CA 4/1/66

C.S.

Industries Miscellaneous.

No. 478/28

1928.

Exploitation of Kelp.

Sec of S Desp 190.

1928

2nd Oct

Previous Paper.

G.O. 459/15

73/16

SUBJECT.

EXPLOITATION OF KELP.

1. Possibility of establishing Industry for the extraction of Potash from Kelp. 1928
2. Export to U.K. for processing. 1915

G.O. 459/15. 73/16.

52/46 Forestry Land Tribe Corp. Kelp Industry

MINUTES.

PA 16/1/29

1-3 Sec of S. Despatch No 190. 2nd Oct 1928.

Y/E. Submitted.

A.D.O. for C.S. 14/12/28

P.W.D. 15.12.28.

4 Letter from Mr. K Darsley to H.E. The Gov. 22/5/28

P.W.D. 16.1.29

5 Minute from H.E. the Ag. Governor 7/3/29

Y/E.

Papers submitted.

A.D.O. 9/2/31.

Subsequent Paper.

0804

Offl. Secy.

Please let Mr. L. W. A. Young see these M.P.

[illegible]

10. 2. 31.

Hon L. W. A. Young.

To see.

[illegible] 15. 2. 31

C. J. J.
Jackson.
10/2/31.

Y/E.

Does Your Excellency wish any further action on this M.P.?

C. J. J. 24/2/31.

Please b. f.

25. 3. 31.

[illegible] 25. 2. 31

Please continue to b. f. 25. 5. 31.

[illegible]

25. 3. 31.

b f 25/6/31.

C. J. J. 26/5/31.

P. A. [illegible]

25. 6. 31

C.S.O. No. 478/28

Inside Minute Paper. *Sheet No.....2.....*

(6) Minute from Hon R. L. Cheeseman 18/7/36.

Hon. S. M. O.

Papers herewith.

M. C. H. S.
C.
18. 2. 36

Hon. Col. Sec.

Noted, thank you

[signature]

20/2/36

P.H
21/2/36

7. Letter from Manager, F.I.C., of 11. 7. 36.

(8)

P/Ag
to see (7). Have you any views?

[signature]
21/7/36.

H.C.A.

(9)

I am very much of the opinions expressed in red 4 but I know nothing of the subject, and it is possible that wartime research has brought about more uses & improved methods of handling seaweeds. We have an edible seaweed which makes a pleasant soup, & it could no doubt be dried & exported as is carageen moss from Ireland.

Perhaps the Imperial Institute could let us have a precis of the industrial uses of ~~specific~~ seaweeds & also a list of economic species, and brief descriptions of ~~their~~ preparations.

We are very far from the factories in Europe that use seaweed [illegible]

It is possible that extraction of minerals from salt water could be profitably done here as is done in the case of magnesium in the New Orleans area. The salt concentration of our sea water is relatively high, & the ability to put the treated water into a place where it would not be likely to contaminate the untreated should be fairly easy, especially as the tides run rather rapidly in some parts.

23/7/45

(10)

G.E. You might care to see this. I cannot think that we could compete at this distance. A.A.H.?

LB
26/7/45.

(11) Ach. & b.a. then Scottish Agric. man comes — & if poss. have reference in Bulletin of Imp. Inst. looked up

Letter to Manager, F.I.C., of 28. 7. 45. 12.
Minute to Director of Agriculture, of 31. 7. 45. 13.
Minute from Director of Agriculture of 26. 8. 45. 14.
Letter from Cooper, Friend & Co., of 6. 6. 45. 15.
——— ——— 8. 6. 45. 16.

BW 1.10.45

Despatch No. 41 from S. of S. of 3. 7. 45 17.

(18)

G.N. H.E. would be grateful if you, in consultation with Dr. Gibbs, could try to produce as much information as possible. He should like to get a preliminary reply of some kind off by the mail on the 30th.

LB
21-9-45.

C.S.O. No. 475/28

Inside Minute Paper.

Sheet No. 3

A.C.S. (19)

Res (18) please.

2. These people seem interested in animal offal also. ? What about the 50,000 sheep killed annually as surplus. Modern practice uses carcasses to last fragment, guts and blood, horns and hoof.

Dr. Hamilton agrees & wrote the note.

J.R.H.

25-IX-45

20. Note on Sea-weed from Gov. Naturalist undated

21. Letter to Messrs: Couper, Friend &Co. of 27. 9.45

(22)

G/W Could we discuss this? Wed. 3.0. p.m.?

D.B. 1/10/45

(23)

Y. E.

At (20) are some very useful notes by Dr. Hamilton. From the information available, the industry is interested in "brown" sea-weeds as well as others. The local kelp would, therefore, appear to be a likely material for this project.

2. The danger of eroding the coast would be averted if the kelp were not cut off exposed shore-lines, but only in sheltered waters, e.g.g. Port Harriett, Salvador Waters and Berkeley Sound. There is no shortage of kelp, particularly in view of the fact that it regenerates very quickly. Gale damage appears to be restored within one season. In fact almost unlimited quantities of kelp would be available with perfect safety.

3. In order further to ensure that no risk of erosion is incurred it could be cut under licence and controlled seasonally as to place and quantity in the same way as the elephant seals are protected in South Georgia.

4. A certain amount of storm kelp would presumably be gathered from the beaches, but the bulk would be harvested at sea.

5. Owing to the absence of roads and also of a suitable vessel here the company should be advised to provide their own craft. The minimum type of vessel suitable would be a large herring drifter. If lighters were also used adequate power

for/

for towing would also be essential. The vessel should burn oil-fuel as the price of coal is prohibitive.

6. A factory would be required on shore for drying and packing the kelp unless a special vessel were brought out with the machinery installed on board. The factory building should be pre-fabricated as the only local building material is stone. Fuel for the plant would either be oil or peat, the latter being obtainable at approximately 12/6 per ton delivered.

7. There are several possible sites for the factory in the sheltered waters of Port William or Port Stanley, e.g. Sparrow Cove. A jetty would be required either of concrete piles or timber.

8. Fresh water for the plant and for the ship is available in Stanley or alternatively from the Sparrow Cove reservoir. If Sparrow Cove were chosen labour would have to be transported there and back daily.

9. Up to twenty unskilled labourers are available, including a few seamen, at 1/2 per hour, plus 3d. per hour Cost of Living Bonus. Female labour is not available.

10. It is not considered that any scheme for the collection of beach kelp by local people for transport to the factory would be likely to succeed.

11. In addition to sea-weeds it is noticed that the company is interested in fish-meal, meat and bone-meal, bone flour, blood-meal and bone charcoal. It would seem, therefore, that its activities might find considerable scope in local materials other than kelp. 50,000, more or less, sheep carcases would be available each season and could be collected by the company's vessel. A further development might be found in local fisheries. If processing of this nature were feasible the basic problem of fishery development, namely a market, would be solved and a fishing industry might have a chance.

12. The export of the product would present no difficulty, the company's vessel itself might carry cargoes to the Plate. Otherwise, either the product will be highly compressed and therefore of relatively high bulk value which would enable it to pay the freight of 48/- per ton at present charged by the F. I. C., or a sufficient quantity will be available annually to justify the diversion of a ship.

13. To sum up, it is considered that a sufficiently attractive picture can be drawn of the possibilities to interest the company in the industry. It would be very advisable for an expert to be out to survey the situation and to start things going. If this were done it is quite possible that a sufficiently capable man might be found locally to undertake management or to run it as his own show, e.g. Mr. W. Hutchinson.

14. I suggest that the information as at (20) and on the lines of this Minute be sent home. I could call on the company while on leave and give further information, if desired.

15. I also suggest sending a telegram saying that this information is coming and asking if they would like a 30-gallon barrel of kelp packed in salt as a Sample.

KB

4.10.45.

C.S.O. No. 478/28

Inside Minute Paper.

Sheet No. 4

24.	Letter to Messrs. Cooper, Friend & Co. London	of 24-10-45
25.	Telegram from " " " " "	14. 12. 45.
26.	Letter " " " " " "	25. 10. 45.
27	" " " " " " "	4. 1. 46
28.	Telegram to " " " " "	5. 3. 46
29	Letter from " " " " "	7. 3. 46
30.	" to " " " " "	2. 5. 46

pa.

31. Extract from letter from K. C. Bradley, Esq. Calc. of 29. 3. 46.

32

The Gov. is discussing this with the C.O. & we may B.V. in 2 months.

12. 8. 46

12.10.46

33. Extract from Letter from Dr. J.E. Hamilton of 3. 8. 46

34

'Algemates Industries Ltd.' asked F.I.C. U.K. Office for certificate for licence on their 'small vessels' for 4-5 months keep Survey early in 1947: mentioning that Faulkner (Calcutta Ch. Engr. 'San Castor') - Jones (Calcutta Ch. Officer, 'Filzroy') were to 2 of party of 3.

2. This Admin has sent a certificate.

3. B.V. for Govern, to compare the action with x on (31), & (33).

9.X.46

B.V. 15/11/46

Tel. No. 226 from S. of ~~S.~~ of 30. 10. 46. 35.

36

E.E.

For early report re (35) pse.

31. X. 46

(37)

Honourable Colonial Secretary.

"Dawn" is not Government property & is no use until she has a new engine which her owner is buying (aeroplane through E.L.B.

Alert could be made available. She would only be suitable for P. Pelham in any weather & Berkeley Sound in reasonable weather & only elsewhere in the calmest of days.

The Penguin if re-engined would be ideal & could go almost anywhere. There is a quotation on another file as to the cost of ~~the~~ engine. I cannot say which but may be on her "personal" file when it was proposed to sell her.

