DEV/12/14

MIN/PEA/3#3

2509

DEV/12/14

2509

MONTAN WAX

(1)

Colonial Secretary

1. We really must jerk some action into this file and get the samples required back to London on the next sailing of the AES. and I would like priority given to this exercise.

2. It should not be difficult to decide on the areas from which the 12 samples of dried peat of approximate weight 100 grams each are to be collected, and in order to save time telegrams should be sent out to the camp managers concerned. I suggest the samples are placed in plastic bags and sent in free by the Beaver in cardboard boxes or similar containers so they are not broken up.

3. Although I am no scientist, personally I think this is a non-starter as, if I recall correctly, the Chatham Islands have been heavily forrested for thousands of years and the peat there is very different in composition from here. Still, we can but try.

EGL

22 June 1972

(2)

O/c Agric

We will need to move v. quickly if we are to accomplish anything by A.E.S.

The subject was discussed in Development Committee earlier this month so imagine most farms are in the picture. The quickest way to handle it now wd. appear for you to get in touch by telephone (R/T to the various services asking them to send us a labelled sample by FIGAS not later than 15th July. I leave you to select the areas. 24 seems Rather a lot - perhaps a figure between 15 and 20 wd. suit.

(3)

23.6.72

C/S. Talking [illegible] asked 1. [illegible] sample (3-4 ozs) dry peat: Port Howard, Port Stephens, Hill Cove, Chartres, Pebble Is, West Point Is, Hoddell Is, San Carlos, North Arm, Johnson Hbr, Teal Inlet, Saunders, Fitzroy

26.6.72

(c)

BU 1 mth

19/8

BU 1 mth

20/9

BU 1/12

BU 1/3/73

BU 8/1

BU 1/2

BU 15/2

(4)

BU 1/3

Rose

P/ make booking Starkey to London for Mr Barrow leaving here on May 7TH & charge to govt for recovery From T.A. funds

5/3

C.S.

Passages Booked.

& hotel

H. 7.3.73

BU 2-6

A.S. (5)

Pl. phone DSL + inform them that it is an Economy class ticket we require

(6) 16/3

D.L.S.

Damon Shipping Ltd informed pl.

16.3.73

BL. 27.3.73.

BU 10/4

BU 13/4

(7)

Rose

Bromfield & Barrow are now delayed one week. Then we want to rebook Barrow tentatively to go out on 14th instead of 7th. Can you pl put a hold – without cancelling the 7th booking.

17/4

(8)

Bookings now:

BL 24/5/73 (57)

21st provisional but unlikely to obtain a seat

28th OK. Provisional booking made to McDonald

1.5.73

BL 4.5.73 (57)

~~Bll 9/5/73 (57)~~

Ag. D.C.S., (9)

Draft itinerary as amended handed in by Mr Barnes pl.

8.5.73

(10)

AS

Pl have circular prepared quickly. Ive made air bookings up to 15 May taking him to San Carlos.

(11)

Reg.,

There is a ltr. now in from Mr Barnes for this.

10.5.73.

Bll 24/5/73

(12)

F.S.

Pl pay Mr Barnes subsistence at the usual rate (£3.80 per day) for the period Wed 18th April to Sunday 27th May inclusive. R49 refers.

(13)

25/5

G.A.,

Arranged, K.Y.

25/5

BU 25/6

(14)

D.F.S.

Can you complete form TA 49?

1.6.73

(15)

C.S.

TA.49 completed & attached t.y.

5/6/73

BM 20.7.73 (53)

(16)

C.S. Action remaining is:

a. To pack & despatch samples to TPI.

b. Advise Hall of their despatch and ask him to arrange T.P.I to analyse.

c. Write to T.P.I and tell what we have done & ask them to contact Barrow who would like to be associated with the analysis

d. Write Barrow putting him in the picture when all this has been done.

2. For the moment — where are the samples? Are they packed & labelled ready to go?

(17)

YE

16. Please see 14.

22/6

22.6.73

(18)

C.S. T.J. Lets make sure they are not overlooked during the Euston/Hallicks handover.

(19) 25/6

Y/E I have already spoken to H. Euston who said he would attend to the Samples this week.

25.6.73

BU 9/7

(20)

C.S I have set R55. You will wish to refer to R54.

14.7.73.

17/7

(21)

BU 2/10/73 (re R56)

Y.E.
Mr Barrow's notes on samples collected giving location, depth, accessibility, drainage, type of peat. We will have to await the analyses before any action is necessary other than to acknowledge receipt.

(22)

30.8.73

C.S. Yes pl. I think Mr B. Cheques should be taken off file & put in safe.

Y/E Done 3/9/73 3/9

BU 2. 10.73

BU 16/10/73

BU 4/12/73

BU 4/1/74

4/2/74

BU 1/3

BU 1/4

BU 1/5

B/U 22 APRIL 74

23.

Chief Secretary -

It is interesting to read Barrow's letter of the 13th March to you and the yield shown by the analysis would appear to be reasonably good but I am no expert in this matter.

2. We can but wait for the official report and then if the laboratories require further samples for testing we will have to so arrange.

23rd April, 1974

E.G. Lewis

B/U 20 May 1974

B/h 20 June 74

BU 1/7

24.

Bn. 6.8.74.

asked about the repat on mountain work.
I wrote to House about this a fortnight ago
(p. 70) and we should get a reply shortly.
Write if I hear and send a telegram if necessary.

19.7.74.

B/h 10 August 74

B/h 20 May 74

Bn. 26. 11. 74
76. 11. 74.

25

C.S.,
It is now over three months since we
received Miss Hunt's letter at (71). Another chaser?

26.11.74.

24

Bn 20. 1. 75

Bn 20. 2. 75

CJ

27

The Report will be stencilled for Councillors prior to discussion in Exco.

DJH
13/2

DCS

26

27

Yes pl. Include (27). Many / pl all drafts. As it JB to include on Exco Cttee pl.

JM
26/2

24

CJ

Pl see 76

DJH
26/2

30

DCS

Exco 18.3.75

(Exco)

34

C.S. / Issue pl. JM 15/4

Draft letter at centre. o.f.c. please.

13.4.75.

32

CS

(81) The key to the Peak Deposits cannot be found. Doubt if it was left here by Mr Barrows.

2. I explained that ExCo had made a decision on Montan Wax and that a re-opening of this was over-ruling X.Co.

3. There is no reason why lignite samples cannot be forwarded for analysis

DSm 15/5/75

34

DCS

As you propose at §3. As you indicate SSE has a different function from ExCo. This item shd not have been a SSEC agenda unless referred to it by ExCo. Pl. let DES all.

S 21/6

35

D.S.

Seen thank you. Then I course was not on the observation.

DCS 5/6/75

PC

Ross House,
Stanley.

19.1.72.

The Hon.,
The Colonial Secretary.
Stanley.

Montan Wax.

Dear John,

I doubt if you have ever heard of 'Montan Wax', and neither had I until receiving a letter before Christmas from Christopher Bonner in New Zealand.

The matter I feel might well have significance to us here in the Falklands and I quote the whole paragraph from Bonner's letter.

"I wonder if you have heard of 'montan wax' ? I certainly hadn't until the other day when the economy of the Chatham Islands came under fire, these are agroup of islands about 500 miles east of New Zealand and whose problems are very akin to the Falklands. They are low lying and mainly covered with peat. Main industry is sheepfarming with the same limitations as we have with regard to surplus stock etc. In years gone by they used to ship them over to the mainland but this ceased to be economic about 20 years ago and since then they have been dependant on wool. The Govt. put up a small meat works but that has gone into receivership and altogether they are in a pretty depressed state. Anyway this Australian company has been making some trials and surveys and apparently are keen to go ahead to extract this 'montan wax' which occurs in the peat.. This wax is very highly sort after and is of use in the manufacture of plastics. They are still in the experimental stages but they say if the industry gets off the ground and they can overcome the difficulties not least of which is getting the stuff away from the islands as they are very poorly serviced with harbours and anchorages to say nothing of wharfing facilities, the final outcome could be an industry worth about $NZ.8,000,000. This sounds fairly good money to me and has led me to wonder whether our peat contains 'montan wax' ?

It may well be that this has been proposed in official circles with you but if not it may be worth following up. H.E. with his New Zealand connections should have no difficulty in contacting the appropiate ministry here for fuller details of this project. I don't know whether landowners will make anything out of it due to the mineral rights being retained by the Government but at least Government may get something out of it.

Anyway I pass on this information for what it's worth. I expect our peat will be the wrong sort, but it might be worth an inquiry. After all the Kelp people reckoned our kelp wasn't worth bothering with in 1948, but they came back to it later."

That is Bonner's information I would agree with him that inquiries might well be made at an early date.

I wonder whether we could give Theophilus several samples of local peat to take back to the research departments at Cambridge (there are many varieties of peat in the Falklands). Of course here, if Cambridge has never heard of montan wax they wouldn't know what to look for anyway - but we could ask Theophilus.

Perhaps you will put this on the agenda for next Ex.Co. ?

Yours sincerely

Sydney Miller

Ref: 0196

20th January 1972

I have recently received information at second hand from Mr. Cristopher Bonner, a Falkland Islander now domiciled in New Zealand, about a peat by-product called 'montan wax'. I attach to this letter an extract of Mr. Bonner's letter to his correspondent upon the subject.

2. I would appreciate it if you could arrange for enquiries to be put in hand about the nature of 'montan wax' and also for any assistance you may be able to provide us to help us to decide whether an investigation of the properties of our peat would be justified. It has been suggested here that it would be worth sending, by hand of Theophilus, the agriecoonomist currently here, samples of local peat to take to Britain for analysis but it may well be that research upon the peat's properties needs to be done in the wet rather than in the dry state or that, for several reasons, research on the spot rather than at a distance is necessary. However, should it be considered that it would be useful for Theophilus to bring back samples of the many varieties of peat which we have in the Colony you will no doubt let me know as quickly as possible when it should be within our power to arrange for Theophilus to bring sample when he returns to Britain in March. One needs to bear in mind, however, the very limited carrying capacity of the interim amphibious air service.

J. A. Jones
Colonial Secretary

G. F. Kinnear, Esq., O.B.E.,
S. A. & T.C. Dept.,
Foreign and Commonwealth Office,
London SW1A 2AH

Reply at 10

Ref: 0196

20th January 1972

Thank you for your letter of the 19th January about 'moreton wax'.

2. I do not think that a collection of lay men discussing a subject about which none of them knows anything at all will get us anywhere and I have therefore, rather than noted the matter for an Executive Council Agenda, written to the F.C.O. asking them to provide us with information about this peat by-product and to let us know how best the properties of our own peat could be evaluated. At the same time I have taken the opportunity to ask whether it would be useful, supposing it is feasible in view of the limited carrying capacity of the Albatross, for Theophilus to take back samples of dry peat with him when he leaves in March.

3. I have, of course, informed the Governor of this matter.

J. A. Jones
Colonial Secretary

The Hon. S. Miller, J.P.,
Pole House,
Stanley.

Y.

Attached papers f. y. i.
I do not think there is any
purpose in our putting this matter
on an Exec. Agenda at present.
No harm in either mentioning it
if he wishes but discussion of
something about ~~Something~~ of which
not one of us knows anything
would, I would think, be resented
by the chairman!

JF 2/11

Copy for C/S

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

Number	Office of Origin	Words	Handed In at	Date

To LONDON OFFICE
FROM STANLEY OFFICE

21 January 1972

FOR DIRECTOR FROM HIGHCOMA. SOME INTEREST HAS BEEN AROUSED HERE BY A REPORT FROM NEW ZEALAND THAT AN AUSTRALIAN COMPANY MAY TRY TO EXTRACT MONTAN WAX FROM THE PEAT DEPOSITS IN THE CHATHAM ISLANDS . I WOULD BE GRATEFUL FOR ANY INFORMATION YOU COULD OBTAIN THROUGH YOUR SCIENTIFIC LINKS ABOUT MONTAN WAX WHICH APPARENTLY IS OF USE IN THE MANUFACTURE OF PLASTICS .

S/C

Open here file 'Montan Wax' v R. 1/2/11

Time

HQS/0135/72 R 1410Z 28/1/72
FROM LONDON
TO STANLEY
AS/182/1 GOVERNOR/FUCHS. MONTAN WAX IS A BITUMINOUS WAX FOUND IN LIGNITE AND PEAT MAINLY IN POLAND AND EAST GERMANY.

IT IS OBTAINED BY DISTILLATION WITH SUPERHEATED STEAM. IT IS SOLUBLE IN BENZINE, CARBON TETRACHLORIDE AND CHLOROFORM BUT INSOLUBLE IN WATER.

IT IS USED FOR ELECTRICAL INSULATION, WAX COATING ON LEATHER, POLISHES, AND AS A BASE FOR SYNTHETIC WAXES OF HIGH MOLECULAR WEIGHT. IT IS ALSO USED IN THE MANUFACTURE OF RECORDS, CARBON PAPER, ROOFING PAINTS AND IN PROTECTING RUBBER FROM SUN CRACKING.

THERE APPEAR TO BE NO RECORDS OF WORLD PRODUCTION OR THE AMOUNT IMPORTED TO THE UK.

WE ARE ENDEAVOURING TO GET MORE INFO FROM BP WHO ARE RESEARCHING THE PROBLEM OF SOLVENTS FOR EXTRACTION.
VEF/PCSW

28/1

Bk 2 weeks

1½

~~13~~
6a

EXTRACT FROM MINUTES OF MEETING NO. 1/72 OF EXECUTIVE COUNCIL

HELD ON THE 11TH FEBRUARY 1972

Council noted the following -

2509	ii. Montan Way - that a telegram on this subject had been sent to Sir V. D. Fuchs and some material (which was seen by Members) received in reply.

CLERK OF COUNCIL

BA

DECODE.

TELEGRAM SENT.

From SECRETARY OF STATE *to* GOVERNOR

Despatched: 23.2.72 *Time:* *Received:* 24.2.72 *Time:*

To Governor Falkland Islands.

Telno 48 of 23rd February. Your letter No. 0196 of 20 January: Monban Wax.

Recommend that Theophilus brings with him up to 12 samples dried peat of 100 grammes each.

DOUGLAS-HOME

O.i.c Afric,

Would you pl. show this to Mr Theophilus
a his return and if he can co-operate kindly
arrange.

C.S.
26.2.72.

2509

10

Foreign and Commonwealth Office
London SW1

Telephone 01- 930-8440

J. A. Jones, Esq. OBE
Colonial Secretary
STANLEY
Falkland Islands

Your reference

Our reference HGF 7/6

Date 24 February 1972

Dear John,

I have referred the enquiry about montan wax being produced from peat, contained in your letter of 20 January, to the Agricultural Adviser in ODA and he has obtained a report of which I enclose a copy for your reference.

2. You will see that while there is a considerable market in the United Kingdom for montan wax at present, demand is likely to fall as it is replaced by synthetic resins Possibly you may find that Argentina has a requirement for this product but before making further enquiries it would be as well to find out whether montan wax can be extracted from Falkland Islands peat. The Tropical Products Institute is willing to make an examination of peat samples for wax content and we have duly telegraphed suggesting that Mr.Theophilus could bring home some peat samples with him for this purpose.

Yours ever
George.

G. F. Kinnear
Atlantic and Indian Ocean Department

s/c F&R 13/3

See 16

Reference HGF 1/6

Mr Goldsack
A607
ODA

"Montan Wax" in its restricted sense, applies to the extract obtained from East German lignite or brown coal. Montan or Montana waxes extracted from lignites of other origins differ somewhat in the proportions of their constituents and in their properties. "Peat wax" is a variant of lignite montan wax.

Our Market Section have been in contact with various wax importing and refining firms in the U.K. and I am informed that the U.K. market for Montan wax at present amounts to about 1000 metric tonnes/year of crude wax, mostly from E. Germany but occasionally from Czechoslavakia and Spain. It is expected that this import figure will fall gradually as it is replaced by synthetic resins. The price of crude wax is currently £200-£250/ton cif U.K. Firms would prefer to import raw wax, which is crude wax after esterification and saponification. This fetches £600-£800/ton. We do not know the relative prices of peat and montan waxes since peat wax is apparently not well-known in the trade. It should be noted that some of the importing firms consulted indicated that they had received enquiries about Montan wax supplies from South America which indicates a possible market if it was considered feasible to extract the wax in the Falkland Islands.

We would be prepared to make a preliminary examination of a limited number of peat samples for wax content. For this purpose we should like at least 100g of dried peat per sample.

It would be an advantage if Mr Theophilus could visit TPI when he returns to the UK in March so that we can discuss the project.

J.A. Cornelius

J A Cornelius

21 February 1972

Note

Mr Theophilus will, on his return to Britain, contact Mr Cornelius.

13/3

O/c Agric.

P.G. 13/3

Mr. Theophilus has seen pp. 10 + 11 + taken notes

14.3.72

CODE 18-77

12

O.i.c. Agric. P.9 14/3

Recalled 16-3-72.

O.i.c. Agric.

Re.

hc.s

16.3.72.

F. 2509

O.I.C. AGRICULTURE

MONTAN WAX

The F.C.O., in reply to our initial enquiries about the economic potential of Montan Wax and our peat, suggested that Theophilus, T.A. Agrieconomist, should take some samples to Britain with him when he returned there at the end of his assignment. He however has pointed out the desirability of collecting samples from all over the colony. This cannot be done in time for him to take samples with him.

2. The collection of samples will now need to be organised: I suggest, as only small samples are required, that 24 should be collected. At the same time the file should be checked to establish to what organisation the samples should be sent and if we have not been given this information a telegram should be sent to FCO saying Theophilus will not be able to buy peat samples and asking to what organisation we should consign samples when collected.

bring
h

3. It would be best if the Development Committee were to be put in the picture and its advice sought regarding the areas from which the 24 samples are to be collected. At some stage a circular, explanatory letter to farm managers will be necessary.

4. A point which, should our peat turn out to contain the economically valuable elements which produce montan wax, will need to be considered is what the colony will do for fuel supplies if peat were to be commercially exploited for another purpose. To have to import expensive fuel in order to replace peat as fuel could be robbing Peter to pay Paul.

J.A.J.
7.3.72

KIV — 8

Recalled B.A.
13-3-72

MINUTES OF DEVELOPMENT COMMITTEE MEETING HELD ON 13TH JUNE 1972

4. MONTAN WAX

It had been suggested that the export of montan wax (a bituminous wax found in lignite and peat) could be a useful source of income to the Colony. Available information on the subject had been passed to members. As a result of discussion Mr. H. T. Luxton, The Harbourmaster, was asked to arrange for the collection of samples of peat to be sent to the Foreign and Commonwealth Office for analysis.

14

2509

26th June 72

To: Director, Civil Aviation,

STANLEY.

From: Ag. Colonial Secretary

cc: Oi/c Agric

Montan Wax

The possibility of extracting Montan Wax from peat is being examined and farm managers have been asked to send samples of dried peat to this office for outward conveyance to the Foreign and Commonwealth Office in London. You are authorised to carry these packets on the Beaver aircraft without charge.

2. The weight of each packet is not expected to exceed one pound.

(H. L. Bound)
AG. COLONIAL SECRETARY

HRT.

15

No.

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

MEMORANDUM

14th July, 1972.

From: Customs & Harbour Dept.,
Stanley, Falkland Islands.

To: The Colonial Secretary,
STANLEY.

SUBJECT :- Montan Wax

Submitted herewith 15 samples of peat from the following areas for transmission to F.C.O. for analysis:

West Falkland: Port Howard - Hill Cove - Chartres
Port Stephens - Pebble Island
West Point Island - Weddell Island(2)

East Falkland: Stanley(2) - San Carlos - North Arm
Johnson Harbour - Teal Inlet - Fitzroy

2509

16

15th July 72

2

Please refer to John Jones letter of 20th January 1972 (Ref: 0196) to George Kinnear and the latter's reply HGF 7/6 of 24th February on the subject of Montan Wax.

10

I am enclosing herewith some fourteen samples of dried peat from various areas in the Colony, and would be grateful if you could arrange for these to be analysed by the Tropical Products Institute. (I presume we can consider the Falklands as situated in the tropics for this purpose!). It was apparently not possible for Mr. Theophilus to bring these home.

(T. H. Layng)
COLONIAL SECRETARY

D. G. F. Hall, Esq., M.B.E.,
West Indies and South Atlantic Department,
Foreign and Commonwealth Office,
Downing Street,
LONDON S.W.1.

HRT.

Bu 15.9.72

17

Foreign and Commonwealth Office
London SW1

Telephone 01-

Dr J A Cornelius
The Tropical Products Institute
56-62
Gravesend Road
London WC1

Your reference

Our reference HWF 7/10

Date 3 August 1972

MONTAN WAX

1. Further to our telephone conversation on the afternoon of 2 August, I am now sending herewith some 14 samples of dried peat from various areas in the Falkland Islands. I trust the weights of each sample are sufficient for your prupose.

2. During February of this year, you were good enough to say you would be prepared to make a preliminary examination of a limited number of pear samples for wax content. We should now be grateful for your help.

D G F Hall
West Indian and
Atlantic Department

Copied to: T H Layng Esq
Colonial Secretary
Port Stanley

DEV/29/4

18

25th October 72

Montan Wax

Please refer to your letter 17 HWF 7/10 of 3rd August to Dr. J. A. Cornelius of the Tropical Products Institute.

2. Council members often inquire after the Peat we sent you in July, and I am wondering whether you have heard anything from the TPI about this?

(T. H. Layng)

D. G. F. Hall, Esq., M.B.E.,
West Indian & South Atlantic Office,
FOREIGN & COMMONWEALTH OFFICE.

HRT.

Ministry of Overseas Development
TROPICAL PRODUCTS INSTITUTE
56/62 Grays's Inn Road London WC1X 8LU
Telegrams Troprods London WC1
Telephone 01-242 5412 ext

Director P C Spensley
MA BSc DPhil FRIC

D G F Hall Esq
West Indian and Atlantic Dept
Foreign and Commonwealth Office
London SW1

Your reference HWF 7/10
Our reference BB 2/72
Date 1 November 1972

Dear Mr Hall

MONTAN WAX

We have now completed our examination of the dried peat samples sent to us under cover of your letter of 3 August.

The samples were ground with a pestle and mortar and screened using BS sieves of 10 and 72 mesh respectively. Moisture content was determined on the fractions passing the 10 mesh sieve by drying in an air oven at 101 $\pm$ 1°C to constant weight. For the determination of crude wax content, the coarser fraction was also dried in an air oven at 101 $\pm$ 1°C and then extracted with benzene in a butt extractor for 16 hours.

The moisture and crude wax contents of the samples were found to be as follows:-

Sample	Moisture Content, per cent by weight	Wax Content of dried peat, per cent by weight
Johnson Harbour, E. Falkland	11.4	5.5
Stanley (1), E. Falkland	16.2	6.8
Stanley (2), E. Falkland	15.7	3.2
San Carlos, E. Falkland	12.5	3.1
North Arm, E. Falkland	13.3	2.4
Fitzroy, E. Falkland	12.1	1.6
Teal Inlet, E. Falkland	11.7	6.0
Port Howard, W. Falkland	12.6	3.7
Hill Cove, W. Falkland	14.2	3.2
Chartres, W. Falkland	14.2	1.6
West Point Island, W. Falkland	19.1	0.5
Port Stephens, W. Falkland	12.3	3.9
Pebble Island, W. Falkland	11.6	3.9
Weddell Island, (1) W. Falkland	23.2	1.7
Weddell Island, (2) W. Falkland	21.5	6.6

It will be seen that the crude wax contents vary very considerably from only 0.5% for the West Point Island sample to 6.8% for the Stanley (1) sample. These results may be compared to those for English and Scottish peats extracted with benzene given by Crawley and King (J. Soc. chem. Ind., 1945, 64, 237-242). For 9 samples of English peats, the crude wax contents of dry material were 5.4 to 9.4% and for 11 samples of Scottish peats, the crude wax contents were 2.7 to 11.8%. However, a crude wax content by benzene extraction of 27.6% has been reported from the Chatham Islands (loc. cit. above).

Benzene extracted crude wax contains considerable quantities of resins and asphaltic materials as well as true ester wax. The results on the present samples indicate that the crude wax contents are on the low side and it must be emphasised that the way in which the samples were collected will determine to what extent they are representative of the peats in the areas selected. We do not know how the samples ~~are~~ were drawn but it will be necessary to make a more thorough survey and take samples from various depths in the strata before conclusions can be drawn as regards the total amount of wax available in any area.

Other important consideration would concern the quality of the waxes obtained, the extent of the available market and the economic feasibility of wax extraction operations in the Falklands.

