

C.S.O.

MIN/PEA/2#3

0 0 3 5

0

0

3

5

(Formerly)

SUBJECT :

RESOURCES.

UTILISATION OF ~~MINED~~ PEAT FOR ~~DRI-SUNTING AND~~
~~POWER GENERATION~~ -

CONNECTED FILES.

NUMBER AND YEAR.

316/22	Utilization of Peat Deposits in the F.I.
194/33	Establishment of a Peat Industry in the F. I.
446/22	Utilisation of Peat
0321	Peat Drying in the Falklands

JCS

Please write to the Institute of
Civil Engineers of Ireland, Dublin,
asking for a copy of the report
by J. Martin B.E., A.M.I.C.E.I.,
on the Utilisation of Milled Peat
for Briquetting, & Power Conservation.

Mc.

2

22nd January, 47.

0035.

Sir,

I am directed by the Governor to ask you to be so good as to furnish me with a copy of the report by Mr. J. Martin, B.E., A.M.I.C.E.I., on the Utilisation of Milled Peat for Briquetting and Power Generation.

I am,

Sir,

Your obedient servant,

(Sgd.) J. P. MATHEWS
Colonial Secretary.

The Secretary,
Institute of Civil Engineers of Ireland;
DUBLIN.

WH.

Reply at 5

copy of report to be sent to the Secretary of the Institute of Civil Engineers of Ireland
(2) to be sent to the Secretary of the Institute of Civil Engineers of Ireland

3
Y.E.

may not have been 1941/33
446/22 below. (The Handbook on
446/22 was destroyed (by
in T. Hall file). 27.1.57

Seen. The difficulties are;—

- (a) High capital cost of installation
- (b) No other possible market except S. America.
- (c) Even if (b) available priced at mercy of F.I.C. freight charges.

M.C. 23/

(The data wh. I have asked for will be useful for
purpose of record in case conditions governing (b) and (c)
vary — but it is a very long shot.

27.1.57
G.P.C.

(d) Peat. The briquetting of Peat is a practical proposition, particularly where it can be allied with the production of electric power, and there is a great deal of peat here of excellency quality; the capital outlay would be very considerable (in the neighbourhood of £100,000) and the difficulty would be to find a market. I discussed the question at some length in Montevideo with the head of what is probably the biggest fuel importing and handling house in Southern America and found him somewhat discouraging. He gave it as his opinion that the handling charges on the coast would render the venture unprofitable and that it could never compete with coal (itself giving way rapidly to fuel-oil) for industrial purposes or with charcoal for domestic use. While not entirely convinced, I do not think the matter is worth serious investigation at the moment but at some time it might pay to get the opinion of one of the experts on the Turf Development Board at Lullymore Bog. In the meantime I propose to have samples taken at varying depths for analysis and the local

drying/

factor determined for future record.

Extract from H. ES
Conf'd Despatch to
S. of S. of 22.1.47.

Filed in 0040 "Development
Policy"

IRELAND

13/2/47
15/2/47

Be. $\frac{amr}{A}$ real \rightarrow
mail.

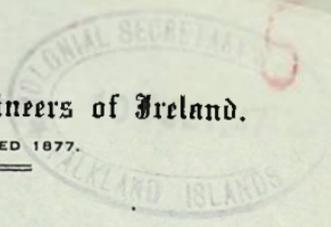
$\frac{ABC}{2016}$

CHANGHI
Bill 67 9246

0035

The Institution of Civil Engineers of Ireland.

FOUNDED 1835. INCORPORATED 1877.



TELEPHONE NO.—DUBLIN 61687.

35 DAWSON STREET
DUBLIN.

ALL COMMUNICATIONS SHOULD BE
ADDRESSED TO

"THE REGISTRAR"

PLEASE QUOTE REFERENCE.....
AND DATE IN REPLY

P/P/2/3

27th March 1947.



Handwritten signature/initials

Dear Sir,

Your enquiry of 22nd January for a copy of the Bulletin published by the Institution containing Mr. Martin's Paper on:- "The Winning and Utilisation of Milled Peat for Briquetting and Power Generation." has reached us only to-day.

We still have a few copies of this Bulletin available, and I have pleasure in sending you herewith one copy gratis, and trust you will find the information of practical use.

Many other Papers on Peat have been read before this Institution in the past, but unfortunately copies are not now available, except in the bound Volumes of our Transactions in certain Libraries.

Yours faithfully,

Handwritten signature of F. Pemberton

(F. Pemberton.)
Registrar.

A.B. Matthews, Esq.
Colonial Secretary.
Stanley.
Falkland Islands.

2
6A

6

VE

1 with 5 (Sh. 1 will
ack. Thank for when VE.
has detaches the exp. Bulletin
at bank of file).

Abel
11.7

S
AD

p. 208 of Bulletin to W. H. Harkness

please, and facts return to me.

W.C. 11/11

W. Harkness

Abel
11.7

See 0321
leaf drying in F. 1.

C.S.

Mr. Livermore

7

I would also like him
to visit the Irish Post
Department Station of which I
think we have particulars.

Please make advance
arrangements through CO or
CO as may be indicated.

W. H. M.
23/2/52.

W.C. 23/2

ACS Pl Draft to C.A.A. accordingly.

W. H. M.
23/2/52

8

5th March,

Gentlemen,

I am directed to inform you that Mr. A. E. Livermore, Superintendent of Works, Public Works Department, will be proceeding to the United Kingdom on leave in June next.

2. During Mr. Livermore's stay in the United Kingdom he has undertaken to carry out investigations into matters connected with peat procurement, and in this connection I am to ask you to be good enough to arrange in advance for him to visit the Irish Peat Experimental Station or the Peat Development Board, Ltd., for this purpose.

I am,
Gentlemen,
Your obedient servant,

(SGD) G. CAMPBELL,
Colonial Secretary.

CRONIN AGENTS FOR THE COLONIES,
LONDON,
W.II.

Please see 13, 16.

9 S/W
8 f y r pl.
~~Notes~~
8/3/52

Not
Noted by ALL
10/3/52

2a.
12/3.

11

Siem

Edue an I believe continental undulating
(? German? Danish) which might be an even
suitable.

Me - 23/11

8/12

P.O.

for your comments / 20

W/11

HCB

Notes

I have no objection to going any where whilst at home
to see this work

ABH 29/4/52

Y.E.

