.

over

Government House	6
Members of Council	6
Departments	
Nationalist	1
Education	3
Labour	2
Public Works	1
Harbour Master	1
Stock	1
Falkland Island Company	3
Farmers 1 each station	
Carrying 200 sheep each	30
Louis Williams Estate	1
Tramway for sale @ 2/6	12
Retain in Secretariat	58
	<hr/>
	125
	<hr/>

TTTTT 11/Jan. 24

Hon. Ag. Treasurer.
 Twelve copies herewith for
 sale. W. H. B.
Director
Geology

Hon. Col. Sec.
 12 copies of publication
 received accordingly for
 sale. M. Craigie Harkness
Ag. Treas.
 2. 2. 24

Y.E.
 Copies have been disposed of
 as directed. Six copies attached

here with for Government House.

G.H.B.

Director

2 Feb 1924

ttttt 6 February 1924

G.P.

Is it Your Excellency's wish
that say a dozen copies should
be sent to Crown Agents for sale?

G.H.B.

Director

6 Feb 1924

Yr please

ttttt 7 Feb 24

Sent vide
Encl 11 p. 10/11

Letter from Mr R.N. Bound of

18th February 1924 - Encl (10)

Letter from Secretary General of

Société de Géographie, Paris

of 28th May 1924

Encl (11)

Letter to Secretary General

Société de Géographie de France

19 Sept 1924

(12)

DATE.....



● From Governor to Colonial Secretary

climate
There is no authoritative information with regard to
climatic conditions of the Colony. Such information
especially
is required ~~with~~ in connection with ship fitting
& also in connection with experiments in tree planting.

2. Draft of despatch to S.G.S. is attached.

[Signature]
14 May 1922

(2)

PALESTINE ISLANDS.

No. 70.

GOVERNMENT HOUSE,

STANLEY,

16th May, 1922.

Sir,

With reference to the third paragraph of my despatch No. 69 of the 16th May, I have the honour to request that the Director of the Meteorological Office may be moved to cause reports to be prepared on the meteorological observations which have been recorded at Cape Pembroke Lighthouse for the last thirty-five years and on the records of the Stokes-Campbell Sunshine Recorder which are forwarded periodically to the Meteorological Office.

2. The need for authoritative information on climatic conditions has arisen recently in considering questions affecting the Colony and I, accordingly, beg to request that you may be pleased to authorise the expenditure, which it may be necessary to incur in preparing and printing these reports, to be met from the funds of the Colony.

I have the honour to be,

Sir,

Your most obedient,

humble servant,

J. Middleton.

THE RIGHT HONOURABLE

W. L. S. CHURCHILL, M.P.,

SECRETARY OF STATE FOR THE COLONIES.



1430

(3)

FALKLAND ISLANDS.

Downing Street,

No. 9223 August, 1922.

Sir,

I have the honour to acknowledge the receipt of your despatch No. 70 of the 16th of May and to transmit to you a copy of a letter (with the original enclosures from the Air Ministry regarding the preparation of reports on meteorological observations and sunshine records in the Falkland Islands.

2. I also enclose a copy of the reply which I have caused to be returned to the Air Council. I shall be glad to learn whether you desire that the treatise referred to should be printed by the Crown Agents for the Colonies, and if so how many copies will be required by your Government.

I have the honour to be

Sir,

Your most obedient

humble servant,

Signed HUNTER S. CHURCHILL

GOVERNOR

J. HUNTER, Esq., C.M.G.

etc., etc., etc.

From Air Ministry
12. 8. 1922.To Air Ministry
22. 8. 1922.

COPY.

360818/22 (D.M.O.)

Air Ministry,

Kingsway,

London, W.C.2.

12th August, 1922.

Subject:- Meteorological Observations from Cape Pembroke.

Sir,

I am commanded by the Air Council to refer to your letter No.31252/1922 of the 15th July, 1922, forwarding a copy of a despatch from the Governor of the Falkland Islands with regard to the preparation of reports on the meteorological observations reported at Cape Pembroke Lighthouse and on the records of the Stokes-Campbell sunshine recorder.

The records in question have formed the basis of an exhaustive inquiry by Mr. C.E.P. Brooks of the Meteorological Office, the results of which have been published by the Stationery Office in the Geophysical Memoirs, Vol. II, No.15, H.O.220e, price 3s6d., entitled "The Climate and Weather of the Falkland Islands and South Georgia". A copy of this publication is forwarded herewith for the information of Mr. Secretary Churchill and for transmission to the Governor of the Falkland Islands, if desired.

The Under Secretary of State,

Colonial Office,

London, S.W.1.

The

The memoir in question is highly technical and the results of pressure and temperature are expressed in scientific units. The values can, however, readily be converted into British units by the aid of the tables which have been attached.

The Council consider that for the purpose desired by the Governor, a more popular presentation of the information contained in the memoir is desirable, and the Director of the Meteorological Office has taken in hand the preparation of a short treatise along these lines, and copies will be forwarded in the course of a month or so in order that they may be transmitted to the Governor for his information and use. It is not proposed to print the letter but to send two or three typescript copies, for which there will be no charge.

I am to inquire whether this arrangement meets with Mr. Churchill's approval.

I am etc.,

(Sgd) B.E.Holloway.

39960/1922

Downing Street,

24 August, 1922.

Sir,

I am directed by Mr. Secretary Churchill to acknowledge with thanks the receipt of your letter of the 12th of August, No. 360618/22 (P.M.O.) on the subject of meteorological observations and sunshine records in the Falkland Islands and to state, for the information of the Air Council, that a copy of your letter and the enclosures, together with a copy of this reply is being forwarded to the Governor of the Colony.

2. Mr. Churchill is much obliged to the Air Council for arranging for the compilation of the treatise referred to in your letter and he will be glad to receive three typescript copies in due course.

3. In the meantime, the Governor is being consulted by despatch as to whether he would wish the treatise to be printed by the Crown Agents for the Colonies having regard to the number of copies which

may

THE SECRETARY,
AIR MINISTRY.

may be required locally and I am to enquire
whether in that case the Air Council would
wish to be supplied with any printed copies.

I am,

Sir,

Your most obedient servant,

(Signed) H. J. READ

FALKLAND ISLANDS.

No. 124

GOVERNMENT HOUSE,

STANLEY,

5th October, 1922.

Sir,

I have the honour to acknowledge the receipt of your despatch No. 92 of the 23rd of August, forwarding a copy of a letter from the Air Ministry regarding the preparation of reports on the climate of this Colony.

2. I shall be glad if the thanks of this Government may be conveyed to the Air Council for the work that has been done by Mr. C. E. P. Brooks in this connection. His report has been read with much interest; a treatise in a more popular form would be greatly appreciated and widely read in the Colony. I request that 100 copies of the treatise may be printed.

I have the honour to be,

Sir,

Your most obedient,

humble servant,

J. Hiddleton

THE RIGHT HONOURABLE

W. L. S. CHURCHILL, M.P.,

SECRETARY OF STATE FOR THE COLONIES.