H.M.

1. XI. 46.

(38)

E.E.

Pse. see 29/32 below. He might suggest "Penelope" but I know nothing of her.

2. May I have an early report re the condition of 'Alert'?

1. 11. 46

(39)

Honourable Colonial Secretary.

I also know nothing of Penelope.

The Alert is in excellent condition as to hull & her engine in good running order & with a long & useful life before it.

H.M.

2. XI. 46

C.S.O. No. 478/28

Inside Minute Paper.

Sheet No. 5

40 Tel No 345 to S. of S of 2. 11. 46.

41. Memo. on proposals for Weed Supply Base in the N. Is. by Acquisitions Industs. Ld. of 23.9.46.

42. Letter to Sir Frank Stockdale, C.Off. of 26. 9. 46

~~Hfc~~

43

N.E.

On 28 Nov. I saw Mr Young, Managing Director, F.I.C., Mr Cobb., Mr Roots, Colonial Manager. They said they were anxious that this scheme sh. go forward: it was, they understood, backed by Erlangers. (?) Courtaulds, - in no need of financial help, but they were providing the accomodation. They expected that A.I.L. wd. set up at the site I chose N.E. East of the Agricultural Dept. station, but said that this was also the possible site of Mr (F.I.C.) slipway, and that they were delaying a decision till they saw what A.I.L. the Army might require.

cf. s 6(c) of (41)

2. They said A.I.L. were going to produce for use in their own factories - not for m. sale (but cf. (41) s 3).

2.12.46

copy of tel. from adm. to N.O.i/c of 26.11.46.44.

" " " to " from N.O.i/c of 29.11.46. 45

46

1/12.

(44) & (45) with 43 for inf.

CS.

3.12.46

Seen; I wonder what (c) of 45 is based on?

mc. 3/XII

47

1/12.

Gr L.E.'s advice

3.12.46

Thankyou.

"Penguin". What size engine is in mind for her?

mc. 4/XII

29/32

(46)

Telegram N° 257 from S of S d/d 9.12.46

(47)

JCS

We have discussed the above and I have drafted reply wh. shd. be despatched early. In principle the scheme deserves every encouragement but we must not be committed to participation in a nonsense nor am I ready to be stampeded into a snap decision. I have not thought it necessary to comment on 47.

mc. 13/XII

C.S.O. No. 478/28.

Inside Minute Paper. *Sheet No.* 6.

48. Telegram No. 393 ~~of~~ to S. of S. of 13.12.46

49. Telegram from Admiralty to N.O.I.C of 10.12.46
50. " to " from " " 13.12.46

HCS

(51)

Telegram with in shd. be typed filed early — The reference at X of p 4 of the transcript is obscure and I think may refer to an earlier t'gram about the local power station.

As things stand it appears to me that the Company is to get from rental for 5 years, a generous measure of protection, the capital commitments to be caused largely by this Govt (Electric power, water, housing etc) and that all we are likely to get out of it for some time is £650 p.a. royalties on weed on basis of 1000 t. wet weed per week and amalisation of the capital invested in the electric installation, plus of course some degree of relief of the local employment problem. Ultimately we may look for £12,000 p.a. in royalties

If para 7 of R46 does not mean a road leading from Port Stanley then I dont know what it means — they surely do not intend to run a 5 ton lorry from the Admiralty quay to the Store.

On the question of where the ~~electric~~ power-house is to be erected we are confronted with the situation that power is required by

(a) Stanley
(b) Admiralty W/T ~~station~~
(c) BDKC

and ~~it is~~ the proper solution, surely, is a central generating ~~station~~ to service all three?

The position as regards housing and possible supply of suitable timber at Camber shd. be taken up at once by E.E. with NOIC — other materials are also required though apart from timber; glass, fittings, pipes, roofing and so on — where are they to be obtained? M.Video, presumably, at a price.

I think we could probably get the artisan labour we need from Uruguay but the question of housing them will arise. ? Army camp ? Globe Hotel

MC 29/xii

Terms (royalties rentals) should be carefully studied in relation to the recent directive about mineral exploitation wh. ~~is~~ entirely relevant.

We might be able to charter the Penguin to BDKC and this shd. be K.I.V. Have we anyone capable of installing a new engine in her?

(52) et seq. remains to 0004

PA. [illegible] 6.1.46

24 October 8

56920/1928.

Sir,

I am directed by Mr. Secretary Amery to acknowledge the receipt of your letter of the 4th of October and to inform you that the question of utilising Kelp was exhaustively considered, at the suggestion of a former Governor, by the Imperial Institute in 1915. At that time owing to the war there was a world-shortage of potash manures and the Director was of opinion that seaweed ash might profitably be exported from the Falkland Islands but he considered that this was very improbable under normal conditions. The Director of the Imperial Institute also stated that the preparation of potash salts and other substances from the ash is a much more complicated matter, requiring the erection of plant and expert chemical supervision and he thought that

A. HODSON, ESQ., C.M.G.

Copy.

ENCLOSURE TO DESPATCH
No. 190 OF 24.10.1928.

(1)

Travellers' Club,

Pall Mall, S.W.1.

4. 10. 28.

Sir,

I shall be grateful if you will ask the Empire Marketing Board if Kelp, the kind of sea-weed found in the Falkland Islands, has any commercial value.

I have etc.,

(Sgd) Arnold Hodson.

The Under Secretary of State,

Colonial Office.

478/28

(4)

Communications on this subject should be addressed to—

THE UNDER SECRETARY OF STATE,
COLONIAL OFFICE,
LONDON, S.W.1.

and the following Number quoted: 56920/1928.

Downing Street,

24 October, *1928*.

Sir,

I am directed by Mr. Secretary Amery to acknowledge the receipt of your letter of the 4th of October and to inform you that the question of utilising Kelp was exhaustively considered, at the suggestion of a former Governor, by the Imperial Institute in 1916. At that time owing to the war there was a world-shortage of potash manures and the Director was of opinion that seaweed ash might profitably be exported from the Falkland Islands but he considered that this was very improbable under normal conditions. The Director of the Imperial Institute also stated that the preparation of potash salts and other substances from the ash is a much more complicated matter, requiring the erection of plant and expert chemical supervision and he thought that

A. HODSON, ESQ., C.M.G.

that it was hardly likely to be remunerative under ordinary conditions.

2. Full particulars were however sent to the Colony in the Secretary of State's despatch No.125 of the 17th of November, 1925, and Sir Douglas Young replied that the possibility of establishing a Kelp industry for the production of potash had been considered by the Executive Council and that it was decided that such an industry could not profitably be undertaken.

3. In the circumstances Mr. Amery feels sure that you will agree that no useful purpose would be served in re-opening the question now.

I am,

Sir,

Your obedient servant,

R Dawley

(5)

Off. Sec.

Please let me see any previous papers we have regarding the commercial utilization of Irish Kelp.

7. 2. 31.

THE KELP INDUSTRY IN WESTERN IRELAND

The first year's working of the Free State Government's attempt to develop the kelp industry in Western Ireland has met with considerable success, as some 2,000 tons of kelp have been sold at an average price of £7 a ton, and £14,000 has been distributed among the poorest inhabitants of the western seaboard. Modern methods have been taught to the people, and the Ministry of Fisheries believes that the industry can be developed almost indefinitely. Kelp is the calcined ashes of seaweed, from which carbonate of soda is obtained, and from the alkali, iodine.

Hon. L. H. H. Young

7. 2. 31.

No. _____

(It is requested that, in any reference to this minute, the above Number and the date may be quoted).

MINUTE.

18th February, 1906.

To The Honourable

Colonial Secretary

Stanley, Falkland Islands.

From Senior Medical Officer.

Stanley.

I have the honour to request that I may be permitted to see any papers on Kelp.

It might be possible to start a small local industry for the manufacture of Iodine and other By-products.

Senior Medical Officer.

Copy of cutting from "DAILY TELEGRAPH"
(undated - early 1945.)

(7a)

SEAWEED GIVES BRITAIN KEY WAR MATERIAL.

Whenever you eat ice cream, jelly or custard, apply a salve to a burn, go into hospital for an operation, or call a welder to mend a leaking petrol tank or radiator, you are probably making use of one of Britain's newest and least-known war materials - seaweed.

Two years the DAILY TELEGRAPH exclusively related how the Ministry of Supply had dispatched a party of scientists round the coasts of Britain. Their task was to survey the extent of the seaweed "crop."

Today it is possible to disclose what has hitherto been a war secret: That the collection and processing of seaweed has grown almost to the dimensions of a national industry. And it is still growing.

20,000 TONS A YEAR

One firm alone in the Home Counties uses between 15,000 and 20,000 tons of seaweed every year, most of which is imported from Eire. Much more is still needed. The Scottish Industrial Council, with the support of the Scottish Office, is now trying to achieve a big expansion of collection.

The seaweed that is in bulk demand is the common type. From it is extracted calcium alignate, a gelatinous substance closely allied to cellulose. A bewildering variety of articles can be made from it.

Calcium alignate goes into various kinds of foodstuffs. It makes surgical materials, non-inflammable or soluble textiles, and medicines.

DRIED BLOOD USE

It is used to make capsules of all kinds, and is employed in the preparation of dried blood. In another form it is extensively used in brain and eye surgery. It is also used im the manufacture of paint and plastics.

This new industry is the result of the work of British scientists. It had a pre-war beginning, but its rapid development followed the entry of Japan into the war.

Previously, this country imported from Japan every year hundreds of tons of agar-agar, a gelatinous substance of great importance to scientific work as the medium for bacteria culture. It also has great medicinal value.