Yours sincerely

J.A. Cornelius

J A Cornelius

Copy to:

T H Layng Esq
Colonial Secretary
Port Stanley
Falkland Islands

UNCLASSIFIED

23

Foreign and Commonwealth Office
London SW1

Telephone 01-

T H Layng Esq
Chief Secretary
FALKLAND ISLANDS

Your reference

Our reference HWF 7/10

Date 7 November 1972

Jen Layng.

MONTAN WAX

1. Would you please refer to your letter DEV/29/4 of 25 October.

2. I enclose a copy of a self-explanatory letter from the Tropical Products Institute.

Yours ever.
David Beaumont

D C B Beaumont
West Indian and
Atlantic Department

Enc

Ref: DEV/29/4

24

4th December 72.

Montan Wax

Thank you for your letter HWF/7/10 of 7th November under cover of which you enclosed a copy of the T.P.I.'s report on our peat samples.

2. The gist of this appears to be that more investigation is needed. The crude wax content is on the low side, but this may be due to the way in which the samples were selected.

3. Would it be possible for you to ask some one in the O.D.A. whether it is considered worthwhile pursuing this possible new industry? Perhaps we could be told how to cut representative samples for further analysis. We would also appreciate advice on what is involved in wax extraction.

study ?

(T. H. Layng)

D. G. F. Hall, Esq., M.B.E.,
West Indies and South Atlantic Department,
Foreign and Commonwealth Office,
London S.W.1.

CB

Ref: DEV/29/4

25

29th December 72

Montan Wax 27

Please refer to my letter of December 4th in which I acknowledged the Tropical Products Institute's analysis of our initial samples of peat and asked whether you could arrange further advice for us on whether it would be worthwhile pursuing study of this possible new industry for the Colony.

2. I have now discovered that the British Antarctic Survey has a scientist Mr. C. J. Barrow at South Georgia for the current season studying the Peat there. I have discussed our proposal to extract Montan Wax from Falkland Peat with him, and he has told me that if he can be granted leave of absence from the British Antarctic Survey for 4 to 6 weeks when he passes through the Falklands on his way home in March or April 1973, he would be very pleased to advise us whether it would be worthwhile going ahead with a full feasibility study.

3. We will be discussing this with Sir Vivien Fuchs when he passes through Stanley next week and will be suggesting that Barrow leaves the British Antarctic Survey vessel at Stanley and then flies back to the United Kingdom some 4 to 6 weeks later - thus returning to his duties not much later than he would have if he had made the whole voyage by sea. If Sir Vivien agrees to this arrangement, would you be able to supply us with Technical Assistance funds to meet Barrow's salary and expenses in the Falklands and his airfare back to the United Kingdom?

4. We will let you know Sir Vivien's reactions by telegram.

(T. H. Layng)

D. G. F. Hall, Esq., M.B.E.,
West Indian & South Atlantic Department,
FOREIGN & COMMONWEALTH OFFICE.

(Not shown on original)
cc: C. J. Barrow, Esq.,
Shackleton House,
King Edward Point,
South Georgia.

cc: Sir Vivien Fuchs, Kt., Ph.D.
c/o British Antarctic Survey,
Stanley.

cc: Officer in Charge,
British Antarctic Survey,
Stanley.

HRT.

NR 31 R 131900Z
FM BRANSFIELD
TO STANLEY FOR CHIEF SEC
INFO BILL SLOMAN
BD/031/73 CHIEF SEC/F CHS. HAVE SEEN YOUR DEV/29/4 29 DEC
RE C J BARROW AND MONTON WAX. I HAVE NO OBJECTI N IF F C O
AGREES COSTS. I HAVE ASKED SLOMAN TO GET CONFIRMATION FROM
BARROWS SUPERVISORS IN UK THAT THE TIME IS AVAILABLE
HMOG/HT

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

26

WAP 15148—821 585968/704663 500 pads 9/69 Grp.782

Number	Office of Origin	Words	Handed in at	Date
	PSY			16.1.73

To

LTF PRODROME LONDON SW1 HO A/c

01816

MONTAN WAX STOP LAYNG'S LETTER TO HALL 29TH DECEMBER STOP FUCHS HAS AGREED RELEASE BARROW FOR PEAT SURVEY STOP CAN YOU PROVIDE TECHNICAL ASSISTANCE FUNDS QUERY

LEWIS

Time RRT.

ZCZC ATS439 MOW367X LHC854 XFC 2022

28

FKLX BY GBLH 058

S LONDONLH 58/57 16 1845

ETATPRIORITE

PRIORITY GOVERNOR

FALKLANDISLANDS

FM FCO 161500Z UNCLASSIFIED

TO PRIORITY FALKLAND ISLANDS TELNO 16 OF 16 JAN

MONTAN WAX 1. YOUR LETTERS OF 4 AND 29 DECEMBER

2. AGREED THAT BARROWS SALARY EXPENSES AND RETURN FARE TO UNITED KINGDOM MAY BE MET FROM TECHNICAL ASSISTANCE FUNDS PLEASE FORWARD FORM A1 COMPLETED AS SAR AS IS APPROPRIATE

DOUGLASHOME

Excellent

COL 161500Z 16 16 1 4 29 2 A1

NNNN

Application for British Technical Assistance

Provision of an Expert

Government of the Falkland Islands.

---

1. Type of appointment: Palynologist to study Falkland Islands Peat

2. Number required: One - Mr. C. J. Barrow

3. Authority to whom expert responsible: Chief Secretary, Falkland Islands.

4. Date required: April - May 1973

5. Duration of appointment: 6 weeks.

6.(a) Background to and description of project for which expert required, (Please indicate as concisely as possible the general nature of the project, development scheme or training programme etc. stating whether this comes within the Government's development programme. It is important to know whether the application is related to a projected or newly started enterprise, the extension, re-organisation or maintenance of an existing one, and whether it is a one-time or continuing operation. In the case of a feasibility survey the sources of capital to finance the implementation of any recommended scheme should be stated.)

It has been suggested that an economic industry could be started in the Falkland Islands extracting Montan Wax from peat. Analysis of the peat will have to be done in the United Kingdom but the expert will travel throughout the Falklands to collect representative samples of peat so that a definitive analysis can be done of the wax content.

(b) Details of any previous application to fill vacancy through United Nations or other source. ----

(c) (i) Is the vacancy on the regular establishment of a Government Department or other institution? ----

(ii) If so, please state the local salary mean.

(d) Additional Information for Industrial or Engineering Projects:
Please indicate the output or estimated output and number of workers involved in the industrial or engineering concern. If a construction contract is involved particulars should be given, including whether the contract provides for interim operations and/or the training of personnel by the contractors; it should be atated if a contract has been signed and the completion date indicated. ----

N.B. 1. Two copies of this form should be completed for each application
2. This form should not be used in applying for:
(a) Assistance under the Colombo Plan.
(b) for appointments eligible for O.S.A.S. terms.

7. (a)	Essential qualifications and experience required.	Mr. Barrow has already spent 6 months studying the Peat in South Georgia.
(b)	Any additional desirable qualifications.	-----
(c)	If knowledge of a particular language is essential or desirable, please give details.	-----
8.	Age limits	N/A
9.	Full details of the duties of the expert, e.g. is he to act as a consultant or to be associated with the management of the project?	The expert will ensure collection of representative samples of Peat.
10.	Associated staff (in appropriate cases please say what provision has been made for supporting staff). Please indicate the level of staff with whom the expert will be working.	Labourers from the Agricultural Department will be available to assist if necessary.
11.	In the case of continuous projects please give name and particulars of understudy or counterpart who will work with expert and say what arrangements will be made to train a local successor.	-----

TERMS AND CONDITIONS OF APPOINTMENT

12.	Actual place of employment (and nearest town if appropriate).	Whole of Falklands.
13.(a)	Quarters Is suitable living accommodation provided?	Expert will travel continuously and be accommodated by farmers.
(b)	If so provided, is accommodation furnished or unfurnished?	-----
(c)	Is accommodation suitable for (i) a married man without a family? (ii) a married man with a family?	-----
(d)	Where quarters are not provided please give information about the availability of housing or hotel accommodation.	In Stanley, accommodation will be in the hotel.
(e)	Can furniture and household requisites be bought locally, and would it be cheaper to buy locally rather than to buy and bring from Britain?	-----

14. Allowances

Please state where appropriate

(a)	Daily allowance for food	-----
(b)	Daily allowance for accommodation	-----
(c)	Daily and nightly subsistence allowance rates when on duty away from headquarters.	-----
(d)	Internal travel allowance rates (or if a car is provided for official journeys?)	-----
(e)	Any other allowances	-----

15.	Will medical and dental treatment and hospital arrangements be provided free for the appointee and his accompanying dependants? If not, please state what assistance, if any, is offered by the Government in this respect.	Yes
16.	Will exemption be granted from payment of customs duties, income and other taxes?	Yes
17.	What arrangements are there for local leave?	N/A

Signed .....

Chief Secretary

On behalf of the Government of the Falkland Islands

Date 19th January 1972

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

32

WAP 15148—821 585968/704663 500 pads 9/69 Grp.782

Number	Office of Origin	Words	Handed in at	Date
	PSY			19.1.73

To

R.R.S. BRANSFIELD COPIED SLOMAN

FOR FUCHS FROM LAYNG STOP FCO HAS AGREED PROVIDE FUNDS FOR BARROW'S SALARY AND AIRFARE STANLEY - LONDON STOP WILL MAKE FINAL ARRANGEMENTS THIS ASSIGNMENT WHEN BARROW'S SUPERVISOR HAS CONFIRMED NO OBJECTION

CHIEFSEC

Time cc: Officer in Charge, B.A.S. (by hand)

Ref: DEV/29/4

33

19th January 73

Montan Wax

Please refer to your telegram number 16 of 16th January, and we are delighted that you are able to provide funds for Barrow's assignment. I enclose completed application forms as requested.

2. We expect Barrow to arrive here on April 11th and are planning for him to fly back to the United Kingdom on May 31st.

(T. H. Layng)

D. G. F. Hall, Esq., M.B.E.,
West Indian & South Atlantic Department,
Foreign & Commonwealth Office.

NSOO

cc: Officer In Charge,
BAS, Stanley.

HRT.

34

NR 82 R 24/1/73 0050Z

FM BRANSFIELD

TO STANLEY OFFICE

INFO LONDON HQ

BD/082/73. FOR LAYNG. THANK YOU FOR INFORMATION RE BARROW PROJECT.

STANLEY OFFICE WILL INFORM HIM WHEN ARRANGEMENTS COMPLETED.

VEF/HMO'G

Monta Voc

File

35

BRITISH ANTARCTIC SURVEY

Please quote in reply

No. CONF/08

PORT STANLEY,
FALKLAND ISLANDS

27th February, 19 73

The Chief Secretary,
SECRETARIAT,
STANLEY.

COLONIAL SECRETARY'S OFFICE
28 FEB 1973
STANLEY

Dear Sir,

I refer to the recent correspondence on Mr. Barrow and the "Montan Wax" project.

The Survey's Botanical Supervisor has agreed that Mr. Barrow can investigate in the Falklands to your requirements providing there is no delay to his original U.K. return date. ?

Providing Government relieves Barrow to the U.K. by the 11th May and providing that all passage, accommodation and travel expenses are met by Government, the Survey agrees that Barrow may be disembarked to Government from the Bransfield on approximately the 11th April 1973.

The Survey will not charge the Government for Barrow's salary reimbursement during the period of work in the Falklands.

Yours faithfully,

E.C.J. Clapp,
Officer in Charge,
British Antarctic Survey, STANLEY.

To me - File
ends

Ref: DEV/29/4

5th March 73

Montan Wax

Please refer to my letter DEV/29/4 of 19th January under cover of which I forwarded a formal application for Technical Assistance as requested.

2. We have now heard from British Antarctic Survey, Barrow's employer, that they do not require any reimbursement for his services. They do however want him back in U.K. by May 11th. The only charges against Technical Assistance foreseeable are, thus, his Stanley/London airfare and the usual subsistence allowance of £3.85 per day which you pay Technical Assistance experts during their periods of duty in the Falklands. There will also be freight charges on the peat samples, but these can perhaps be defrayed by using the fuel on your office fires after analysis! No doubt you have warned the T.P.I. to expect the consignment.

(T. H. Layng)

D. G. F. Hall, Esq., M.B.E.,
Foreign & Commonwealth Office.

Ref: PPV/29/4

37

6th March 73

Dear Sir,

I would be grateful if one passage Stanley/Comodoro Rivadavia/ Buenos Aires could be arranged on behalf of Mr. C. J. Barrow. Mr. Barrow wishes to leave Stanley on the 7th May 1973.

Yours faithfully,

(R. Browning)
for CHIEF SECRETARY

The Lade Agent,
Stanley.

HRT.

Ref: [illegible]/29/4

38

7th March 73

Dear Sir,

I would be grateful if one connecting passage Buenos Aires/ London could be arranged on behalf of Mr. C. J. Barrow. Mr. Barrow will be leaving Stanley on the 7th May 1973 by the F.27.

Yours faithfully,

(Mrs) R. Livermore
for CHIEF SECRETARY

The Darwin Shipping Company,
Stanley.

Reply at 42

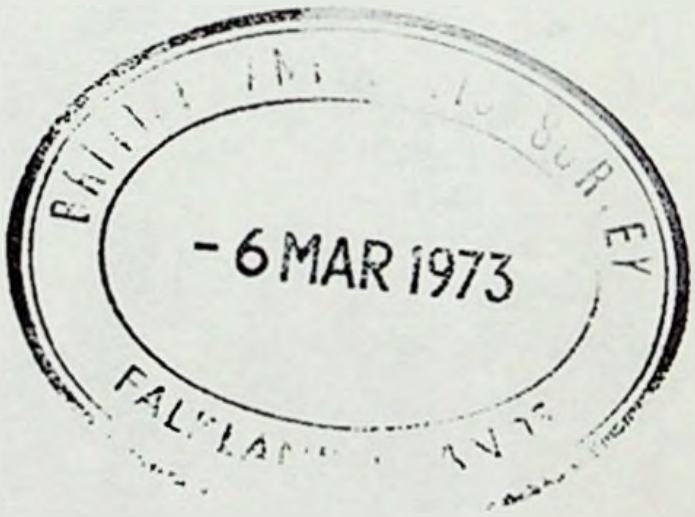
HRT.

BRITISH ANTARCTIC SURVEY

Tom -

Can I leave necessary replies to you please.

WITH COMPLIMENTS



STANLEY
FALKLAND ISLANDS

FM STANLEY OFFICE

TO SOUTH GEORGIA

23.2.73

CONF/08/45. REF BARROW. SUGGEST YOU CAN NOW CONFIRM TO [redacted] BARROW FALKLANDS PROJECT WILL GO AHEAD. BARROW SHOULD SIGNAL ANY REQUIREMENTS HE MAY NEED READY FOR HIS ARRIVAL IN STANLEY. DO NOT KNOW IF HIS KNOWLEDGE OF FALKLANDS ENABLES HIM TO SIGNAL A TENTATIVE PROGRAMME BUT ANY LITTLE PRE-ARRIVAL INFORMATION MAY HELP.=

ECJC/-

FM SOUTH GEORGIA

26.2.73

TO STANLEY

M/128/73 CONF/08/45 FROM BARROW.
NOT ENOUGH INFO TO SIGNAL EXACT REQUIREMENTS AS YET. WILL NEED CONTAINERS FOR SAMPLES (WITH CLOSURES). SIZE AND NUMBER WILL DEPEND UPON THE NUMBER OF SITES TO BE VISITED AND UPON THE DEPTH OF SAMPLING AND INTERVAL OF SAMPLING (SUGGEST AT 5 (5) CM INTERVAL). I HAVE APPROX 300 (300) SAMPLE JARS OF 20 (20) CC SIZE AVAILABLE. THE SIZE OF JARS WILL DEPEND UPON OF THE LAB FOR ANALYSIS. MAY NEED ACID AND DISTILLED WATER IF STRICT CHEMICAL CLEANLINESS IS NEEDED. STANLEY SHOULD HAVE THE INFORMATION TO DETERMINE NEEDS ON BASIS OF ABOVE. SECTIONS CAN BE SAMPLED AND PACKED WITH LITTLE TROUBLE OR EQUIPMENT. WILL PROBABLY NEED TRANSPORT ON ISLAND AT TIMES.

I WOULD LIKE COMMENT AND INFORMATION IF POSSIBLE FROM DRS. GREENE AND ADIE ABOUT THE POSSIBILITY OF COLLECTING PALYNOLOGICAL MATERIAL. IF THIS FAVOURED ONE AREA I WOULD LIKE TO VISIT IS WEST POINT ISLAND. I WOULD WELCOME ANY FURTHER DETAILS THAT STANLEY CAN SEND BEFORE THE LAST SHIP LEAVES S. GEORGIA. ENDS=

CHINN=

FM SOUTH GEORGIA

5.3.73

TO STANLEY

M/146/73. REFERENCE MONTAN WAX PROJECT.
BARROW ASKS IF THE CHIEF SECRETARY COULD TELEGRAPH SOME DETAILS OF PROJECT AS SOON AS CONVENIENT AS HE HAS RECEIVED NO MAIL FROM STANLEY SINCE MEETING. HE WISHES TO HAVE SOME IDEA OF TRAVEL ARRANGEMENTS, FINANCE AND IF POSSIBLE, DURATION OF STAY. ALSO IT WOULD BE MOST USEFUL TO HAVE INFO ON THE CHATHAM ISLANDS WORK IN STANLEY WHEN HE ARRIVES NEXT MONTH.

FERGUSON=

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

P1677 P4416 8/64

Number	Office of Origin	Words	Handed in at	Date
	PSY			7.3.73

To

LTF BARROW KEP SOUTH GEORGIA HO A/c

WE HAVE NOW RECEIVED FINAL APPROVAL BAS AND FCO YOUR FALKLANDS ASSIGNMENT STOP TRUST YOU RECEIVED MY LETTER OF DECEMBER 29TH STOP AGREED PERIOD IN FALKLANDS IS APRIL 11TH TO MAY 7TH AND YOUR FLIGHT TO UK ARRIVING 9TH BOOKED STOP ACCOMMODATION WILL BE IN UPLAND GOOSE HOTEL STANLEY AND WITH FARM MANAGERS STOP ALL ACCOMMODATION SUBSISTENCE TRAVELLING AND WORK EXPENSES PAID STOP YOUR BAS SALARY CONTINUES UNAFFECTED STOP ASSIGNMENT IS TO ADVISE US ON MONTAN WAX INDUSTRY AND COLLECT REPRESENTATIVE PEAT SAMPLES FOR UK ANALYSIS STOP DETAILED WORK PROGRAMME WILL BE DISCUSSED WITH YOU AND FINALISED ON ARRIVAL STOP GRATEFUL CONFIRM THESE ARRANGEMENTS SATISFACTORY

CHIEFSEC

HMT.

Time

NR 37 R 12/3/73 1300Z

FM BARROW, SOUTH GEORGIA

TO CHIEF SECRETARY, STANLEY.

RE MONTANE WAX PROJECT. DID NOT RECEIVE DEC. 29TH LETTER
I CONFIRM ARRANGEMENTS SATISFACORY.

BARROW.

ENDS

B/w K mw / E.J 13/3

DEV/29/4

42

DARWIN SHIPPING LIMITED

Directors: A. SLOGGIE, H. M. MILNE, V. H. JEPPESON

TELEGRAMS:

"FLEETWING PORTSTANLEY"

STANLEY

FALKLAND ISLANDS

14th March, 1973.

The Chief Secretary,
The Secretariat,
Stanley.

/B.

Dear Sir,

Mr. C.J. Barrow

Thank you for your letter DEV/29/4 of 7th inst.

We will be arranging a flight for Mr. Barrow on 8th May from Buenos Aires to London. Should it be an Economy Class flight?

Yours faithfully,

for Darwin Shipping Ltd.

Reference No. RC/P 63510

Foreign and Commonwealth Office
OVERSEAS DEVELOPMENT ADMINISTRATION
Eland House, Stag Place
London SW1E 5DH

Please address reply to
THE SECRETARY
(OVERSEAS DEVELOPMENT ADMINISTRATION)

21 March 1979

Sir

1. I am directed by the Minister for Overseas Development to confirm the arrangements for your forthcoming visit to Falkland Islands for a period of approximately 6 weeks from the date of your arriving in the Falkland Islands under Technical Assistance arrangements to the Falkland Islands. The purpose of your visit will be (in connection with the possible economic industry of extracting Wootan Wax from peat in the Falkland Islands) to travel throughout the Falklands to collect representative samples of peat so that a definite analysis can be made of the wax content.

2. In consideration of your carrying out the duties referred to above you will be entitled to receive the benefits mentioned hereafter in this letter.

3. The cost of your economy class return air passage from Falkland Islands to London will be met by this office. The cost of travel at the public transport rate in the United Kingdom from the airport or air terminal on return will also be met on receipt of a claim from you.

4. While you are in Falkland Islands during the said period you will receive:-

a. A subsistence allowance appropriate to British Civil Servants. This allowance will be reduced if you are provided with accommodation; it will not be payable if you are provided with both accommodation and board. If you are provided with board or accommodation other than at an hotel, or at a concessionary rate you are required to inform the local office of the British Representative. If you receive any payment on account of accommodation or board other than from the British Government you will pay to the British Government an amount equivalent to such payments, payment may be made either to the local office of the British Representative or to this office.

C J Barrow Esq

b. The cost of necessary medical attention and treatment on the scale approved for British Civil Servants serving there; provided that any payments which if such treatment had been given in the United Kingdom under the National Health Scheme would have been payable by the person receiving the treatment shall be paid by you to the local Office of the British Representative or may be deducted from any payments due to you from the British Government.

5. The Government of Falkland Islands will meet the cost of your travelling on duty within that country.

6. Section 2(3) of the Superannuation Act 1972 which refers to pensions, allowances or gratuities to civil servants and others who are incapacitated or die as the result of an injury sustained, or disease contracted in the discharge of their duties, will apply to you. Your service will not however be treated as service as a civil servant for any other purpose of the Superannuation Act 1972. A salary of £1,655 per annum will be taken in your case as the basis for any injury benefits made under the said section 2 of the Superannuation Act 1972.

7. If the Government of Falkland Islands refuses or indicates that it does not desire to accept your services, the British Government may terminate this appointment forthwith, and thereupon all obligations of the Government in relation to this appointment shall cease, except that without commitment this office will consider claims submitted by you for expenses or losses reasonably incurred in anticipation of your departure from the United Kingdom to take up the appointment. Further, this appointment is subject to the condition applicable to persons in the service of the British Government that it may be terminated at the pleasure of the Crown. You will continue to be bound by the provisions of the Official Secrets Acts. These Acts cover inter alia the communication to unauthorised persons of information which has been obtained owing to your position as the holder of an appointment under Technical Assistance arrangements.

8. Although you will be in the whole-time service of the British Government, which will be ultimately responsible for your receiving the various entitlements referred to in this letter, your services have been engaged for the benefit of the Government of Falkland Islands and you will be expected to use your best endeavours in the interests of that Government. The local British Representative is authorised to issue instructions on behalf of the Minister for Overseas Development in all matters affecting this appointment, and while you are serving overseas correspondence on such matters should be addressed either to the local office of the British Representative or through that office to the Overseas Development Administration.

9. If you wish to accept this appointment on the terms set out in this letter the acceptance at the foot of this letter should be signed and returned to this office as soon as possible

before your departure for the receiving country. A duplicate of this letter is enclosed for your retention.

I am Sir
Your obedient Servant

ACCEPTANCE

I accept the appointment referred to in the above letter on the terms set out therein.

_____

(Signature of C.J. Barrow.....)

Date .....

ENC

ORIGINAL

Saving

From the Minister for Overseas Development

To the Officer Administrating the Government of FALKLANDS ISLANDS

Date 22 MAR 1973

No. RC/P 63710

1. Would you please refer to your letter of 19 January to the Foreign and Commonwealth Office about the short-term visit of Mr C J Barrow to the Falkland Islands on 11 April. I enclose two copies of his Letter of Appointment setting out the terms and conditions of the assignment.

2. I should be grateful if you would make Mr Barrow's return air booking to the UK (economy class) at the end of his visit and inform this office by telegram of his date of departure and expected date of arrival in the United Kingdom.

3. I also attach Form TA.49 (record of cash advances and accommodation at post). It is essential that all sections of the form be completed at the end of Mr Barrow's assignment and returned immediately to me (Room E410) by Air Mail.

MINISTRANT

Enc

43

NR 65 R 21/3/73 1915Z

FM SOUTH GEORGIA

TO STANLEY, F.I.

FM BARROW, SOUTH GEORGIA TO CHIEF SECRETARY, FALKLAND ISLANDS.