FALKLAND ISLANDS

NO. 115



Downing Street,

4 October 1922.

Sir,

With reference to my despatch No.92 of the 23rd August, I have the honour to transmit to you the accompanying copies of a treatise prepared by the Air Ministry from the meteorological and sunshine records of the Falkland Islands on the climate and weather of the Colony.

2. I have to point out that the statement at the end of the first paragraph of the treatise with regard to the prevalence in the Colony of ordinary epidemic diseases in a virulent form, would appear to require amendment.

I have the honour to be,

Sir,

Your most obedient,

humble servant,

(Signed) WINSTON S. CHURCHILL

GOVERNOR

J. MIDDLETON ESQ., C.M.G.

&c., &c., &c.,

REC^d
SEP 25 1922

(1)

This account is taken mainly from "The Climate and Weather of the Falkland Islands and South Georgia", by C.E.P. Brooks, London Meteorological Office, Geophysical Memoir No. 15, 1919.

1. General.

The Falkland Islands lie in the South Atlantic Ocean, 250 miles east of the south-eastern extremity of South America; they consist of a group of more than one hundred islands and islets with a total area of 6,500 square miles, but of these only two, East and West Falkland, are of any considerable size. Both islands are mountainous, rising to 2,300 feet, with a very irregular and indented coast-line. The surface is largely covered by peat-bogs and numerous small lakes. There is a comparatively rich flora of grasses and shrubs, including the well-known tussock grass isolated dense tufts of reed-like grass growing to a height of 6 to 10 feet. The native fauna is small, consisting mainly of land and sea birds. The climate would be very healthy were it not that ordinary epidemic diseases prevail in a ~~very~~ virulent form.

The first observations taken in the Falkland Islands were by Sir James Ross in April to August 1842 (Voyage to the Southern Seas, vol. ii. pp. 428-437). Observations have been taken at Cape Pembroke Lighthouse (lat. $51^{\circ}41'$ S., long. $57^{\circ}42'$ W.) since 1850, with occasional intervals, but in the absence of adequate supervision and instruction the records were of little value until the visit of the *Scotia* in January 1903 gave the necessary stimulus. Since 1903 the observations, taken under the supervision of Mr. John Pearce, the principal lighthouse keeper, have been excellent. In 1903 also, Mr. Mossman, the meteorologist to the *Scotia* expedition, set up a sunshine recorder at Stanley, in charge of Sir William Wilson, the Governor of the islands; thanks to the supervision of the latter and later to that of Sir William Allardyce and Sir W. Douglas Young, this has continued in working order until the present day, with very few gaps.

A good station was set up in 1874 by Mr. F. E. Cobb at Stanley Harbour, ($51^{\circ}41'$ S, $57^{\circ}51'$ W.) and continued until December 1883; rainfall observations were also taken for a few months in 1891 and recommenced under the supervision of Sir William Wilson in 1904. The following report is based on these observations at Stanley as well as on those at Cape Pembroke.

2. Distribution of Atmospheric Pressure.

The average level of the barometer in the Falkland Islands is rather low, being 29.6 inches at sea-level (corrected for gravity). On the whole the readings are highest in late winter and spring (July to October) and lowest in summer (November to April). The comparatively low readings are due to the position of the islands in the southern temperate storm belt. Pressure rises to the northward and decreases rapidly to the southward; at

	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
1895	29.56	29.67	29.32	29.51	29.57	29.55	29.49	29.62	29.81	29.56	29.59	29.47	29.56
1896	.45	.74	.55	.62	.55	.68	.64	.58	.76	.58	.26	.43	.57
1897	.53	.54	.68	.34	.58	.69	.67	.65	.85	.62	.61	.45	.60
1898	.49	.47	.46	.58	.72	.79	.99	.80	.75	.76	.53	.56	.63
1899	.51	.59	.51	.46	.40	.80	.41	.72	.73	.52	.47	.46	(.54)
1900	.35		.51	.66	.72	.76	.55	.85	.72	.63	.31	.52	.59
1901	.69	.47	.55	.60	.50	.61	.42	.74	.70	.57	.65	.54	.59
1902	.60	.40	.61	.55	.44	.65	.45	.42	.62	.52	.46	.48	.51
1903	.54	.44	.32	.64	.64	.52	.80	.77	.75	.87	.80	.75	.65
1904	.58	.63	.50	.74	.69	.67	.66	.63	.42	.61	.59	.69	.62
1905	.55	.43	.62	.61	.68	.26	.63	.42	.61	.56	.65	.58	.55
1906	.63	.63	.46	.57	.45	.76	.66	.69	.78	.65	.51	.41	.60
1907	.49	.62	.60	.64	.43	.51	.75	30.03	.69	.70	.38	.37	.60
1908	.56	.64	.63	.48	.65	.61		29.75	.66	.51	.43	.50	(.59)
1909	.53	.55	.57	.52	.55	.49	.61	.54	.81	.78	.61	.43	.58
1910	.30	.60	.83	.63	.50	.46	.66	.41	.62	.79	.55	.68	.59
1911	.41	.65	.64	.59	.76	.67	.72	.41	.83	.69	.43	.63	.62
1912	.58	.32	.50	.58	.50	.57	.67	.79	.65	.70	.32	.45	.55
1913	.58	.51	.51	.46	.42	.65	.52	.65	.65	.62	.57	.66	.57
1914	.54	.53	.77	.73	.60	.47	.68	.70	.73	.65	.39	.66	.62
1915	.54	.55	.72	.33	.29	.56	.45	.35	.73	.77	.53	.51	.53
1916	.48	.69	.51	.60	.32	.52	.62	.79	.43	.73	.43	.46	.55
Mean	29.52	29.56	29.56	29.57	29.54	29.60	29.60	29.65	29.70	29.65	29.50	29.53	29.58

Table 1. Monthly mean pressure ^{in inches} (32° W. lat. 45°, S.I., mean of 24 hours) at Cape Pembroke.

Buenos Aires it is about 30.0 inches and on the polar circle only 29.2 inches. The isobars run east and west so that there is no great variation of pressure with longitude. Most of the storms which move from ~~west~~ ^{west} to ~~east~~ ^{west} across the Southern Ocean pass with their centres to the southward of the Falkland Islands, and give rise to the strong westerly winds which dominate the climate of the ~~interior~~ ^{interior} region.

The means of pressure month by month are set out in table 1, which covers the period 1895 to 1916. The figures from 1895 to 1901 are not so reliable as those for later dates. The variation is considerable, ranging from 29.26 inches in November 1896 and June 1905 to 30.03 inches in August 1907 at sea level; the variability is greater in winter than in summer.

Although during unsettled or stormy weather the barometer may be rising or falling at any hour of the day, in the rare periods of quiet settled weather a regular diurnal variation of pressure appears. The same result is obtained by combining all the observations which are taken at the same hour of the day in each month or season into a single mean, by which process we eliminate the irregularities caused by all ups and downs of the barometer which are independent of the time of day.