During their survey in 1942 the scientific party discovered two types of red seaweed round British shores from which agar-agar could be produced. Under the aegis of the Ministry of Supply, a widespread collection has been organised.

Unlike the collection of the common seaweed, which provides occupation for crofters during the winter, the harvesting of the red seaweed is confined to the summer. During the coming months parties of Boy Scouts, Girl Guides, W.V.S., and other volunteers will comb the beaches for the inconspicuous sea plant, which contains the precious substance.

Each party will be led by an expert who can differentiate between the useful and unwated types.

---

(7)

The Falkland Islands Company, Limited.

(INCORPORATED BY ROYAL CHARTER 1851.)

REGISTERED 1902.

AGENTS FOR LLOYDS.

TELEGRAMS "FLEETWING PORTSTANLEY" via RADIO.

Stanley.

11th July 1945. 194

Sir,

At the request of our Head Office we enclose a recent "Daily Telegraph" cutting (plus an additional typed copy) on the subject of the commercial possibilities of seaweed, which they think may interest the local Government.

They mention that they understand there is already in existence a Scottish Seaweed Research Council.

I am,

Sir,

your obedient servant,

for Manager.

The Honourable,

The Colonial Secretary,

STANLEY.

478/28.

12

28th July, 45.

Sir,

Red 7.

I have the honour to acknowledge with thanks the receipt of your letter of the 11th of July, 1945, forwarding a "Daily Telegraph" cutting on the subject of the commercial possibilities of seaweed.

I have the honour to be,

Sir,

Your obedient servant,

K G BRADLEY

Colonial Secretary.

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

No. 478/28.

(It is requested that, in any reference to this minute, the above Number and the date may be quoted).

MINUTE.

13.

31st July, 19 45.

From The Colonial Secretary.

Stanley, Falkland Islands.

To The Director of Agriculture,

STANLEY.

His Excellency would be grateful if you could look through numbers of the Imperial Institute bulletins and provide him with any extracts there may be dealing with the commercial uses of sea weed. This arises out of the letter from the Falkland Islands Company which you saw recently and I should be glad to have this information not later than the end of August if you can manage it.

K. G BRADLEY

Colonial Secretary.

No. 6/2/6

(It is requested that, in any reference to this minute, the above Number and the date may be quoted).

MINUTE.

(14)

25th. August, 1945.

From The Director of Agriculture, Stanley, Falkland Islands.

To The Honourable, The Colonial Secretary, Stanley.

Red 13.

In accordance with your 478/28 of 31st. Ult. I have made precis of the articles. I have been able to locate in our library concerning seaweeds. There does not appear to be anything covering the subjects of the cutting in anything available to us.

COLONIAL SECRETARY'S OFFICE 27 AUG 1945 FALKLAND ISLANDS

Director of Agriculture.

aec/jgg

(14a)

Agar Agar L. E. Moore Bull. Imp. Inst. Vol. 39. No. 4. pp. 355-358, 1941.

New Zealand possess eight species of Gelidiacae the family to which the best agar yeilding seaweed belongs. Two species appear suitable, Petrocladia lucida and Petrocladia capillacea, are easy to identify and give good yield of agar. Another species Gelidium is good but is smaller and more readily confused with valueless seaweeds.

P. lucida grows where rocks run into clear deep water, tolerates strong wave action, but not sand and is never found in estuaries. Grows in narrow bands about low tide level on vertical rock faces in fronds up to nine inches long. It occurs between small brown weeds above and long course ones below. In a good bed it almost unmixed with other species.

P. capillacea grows on the open coasts, tolerates more sand, and grows at higher levels. It is found in clean permanent rock pools about half tide mark.

Gelidium grows on pebbly or shelly bottoms above and below tide in rather quiet estuarine waters.

Wellington, Petrocladium takes about eight months to recover after cutting but the bed takes longer to recover. Agar weeds are more abundant in warmer northern waters. Petrocladium drys rapidly and easily. First rinse it in fresh water and hang on fences or spread thinly on concrete in the sun to dry.

Large quantities are available in New Zealand and the supply is of good quality, expected to yield 30% of the original weight of Agar. New Zealand requires thirteen tons for canning tongues and medicinal uses.

The method of preparing Agar includes; digesting the dried weed at 10 lb. pressure, cooling and then freezing the resulting jelly to dry it. Difficulty was experienced in obtaining suitable plant for bulk exportation (in New Zealand). 100 lbs. of seaweed yielded about 15 lbs of Agar but with better equipment the yield would be much better. The product was put up in powder form for biological purposes but trade prefers the leaf form.

II Agar Agar. A new Potential industry in Australia. Bull. Imp. Inst. Vol. 39, No1 4, pp. 359 - 361, 1941. Joun. C.S.I.R. (Aust.), Vol. 14, pp. 221 - 222, 1941.

Gracilaria conferoides occurs in sandy beaches and estuarine waters on the Australian coasts. Collections are made from seaweed washed up on the beaches, not more than 5% sand and 20% moisture are permitted in the top grade. Dried Gracilaria resembles hemp, it is washed for two to four days in running water, then three successive boilings made until it is gelled. (about 110°F.) The gel is cut into sections of ¼ inch. and frozen.

The Council of S. & I.R. (Aust.) recommends the establishment of the industry in Australia and believes it will be able to compete on an equal basis with the material manfactured overseas.

The Agar has a higher ash content than Japanese agar and slightly lower gelling power. It is equally good for bacterial growths but gives poor growths of soil bacteria and Rhizobin which is possibly due to copper taken up from manufacturing equipment.

Bacteriological tests' on agar made from Australian Seaweed. H.L.Jensen. Bull. Imp. Inst., Vol. 42, pp. 69 - 74, 1944.

(146)

Using agar from Gracilaria conferoides. The 2% sollin was more difficult to filter the ordinary agar solidified on cooling @ 47 - 48°C and gave a more elastic gel than ordinary agar.

A companion of the growths of bacteria (general, medical and agricultural) was made on this and Japanese agar. Tests with 17 specified organisms cited. The Australian agar is clearly richer in available nitrogen than the Japanese, and is therefore limited in experimental uses. Analysis showed total N as 0.50%: 0.19% resp. The Australian agar appeared to be richer also in accessory growth factors.

Conclusions:-

Australian agar (Gracilaria).

(1) Not suitable for bacterial counts.

(2) Jelling point rather high for heat sensitive bact if standard techniques are observed.

(3) Differential growth on A agar and J agar suggest its use may have significance for identification.

(4) Difficult to filter and pour.

(5) High growth rates on A agar and presence of growth compounds are a detriment only in special cases.

(6) These or many of these defects may be removed by greater purification during manufactures. They are not at present to be considered as final defects.

Gigartina decipiens from New Zealand as a substitute for Irish Moss with special reference to the Brewing Industry.

Bull. Imp. Inst. Vol.41,pp 63 - 65,1943.

Specimens of Gigartina (G. alveata, G.angulata, G.atropurpurea, G. clavifera, G.cranivellae, sp. med., G. decipiens.

Preliminary examination showed decipiens was the most promising. Seven lbs. ea of dried sun bleached G.decipiens Wftor, and G.angulata Stewart Island.

Both were unsuitable for a prin of manufacturing chemists' as substitutes for Irish Moss, (Carageen moss, Chondrus crispus). The New Zealand seaweed was in corser ribbon like precis of dry, translucent, light brown seaweed and was more broken up than Irish Moss as marketed.

Chemical Composition of sample of decipiens.

	parts per 100.	Irish Moss
H. 20	14.3	
Proteins	11.1	7%
Soluble in cold water	44.2	47%
Soluble in hot water	63.0	75%
Ash	15.4	8-15%
Arsenic (As 203) pts. p.million	4	
Lead (Pb) " " "	2	

G. decipiens at 6% (Wt/Vol) gave gel of equal strength to that given by 4% Irish Moss. At equal concentrations the gel given by decipiens was slightly darker.

Decipiens should be of commercial value as a substitute for Irish Moss for various purposes. Manufacturers prefer the arsenic content to be 2 ppm. but it frequently rises to 4 ppm. and for most purposes is harmless at this strength. The lead content is harmless.

Results of Brewery trials as a clarifying agent.

	wort.	sediment.
No. clarifier	Slightly hazy.	light bulky.
Irish Moss	Fairly bright.	Compact.
G. decipiens	Brilliant.	Compact.

The Royal Commission on arsenical poisoning in 1903, recommended that not more than 1 grain of arsenic p. lb. should be present in materials used in composition of beer. (i.e. 1.42 ppm)

The 4 ppm. is incapable of making most harmful but is higher than recommended. Material could be deducted by suitable material and would be ready market for G. decipiens in the United Kingdom in competition with Irish Moss used for copper finings.

The Governor,
Falkland Islands.

6th June, 1945.

478/28

Dear Sir,

Colonel O. Stanley, the Under-secretary of State of the Colonial Office has suggested that we should write to you about the question of supplies of Seaweed. We are actively interested in this material, which we require dried for our Fertilizer and Feeding Stuffs Industry.

At present we are getting some supplies from the west Coast of Ireland and some from Scotland, and there is a big field for development for this.

We are members of the Scottish Seaweed Council, and we shall be verypleased to have the fullest particulars from you. First, whether the Falkland Islands is interested in the establishment of a Factory to dry the Seaweed? Secondly, what figures and particulars have you as to the supply of Seaweed, and the different qualities? Thirdly, is there anybody on the Island at present drying Seaweed, and whether you can give ushelp to arrange in organizing the collection of it?

Yours faithfully,

Couper Friend & Co

L.R. Friend

16

The Governor,
Falkland Islands.