I WISH TO USE DRILLING EQUIPMENT IN THE FALKLAND ISLAND PROJECT. I WILL BRING IT WITH ME FROM SOUTH GEORGIA. WOULD IT BE POESIBLE TO HAVE ITSHIPPED BACK TO U.K. BY THE A.E.S. (?) AS IT IS TOO HEAVY FOR AIRFREIGHT - QUERY.

BARROW.

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

WAP 15148—821 585968/704663 500 pads 9/69 Grp.782

Number	Office of Origin	Words	Handed in at	Date
				27.3.73.

To

LTF BARRON SOUTH GEORGIA HO A/C

XX

WE WILL ARRANGE SHIP DRILLING EQUIPMENT UK BY FIRST OPPORTUNITY

CHIEFSEC

Time

NR 92 R 28/3/73 2135Z

TO CHIEF SECRETARY, STANLEY

FROM BARROW, SOUTH GEORGIA.

THANKYOU FOR TELEGRAM OF 27/1/73. COMMUNICATION FROM DR. GREENE RECEIVED THE SAME DAY NOTES THAT THE SAMPLING OF MONTANE WAX WILL NOT REQUIRE CORER AND LATTER SHOULD BE RETURNED TO U.K. ON BRANSFIELD, WHICH I SHALL DO.

BARROW. +

(CCCN TO FIRST LINE SHOULD READ ' TELEGRAM OF 27/3/73. ')

Ref: DEV/29/4

Chief Secretary's Office,
Stanley, Falkland Islands.

5th April 1973

Dear Sir,

The government has been fortunate to secure the services of Mr. C. J. Barrow, an expert on Peat, for a period of 5 weeks beginning on April 11th.

2. Mr. Barrow's assignment, which will be paid for out of British Technical Assistance funds, will be to travel throughout the Colony and collect fully representative peat samples from all areas. These samples will then be analysised in London with the aim of finally establishing whether there is any point in proceeding with the study of the suggested scheme to set up a Montan Wax industry here. Samples collected last year have shown generally low wax content, but since these were taken at random it is not known how representative they can be considered to be.

3. Mr. Barrow will be working out a programme for his visit as soon as he arrives from South Georgia, and it is hoped that farm managers will agree to his visiting them and taking peat samples.

Yours faithfully,

(T. H. Layng)
CHIEF SECRETARY

To: All Farm Managers.

HRT.

54

DARWIN SHIPPING LIMITED

Directors: A. SLOGGIE, H. M. MILNE, V. H. JEPPESON

TELEGRAMS:
"FLEETWING PORTSTANLEY"

STANLEY
FALKLAND ISLANDS

6th April, 1973.

The Chief Secretary,
The Secretariat,
Stanley.

/B.

Dear Sir,

Mr. C.J. Barrow

With further reference to your letter DEV/29/4 of 7th March and to our letter of 14th March in reply.

Would you kindly note that the above-named has now been confirmed by Aerolineas Argentinas flight AR 132 which leaves Ezeiza International Airport, Buenos Aires at 1700 hours on Tuesday, 8th May, 1973 and arrives London (Heathrow) at 1435 hours on Wednesday, 9th May.

It was not clear in your original letter whether you wished us to issue a ticket for Mr. Barrow's flight, or whether Mr. Barrow will be in possession of an open date return air ticket. We would be grateful if you could say which is the case.

Yours faithfully,

for Darwin Shipping Ltd.

Now to issue Ticket.

C.S.
Have arranged for ticket to be issued.
R. 11/4/73.

Ref: FOR/34/1

55

17th April 73

Dear Sir,

I am to refer to my letter 37 DEV/29/4 of 6th March 1973, and to request provisional air passages Stanley/Comodoro Rivadavia/Buenos Aires on behalf of Mr. C. J. Barrow, commencing with the flight from Stanley on 14th May. These passages are requested in addition to those mentioned in my letter under reference.

2. Immediately I am advised of Mr. Barrow's departure date from the Islands I will notify you which of the two bookings should be regarded as firm.

Yours faithfully,

(R. Browning)
for CHIEF SECRETARY

The LADE Agent,
Stanley.

HRT.

Ref: DMV/29/4

THE SECRETARIAT,
Stanley, Falkland Islands.

21st April 1973.

Dear Sir,

Visit of Mr. C. J. Barrow

Mr. Barrow, a palaeontologist, is visiting the Colony to advise Government on the possibility of exploiting peat resources for the manufacture of Montan Wax. He plans to spend two weeks visiting settlements on East Falkland and three weeks visiting West Falkland and outlying islands, and hopes to collect representative samples of peat at each farm.

2. Mr. Barrow's provisional programme for East Falkland is as follows:

Monday, April 23rd	Fly to Johnson Harbour, then overland to Port Louis and Green Patch.
Wednesday, April 25th	Fly Green Patch to Teal Inlet.
Thursday, April 26th	Fly to Stanley.
Monday, April 30th	Fly to Port San Carlos.
Tuesday, May 1st	Fly Port San Carlos to Darwin.
Wednesday, May 2nd	Fly Darwin to North Arm.
Thursday, May 3rd	Fly North Arm to Fitzroy then overland to Bluff Cove.
Friday, May 5th	Fly to Stanley.

3. A copy of this notice is being posted to all the settlements mentioned, and it would be appreciated if any Manager for whom a visit at the time mentioned would be inconvenient could contact Mr. Morrison at the Secretariat. Similarly, Mr. Barrow would be most grateful if overland transport as mentioned could be arranged and bills sent to the Secretariat for payment.

Yours faithfully,

D. R. Morrison

(D. R. Morrison)
for CHIEF SECRETARY

To Farm Managers concerned.

57

Ref: DEV/29/4

21st April 73.

Dear Sir,

Mr. C. J. Barrow
Monban Max Project

As you know Mr. Barrow has arrived here considerably later than expected, and he has run straight into the Easter holiday and Queen's Birthday season. We must assume, too, that as we get further into winter his movements round the camp may be delayed.

2. In these circumstances, Mr. Barrow estimates that he will need until May 28th or June 4th in which to complete his project. Would it be possible for this to be given his supervisor's blessing?

Yours faithfully,

(T. H. Layng)
CHIEF SECRETARY

Original given to Barrow

Officer in Charge,
British Antarctic Survey,
Stanley.

CB

c.c. C. J. Barrow, Esq.,
Upland Goose Hotel,
Stanley.

DEV/29/4

24th April 1973.

The Chief Secretary

Supt. of Civil Aviation

Visit of Mr. C. J. Barrow
to Camp Settlements

I enclose an itinerary of Mr. Barrow's camp visits and should be grateful if you would make the necessary bookings, which in view of the short period he is to spend in the Islands, should be priority bookings.

(D. R. Morrison)
for CHIEF SECRETARY

CB

Ref: TEL/30/1

60

25th April 73.

Dear Sir,

I return the accepted letter of appointment in respect of Mr. C. J. Barrow as requested.

Yours faithfully,

(D. R. Morrison)
for CHIEF SECRETARY

The Secretary,
Overseas Development Administration,
Eland House,
Stag Place,
London SW1E 5DH.

CB

FALKLAND ISLANDS

P.O. 228

65

HEAD OF SERVICE (or A/c.) K. Miscellaneous (Other Charges)

SUB-HEAD 17 Local Expenses Relating to Technical Assistance

COLONIAL GOVERNMENT,

19 9th May 73

PAY Mr D.G.B.King, Upland Goose

in the sum of

being thirty-one pounds and twenty-four pence only

hotel expenses for Mr Barrow from 18th to 23rdand 26th to 30th April 1973, as per attached account.

Authority for Payment

General Warrant

I CERTIFY that the above account is correct, the payment approved under the authority quoted, and that the rate/prices charged is/are fair and reasonable.

£31-24

Head of Department.

for

19

Received from the Colonial Treasury, the amount specified in the foregoing warrant; to the correctness of which I hereby certify.

Signature of Receiver.

Treasury Form FIN 7/430

61

Ref: DEV/29/4

Chief Secretary's Office,
Stanley, Falkland Islands.

9th May, 1973.

Dear Sir,

Mr. C. J. Barrow - Palaentologist

Further to my letter DEV/29/4 of 21st April 1973, I would now advise you that Mr. Barrow's provisional programme for the remainder of this month is as follows:-

Tuesday 8th	Saunders Island	By boat.
Wednesday 9th	Hill Cove	
Thursday 10th	West Point Island	
Friday 11th	Stanley	
Saturday 12th	Government transport to Murrell	
Sunday 13th		
Monday 14th	Port Howard	
Tuesday 15th	San Carlos	
Wednesday 16th	" " to Snipe Camp if possible	
Thursday 17th	Douglas Station	
Friday 18th	Stanley	
Saturday 19th	Government transport to Mount Low area	
Sunday 20th		
Monday 21st	Weddell Island	
Tuesday 22nd	Port Stephens	
Wednesday 23rd	Chartres	
Thursday 24th	Fox Bay West or Pebble Island.	
Friday 25th	Stanley	

2. As with my earlier letter, a copy of this notice is being posted to all the settlements concerned, and it would be appreciated if any Manager for whom a visit at the time mentioned would be inconvenient could contact Mr. Morrison at the Secretariat. Similarly Mr. Barrow would be most grateful if transport as necessary could be arranged and bills sent to the Secretariat for payment.

Yours faithfully,

(R. Browning)
for CHIEF SECRETARY

To all Farm Managers concerned

HRT.

ZCZC

NR 50/81

FOXBAY 35 10 0900

ETAT

CHIEF SECRETARY PORTSTANLEY

BARROW REVISED PROPOSED ITINERARY MONDAY 4TH PORT HOWARD TUESDAY FOXBAYWEST WEDNESDAY PORT STEPHENS THURSDAY WEDDELL FRIDAY RETURN STANLEY MONDAY 21ST DOUGLAS STATION TUESDAY CHARTRES WEDNESDAY SAN CARLOS FRIDAY RETURN STANLEY

BARROW

Bookings made up to Sunday 18th.

COL 4TH 21ST

NNNN

Ref: DEV/29/4

62

10th May 73

Dear Sir,

Mr. C. Barrow

Please make a booking for 28th May for the above-named from Stanley to Buenos Aires.

2. Payment will be made by this office.

Yours faithfully,

(D. R. Morrison)
for CHIEF SECRETARY

The LADE Agent,
Stanley.

64

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

WAP 15148—821 585968/704663 500 pads 9/69 Grp.782

Number	Office of Origin	Words	Handed in at	Date
	PSY			14.5.73

To

ETAT MANAGER FOX BAY WEST

CHRIS DARROW PEAT SAMPLER ARRIVING FOX BAY WEST TUESDAY 15TH
ON TO STEPHENS WEDNESDAY PRESUME YOU CAN ACCOMMODATE

CHIEFSEC

Time HRT.

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

65

WAP 15148—821 585968/704663 500 pads 9/69 Grp.782

Number	Office of Origin	Words	Handed in at	Date
	PST			14.5.73

To

ETAT MANAGER WEDDELL ISLAND

CHRIS BARROW PEAT SAMPLER ARRIVING THURSDAY RETURNING STANLEY FRIDAY PRESUME YOU CAN ACCOMMODATE

CHIEFSEC

HRT.

Time

66

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

WAP 15148—821 585968/704663 500 pads 9/69 Grp.782

Number	Office of Origin	Words	Handed in at	Date
	PSY			

To

ETAT MANAGER PORT STEPHENS

CHRIS BARROW PEAT SAMPLER ARRIVING YOURS WEDNESDAY 16TH TO WEDDELL 17TH PRESUME YOU CAN ACCOMMODATE

CHIEFSEC

Time HRT.

67

Ref: DEV/29/4

14th May 73

Dear Sir,

Mr. Chris Barrow is booked by LADE to fly from Stanley to Buenos Aires on 28th May. Please arrange economy class air passage from Buenos Aires to London for Tuesday, 29th May. Please also arrange for him to be met by Houlder Brothers and reasonable hotel accommodation provided.

Yours faithfully,

(D. R. Morrison)
for CHIEF SECRETARY

Darwin Shipping Limited,
Stanley.

HRT.

Ref: DEV/29/4

68

14th May 73

Dear Sir,

Please provide Mr. Chris Barrow with the normal 5 kilos excess baggage when he flies from Stanley to Buenos Aires on 28th May. The charges will be met by this Government.

Yours faithfully,

(D. R. Morrison)
for CHIEF SECRETARY

The LADE Agent,
Stanley.

HRT.

GOVERNMENT TELEGRAPH SERVICE

72

FALKLAND ISLANDS

RECEIVED

D669958/#42987 250 pads 9/70 C.P. Ltd. Gp. 3631

Number	Office of Origin	Words	Handed in at	Date
176	PORT STEPHENS	5	0835	15.5.73

To

CHIEF SECRETARY STANLEY

CAN ACCOMMODATE

ROBERTSON

EMC

Time

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

71

RECEIVED

69953/542987 250 pads 9/70 C-P. Ltd. Gp. 3631

Number	Office of Origin	Words	Handed in at	Date
201	WEDDELL IS	11	1345	16.5.73

To

CHIEF SECRETARY STANLEY

LOOKING FORWARD TO MEETING MR BARROW

REGARDS R FERGUSON

EMc

Time

69

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

WAP 15148—821 585968/704663 500 pads 9/69 Grp.782

Number	Office of Origin	Words	Handed in at	Date
	PSY			16.5.73

To

ETAT CHRIS BARROW . PORT STEPHENS

PROPOSED DOUGLAS STATION VISIT IMPOSSIBLE STOP DO YOU WISH ANY OTHER AIR BOOKING FOR 21ST

CHIEF SECRETARY

Time 1RT.

Barrow's Task

[redacted] for the following areas visited and sampled:-

Apl 23 Johnson's harbour.
24 Port Louis
25 Green Patch
25 Teal Inlet.

Apl. 30th Port San Carlos
May 1 Darwin
2 Darwin - covering Goose Green side. (due bad weather).
3 North Arm
4 Fitzroy
5 Bluff Cove from Fitzroy overland then overland to Stanley
7 Saunders Is.
8 Hill Cove
9 West Point Is.
10. By Rover toward Mossel Bridge and then Toward Estancia.

Programme until 28 May.

Mon 14 Port Howard
15 Fox Bay West
16 Port Stephens
17 Weddell Island
18 STanley
19 Govt. Rover inland
20 —
21 Douglas
22 Son Carlos
23 Son Carlos
24 STANLEY
25 ?
26 ——
27 ——
28 Fly to S. America

Ref: DEV/29/4

Chief Secretary's Office,
Stanley, Falkland Islands.

16th May 1973.

Dear Sir,

Mr. C. J. Barrow - Palaentologist

Further to my letters DEV/29/4 of 21st April and 9th May, 1973, I would now advise you that Mr. Barrow's provisional programme for the remainder of this month is as follows:-

21st -
~~22nd~~ 22nd May Chartres
~~23rd~~ 23rd May San Carlos
~~24th~~ 24th May San Carlos
23rd - P.S.J

Arr bookings made 15/5/73

Yours faithfully,

(R. Browning)
for CHIEF SECRETARY

To all Farm Managers concerned

HRT.

KIV whether he wants to overnight in Comodoro

KIV SI

SAT. P.M.

M/R. Morrisson,

Returned - 2 n/pp set. - with attached notes - one set used in field. I recommend to be held by Agric Dept, as the position of Sample sites are marked roughly on them (Approx positions) These are left in the Audit office.

Keys - Audit office - Secretarial front door and Agric Hut will be returned to either yourself or M/s Legg on Monday at latest.

An amount of unused sample containers, bags etc is left in Audit office in a white sack.

All Samples I need are in the Agric. Hut behind their building. M/s LUXTON knows them whereabouts and packing details and has undertaken to deal with their despatch.

M/y U.K address is

C/o BRITISH. ANTARCTIC SURVEY

Mentan Waxfile pl

12th

27.3.73

AT PTO

B.A.S BOTANY SECT'N,
RESEARCH GARDENS WINTERBOURNE
UNIVERSITY OF BIRMINGHAM
BIRMINGHAM.
U.K.

M/y best wishes to all who have aided my survey in the Secretariat.

E. Barrow

W. Morrison.

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

15

WAP 15148—821 585968/704663 500 pads 9/69 Grp.782

Number	Office of Origin	Words	Handed in at	Date
	PSX			31.5.73

To

LTF MINISTRANT LONDON SW1 HO A/c

MODEV 29

YOURSAVING RC/P 63710 OF 22ND MARCH 1973 STOP BARROW LEFT FALKLANDS 28TH MAY ECONOMY CLASS AIR EXPECTED ARRIVE LONDON 31ST

ACTING GOVERNOR

Time HRT.

TA 49

SHORT TERM TECHNICAL ASSISTANCE ASSIGNMENTS

ALL six sections of this form must be completed annotating, as appropriate, a nil, none or not applicable.

The form should be completed and signed by the Accountant immediately a Short-term Expert leaves Post and be forwarded, by air mail, to Personnel Services Executive (TA Branch), Room E409/E410/E414/E415, OVERSEAS DEVELOPMENT ADMINISTRATION, Eland House, Stag Place, London SW1E 5DH.

NAME (In block capitals) ..... POST .....

Date of Arrival ..... and departure .....

	PERIOD	AMOUNT	RATE OF EXCHANGE
1. Was ACCOMMODATION or subsistence provided by local Government? If Yes, please state whether	YES/NO		
i. Expert received:-			
a. free accommodation	_____		
b. free board and lodging	_____		
c. cash contribution	_____	_____	_____
or			
ii. the Embassy/BHC received a direct cash contribution from the local Government in lieu of accommodation	_____	_____	_____
PAID BY POST			
2. Advance against honorarium or fee (only payable with prior ODA approval)	N/A	_____	_____
3. Advance against Subsistence Allowance	N/A	_____	_____

OR

4. Firm issues of subsistence made and related to actual circumstances of the assignment. (Please give details of places visited if more than one subsistence rate applicable). If full entitlement has been paid, please say so - (See paragraph relating to subsistence allowance in letter of appointment).

SUBSISTENCE PAID BY POST
for the following period(s)

Total number of nights _____

From	To	Place	Full Board	Bed/ Breakfast	Subsistence Rate	Exchange Rate	Amount Paid

	PERIOD	AMOUNT	RATE OF EXCHANGE
5. Any payments made on his behalf not admissible from Government funds. (Bar account, extra meals etc).			

6. Outstanding contributions are due from the local Government in respect of this assignment and the appropriate steps have been taken to effect recovery /

   There are no outstanding local contributions due in respect of this assignment.

   (Please delete as appropriate)

IMPORTANT

Please ensure all sections of this form are completed before despatch. Failure to do so delays settlement of an officer's dues and also adds to correspondence.

A 'Nil', 'None' or 'Not applicable' is preferable to a blank space.

Item 6 is particularly important and any amplification of the position as regards local costs is welcomed.

Accountant .....

Official Stamp .....

Date .....

TA 49

SHORT TERM TECHNICAL ASSISTANCE ASSIGNMENTS

ALL six sections of this form must be completed annotating, as appropriate, a nil, none or Not applicable.

The form should be completed and signed by the Accountant immediately a Short-term Expert leaves Post and be forwarded, by air mail, to Personnel Services Executive (TA Branch), Room E409/E410/E414/E415, OVERSEAS DEVELOPMENT ADMINISTRATION, Eland House, Stag Place, London, SW1E 5DH.

NAME (In black capitals)....BARROW, C.J.....POST FALKLAND ISLANDS

Date of Arrival....18th April, 1973.....and departure 28th May, 1973

	PERIOD	AMOUNT	RATE OF EXCHANGE
1. Was ACCOMODATION or Subsistence provided be local Government? If Yes, please state whether	YES/NO		
i. Expert received:-			
a. free accomodation	NO		
b. free board and lodging	NO		
c. cash contribution	NO		
or			
ii. the Embassy/BHC received a direct cash contribution from the local Government in lieu of accomodation	NO		
PAID BY POST			
2. Advance against honorarium or fee (only payable with prior ODA approval)	N/A	NONE	
3.. Advance against Subsistence Allowance	N/A	NONE	

OR

4. Firm issues of subsistence made and related to actual circumstances of the assignment. (Please give details of places visited if more than one subsistence rate applicable). If full entitlement has been paid, please say so - (See paragrap relating to subsistence allowance in letter of appointment).

SUBSISTENCE PAID BY POST
for the following period(s)

From	To	Place	Full	Total number of nights Bed/ Breakfast	Subsistence Rate	Exchange Rate	Amount Paid
18.4.73	27.5.73	(40 days)				£3.65	£154.00

	PERIOD	AMOUNT	RATE OF EXCHANGE
5. Any payments made on his behalf not admissable from Governmenr funds. (Bar account, extra meals etc).			

6. ~~Outstanding contributions are due from the local Government in respect of this assignment and the appropriate steps have been taken to effect recovery~~/

There are no outstanding local contributions due in respect of this assignment.

(Please delete as appropriate)

IMPORTANT

Please ensure all sections of this form are completed before despatch. Failure to do so delays settlement of an officer's dues and also adds to correspondence.

A 'Nil', 'None' or 'Not applicable' is preferable to a blank space.

Item 6 is particularly important and any amplification of the position as regards local costs is welcomed.

Accountant .....

Official Stamp Financial Secretary - Government of the Falkland Islands

Date .....

COLONIAL TREASURY
-5 JUN 1973
FALKLAND ISLANDS

F. I. ref: DEV/29/4
MODEV. ref:

52

SAVING DESPATCH.

From: The Officer Administering the Government of the Falkland Islands.

To: The Minister of Overseas Development.

Date: 8th June 1973

No. 14 SAVING. COLONY STAFF

Your Saving No. RC/P 63710 of 22nd March 1973 C. J. Barrow.

I enclose Form TA49 as requested.

AG. GOVERNOR

HRT.

53

Ref: DEV/29/4

12th June 73

Monday

Dear Sir,

The Treasury have noticed that we paid you £154.00 in respect of 40 days subsistence allowance at the rate of £3.85 per day and that we also paid your Upland Goose Hotel bill for the 18th - 23rd April and 26th - 30th April totalling £31.24.

2. In accordance with the terms of your appointment you are ineligible for subsistence allowance if hotel bills are paid so would you please refund to us the sum of £31.24. Sorry to have to bother you with this.

3. Hope you had a good journey home and are not missing the peat bogs too much!

Yours faithfully,

(D. R. Morrison)
AG. CHIEF SECRETARY

Mr. C. J. Barrow,
c/o British Antarctic Survey,
B.A.S. Botany Section,
Research Gardens Winterbourne,
University of Birmingham,
Birmingham,
United Kingdom.

HRT.

NATURAL ENVIRONMENT RESEARCH COUNCIL

BRITISH ANTARCTIC SURVEY

DIRECTOR: SIR VIVIAN FUCHS

54

BOTANICAL SECTION,
RESEARCH GARDENS WINTERBOURNE,
UNIVERSITY OF BIRMINGHAM,
P.O. BOX 363,
BIRMINGHAM 15

TELEPHONE: 021-472 1301 EXTNS. 608, 794

Your Ref. DEJ/29/4

26th June '73

W/r. A.R. Morrison
The Secretariat,
Stanley
Falkland Islands.

Replied - 56

Dear W/r. Morrison. Thankyou for your letter of 12th June, recieved today.

Please check your files and with W/r. Kung of the Upland Goose; as the period of Hotel expenses in question were paid for in cash after I recieved subsistence from you and I have a signed reciept that can be forwarded to you if it proves the Hotel have not informed you of my payment to them.

The bill to the goose has most definitely been paid for, in cash by myself. in the period following my return from camp; directly to W/rs Kung, and a Reciept was issued by her to me on that occasion.

Please reply as soon as possible and inform me of the outcome of enquiries, I will send a Xerox of the bill if you require it.

Spoken to Mr Hammerson, USH.
He is looking into the matter D.E.J. 6.7.73

Incidentally, Dorwin shipping had not booked a hotel room in B.A. or confirmed the bookings on the June 6 Senior flight - despite Mr Bonner's assurances.