The diurnal variation of pressure is very well marked in the tropical regions, where there are always two maxima each day at about 9 h. and 21 h., and two minima at about 3 h. and 15 h., the range being as much as 0.1 inch. As we pass to higher latitudes the range becomes very much less, and in place of two equally developed maxima we find only one, with indications of a second. At Cape Pembroke the means of the observations taken at four-hourly intervals are as follows. (The figures show deviations from the daily mean):-

	0h	4h	8h	12h	16h	20h
	inch	inch	inch	inch	inch	inch
October to March	+0.011	.000	+0.002	-.010	-.010	+0.008
April to September	+0.006	-.005	+0.002	-.002	-.005	+0.005

When these observations are plotted on squared paper and smooth curves drawn through them it is found that the chief maximum occurs at 22 h., the chief minimum at 14 h. in summer and 15 h. in winter; there is a secondary maximum at 8 h. and minimum at 4 h. best developed in winter. The range is only .028 inch in summer and .014 inch in winter.

3. Temperature.

The results of the observations of temperature at Cape Pembroke and at Stanley are set out in tables 2 and 3. In table 2 the mean temperatures for each month are given;

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1874												34.5	
1875	48.6	48.2	49.1	43.6	41.4	38.9	37.4	38.6	41.6	41.8	45.8	45.4	43.4
1876	46.8	47.1	45.7	45.0	39.7	37.4	37.4	37.1	40.6	39.6	42.8	47.2	42.2
1877	52.2	48.8	50.3	43.0	40.9	38.3	35.6	37.4	37.4	40.7	44.5	46.2	43.0
1878	51.6	50.0	43.9										
1879													
1880		50.2	46.3	43.2	39.2	37.5	37.0	35.0	40.8	42.8	45.8	46.2	
1881	48.0	47.8	45.6	44.1	39.6	36.7	36.7	37.0	38.2	43.2	45.6	47.2	42.5
1882	48.6	49.6	45.3	40.3	37.7	36.1	36.4	37.4	39.2	42.6	46.2	48.2	42.3
1883	48.0	47.8	44.8	42.0	40.3	36.9	37.5	38.0	39.8	43.2	44.4	44.4	42.3
1903	47.6	47.6	45.5	43.6	41.2	38.9	37.0	37.3	39.1	41.2	45.1	46.8	42.6
1904	49.5	49.9	47.7	44.2	38.3	39.5	33.8	37.8	39.4	40.0	44.4	45.3	42.5
1905	48.6	46.5	47.7	43.5	38.9	37.5	35.0	36.9	39.2	41.8	45.4	46.0	42.3
1906	50.7	48.7	46.4	42.6	37.1	37.1	35.6	37.9	38.9	41.7	44.4	46.1	42.3
1907	50.1	50.0	48.6	44.3	40.8								
1908								38.4	40.7	40.9	43.2	44.5	
1909	49.3	47.4	47.3	44.9	41.8	39.5	37.8	38.4	39.4	42.2	43.5	45.7	43.1
1910	48.7	48.2	47.4	43.0	41.0	37.2	37.0	38.5	40.0	41.7	45.2	47.8	43.0
1911	48.6	48.6	47.1	43.4	41.9	39.5	38.8	37.4	39.5	40.9	42.2	46.6	42.9
1912	50.2	48.7	46.8	44.2	39.4	37.1	36.4	35.8	39.2	42.7	43.2	45.6	42.4
1913	49.0	49.3	46.0	44.1	40.5	36.6	35.9	37.5	40.6	42.8	44.6	46.8	42.8
1914	48.5	50.3	49.4	45.5	42.5	37.3	36.0	37.5	37.5	41.3	41.5	46.8	42.8
1915	48.2	49.8	48.6	41.4	39.4	36.1	37.6	36.0	39.4	42.3	45.1	47.1	42.6
1916	48.4	49.7	46.1	43.9	41.1	36.3	36.0	38.8	39.2	42.2	44.3	47.3	42.8
Mean, 20 years.	49.1	48.8	46.9	43.5	40.1	37.6	36.6	37.4	39.5	41.8	44.4	46.5	42.7

in degrees Fahrenheit
 Table 2 Mean monthly temperatures (mean of 24 hours) at Stanley
 (1874 - 1883) and Cape Pembroke (1903 - 1916).

	Jan.	Feb.	Mar.	Apr.	May	June.	Jly.	Aug.	Sep.	Oct.	Nov.	Dec.	Year.
<u>Cape Pembroke.</u>	10 years 1905 - 1915.												
Mean Temperature.	49.3	48.7	47.5	43.7	40.3	37.6	36.7	37.4	39.4	41.9	43.9	46.2	42.7
Mean Daily Max.	54.9	54.5	52.9	48.4	44.1	41.0	40.1	41.0	44.2	47.1	49.8	51.8	47.5
Mean Daily Min.	44.6	44.1	42.8	38.8	35.8	33.1	32.7	32.3	35.1	37.2	39.0	41.7	38.2
Mean Monthly Max.	67	65	62	57	50	47	46	47	51	56	61	63	69
Mean Monthly Min.	38	39	36	30	29	25	24	27	29	32	32	35	23
Highest Max.	72	75	66	59	56	49	52	50	54	59	67	70	75
Lowest Min.	34	33	32	27	28	21	19	21	27	29	28	32	19
<u>Stanley.</u>	7 - 8 years, 1874 - 1883.												
Mean Temperature.	49.2	48.6	46.3	43.0	39.9	37.3	36.9	37.2	39.6	42.0	45.0	46.6	42.6
Mean Daily Max.	56.3	55.6	52.4	48.1	43.7	40.8	40.5	41.4	44.6	48.3	52.0	53.7	48.1
Mean Daily Min.	43.0	42.7	40.7	37.8	35.2	32.1	32.7	32.8	34.9	36.3	39.0	40.6	37.4
Mean Monthly Max.	67	65	63	56	49	46	46	48	53	59	63	65	70
Mean Monthly Min.	35	35	31	30	27	24	23	24	27	28	32	32	18
Highest Max.	76	69	67	59	51	48	48	52	59	62	68	69	76
Lowest Min.	33	33	27	24	24	12	18	12	23	26	30	31	12

Table 3. Mean and Extreme values of temperature in degrees Fahrenheit

the figures for Stanley are based on the means of the daily maximum and minimum readings corrected to the mean of 24 hours; those at Cape Pembroke are based on observations taken six times daily. Table 3 gives the mean and extreme values over the whole period. The mean annual temperature is about 43°F. at both places; January is the warmest month (49°F.) and July the coolest (37°F.) giving an annual range of 12°F. The corresponding temperatures at Kew (London) are - annual mean 50°F. July 63°F. , January 39°F. , so that in the Falkland Islands the winters are slightly colder and the summers much cooler than in London, which is about as far to the north of the equator as Stanley is to the south. The January temperature at Stanley is even lower than the annual mean at London. The relatively low Falkland temperatures are largely due to the oceanic circulation. The general eastward drift of the Southern Ocean is interrupted by the long peninsula of Patagonia and deflected southward to Cape Horn, where it sweeps up considerable numbers of icebergs from the Antarctic. After rounding Cape Horn it divides into two branches, of which the westerly or Falkland current travels due northward west of the Falkland Islands, while the easterly, the main part of the Cape Horn current, travels in an east-north-east direction towards South Georgia. Owing to the cooling of the air due to these two ice-laden currents a rapid fall of temperature is experienced from west to east, and Cape Pembroke is 13 degrees colder than the east coast of Patagonia in the same latitude.