Ref ②

Does 26. wish the question of continental
undertakings pursued with the C/Agents.

②
175

Yes the 1/2

GOVERNMENT TELEGRAPH SERVICE,

13

FALKLAND ISLANDS AND DEPENDENCIES.

RECEIVED.

Number	Office of Origin	Words	Handed in at	Date
--------	------------------	-------	--------------	------

5.5.52

To

CROWN LONDON

HOA/C

8

MY LETTER 5TH MARCH no 0035 STOP IT IS POSSIBLE THAT SOME CONTINENTAL PEAT UNDERTAKINGS QUERY GERMAN OR DANISH MIGHT PROVE MORE SUITABLE FOR LIVERMORE'S INVESTIGATIONS STOP GRATEFUL YOUR VIEWS.

COLONIAL SECRETARY

30/5
B.V.
[Signature]

Reply 14

Time

DECODE.

14

TELEGRAM.

From The Crown Agents for the Colonies.

To The Colonial Secretary

Despatched: 20th May, 19 52 Time: 1340

Received: 21st May, 19 52 Time: 0845

13

Your telegram 5th May. Subject Peat.

Our information indicates Irish visit most suitable. Supplemented if you wish by visits to Germany or Denmark. Experimental German plant may be working shortly in Scotland.

CROWN.

Y^h Pre 200 (14)

Reply at 15

Ague H.C. 23 V

I suggest that Sfo pres to Ireland & decides on the basis of his visit. He also perhaps contact Y^h. at home

P/L.
88

2375

GOVERNMENT TELEGRAPH SERVICE
FALKLAND ISLANDS AND DEPENDENCIES.
SENT.

15

Number	Office of Origin	Words	Handed in at	Date
				26.5.52
	CROWN LONDON			HCA/O

14

YOUR TELEGRAM 20TH MAY STOP PRAT STOP PLEASE PROCEED WITH ARRANGEMENTS XX IRISH VISIT.

COLONIAL SECRETARY

J.W.
To note 14 pt.

W.K. for G.S.
24/5/52

W.K.
Noted thank you

W.K.
29/5/52

Time

Pa.
315

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



Copy filed in 0452-16.
Repair of Roads in and
around Stanley. (16)

E.C. 351/6F/338

4, MILLBANK,
LONDON, S.W.1

TELEGRAMS { INLAND: "CROWN, SOWEST, LONDON."
OVERSEAS: "CROWN, LONDON."
TELEPHONE: ABBEY 7730.



28 MAY 1952

Sir,

We have the honour to refer to the recent exchange of telegrams relating to arrangements for Mr. Livermore to carry out investigations into matters connected with peat procurement, and note that you now wish him to carry out the Irish visit.

In your letter No. 0035 dated 5th March, 1952, no authority is given for the payment of expenses incurred by Mr. Livermore while engaged on this visit but we presume that you intend that he should receive a refund of his travelling expenses and be paid the usual allowances.

With reference to your letter No. 0452 dated 1st May, 1952, asking that arrangements be made for Mr. Livermore to be attached to a firm of Road Contractors, it occurs to us that he may gain a wider experience if arrangements can be made to attach him to a local authority, such as a County Council. This could however ~~be~~ be decided after discussion with Mr. Livermore, and we suggest that he may be instructed to call at this office as soon as he can after he reaches this country.

We have the honour to be,
Sir,
Your obedient servants,

Meyrick
for the Crown Agents.

The Colonial Secretary,
Stanley,
FALKLAND ISLANDS.

*CS (16) have telegram it over to mine
subject to any views you may have
on 'usual allowances'. I take this to
mean subsistence & tea lodging.*

*pp. pl. early.
[Signature]
4/12*

1077

B-15.

8

*67 in
0452.*

The Falkland Islands Company, Limited.

18

(INCORPORATED BY ROYAL CHARTER 1851.)

REGISTERED 1902.

AGENTS FOR LLOYDS.

Stanley,

TELEGRAMS "FLEETWING PORTSTANLEY" VIA RADIO.

12th March

19 52.

Dear Governor,

I enclose our papers regarding the peat-cutting machinery and Bud's notes thereon.

done / Will you kindly return them to Barton when you have done with them.

Yours sincerely,
[Signature]

H.E. Sir Miles Clifford, K.B.E., C.M.G., E.D.,
STANLEY.

*Seen
27/52*

A
*cc: Matt reply attached &
Matt telegram to Crown at
back cover.*

1057
acc. 7na pt. 9/25/52

copy in 0452.

19

GOVERNMENT TELEGRAPH SERVICE
FALKLAND ISLANDS AND DEPENDENCIES.
SENT.

Number	Office of Origin	Words	Handed in at	Date
--------	------------------	-------	--------------	------

To

4.7.52

CROWN LONDON

HCA/C

16

YOUR LETTER 28TH MAY EC351/6P/338 LIVERMORE SHOULD RECEIVE NORMAL TRAVELLING AND OTHER ALLOWANCES DURING ATTACHMENTS STOP I AGREE VARIATIONS ROAD CONSTRUCTION ATTACHMENT ARRANGEMENTS SUBJECT TO APPROVAL OF GOVERNOR ARRIVING ENGLAND ~~WITH~~ WITH LIVERMORE 17th JULY STOP LIVERMORE CALLING YOURS ON ARRIVAL AND PLEASE ADVISE HIM TO CALL ON YOUNG FALKLAND ISLANDS COMPANY BEFORE FINALIZING PEAT INVESTIGATION PROGRAMME STOP YOUNG HAS ALREADY MADE CERTAIN INVESTIGATIONS IN IRELAND AND DUPLICATION SHOULD BE ~~BEING~~ AVOIDED.

COLONIAL SECRETARY

Time

See 18A

12th July, 1952.

Dear Young,

18 I am afraid that your letter to Sir Miles Clifford
dated the 12th March, 1952, and containing a lot of interesting
information about peat cutting machinery has only just turned
up and neither Sir Miles nor Livermore were able to see it
before they left.

19 As you may know one of Livermore's 'leave tasks' is to
make investigations on this subject, if necessary visiting
Ireland or Denmark, and I am therefore taking the liberty
of instructing him to call in and see you before he plans
his trips in order to avoid unnecessary duplication.