Yours sincerely

W. Bonner

ACC 266/03

FOREIGN AND COMMONWEALTH OFFICE, OVERSEAS DEVELOPMENT ADMINISTRATION

TECHNICAL ASSISTANCE

NOTIFICATION OF CONTRIBUTIONS TO LOCAL COSTS
(FINANCE DEPARTMENT CIRCULAR NO 73)

PERSONNEL SERVICES EXECUTIVE:

Contributions by the Government of the FALKLAND ISLANDS towards the costs of Mr C.J. Barrow 's forthcoming *~~long-term~~/short-term assignment have been agreed as follows (Government's agreement is recorded at (1) on file HWF 7/5):-

1. Accommodation (whether full board and lodging, or in part, or subsistence allowance in lieu):
   Hotel accomodation provided by FIG in Stanley. Elsewhere expert will be accomodated by farmers.
2. Transport:
   Provided by FIG
3. Office Services:
   Labourers from Agricultural Department available to assist
4. Medical or Other Services:
   Medical, dental and hospital facilities provided free of charge.
5. Cash Contributions (other than in (1) above):
   None
* 6. ~~Treasury authority to waive cash contributions in lieu of local services has been obtained and is at ..... on file .....~~
* 7. ~~Treasury authority to waive both local services and cash contributions has been given in their letter....., which is registered at ..... on file ..... .~~

Signed R. Cottle
West Indian and Atlantic Department
Dependent Territories Division

Date: 9 July 1973

Copies, together with copies of the Letter of Appointment, to:

Mr ...Curtis...A.709..... Accounts Department (1) ✓

H M ~~Embassy/High Commission~~ ..FALKLAND...ISLANDS..... (1) ✓
Office of the Governor

(Signed) .....
(EO)
Personnel Services Executive
Date: 7/8/73

NOTE: *Delete as necessary.

DEV/29/4

55

13th July 73

Montan Wax

Please refer to previous correspondence on the subject of Mr. C. J. Barrow's Technical Assistance assignment to collect samples of Peat resting I think with your telegram Number 16 of 16th January.

2. Mr. Barrow duly completed his assignment very satisfactorily, and is back in England writing up his notes which he will be forwarding to us in the form of a report. His two cases of samples leave here tomorrow on the Falkland Island Company's chartered vessel the "Henriette Helleskov" which is expected to arrive at Gravesend on about August 10th. The Bill of Lading is enclosed, and we would be grateful if you could alert the Tropical Products Institute to the arrival of this consignment and ask them to undertake the necessary analysis.

3. Mr. Barrow, whose address is -

c/o British Antarctic Survey,
B.A.S. Botany Section,
Research Gardens Winterbourne,
University of Birmingham,
Birmingham,
United Kingdom.

has asked if he can be associated with the institute when the analysis is undertaken as of course he has become very interested in this project. Perhaps Mr. Cornelius, to whom I am copying this letter, would be able to contact Barrow when the Institute is ready to begin the analysis?

(T. H. Layng)

D. G. F. Hall, Esq., M.B.E.,
West Indies & Atlantic Department,
Foreign & Commonwealth Office.

cc: J. A. Cornelius, Esq.,
Ministry of Overseas Development,
Tropical Products Institute,
56/62 Grays's Inn Road,
London WC1X 8LU.

cc: Mr. C. J. Barrow.

Ref: DEV/29/4

56

16th July 73.

54

Thank you for your letter of the 26th June 1973.

I have enquired of the Upland Goose but as Mr. King is in England on holiday I have been unable to have this matter settled so it will have to await his return before we can get our money refunded. It certainly would be helpful if you would send me a copy of the receipt or receipts in respect of the payments you made.

Any indication when you will be able to send a report on the result of your investigations?

Sorry you had difficulties over your hotel and airline bookings. I have checked with Brian Barnes and he did send a telegram asking Moulders to meet you, arrange taxi and for hotel accommodation. He also confirmed to Aerolineas Argentinas at Ezeiza your flight. Did Moulders meet you? They will probably bill us and it would be helpful to know in order that we can take it up with them when their account is received.

(D. R. Morrison)
AG. CHIEF SECRETARY

Mr. C. J. Barrow,
c/o British Antarctic Survey,
Botanical Section,
Research Gardens Winterbourne,
University of Birmingham,
P.O. Box 363,
Birmingham 15,
England.

CB

58

B.V.S. Botany Section
University of Birmingham
Birmingham U.K.
1 Aug 73.

Your Ref.
D.E.V/29/4.

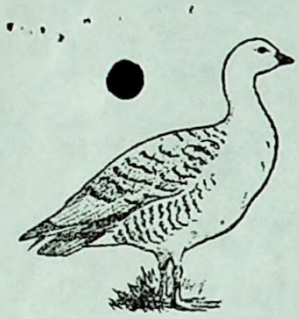
Dear Mr. Morrison. Thank you for letter
D.E.V./29/4. I enclose the Goose Bill
and also a cheque for £31-24. I wish to
be informed if it is felt necessary to pay this;
please look into the Shoe bill before so
doing. I feel £31-24 + £4 8-71 rather a
lot for the weekends during the period
18 Apr. - 28 Nov? Perhaps you will note
days such as. 27/5/73 and 28/5/73 - on both
days room charged on the Monday only breakfast
- if this happens each week - a charge for
the night of the Monday not spent at the
hotel the charge seems excessive.

My report has been long - written and
I have held up sending it while my
head of Section checked some points of Falkland
Botony; I send a copy out soon as
pomble - Hope to get Something written for
Falklands Journal in future month.

I may be able to follow up this Report with
a further outing some time in the next year
- but this is by no means certain yet, and
may involve a lot of research here in U.K.

Hollidays did at meet me - I went
to their office on the Tuesday 29th and
they said no communication received from
Stanley. They rang Egleja after much
debate and found that my flight ticket
was valid - I assume, as it was a valid ticket
- not because of an actual trouble on their
part. Mr Barnes obviously faces same problems
with Holder Bros. in B.A.

Best Wishes to all in Stanley



Upland Goose Hotel
Stanley - Falkland Islands

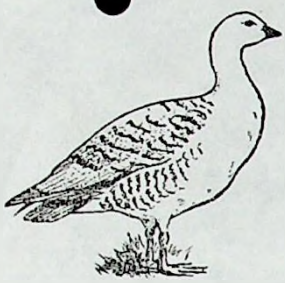
Telephone

№ 196

ROOM No. 2

M^r. BARROW

DATE	Sat 5.5.73	Sun 6.5.73	Mon 7.5.73	Tues 8.5.73	Fri 11.5.73	Sat 12.5.73	Sun 13.5.73
B/F							
ROOM BREAKFAST		3 50	3 50	2 50		3 00	3 50
E.M. TEA							
LUNCHEON							
AFT. TEA							
DINNER	5 5				5 5		
LIGHT R.							
TEA COFFEE							
WINES							
SPIRITS LIQUERS							
CIGS. CIGARS							
GARAGE							
TELEPHONE							
LAUNDRY							
PAID OUT							
£							
GRATS							
CARRIED FWD.							
TOTAL							17.66



Upland Goose Hotel
Stanley - Falkland Islands

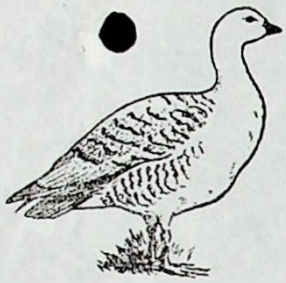
Telephone

№ 204

ROOM No. 2

M^R Barnard

DATE	Mon 14·5·73			Tue 15·5·73			Wed 16·5·73			Thur 17·5·73			Fri 18·5·73			Sat 19·5·73			Sun 20·5·73			Mon 21·5·73			Thur 24·5·73			Fri 25·5·73		
B/F	17	6	6																											
ROOM BREAKFAST	2	5	6				3	5	0	3	5	0	2	0	0										3	5	0			
E.M. TEA																														
LUNCHEON					5	5																								
AFT. TEA																														
DINNER					5	5																			5	8				
LIGHT R.																														
TEA COFFEE																														
WINES																														
SPIRITS LIQUERS																														
CIGS. CIGARS																														
GARAGE																														
TELEPHONE																														
LAUNDRY																														
PAID OUT																														
£																														
GRATS																														
CARRIED FWD.																														
TOTAL																												34	9	0



Upland Goose Hotel
Stanley - Falkland Islands

Telephone

№ 216

ROOM No. 2

MR BARROW.

DATE	Sat 26·5·73			Sun 27·5·73			Mon 28·5·73		
B/F	34	9	0						
ROOM BREAKFAST	3	5	0	3	5	0	2	5	0
E.M. TEA									
LUNCHEON								5	8.
AFT. TEA									
DINNER									
LIGHT R.									
TEA COFFEE									
WINES									
SPIRITS LIQUERS									
CIGS. CIGARS									
GARAGE									
TELEPHONE									
LAUNDRY								3	73½
PAID OUT									
£									
GRATS									
CARRIED FWD.									
TOTAL									

W. R. R.

£48 7 1½

25/5/73.

Ref: DEV/20/4

59

17th August 73

Dear Sir,

Thank you for your letter of 1st August enclosing a cheque for £31.24. No action can be taken until Mr. King of the Upland Goose returns from the United Kingdom. I have passed your comments re Moulders on to Mr. Barnes of Darwin Shipping.

Yours faithfully,

(D. R. Morrison)
AG. CHIEF SECRETARY

Mr. C. J. Barrow,
B.A.S. Botany Section,
University of Birmingham,
Birmingham,
United Kingdom.

HRT.

62

With the Compliments of the

British Antarctic Survey

20/8/73

Mr. D.Morrison,
The Secretariat,
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Dear Mr. Morrison,

I enclose one copy of my report with apology for the delay in sending it.

NOTES ON FALKLAND ISLAND PEAT SAMPLES COLLECTED FOR ANALYSIS TO DETERMINE THE CONTENT OF MONTAN WAX

Collection by

C. J. BARROW.

METHODS USED IN THE COLLECTION OF PEAT SAMPLES

The purpose of the collection was to gather representative samples of peat from throughout the Falkland Islands for analysis in connection with the possible commercial extraction of Montan Wax. Samples were obtained from both the West and East Falklands, and from certain of the smaller islands, areas being selected after consultation with a number of people who were able to suggest localities that were of interest in terms of the extent of the deposits and of access, the results from an analysis of a small number of samples sent to the Tropical Products Institute, in London were also examined to see if any areas merited futther collection of samples. The collection of the samples for the Institute appears to have been variable in technique, and as a result the analysis results were not used as a major factor in choice of collection localities. It is hoped that in cases where the sample areas have been visited during both collections, that the material will allow some check to be made on the analysis results.

Statements of the accessibility refer to field conditions from late April to late May 1973. The previous summer was unusually dry and frost and precipitation had made the land wet and difficult to cross, it was understood that these conditions could deteriorate further as winter set in.

It was not possible in the time available to arrive at more than a general impression of the areas and distribution of the peat deposits over the Falkland Islands. Comment about the extent of the peat deposits were estimated from actual field observations and are therefore limited to the areas travelled over Supplimentary information from Falkland Islanders with knowledge of particular areas thaught to be of interest is noted while some impressions gained while flying and observation from upland areas are also given.

Samples were not taken from the peat formed from beneath the areas of tussock grass Poa flabellata, since these areas are valuable stock grazing, and play an important part in schemes for the conservation of the wildlife of the Falkland Islands. Moreover the distribution of the tussock grass tends to be localized

Samples were taken from sections cleared with a spade. a knife was used to clean the sample site to avoid contamination from level to level caused by peat adhering to the spade. Where samples were taken from a peat bank at least 50 cm of peat was removed from the vertical face to reduce any effect caused by frost or weathering. All samples were sealed immediately into clean plastic bags, with the minimum of hand-contact. A second wrapping of plastic will, it is hoped, ensure the preservation of the peat in a near natural state. All samples were stored in a cool and frost-free place before despatch to England.

In most areas more than one site was sampled to give a sequence of peat at varying depth, these duplications will allow a check to be made on the extent to which the peat may vary in one locality.

PEAT DEPOSITS GENERAL COMMENT

There is sufficient area of peat on the Falkland Islands to have attracted the attention from time to time of bodies interested in the exploitation of the resource. For example in 1911 the 'International Carbonizing Company Ltd.' saught a Concession, in which it talked of a production aim of "20,000 tons yearly on a three year average", and there may well be valuable information about the distribution of the peat of the Falkland Islands to be found in such literature. Air-photographs used in the mapping of the islands may also indicate areas of peat, these could allow the rapid assessment off the extent of the deposit especially in the more remote upland interior.

The best areas of peat were found inland from Johnsons Harbour : inland from Teal Inlet, and above all in the Snipe Flats Camp area of San Carlos. This latter area had some of the deepest banks of peat encountered. Lafonia appears to be a rather poor area for peat deposits.

During the collection programme only one area initially selected for sampling had to be abandoned (Douglas in the East Falkland

Islands). Samples have been collected from a wide area, and from the areas believed to be of most promise. Coastal fringes have been well sampled, and samples have been gathered from some of the upland areas of the interior of the islands. It is in the latter areas that further samples would be of greatest interest and use, as time was insufficient in some of the localities visited to allow visits to be made far inland.

Comment on accessibility and the distribution of the peats was made bearing in mind the possibility of economic exploitation. It is not really possible to comment further on the possible economic exploitation. To draw any conclusions the analysis results from this collection, and information about the demands of an active Montan Wax industry (such as that of the Chatham Islands of New Zealand), must be available.

Analysis of the samples will be carried out by the Tropical Products Institute, London; and these results will it is hoped prove meaningfull.

FALKLAND ISLAND PEAT SAMPLES

Sample Locations And Collection Notes;

21st April, 1973 - 25th May, 1973.

Contents

PEAT SAMPLES 21/4/73 STANLEY COMMON

Sample number	Depth of sample*	
1A	5'2"	From surface.
2A	4'0"	
3A	2'10"	
4A	1'8"	
5A	0'6"	

Samples were taken from an area of diggings on Stanley Common; from a section dug in one of the workings. Between 5'2" and 5'4" the peat graded into a buff-grey clay, from this level the sample 1A was ~~Edd~~ed; samples 2A-5A are within the peat bank. This clay appears to overlie the bedrock and is generally about 12" thick in the area of these workings.

There were no stones visible, either in or upon the peat banks of this area. Drainage appeared to be good. The site was easily reached by Land Rover, and is close to a firm track to Stanley.

The peat appeared uniform in colour and texture in the whole section, except for the lowermost ~~feet~~ which was of a slightly lighter colour brown; the rest of the section being a dark drown.

No marked changes occur in the section, it is fairly uniform; root fragments are present in slightly more concentration in some levels, but not marked enough to be recognized as a real change in stratigraphy. Nearby cuttings suggest that there was, and further into the bank may still be a further 3' in addition to the 5' exposed here at the edge of the bank. ~~(Photograph 1 and2)~~

Vegetation in the vicinity was a heath formation rather than a bog or fen type. Locally Empetrum rubrum ("Diddle Dee") was quite common, and the root remains were visible in the peat. Grasses; Cortaderia pilosa ("White grass"), especially were major local elements. Astelia pumila and Juncus species, also Blechnum species were common in the vicinity.

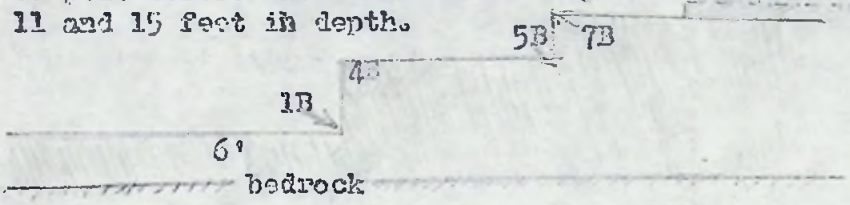
PEAT SAMPLES 21/4/73 STANLEY COMMON

Sample number	Depth of sample*
1B	4'3"
2B	3'1"
3B	1'11"
4B	0'9"

* Samples are approximately 4 inch thick.
Sample depths measured to base of samples.

1B–4B Continued;

Samples were taken from a section some half mile further along the same peat bank as 1A–5A samples. The site lies on the same side of the peat bank toward Canache, on the Stanley Harbour side as for the former site. This was also an area dug and advantage was taken of the stepped diggings where it was impractical to dig a full section. Samples 1B–4B were from a lower step; samples 5B–7B from an upper; above this a short way off there is a further step; it may be that some 3' were removed from above 7B in the past. Due to poor drainage (only locally), it was not possible to dig a pit down to the bedrock below 1B; there is it seems some 5–6' of peat before the bedrock. The depth of the bank thus lies between 11 and 15 feet in depth.



PEAT SAMPLES 21/4/73 STANLEY COMMON

Sample number	Depth of Sample*
5B	3'2"
6B	2'0"
7B	0'10"

The peat at site 1B–7B is of a similar appearance to that at site 1A–5A, again there is a uniformity of appearance, with little visible change from one level to another. Certainly no separable horizons occur in the exposed peat; a uniform dark brown and plastic peat. There is not a great deal of plant fibre in the peat; no layers of roots exist, though roots are present and in places more frequent in occurance. The roots of Empetrum are recognisable in the peat, infrequently these can reach an inch in diameter; the usual size is between an eighth and ¼ inch in diameter. If there is any easily visible difference in the fibre content within the section, it is that the upper (5–7B) part has more than the lower, still too little to make the peat at all elastic. There is no stone either within or upon the peat at this site; nor were any stones observed upon the surface of the peat in the area as a whole. 1–4B is separated from 5–7B by some 10 feet horizontal distance into the bank.

The vegetation for this site is similar to that for the 1–5A site; however there appears to be a greater amount of Rostkovia; Astelia and Blechnum species. The site is easily reached from a track by Land Rover. Banks of peat in this area are quite extensive

PEAT SAMPLES 21/4/73 STANLEY COMMON

Sample number	Depth of sample*
1C	5'2"
2C	4'0"
3C	2'10"
4C	1'8"
5C	0'6"

Some 30 yards from the site 1-7B, and in the same peat face, samples were taken from a section cut into the peat.

The peat at this site was similar to that seen at the previous sample sites. A layer of root material was visible at 6" depth some 2" in thickness; and a sample of this root-rich peat was taken;5C. The peat was again underlain by a buff-grey clay some 12" thick above the bedrock.

PEAT SAMPLES 21/4/73 ELIZA COVE

Sample number	Depth of sample*
1D	8'0"
2D	6'10"
3D	5'8"
4D	4'6"
5D	3'4"
6D	2'2"
7D	1'0"

Samples were taken from a large system of diggings close to the track some $\frac{3}{4}$ mile from the sea at Eliza Cove. The peat appeared similar to that of the area of Stanley Common. The peat was dark brown in colour; with little stratigraphic variation in the section. Occasional roots were found in the peat but these form no definite layers. The peat becomes a slightly lighter shade of brown toward the lower part of the section (the last 2'), and a little more sticky, but no other visible variation is to be seen.

The peat is plastic with no tendancy to elastic recovery when compressed. The peat rapidly grades into clay below 8' depth; this being a thin cover over the bedrock as in the case of Stanley Common. No stones were found either upon or in the peat of this area. The drainage of the area appeared to be quite good, and access was good.

Banks of peat in the Stanley Common-Eliza Cove area seem to be seldom less than 4' in depth, and may be quite extensive individually; there are quite large areas under peat in this area.

PEAT SAMPLES 23/4/73 JOHNSONS HARBOUR

Sample number	Depth of sample*
1E	4'0"
2E	3'0"
3E	1'7"

Inland from the settlement in the upland areas bounded by the Cow Bay- Volunteer Point coast there are areas of peat bank; which although variable in individual size (from a few acres to several hundred acres), form quite a large total area of peat within one region as a whole. This area is accessible by Land Rover transport, although in placed the terrain can be a little difficult.

The samples were taken from one of the common eroded sides of peat banks. At site 1-3E the peat was some 7'0" in thickness at the edge of the bank and could well be deeper toward the centre of the bank. A peat of a uniform appearance was sampled; this peat did show a change in hue in the lower part of the section, the colour varying from a dark-chocklate to a lighter tan-chocklate. The peat was quite dense; and although there were root remains scattered through it, plastic enough to be easily cut out. There were no stones seen upon or within the peat. Drainage was quite good, except in the middle of some banks where there were large areas of Astelia (this may merely have been a surface feature). The vegetation may well have been altered by fire in the past. Empetrum common at the edges of the banks tended to become more localized on the tops; and upon the tops of the larger banks the grasses, Juncus species and Astelia were more common.

PEAT SAMPLES 23/4/73 JOHNSONS HARBOUR

Sample number	Depth of sample*
1F	9'9"
2F	7'3"
3F	4'5"
4F	2'2"

Sample 1F taken from 2" above the clay/peat boundary.

The samples 1-4F are essentially from the same peat bank system as the 1-3E samples, the separation being some 3½ miles approximately toward the Cow Bay coast. The peat appeared to be similar th that of the 1-3E site. No stones were found in or upon the peat. Drainage was good. The banks of peat are eroded on some sides allowing some examination over a wide area; the banks do not appear to 'tail-off' to less depth away from these faces; rather the opposite.

The vegetation of the area is similar to that of the two previous sites.

PEAT SAMPLES 23/4/73 COW BAY RIDGE (JOHNSONS HARBOUR)

Sample number	Depth of sample"
1G	4'10"
2G	2'7"
3G	1'0"

Samples were taken from an area of Hard Camp; an area mainly of grass and Juncus species; the most common species being the 'White grass' Cortaderia pilosa. There appears to be a large area of country under a blanket some 4-6 feet thick of this type of peat.

Buff-grey clay underlies the peat at 5' where the samples were taken. The peat seen at the sample site and in other exposures was somewhat different from that of previous areas. The peat forms a large area of fairly uniform thickness; the former types tend to occur as a bank of usually less area, thicker, and eroded at the edge. Peat beneath this grass vegetation appears to be darker in colour; and contains more fibre (fine fibre). No stones were found in or upon the peat. The minimum depth for these peats seems to be around the 4' mark; deeper areas may occur.

PEAT SAMPLES 23/4/73 VOLUNTEER POINT (JOHNSONS HARBOUR)

Sample number	Depth of sample"
1H	?5'0"
2H	?4'0"
3H	?3'0"
4H	?2'0"

Depths could be in error due to nature of peat at site; earth-movement may have occured.

A large area of peat that may reach quite deep; in excess of 8' it seems. Sample site in an area where there may have been some disturbance. Sample 1H was taken from close to the basal clay. There were no stones in or upon the bog; no sand in the peat was seen. The peat was of a dark colour, dense; with a little root remains in it although not enough to affect the plastic texture or to form layers. In the lower levels there were some sections that had a slightly oily appearance.

PEAT SAMPLES 23/4/73 JOHNSONS HARBOUR (CLOSE TO SETTLEMENT)

Sample number	Depth of sample"
1J	0'6"

A sample was taken from an area of wet bog peat; where there had been observed oily deposits in the wetter areas. Astelia was the most common plant, at the site of these deposits.

PEAT SAMPLES 24/4/73 PORT LOUIS

Sample number	Depth of sample*
1K	12'0"
2K	9'0"
3K	6'0"
4K	3'0"

A thin layer of clay above the bedrock lay 1'0" below sample 1K. The sample site was some 3½-4 miles inland from the settlement, and is accessible to a Land Rover, although with some difficulty.

Banks of peat appear to be confined to the tops of the uplands, and further inland there appears to be areas of these banks at medium altitudes. These peat banks, eroded at the edge appear to be of a similar type to those initially seen at Johnsons Harbour. A dark peat, uniform throughout the section, with some root material in it but not enough to change the texture from that of dense and plastic nature. The peat tends to have an oily appearance in places. There are no stones in or upon the peat. A tendancy exists at this site for the peat to become lighter in colour with depth; this is not as marked as in the previous sites; and tends to result in a mottled appearance in the lower 3 feet or so.

There are in the interior of the island beyond this ridge areas of presumably similar peat that appears to cover very large areas. There are large areas in the Shanty Ridge area; near Seal Bay and at Camp Menta, which are similar in form to this bank according to local report.

PEAT SAMPLES 24/4/73 GREEN PATCH

Sample number	Depth of sample*

SAMPLES FOR 3 AREAS COLLECTED BY STAFF AT GREEN PACHCH; DURING A JOURNEY TO STANLEY BY LAND. SAMPLES LABLED UPPER, MID, LOWER.

SITE L

Reported to have been collected on the Murrel Saddleback area. From a large area of peat reported to be up to 15' deep. The area was said to have been under mainly white grass.

SITE M

Collected from a 'swampy area' rather than one of the actual banks of peat; this area is reported to be very large.

SITE N Between Green Patch and Stanley.

SITE O

Between Green Patch and Stanley. Large areas of Astelia noted.

Locations of these sites are known to the manager of Green Patch; and it is due to his aid that they were collected. Samples were stated to have been taken from sections dug out, and cleaned at least 1'6" from the weathered material

PEAT SAMPLES 25/4/73 TEAL INLET

Sample number	Depth of sample*
1P	5'0"
2P	3'0"
3P	1'0"

The samples were taken from an area of peat forming a blanket beneath a vegetation in which the most common element was Cortaderia pidosa, the White grass. Also common were Baccharis magellanica, what is locally known as 'Christmas bush', and also Sphagnum species; the latter plant however tends to be restricted to the wetter hollows between the peat blankets. Empetrum is present but not in any quantity.