8th June, 1945.

Dear Sir,

We have subsequently seen Mr. Hickling of the Colonial Office, Fisheries Section, and we are wondering whether the Whaling Companies who operate down in your part of the World, would be interested in Seaweed in their off-seasons, especially those Companies that have a Land operated Union.

Seaweed, as you no doubt know is very valuably used to-day - in the Plastic Industry, Explosives, Medical, Edible, Animal Foods and Fertilizers.

It is in Animal Foods and Fertilizers that we are naturally interested. At present we get supplies from Ireland and Scotland, where it is collected, Dried, Ground up, and shipped to us.

We should be very much obliged for your help in getting this industry going after investigation as to whether it is a proposition.

Yours faithfully,

Couper Friend & Co.

L.R. Friend

(17)

Colonial Office,
Downing Street,
S.W.1.

FALKLAND ISLANDS

3 July, 1945.

NO. 41

Sir,

I have the honour to enclose a copy of a letter addressed direct to you by Messrs. Couper, Friend and Company regarding the possibility of obtaining supplies of seaweed from the Falkland Islands.

2. Couper, Friend and Company are a well known firm engaged in the manufacture of poultry feeding-stuffs from fish by-products, and Mr. L.R. Friend, a partner of the firm, has been in touch with my Fisheries Adviser as to the possibility of obtaining supplies of raw material from the Colonial Empire.

3. It has been suggested to the firm that the Falkland Islands appear to be the most promising source of supply of seaweed in the Colonial Empire, and I should be grateful if you would furnish them with full information on the subject.

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

GOVERNOR,
SIR ALLAN CARDINALL, K.B.E., C.M.G.,
etc., etc., etc.

COPY.

Copy letter to: LRF/WS.

The Governor, 6th June, 1945.
Falkland Islands.

Dear Sir,

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At present we are getting some supplies from the west coast of Ireland and some from Scotland, and there is a big field for development for this.

We are members of the Scottish Seaweed Council, and we shall be very pleased to have the fullest particulars from you. First, whether the Falkland Islands is interested in the establishment of a Factory to dry the Seaweed? Secondly, what figures and particulars have you as to the supply of Seaweed, and the different qualities? Thirdly, is there anybody on the Island at present drying Seaweed, and whether you can give us help to arrange in organizing the collection of it.

8th. We have subsequently seen Mr. Hickling of the Colonial Office, Fisheries Section, and we are wondering whether the Whaling Companies who operate down in your part of the World, would be interested in Seaweed in their off-seasons, especially those Companies that have a land operated Station.

Seaweed, as you no doubt know, is very valuably used to-day in - the Plastic Industry,

P.T.O

A note on the Seaweeds of the Falkland Islands.

(20)

The word KELP herein is used in the local sense, - that is as the name for the ~~larger~~ larger sea weeds of which 3 genera are found in the Falklands.

1. Durvillea is characterised by its very dark colour and massive fronds which may attain a length of 12 feet. They are thick and rubbery.

2. Lessonia commonly goes by the name of "tree kelp". It has a much more bushy form than Durvillea and is notable for the thick and repeatedly branched stems.

Both these forms are found below the level of neap tides but may be partly exposed by the bigger springs.

They may occur in extensive beds.

3. Macrocystis: (Macrocystis pyrifera) This is par excellence the kelp of the islands of the Southern Ocean and in the Falklands is by far the most abundant. It grows in the form of a very elongated fronds with leaves at intervals. The leaf stems ~~form~~ are bladders, and ~~as they are~~ being filled with gas they act as floats and support the frond on the surface. The colour is a bright brown. It grows from a little below ebb tide mark to perhaps 20 fathoms.

The precise length to which the plant grows is not known. It has been reported as being 700 feet. The "kelp beds" in the Falklands are composed of the floating fronds of Macrocystis.

As a general statement it may be said that the coasts of the Falklands are fringed with a belt of this plant covering a total area which runs into hundreds of square miles. The belt varies in width. Large beds are to be found in bays.

Large masses of the kelp are from time to time thrown up by gales on the beaches but in spite of this violent pruning the beds do not diminish in size and one which has suffered ~~some~~ visible damage may be expected to be restored by the end of the subsequent summer. It seems reasonable to conclude that the rate of growth is quite rapid.

Boyson, (p. 376) mentions a heap thrown up on the beach and it was 250 yards long, 15 feet deep and 6 feet high.

The kelp is not used locally for any purpose nor has it ever been, except in minute quantities as manure. There is therefore no experience here of preparing the stuff for market.

A barrel of kelp, packed with salt, could easily be sent if such a sample is desired.

It seems unlikely that the whalers would be interested but it would be easier for Messrs Couper, Friend & Co. to find out than for us. They might write to David Geddes & Son, Norway House, 21/4 Cockspur Street, London S.W.1.

As our climate is damp and cloudy some sort of drying house would almost certainly be needed. Fresh water is plentiful and fuel (peat) is to be had for the cutting.

3 analyses of kelp collected at the end of February are given below (Davies p.66). "leafy kelp" is Macrocystis and "tree kelp" Durvillea, but Macrocystis cannot properly be described as growing in "deep pools"

Common Name.	~~Tree of~~ Material used for chemical analyses.	Moisture	Crude protein	Ether extract	Fibre	Soluble carbohydrates	Ash	Silica	Silica-free ash	Phosphoric-acid (P_2O_5)	Lime (CaO)	Potash (K_2O)	Chlorine (Cl)
Leafy kelp (A)	"Leaf"	7.28	16.01	1.50	5.76	48.29	20.16	0.16	20.00	0.814	1.148	6.22	5.346
" " (B)	"Stem"	4.99	8.05	1.00	4.93	53.43	27.60	0.05	27.55	0.764	1.029	10.87	9.662
Tree kelp	Portion of huge "fronds"	9.91	6.74	2.05	3.22	55.80	22.28	0.02	22.26	0.305	1.513	2.79	5.546

There is a considerable number of other sea weeds some of which may be of medical or commercial value but unfortunately there is no information available here. For names see Cotton.

References - BOYSON, The Falkland Islands, Oxford 1924. chap. XXII, Seaweeds, p.377. (Out of print, try public library).

DAVIES, The Grasslands of the Falkland Islands, 1939 pages 66, 71,83. Crown Agents for the Colonies, 4, Millbank, London S.W. 1. 5/-.

COTTON, Cryptogams from the Falkland Islands Journal of the Linnean Society vol. XLiii Botany no. 290. 1915-17 p.137. LONDON

J. H. Davies.

Govt. Naturalist
15-IX-45

1.513 2.79 9.662 5.546

478/28.

(21)

27th September, 45.

Gentlemen,

I am directed by His Excellency to acknowledge receipt of your letters of the 6th and 8th of June regarding the possibilities of establishing a sea-weed industry in this Colony.

2. These letters only arrived on the 18th September and at this stage I can only send you a preliminary reply to assure you that this Government is certainly interested in such a project. The fullest possible information is being gathered and this will be forwarded to you as soon as possible. Nobody in the Islands is at present drying sea-weed.

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

K. G. BRADLEY

Colonial Secretary.

Cuper, Friend & Co.,
33/35 Eastcheap,
LONDON, E. C. 3.

(214)

478/28.

24th October, 45.

Gentlemen,

Red 21 Further to my letter of the 27th of September I have the honour to forward some notes on local sea-weeds which have been compiled by the Government Naturalist.

2. Inview of the fact that the Whaling Companies have no offices in the Colony I agree with Dr. Hamilton that it would be easier for you to get in touch with them directly.

3. If you will consult Admiralty Charts Nos. 1354A and 1354B, 1326, 1345, 1614, 1774, 1874, 1935, 1956, 2438 and 2671, you will see that the kelp beds round the coasts of the Falklands are fairly extensive and that much of it grows in sheltered waters such as Port Harriott, Salvador Waters and Berkeley Sound. I mention this because it would probably be advisable to cut the bulk of the kelp in such waters, both for ease of operation and in order to avoid taking kelp from the more exposed coast-lines and thus incurring the risk of erosion by removing the protective barrier which kelp affords against heavy seas.

4. This implies, of course, that most of the sea-weed required would be obtained from live growth in the sea and not from storm kelp washed up on the beaches. This must be so, because in this Colony there is a complete lack of roads and the transport overland of kelp to the factory would not be practicable in present circumstances. Further, almost all the land in the Colony is privately owned by sheep farmers. It might be possible to interest them in the collection of kelp, but this is doubtful owing to labour shortage on the farms.

5. In all the circumstances it would seem inevitable that kelp should be harvested by means of a vessel owned by the operating company and brought by sea to a factory situated on the outskirts of Stanley.

6. The Admiralty Charts referred to above will give an indication of the depth of the water and navigational obstacles which will be met with, and will be a guide to the size and draught of the vessel required. Generally speaking the minimum type would appear to be a large herring drifter, since heavy seas sometimes occur and generally rough conditions are to be expected. The towing of lighters, however, would present no difficulties provided the vessel had adequate power. She should be oil-burning as the price of coal is usually prohibitive.

7. I have suggested that a factory or drying-shed should be situated on the outskirts of Stanley. I do not know anything about the process, but I presume that the kelp will be dried or semi-dried/

Messrs: Couper, Friend & Co.,
33/35 Eastcheap,
London, E.C. 3.

semi-dried here before shipment in order to save bulk and that some kind of plant would have to be erected and housed. While there is a shortage of unskilled labour on the farms there is usually a certain amount of labour available in Stanley, unskilled but "handy", consisting entirely of British people many of whom are experienced seamen. The erection of the plant anywhere else in the Colony would also involve the provision of housing for the men. There are several good sites for a factory on the shores of Port Stanley or Port William in sheltered water, where loading facilities can be erected without difficulty and where fresh water can be obtained.