Yours Sincerely,

(Sgd.) Colin Campbell.

L.W.H. Young, Esq.,
120, Pall Mall,
LONDON, S.W.1.

HTL

R. L. Young
Bel 4/1/53

21

A

S/W.

P. 20.

Did you see Mr Young re Part?

[Signature]
6/1/53

H.C. I did not see Mr Young as H.E. the Governor suggested I should see the work myself. I am submitting a report shortly. I must see the size of our bags before I can make any recommendations to Gov

[Signature]
9/1/53

[Signature] 20/3/53

e

S/W.

When may report be expected pl.

[Signature]
7/1/53

D.

H.C. Report will be submitted this week

[Signature]
26/5/53

Extract from Minute by H. E. the Governor to Hon.
Col. Sec. of 19/5/55.

22.

(Original filed in 0284/VI/34-41 - Estimates 1953/54).

Expenditure.

.....

XV (11)(12) I think we could economise to some extent by introducing Rayburn ranges and slow-combustion stoves (as in S/P's house - same type; what is it?) in all Govt. quarters and give the housewife a much-needed break at the same time. Did we get by with the supply last year? We were in difficulties when I left. What was the final decision regarding peat hauling vehicles and may I see the reports on the small automatic peat-cutting plant? Young is I believe investing in one for the Company and is toying with the idea of briguetting I believe.

.....

- Copies in.
- 0032 - Supply of Govt. Peat.
 - 1481 - Peat Cutting Machinery.
 - 1482 - Peat Haulage
 - ~~0825~~ 0825/I - PWD Stoves for Govt. Quarters.

By 7/6
V.V.
22/6

23.

S/65
D on 21 - for report p

~~HER~~
Report submitted in file 1421.

~~S/65~~
8/6.

all.
12/6/53

~~S/65~~
all.
8/6.

1421

EXTRACT FROM LETTER FROM HON. MR. A.G. BARTON, J.P. TO HIS EXCELLENCY
THE GOVERNOR of 30. 8. 54A!

(Original returned to H.E. the Governor.)

See 22.

.....

Peat. I spent a week in Sweden and Denmark but with all the rain the peat-banks and the cutting/harrowing machinery were literally underwater! The briquetting plant near Copenhagen was working under adverse circumstances and was most instructive. This turns peat dust (the drier the better) into solid briquettes just by pressure - nothing added, and should be well worth while for the F.I. even if the experiment only utilises the peat dust from Stanley peat sheds of which there must be several hundred tons per annum.

The Company is shipping out the plant by a chartered vessel and a Dane to erect it. He has spent most of his life on peat research and should be very useful. Until he has given an opinion on Stanley peat banks we shall not go in for "winning it" in a big way. Then the major task will be removing the top sod before the peat itself can be "scratched" and the resulting material dried and conveyed to the briquetting plant. Government has its fuel problems at Fox Bay and S. Georgia and I am sure that good quality briquettes could be landed at half the price of coal.

.....

P/A
W/S

The Falkland Islands Company, Limited. 25

(INCORPORATED BY ROYAL CHARTER 1851.)

REGISTERED 1902.

AGENTS FOR LLOYDS.

TELEGRAMS "FLEETWING PORTSTANLEY" VIA RADIO.

Stanley,

5th January

19 55

The Honourable the Colonial Secretary,
STANLEY.

Sir,

We shall be glad to know if Government will lease to this Company and on what terms, the piece of land containing approximately one acre lying to the Northwest of the Government Wireless Station, for the purpose of erecting thereon a peat-briquetting factory.

The plot in question was staked out yesterday in your presence by our Mr. G. Cahill.

I am, Sir,

Your obedient servant,

A. G. Danton.

MANAGER.

See 26, 27

Y.H.

26

Attached 26

I was present when the site was selected. It is about 300 yds north west of the Winton Station ~~area~~ on the south of the Reef Bay road. It is virtually waste land.

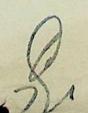
The site was chosen to be near a road & power line & at the same time well away from dwelling houses because of the nuisance of peat dust. Mr Pitt was also present & we were satisfied that the Winton Station was out of range of this nuisance.

As regards rent — as the factory is experimental & may be of great benefit to the colony, I suggest C.T. & I suggest peppercorn (1/-). It may be said that we are thus pandering to F.C. but I am sure peppercorn is equitable.

As regards length of lease I suggest 5 years ^{initially} to ~~start~~ (this would be acceptable F.C.). I do not think for any special conditions to attach other than that the land is used for the purpose specified.

Exec. approval is required & if it approves the foregoing, I will circulate a written opinion.

M.P. I have the floor
M.P.


to Exec.
written

~~111~~
27

20th January, 1955.

From: The Colonial Secretary,

To: All Members of Executive Council,
STANLEY.

Peat-briquetting Factory.

The Falkland Islands Company wish to erect an experimental peat-briquetting factory and have applied for the lease of approximately one acre of land situated *in the area* ~~within~~ of the Government Wireless Station.

The proposed site is on waste land and as the factory is experimental and may be of great benefit to the Colony it is proposed initially to lease the ground to the Company for five years at a peppercorn rental (1/).

Executive Council approval is required under the Land Ordinance and Honourable Members are requested to submit their opinions in writing.

CC/VP
COLONIAL SECRETARY.

CC/VP

Bel. 31/1/55
20/1.

Replies at 29, 30, 32, 33

The Falkland Islands Company, Limited.

28

(INCORPORATED BY ROYAL CHARTER 1851.)

REGISTERED 1902.

AGENTS FOR LLOYDS.

Stanley,

TELEGRAMS "FLEETWING PORTSTANLEY" VIA RADIO.

19th January 1955

C. Chrstrom Esq.,
STANLEY.

Dear Sir,

As a result of our meeting yesterday with His Excellency and the Colonial Secretary, it was agreed that you with Mr. Andreassen should call on Mr. Campbell at the Secretariat 10.0 a.m. Thursday, 20th January.

We are to carry out for Government a rough survey of the peat deposits on Stanley Common to enable Government to decide whether the Company may be allowed to work the bank which I describe as West Store Bank Continuation, or any other bank. X

We are agreeable to your giving Government all the information which you have gathered so far, also to your advising them regarding their Peat Machinery, and in general co-operating with Government to the fullest extent.