The site lies about 1 mile inland from the settlement, in an area dominated by this white grass. The peat is very dark in colour, there are some roots in the peat, but all fibre and root is small and does not change the plastick and sticky nature of the peat. There is no stone either upon or in the peats the blanket (rather than a bank that stands proud of the surroundind area) of peat appears to be quite uniform over a large area, and, except where shallow valleys are cut into it, more or less continuous. Access was good.

PEAT SAMPLES 25/4/73 TEAL INLET

Sample number	Depth of sample*
1Q	4'0"
2Q	3'0"
3Q	1'0"

Samples were taken from the same bank as 1-3P on the opposite side of the bank some 300 yards off. The vegetation is the same. Upon the top of the bank/blanket there are quite a lot of Juncus species, and Rostkovia in addition to the white grass.

This is as before a dark peat underlain by clay at 4'2", which is buff in colour. There are no stones in or upon the peat. Access is good. Empetrum is notable in being absent from this site vicinity.

PEAT SAMPLES 25/4/73 TEAL INLET

Sample number	Depth of sample*
1R	3'6"
2R	2'6"
3R	1'6"

A site some 2 mile from the settlement again in a 'white grass' paddock of considerable area, apparently underlain for a large part by 3-4' of peat. It is the area of peat in the vicinity that is the striking point. No stones were in or upon the peat. Cla y, buff in colour lay beneath the peat, not far beneath that the bedrock. There is quite a lot of fine plant root and other material in the peat, but it is still plastic in texture. Drainage is quite good.

PEAT SAMPLES 25/4/73 TEAL INLET

Sample number	Depth of sample*
1S	4'0"
2S	3'0"
3S	2'0"
4S	1'0"

From the same, unbroken area of peat as samples 1-3R were taken samples 1-4S; $\frac{3}{4}$ of a mile from each other. The peat is in almost every way the same in appearance to the former area. The fibre content of the peat in this site may exceed that of the former (R) site. The peat here is dark in colour; beneath mainly 'White grass'. The peat tends to be slightly elastic, probably due to the higher content of fibre. A buff-grey clay forms the base. Access is good. there are no stones in or upon the peat; and drainage is quite good.

PEAT SAMPLES 25/4/73 TEAL INLET

Sample number	Depth of sample*
1T	3'6"
2T	2'6"
3T	1'6"

Samples were taken from a blanket of peat beneath a 'white' grass dominated vegetation; although at this site there was a little more of the shrub Baccharis magellanica, 'Christmas bush'. Sample 1T was taken from just above the peat/clay boundary. There was no stone in or upon the peat. Access was quite good. Drainage was quite good.

Depths of peat in the vicinity appear to be quite uniform; a blanket 3-5 feet in thickness; the area under this sort of peat is large.

pEAT SAMPLES 25/4/73 TEAL INLET

Sample number	Depth of sample*
1U	6'0"
2U	4'0"
3U	2'02
4U	1'0"

The samples were taken at some distance from the former sites across a major valley. The tops of some of the larger banks between the former sites and this were found to grade from a White grass vegetation to an area of Astelia; apparently where the peat was thick.

The site was chosen because of the exposure which exceeded 6'; and because the local vegetation varied from that of the former areas, in that there was a local abundance of Empetrum. Analysis results may reveal a variation between these areas that may correlate with the vegetational change.

The peat at site 1-4U is dark in colour; mottled a lighter colour in the lower levels, and with a base of buff-grey clay

that has a sharp boundary with the peat. Vegetation has more resemblance to that of the upland banks, than the 'White grass' areas; indeed the situation is higher and apparently more exposed. The total depth of peat is 7'2" at the deepest. The peat is dense, sticky, not at all elastic. Drainage quite good; access not as good as the former areas.

PEAT SAMPLES 26/4/73 TEAL INLET

Sample number	Depth of sample*
1V	6'0"
2V	4'0"

The peat was taken from an area of white grass which was quite extensive. The peat proved to exceed 7-8' depth; sampling was possible down to 6' only. The peat was dark chocolate in colour; sticky; quite dense, and with some fibre in it. There were no stones in or upon the peat, and no signs of sand in the peat, which was the case with all the peat at Teal Inlet. Drainage was fair; and access by Land Rover quite good.

PEAT SAMPLES 26/4/73 TEAL INLET

Sample number	Depth of sample*
1X	5'0"
2X	3'0"

The base of the peat was not reached; the depth exceeds 6'0". The area, beneath white grass lay on the opposite of the same peat bank/blanket as sample site 1-2V separated by more than ½ mile. There was possibly a greater quantity of fibre in the peat at site X than at site V. No stones were found in or upon the peat. Drainage fair. Access fair. Peat resembled that of site V in appearance.

PEAT SAMPLES 30/4/73 PORT SAN CARLOS

Sample number	Depth of sample*
01A	8'0"
02A	6'0"
03A	4'0"
04A	2'0"

The area sampled lay not far from the settlement, to the west and over a ridge; accessible by Land Rover from Port San Carlos, but a steep climb and poor tracks. Banks of peat were present in the lower parts of the valley and upon the crest of the ridge (where the settlement takes peat). The sample site lay in the valley area.

A dark, dense and sticky peat; beneath which lay a buff-grey clay with some stones in the clay. No stones were found in or upon the peat. Drainage was fairly good. Apparently a fairly large area (not very large) of this peat is present. This peat apparently becomes darker in colour on exposure to air. There was some fibre in the

peat. The vegetation of the area, mainly Cortaderia pilosa, with some Empetrum and Astelia on the top of the bank and away from the edge.

The peat in this locality forms banks rather than blanketing the land. Sample 01A was taken from just above the clay/peat boundary.

PEAT SAMPLES 30/4/73 PORT SAN CARLOS

Sample number	Depth of sample*
01B	6'0"
02B	4'0"
03B	2'0"

From the same bank as the former site samples were taken, site 01B-03B lies on the opposite side of the bank some ¾ of a mile away. The vegetational cover was as for the former site; white grass mainly, with some Empetrum and Astelia toward the interior of the top of the bank, well away from the edges. Empetrum may be locally common at the edge of the bank.

The peat is underlain by clay, the peat is dark plastic, and has some fibre especially in the upper 3 feet or so. Drainage fair. There were no stones in or upon the peat, and no indication of rock outcropping through the banks.

PEAT SAMPLES 1/5/73 PORT SAN CARLOS

Sample number	Depth of sample*
01C	8'0"
02C	6'0"
03C	4'0"
04C	2'0"

The samples were taken from a site on the ridge above the settlement some 2 miles distant from it. These peat banks are quite extensive. Access by Land Rover is possible. The peat is dark in colour, quite dense, plastic, and contains some fibre and roots.

A thin buff-grey clay above the bedrock underlies the peat. There are no stones in or upon the peat; and the drainage is good.

Sample 01C was taken from just above the clay/peat boundary. The peat was uniform in appearance through the whole section.

PEAT SAMPLES 1/5/73 DARWIN

Sample number	Depthoof sample*
01D	8'0"
02D	6'0"
03D	4'0"
04D	2'0"

Samples were taken from a site known locally as the Stanley Gates Bog. Access was good by Rover. A large area under a blanket of peat beneath white grass. Local opinion states that the peat varies much in burning quality with both locality and depth.

Deeper peats appear to be best thought of, but tend to be neglected because of drainage problems in the area.

The nature of the peat at the Stanley Gates Bog proved to be similar to that previously seen beneath the white grass areas. The peat appears to be at its deepest in the level areas and hollows, not the very low areas, and not a complete blanket over all slopes. Drainage would not be a very difficult undertaking and to get the deeper peat would probably be needed.

The peat for the settlement is cut from this site. The peat is a uniform dark colour for the entire depth, it is plastic, with no stone either upon or in it. The peat can be wet in the lower levels. The bedrock could not be reached in the pit dug for samples; however the depth was probed and proved the peat at the sample site to be 12 feet in depth. Thus sample 01D is from 4 feet above the base of the peat.

PEAT SAMPLES 1/5/73 DARWIN

Sample number	Depth of sample*
01E	5'0"
02E	3'0"
03E	1'02

Samples were taken from a site some 8-10 miles from the settlement; despite this access in the area is good. The peat was probed and found to exceed 8 feet in depth. The colour was dark brown; there were no stones or sand in or upon the peat. Fibre was present in the peat, but the peat was still plastic and sticky in nature. The peat was uniform in appearance for the entire section exposed in the pit.

PEAT SAMPLES 1/5/73 DARWIN

Sample number	Depth of sample*
01F	7'0"
02F	5'0"
03F	3'0"

n The site some 8-10 miles from the settlement is known locally as Dennise's Bog; access is good by Rover. In this area the deeper peat deposits tend to occur in the hollows between the low hills.

Diggings at this site were in the order of 1800 yards by 2-300 yards, and the peat was probed to a depth of 12 feet; this appears to be an average sort of size for the larger individual bogs in the area. The total area is however quite large.

Peat in this site was similar to the former sites in appearance. The vegetation was similar the area being covered by white grass; and with some Baccharis magellanica Christmas bush; and Juncus species. No stones in or upon the peat. Drainage fair.

PEAT SAMPLES 2/5/73 GOOSE GREEN

Sample number	Depth of sample*
01G	9'0"
02G	7'0"
03G	5'0"
04G	3'0"
05G	1'0"

Locally the site sampled is known as the New Bog; it lies some 4 miles from the settlement, and access in good. The bog lies in a depression under white grass vegetation. There in no stone in or upon the peat. The dark colour, plastic textured peat is fairly well drained. The base of the peat was not reached, but the peat was probed to 13 feet. There wasaa strong smell apparent when the peat was dug.

PEAT SAMPLES 2/5/73 GOOSE GREEN

Sample number	Depth of sample*
01H	4'0"

This sample was taken from an area known locally as the Fire Ground Bog. The area is under a white grass vegetation. The peat which appeared to have quite a lot of fibre in it was probed and found to exceed 7'0" in depth. Access was good.

PEAT SAMPLES 2/5/73 NORTH ARM

Sample number	Depth of sample*
01J	7'0"
02J	5'0"
03J	3'0"
04J	1'0"

The samples were taken from a bog that is used to supply the settlement. The vegetation was mainly white grass, locally there were areas of Juncus. The peat appeared to be localized the deposit at this site was restricted to a hollow and the depth tailed -off rapidly toward the edge. Over much of the area the peat is too thin to cover the bedrock fully where there is any slope.

The peat at this site was stated to vary in quality with only small distances between sites. Drainage was only fair, and there was a certain amount of sand visible in the peat. The peat at the sample site attained a depth of 8'.

The lower levels of this site proved to be a very fibrous and little humified peat; locally this is known a 'Bible peat' because of the leaflike mode of fracture, resembling the pages of a book.

PEAT SAMPLES 2/5/73 NORTH ARM

Sample number	Depth of sample*
01K	3'0"

The sample was taken from the same area as the former samples

some ½ mile from 01-04J, the peat at this site was reputed to burn well. The peat is thin and less sandy than the previous site.

PEAT SAMPLE 2/5/73 NORTH ARM

Sample number	Depth of sample*
01L	4'0"

This sample was taken from a similar peat deposit to the former area; situated in a valley some distance from the former area. The vegetation is similar to the former site, with the White grass the most common plant. Locally the site is known as the Old Bog, and it lies in the New Park area.

PEAT SAMPLE 2/5/73 NORTH ARM

Sample number	Depth of sample*
01M	5'0"
02M	3'0"
03M	1'0"

From the area known as the Top Peat Moss; an area of diggings, 5 feet of peat were underlain by 1 foot of sand above the bedrock. Sample 01M from 5'0" was taken from a very dark coloured horizon in the peat; this feature being the only variation in an otherwise uniform appearance. This peat is reputed to burn well. There are signs of sand in this peat.

PEAT SAMPLES 3/5/73 NORTH ARM

Sample number	Depth of sample*
01N	2'0"

This is a sample of a very fibrous 'bible peat' of a sort that is apparently common in the area of Lafonia, this peat is reputed to be poor in burning.

Sample 01P is another sample of this sort of peat from a bog in the same general area. The depths of this peat are variable and may reach 8'; peat in the area around North Arm appears to be of poor burning quality, and scarce.

Sample number	Depth of sample*
01P	2'0"
	See above.

PEAT SAMPLES 3/5/73 FITZROY

Sample number	Depth of sample*
01Q	6'0"
02Q	4'0"
03Q	2'0"

Samples were taken from the valley beyond the ridge behind the settlement; some 2 miles from the settlement. Access by Rover good.

The site would be easily accessible from the Fitzroy Bridge down the wide valley some mile or so.

There are in this area a number of moderate sized banks of peat. The vegetation includes white grass, with some Empetrum and Baccaris magellanica, scattered over the area. The valley has suffered fire in the recent past. The roots of Empetrum were common inthe peat There was no sand or stone in or upon the peat. the peat was in the form of banks on the wide relatively flat area of the valley floor. Drainage was good. A buff-grey clay underlay the peat at 6'4" The peat was dark in colour and relatively uniform in the whole section.

PEAT SAMPLES 3/5/73 FITZROY

Sample number	Depth of sample*
01R	5'0"
02R	3'0"
03R	1'0"

From a continuation of the same peat bank, some ½ mile distent were collected the above samples. The appearance of the peat was the same as at the former site; as was the vegetation.
The bedrock overlain by thin clays lay at 5'6".

PEAT SAMPLES 4/5/73 BLUFF COVE-STANLEY

Sample number	Depth of sample*
01S	4'0"
02S	2'0"

Samples were taken from the crest of the hill on the Stanley approach to the Fitzroy Bridge. Along the crest and flanks of these ridges there is a series of banks of peat; extensive, but not very large an area. The main vegetation is the white grass. The peat is free of stones; well drained, and the accessibility is fair. Stone outcropps do however appear to rise into the peat banks in this area, and the peat can not really be said to have an unvarying thickness in these banks.

PEAT SAMPLES 4/5/73 BIG RINCON

Sample number	Depth of sample*
01U	4'0"
02U	2'0"

Banks with quite a quantity of Empetrum upon them occur in the above area, and it was from one of these banks that the samples were taken. Access is not very good. Drainage appears good.
The depth of these banks is in excess of 8'. There is not a very large area of this peat in the Big Rincon area toward Stanley, further inland from the Big Rincon appears to be the larger areas of this sort of bank.

PEAT SAMPLES 17/5/73 SAUNDERS ISLAND

Sample number	Depth of sample"
001A	6'0"
002A	3'0"

The site sampled is the largest area of peat known to the settlement that is at all accessible. The area of peat is limited and already in use for the settlement. The peat based on a buff-grey clay; differs from the other peats seen in the islands in that there are large size root remains of Chiliotrichum diffusum 'Fachinal bush'. A plant which appears to have either survived the effects of farming or is by nature more common and larger on this island.

The resinous exudation of the 'Balsam 'plant Bolax was apparent on the thin peaty areas above the settlement; this plant appears to be more common on the peat areas in the West of the Falklands than the East.

Sample number	Depth of sample"
001B	4'0"

From the same bog as the former samples; the depth at this point was found to exceed 8'0".

Sample number	Depth of sample"
001D	7'0"
002D	2'0"

These samples were taken from the valley below the ridge that backs the settlement. The site, a small Fachinal vegetated valley; was found to have in excess of 8 feet of peat.

PEAT SAMPLES 17/5/73 HILL COVE

Sample number	Depth of sample "
001E	4'0"
002E	2'0"

These samples were taken from an area known as the New Paddock; the bog, under white grass with some scattered Baccharis, and in the wetter hollows Fachinal bush. The area is a large hollow between low hills; drainage is fair, access is only fair. The probable extent of this peat is some 500 acres; not a large area. The peat typical of that from such an area is dark, with some finer fibre and root, but by no means enough fibre to make the peat fibrous in texture. It is plastic almost sticky. A clay underlies the peat at 5' depth.

PEAT SAMPLES 17/5/73 HILL COVE

Sample number	Depth of sample"
001F	6'0"
002F	4'02
003F	2'0"

The samples were taken from the area known as the Far Peaks Bog; an area mainly under white grass, with some Empetrum and Baccharis.

The peat resembles that of the former site. Drainage is fair; access is only fair by Land Rover.

PEAT SAMPLES 17/5/73 HILL COVE

Sample number	Depth of sample*
001G	4'0"
002G	2'0"

Samples were taken from the area dug for the Herbert Stream House. These are similar to the samples from the former area.

PEAT SAMPLES 18/5/73 HILL COVE

Sample number	Depth of sample*
001H	6'0"
002H	4'0"
003H	2'0"

Samples were taken from Sound Ridge some 4 mile from the settlement. Access is not very good, but a Land Rover can reach the area. The peat is present on the tops of the higher ridges in the area. Quite a large area appears to be covered by quite deep eroded peat banks. Vegetation on the banks included Bolax, Empetrum, Baccharis and white grass. The peat eroded to the bedrock at the edges is at least 6' deep, possibly more into the bank. The peat is dark and plastic; with no stone in it. There is a little root material in the peat. Drainage is good.

PEAT SAMPLES 18/5/73 HILL COVE

Sample number	Depth of sample*
001J	6'0"
002J	4'0"
003J	2'0"

This site is ½ a mile along the same ridge as the former site. The peat and the vegetation are visibly the same as the former site. This site is opposite a ridge known as Bull Ridge.

The bedrock lies at 6'4".

PEAT SAMPLES 18/5/73 HILL COVE

Sample number	Depth of sample*
001K	3'0"

Total depth of the peat 6'0"

This sample was taken from the Fox Ridge Peat Bog, an area dug for peat by the settlement. There is reputed to be a large area of this type of peat; which is dark, with some fibre, and forms a cover, rather than banks of peat. It is reputed to burn well. Access to this site and area is quite good

PEATVSAMPLES 18/5/73 WEST POINT ISLAND

Sample number	Depth of sample*
001L	8'0"
002L	5'0"
003L	2'0"
004L	2'0" sample from 100 yards away in same bog.

Samples were taken from the main area of peat on the Island; the analysis results from the area obtained during the initial collection proved to be very low; it is hoped that these samples may allow a check to be made on the representativity of the analysed sample. The area of peat on the island is small.

The peat is in a hollow at a medium altitude; apparently this area was once a Balsam bog vegetation. The peat is dark, fibrous in the upper levels. The depth exceeds 10 feet. The peat is reputed to burn well.

PEAT SAMPLES 12/5/73 TOWARD ESTANCIA FROM STANLEY

Sample number	Depth of sample*
001M	9'0"
002M	6'0"
003M	3'0"

Samples were collected inland from Stanley in Rover accessible areas above the Murrel River and toward Estancia House. An area of banks some 3 mile from the end of the road frome Stanley was the site of these samples. Banks of peat in this area although quite extensive are mainly situated on the ridges. Eroded banks show depths of 8–10 feet at their edges. Drainage appears fair. Stones do outcropp between the banks but the actual banks are proud of the bedrock and appear to contain no stone, or stone fragments. Access can be difficult in this area during winter.

The tops of the banks often have a cover of Astelia, Empetrum; white grass and Juncus species are also common. Hierochloe magellanica the Cinnamon grass is also locally common on the banks.

The peat at this site exceeds 10 feet and grades from a dark brown in most of the section into a lighter colour toward the base. There is a little plant fibre and root; but the peat is still plasticaand easily cut. Where the section was dug the bedrock was met at 9'6". Sections eroded at the edges elsewhere suggest that this is representative in depth.

The individual banks are several hundred yards long and a few hundred yards wide; and the total area is quite large.

PEAT SAMPLES 12/5/73 INLAND FROM STANLEY

Sample number	Depth of sample*
001N	10'0"
002N	7'0"
003N	4'0"

Samples were taken from a bank some 2 miles from the former site and some 4 miles from Stanley. The peat compares with that of the

former peat bank, both in texture, colour, and the vegetation above. Accessible by Rover.

PEAT SAMPLES 12/5/73 INLAND FROM STANLEY

Sample number	Depth of sample*
001P	10'0"
002P	7'0"
003P	4'0"

Samples were taken in the same system of banks as the former samples; ¼ of a mile further along the ridge. The peat appeared to be the same as that seen in the former site. There were no stones in or on the peat. Drainage quite good. Access fair.

PEAT SAMPLES 13/5/73 INLAND FROM STANLEY

Sample number	Depth of sample*
001Q	8'0"
002Q	5'0"
003Q	2'0"

Sample 001Q from just above the bedrock.

The samples were taken from the same system of peat banks some ½ mile further toward Stanley. The peat appeared to be the same as that seen in the previous sample sites in this vicinity. The colour was dark; and the vegetation mainly White grass and the Cinnamon grass, with some Juncus .

PEAT SAMPLES 14/5/73 Port Howard SEAWARD OF MT. HORIA

Sample number	Depth of sample*
0001A	4'6"
0002A	2'6"

Within 1½ miles of the settlement samples were gathered from an area of peat on the tops and upper flanks of the lower hills seaward of Mt. Horia. Access by Rover is possible. The average coverage appears to be 3-4'. The main vegetation elements are the White grass and Cinnamon grass; with scattered Baccharis; Empetrum and Blechnum species. The bedrock in places outcrops through the banks; however there appears to be no stone in or upon the peat. There is a fairly large area of this sort of peat; reputedly large areas further inland, but near the settlement the banks are restricted to the ridges and are scattered.

The peat is dark, becoming lighter in colour toward the bedrock. Drainage is good. The peat is plastic, but does contain some fibre, especially in the upper 2 feet or so.

PEAT SAMPLES 14/5/73 PORT HOWARD

Sample number	Depth of sample*
0001B	5'6"
0002B	2'6"

Samples were taken from the same peat area as the former samples, and some 150 yards away. The peat is similar to that of the former

area; except that there appears to be more root of Empetrum nubrum in this site. Access and other factors are the same as for the other sites.

PEAT SAMPLES 14/5/73 PORT HOWARD

Sample number	Depth of sample*
0001C	4'0"
0002C	2'6"

Samples were taken from a site 1-¾ of a mile from the settlement. Access was good. The area is under white grass with some Juncus species. The peat is similar in appearance to the sections seen elsewhere at Port Howard. The peat appears to become lighter in colour with depth.

PEAT SAMPLES 14/5/73 PORT HOWARD

Sample number	Depth of sample*
0001D	4'0"
0002D	2'0"

Samples were taken from the area known as the Top Rough Banks; It has been stated that the peat from this and the former areas at Port Howard, burn to leave a quantity of red ash.

The peat is well drained, with no stones in it. There is quite a lot of the stem and root of Empetrum in this peat.

PEAT SAMPLES 15/5/73 PORT HOWARD

Sample number	Depth of sample
0001E	3'0"

Sample taken from the Horse Paddock-Brown Flat area, some 2 miles from the settlement. There is quite a large area of peat averaging about 4 feet in depth. Thevegetation of the area is dominated by White grass.

There appears to be a large area of this sort of peat inland from Port Howard.

PEAT SAMPLES 16/5/73 PORT HOWARD

Sample number	Sample depth*
0001F	4'0"
0002F	2'0"

Samples were taken from the White Hill Paddock area; an area of White grass, Juncus, and Baccharis; White grass being the most common element by far.

Sample 0001F was from 6" above the bedrock. The peat is dark in colour and plastic. There are no stones in or upon the peat.

PEAT SAMPLES 16/5/73 FOX BAY WEST

Sample number	Depth of sample*
0001G	3'0"
0002G	4'0"
0003G	2'0"

Samples were taken from the Flats Peat Bog, an area some 2 miles from the settlement; this site is used by the settlement to supply peat for fuel. The area is a level area; and it is to these level areas that the peat in this area appears to be limited. There is little cover of the slopes, and little in the deeper hollows. The peat is under White grass, Juncus, and a little Empetrum. Access is good. Drainage is quite good.

PEAT SAMPLES 17/5/73 FOX BAY WEST

Sample number	Depth of sample*
0001J	5'0"
0002J	2'0"

Samples were taken from the area known as the Rincon. The peat is similar to that of the previous area; except that there is some sign that there is clay in the peat at least in the lower levels of the section. The depth at the sample site was probed and exceeded 7 feet. The manager of the farm complained of deposits of tarry-soot left by the combustion of this peat in domestic stove chimneys.

PEAT SAMPLES 17/5/73 PORT STEPHENS

Sample number	Depth of sample *
0001K	3'0"

Sampled from a hollow withaa fibrous peat similar to that at North Arm. This sort of peat appears to be limited to the wetter hollows and is apparently localized.