8. The present wages of unskilled labour are 1/2 per hour for a 45-hour week, plus 3d. per hour Cost of Living Bonus, but there is, of course, no guarantee that these rates will remain in force for any given time.

9. The only local building material is stone and it would probably be advisable for any factory building to be pre-fabricated and shipped out for local assembly. Fuel for the plant would be either oil or peat, the latter being obtained at approximately 12/6 per ton delivered. It is possible, though not certain, that electric power may later become available at rates comparable to those obtaining in England.

10. I notice from your letter-head that you are interested also in other products, such as meat and bone-meals, bone-flour, blood-meal, bone-charcoal and fish-meal. The following information may therefore also be of interest to you.

11. Each year on the farms a large number of surplus sheep is slaughtered. The following figures show the number of sheep so wasted each year for the past nine years.

1934/35	38,400	1940/41	47,200
1935/36	52,600	1941/42	32,600
1936/37	39,400	1942/43	48,000
1938/39	28,700	1944/45	69,900
1939/40	20,200		

The skins of the majority are exported and a small proportion is boiled down for tallow. The exports of tallow for the past twenty years are as follows:

1925	70	tons	1930	57	tons	1935	114	tons	1940	-
1926	52	"	1931	65	"	1936	122	"	1941	17 tons
1927	31	"	1932	38	"	1937	100	"	1942	-
1928	47	"	1933	98	"	1938	30	"	1943	240 tons
1929	89	"	1934	123	"	1939	25	"	1944	-

12. No other use is made of the surplus sheep and it will be apparent from the figures given above that a very considerable number of carcases would be available for collection and processing for the products mentioned in paragraph 11. The collection would have to be made by the vessel referred to in paragraph 6. This would present no difficulty as the majority of the farms are situated near the water-side and have an anchorage and loading facilities.

13. During the past four years imports of artificial fertilisers have been as follows, in tons:

	1941.	1942.	1943.	1944.
Limestone	50	95	100	45
Rock phosphate	1	-	-	-
Superphosphates	-	14	20	10
Nitrate of potash	-	-	-	14
Nitrate of soda	-	-	-	7
	51	109	120	76

If manures could be produced locally there would clearly be a market for them.

14. As regards fish-meal, there is virtually no sea-fishing carried on in the Colony because with a scattered population of only some 2,300 there is an insufficient market to warrant the capital expenditure which would be incurred. The "Discovery" Committee has carried out an investigation of the fish resources in the seas surrounding the Falklands. The relevant report has not yet been received, but no doubt the Committee would be glad to provide the information which has been acquired by them. There is no reason to doubt that fish are plentiful and it is possible that if a local market were created by the manufacture of fish-meal a fishing industry might be justified.

15. An important point to be considered is that of communications between the Colony and the outside world. There is, at present, no direct communication between Stanley and the United Kingdom, communication being maintained with Montevideo by a vessel of the Falkland Islands Company. This service is irregular, though it averages twelve trips to the mainland during the year. If kelp and other products were exported in large bulk it would no doubt be advisable to divert vessels here to pick up cargoes. If, however, kelp were to be exported in a compressed form with a relatively high bulk value it would probably be worthwhile using the Company's vessel. The freight charged at present is 45/- per ton from Stanley to Montevideo.

16. I trust that the information which I have been able to give you will be of use. Copies of the Blue Book of the Colony and other Reports may be consulted in the Colonial Office Library.

17. Should you conclude that the position is worth further investigation you would no doubt consider sending an expert out to investigate the situation. He would be given all facilities.

18. I shall be coming to London myself shortly and will take the opportunity of calling upon you in case you require any further information.

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

K. G. BRADLEY

Colonial Secretary.

DECODE.

No. 85.

TELEGRAM.

(25)

From Messrs: Cowper Friend, London.

To The Colonial Secretary.

Despatched: December 14th *19* 45 *Time:* 09.50.

Received: December 15th *19* 45 *Time:* 10.00.

Recd 24

Your letter 24th October paragraphs 11 and 12 please telegraph breed of sheep price of skins and wool fleece average weight of carcass. Names of byproduct and packing factories operating. Are surplus sheep killed at one time of the year or spread over what period. When do you arrive in England.

Cowper Friend.

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WHEN REPLYING REFER TO LRF/JOT.

The Colonial Secretary,
Colonial Secretary's Office,
Stanley,
Falkland Islands.

25th October, 1945.

Dear Sir,

Red 21.

We wish to acknowledge your letter of 27th September about Seaweed and note that you will be forwarding to us the fullest possible information shortly.

We can put you on to the makers of Seaweed Drying Plant and give you help in this respect. We await your further news.

Yours faithfully,

Couper Friend & Co.

L.R. Friend

(27a)

LRF/JCT.

Cable sent 14/12/45.

Colonial Secretary,
Stanley
Falkland Islands

YOUR LETTER 24 OCTOBER PARAGRAPHS 11 AND 12 PLEASE TELEGRAPH BREED OF SHEEP PRICE OF SKIN AND WOOL FLEECE AVERAGE WEIGHT OF CARCASE STOP NAMES OF BY-PRODUCT AND PACKING FACTORIES OPERATING STOP ARE SURPLUS SHEEP KILLED AT ONE TIME OF THE YEAR OR SPREAD OVER WHAT PERIOD STOP WHEN DO YOU ARRIVE IN ENGLAND

COUPER FRIEND

UNLESS OTHERWISE STATED ALL OFFERS AND QUOTATIONS ARE MADE SUBJECT TO STRIKES, ACCIDENTS OR OTHER CAUSES BEYOND OUR CONTROL, PREVENTING OR DELAYING DELIVERY WITHOUT ENGAGEMENT. ALL QUOTATIONS AND BOOKINGS ARE

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WHEN REPLYING REFER TO LRF/JOT.

27

K. Bradley, Esq.,
The Colonial Secretary,
Colonial Secretary's Office,
Stanley,
Falkland Islands.

4th January, 1946.

Dear Sir,

We wired, as per enclosed copy, asking you for some fuller particulars after receiving your interesting letter of 24th October.

We are very much interested in regard to surplus sheep that are slaughtered every year. We particularly require to know whether the slaughtering takes place in any particular time of the year or is it spread over, is it done by farmers, and what is the reason for the slaughtering of surplus sheep?

Being connected all our life in the By-Product industry, we should like to consider the possibility, with your help and advice, of perhaps setting up a plant to deal with these surplus sheep. First of all, however, we require a lot more information.

We would like to know what By-Product plants there are, if any, out there at the present moment. Are there any firms on the Island canning or dealing with the sheep for edible purposes? What happens to the sheep that are reared on the Island at the moment? What is the estimated "fallen" sheep (those that die each year, including the estimated death of lambs) ?

If you are able to wire us these particulars we shall be very pleased and in the meantime we should very much like to know when you are arriving in England as I would like to discuss this matter very fully with you.

Yours faithfully,

Couper Friend & Co

L R Friend

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS AND DEPENDENCIES

(28)

RECEIVED.

Number	Office of Origin	Words	Handed In at	Date
				5. 3. 46.

To COUPHILL BIGGATE, LONDON.

H.O. A/C

Rec'd 27.

YOUR LETTER 4th JANUARY LRF/JOT STOP BRADLEY AT PRESENT IN ENGLAND STOP SUGGEST YOU CONTACT HIM THROUGH CROWN AGENTS LONDON.

COLONIAL SECRETARY.

Time

LRF/JPB

The Colonial Secretary,
Stanley,
Falkland Islands.

7th March, 1946

Dear Sir,

Rec'd 28

Thanks very much for your kind wire. You will be pleased to hear that I have met Mr. Bradley twice and have been able to have a full chat with him on the prospects of business. I am also in touch with the Falkland Islands Mr. Young and the matter is in progress. I am particularly keen to get the Colonial Welfare and Development Committee interested in these propositions. Can you help us in this respect?

Yours faithfully,

Couper Friend & Co

L.R. Friend

478/28.

(30)

2nd May, 46.

Gentlemen,

I have the honour to acknowledge the receipt of your letter of the 7th of March, 1946, and to express regret that this Government is unable to further your interests by placing your propositions before the Colonial Development Committee in London.

Rec'd 29

I have the honour to be,

Gentlemen,

Your obedient servant,

(Sgd.) L. W. ALDRIDGE

for Colonial Secretary.

Messrs: Couper, Friend & Co.,
33/35, Eastcheap,
LONDON, E. C. 3.

Extract from private letter received by His Excellency the Governor K. G. Bradley, Esq., C.M.G. of 29th March, 1946. (31)

... ...