Mr. Andreassen will be required for piloting m.v. "NANCIE-S" on her camp voyage, leaving Stanley about 7 days from now, therefore it will be most convenient if you carry out Government's work while Mr. Andreassen is away. Government will be asked to provide transport and labour for your survey, but you may continue to use our offices for your sampling and clerical work.

Regarding the difficulty in obtaining power for the Briquett-
ing Motor we are enquiring whether Admiralty will loan a portable
75 KW generator for our experiments.

Mr. Young hopes you will agree to remain here until the return voyage of m.v. "HANNE-S", say in 2½ months time, by when we shall have gathered all the essential information to enable us to decide whether or not to manufacture briquettes.

I am to convey to you the Company's entire satisfaction with the manner in which you have carried out your work to date.

Yours faithfully,

c.c. The Hon. Col. Sec:
G. A. Cahill Esq:

AGP
he is coming
to see me at 10 am
to-morrow (thing) - pre as
Do. if he can attend.
MANAGER.
Done
1955

27 Dec 31/1/55

20th January, 1955.

To: ALL Members of Executive Council
STANLEY.

From: The Colonial Secretary,

Peat-briquetting Factory.

The Falkland Islands Company wish to erect an experimental peat-briquetting factory and have applied for the lease of approximately one acre of land situated ~~to the area~~ of the Government Wireless Station.

The proposed site is on waste land and as the factory is experimental and may be of great benefit to the Colony it is proposed initially to lease the ground to the Company for five years at a peppercorn rental (1/).

Executive Council approval is required under the Land Ordinance and Honourable Members are requested to submit their opinions in writing.

(Sgd) C. Campbell

COLONIAL SECRETARY.

See 27

CC/VP

HCS

✓ approved

0

AM
25/1/55

20th January, 1955.

From: The Colonial Secretary,

To: All Members of Executive Council,
STANLEY.Peat-briquetting Factory.

The Falkland Islands Company wish to erect an experimental peat-briquetting factory and have applied for the lease of approximately one acre of land situated ~~in the area~~ ^{in the area} of the Government Wireless Station.

The proposed site is on waste land and as the factory is experimental and may be of great benefit to the Colony it is proposed initially to lease the ground to the Company for five years at a peppercorn rental (1/6).

Executive Council approval is required under the Land Ordinance and Honourable Members are requested to submit their opinions in writing.

(Sgd) C. Campbell

COLONIAL SECRETARY.

B.

H.C.S.

CG/VP

I heartily approve of the granting of a lease. In actual fact I understand that the Company are building the experimental factory on their own land purely with a view to testing the machinery and the briquetting possibilities of Stanley Common peat. If successful the Company would then seek to move the plant to semi-permanent location.

A. P. Daulton

26-1-55

Pl. see Form 29.

EXTRACT FROM RECORD OF A MEETING HELD AT GOVERNMENT HOUSE ON 18/1/55 - BETWEEN HIS EXCELLENCY THE GOVERNOR AND MR. E. W. H. YOUNG, MANAGING DIRECTOR, FALKLAND ISLANDS COMPANY, LIMITED.

31

(Original filed in 0643 - Conversations with Manager, F.I.C.)

.....

12. Peat. Mr. Young enquired if the Company could be allocated a peat bank, already specified, for their experimental work in mechanical peat winning. His Excellency stated that while he wished to give the Company every encouragement in their experiments he preferred to adhere to the existing arrangement whereby a decision would be based on the report of the Company's surveyor on the peat potential around Stanley.

.....

Pl see from 29
Be. 15/2 (27)
d
31/1

32

Port San Carlos,
Falkland Islands, S.A.

TELEGRAPHIC ADDRESS:
"CARLOS, PORTSTANLEY"



February 1st. 1955

The Hon. The Colonial Secretary,
STANLEY.

Sir,

PEAT-BRIQUETTING FACTORY.

27

I am in favour of the proposal contained in your communication of January 20th.

I am,

Sir,

Your obedient servant,

N. K. Zisk 6

*Recd 27
on 15/2
C. J. H.*

5th February 1955

Sir,

27

(1) In reply to your memorandum of the 20th January addressed to All Members of Executive Council, I approve of one acre of land being leased to the Falkland Islands Co Ltd for the purpose of erecting an experimental peat-briquetting factory.

(2) With reference your enquiry concerning the Economic Bulletins, I think they might continue to be circulated.

I am,

Sir,

Your obedient servant.

H. C. Harding

The Honourable,
The Colonial Secretary,
Stanley.

Extracted to
0177/V- Economic
Survey.

File in ...

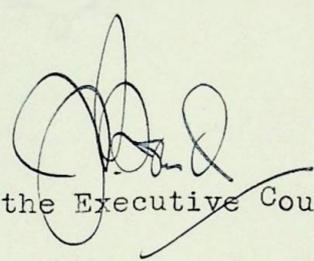
N.C.
In view of B on 30 we shd. postpone action on this lease pending further inf. from P.C. as a result of their experimental effort.

[Handwritten initials and marks]
9.2
3/13
Bu

Extract from the Minutes of a Meeting of Executive Council
held 7th April, 1955.

20. LEASE OF LAND TO FALKLAND ISLANDS COMPANY LTD.

Council approved in principle the lease of a suitable plot of land to the Falkland Islands Company for the purpose of setting up a peat briquetting factory.



Clerk of the Executive Council.

*F.I.C. are now proceeding with lease of
the moorland B.S. 29/2/56
30/6/55 to K.I.U.
20/4
30/6*



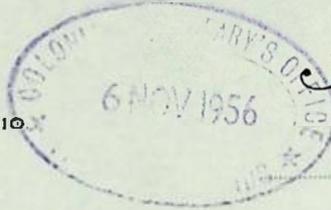
The Falkland Islands Company, Limited.

(INCORPORATED BY ROYAL CHARTER 1851.)

REGISTERED 1902.

AGENTS FOR LLOYDS.

TELEGRAMS "FLEETWING PORTSTANLEY" VIA RADIO.



Stanley,

5th November

19 56

The Honourable the Colonial Secretary,
STANLEY.

Sir,

36 We think you will be interested to read the report of the Department of Scientific and Industrial Research into the wax content of Falkland Islands Peat, and enclose a copy herewith for your files.