PEAT SAMPLES 17/5/73 PORT STEPHENS

Sample number	Depth of sample *
0001L	3'0"

A sample taken from a hollow where the peat had a distinctly oily appearance. The area of this peat is however small.

PEAT SAMPLES 17/5/73 PORT STEPHENS

Sample number	Depth of sample*
0001M	4'0"
0002M	2'0"

From the area upon the Far Mountain were taken samples. The location from just above Crannion Pass. The area is not far from the settlement, and transport is used to remove peat for the settlement; however there is a steep climb to the peat banks, which are ofen the hill crests. Banks of peat 4-6 feet deep, beneath Empetrum, Bolax, Baccharis, Juncus, and Cinnamon grass, cover the tops of the uplands, locally there is a lot of the White grass.

PEAT SAMPLES 17/5/73 PORT STEPHENS

Sample number	Depth of sample*
0001N	4'0"
0002N	2'0"

Samples from the same bank as the former samples; ¼ of a mile away. The peat and local vegetation are similar in appearance. The bedrock is encountered at 4'6".

PEAT SAMPLES 17/5/73 PORT STEPHENS

Sample number	Depth of sample*
0001P	4'0"
0002P	2'0"

Samples were taken from a bank about 1 mile from the former site on the crest of the next hill. The peat and vegetation are the same in appearance. There are some scattered Pachinal bush at this site. Access as for the former site.

PEAT SAMPLES 17/5/73 PORT STEPHENS

Sample number	Depth of sample
0001Q	3'

This sample was taken from the same system of peat banks as 0001P, some ¼ mile away. The total depth of the peat at this site was 4'6".

PEAT SAMPLES 17/5/73 PORT STEPHENS

Sample number	Depth of sample*
0001R	4'0"

This sample was taken from the same area as the former sample, separated by ¼ of a mile approximately. There was no visible difference in the vegetation or the peat from the former site.

PEAT SAMPLES 18/5/73 WEDDELL ISLAND

Sample number	Depth of sample*
0001S	7'0"
0002S	5'0"
0003S	3'0"
0004S	1'0"

Samples were taken from the Loop Head area; the only large area of peat that is known on the island. Access to this low area close to the sea is quite good, it lies some 7½ miles from the settlement. The peat exceeds 10feet in depth at the sample site. Cinnamon grass is especially common in the local vegetation, and there are large areas of Juncus.

Drainage is only fair. There was a strong smell released by the peat when the pit was dug. There was no stone visible in the peat; nearby there was sand dunes; and there may be a certain amount of sand in this peat. It is a dark and plastic peat that is reputed to burn well.

PEAT SAMPLES 19/5/73 WEDDELL ISLAND

Sample number	Depth of sample"
0001T	2'6"
0001U	2'6"

Samples were taken from the area known as the Horse Paddock. Peat in this area is thin, and has a high content of clay. The depth of the peat at both of the above, an at other exposures did not exceed 3'0" in depth. The area was under White grass. The above samples were from the same vicinity separated by some 100 yards distance.

PEAT SAMPLES 20/5/73 INLAND FROM STANLEY

Sample number	Depth of sample"
0001V	6'0"
0002V	3'0"

Samples were taken from the area dug by the farm known as Brownings Farm. The peat was beneath a vegetation of White grass and Empetrum, the latter common in the vicinity. The peat was dark and fibrous. There was no stone in or upon the peat. Drainage was fair. Access was good. Stanley lies at some 2 miles distance.

PEAT SAMPLES 20/5/73 INLAND FROM STANLEY

Sample number	Depth of sample"
0001X	8'0"
0002X	6'0"
0003X	4'0"
0004X	2'0"

The site sampled lay at the head of Mullet Creek on the side furthest from Stanley; From this point away from the town there may well be a large area of this type of peat bank. The vegetation is mainly White grass, locally there is a large amount of Empetrum. Remains of the Empetrum occur in the peat, however the peat was still plastic and easy to cut. There were no stones in or upon the peat. Access and drainage were good. When cut there was a strong smell issuing from the peat. The peat a dark brown in colour became a lighter brown with depth. The bedrock lay at 10 feet at this site.

PEAT SAMPLES 20/5/73 CLOSE TO STANLEY

Sample number	Depth of sample"
0001Y	6'0"
0002Y	3'0"

Samples were taken from an area of diggings at a point locally known as the Stone Coral Ridge. The access is good, and supplies of peat for Stanley are taken from here. The peat appears to be of the same sort as that seen at the Head of the Mullet Creek. The depth of these banks appears to vary; 6-8 feet would appear to be a good average maximum depth.

PEAT SAMPLES 19/5/73 CLOSE TO STANLEY

Sample number	Depth of sample*
0001Z	6'0"
0002Z	3'0"

Samples were taken from the area known as the Dixies peat bank; this is separated from the former site by some ¾ of a mile. The peat appears to be the same as that of the former area.

PEAT SAMPLES 21/5/73 CHARTRES

Sample number	Depth of sample*
00001A	5'0"
00002A	3'0"

Samples were taken from the level area close to the settlement where the settlement peat is dug from several sites. The site is ¼-½ of a mile from the settlement; access is good. The site of the samples is known as Cross Bog. A dark to mid brown colour peat was encountered; with quite a lot of fibre in the peat. The vegetation mainly White grass, also included local concentrations of Empetrum. The area under this peat is moderate. There were no stones in the peat; and the drainage was good.

PEAT SAMPLES 21/5/73 CHARTRES

Sample number	Depth of sample*
00001B	7'0"
00002B	2'0"

Separated by some ¼-½ a mile from the former site, at the Tree Bog. The depth of the peat at this site was found to exceed 9'0". There was a lot of fibre in this peat; the peat tended to decrease in density with depth, the fibre increased with depth as did the water content. There was no stone in or upon the peat; there was a strong smell when the peat was cut. The vegetation was mainly the White grass with quite a lot of Juncus, and also Rostkovia locally quite common. The peat was a lighter colour that that usually encountered. Drainage was somewhat poor.

PEAT SAMPLES 21/5/73 CHARTRES

Sample number	Depth of sample*
00001D	8'0"
00002D	6'0"
00003D	4'0"

One sample from site 00001C a bog close to the settlement; sample depth 6'0" taken on 21/5/73.

Samples 00001D-00003D were taken from the Hog Ground area, the peat at this site is dense and not very fibrous. There is a lot of Empetrum in this locality.

The peat lies upnn a pale grey sandy clay. The peat forms, banks of some 50-100 yards across and a few hundred yards in length; although there are quite a number, the total area is not really very large. Access is good; drainage is good, and the peat is free of stone.

PEAT SAMPLES 23/5/73 SAN CARLOS

Sample number	Depth of sample*
00001E	10'0"
00002E	7'0"
00003E	4'0"

A large area of deep banks of peat represented by these samples, lies in the Snipe Flats Camp area and in the uplands and valley areas inland from it. This appears to be one of the largest areas with a good concentration of peat visited. Access from San Carlos is possible witha tractor, but cannot be said to be good. Access through the hills from Green Patch may be possible.

White grass; Astelia, Empetrum and in the wet areas between banks Sphagnum are common. Astelia forms areas on the tops of the peat banks. Drainage appears good. The peat is free of stones, and excess fibre. Banks extend over the Flats and onto the high ground and away into the interior valleys. This site lies some $\frac{1}{4}$-$\frac{1}{2}$ mile across the Flat from the Shanty.

Peat at the sample site was dark in colour and easy to cut. There was in the peat some root of Empetrum. The colour of the peat tended to become lighter with depth.

PEAT SAMPLES 23/5/73 SAN CARLOS

Sample number	Depth of sample*
00001F	8'0"
00002F	6'0"
00003F	4'0"
00004F	2'0"

Some 2 miles from the Shanty and $\frac{3}{4}$ of a mile from the above site were taken samples from beneath an area of White grass; Astelia; and occasional Empetrum.

The peat at this site was a mid to light brown above clay at 8'6" depth, which was of a buff-grey colour. There was some fibre in the peat; the peat was free of stones, and well drained it appeared.

PEAT SAMPLES 23/5/73 SAN CARLOS

Sample number	Depth of sample*	
00001G	10'0"	It is hoped that this sample may be available to B.A.S. for radio-carbon dating, if the interest arises.
00002G	7'0"	
00003G	5'0"	

Sample number	Depth of sample
00004G	3'0"

Some 1½ miles from the Flats area close to the route back to San Carlos samples were taken from a bank on the hillside above the Snipe Flats Camp. Peat similar in appearance to that of the Flats area was encountered. The peat was free of stone; drainage was fair, and there was a certain quantity of fibre in the peat.

The peat, dark brown in colour became lighter with depth. A large area of Astelia clothed the bank above the section and extended for some way on the top of the bank.

PEAT SAMPLES 23/5/73 SAN CARLOS

Sample number	Depth of sample*
00001H	10'0"
00002H	7'0"
00003H	4'0"

On the same ridge as the former samples, and some ¾-1 mile closer to the settlement a peat bank was sampled. The peat was 10'9" deep at the sample point above bedrock. Locally there was a lot of Empetrum. The peat was the same in appearance as that of the former site. The peat was free of stone, and the drainage appeared to be good.

20/6/73.

Acknowledgements

I would like to acknowledge the assistance given by the following bodies and persons, without the aid of which this collection programme would have not been possible.

The Ministry for Overseas Development., for Technical Assistance arrangements.

The British Antarctic Survey; in particular;

Dr. R. J. Adie.
Dr. S. W. Greene.
Mr. E. J. Clapp.

The Sectertariat. Stanley. Falkland Islands; in particular

The Chief Secretary.
Mr. D. R. Morrison.

The Farm Managers and staff of the many settlements which were visited during the collection programme.

60

FALKLAND ISLANDS

5 59°00′ 6 58°30′ 7 58°00′ 8

51° 00′

A T L A N T I C · O C E A N

Eddystone Rock 113

THE BLUFF 337

Lion Pt

Concordia Bay

Cape Bougainville

Black Pt

Foul Bay

CORRAL BRAZO 252

Cape House

Limpet Creek House

Black Pt

Sea Lion Pt

Macbride Head

Marville Bay

Seal Cove

Middle Pt

Elephant Beach House

Elephant Beach Pond

Brazo del Mar

Seal Bay House

Cape Carysfort

Cow Bay

GOAT HILL 823

White Rock Race Pt

Middle Bay

White Rock Bay

Jersey Pt

COUTTS HILL 759

Salvador Settlement

SALVADOR HILL 926

Rincon Grande Settlement

MT ROSALIE 1396

Mt Rosalie House

Douglas Settlement

Colorado Bay

Johnsons Harbour Settlement

Port San Carlos Settlement

Chartres Pt

Chato House

Horseshoe Bay

Port Louis Settlement

(Seal Reserve)

Volunteer Pt

51° 30′

Teal Break

Bombilla House

Teal Inlet Settlement

High Pt

Green Patch Settlement

Long I

DIAMOND MT

Douglas Pt

Berkeley Sound

Strike Off Pt

Ajax Bay Refrigeration Plant

North West Is

San Carlos Settlement

Airstrip

1907 CAMPITO

THE VERDE MTS

THIRD CORAL MTS

San Carlos River

Cuera Brook

BULL HILL

ROBERTS MTS

SUSSEX MTS

BIG MT

MT SIMON

THE ONION

Arroyo Malo

Malo Cr

Estancia House

Paso Grande Cr

Top Malo House

Cochon I (Nature Reserve)

MT LOW 871

Kidney I

Mengano Pt

Port William

Port Sussex House

RABBIT MT

CANTERA MT 2312

MT USBORNE

NO MAN'S LAND

GOAT MT

ROCKY MOUNTAIN

SMOKO MT 1397

MT CHALLENGER

MT KENT 1509

STANLEY

Rookery Bay

Phillips Pt

Grantham Sound

Shag Rookery Pt

SALADERO 179

Colorado Pond

Fitzroy River

Bluff Cove Settlement

Port Harriet

Seal Pt

Beach Pt

Bold Pt

Port Fitzroy

Fitzroy Settlement

PLEASANT PEAK

Port Pleasant

Pleasant I

East I

Pleasant Pt

Das Lomas House

Kelp Harb

Paragon House

Darwin Settlement

Burntside House

Black Rock House

Mt Pleasant House

Swan Inlet House

Island Harbour House

Boat Pt

Kelp Pt

Burnt I

Elephant I

TRACK HILL 206

Goose Green Settlement

Orqueta House

MT MISERY 221

EAST COE 145

Old Drone House

DRONE HILL 265

Bodie Creek House

John Pt

Bluff Creek House

White Bluff

Johnsons I

Fox Pt

EAST FALKLAND

Choiseul Sound

Sea Lion I

Big Samuel I

Middle I

Philimore I

North East I

COOKIES RIDGE 212

Walker Creek Settlement

RUSH VALLEY HILL

Lively Settlement

52° 00′

Trap House

Sound House

214

Low Bay House

Upper Walker Creek House

187

181

STRAWBERRY HILL

Seal Cove House

Seal I

LIVELY ISLAND

Mappa House

Great I

Horn Hill House

Seal Pt

North Arm Settlement

217 HORN HILL

Cattle Pt House

Cattle Pt

157 HAWK HILL

Fanny Is

Cow Pt

Shag Rock

Bull Pt

Porpoise Pt

Bluff Head

Boat Jack Pt

Low Bay

North Pt

Triste I

Motley I

Lively Sound

Large I

Gull Pt

BLEAKER ISLAND

Bleaker Settlement

Cossard Pt

Sea Lion Islands

59°13′ 59°10′

Beauchene I

52° 53′

52° 56′

(Seal Reserve, Wild Animal & Bird Sanctuary)

Land over 2000 feet

" 1500-2000 "

" 1000-1500 "

" 500-1000 "

" below 500 "

Heights in feet

Scale 1: 643,000

Miles 5 0 5 10 15 20 Miles

Roads

Tracks

Telephone Lines

Lighthouse, Beacon ▲ Bn

ALL TERRITORIAL WATERS ARE SEAL RESERVES

GENERAL LOCATION OF SAMPLES

59°00′ 58°30′

Acre, London, W.C.2. Price 1/- net.
Stanley, Falkland Islands.

Compiled and drawn by Directorate of Overseas Survey
Photographed by D.O.S. and printed l
The Survey Production Centre, R.E. 196
9000/6/66/1667/SP

61°00′ 2 60°30′ 3 60°00′ 4 59°30′ 5

SOUTH ATLANTIC OCEAN

WEST FALKLAND

EAST FALKLAND

ISLANDS

Flat Jason

ELEPHANT JASON 682

(Seal Reserve)

South Jason

Sedge I

Wreck Is

Government Islet

Pebble Islet

MARBLE MT N PEAK 2779

Jenesta Pt

PEBBLE ISLAND

FIRST MT 909

Cape Tamar

Tamar Pass

Elephant Bay

Pebble I Settlement

Keppel Sound

KEPPEL I

North Pt

Reef Pt

Bay Pt

Golding I

MT KEPPEL 1122

Keppel Settlement

Fall Pt

Broken I

East I

River I

Middle I

Rock Harb

Long Pt

Phillips Cove

Seal Cove

Whale Bay

White Rock House

GOAT HILL 823

Port Purvis

MT ROSALIE 1396

Mt Rosalie House

The Twins (Wild Animal & Bird Sanctuary)

North West Pt

Carcass I

Carcass I Settlement

Elephant Pt

MT HARSTON 1421

Cliff Pt

BOOKERY MT 1334

SAUNDERS ISLAND

Saunders I Settlement

Port Egmont

Brett Harb

Red Pt

Westpoint I

Needles Pt

(Wild Animal & Bird Sanctuary)

Low I

Bluff Pt

Dunbar I

Cape Terrible

Hope Pt

Westpoint Settlement

West Bluff

Penguin Pt

Penarrow Pt

MT REES 1220

BYRON HEIGHTS 1709

STORM MT

Boxwood Pt

Split I

Dunbar House

Lion Pt

Byron Sound

Burnt Harb

Sound Pt

Shallow Bay House

Main Point House

River Harbour

Purvis House

Main Pt

Blackburn R

Sound House

Bense I

Port North

Foot Point

MT FEGAN 1181

Hill Cove Settlement

Dorse Stream

MT EDGEWORTH

Warrah

Warrah House

MT D'ARCY 1270

MT CAROLINE

Many Branch House

Rabbit I

Roy Cove Settlement

Crooked Inlet House

Crooked Inlet

MT ADAM 2277

The Hole Str

Poncho Hill Str

Black Hill Str

MT ROBINSON

MT MARIA 2138

POKE POINT HILL 1068

Port Howard Settlement

Jetty

PASSAGE ISLANDS

Whale Passage

KING GEORGE BAY

Hummock I

Brown Pt

Middle I

Town Pt

Teal River House

Saddle House

MUFFLER JACK MT 1758

Bold Pt

NIPPLE (HILL 770)

Christmas Harbour

Chartres Settlement

Chartres R

Goring House

Chartres R

HORNBY MTS

Rodeo Pt

Shag Cove House

MT MOODY 1816

SWAN ISLANDS

Shag Rookery

Main Passage

Kelp Harb

Long Pt

TRACK HILL 206

Loop Head

Beacon Pt

Bald Road

Swan Pt

Quaker I

Pond Pt

STANHOPE HILL 655

Chatham Harbour

Chatham House

Tern Hill Str

Dunnose Head Settlement

Port Philomel

Round Pt

Steep Pt

Whitsand Bay

Shallow Harbour House

Philomel Road

Dick Pt

MT DOYLE

MT PHILOMEL

R Doyle

East Bay House

Spring Point Settlement

QUEEN CHARLOTTE BAY

WEDDELL ISLAND

Fox I

Tussac Pt

Pond Bay

Fish Creek House

Lake Sullivan

MT SULIVAN 1554

Sullivan House

Black Hill House

Hill Gap I

TYSSEN ISLANDS

Egg Harbour House

Old Drone House

Weddell Settlement

Kelp Creek House

MT WEDDELL 1256

Mark Pt

Gull Pt

Garibaldi Pt

Penguin Pt

Mound Pt

Lake Hammond

Leicester Str

Besom Str

Blue Mt 560

Blue Mt House

Port King

Tern Pt

Carew Harbour

Double Cr

Port Richards

Fox Bay West Settlement

FOX BAY MT 1008

Fox Bay East Settlement

Fox Bay

Sand Pond Stream

Great I

Jetty

Wharton Harbour

Findlay Harb

Congo House

Sound House

Smylie Channel

Dyke I

White Pt

South Harbour Inlet Pt

South Harbour House

Campbell Cr

Seal Rookery Str

Fox Bay West

Fox Bay East

North Head

South Head

Port Edgar House

Carcass Bay

Calista I

Wolfe I

Mappa House

Carew Harbour House

MT EMERY 1164

Whisky Cr

Cape Orford House

Orford

Sydney Bluff

High Bluff

Caranchos Bluff

Calm Head

MT YOUNG 1115

Port Stephens Settlement

SETTLEMENT HILL 633

Dean's R

Second Arroyo

First Arroyo

Third Arroyo

Gibraltar Str

Ruggles I

Ruggles Bay

WRECK GATE 289

Phillip's Cr

Elephant Cays

Port Stephens

Albemarle Harbour

Danson Harbour House

North Arm Settlement

Hoste Inlet House

MT ALICE 1185

Bird I

Lucas Bay

Chalfers Gullet

Lucas Pt

Phillip's Bay

North West Arm House

Speedwell I Settlement

SPEEDWELL ISLAND

Old Settlement Pt

Sea Hen Pt

Black Pt

Shag Pt

Flores Harb

BUTLER'S HILL 179

Lion Creek House

Fanny Is

Cattle Pt

Annie I

Blind I

Speedwell Pass

Strike Off Pt

Eagle Passage

Castle Rock

Ten Shilling Bay Is

West Arm

Albemarle Sealing Station

Port Albemarle

Three Crowns

Pyramid Rock

Arch Islands

Albemarle Rock

Cape Meredith

George I

George Housed

Peat Bog Pt

Ocean Roads

Tea Pt

Barren I

Barren I House

Longitude 60°30′ West of Greenwich

61°00′ 60°00′ 59°30′

D.O.S. 906

Agents for the sale of this map are:- Edward Stanford Ltd., 12/14, Long Acre, London, W.C.
Copies can also be obtained from Colonial Secretary's Office, Stanley, Falkland Is.

EXTRACT FROM THE MINUTES OF EXECUTIVE COUNCIL MEETING NO. 8/73 HELD ON TUESDAY 28TH AUGUST, 1973

DEV/29/4 iv. Montan Wax

A report from Mr. C. J. Barrow on his visit to the Colony to collect peat samples for analyses to determine the content of montan wax was received on 27th August 1973. The results of the analyses of the peat samples made by the Tropical Products Institute, London were not, however, expected for some months yet.

CLERK TO COUNCIL

Ref: DEV/29/4

63

3rd September 73.

Dear Chris,

Thank you for your Notes on the Falkland Islands peat samples collected for analysis to determine the content of Montan Wax. We await with interest the results of the Tropical Products Institute investigations.

Yours faithfully,

(D. R. Morrison)
AG. CHIEF SECRETARY

Mr. C. J. Barrow,
B.A.S. Botany Section,
University of Birmingham,
Birmingham,
United Kingdom.

CB

Ref: DEV/29/4

6th November 73.

Dear Chris,

Thank you for your letter of the 7th August.

2. As promised I have spoken to Mr. King of the Upland Goose and he advises me that the charges follow the usual practice and that no charge was made on your arrival which balances the charge of £3.08 for your final day. As regards your cheque we have cashed it and I enclose a receipt. This recovery of £31.24 is necessary as under Technical Assistance you were paid a subsistence allowance to cover board and lodgings. As the hotel account was submitted to the Secretariat we were too quick to act and paid it from Colony funds! I thought at first that we had paid the account and you had paid it also, but I see from your hotel account that this was not so.

3. I hope that this sorts out everying to your satisfaction. Our best wishes from the Secretariat staff. The spring has been reasonable but very dry. I've been thinking of you when cutting peat particularly when it was cold and blustery one day and thinking why cannot we strike oil in the Falklands and forget about peat!

Yours sincerely,

(D. R. Morrison)
AG. CHIEF SECRETARY

Mr. C. J. Barrow,
B.A.S. Botanical Section,
University of Birmingham,
Birmingham,
United Kingdom.

CB

Ref: DEV/29/4

7th February 74.

Falkland Islands Montan Wax

Please refer to my letter DEV/29/4 of 13th July 1973.

2. We are wondering whether all has gone well with the analyses of Chris Barrow's collection of peat samples from the Falklands by the Tropical Products Institute and when we may expect to hear the results.

3. Or should we now be changing our approach and thinking in terms of shipping you our peat to keep your power stations functioning?

(T. H. Beyng)

D. G. F. Hall, Esq., MBE,
West Indies and Atlantic Dept.,
Foreign and Commonwealth Office,
London SW1.

c.c. J. A. Cornelius, Esq.,
Ministry of Overseas Development,
Tropical Products Institute,
56/62 Gray's Inn Road,
London WC1X 8LU.

Mr. C. J. Barrow,
B.A.S. Botanical Section,
University of Birmingham,
Birmingham.

CB

British Antarctic Survey,
Botanical Secrion,
University of Birmingham,
P.O. Box 363.
Birmingham B15 2RT.

13th March, 1974

Mr. T. Layng,
Chief Secretary,
The Secretariat,
Stanley,
The Falkland Islands.
South Atlantic.

Dear Mr. Layng,

I recieved a letter today from the Tropical Products Institute; no doubt they have already informed you, however in case they have not done so I will pass on the news that they sent.

The analysis so far has apparently yielded 2-8 % wax, calculated on a dry weight basis in "the majority of peat samples". They propose to check these figures in the near future using a different extraction method. (solvent extraction). Dr. Stanbury has promised to send me a summary of the results when they are complete, I will inform you on the receipt of this, although I imagine you will recieve the official version before me.

I must admit I am most interested in the results of the analysis and hope all goes well.

Things in Britain are probably much as they were when you were here last, at least the worst of Winter and the miner's problems appear to be past. I send my best wishes to all in the Falklands

Yours sincerely,

C. J. BARROW

BY AIR MAIL
PAR AVION

Aérogramme

Mr. T. Layng,
Chief Secretary,
The Secretariat,
STANLEY,
Falkland Islands,
South Atlantic.

ELCO

DEV/29/4

21st May 74

Many thanks for your letter of the 13th March which arrived while I was away on a six week visit to your old stomping ground in South Georgia and then down the Peninsula.

2. We have heard nothing at all from the Tropical Products Institute about their analysis of the peat samples which you sent them. However, perhaps they are waiting until they have checked these figures using, as you say, a different extraction method. No doubt if you hear from them again you will let us know what they tell you, otherwise we will send them our usual six monthly reminder in July!