The average of the highest temperatures recorded each day is known as the mean daily maximum; at Cape Pembroke this varies from 55°F. in January to 40° in July: The mean daily minimum, or average of the lowest temperatures recorded each night, is 45°F. in January and 33° in July; the daily range is thus 10° in January and 7° in July. At Stanley, which is further removed from the open sea, the temperature is higher during the day and lower at night than at Cape Pembroke, the daily range being 13°F. in January and 8°F. in July.

The mean monthly maximum and minimum are the averages of the highest and lowest temperatures respectively in each month, that is, the figure of 67°F. in January (table 3) is the average of the highest maxima of each of ten Januaries,

The corresponding mean annual maxima and minima give the averages of the highest and lowest temperatures recorded each year; these are 62° and 23° at Cape Pembroke and 70° and 18° at Stanley, that is, the temperature will reach these limits at least once in one year out of every two. The absolute extremes recorded in ten years at Cape Pembroke were 75° and 19° ; in eight years, at Stanley 76° and 12° .

Owing to the irregular day to day changes, which are very great in the Falkland Islands, the highest temperature of the twenty-four hours does not always occur in the early afternoon, but may fall at any time of the day or night. On the average however, which may be taken to represent the conditions during quiet weather, 13 h. is the hottest time of the day while the coolest is just before sunrise. The difference at Cape Pembroke is 5.7°F. in January but only 2.5° in July. The variation from day to day is also slightly greater in summer than in winter, the average difference from noon of one day to noon of

	30°-35°F	35°-40°F	40°-45°F	45°-50°F	50°-55°F	55°-60°F	60°-65°F	65°-70°F
Jan.	-	-	1	5	12	7	5	1
Feb.	-	-	-	4	12	9	3	-
Mar.	-	-	2	7	14	6	1	1
Apr.	-	1	5	13	9	2	-	-
May.	1	4	12	13	1	-	-	-
June.	3	8	17	2	-	-	-	-
July.	3	11	15	1	1	-	-	-
Aug.	1	10	17	3	-	-	-	-
Sept.	-	3	17	8	2	-	-	-
Oct.	-	1	11	10	7	2	-	-
Nov.	-	-	4	12	10	3	1	-
Dec.	-	-	-	11	12	5	2	1
Year.	8	38	101	89	80	34	12	3

Table 4. Average number of days per month with the highest temperature between different limits at Cape Pembroke.

	20°-25°F	25°-30°F	30°-35°F	35°-40°F	40°-45°F	45°-50°F	50°-55°F	55°-60°F
Jan.	-	-	1	4	12	10	3	1
Feb.	-	-	-	5	12	9	2	-
Mar.	-	-	1	8	14	7	1	-
Apr.	-	2	5	10	10	3	-	-
May.	-	4	11	11	5	-	-	-
June.	1	7	12	9	1	-	-	-
July.	2	6	14	9	-	-	-	-
Aug.	1	4	17	9	-	-	-	-
Sept.	-	3	13	13	1	-	-	-
Oct.	-	1	8	17	5	-	-	-
Nov.	-	1	5	13	9	2	-	-
Dec.	-	-	-	10	15	5	1	-
Year.	4	28	87	118	84	36	7	1

Table 5. Average number of days per month with the lowest temperature between different limits at Cape Pembroke.

	January	February	March	April	May	June	July	August	September	October	November	December	Year
	%	%	%	%	%	%	%	%	%	%	%	%	%
Mean (24 hours)	80	81	83	83	85	88	88	87	85	82	81	81	84
4.h	86	86	87	87	87	89	89	88	88	86	86	86	87
12.h	75	76	77	79	83	86	86	84	81	78	76	78	80
Cloudiness (24 hours)*	7.1	7.0	6.9	7.0	7.2	7.3	7.3	7.0	6.9	7.0	7.0	7.3	7.1

Table 6 Relative Humidity and Cloudiness at Cape Pembroke.

* In tenths of sky covered.

	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.
Average per day	5.36	5.35	4.49	3.44	2.30	1.62	1.94	2.62	3.83	4.48	5.19	5.01	5.80
	No. of days with												
0.hrs	2	1	3	4	9	10	10	7	5	3	2	3	59
0-3 "	8	7	9	12	10	13	13	13	9	9	7	8	118
3-6 "	8	7	8	8	8	6	6	8	7	8	9	8	91
6-9 "	8	8	7	5	4	1	2	3	7	7	8	7	67
More than 9 "	5	5	4	1	0	0	0	0	2	4	4	5	30

Table 7 Average proportion of bright sunshine per day and number of days with different amounts of sunshine at Stanley.

the next being 4.0°F. in January and 2.7°F. in July.

In tables 4 and 5 we have the average number of days per month with the highest and lowest temperatures between different limits at Cape Pembroke.

4. Relative Humidity and Cloudiness.

The air at Cape Pembroke is damp throughout the year, the average relative humidity (24 hour mean) ranging from 80 per cent. of saturation in January to 88 per cent. in June and July. The average monthly figures are set out in Table 6, which also gives the average figures at 4 h., when the air is most humid, and noon, when it is driest.

The number of overcast days is considerable and the average cloudiness is seven tenths of the sky covered. March and September have the clearest skies, but the differences throughout the year are unimportant.

5. Bright Sunshine.

The tabulation of the sunshine records from Stanley for the ten years 1906 to 1915 provides a good basis for the discussion of the amount of sunshine which is experienced. The results of this tabulation are set out in table 7, which gives the average proportion of bright sunshine experienced per day in each month, together with the number of days with different amounts of sunshine. It should be noted that the exposure of the sunshine recorder is not quite free to the westward, so that no sunshine is recorded after 5.30 p.m. even though the sky is clear. The amount which is lost from this cause may be estimated as 0.5 hour from November to January inclusive, 0.3 hour in February and 0.2 hour in October. In other months it is negligible. The number of days in the year without any sunshine averages 59, 36 of which occur during the four months May to August.

The sunniest part of the day falls between the hours of 10.30 and 12.30, when bright sunshine is experienced for nearly half the time in summer - slightly more than half in February. June on the other hand has bright sunshine for less than a third of the time even at midday. January and February are the sunniest with $5\frac{1}{2}$ hours per day, June the dullest with a little over $1\frac{1}{2}$ hours.