The results of the investigation are disappointing but at least tend to show that the processing of peat purely for its wax content would not be an economical proposition in the Falklands.

I am, Sir,

Your obedient Servant,

A.G. Danton

MANAGER.

Sir pe. to me

Reply at 37

*Ack'd
JG
6/11/56*

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH

FUEL RESEARCH

EXAMINATION OF THE WAX CONTENT OF
PEAT FROM THE FAIRLAND ISLANDS

FUEL RESEARCH STATION,
EAST GREENWICH,
LONDON, S.E.10

July, 1956.

Examination of the Wax Contents of Peat
from The Falkland Islands

Summary

In August 1955 The Falkland Islands Company Limited asked if it would be possible to have some samples of peat tested for their contents of commercial wax. It was agreed to undertake this work and the present report gives an account of the examination of six samples of peat. The wax contents of the peats varied between 3.0 and 6.2 per cent on a basis of dry peat. Examination of the waxes showed that they were similar to waxes produced from peat found in Great Britain, except that in general they possessed higher saponification values and higher melting points.

Examination of the Wax Content of Peat
from The Falkland Islands

Introduction

Following correspondence with the Falkland Islands Company, Limited, 120, Pall Mall, London, S. 1, starting in August, 1955 it was agreed that the Fuel Research Station should examine a small number of peat samples from the Falkland Islands and give an estimate of the amount of wax in the samples together with an appraisal of the quality of the wax compared to other peat waxes. The work was carried out on a repayment basis.

Towards the end of March, 1956 six samples of peat were received and the work carried out on these samples is described below.

Samples received

Six samples of peat were received, four in tins hermetically sealed by solder and two (from Darwin Harbour) in tins with press-lids the air-tightness of which was doubtful. However, as the moisture contents of the six samples indicate, all the containers were satisfactory. The appearance of the samples showed little variation from one another and were similar to peats found in the United Kingdom.

Tables 1 and 2 give the total moisture contents and proximate analyses, respectively, of the six samples. The analytical procedures employed were those laid down in British Specification 1016:1942. The total moisture is obtained by laboratory air-drying the whole sample for several days, until it attains more or less constant weight, measuring this loss in weight, and then sampling and determining the residual moisture using the Dean and Stark apparatus (B.S. 1016:1942). The total moisture is the sum of these two figures. The moisture figure in the proximate analysis is determined by drying the laboratory dried sample in a vacuum oven.

Table 1

Total Moisture Content of the Peat Samples

Sample	Total moisture Per cent by weight
Darwin Harbour, New Bog	85.9
Darwin Harbour, Salinas Bog	82.4
Stanley House Bog (depth 1 yd.)	87.3
Stanley House Bog (depth 2 yd.)	87.2
West Store Bog (depth 1 yd.)	82.4
West Store Bog (depth 2 yd.)	86.2

Table 2

Proximate Analyses of the Peat Samples

Sample	Moisture	Volatile Matter	Fixed Carbon	Ash	Volatile Matter (dry, ash-free basis)
	Per cent by weight				
Darwin Harbour, New Bog	4.7	48.9	28.3	18.1	63.3
Darwin Harbour, Salinas Bog	4.3	45.1	22.1	28.5	67.1
Stanley House Bog (1 yd.)	3.3	61.1	31.3	4.3	66.1
Stanley House Bog (2 yd.)	2.2	60.1	33.0	4.7	64.6
West Store Bog (1 yd.)	3.9	58.6	30.8	6.7	65.5
West Store Bog (2 yd.)	3.8	60.0	31.6	4.6	65.5

The analytical data given in Tables 1 and 2 are similar to those obtained on samples of peat from the United Kingdom. The table below, taken from a Fuel Research Paper "The Winning, Harvesting and Utilization of Peat", H.M.S.O., 1948 gives proximate analyses of three typical samples of air-dried peat. The data are also calculated to a moisture content of 4 per cent for comparison with the data in Table 2.

Sample	1		2		3	
	Per cent by weight					
	Air-dried Peat	Calc. on 4% moisture	Air-dried Peat	Calc. on 4% moisture	Air-dried Peat	Calc. on 4% moisture
Moisture	13.1	4.0	16.2	4.0	20.2	4.0
Volatile matter	58.0	64.0	56.1	64.3	49.5	59.6
Fixed carbon	26.2	29.0	25.7	29.4	26.9	32.3
Ash	2.7	3.0	2.0	2.3	3.4	4.1
Volatile matter (dry, ash-free basis)	68.9		68.6		64.8	

The samples from Darwin Harbour contain considerably more ash than the other samples and much higher ash contents than any samples of United Kingdom peat which have been examined.

Extraction of Wax

Before extraction of the peats the rough samples were reduced to pass a 72 B.S. Test Sieve. The extractions were carried out in a Soxhlet extraction apparatus using benzene as solvent boiling at atmospheric pressure. At the time the peat was weighed out into the Soxhlet thimble, prior to extraction, a sample of the peat was submitted for moisture determination, so that the wax content could be calculated on a dry basis.

Extraction was continued until the liquid syphoning-over from the extraction thimble was colourless, a stage usually reached after about 18 hours; the major portion of the wax was extracted in the first three hours. The results of the extractions are given in Table 3. Column 2 gives the yield of wax based on the peat as extracted, column 3 gives the yield based on dry peat and column 4 gives the yield based on dry, ash-free peat. The results calculated on the dry, ash-free basis allow a direct comparison to be made of the

Table 3
Yield of Wax following Benzene Extraction of Peat

Column	1	2	3	4
Sample	Moisture content of peat at time of extraction - per cent by weight	Yield of wax - per cent by weight		
		Peat as extracted	Based on dry peat	Based on dry, ash-free peat
Darwin Harbour, New Bog	5.2	3.6	3.8	4.7
Darwin Harbour, Salinas Bog	4.7	2.9	3.0	4.3
Stanley House Bog (1 yd.)	2.9	6.0	6.2	6.5
Stanley House Bog (2 yd.)	2.6	4.5	4.6	4.8
West Store Bog (1 yd.)	3.8	4.3	4.5	4.8
West Store Bog (2 yd.)	3.8	6.0	6.2	6.5

wax contents of the organic peat constituents and this is seen to vary between 4.3 and 6.5 per cent. However, the more practical figure is that based on the dry peat and this varies between 3.0 and 6.2 per cent. A survey of British peats [C.M. Cawley, J.H.G. Carlile and C.C. Noaks, *Petroleum* 1948, 11, 77-82] covering 29 samples gave the following information.