3. I hope you have found a satisfactory niche to stay in back in the U.K. My own time here ends next month and I expect to be heading back towards the sun not long afterwards.

(T.H. Layng)

C.J. Barrow, Esq.,
British Antarctic Survey,
Botanical Section,
University of Birmingham,
P.O. Box 363,
Birmingham B15 2RT

Ref: DEV/29/4

70

5th July 74.

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Falkland Islands Montan Wax

Please refer to our letters DEV/29/4 of 13th July 1973 and 7th February 1974.

2. We have not yet learned the results of the analyses of the peat samples collected by Mr. Chris Barrow and forwarded to the Tropical Products Institute.

3. Would you kindly let me know the state of play on this?

(R. Browning)
AG. CHIEF SECRETARY

D. G. F. Hall, Esq., MBE,
West Indian and Atlantic Dept.,
Foreign and Commonwealth Office,
London SW1.

c.c. J. A. Cornelius, Esq.,
Ministry of Overseas Devel.,
Tropical Products Institute,
56/62 Gray's Inn Road,
London WC1X 8LU.

Mr. C. J. Barrow,
BAS Botanical Section,
University of Birmingham,
Birmingham.

CB

71

Foreign and Commonwealth Office
London SW1

Telephone 01-

R Browning Esq
Acting Chief Secretary
Stanley
FALKLAND ISLANDS

Your reference

Our reference HWF 7/13

Date 29 July 1974

Dear Mr. Browning

FALKLAND ISLANDS: MONTAN WAX

Thank you for your letter DEV/29/4 of 5 July. I dare say you will receive a full reply from Mr Cornelius, but in the meantime you may like to know that I have checked with him on the question raised in your letter. He told me that the Tropical Products Institute are engaged in compiling their report on the analyses of the peat samples, and that you may expect to receive it fairly soon. Mr Cornelius added that the wax content of the peat does not seem to be as good as, say, that in the peat from Chatham Island.

Yours sincerely
Mary Hunt.

M E Hunt (Miss)
West Indian and Atlantic
Department

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EXTRACT FROM THE MINUTES OF EXECUTIVE COUNCIL MEETING NO. 6/74 HELD ON THURSDAY 22ND AUGUST 1974

DEV/29/4 (i) MONTAN WAX

A recent letter from the FCO indicated that the report on Montan Wax could be expected shortly. Preliminary information was that the wax content of the peat in the Falklands was less than that of certain other islands, e.g. the Chathan Islands.

CLERK TO COUNCIL

REF: DEV/29/4 22nd December 74

Miss M. E. Hunt,
West Indian & Atlantic Dept.,
Foreign & Commonwealth Office,
London SW1

Dear

In your letter to Rex Browning, ref. HWF/ 7/13 of 29 July, 1974, you said that Mr. Cornelius hoped that the TPI could report on the result of their analysis of the peat fairly soon.

2. I wonder if you would kindly inquire from Cornelius what is the present position.

Yours sincerely,

A.J.P. Monk
Chief Secretary

cc Mr. C J Barrow, BAS Technical Section,
University of Birmingham

Foreign and Commonwealth Office
London SW1

Telephone 01-

A J P Monk Esq
Chief Secretary
Falkland Islands

Your reference

Our reference HWF 7/13

Date 30 December 1974

Dear Arthur

MONTAN WAX

1. On receipt of your letter DEV/29/4 of 22 November I contacted Mr Cornelius at the Tropical Products Institute, to ask how things were going on the peat analysis. He tells me that the report has been drafted but that one or two points remain to be checked. You should have the report in January.

2. I will try and keep a check that this promise is kept.

Yours ever

Mary

M E Hunt (Miss)
West Indian and Atlantic Dept

75

75

Foreign and Commonwealth Office
London SW1A 2AL

Telephone 01-

A J P Monk Esq
Chief Secretary
FALKLAND ISLANDS

Your reference

Our reference HWF 7/4

Date 24 January 1975

Dear Arthur

MONTAN WAX

74

1. Further to my letter to you of 30 December, I am now able to forward to you Mr Cornelius' report and Mr Barrow's notes on the peat samples taken. The notes at least are rather technical, but it appears to me from the report that the results of this first survey are inconclusive and therefore rather disappointing.

2. When you have had time to consider the report, please let us know if you think it is worth pursuing the idea by subjecting larger samples to analysis.

Yours ever

Mary.

M E Hunt (Miss)
West Indian and
Atlantic Department

Report on the Examination of Peat Samples from the Falkland Islands

INTRODUCTION

The peat samples which form the subject of this report were gathered from throughout the Falkland Islands to investigate the extent of peat wax potentially available for exploitation.

Samples were collected by Mr C J Barrow of the British Antarctic Survey from the West and East Falklands, and from certain of the smaller islands and are referred to in his letters dated 31 July and 20 August 1973.

The areas from which the samples were taken were selected after consultation with a number of the local people who were able to suggest suitable localities in terms of the content of the deposits and their accessibility. The samples, taken at various depths and locations, were sealed in polythene bags (which were sometimes contained in cans) to preserve the samples in their original condition. They were packed in two wooden crates.

EXAMINATION OF THE SAMPLES

The samples were coded according to Mr Barrow's "Notes on Falkland Island Peat Samples", enclosed with his letter of 20 August, which referred to the location and the depth from which the samples had been taken.

The majority of the samples coded in Mr Barrow's list were found to be present in the crates together with some additional unlisted, but coded peat samples. A few of the listed peat samples were missing.

Each sample was found to weigh between 100 to 300 g and to be dark brown in colour with a soft putty-like consistency. After drying, constituents of vegetable origin become visible in some of the samples.

DISCUSSION

Previous workers have observed that the nature and amount of wax

obtained from peat is dependent on the type of solvent used for its extraction and that highest wax contents are obtained using azeotropic mixtures of alcohols and benzene homologues. Lower wax contents are obtained using petroleum spirit, benzene homologues or alcohols separately.

According to Cawley and King[1], crude peat wax consists of true ester wax with a proportion of asphaltic and resinous material which increases with increases in the yield of crude wax and it is likely that azeotropically extracted waxes contain a higher proportion of asphaltic material.

Variation in yields and properties of crude waxes from peat using different solvents according to Cawley and King[1] is shown in Table 1.

Table 1

Yields and properties of crude waxes from peat using different solvents

Scottish peat No.	Solvent	Yield of crude wax, % dry peat	Melting point	Acid Value	Saponification value
14	Light petroleum, b.pt. 100°-120°C	2.3	54-70	-	-
	Benzene	3.2	68-73	-	-
	Benzene/alcohol azeotrope (65/35 by vol.)	6.6	>86 80*	-	-
15	Light petroleum, b.pt. 100°-120°C	10.4	55-68	-	-
	Benzene	11.8	64-72	44	122
	Benzene/alcohol azeotrope (65/35 by vol.)	18.6	>70 80	62	155
17	Light petroleum, b.pt. 100°-120°C	2.4	70-78	-	-
	Benzene	2.7	68-77	55	120
	Benzene/alcohol azeotrope (65/35 by vol.)	4.9	64-90	61	132
19	Light petroleum, b.pt. 100°-120°C	6.8	60-71	-	-
	Benzene	8.6	64-74	47	116
	Benzene/alcohol azeotrope (65/35 by vol.)	12.8	68-90	69	156

* = Softened only

20	Light petroleum, b.pt. 100°-120°C	4.1	54-74	-	-
	Benzene	5.2	65-75	59	122
	Benzene/alcohol azeotrope (65/35 by vol.)	9.0	70-80	55	152

As the observed crude wax content of peat varies according to the procedure employed, the mode of determination has to be taken into consideration when the relative wax contents of different peat samples are assessed.

EXPERIMENTAL AND RESULTS

Owing to the large number of peat samples (over 200), it was decided to screen them for peat wax content by low resolution Nuclear Magnetic Resonance (NMR) using a Newport Quantity Analyser. To test the validity of the procedure the wax contents of a number of peat samples were determined by solvent extraction and the results compared to those obtained by low resolution NMR.

Dehydration of Sampling

The peat samples as received were initially weighed into glass dishes and the bulk of the moisture was removed by using a microwave oven at continuous power for about ten minutes. The sample was then ground, weighed into a moisture dish, and dried to constant weight in an air oven at 105°C. Each sample was found to contain about 90 per cent by mass of water.

Determination of the Wax Content of Peat Using Low Resolution NMR.

The Newport Quantity Analyser oven was modified to operate at a temperature of 105 ± 5°C to ensure that as much as possible of the wax-like constituents in the peat were brought to a liquid state.

Reference samples of commercial peat wax and montan wax were completely mobile at this temperature.

As only a small amount of a reference sample of peat wax was available the NMR signal per gram ratio was determined using the 2ml sample assembly and compared with the signal obtained under similar conditions for montan wax and a sample of peat wax that had been obtained by solvent extraction of Falkland Island peat.

The results, shown in table II, indicated that the waxes had a similar response and that satisfactory results would be obtained using the standard 40ml sample assembly necessary to generate a sufficient proton signal from the dried peat with montan wax as reference sample in place of peat wax.

Table II

NMR Signal Response to Reference Samples

	signal/g wax
Commercial Peat wax	5.032
Montan wax	2.935
Laboratory extracted peat wax	2.797

Suitable samples of dried peat were weighed into 40ml Wheeler tubes and the signal generated by the wax content liquid at 105 ± 5°C was measured.

The results obtained using this method are shown in Table III.

Solvent Extraction Method for Wax Content Determination

The moisture-free peat sample was weighed into an extraction thimble and extracted with an azeotropic mixture of iso-butyl alcohol and toluene, (44.5 : 55.5) boiling at 101°C, using a Butt-extractor. After an initial extraction period, the sample was reground and extracted for a further period. The extraction was continued until no further wax could be extracted. At least eighteen hours were required in order to achieve complete extraction.

A comparison of the wax contents obtained for some of the samples using both low resolution NMR and solvent extraction is shown in Table IV.

As anticipated, the waxes and associated resinous and asphaltic material present in peat resulted in complete correlation not being achieved between the two methods. However, as the low resolution NMR procedure applied to these samples measured the portion of peat liquid at 105°C it probably represents the best

procedure for peat wax content determination at present available and is preferable to the rather uncertain results obtained by solvent extraction.

Table IV

Comparison of the results Obtained by Low Resolution Nuclear Magnetic Resonance (NMR) and Solvent Extraction

Sample No	Wax content by NMR, per cent	Wax content by solvent extraction, per cent
3R	9.2	6.6
1V	5.7	6.7
1X	2.9	3.9
2X	5.6	7.1
02J	2.7	1.5
03M	6.8	5.6
03Q	4.9	6.6
0010	4.8	6.6
003M	7.1	7.1
001M	4.1	6.8
003M	7.4	7.5
001P	3.1	5.7
002P	7.1	11.6
003P	6.3	8.2
001Q	6.1	10.4
003Q	7.4	6.9
0001K	0.6	0.7

Upon examination of a number of samples of peat wax extracted using the azeotropic mixture of iso-butyl alcohol and toluene (44.5 : 55.5), a fraction comprising some 9 to 15 per cent of the crude wax was found to be insoluble in pure toluene.

This material was found to have a melting range of 190° to 210°C and would not have been detected by low resolution NMR at the operating temperature of 105 ± 5°C.

SUMMARY AND CONCLUSIONS

An initial survey of the extent of peat wax present has been obtained using low resolution NMR but cannot be considered an absolute measure owing to the difficulties in arriving at an

estimation of wax content already discussed.

The peat samples were found to contain somewhat low crude wax contents of between 0.6 and 8.8 per cent, the mean value for all the samples being 4.7 per cent.

Two samples labelled 001P were found to be present in the consignment. Upon analysis, one of these samples was found to yield 22 per cent wax by NMR and 12.5 per cent by solvent extraction. The other was found to yield 5.7 per cent wax by solvent extraction and 3.1 per cent by NMR, and is the sample reported in table III.

A further sample of this peat layer should be obtained to check these anomalous results.

Samples in addition to those recorded in Mr Barrow's notes are listed under the appropriate numerical coding.

The results indicate that the levels of crude wax content of the selected peat samples are similar throughout the islands. The majority of the peat samples have been selected in the region of Stanley and these on average appear to contain wax contents as high as in the rest of East Falkland and tend to be a little higher than for samples from West Falkland.

Peat from the area noted as having the most extensive peat deposits, Snipe Flats, appears to contain similar levels of wax to that of Stanley.

At this stage it would be desirable to obtain large samples of dried peat in amounts of 10kg from suitable areas in the Stanley and Snipe Flats regions so that sufficient wax can be extracted to enable a commercial assessment of the product to be made before a study to assess the feasibility of crude peat wax extraction in the Falklands is undertaken.

References

Cawley, C M and King, J G, "Water Waxes from British Lignite and Peat", J. Soc. Chem. Ind., 1945, 64, 237.

WAX CONTENTS OF FALKLAND PEAT

Sample Locations	Sample No	Sample Depth	BMR Wax Content per cent
Stanley Common	1A	5'2"	1.8
	2A	4'0"	6.1
	3A	2'10"	3.1
	4A	1'8"	3.8
	5A	0'6"	3.9
Stanley Common	1B	4'3"	4.0
	2B	3'1"	4.6
	3B	1'11"	5.1
	4B	0'9"	6.3
	5B	3'2"	3.0
	6B	2'0"	6.7
	7B	0'10"	4.4
Stanley Common	2C	4'0"	7.9
	4C	1'8"	5.7
	5C	0'6"	4.1
	+9C	-	6.4
Eliza Cove	2D	6'10"	7.0
	3D	5'8"	6.7
	4D	4'6"	7.5
	5D	3'4"	6.1
	6D	2'2"	7.6
	7D	1'0"	5.0
Johnsons Harbour	1E	4'0"	5.7
	2E	3'0"	5.1
	3E	1'7"	4.6
Johnsons Harbour	1F	9'9"	2.8
	2F	7'3"	3.9
	3F	4'5"	2.9
	4F	2'2"	6.9
Low Bay Ridge	1G	4'10"	3.0
	2G	2'2"	5.5
	3G	1'0"	1.5
	+4G	-	6.4
Volunteer Point	1H	5'0"	6.3
	1H	5'0"	3.6
	2H	4'0"	5.5
	3H	3'0"	5.5
	3H	3'0"	6.2

Sample Locations	Sample No	Sample Depth	BMR Wax Content per cent
Johnsons Harbour	1J	0'6"	1.2
Port Louis	1K	12'0"	4.4
	2K	9'0"	3.6
	3K	6'0"	8.0
	4K	3'0"	7.5
Green Patch	L	Top	7.4
	L	Mid	6.7
	L	Base	5.8
	+3L	-	6.4
Green Patch	M	Top	3.6
	M	Mid	4.0
Green Patch	N	Top	5.5
	N	Mid	4.6
	N	Base	5.1
Green Patch	O	Top	4.8
	O	Mid	8.4
	O	Base	3.5
Teal Inlet	1P	5'0"	5.0
	2P	3'0"	5.2
	3P	1'0"	5.3
Teal Inlet	1Q	4'0"	4.8
	2Q	3'0"	6.4
	+4Q	-	6.8
Teal Inlet	1R	3'6"	1.5
	2R	2'6"	4.8
	3R	1'6"	9.2
Teal Inlet	1S	4'0"	5.1
	2S	3'0"	5.9
	3S	2'0"	6.1
	4S	1'0"	5.1
Teal Inlet	3T	1'6"	7.3

Sample Locations	Sample No	Sample Depth	BMR Wax Content per cent
Teal Inlet	1U	6'0"	2.5
	2U	4'0"	5.6
	3U	2'0"	6.2
Teal Inlet			
Teal Inlet	1V	6'0"	5.7
	2V	4'0"	5.3
Teal Inlet	1X	5'0"	2.9
	2X	3'0"	5.6
Port San Carlos	01A	8'0"	2.1
	02A	6'0"	5.1
	03A	4'0"	6.6
	04A	2'0"	5.5
Port San Carlos	01B	6'0"	6.1
	02B	4'0"	8.2
	03B	2'0"	5.0
Port San Carlos	02C	6'0"	5.0
	03C	4'0"	6.5
	04C	2'0"	8.3
Darwin	01D	8'0"	3.4
	02D	6'0"	6.1
	03D	4'0"	3.6
	04D	2'0"	4.4
Darwin	01E	5'0"	3.5
	02E	3'6"	2.2
	03E	1'0"	5.3
Darwin	01F	7'0"	2.9
	02F	5'0"	2.4
Goose Green	01G	9'0"	3.0
	02G	7'0"	2.9
	03G	5'0"	2.1
	04G	3'0"	3.7
	05G	1'0"	3.8
Goose Green	01H	4'0"	1.4
North Arm	01J	7'0"	2.0
	02J	5'0"	2.7
	03J	3'0"	3.0

Sample Locations	Sample No	Sample Depth	NNR Max Content per cent
North Arm	01K	3'0"	3.9
North Arm	01L	4'0"	3.5
	01M (mic)		0.8
	01N	5'0"	4.2
	02N	3'0"	3.0
	03N	1'0"	6.3
North Arm	01P	2'0"	4.1
North Arm	01Q	2'0"	5.0
Fitzroy	02L	4'0"	6.1
	03L	2'0"	4.0
Fitzroy	01R	5'0"	1.4
	02R	3'0"	5.8
	03R	1'0"	7.9
Bluff Cove Stanley	01S	4'0"	3.6
	02S	2'0"	6.1
Big Minven	01U	4'0"	3.8
	02U	2'0"	6.2
Saunders	001A	6'0"	1.6
	002A	3'0"	4.0
	001B	4'0"	3.5
	+ 002B	—	4.1
	+ 001C	—	5.2
	+ 002C	—	3.7
Saunders Island	001D	7'0"	1.9
	002D	2'0"	1.7
Hill Cove	003P	2'0"	3.1
Hill Cove	001Q	4'0"	4.8
	002Q	2'0"	3.4
Hill Cove	001R	6'0"	6.0
	002R	4'0"	6.4
	003R	2'0"	3.3
Hill Cove	001U	6'0"	4.5
	002U	3'0"	7.2
	003U	2'0"	6.6

Sample Locations	Sample No	Sample Depth	NNR Max Content per cent
Hill Cove	0001K	3'0"	5.0
West Point Island	001L	8'0"	2.6
	002L	5'0"	2.5
	003L	2'0"	3.2
	004L	2'0"	2.6
Estancia from Stanley	001M	9'0"	7.2
	002M	6'0"	2.2
	003M	3'0"	7.1
Inland from Stanley	001N	10'0"	4.1
	003N	4'0"	7.4
Inland from Stanley	001P	10'0"	3.1
	002P	7'0"	7.1
	003P	4'0"	6.3
Inland from Stanley	001Q	8'0"	6.1
	002Q	5'0"	8.1
	003Q	2'0"	7.4
Port Howard/ Mt Norin	0001A	4'6"	5.6
	0002A	2'6"	5.4
Port Howard	0001B	5'0"	4.2
	0002B	2'6"	5.9
Port Howard	0001C	4'0"	4.8
	0002C	2'6"	4.7
Port Howard	0001D	4'0"	4.6
	0002D	2'0"	4.7
Port Howard	0001E	5'0"	4.7
Port Howard	0001F	4'0"	4.2
	0002F	2'0"	6.1
Fox Bay West	0001G	8'0"	4.7
	0002G	4'0"	6.0
	0003G	2'0"	2.6
	+0001H	—	1.1
	+0002H	—	2.5
Fox Bay West	0001J	5'0"	3.1
	0002J	2'0"	4.2
Port Stephens	0001K	3'0"	6.6
Port Stephens	0001L	3'0"	4.8
	+0002L	—	6.3

Sample Locations	Sample No	Sample Depth	NNR Max Content per cent
Port Stephens	0001M	4'0"	4.5
	0002M	2'0"	6.6
Port Stephens	0001P	4'0"	2.0
	0002P	2'0"	2.4
Port Stephens	0001Q	3'0"	6.4
Port Stephens	0001R	4'0"	4.8
Weddell Island	0001S	7'0"	2.5
	0002S	5'0"	4.1
	0003S	3'0"	3.4
	0004S	1'0"	2.2
Weddell Island	0001T	2'6"	3.2
Weddell Island	0001U	2'6"	2.3
Inland from Stanley	0001V	6'0"	5.3
	0002V	3'0"	4.8
Inland from Stanley	0001X	6'0"	7.2
	0003X	4'0"	3.9
	0004X	2'0"	7.6
Close to Stanley	0001Y	6'0"	6.6
	0002Y	3'0"	6.8
Close to Stanley	0001Z 9	6'0"	5.2
	0002Z	3'0"	4.8
Chartres	00001A	5'0"	4.0
	00002A	3'0"	3.5
Chartres	00001B	7'0"	2.9
	00002B	2'0"	5.1
	+00001C	—	4.2
	+00002C	—	3.7
Chartres	00001D	8'0"	8.3
	00002D	6'0"	2.1
	00003D	4'0"	5.8
	+00004D	—	4.9
San Carlos	00001E	10'0"	4.3
	00002E	7'0"	6.8
	00003E	4'0"	6.0

Sample Locations	Sample No	Sample Depth	NMR Wax Content per Cent
San Carlos	00001F	8'0"	6.3
	00002F	6'0"	3.7
	00003F	4'0"	5.6
	00004F	2'0"	7.2
San Carlos	00001G	10'0"	5.0
	00002G	7'0"	7.0
	00003G	5'0"	7.1
	00004G	3'0"	8.0
San Carlos	00001H	10'0"	5.1
	00002H	7'0"	7.3
	00003H	5'0"	6.6
	+ 00001L	-	3.3

A. J. P. Monk Esq.

FALKLAND ISLANDS

With the compliments of

BW.

WEST INDIAN AND ATLANTIC DEPARTMENT

75

Reference Miss Hunt's letter
HWF 7/4 of 24 January

FOREIGN AND COMMONWEALTH OFFICE

SW1A 2AH

10 - 2 - 75.

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D G F Hall Esq.
Room K228
West Indian and Atlantic Department
FCO/~~OPM~~
King Charles Street
LONDON SW1A 2AH

HMF 7/5
AX 1/1

30 January 1975

Dear Mr Hall

FALKLAND ISLAND PEAT WAX

Further to my letter and report dated 13 January on the analysis of the peat wax samples, we have had discussions with the wax refining firm in the U.K., Poth,Hille and Co. Ltd., who would be prepared to carry out a commercial assessment of the wax. However, from their experience with attempts to develop peat wax industries in other areas, such as the Chatham Islands, Scotland, Ireland and Bovey Tracy in Devon - all of which proved abortive - they consider that a peat wax industry in the Falkland Islands is most unlikely to be successful.

Montam wax extracted from East German lignite, with which peat wax would have to compete, at present fetches £356/ton and is used for polish and carbon paper manufacture. The U.K. can satisfy its present needs for Montan wax. The superior Carnauba wax (at present about £900/ton) which Montan wax substitutes, comes from Brazil which has available more than can be exported.

It therefore seems unlikely that the Falkland Islands could find a market in South America. The viability of a pear wax extraction industry would depend very much upon whether use can be made of the extracted peat; for example, as a fuel. The remote natur[illegible] of the Falkland Islands and its low population weighs heavily against this.

Although the firm are prepared to undertake a commercial assessment of a sample of wax from Falkland Island peat, in the light of the ~~wax~~ above considerations the amount of effort required to obtain the larger samples requested in our report does not appear to be justified. However, we still have the balance of the samples already investigated and a good idea of the wax quality should be obtainable by extracting some of these samples bulked together and this is what we propose to do.

We shall let you know the result of this further work in due course.

Yours sincerely

J A Cornelius

The Secretariat
Stanley

14th February 1975

Dear Sir,

Montan Wax

I enclose a copy of the report on the peat samples taken by Mr C Barrow to try and assess the montan wax content.

Yours faithfully,

D R Morrison

(D R Morrison)
for CHIEF SECRETARY.

To all Honourable Members

DEV/29/4
CFEJ

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CONFIDENTIAL
EXECUTIVE COUNCIL

No. 9/75

FALKLAND ISLANDS PEAT WAX

Honourable Members' attention is drawn to the report by Mr Cornelius, and Mr Barrow's comments on Falkland Islands peat samples, sent to Councillors on 14 February under my memo, ref DEV/29/4.

2. Councillors will note from the summary to the Report that further investigation and larger samples would be necessary to decide if the winning of Montan wax was commercially economic.