I have spent quite a lot of time running up and down to London to conferences in the C. O. about the Falklands, then discussions with Luke and Barton and one with Stockdale and two with the Fisheries man. They are all just as concerned about the Falklands as we are, but even less able to reach any conclusions, I think. Luke is good and Barton is a charming person. Stockdale talked a lot of rubbish, I thought. They are still looking for two "experts" to go out. Stockdale wanted to send a Shetland Factor to see if a tweed industry could be started and a doctor "who would consider the problems from a philosophic angle". Did you ever hear such nonsense ? Luke and Barton agree with me and now they are looking for someone like Sir Alan Pim, only younger, and a sheep man. I feel that is more promising. The attitude towards your big scheme seems to be that the financing would not be practicable, but they keep on talking about loans, so they are not very consistent. Obviously nothing will happen until experts have reported. The most serious thing is the decision to finance the whole of the Antarctic show out of a Dependencies Fund, consisting of the Research Fund plus all the money they can screw out of the Falklands as properly belonging to the Dependencies. Barton thinks he can find enough to finance F.I.D.S. for four years. I pointed out to him that the proposals would not only bankrupt S. Georgia but would also make the financial position of the Falklands even worse than it is - and all for no probable economic benefit. I expect you will be glad to be done with the whole unsatisfactory business, but I do hope a definite plan is agreed upon and worked out before your successor arrives, unless he lands in the Falklands with a definite mandate to put an agreed plan into execution, he will inevitably begin planning all over again and nothing will ever get done. The C. O. do seem to appreciate the necessity for this. The most promising thing is this sea weed business. I worked hard on Couper, Friend, Ltd. and got them interested in kelp (10,000 tons a year), sheep carcases, sealions and about everything else we have and all set to go ahead. Then Young offered to do all the production for them and, of course, they have jumped at the offer. So the F. I. C. merely waxes fatter than ever and half the social benefit to the people is lost. The C. O. took a poor view of the F. I. C. swallowing the whole show and now they are working hard on a rival firm called " Algenates, Ltd." I think with a view to getting them to set up an independent factory. Algenates is a big and reliable firm. If the F. I. C. produces for Couper, Friend and Algenates have their own plant it is considered here that the future prosperity of the islands might well be assured. Apparently the Vancouver kelp beds are already being exploited and we have enough to justify quite a big capital expenditure. They could between them cut 20,000 tons a year and it regenerates in six months - at least Thickling (Fisheries Adviser) thinks two crops a year could safely be cut. Kelp is used for a multitude of things, starting with plastics. I hope that if Algenates apply for a factory site at Sparrow Cove and a concession of the kelp beds on the east coast that you will feel able to grant their application - subject to the control of cutting, royalties, etc. - with as little delay as possible. The point made by the C. O. is that if Algenates gets in first we can get them started near Stanley. But if the F. I. C. (for Couper, Friend) get in first at Stanley, then Algenates would have to put their factory on W. Falkland or somewhere and the heavy capital cost of houses for labour and so on might frighten them away. Anyway I believe Thickling is urging Algenates to act quickly and I think he is right. All of which is interesting and, if it is handled cleverly, looks like establishing a good secondary industry. Job for Ham? I spoke to Thickling about a job for Ham in the new Fisheries Service, but he has nothing suitable. There is, however, a shortage of zoologists for scientific work in this country. I have urged the C. O. several times to send out a relief for Ham at once. They promise plaintively that they are doing their best with the appointments people. ... ...

Why? me

2 Kelp file 397 475/28.

EXTRACT FROM PRIVATE LETTER RECEIVED BY HIS EXCELLENCY THE AG. GOVERNOR FROM DR. J.E. HAMILTON, D.Sc. &c. OF 3rd AUGUST, 1946.

... ...

There is a firm which appears to be very wealthy called ALGINATES, Ltd. who are much interested in developing a kelp industry in a possibly very large way. It is quite likely they will send two or three people out next southern summer to have a look-see for themselves. I have had one talk with their man MERTON who was panting for local knowledge but did not touch on conditions of licence or anything like that. The firm has had some contact with the F.I.C. but how much I did not find out. This may be the place to mention that the C.O. seems alive to the dangers of monopoly.

... ...

DECODE.

(35)

TELEGRAM.

No. SSS 36.

From The Secretary of State for the Colonies.

To His Excellency the Acting Governor.

Despatched:	October	30th	*1946*	*Time:*	18.50.
Received:	October	31st	*1946*	*Time:*	09.30.

No. 226. Confidential. Strictly confidential negotiations in which Governor designate has taken part are in progress for economic exploitation of kelp; and I should be glad to know whether "Alert" or "Dawn" or both could be made available for a survey of beds and for a report on condition of both boats.

G.T.C.

SECRETARY OF STATE.

Reply at Red 40

DRM.

DECODE.

(40)

TELEGRAM.

From His Excellency the Acting Governor.

To The Secretary of State for the Colonies.

Despatched: November 2nd *19* 46 *Time:* 13.00

Received: ..... *19* *Time:*

Red 35. No. 345. Confidential. Your telegram No. 226. Kelp.

"Dawn" useless till new engine available which owners are trying to obtain.

2. "Alert" hull in excellent condition engine good running order. But only suitable for Port William: or for Berkeley Sound in reasonable weather: elsewhere only on calmest days.

3. Suggest consult Hamilton Naturalist regarding "Penguin" which however lacks engine.

4. Understand Algenates asked Falkland Islands Company for quotatio for 4-5 months hire of one of their small vessels early in 1947 for survey party of 3.

GOVERNOR.

G.T.C.

Sec 48.

LJH.

Alginates (41)

Memorandum on Proposals for the establishment of a Weed Supply Base at Port Stanley, Falkland Islands, to be submitted to the Colonial Office by Alginate Industries Limited.

INTRODUCTION.

Object of the Memorandum.

1. The question of establishing a weed supply base at Port Stanley, Falkland Islands, having been under consideration for some months by Alginate Industries Ltd., Maidenhead, Berks., the following proposals are put forward by them for consideration by the Colonial Office as a basis for discussion.

2. It should be clearly understood that while this memorandum sets out the firm intentions of the Company, in so far as they can be formulated at this stage, together with the extent of co-operation which they would look for from the Colonial Office and the Falkland Islands Administration, the implementation of these plans and any final commitments in connection therewith must be subject to the report of a preliminary survey expedition. It is proposed to send out a party at the earliest practicable date to examine local conditions, facilities and requirements relating to the initiation and development of the project.

Nature of the Project.

3. Technical surveys and commercial investigations carried on over a period of years by this Company, by Government Departments and interested scientific bodies have all shown that the available U.K. supplies of suitable seaweed for a marine chemical industry in Great Britain are inadequate. The industry is at a very early stage in its development in this country and has not yet been reproduced in any other country than U.S.A. but we have already reached a stage at which further domestic expansion will be dependent upon a supply of imported weed. It is our intention to set up a plant for the manufacture of alginates and other marine chemicals in a number of countries and the plan is that the Falkland Islands should provide the raw materials for both domestic expansion and over-seas development. In some

countries local supplies may prove to be adequate and economic but if our information is correct the Falkland Islands might develop substantially into a World Pool of raw material for either industry. It would be our plan to process Macrocystis weed to a stage at which it could be shipped in bulk to any country.

4. It is our intention as a Company to establish our chemical plant as far as possible within the British Empire and the use of the resources of a British Colony is a natural part of the plan.

5. The scale of operation envisaged in the first instance involves the harvesting of an annual quantity in the neighbourhood of 30,000 tons of milled weed and it is not proposed to embark on the project on any smaller scale. This represents the raw material requirement for a unit plant for alginate manufacture and it follows that in so far as further unit plants are set up in the U.K. and elsewhere to operate on imported weed, the demand on the Falkland Islands would rise accordingly. A modest forecast of possible requirements in say, ten years' time, would be a quarter of a million tons of milled weed per annum.

REQUIREMENTS:

6. To carry out operations the following plant facilities, etc., would have to be provided. Estimates refer to the initial phase during which the object would be to supply raw material for one unit alginate manufacturing plant.

a) <u>Craft for Harvesting</u> - Craft of special design are required for the actual purpose of harvesting and it is estimated that two or three such harvesters would be necessary. The Company is already in possession of two Tank Landing Craft Mark III which it is intended to have fitted out for the purpose. The equipment

would consist of specially designed cutting apparatus conveyors, macerators, pumping equipment, motors and control apparatus. As far as can be foreseen at present barges will be required to convey the weed from the harvesters at the weed bed to the factory. These barges would either be self-propelled or be provided with tugs for towing.

(b) Jetty - For the discharging and loading operations involved at least one jetty capable of berthing simultaneously two craft of length say 250' and draught 10' would be required. The purpose of this jetty would be for vessels to lie alongside during the operation of pumping wet weed ashore and blowing dried milled weed into lighters.

(c) Plant - Plant and machinery required would include pumping apparatus, weed storage equipment, feed hopper, oil-fired rotary driers with accompanying fans and recirculation ducts, swing hammer mills and other pulv risers, bagging hoppers, blowing hoppers, motors, conveyors and dust collecting apparatus.

(d) Maintenance & Engineers Shop & Store & Garage - This would be required for servicing of both harvesting vessels and shore plant and equipment.

(e) Laboratory - A laboratory would be required for control analysis, botanical investigation, and collaboration with the Government naturalist regarding control of weed cutting.

(f) Fuel - Estimated requirements of fuel are in the neighbourhood of 3-400 tons of oil per week forthe drying plant, together with diesel oil in very much smaller quantities for craft, etc.

(g) Power - Estimates of power requirements are in the neighbourhood of 750 k.w.(preferably A.C.) on a 24 hour service. The power is required mainly for the purpose of pumping, rotation of dryers, fans, milling, conveying and blowing of the final product.

(h) Labour - The requirement would initially be for 75-100 men, rising within the limits of available population.

The requirement would not be subject to seasonal fluctuation and would be largely for male labour. All labour other than a few skilled mechanics, etc. would be recruited locally.

This estimate includes labour required for the manning of harvesters, barges etc.

(i) Staff - A staff is envisaged consisting intially of a local manager, an engineer, a marine superintendent and a botancial chemist. This staff, together with say six mechanics, etc., would be imported from the U.K.

(j) Accomodation - Buildings for factory, warehouse offices and the above-mentioned maintenance shop and laboratory would be required, in addition to that required for housing personnel. Estimates of these requirements are as follows:-

Factory - circa 10,000 sq.ft.