"The peat deposits showed variations in their wax contents from 3 to 17 per cent (calculated on the dry peat). More than half the samples contained between 5 and 8 per cent wax, but about a quarter of the samples contained between 8 and 12 per cent, and one sample contained 17 per cent". (in subsequent work on a 3-ton sample of this peat an average wax content of 12 to 14 per cent was obtained - G.C. Ackroyd, *The Extraction, Properties and Constitution of Peat Wax*, International Peat Symposium, Dublin, July, 1954). The conclusion was drawn that there should be no difficulty in choosing a conveniently situated deposit in the United Kingdom which would provide a sufficient source of peat yielding about 10 per cent of crude wax.

It seems therefore that the wax contents of the samples of Falkland Island peat submitted are rather low, a fact which would increase the cost of wax extraction. It is possible however that deposits of peat may exist in the Falkland Islands with wax contents of the order of 10 per cent but this would only be revealed by a more detailed survey.

Examination of the Extracted Waxes

The data obtained during the examination of the waxes extracted from the peat samples, are collected together in Table 4. They include the saponification value (column 1), the acid value (column 2), the molecular weight, in the case of two samples, by the elevation of the boiling point of benzene (column 4), the oxygen content on five samples determined by the Unterzaucher direct method (column 7) and the melting point determined in a

capillary tube (column 12). The data in the other columns are calculated from these experimentally determined data.

The penultimate line of Table 4 gives similar data for a wax extracted from a British peat and the last line data on a sample of montan wax from Riebeck, Germany.

In general the Falkland Island peat waxes are characterized by rather high acid values and high ester values although their oxygen content is not particularly high when compared with British peat waxes. However, as shown by columns 10 and 11, for British peat wax the acid and ester values only account for 5.7 atoms of oxygen out of a total of 8.9 present in the wax; in the case of the Falkland Island waxes the acid and ester values together account for practically the whole of the oxygen present in the wax. It therefore seems that the free hydroxyl groups known to be present in British peat wax, as well as other oxygen groupings, are less numerous in the Falkland Island peat wax than in British peat wax.

The melting points of the Falkland Island peat waxes are about 7°C higher than that of British wax. From the user point of view this higher melting point is advantageous.

However the main standard of comparison is Riebeck montan wax as this is at present the only wax, extractable from fossil fuels, that is marketed in any significant amount. Except for their rather high melting points the Falkland Island peat waxes do not appear to compare any more favourably with montan wax than do British peat waxes. So far peat wax has not been successfully exploited on a commercial scale in Great Britain and it would therefore seem doubtful whether Falkland Island peat waxes could find a market in competition with montan wax.

Conclusions

1. The results of the work show that the samples of Falkland Island peat, submitted for examination, contain 3.0 to 6.2 per cent by weight of wax based on the dry peat. This compares with workable deposits of peat in the United Kingdom containing 10 per cent of wax and more.
2. The examination of the wax reveals some interesting differences between British peat wax and wax from Falkland Island peat. In particular it has a higher melting point, by about 7°C, than British peat wax, and in general higher acid and ester values.
3. Except for their rather high melting points the Falkland Island peat waxes do not appear to compare any more favourably with montan wax than do British peat waxes.
4. Unless local conditions in the Falkland Islands are considerably more favourable, with regard to labour costs and potential markets for the wax, than they are in Britain, the extraction of wax on a commercial scale from Falkland Island peat would not appear to be economically attractive.

Table 4. - Data on Peat Waxes

Column	1	2	3	4	5	6	7	8	9	10	11	12
Sample	Sap. Value	Acid Value	Ester Value	Molecular weight		Oxygen content - per cent by weight	Number of atoms of oxygen in molecular formula accounted for in		Total number of oxygen atoms accounted for by acid and ester value	Formula (calculated from mol. wt. in col. 4 and oxygen content in col. 7)	Melting point of wax °C	
	mg. KOH per gm.			by elevation of boiling point (benzene)	calculated from		Acid Value	Ester Value				
Darwin Harbour, New Bog (brittle, chocolate-brown with light-coloured specks)	161	55	106	-	1020	530	-	-	-	-	-	69-73
Darwin Harbour, Salinas Bog (brittle dark, chocolate-brown with typical peat wax fracture)	137	50	87	-	1120	640	8.4	-	-	-	-	68-72
Stanley House Bog (1 yd.) (dark, chocolate-brown with typical fracture)	225	40	185	1130	1400	300	12.6	1.6	7.5	9.1	$C_xH_yO_{8.9}$	65-68
Stanley House Bog (2 yd.) (Similar to above)	197	46	151	-	1220	370	12.3	-	-	-	-	65-70
West Store Bog (1 yd.) (chocolate-brown with typical fracture)	140	38	102	880	1470	550	9.8	1.2	3.2	4.4	$C_xH_yO_{5.4}$	69-72
West Store Bog (2 yd.) (Similar to above)	184	45	139	-	1240	400	11.4	-	-	-	-	65-68
Wax from Hindleysteel Bog Northumberland (Yield 12-14%)	135	37	98	1180	1520	570	12.1	1.6	4.1	5.7	$C_xH_yO_{8.9}$	58-66
Riebeck montan wax (Germany)	99	29	70	690	1930	800	9.1	0.7	2.3	3.0	$C_xH_yO_{3.9}$	77-81

2611.56

D/c

36

Thank you so much for sending us a copy of the report of the Department of Scientific and Industrial Research into the wax content of Malkiana Islands Feat.

It is a pity that the results of the investigation are so disappointing.

Yours sincerely,

[Handwritten signature]

A. G. Barton, Esq., C.B.E. J.P.,
STANLEY.

ANT/MC

M.C.S.

Note - This file should be submitted to H.E.
for information after receipt of the acknowledgment
letter to Mr. Barton.

C. G. M.
26.11.56

M. K.

39

As instructed above 35-37 f. i. p.

27/11/56

D.M.
27 *Cur*

Sec. B.A.

40

This is the fact file we spoke of yesterday
but I am afraid it might prove of little or no use.

23/3/62

A.C.S.