6. Precipitation (Rain, Snow and Hail) and Weather.

The only station for which there is a long series of rainfall records is Stanley (table 8) for which the records now cover twenty-five years spread over the period 1874 to 1920. At this station the average fall is 26.43 inches per year, December and January being the wettest months with 2.88 and 2.70 inches respectively (May coming third with 2.63 inches) while September with 1.43 inch and October with 1.49 inch are the driest months. The average at Kew Observatory is 23.80 inches, the monthly means varying from 2.70 to 1.45, so that the amount of rainfall at Stanley is not greatly different from that in London. The highest monthly total recorded was 6.64 inches in January 1911; there has been no month entirely without rain.

Stanley however, like London, is on the comparatively sheltered east coast; on the exposed west coast and the high ground of the interior the rainfall must be much heavier.

	January	February	March	April	May	June	July	August	September	October	November	December	Year
1874	2.17	1.40	2.43	2.13	0.73	1.01	1.42	2.77	1.56	1.21	1.03	2.46	20.32
1875	3.27	3.32	1.76	2.40	1.45	1.43	1.18	0.91	0.84	1.07	1.24	2.92	21.79
1876	3.27	2.00	2.12	1.07	1.64	1.10	2.76	1.70	1.58	1.28	0.91	0.99	20.42
1877	1.60	1.23	1.20	2.54	1.98	1.78	1.57	0.90	1.02	1.71	1.27	1.97	18.77
1878	1.15	1.21	1.78	..	..	..	..	..	..	..	..	..	.. (414)
1879	..	..	..	..	..	..	..	..	..	..	..	..	..
1880	..	1.96	4.46	3.09	2.09	1.87	1.48	2.66	1.84	1.07	2.50	4.00	.. (2702)
1881	4.00	2.10	2.99	2.52	2.37	2.91	3.09	2.01	1.87	1.95	1.77	3.45	31.00
1882	2.79	2.38	2.76	3.03	5.19	2.24	0.84	2.00	1.70	2.15	2.75	2.58	30.41
1883	3.31	2.99	5.34	3.30	1.69	1.73	2.63	1.17	1.43	0.55	2.07	3.18	29.39
1891	2.06	3.38	1.65	0.88	1.18	..	..	..	..	..	..	..	.. (415)
1904	..	..	..	..	..	..	..	2.04	2.44	2.81	1.61	2.82	.. 1172
1905	3.57	4.57	1.90	2.11	2.81	2.53	2.58	2.09	0.35	1.29	1.07	2.77	27.64
1906	2.09	1.87	2.67	2.15	2.21	2.90	2.09	1.49	0.91	2.33	1.61	3.34	25.66
1907	1.05	1.68	0.73	1.24	2.07	1.77	1.85	1.23	1.37	1.55	2.60	3.60	20.74
1908	2.43	2.19	2.49	2.01	1.81	1.31	2.55	1.06	1.73	2.83	3.07	1.75	25.23
1909	2.33	2.14	2.29	3.54	2.47	2.03	1.20	3.12	1.14	2.08	2.08	4.81	29.23
1910	3.77	2.42	0.82	2.57	4.59	1.73	1.98	3.01	1.12	0.34	2.40	3.23	27.78
1911	6.64	1.67	2.35	3.31	3.96	2.43	4.29	4.08	1.35	1.57	2.83	2.48	36.96
1912	1.99	4.28	2.69	2.14	1.52	1.29	0.91	1.65	0.99	1.33	2.62	3.48	24.89
1913	1.75	1.75	4.51	2.68	2.33	2.41	1.43	2.23	0.59	1.28	2.52	2.60	26.08
1914	3.14	1.61	1.42	2.10	1.43	2.43	..	..	..	..	..	..	.. 1212
1915	2.90	1.60	1.26	3.25	4.21	1.87	2.48	3.53	1.00	0.84	2.27	2.69	27.90
1916	1.71	0.95	3.29	1.80	5.69	3.00	1.71	1.44	1.18	1.62	2.74	2.99	28.12
1917	3.87	1.39	2.10	1.52	1.39	3.25	2.09	1.22	2.50	1.15	0.98	3.22	24.68
1918	2.16	2.47	3.02	2.65	2.58	2.97	2.96	2.60	2.06	1.78	1.75	0.57	27.57
1919	1.58	2.79	1.09	3.64	5.69	2.94	2.72	2.84	2.38	1.04	1.87	2.37	30.95
1920	2.96	3.02	3.15	1.27	2.76	3.32	2.03	0.87	1.38	1.03	2.77	4.92	29.48
Mean	2.70	2.25	2.39	2.36	2.63	2.18	2.08	2.03	1.43	1.49	2.01	2.88	26.43

Table 8 Monthly totals of rainfall at Stanley, in inches

	Jan.	Feb.	Mar.	Apr.	May.	Jun.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	
<u>Stanley.</u>													
Precipitation (0.01 in. or more)	18	17	19	20	21	21	21	20	16	16	17	20	226
<u>Cape Pembroke.</u>													
Precipitation (any amount)	22	21	19	21	23	24	23	22	17	18	22	21	253
Snow.	0	0	1	4	7	10	11	8	5	3	4	1	54
Hail.	2	2	2	4	3	2	2	2	2	3	4	3	31
Thunderstorms	0.2	0.6	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.4	1.0	3.8
Fog.	6	3	5	4	3	5	6	4	5	5	3	5	54

Table 9. Number of days of precipitation at Stanley and number of days with certain phenomena at Cape Pembroke.

Calm.	2	1	1	1	1	1	1	1	1	0	1	2	1
N.	13	15	19	15	16	14	15	18	21	18	16	16	16
NE.	9	6	6	6	6	7	7	7	5	6	5	9	7
E.	3	2	1	1	2	2	2	2	1	1	2	4	2
SE.	3	2	1	2	2	6	3	2	1	2	1	5	3
S.	6	6	6	6	8	11	8	6	3	7	5	6	7
SW.	24	21	20	19	14	14	14	15	15	18	24	24	18
W.	20	25	30	25	24	21	27	24	23	20	23	15	22
NW.	20	22	26	26	27	24	23	25	30	28	23	19	24

Table 10. Percentage frequency of winds under different directions at Cape Pembroke.

Gales per cent.	1.9	3.3	3.5	4.1	3.0	2.6	3.1	1.7	1.8	2.8	2.6	1.8	2.7
Strong Winds per cent.	67	70	71	70	69	66	64	65	70	69	74	65	68
Mean Force Beaufort Scale.	4.4	4.6	4.6	4.6	4.4	4.3	4.3	4.3	4.5	4.5	4.6	4.2	4.4
Mean speed .Mi. per hr.	17	19	19	19	17	17	17	17	18	18	19	16	17

Table 11. Percentage of time during which Gales and Strong Winds (Beaufort Force 4-7) blew and Mean Wind Force (Beaufort Scale) at Cape Pembroke.

The average number of raindays (0.01 inch or more) at Stanley is 226, varying from 16 in September and October to 21 in May, June and July. At Kew Observatory the corresponding number is only 167 in the year.