Warehouse - circa 400,000 cu.ft.-not necessarily under one roof.

Office - circa 1000 sq.ft.

Maintenance Shop - circa 5,000 sq.ft.

Laboratory - circa 500 sq.ft.

Personnel - Four houses of a superior type together with say six for mechanics, etc.

(k) Port Equipment - Lighters, tugs, floating blower equipment etc., would be required for the loading and unloading of stores and the shipment of dried milled weed.

(l) Roads - Requirements for roads being dependent upon location of factory, etc., cannot at this stage be determined with any precision. On the basis, however of the present views of the Company regarding probable location of factory about half a mile of new road would be required.

(m) Transport - Estimated requirements are for several 5 ton lorries for the transport of plant and apparatus together with say one motor car and one

motor launch.

PROVISION OF REQUIREMENTS.

7. It is the purpose of this section of the memorandum to distinguish between those requirements the provision of which would clearly be the responsibility of the Company, from those which it is felt should be provided by the Administration.

To be Provided by the Company.

8. It is proposed that the following be provided by the Company:

(a) Harvesting - All craft, barges, tugs, plant machinery etc., connected with harvesting operations as described in 6a above.

(b) Plant - All plant and equipment for the purpose of landing drying, milling and handling weed as set out in 6(c) above.

(c) Shop - All plant and equipment for fitting out the necessary Maintenance and Engineers' shop see 6 (d) above.

(d) Laboratory.- All plant and equipment for fitting the laboratory outlined in 6 (e) above.

(e) Fuel - All plant and equipment necessary for the supply and storage of fuel see 6 (f) In this connection it is hoped that permission may be granted for the Company to make use of the 16,000 ton Admiralty Fuel Storage Tanks located to the north of the harbour. In this event it would still be necessary for the company to install a subsidiary tank of capacity circa 750 tons atthe factory site, to which the oil would be lightered from the Admiralty tanks.

(f) Port Equipment - All craft and movable equipment for the loading and unloading of stores and the lightering of dried milled weed see 6 (k). In this connection it is envisaged that the co-operation of the Falkland Islands Company would be obtained and that a part of the necessary equipment would be provided

by them.

(g) Transport - All vehicles necessary for the transport of plant, stores and personnel as outlined in 6(m)

To be provided bythe Administration

9. It is proposed that the following be provided by the Administration:-

a) Land on which factories, stores, jetties etc. are erected and fixed equipment for loading and unloading.

b) Jetty. One jetty as described in 6.b)above

c) Power. To the extent of 750 k.w. (preferably A.C.) on a 24 hour service.

d) Accommodation. All buildings including those for factory, warehouse, store, laboratory and personnel, as in para. 6.j) above.

e) Road. One road as described in para. 6.1) for communication between factory and town.

RIGHTS & PRIVILEGES, ETC:

10. Weed.

It is proposed that the following be the basis upon which weed harvesting would be carried out:-

a) Exclusive Rights. The Company would be granted exclusive rights for the harvesting of Macrocystis over an area to be defined in terms of longitude and latitude for a fixed period of twenty years, and thereafter from year to year with the consent of H.M. Government on terms to be agreed, such consent not to be unreasonably withheld.

b) Control of cutting. Location, frequency and extent of cutting would be a matter for agreement with the Government from time to time based in the first instance upon experience of weed cutting elsewhere and later upon experience in the Falkland Islands themselves.

11. Rents and Charges.

It is proposed that all rents, charges, etc., in connection with the above be based upon amortisation of the capital involved over a period of twenty-one years.

12. Revenue

The Company and its employees will of-course contribute directly and indirectly to the revenue of the Islands and to the support of their services. It is our expectation however, that we would make a direct contribution on a rising scale to the revenue of the Colony and propose the following:-

a) Royalties. Royalty of 2/- per long ton of milled weed on a production up to 76,000 tons per year, thereafter, the royalty to be based on a reducing sliding scale with a minimum guaranteed royalty of £500 per annum.

b) Port Duties. To continue to be charged under the same ordinances as now.

It is understood that at the present time no Port duties are charged and it is proposed that this practice continues in relation to our operations.

c) Import and Export Duties. It is proposed that there should be an understanding that no duties be charged on the import of any plant, fuel or stores connected with the project and that no duties be charged upon the export of dried milled weed.

13. Control

It is intended that operations be carried out by a company subsidiary to Alginate Industries Limited which is about to be incorporated under the name of The British American Kelp Company Ltd., and it is proposed that the arrangements outlined here should be with the latter Company.

An undertaking would be entered into by which the controlling interest in British American Kelp Co. Ltd.,

would be retained by British (including British Dominions or Colonial) Companies and or British subjects: that the Directors of the Company would be predominantly British subjects and that in the event of either of these conditions being likely to be altered, the consent of H.M. Government would have to be obtained before such alterations were effected; and therefore, that in the event of such alterations being made without the prior consent of the Colonial Office or other competent authority, the arrangements in whole or in part envisaged under this proposal could be determined at once by H.M. Government.

23.9.46.

COPY

(42)

Sir Frank Stockdale, through

Mr. Barton.

Red 41

Primarily to clarify my own mind, I record my views on yesterday's discussion and in reading them you will bear in mind that I had had no opportunity of seeing the memorandum which gave rise to it until I attended the meeting, at very short notice.

2. As to the merits I was favourably impressed with the case put forward by A.I.L. who were clearly well-informed on the facts and confident in regard to developments; as a project, it is the only one of those so far suggested to me in my reading which holds out any solid expectation of benefit to the Colony. There remain certain doubts in my mind which have yet to be resolved and I mention some of these below:

I. A.I.L. ask - not unreasonably- for a generous measure of protection against competitors and, had they not been steered away from this by the Chairman, were reaching out in the direction of an "exclusive prospecting licence". Now, it is fairly safe to assume that others interested in this line of commercial chemistry are equally aware of the Falklands kelp beds and the degree of protection afforded to A.I.L. must be related to a "fair return" to the Colony.

We might get some information from the Scottish Seaweed Research Ass^n West Mains Road Edinburgh 9.

It is a new field of Colonial enterprise and one would naturally like to have some idea, in considering royalties, of the relationship of landed cost of the milled product to its value in marketable form. 5/- per ton may be a fair figure; it may not, and prima facie it does not appear to me that a minimum guaranteed royalty of £500 p.a. could be accepted as a "fair return" for the Falklands' share of liabilities involved, vide next para.

II. A.I.L. estimate their capital commitment at (round about) £100,000 and their inability to stretch this further has led them to ask the Falklands Government to shoulder liabilities of a similar order, i.e.

It suggests that they haven't got very much behind them; £10,000 is a small capital for a venture of this nature.

(a) a minimum of £50,000 for additional electricity installation,
(b) a minimum of £40,000 for factory building, warehouse store and lab. (which I found particularly hard to swallow),
(c) an unspecified sum, but we might put it at £6,000, for staff accommodation
(d) a minimum of £4,000 for a service road
(e) An unspecified sum for piping
(f) an unspecified sum for erection of a 250 ft. loading jetty.

I shall be surprised if the final commitment

falls

DECODE.

COPY

TELEGRAM.

(44)

From The Admiralty, London.

To The N. O. i/c., Stanley.

Despatched: November 26th *19* 46 *Time:* 18.52.

Received: November 27th *19* 46 *Time:* 09.30.

Colonial Office anxious to conclue negotiations with British American Kelp Co. to establish seaweed industry in Falkland Islands, company wish to lease whole or part of Naval depot near oil tanks on peninsula opposite Port Stanley. Request urgent report by signal.

(A.) What buildings and facilities exist on site giving dimensions of main buildings and if heat and light available.

(B.) Extent of (A) which can be released. Anticipated no Admiralty objection to lease of what can be made available subject to right of re-entry in emergency.

(C) Rental value of (B) company would require use of jetty.

261852.

Reply at 45

DECODE.

COPY

TELEGRAM.

(45)

From The Naval Officer in Charge, Falklands.

To Admiralty, London.

Despatched: November 29th *19* 46 *Time:* 10.54.

Received: November . . . *19* 46 *Time:*

A.M. 261852.

(A) Corrugated iron store 202 ft. long in 5 bays by 121 ft. deep height 16 ft. Stone caretaker's cottage and a number of Nissen Huts. No heating or lighting.

(B) These could be made available if the Naval stores therein could be removed. These are not required for the W/T Station but amount to some 500 tons or more, and there is no alternative accommodation available here.

(C) Estimated rental 500 pounds per annum if whole site taken over.

291054 P/Nov.

(Nd.: F.I.C. are at present paid £75 p.a. for 'care-taking' these premises).

DECODE.

S.9

TELEGRAM.

(46) ~~(48)~~

From The Secretary of State for the Colonies

To His Excellency the Governor

Despatched: December 9th 1946 *Time*: 17.53

Received: December 10th Red 10 1946 *Time*: 09.30

No.257. Confidential. Your telegram No.345. Kelp. British American Kelp Company has recently revised its Plans and finds it necessary to erect a pilot plant to meet urgent requirements in the United Kingdom (for which about 1,000 tons of wet seaweed per week would be required) on North side of Bay rather than on Port Stanley side and I expect early favourable decision from the Admiralty on facilities at Camber being made available to the Company. Meanwhile examination of the electricity scheme for Port Stanley generally continues by the consulting engineers. In this connection I understand N.O.I.C. Falkland Islands has advised a rent of £500 a year; this seems very high to me when the Company would virtually be looking after Admiralty land and buildings and I should be glad if you would examine this figure.