41

I agree there is nothing useful in this file.
I suppose Government did not get a
copy of Mr. Christman's report to E.I.C., but
there should be a record of his
survey referred to at X on 28.
Perhaps it is in P.W.D.?

M. K. 27/3/62

42

Sfus.

41 - Can you say pl?

29.3.62

43

A.C.S.

The only reference of a peat survey in P.D.,
is one that was taken in 1917 by R.B. Baseley.
L. Picton. S.P.A.
30/3/62.

Agg/c

44

Have we a copy of the report referred to in
41 pl.?

Did Baseley produce a report and so have
we a copy in our files?

2.4.62

44A.

A.C.S.,

There is a report in 1421 - the map relating to it is
in 1421/II.

All files before 1919 were lost in the fire. The only
report by Mr. Baseley that can be traced is in 137/24.

29.6.62

No. 14.

MEMORANDUM

45

It is requested that, in any reference to this memorandum the above number and date should be quoted.

15 MAY 1962
FALKLAND ISLANDS

14th May, 1962

From: Colonial Treasurer.

To: The Honourable

The Colonial Secretary,

Stanley, Falkland Islands.

STANLEY.

SUBJECT :-

Peat Survey.

The Superintendent of Works has submitted a voucher to pay Mr. R. Harbour £25 for surveying and charting Stanley's peat banks.

The Governor has verbally instructed that this payment should be made to Mr. Harbour but to have our records in proper order I would be glad if he could be asked to give written confirmation.

Mr. Harbour has now left the Colony and it would be appreciated if the Crown Agents could be asked to make the payment from the Colony's general account after the full approval to pay has been obtained.

L. Lawrence

Colonial Treasurer.

HFR/JR.

Reply at 47

46. Unfortunately his file got
logged down and was not submitted
to Lt. L⁻. Payment approved - Adm Brown
accordingly

gr 2/2/62

0035

47

5 July, 62.

To: The Honourable
Colonial Treasurer,
STANLEY.

From: Officer Administering the Govt.,

Peat Survey

45

I have to refer to your memorandum No. 14 of 14th May, 1962, regarding the payment of a sum of \$25 to Mr. R. Harbour for surveying and charting Stanley's peat banks, and to confirm that such payment may be made.

52

(Sgd) ~~H.L. Bond.~~

for Officer Administering the Govt.

Copy to: Auditor

RB/FH

10th July, 62.

Gentlemen,

I am directed to request you to arrange the payment of the sum of £25 to Mr. R. Harbour, of 83 Winkworth Road, Banstead, Surrey, for surveying and charting the peat banks around Stanley.

2. Please debit the Colony's General Account.

I am,
Gentlemen,
Your obedient servant,

(Sgd.) H.L. Bound

for COLONIAL SECRETARY.

Crown Agents for Oversea Governments and Administrations,
4, Millbank,
LONDON, S.W.1.

RB/IM.

fa.

1014 - 44-44A.

No. _____
It is requested that in any reference to this memorandum the above number and date should be quoted.



1st October, 1962.

To: The Honourable,
The Colonial Secretary,
STANLEY.

From: Superintendent of Works,
P.W.D.
Stanley, Falkland Islands.

SUBJECT :- F.I.C. Peat Cutting Machine.

I have the honour to submit a request by Government Peat Officer, that a meeting be called with Mr. Barton F.I.C. present.

It is rumoured that F.I.C. intend to use their peat cutting machine on the open common east of Stanley. The peat officer is greatly disturbed about this machine being used.

As far as I can gather, it cuts a trench of approximately a foot wide by four feet deep. Apart from the fact that the trench holds water which is contrary to: section 48 Peat Bank Rules paragraph 10 & 11 Vol II Imperial Legislation, it is a death trap to any animal grazing on the common. Proof of which can be seen in one such trench cut by this machine, on F.I.C. land south west of F.I.C. new slaughter house.

It also appears that the machine does not cut a face but separate trenches, which according to the Peat Officer is undersirable not only because of the above but also the possible wastage of peat banks due to separate trenching.

R. Piton
Supt. of Works.

S. Brauning
Peat Officer.

✓ October,

62.

Sir,

49 I append for favour of your observations an extract of a letter received from the Superintendent Public Works:-

"It is rumoured that F.I.C. intend to use their peat cutting machine on the open common east of Stanley. The peat officer is greatly disturbed about this machine being used.

As far as I can gather, it cuts a trench of approximately a foot wide by four feet deep. Apart from the fact that the trench holds water which is contrary to section 48 Peat Bank Rules paragraphs 10 and 11 Volume II, it is a death trap to any animal grazing on the common. Proof of which can be seen in one such trench cut by this machine, on F.I.C. land south west of F.I.C. new slaughter house.

It also appears that the machine does not cut a face but separate trenches, which according to the Peat Officer is undesirable not only because of the above but also the possible wastage of peat banks due to separate trenching".

I am,
Sir,
Your obedient servant,

(Sgd.) H.L. Bound

Assistant Colonial Secretary

Copy to S/W.

The Colonial Manager,
Falkland Islands Company Ltd.,
STANLEY.

RHDM/LH

Reply at 51

Bu. 14.10.62 (reply)

51

The Falkland Islands Company, Limited.

(INCORPORATED BY ROYAL CHARTER 1851.)

AGENTS FOR LLOYDS.

TELEGRAMS "FLEETWING PORTSTANLEY" VIA RADJO.



Stanley,

9th October, 1962.

Sir,

PEAT.

50 We acknowledge receipt of your letter No. 0035 of 5th October, 1962 and have the following comments to make.

1. The Company has spent much time and money over a long period of years in their efforts to win peat by mechanical means.
2. The area to the South West of the Butchery was selected as the experimental area in 1961 and we are the first to agree that due to "drag" on one side of the tractor it was impossible to dig a straight trench and the results are poor.
3. This same fault also made it impossible to steer the machine along the same trench but in the reserve direction, thus doubling the width of the trench. You will understand that this is the purpose of the machine, and when this is finally achieved the processed peat is removed and a second cut down each side is made, thus widening the trench to a yard or more in four cuts, and so on, getting wider all the time.
4. The Company has no intention of using the peat machine on Common Land without first getting permission, and if this was granted, would then erect a temporary 3-wire fence to keep cattle and horses off the area to be worked. The area which would employ the machine best advantage is referred to in our letter of 16th June, 1953 but the Peat Machine is not the same as mentioned in that letter.