There are thus more wet days in the Falklands than in London. At Cape Pembroke there is no rain-gauge, but the occurrence of rain, snow and hail is noted; the average annual total is 253 days. The heaviest fall recorded in 24 hours at Stanley was 1.69 inch.

At Cape Pembroke snow has fallen in every month except January and February, but it is rare in December and March, and the annual total averages only 54 days. Hail occurs two or three times in each month; thunderstorms are experienced occasionally in summer, but the average number is only four in each year. The occurrences of these phenomena are shown in table 9. The term 'precipitation' includes rain, snow and hail.

Fog is of great importance at Cape Pembroke, as it occurs on an average of 54 days, distributed through the year. In winter the occurrence appears to be independent of the time of day, but in summer it occurs chiefly at night. The average number of occurrences of fog lasting for at least fifteen minutes, grouped in four-hourly intervals, is as follows:-

Hours.	0-4	4-8	8-12	12-16	16-20	20-24	Sum.
Summer (Nov.-April).	12	12	8	7	10	11	60
Winter (May-Oct.)	9	11	10	9	11	10	60

7. Winds.

The prevailing wind direction at Cape Pembroke is from north-west; winds from south-west, west and north are also frequent. The wind is most westerly in summer and winter, and inclines to north-west in spring and autumn. Easterly and south-easterly winds are rare especially in spring and autumn; the calms are even more uncommon. The percentage frequency of winds from different directions is shown in table 10. When a large number of days are averaged, some diurnal variation appears in the wind direction in summer, but this is almost obliterated in winter. The wind is most northerly at 4 h. backing during the day and reaching its most westerly direction at 16 h., after which it veers again during the night. Even in summer however the average range is only 15 degrees, or a little more than one point of the compass which would not be noticeable among the much greater changes of direction due to the passage of depressions, and could only be made out on the quietest days.

	N	NE	E	SE	S	SW	W	NW
Pressure in inches at Station Level:								
January.	29.45	29.49	29.41	29.43	29.49	29.46	29.39	29.38
July.	29.57	29.75	29.68	29.77	29.63	29.55	29.52	29.46
Temperature - Degrees Fahrenheit:								
January.	53.4	52.0	50.3	48.6	47.3	49.9	52.5	55.2
July.	39.6	38.2	36.5	36.3	34.9	35.5	36.2	39.3
Relative Humidity . per cent:								
January.	78	80	83	80	78	75	71	66
July.	88	90	92	91	82	83	86	87
Cloudiness, tenths.								
January.	7.6	7.5	8.2	7.4	7.3	6.8	6.4	7.0
July.	8.1	9.0	8.9	8.6	8.1	7.6	6.8	6.7

Table 12. Average values of Various Elements at noon
under different Wind Directions at Cape Pembroke, 1905
- 1915.

The force of the wind is considerable even at Cape Pembroke, which is on the leeward side of the island. There is no anemometer at this station, and table 11 is based on the observers' estimates according to the Beaufort scale. According to these, gales prevail for 2.7 per cent of the time, or for 237 hours during the year. The stormiest months are April and March. Strong winds (Beaufort scale force 4-7) prevail for 68 per cent or more than two-thirds of the time.

The average force of the wind (Beaufort scale) at Cape Pembroke is between 4 and 5 throughout the year, reaching a maximum from February to April and in November. This is equivalent to an average velocity of 17 to 18 miles per hour at 30 feet above the ground.

8. The weather conditions with winds from different directions.

Table 12 gives the average values of pressure, temperature, relative humidity and cloudiness at Cape Pembroke for January and July at noon under different wind directions. Pressure is highest with winds from north to north-east and south to south-west in January, and with winds from north-east to south-east in July; it is lowest with winds from north-west or west, which are those chiefly associated with the passage of storms. The winds from the equatorial side, especially from north-west and north, are the warmest, while the southerly or polar winds are coldest.)

(In January the difference between north-west and south winds is as much as 8°F.

In general westerly winds are driest and easterly winds contain the most moisture; this unexpected result is due to the position of Cape Pembroke to the east of the Falkland Islands, so that the westerly winds blow off the land, and have already deposited much of their moisture on the hills of the interior, while the easterly winds blow directly off the sea. On the west side of the islands these conditions would be reversed. The same remark applies to cloudiness, which is also least with westerly and greatest with easterly winds.

9. Storms.

During ten years there were twenty storms in which the barometer fell below 28.5 inches at sea-level at Cape Pembroke. These were distributed through the year as follows: five in winter, two in spring, five in summer and eight in autumn.)

(There were five occasions on which the barometer fell below 28.35 inches.

A typical storm was that of March 5th to 8th 1909; the observations taken during this storm are shown in table 13.)

(The wind, which was westerly on the 5th, veered to north by the morning of the 6th backing again to WNW and increasing to a gale by the evening. At 21h.15m. it dropped to force 3 and backed to SW force 5 at 21h.30m. The lowest pressure, 28.24 inches, was reached five minutes

Date.	Pr.	Pressure. 52° F Lat. 45° N.S.L.	Dry Bulb.	Wet Bulb.	Wind. Direction.	Force.	Cloud. Amount.	Type.	Weather.	Remarks.
1909	h.	ins.	°F.	°F.		Scale 0-12	0-10			
Mar. 5.	4	29.40	42	40	W	4	3	Cu-nb	Cloudy, passing showers.	
	8	.56	44	41	WNW	5	7	Cu-nb	Fair, passing showers.	
	12	.52	49	43	W	5-6	7	Cu-nb	Fair, squally, passing showers.	
	16	.51	49	44	W	5	7	Cu-nb	Fair, squally, passing showers.	
	20	.45	46	43	NW	5	7	Cu-nb	Fair, passing showers.	
	24	29.25	49	47	W	5-6	8	St.	Cloudy, squally.	
Mar. 6.	4	29.39	42	47	W	6	10	St.	Overcast, squally, passing showers.	)At 21h15, wind NWS
	8	.35	50	49	N	5	10	St.	Overcast, heavy rain.	)weather overcast, light rain.
	12	.45	43	45	NW	7-8	9	hb.	Cloudy, very squally, heavy passing showers.	)At 21h.30, wind SWS,
	16	.33	46	44	WNW	7-8	8	Cu-nb	Fair, very squally, heavy passing showers.	)weather overcast, light rain.
	20	.26	45	44	WNW	5-7	8	Cu-nb	Cloudy, very squally, passing showers.	)At 21h.35, barometer
	24	.30	47	45	SSW	7-8	9	-	-do- -do-	)29.24 ins.
Mar. 7.	4	.44	too stormy.		SSW	8-10	10	-	Overcast, rain, very squally.)
	8	.74	43	41	SSW	9-10	8	Cu-nb	Fair, very squally, heavy passing showers.	Very heavy sea, SSW.
	12	28.92	42	40	SSW	9-10	7	Cu-nb	Fair, very squally, passing showers.	
	16	28.93	42	39	SSW	9-10	7	Cu-nb	Fair, very squally, heavy passing showers.	
	20	.18	40	38	SSW	9-10	7	Cu-nb	Fair, very squally, passing showers.	
	24	.22	40	39	SSW	8	2	Cu-nb	Cloudy, very squally, passing showers.	
Mar. 8.	4	.54	38	37	SSW	8-9	3	Cu-nb	Cloudy, very squally, heavy hail showers.	