2. An advanced party of the Company will leave for Falkland Islands on December 24th and before that date the promoters are anxious to reach a decision on weeding rights, royalties and extent to which Government prepared to contribute towards cost of scheme.

3. Weeding rights

(a) The Company asks to be granted exclusive right for a period of 20 years to harvest seaweed over that part of Falkland Islands lying South East from straight line drawn between point A having Longitude 57° 41' West and a Latitude 51° 32' South and a point B having a Longitude 60° 11' West and A Latitude 52° 06' South.

(b) The Company be granted an option to be exercised within a period of 5 years of extending area present held in above sub paragraph so as to include that part of coastline to North of a straight line drawn between point C having a Longitude 57° 43' West and a Latitude 51° 39' South point D having a Longitude 59° 7' West and a Latitude 51° 28' South.

(c) The Company be granted an option on expiring 20 years period taking up exclusive weed harvesting rights for a further period of 99 years over those areas over which they have previously acquired rights.

4. I should be grateful for your early comment on above, particularly on extent and period concession requested. In a matter of this sort, it is probably not unreasonable that exclusive rights should be given over specified areas in a case of a Forestry or mineral concession, but as a matter of general principle, I consider

(a) If a 99 years lease is granted, that period should be inclusive of any previous period during which exclusive rights have been enjoyed

(b) The areas allotted for exclusive working should not initially exceed a given fraction, say one third of total area

(c) Rental should be revisable at a specified interval, say 5 years

(d) Provision should be made for cutting operations to be so spaced as to ensure adequate regeneration of each weed area.

5. Rental. A license to operate might be issued free for first 5 years and at a charge about £100 per annum for next 5 years at rate to be agreed upon but not in excess of 50% of rate previous 5 years.

G.T.C.

Reply at £0+5

Red 52

6. Royalties/

DECODE.

S.9

TELEGRAM.

From

To

Despatched : *19* *Time :*

Received : -2- *19* *Time :*

6. Royalties. The Company have suggested 2 shillings per ton of dried milled weed, but adopting figures which have been accepted in preliminary stages for weed from Scottish waters, a Royalty of 2/6 per ton on dried milled weed would be the correct figure (on basis of 10 tons wet to 1 ton of dried milled which was ratio anticipated by Company). This figure should be reviewed after say "pilot plant" stage or 5 years whichever is less, and thereafter every 5 years. The Royalties when full scale production is started might be calculated on basis of a percentage selling price dried milled weed in the United Kingdom, less freight and handling charges. The percentage I suggest would be 2½% and on the present price the figure might work out at 5/- to 7/- per ton of dried milled weed. The rate should be negotiated every 5 years, and they should be specific and not ad valorum.

7. Other requirements from the Government to make roads leading to the station capable of bearing 5 tons heavy traffic used for seaweed transport and to provide pipes able to supply water at 300 gallons per hour. They would also ask the Government to provide electric power plant. Alternatives are to provide power by cables from Port Stanley or to erect 200 horse power plant on North shore. On balance I feel latter course is to be preferred. Houses for Company's staff might be built in Port Stanley and rented to Company. In regard to question of local participation in Company's capital, it was also proposed that Government should participate in equity company and it should be at liberty to dispose of shares to local inhabitants.

8. Full details will of course be given to you by the Company's representative but, I would be grateful if you would telegraph not later than December 10th stating you concur my proposal generally particularly in regard to Royalties and Weed rights.

SECRETARY OF STATE.

DECODE.

TELEGRAM.

M.P. 479/28.

(48)

From His Excellency the Governor.

To The Secretary of State for the Colonies.

Despatched: December 13th *19* 46 *Time:* 16.00.

Received: . . . . . *19* *Time:*

IMPORTANT.

Red 48

No. 393. Confidential. Your Confidential telegram No. 257 requesting reply 10th received late p.m. 9th and only now decoded reasons stated my telegram No. 390. My observations, additional those embodied my minute 26th September your file, are as follows:- S/13/46

(a) Exclusive rights. Agree generally your views.

(b) Licence to operate. Agree generally but prefer leave for more mature consideration.

(c) Royalties. Concur throughout.

2. Project and proposed commitments local Government as now presented differ materially from those discussed at conference with Stockdale and even if practicable would entail expenditure quite beyond means this administration viz:-

(i) Separate electrical plant North side perhaps £6,000.

(ii) New road constructions and bridging say £20,000 as nature terrain and potential load would necessitate use concrete throughout.

(iii) Reconstruction existing road and bridge £15,000.

(iv) Piping and pumps for water supply say £7,000 with housing for personnel on top.

3. Must emphasise that financial considerations apart, Colony has neither manpower nor material resources undertake task this magnitude in addition our essential commitments which will necessitate importation artisans.

4. Foregoing apart, scheme as outlined appears myself and my advisers as fundamentally unsound and uneconomical.

5. Alternatives are:

(a) Using Admiralty accommodation Camber, load weed there direct into ocean going vessel, ferry labour to and fro (to which no known local certainly no valid objection) and take electric power by submarine cable from Stanley, or

(b) Establish factory site at Cinema of former military camp (paragraph 1(c) my telegram No. 291 of September 23rd refers) which could be readily converted for purpose, constructing small jetty there for pumping weed from barges and conveying milled product by barge to ocean going vessel. Ground belongs Falkland Island Company.

Red 6 in 172/46 "Inf. regarding military camps"

6. Of these alternatives (a) would still leave cost of piping and pumping and of submarine cable and (b) is in my view in every way preferable certainly for purposes of pilot mill.

7. Suggest decision be left till arrival survey party.

8. If either alternative above adopted, Government would give favourable consideration to provision

Red 52

(i) Housing/

G.T.C.

DRM.

DECODE.

TELEGRAM.

From .....

To .....

Despatched : *19* *Time :*

Received : -2- *19* *Time :*

(i) Housing

(ii) Electric Power or if (b)

(iii) Erection jetty and

(iv) water supply in addition.

Should be realised however housing situation Stanley acute and would be necessary rely importation prefabs from U.S.A.

9. Electric power. Understand Admiralty shipped on Lafonia three Blackstone generators 150 kilowatts each, now lying wharf and will take year minimum to erect at W/T Station, which latter will have independently of these, sufficient power maintenance present service. These Blackstones would be quite sufficient needs Stanley and B. A. K. C. Might be worth enquiring urgently if Admiralty definitely committed their erection W/T Station or if Government took them over erection at latter could be deferred This would represent great saving in time and accelerate B.AK.C. operations by one year.

GOVERNOR.

G.T.C.

DRM.

Wt. 36093/D 0764. 500M. Pad. 12/41. J. D. & C. Ltd. 51-1822.

S. 1320b.

NAVAL MESSAGE.

Revised December, 1935.

(49)

For use in Signal Department only

KELP

Originators Instructions : (Indication of Priority, Intercept Group, etc.)

Codress/Plaindress

No. of Groups :

TO : N.O.I.C. Falkland Isles.

FROM : Admiralty

Write Across

Your 291054 November signal general description of Naval Stores indicating extent to which they are structural materials for ships, radio or other scientific gear, oiling equipment, and general consumable items. Request your views as to prospect of local disposal of any portion.

= 101446

System	P/L Code or Cypher	Time of Receipt	Time of Despatch	Operator	P.O.O.W.	Date

Wt. 34085/D 3794. 500 Pads. 12/41. J.D. & C. Ltd. 51-1822.

-S. 1320b.

NAVAL MESSAGE.

Revised December, 1935.

(50)

For use in Signal Department only

Originators Instructions : (Indication of Priority, Intercept Group, etc.)	Codress/Plaindress	No. of Groups :

TO : Admiralty

FROM : NOIC Falkland Islands.

Write Across

Your 10144/46. Stores consist mainly as follows :-

	Annexe 'A' Gear Permanent Stores.		
E9	Lamps Blow	9 in No	
E10	Covers Mattress	100 in No	
	Sheets White Cotton	100 in No	
	~~Covers Pillow~~	~~100 in No~~	
F1C	Telescopes Stereo & Cases	2 in No	
	Consumable Stores.		
A	Timber various	25 tons	
B6	Tubes copper	445 feet	
	Tubes brass SD tinned for condensers	400 in No	
B12	Tubes S.L. for O.F. burning	400 in No	
E2	Millboard Asbestos	4 tons	
	Rings packing	360 in No	
	Sheet IR Grade C	270 lbs.	
E5	Breathing apparatus (comprising Patts. 3490 to 3497)	5 sets	
E6	Paints various	20 tons	
E7	Enamels various	4 tons	
	Spirit various	6 tons	
	Metal Polish	8385 tins	
E8	Glycerine	165 galls	
	Soap, hard and soft	~~15 tons~~	

System	P/L Code or Cypher	Time of Receipt	Time of Despatch	Operator	P.O.O.W.	Date

Write across

			55
E9	Cloths cleaning	2180 in No	
	Waste	13 tons	60
	Oil various	20 tons	
K	Oil various	50 tons	65
	Annexe 'B' Gear. Mil.		
	Other stores in bulk include		70
D 5	Cordage various	50 tons	75
E 8	Chloride of Lime	½ tons	
	Firebricks various	300 tons	80
No radio or scientific equipment is held other than required for W/T station.			85
Only oiling equipment in store is held by Admiralty Agents for Oil Fuel Depot			90
Some 70% of stores can be disposed of locally, mostly to Colonial Government, and alternative storage can be found for remainder. If this is agreed to, request approval to dispose of Annexe 'A' items.			95
			100
	=13122).		105
			110
			115
			120
			125
			130
			135
			140
			145
			150