34 in
1421

I am,
Sir,
your obedient servant,

A. G. Newton

Manager.

The Honourable
The Colonial Secretary,
STANLEY.

To Comptroller in charge of
all the islands 34 in 1421
to SPW for signature & return
S. [signature]

Reply at 52.

0035.

52

13th October, 62.

Sir,

Peat

51

I acknowledge with thanks your letter of the 9th October. I will make it clear to the Superintendent of Public Works that the Company has no intention of using the peat machine on Common Land without first getting permission.

I am,
Sir,
Your obedient servant,

(Sgd.) R.H.D. Manders

Officer Administering the Government

The Manager,
Falkland Islands Co., Ltd.,
STANLEY.

RHDM/IM.

SPWS. 53

H.C.S. Please. 50 onwards for information

Noted. 54
x Dubon. SPW. 15/10/62. See NFB on 'whidom' Ra
15.10.62

0035

55

14 December, 62.

Sir,

52

With reference to correspondence ending with the letter dated 13th October, 1962 from the Officer Administering Government I am directed to state that I have since been informed that the machine has been used in the land referred to in Clause 17 (a) of the Agreement with regard to the Butchery. You will observe that according to the Agreement the 255 acre block south of Fleton's Paddock is for the allocation of peat banks by Government.

I am,
Sir,
Your obedient servant,

(Sgd.) R. H. D. Manders

COLONIAL SECRETARY.

The Colonial Manager,
Falkland Islands Company, Ltd.,
STANLEY.

Reply at 56

REDM/TB

26. 1. 63
BU 29. 12. 62

56

The Falkland Islands Company, Limited.

(INCORPORATED BY ROYAL CHARTER 1851.)

REGISTERED 1902

AGENTS FOR LLOYDS.

TELEGRAMS "FLEETWING PORTSTANLEY" VIA RADIO



Stanley,

1st. January

19 63

Sir,

PEAT

55 We acknowledge receipt of your letter No. 0035 of 19th. Dec, 1962 and confirm that our mechanical peat-cutting machine has cut several experimental strips in the area defined by Section 3 of the Butchery/Mink Farm Agreement both last season and this.

2. Section 17 does not expressly forbid the Company to work the peat deposits in that area, and we assume that had we first applied for banks to be allocated to the Company to work on behalf of it's Employees and Pensioners, permission would not have been withheld, provided that banks now allocated to those persons elsewhere were surrendered in due course. We regret the omission.

3. We submit that the areas of which the Company now holds a 99 year lease no longer constitute part of Stanley Common, and they are therefore not subject to Stanley Common Regulations which permit licensed persons to graze animals thereon. The Company is using them extensively for grazing Butchery and Mink Farm sheep, and any loss occasioned by sheep falling into a peat bog or ditch is solely the Company's loss, even although the areas were freehold land where losses of this nature are even more frequent.

4. At the time of signing the Agreement we expressed misgivings to the then Colonial Secretary regarding the peat rights remaining with Government and therefore exploitable in due course by the general public, for from our experience we know that this means fences cut, gates left open, and very little attention paid to the Peat Rules. If, and when, we can perfect our peat-cutting machine, we would like to bring this matter up again on the lines of our second paragraph but in the meantime we will only widen the existing trenches to make them less dangerous for our livestock, and will not cut any fresh ones.

I am,

Sir,

Your obedient servant

Q. B. Norton

Colonial Manager.

The Honourable
The Colonial Secretary,

Reply at 62

BOE

57

SPW Please see 56

According to last sentence all seems to be well for no present land please consider have 2

or 4/1/63

58

Hon. Col. Sec.

I have not seen the agreement but would think that section 17 is for the Legal Dept. to decide.

The F.I.C. should be made to understand that all peat banks on the common and in this case leased land are controlled by the Government Peat Officer and they should not go on assumptions.

I suggest that they be allowed to work Felton Paddock but leave the 233 acre block as it is.

R. P. Dickson
Supt. of Works.
7th January, 1963.

58A in
1960.

agreement lease
or

59

RSC

fradins lease

or 9/1/63

Hon. Col. Sec.,

Clause 17 of the Agreement (n. 58A in 1960) between Gov. and F. S. Co., reserves to Government the right "to allocate peat banks for exploitation to private individuals", while Clause 6 provides that "The Company shall only utilize the area leased to it in accordance with the terms of this agreement for purposes connected solely with the establishment and operation of the Buttery and Mink farm and the supply and holding of livestock or agricultural produce for such Buttery or Mink farm".

Neither clause even implies that the F. S. Co. may win or take peat from the land without first obtaining due authority to do so.

Section 46 of the Land Ordinance (Cap 36) makes it an offence for any person to cut or cause to be cut any peat on Crown Land, "Crown Land" as defined by section 2 of Cap 36 means any land not already granted in fee simple and any land acquired by the Crown, and "fee simple" is generally interpreted to mean lands which have been disposed of by Crown Grant (freehold).

It is my opinion that the lessee of any peat from Crown Land unless he has obtained prior authority either embodied in his deed of lease or from the person to whom the control of peat banks has been delegated,

F. B.
21.1.63.

65

I do not think there is any more to say at present. There is no doubt that the Company have no right to take peat without permission in the same sense as in clause 17(4) of the agreement i.e. the 233 acre blocks South of Feltan, Widdow. They realised that now. The suggestion is that if & when they perfect the machines - perhaps here - they should be allowed to ask for banks to be allocated in their blocks in exchange for blocks elsewhere. This sounds reasonable but it is not necessary to decide yet. 6656 has not been acknowledged. We will have to write something - otherwise not - See G/C then papers can go to SPW to note

22/1/63

25th

4th January,

63.

Sir,

56 I am directed to refer to your letter dated 1st January, 1963 and to state that it has been noted that no further trenches will be cut in the area referred to in Clause 17 (a) of the Agreement without permission.

I am,

Sir,

Your obedient servant,

su
(Sgd.) R. H. D. Manders

COLONIAL SECRETARY.

The Colonial Manager,
Falkland Islands Company, Ltd.,
STANLEY.

63

RHDM/TB

H.C.S

SPW
64
To see from 59 pl
Noted Thank you & return S.P.H.
28/1/63.
28.1.63
PA
291B