Date.	hr.	Pressure 52° P Lat. 45° N. S. L.	Dry Bulb.	Wet. Bulb.	Wind. Direction.	Force.	Cloud. Amount.	Type.	Weather.	Remarks.
1909	h.	ins.	°F.	°F.		Scale 0-12	0-10			
Mar. 3.	2.	29.42	40	38	SSW	8-9	9	Cu-nb	Very cloudy and squally, heavy hail showers.) Heavy sea running SSW.
	12	.47	41	38	SSW	6-7	9	Cu-nb	Cloudy, squally, passing showers.	
	16	.49	41	38	SSW	6	9	Cu-nb	Cloudy, squally, passing showers.	
	20	.54	41	38	S	5	9	Cu-nb	Cloudy.	
	24	29.52	41	38	SSW	5	9	-	Cloudy.	

Table 15. Meteorological Observations at Cape Pembroke during the Passage of the Depression of March 5th to 8th, 1909, at Cape Pembroke.

later, after which the wind increased rapidly to a gale (force 8-10) from S.S.W., with heavy squalls, which continued until the morning of the 8th.

This sequence of wind changes indicates that the centre of the storm passed not far to the southward of Cape Pembroke. This is the usual track of the summer and autumn storms; those of winter lie still further to the south. One storm, that of February 10th to 13th, 1905, though not among the most severe, was remarkable because the centre passed right over Cape Pembroke. The wind dropped rapidly from force 6 from NNE at 8 h. on the 11th to force 1 from N at noon, while the rain ceased and a fair interval appeared.

By 16 h. the wind had begun to blow from the opposite quarter - south-west - with gale force and the rain recommenced. In both this and the preceding case there was a relatively calm centre to the storm.

The storms are sometimes rendered more dangerous by the occurrence of mist or even thick fog with winds of gale force. This is especially the case in winter. Winter storms are also dangerous owing to the limitation of visibility by heavy snow.

Owing to the easterly motion of the southern temperate storms, they must pass the southern extremity of South America about two to three days before reaching the Falkland Islands, and it should be possible to obtain telegraphic warning of their approach from the Argentine Meteorological Service. This method of forecasting would probably be practicable in summer, when the storm tracks are most definite, but would be more doubtful in winter.



6

FALKLAND ISLANDS

No 67

DO MAIN STREET

14 August, 1923.

Sir,

With reference to Mr. Middleton's despatch No. 124 of the 5th October 1922, I have the honour to inform you that after consultation with the Governor, the Crown Agents for the Colonies have been requested to arrange for the printing at the expense of the Colony, of 25 copies of the treatise prepared in the Air Ministry on the climate and weather of the Falkland Islands.

2. Fifty copies of the treatise will be sent to the Air Ministry in compliance with the request from that Department; 25 copies will be retained for the use of this Department, and the balance of 125 copies will be forwarded to the Colony by the Crown Agents.

3. Action in the matter had been delayed pending the receipt of a reply to paragraph 2 of my predecessor's despatch No. 112 of the 4th of October 1922: but the reference to epidemic disease has now been deleted after consultation with the Governor.

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

(Signed) DEVONSHIRE

THE OFFICE OF THE SECRETARY

THE GOVERNMENT OF THE

FALKLAND ISLANDS.

ADVICE OF ORDERS PLACED.



OFFICE OF THE CROWN AGENTS FOR THE COLONIES,

4, MILLBANK, WESTMINSTER,

LONDON, S.W. 1.

7

The Crown Agents for the Colonies present their compliments, and beg to forward particulars of an order given in pursuance of the indent quoted below. A period of 14 to 28 days may elapse between the undernoted contract date for delivery and the date the goods leave this country, while inspection (if any), packing and arrangements for shipment are being carried out. Should there be any material delay a further report will be sent.

The Colonial Secretary

FALKLAND ISLANDS.

21st August 1923.

W.

Packages will be addressed—

Ref. no. G/ FALKLAND IS.1681/1

~~Indemnity~~ C.O.Ltr.No.64263/22
of 8.8.23.

Dept. or account - -

Inspector No Inspection.

Req ⁿ .	<u>O. H. M. S.</u>
1681	
C ↑ A	O. A. G., Falkland Is.

Date of tender 18th August 1923.

Contract date for delivery say 18th September 1923.

Suppliers.	Item nos.	Goods.	F.O.B.	Contract price.
WATERLOW & SONS LTD.,	-	Treatise on "Climate & Weather of Falkland Islands."	LONDON.	£24. 5. 9d. plus packing & delivery.

A copy of the accepted tender is enclosed

G

TENDER

for the supply of **Treatise on "Climate & Weather of Falkland Islands."** returnable by Noon 24th August 1923.

FALKLAND IS. 681/1.

All communications on this subject to be addressed to the Crown Agents for the Colonies, the above reference being quoted.

Messrs.

WATERLOW & SONS LTD.,

Service - -

Special A/c. (if any)

Indent No. C.O. Str. No.

64263/22 of 8.8.23.
Date Issued 13. 8. 23.

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

ITEM NO.	QUANTITY.	DETAILED DESCRIPTION OF ARTICLES.	RATE.	AMOUNT.
		To cost of printing 200 copies of the accompanying copy of a treatise on the Climate and Weather of the Falkland Islands which has been prepared by the Air Ministry. The work should be put in hand at once and a proof submitted as early as possible.		24 5 9
		The order may be proceeded with. A formal order will be sent to firm as soon as possible after the quotation is received. Packages to be addressed:- <div>Regn. 1681 O. A. G., Falkland Is.</div>		
		A detailed list of the contents must be enclosed when possible in each package.		

(This space is for use in the Crown Agents' Office.)

Inspector: 19

Add to D.S. only:-

75 copies of the treatise should be sent to the Colonial Office and the remainder shipped to the above address.

Add:- Cost of articles specified on continuation sheet }
Exclusive of (if any) }
Cost of packing for export }
Cost of delivery f.o.b. LONDON. }
(See Note, as to Dock and Harbour Dues.)
ALTERNATIVE: Cost of packing and postage to }
(See paragraph 4 of instructions for tendering on back of form.)

Deduct:- Trade and shipping allowances }
Net per cent. on £ } = £
Cash discount for prompt payment }
Net per cent. on £ } = £
Net amount payable (including all charges) }
on receipt of bills of lading, parcels } = £
receipt or certificate of posting ... }

ALTERNATIVE: } = £
Total net cost f.o.b. ... }
(Firms should insert here a quotation for delivery at any other port at which they can deliver f.o.b. more cheaply than at the port indicated by the Crown Agents.)