3. In a further report from Mr Cornelius, received on 19 February, he states that he has had discussions with a wax refining firm in the UK who report that from their experience with attempts to develop peat wax industries in other areas such as the Chatham Islands, Scotland, Ireland and Devon, all of which proved abortive, they do not consider a peat wax industry here is likely to be successful.

4. He points out that East German wax, extracted from lignite, with which our wax would have to compete, sells at £356 a ton. The implication is that this is cheaper than we could produce and land it. A superior commodity, Carnanba wax, is produced in Brazil (at about £900 a ton) in quantities sufficient to satisfy the South American market.

5. In short Cornelius believes that further sampling would not be worth while. He rates the prospects for a successful industry as very low, and even then it would very much depend on what use can be made of the extracted peat - for example, fuel. He considers that the distance this fuel would have to be transported rules out this likelihood.

6. Council is asked to advise if it is worth pursuing the project further by subjecting larger samples to analysis

Secretariat
10 March 1975

Ref: DEV/29/4

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DEV/29/4 5. Montan Wax (Memo 9/75)

Council considered the report by Mr Cornelius and Mr Barrow's comments on the Falkland Islands peat samples, circularised on 14th February 1975.

It was advised that in view of the discouraging report it was not worth pursuing the project further by subjecting larger samples to analysis.

R. Browning

CLERK OF COUNCIL

DEV/29/4

17th April 75

Miss M E Hunt
West Indian and Atlantic Department
Foreign and Commonwealth Office
London SW1

Monton Wax

Thank you for your letter WWF 7/4 of 24th January 1975.

2. The report by Mr J A Cornelius and Mr Barrows' notes on the peat samples taken have been considered by the Executive Council, who advised that in view of the discouraging nature of the report it is not worth pursuing the project.

3. There is, however, the further report promised in Mr Cornelius' letter WWF 7/5 of 30th January 1975, but that is unlikely to affect the decision taken by the Council.

4. We are extremely grateful for all the time and effort which have gone into the investigations of the peat samples from the Colony.

(R Browning)
for CHIEF SECRETARY

cfej

(81)

4.(1) MONTAN WAX EXTRACTED TO DEV 129/4

Mr. Monk asked that the question of forwarding further peat samples to the United Kingdom should be investigated. He said that if the kev to the best peat deposits could be found he would be prepared to obtain and forward the required samples from the San Carlos area to Stanley for forwarding by Government to the U.K.

This cannot be located.

He also asked whether Lignite samples from San Carlos could be forwarded for analysis. The Chairman agreed to investigate.

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Our Ref: DEV/29/4 5th June, 1975

The Hon. A. B. Monk, Esq., J.P.,
San Carlos,
Falkland Islands.

Dear Sir,

I refer to the question of sending further peat samples for analysis which you raised at the meeting of the S.F.C. on 24th April, and regret to have to inform you that we have not been able to locate a key to the peat deposits.

We will certainly send your lignite samples from San Carlos for analysis if you care to send some samples into us.

Yours faithfully,

D. R. Morrison
For CHIEF SECRETARY

Registry

There is a
letter to
Hon AS Monk
San Carlos
typed by
Mrs Chattell
for this file.

DC

6/6/75

NEWSLETTER 3
AUGUST 1975

Tropical Products Institute

World Centre for Post-Harvest Studies in plant and animal resource development

Research
Development
Training
Information
Advice
Field operations

Fishing in Tropical Waters

An international Conference on Handling, Processing and Marketing of Tropical Fish will be held in London from 5 to 9 July 1976. One of a series of conferences organised by TPI, its aim is to bring together as many people as possible concerned with all aspects of the post-harvest technology and marketing of tropical fish. Particular attention will be given to small-scale fisheries development.
The Conference will discuss fish resources of the tropics, fish microbiology and quality control, the handling and marketing of fresh and frozen fish, fish meal and silage, canned and other processed fish, shell fish exports and post-harvest fisheries development.
Anyone wishing to attend the Conference should apply to the Institute (Public Relations C) for a provisional registration form. Offers of papers for consideration by the Programme Committee should be addressed to the Programme Secretary, Mr John Disney.

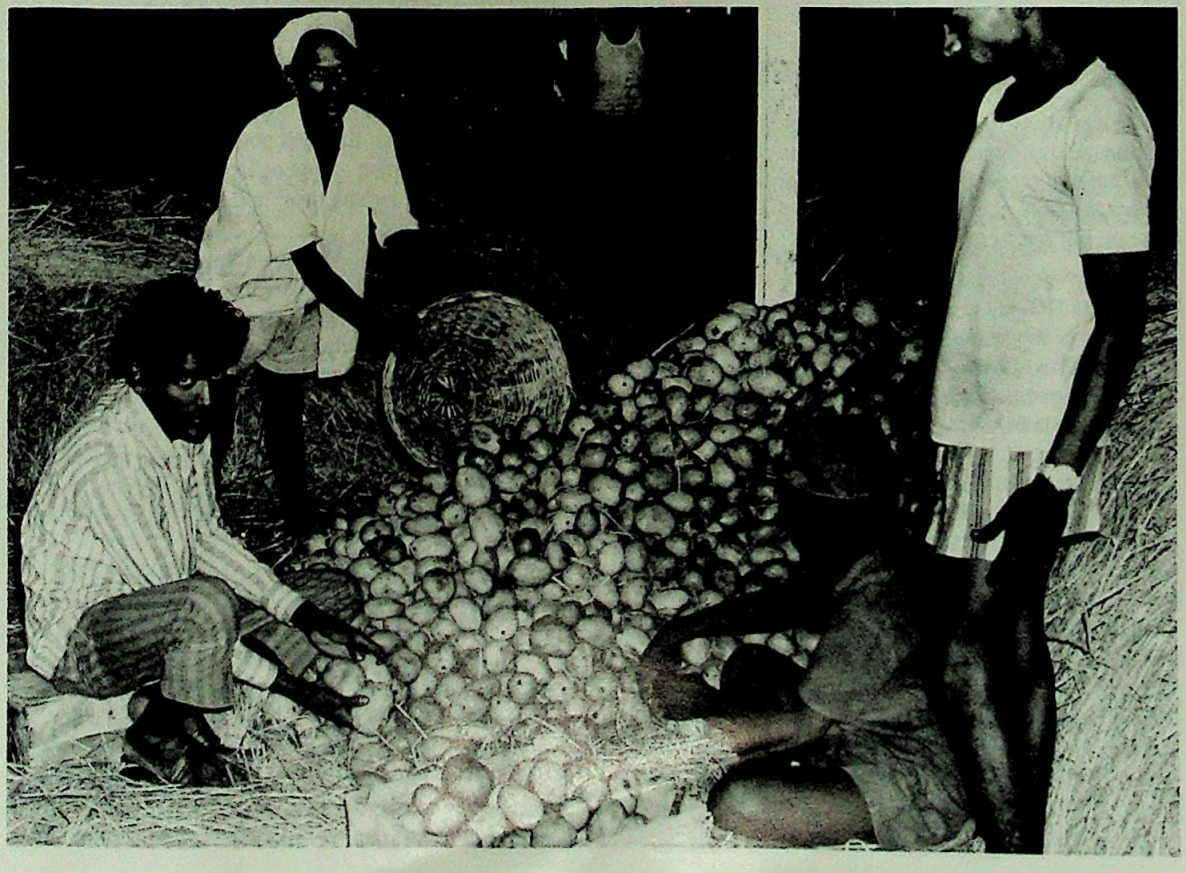
New Food Products

A recently-formed section in the Institute which is devoted to the development of new foods is at present studying ways of processing **Indian** mangoes for export, other than by canning. The tremendous increase in the cost of tinplate over recent years - from Rs3,000 a tonne 2 or 3 years ago to Rs7,000 in January, 1974 and, currently, Rs 8,500 – in addition to the acute problems arising from the high cost and rationing of fuel oils, make the development of alternative methods of preserving mangoes a matter of urgency.

One line of research being carried out under the direction of biochemist Dr John Caygill, who recently returned from a visit to India, is that of osmotic dehydration. This involves placing sliced fruit in a strong, 70 per cent, solution of sucrose at 5°C for 4 hours. As a result the fruit loses half its weight and, in its semi-moist state, can be packed in polythene at, it is hoped, a lower cost than in cans. An additional advantage of this method, should it prove commercially viable, a proviso which must be heavily stressed, would be that much less sugar would be required for processing. By contrast, just over half the contents of each can is a 20 per cent sucrose syrup.

Another method of preserving mangoes now being investigated is that of foam-mat drying to produce a fruit purée. A protein or surfactant is then used to produce a stable foam which can be dried under field conditions to yield a granular powder transportable at low cost. In principle, flavour retention should be good and the powder should possess good rehydration characteristics. It can be used for drinks, ice-cream mixes, etc. It must be emphasised, however, that both alternatives to canning are at an exploratory stage and may themselves prove too expensive to be economic.

Sorting ripe Alphonso mangoes for processing at Kissan Products Ltd, Bangalore.



Trainees and Visiting Workers

Mrs Bisi Adebayo, an industrial chemist from Vegetable Oils (Nigeria) Limited, recently visited TPI for a period of training from mid-April to mid-June. A graduate of two universities, Oregon State University, USA, and the University of Leeds, England, where she obtained, respectively, the degrees of B.Sc in chemistry and M.Phil in agricultural chemistry, Mrs Adebayo took up her present post in Nigeria in December, 1972. Previously she worked for the Ministry of Agriculture, Western State of Nigeria. Her work for Vegetable Oils (Nigeria) Limited is concerned with the quality control of raw materials and products and Mrs Adebayo's visit to TPI enabled her to learn more about quality control of palm kernels, in particular, and of other oils, nuts and grains, in general. She also took the opportunity to familiarise herself with laboratory procedures and apparatus used at TPI and was particularly impressed with the nuclear magnetic resonance spectrometer.

She feels that, as a result of her recent training, she will be in a better position to recommend the use of apparatus of a type most suited to her company's needs, and that she has gained knowledge which will help her in efforts to improve the quality of raw materials and thus, in the long run, the final product. Training in aflatoxin analysis has been a particularly important feature of the course which also included analysis of oils and fats and discussions on the storage of oilseeds with members of TPI's Storage Department. Mrs Adebayo found an industrial visit to Bibby's Limited, oilseed refiners at Liverpool, of special interest and looks forward to making more extensive visits to factories on future visits to England. On her way back to Nigeria she visited oilseed refineries in Hamburg, West Germany.

Her course at TPI was sponsored by her employers.

Miss Felicita Fojas arrived from the **Philippines** in April having received a training award under the Colombo Plan. She is working on the biological testing of plant products and is particularly interested in the pharmacological field. Miss Fojas brought with her a number of plants used in folk medicine in the Philippines and these are now being tested to see the extent to which they are effective, if at all. Since graduating from the University of the Philippines in 1960 with a B.Sc degree in industrial pharmacy, Miss Fojas has worked at the National Institute of Science and Technology in Manila, firstly in the Biochemistry Laboratory and later in the recently created Pharmacology Section. She believes that her gain in knowledge of research techniques will enable her to make a valuable contribution to the work of her department on her return to the Philippines.

Dr Abdulla El Tinay from the Faculty of Agriculture, University of Khartoum, **Sudan**, visited TPI for 2 months from mid-May to mid-July. He was attached to the Oils and Fats Section where he analysed the chemical composition of oils from different varieties of sesame seed.

Samuel Macauley, General Manager of the Rice Corporation, **Sierra Leone**, and the holder of a Visiting Fellowship to Queen Elizabeth House, Oxford, spent a week studying problems of market research, storage and processing. He had discussions with members of the Marketing and Industrial Economics Section and TPI also arranged visits to firms concerned with rice processing or the manufacture of rice equipment.

Barry Axtell had discussions with TPI staff on food processing and packaging before taking up a technical assistance assignment in **St Vincent** which will involve setting up a food processing factory. A series of visits to food processing firms was also arranged for him.

Mrs Bisi Adebayo studying in TPI's library.

TPI Abroad

Emlyn Morley visited **Sierra Leone** at the end of May to discuss with appropriate government departments the numbers of people who should be trained in grain storage and handling, and the kind of training they should be given. Similar requirements had been the theme of the 3rd Technical Seminar of the Group for Assistance on the Storage of Grains in Africa (GASGA) held in Dakar, **Senegal**, in April and attended, for TPI, by Peter Wheatley and Bill Andrews. The seminar, organised on behalf of GASGA by the International Development Research Centre, considered the preparation of suitable syllabuses for students attending training courses in grain storage. From Senegal Bill Andrews travelled to Rome where he spent 2 weeks helping to organise – and giving lectures at – a refresher course for World Food Programme project officers. Towards the end of May he returned to Africa to attend an FAO sub-regional pest control course in **Tanzania**.

Alan Harris left for **Mali** on 4 May to take up a 2-month assignment as a consultant to the office of the Sahelian Relief Organisation of FAO. As a fumigation specialist he assisted the Mali government in its programme of fumigating stores of food grains which have been donated for famine relief and which are under severe insect attack.

Alan Wood left on 2 May for a 6-week visit to the National Agricultural Laboratories in **Kenya** where he advised and helped in the work of the Pesticides Residues Unit, formed about a year ago to measure residues both on field crops and stored products. In mid-June he travelled to **Botswana** where he spent 2 weeks analysing fish from the Okovango Swamp to find out the environmental effects of trial sprayings of the tsetse fly which are being carried out at the swamp. The study is part of a joint project by TPI and the Centre for Overseas Pest Research.

Peter Manser, an engineer from TPI's Industrial Development Department left for **Swaziland** on 5 May as a member of a three-man team (the other members being Dr Dick Kirby (leader) and Charles Johnson) which spent a month studying the cotton industry from the production of seed cotton to the possible export of finished cotton goods. The Government of Swaziland, which asked the Ministry of Overseas Development (ODM) to arrange the study, hope that, over the next 10 years, cotton production (currently running at 10,000 tonnes per annum)

will be increased substantially, especially from the small farmers who at present produce only 15% of total output.

Allen Chittenden and Simon Robbins visited **Senegal** in April on a technical assistance assignment to study the feasibility of undertaking particle board production from groundnut shells.

Frank Peers visited **Zambia** for 3 weeks in May to look into the possibilities for developing a programme aimed at solving the problem of mouldy maize. The occurrence of mycotoxins appears to have increased somewhat in recent years following a high incidence of wet conditions at harvest and the introduction of combine harvesting.

Peter Boustead, a TPI marketing specialist, flew out to **Thailand** in early April to work for 4 months in the Hill Tribes area of the north where the Government is carrying out an extensive agricultural programme with special emphasis on the development of alternative crops to opium. Boustead's brief included the drawing up of a preliminary plan to guide the experimental work being undertaken and the marketing of crops currently in production. He also looked into the need to set up a marketing agency or intelligence unit to operate on a longer-term basis.

Graham Pinson left on 3 April for a month's visit to **Nepal** to carry out trials of the TPI-designed pedal mill in grinding locally available grains. He worked at the Ghurka Rehabilitation Centre in Lumle and tested the mill both in its pedal-operated form and adapted for use as a water-driven mill.

Cyril Jarman started, on 15 May, a 6-week tour of a number of Asian countries (including **India, Sri Lanka** and **Indonesia**) as a leader of a three-man team with the task of studying the feasibility of setting up a regional coir processing research centre. Other members of the team were Revi Karunakaran, a coir fibre industrialist, and Lal Jayasundra, managing director of Hayleys Ltd, a firm of shippers in Sri Lanka. The request for the study, which is being financed by the UN Development Programme, came from the Asian Coconut Community.

David Calverley and Trevor Cree travelled to **Malaysia** in April to create a framework for a detailed study of the many post-harvest problems associated with off-season paddy, ie rice grown under irrigation in the dry season and harvested in the wet season. The study, to be made jointly by the Muda Agricultural Development Authority (MADA) and TPI, is to be carried out in the province of Kedah where the problems are typical of all those associated with second-crop rice. Farmers are faced with great difficulties, not only in harvesting the extremely wet paddy but also in drying it quickly and efficiently enough to prevent rapid deterioration which will be reflected in the poor quality of the milled rice. After David Calverley's return to the UK in May, Cree remained behind to prepare for the field study and was supported by Dr Peter Street who left for Malaysia in June. Dr David Dendy and David Calverley were due to commence fieldwork at the end of July.

Pat Breslin, an economist, and Fred Hoffman, a fish technologist, spent a month in **Pakistan** during April–May, studying the internal markets for fish. In particular, they assessed future market possibilities in the light of the proposed development of the Gwadar harbour on the Mekkran coast from where most of the fish caught is at present exported in dry-salted form to Sri Lanka. The possible future provision of freezing facilities would open up additional markets, both at home and abroad. The TPI workers subsequently spent a week in Sri Lanka which at present provides the only outlet for dried salted fish produced in Pakistan. Later, Pat Breslin travelled on to **Japan** to carry out a 2-week study of fish export markets there.

Mike Morgan Rees and David Adair undertook a 2-week assignment in **Brazil** during March to investigate the possibility of assisting the State of Pernambuco in agro-industrial development.

John Cecil recently spent a month in **St Vincent**, one of the Windward Islands, where the destruction by fire of an arrowroot processing plant a year ago has severely reduced the industry's production capacity. It is intended to establish a new factory with funds provided by the Caribbean Development Bank, and the Government of St Vincent, with the support of the Bank, has asked TPI to design the factory. Cecil's mission was to study the industry as a whole and then to make a judgement about the size of factory required and to look at suitable sites for its location. He worked in close co-operation with Bank officials who advised on economic aspects of the project. Cecil is now busy preparing a design for the factory and, if financing of the project receives firm approval, TPI will assist in its commissioning and installation. On his way back from St Vincent John Cecil visited the TPI-designed pilot plant for producing instant yam flakes which was set up some 4 years ago in **Barbados**. A feasibility study of the prospects for a full-scale factory is being made by the Caribbean Development Bank and Cecil discussed this and other processing matters with the Barbados Agricultural Development Corporation.

At the Commonwealth Ministerial Meeting on Food Production and Rural Development in London last March, the Minister of Agriculture, **Malta**, who was among those attending, requested advice from TPI on growing, for export, plants with medicinal, aromatic or savoury qualities. In April, accordingly, Dr Malcolm Thain visited Malta where he had discussions with Government officials and representatives of industry, saw facilities for carrying out experimental work on plants, and looked at the existing, small-scale industry for producing certain drug plants.

Solving the Problem of Storing Black Tea

Problems associated with most commodities nowadays are those arising from scarcity. But, in the case of tea – one of the few surplus commodities in the world at present – serious problems would arise if it were desired to store large quantities for more than 6 months. A knowledge of, for example, what chemical changes occur under different conditions of humidity is an essential pre-requisite to efficient storage, whether in the medium- or long-term. Other essential information concerns the polyphenolic constituents which affect the colour and flavour of tea – in other words its liquoring characteristics – and the volatile constituents which affect aroma and flavour.

Developing countries starting to grow and process their own tea do not usually have access to the body of expert knowledge built up over the years by the commercial companies. The Protein and Beverage Crops Section of the TPI is therefore trying to find the answers to these problems, using such techniques as analytical monitoring. Chemical changes are studied and their effect on the final quality of the tea is measured by comparing analytical results with the verdicts of experts in the tea trade who are supplied with regular samples for tasting and carrying out other tests of quality. Once the basic information is obtained it is hoped to use it as an aid to devising efficient methods of long-term storage. Such research will be carried out in collaboration with the Storage Department (TSPC) at Slough, Buckinghamshire. Alternative methods of bulk packaging to replace the traditional – and nowadays expensive – tea chest are also being sought.

Falkland Islands Peat Wax Survey

The possibility of setting up a peat wax industry in the Falkland Islands has been investigated. A stimulus to this research has been given by the fact that peat in the Chatham Islands near New Zealand contains wax which it was once considered might form the basis of a local industry.

The amount of wax contained in samples of peat from the Falkland Islands examined at the start of the investigation was found to be on the low side. It was decided to ask the British Antarctic Survey for assistance and a scientist attached to the expedition carried out a more extensive survey, taking samples from a large number of locations and at different depths. In due course some 250 samples were received at the Institute. These were first dried to remove moisture and were then heated to 110°C to liquify the wax. At this temperature a nuclear magnetic resonance spectrometer was used to determine the amount of liquid material in the solid samples and to examine each sample in 20 minutes compared with the 16 hours which would have been necessary using conventional methods of solvent extraction. Results so far indicate that peat from the Falkland Islands contains less wax than the Chatham Islands variety – varying within wide limits from 0·6% to 9% compared with a reported average of more than 9%. Further investigations are needed to establish the economic implications of the quality and quantity of peat in the Falklands.

Latest TPI Publications

Single copies of the following reports are available free of charge to public bodies in countries eligible for British aid.

Wilson, R J (1975) The market for cashew nut kernels and cashew nut shell liquid. *Rep. trop. Prod. Inst.* G91. 127 pp. English, French and Spanish summaries. Price £1·40 (incl packing and postage).

The system of grading cashew nut kernels for export, the development of processing in major production areas, and primary marketing systems are discussed. Consumption patterns and grade preferences are outlined. The prospects are that increases in the supply of cashew kernels will be barely sufficient to meet the growing demand generated by population growth and a growing taste preference in favour of cashews. Cashew nut shell liquid is the only naturally occurring phenolic material entering into world trade. The demand for cashew resins has, however, been affected by technological change and the impact of this reduced demand is discussed, separately, for the USA, UK, Western Europe and Japan.

Adamson, A D, and Robbins, S R J (1975) The market for cloves and clove products in the United Kingdom. *Rep. trop. Prod. Inst.* G93. 43 pp. English, French and Spanish summaries. Price £0·60 (incl packing and postage).

The current state of the market for clove products in the UK is examined and the prospects for the future assessed. The report concludes that, with the exception of clove oleoresin, for which total demand is in any case very small, and clove leaf oil, there is a detectable trend away from the use of traditional clove products because of high prices. It is considered unlikely that, once perfume and flavour formulations have been changed, a reverse change would occur in the event of a subsequent fall in price.

Tropical Products Institute (1975) *Report of the Tropical Products Institute 1972–74.* London: the Institute. 96 pp. Price £1·10 (incl packing and postage).

The work of the Institute during the period from 1 April 1972 to 31 March 1974 is reviewed. Following a description of the overall pattern and highlights of the Institute's activities, a more detailed survey of some of the major projects of the Departments and Sections of the Institute is given.

Scientific papers published in external journals

Beevor, P S; Hall, D R; Lester, R; Poppi, R G; Reed, T S; and Nesbitt, Brenda F (1975) Sex pheromones of the army worm moth, *Spodoptera exempta* (Wlk). *Experientia* **31**, 22.

Two female sex pheromones of the army worm, *Spodoptera exempta* (Wlk), a serious pest of cereals and grasses, were identified using gas chromatography combined with electroantennogram recording, and subsequently synthesised. The synthetic sex pheromones are currently being field-tested in Kenya by entomologists from the Centre for Overseas Pest Research.

Wallbridge, Ann, and Pinegar, J A (1975) Fungi associated with crown-rot disease of bananas from St Lucia in the Windward Islands. *Trans. Br. mycol. Soc.* **64** (2), 247–254.

Bananas var. 'Robusta' from St Lucia were examined over a period of 3 months to determine the fungi associated with crown-rot disease.

Owen, J E; Lawrie, R A; and Hardy, B (1975) Effect of dietary variation, with respect to energy and crude protein levels, on the oxidative rancidity exhibited by frozen porcine muscles. *J. Sci. Fd Agric.* **26**, 31–41.

An experiment is described in which the effect of different diets on the tendency of minced frozen porcine muscle to undergo oxidation was investigated. The results indicated that the particular diets used had little effect on the fatty acid content of the porcine muscle triglycerides and none on that of the phospholipids. It was in the latter fraction that oxidation was mainly exhibited. The major factor influencing susceptibility to oxidation was found to be the ultimate (24 h *post mortem*) pH level of the muscle concerned.

Owen, J E, and Lawrie, R A (1975) The effect of an artificially induced high pH on the susceptibility of minced porcine muscle to undergo oxidation rancidity under frozen storage. *J. Fd. Technol.* **10**, 169–180.

The effect of an artificially induced high pH and of nutritionally modified unsaturated fatty acid levels in intramuscular lipids, on the oxidative stability of lipid and pigment fractions in frozen minced porcine muscles has been investigated. The stability of both lipid and pigment fractions was increased by a high ultimate pH. This was also true when the intramuscular triglycerides contained higher levels of polyunsaturated fatty acids as a result of feeding.

Printed by Her Majesty's Stationery Office and published by Tropical Products Institute (a scientific unit of the Ministry of Overseas Development) 56–62 Grays Inn Road London WC1X 8LU
MP Dd. 357525
ISSN: 0306-3917