NOTE.-" All Dock and Harbour Dues and Charges (including Port of London port rates and Clyde Dues) where charged are payable by the Contractor, and must be included in the contract."
RAILWAY MATERIAL, COAL, COKE AND OIL TO BE USED TO GENERATE HEAT OR PRODUCE POWER.-All Dock, Harbour Dues and Charges (including Port of London port rates and Clyde Dues) are payable in full at all ports by the Contractor.
OTHER PORTS.-London and Bristol.-Eleven-twelfths of published consolidated rates for Dock and Harbour Dues, Wharfage, etc., are payable by Contractors, and in the case of London 75% of the London Port Rates.
Southampton.-Dock charge for labour is payable by the Contractors.
Other Ports.-75% of the charges are payable by the Contractors.
The exemption certificates necessary to secure reductions, will be forwarded by the Crown Agents' Shipping Office.

We hereby agree to supply, of the best quality and make, subject to the approval of your inspector and to the condition deliver free on board ship approximately overleaf and to despatch by post within 28 days from the date of order, the articles above specified, at the price set against each, and at the total cost shown above, which includes all charges.

Signature WATERLOW & SONS LTD.,
Address 26, St. Winchester St., E.C.

TO THE CROWN AGENTS
FOR THE COLONIES,
4, MILLBANK,
LONDON, S.W. 1.

Dated this 18th day of August 1923.

Add to S.O. & D.S. only:-

G.9 to bring up on due date.
? proof submitted.

(This space is for use in the Crown Agents' Office.)

Add to F., S.O., & D.S.:-

Instructions to Inspector:-

COLONIAL SECRETARY'S Department.

Date...22nd October...1923.

To

THE HONOURABLE COLONIAL SECRETARY.

I have the honour to apply for a Special Warrant for £.14...0s...0d.
on Head...XV...MISC... Subhead...16...Printing and Binding in Uni-
Kingdom

The present state of the Vote is as follows :-

	£
Amount provided in Estimates	20.
Special Warrant already issued No.	-
" " " " " "	-
Actual Expenditure to date	8. 2s. 1d.
Outstanding Liabilities incurred.....	24. 5s. 9d.
Balance remaining on vote	11.17. 11d.)
Estimated Expenditure to 31st December	34.

G. C. Brown.
.....
Head of Department.

for Colonial Secretary.

Comments of }
Treasurer.

W. H. C. A. 403/22

B. Thompson
24.10.23

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).

ADVICE OF STORES SENT BY POST.

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

" P " (This reference and the date of this letter)
P.P. 1681/1 (should be quoted in all communications.)



Colony Falkland Islands
 Indent No. C.O. Ltr.No.64263/22 of 8.8.23.
 Dept. -- Special A/c (if any) --
 Despatched from London
 Addressed to The O.A.G. Port Stanley, Falkland Islands.
 Date of posting 17.10.23.

Number of Parcels, &c.	Description of Stores.
2	Printing Copies of a "Treatise on the Climate and Weather of the Falkland Islands."

ENCLOSURES

Invoice :—

Waterlow & Sons Ltd.

Insurance

£	s.	d.
		In duplicate
24	16	6
—	/	8

The Colonial Secretary,
 FALKLAND ISLANDS.

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

October 25th, 1923. MW

S

INVOICE.

788/74 THE CROWN AGENTS FOR THE COLONIES.

Dr. to Waterlow & Sons Ltd.,
Of London Wall, E.C.

Crown Agents' } Falkland Is.
 Reference, }
 i.e., Colony and }
 Reqn. No. } G.1681/1

Dept. Co.Ltr.No.64263 3/22 of
 8.8.23.

Date 17th October 1923

To be filled in by the Contractor.

(This space for use in Crown Agents' office only.)

Account

Falkland Is.

Indent No.

of

19

Letter No.

of

1923

Shipped by S.S.

" on

1923

F.O.B.

W. & S. Ltd.

Item Nos.	Quantity.	Description of Article in wording of Tender.	Weight.			Rate.	£ s. d.			£ s. d.		
			T.	c.	q.	lb.						
1.	200	To cost of printing Copies of the Copy of a Treatise on the Climate and Weather of the Falkland Islands which has been prepared by the Air Ministry Packing and postage						24	5	9		
									10	9		
											£ 24	16-6
		MARK Req. 1681 C A O.H.M.S. The Officer Administering the Government, Port Stanley, Falkland Islands 75 Copies sent to Colonial Office and remained to address as mark per parcel post 2 parcels.										
		Carried forward ...										



10
Saunders Island
West Falkland
Feb. 18th 1924

The Colonial Secretary,
Sir,

I beg to acknowledge
receiving your Book on the Climate & Weather
of the Falkland Islands, with many Thanks.

I am
Sir,
Your obedient servant
R. R. BOUND

Société
DE
Géographie H.C.S.

BOULEVARD SAINT-GERMAIN 184

PARIS (VI^e)

TÉLÉPHONE: Ségur 25-24

CHEQUES-POSTAUX 28192

Prière d'adresser impersonnellement
toute la correspondance au Secrétaire Général

Paris, le 28 Mai 1924

Will you please reply that there are no copies
of this publication available at the Colony for the day
Can it otherwise be procured from H.M. Stationery Office in London.

2. As same time as Monsieur le Gouverneur
des Iles Falkland

you send a copy of Climate
+ weather of Falkland Islands
STANLEY

In reply to I have enclosed 5 Exps 4/24
the letter.

N°

Monsieur le Gouverneur,

La SOCIÉTÉ de GÉOGRAPHIE de FRANCE vous serait
reconnaissante de vouloir bien faire hommage à sa Bibliothèque
d'un exemplaire de l'ouvrage de M. BROOKS

The climate and weather of the Falkland Islands
and South Georgia

que vous venez de faire paraître. (Geophysical Memoirs N° 15)

Un compte-rendu, dont vous recevrez le justificatif,
en sera donné dans notre Revue LA GÉOGRAPHIE.

Avec nos remerciements anticipés, veuillez agréer,
Monsieur , l'assurance de nos sentiments les plus distingués.

Le Bibliothécaire :

Le Secrétaire Général de la Sté,
Directeur de LA GÉOGRAPHIE :

S. Reinher

G. Grandjean

403/22.

17th September, 24.

Sir,

I am directed by the Governor of the Falkland Islands to acknowledge the receipt of your letter of the 28th of May, requesting that the Societe de Geographie de France might be furnished with a copy of the memoir prepared by Mr. C. E. P. Brooks, entitled "The Climate and Weather of the Falkland Islands and South Georgia."

2. It is regretted that a copy of this memoir is not available for sending, but a copy of an abridged treatise on the subject, taken mainly from Mr. Brooks' work is enclosed. The publication which you have requested should be sent may be obtained from H. M. Stationery Office in London at the price of 3/6 per copy.

I am,

Sir,

Your obedient servant,

H. Henniker-Heaton,
Colonial Secretary

The Secretary General of the
Societe de Geographie de France,
Boulevard Saint-Germain 184,
Paris.