2 Bethanty Street,

CONFIDENTIAL. WAHROONGA ... N.S.W.

11th April, 1956.

MEMORANDUM to:-

C.R. Lambert, Esq., C.M.G.,
Secretary,
Department of Territories,
CANBERRA ... A.C.T.

FUTURE HOME FOR NAURUANS.

In conformity with the Minister's directions set out in your letter No.118/6 of the 3rd February, I visited Fiji from the 10th to the 18th March for the purpose of investigating whether:-

(i) the Fiji Government would be willing to permit the acquisition of land in the Colony for the purpose of providing a second home for the Nauruan community and, if so, the terms on which they would be permitted to enter the Colony and settle on this land; and whether

(ii) any islands, or other suitable properties, are available for purchase in Fiji and, if so, at what approximate prices.

2. I left Sydney by Qantas plane on the 10th, spent the night at the Koomba Hotel, Nandi, and arrived in Suva by Fiji Airways at 11.30 a.m. on the 11th. On my return Suva was left at 8 a.m. on the 18th and Sydney reached at 3 p.m. Three of my seven days in Suva were spent at Government House, by kind invitation of Sir Ronald Garvey, and the remainder with Mr. G.K. Roth, the Secretary for Fijian Affairs.

First interview with the Governor.

3. At the first of my two interviews with His Excellency, held at 11 a.m. on the 12th, I outlined the problem of providing a second home for the Nauruans, which I pointed out had become a matter of some urgency owing to the growth of political consciousness in the community, the example before them of the successful re-settlement of their former Banaban neighbours on Ocean Island, and criticisms made (particularly by Russia and India) at meetings of the U.N. Trusteeship Council. I emphasised that Australia recognised that the phosphate deposits on Nauru had a limited life, though they would not be exhausted for many years to come, and that Nauru would then, in all probability, cease to be an attractive home owing to its isolation and infertility: the Commonwealth Government was therefore anxious to do everything possible to ensure the welfare of the community by obtaining

a suitable alternative home to which those who desired could proceed at once, with the expectation that the remainder would follow gradually over the next few decades.

4. I explained to Sir Ronald that the main criteria which any new home for the Nauruans should possess were reasonable fertility, salubrity of climate and proximity to an urban centre where clerical and other employment could be obtained as well as secondary and technical training for their children. The last requirement was possibly the most important, as the Nauruan was an urbanised wage-earner rather than an agriculturalist.

5. Unfortunately, a careful survey of the Australian territories had established the fact that they contained no suitable locality for Nauruan colonisation; indeed, as a result of over 20 years spent in planning and supervising migration projects, I considered that the only suitable areas in the entire Pacific were in French Oceania (which would not be acceptable to the Nauruans) and Fiji. Fiji, furthermore, possessed the great advantage of having a population with which the Nauruans would readily mix, and eventually no doubt inter-marry.

6. His Excellency stated that he had every sympathy with Australia's difficulties in resettling the Nauruans and would do all he could to aid their solution. He had no objection in principle to the Nauruans coming to Fiji but there were certain practical obstacles, which might prove to be insuperable. In the first place, the experience gained from the colonisation of Rabbi Island by the Banabans demonstrated that it was neither in the Fijian interest, nor in that of the immigrants, that they should isolate themselves on an island and, with their own system of local Government and local legislation, constitute a sort of imperium in imperio divorced from the normal Fijian administration. This made them unpopular throughout the Colony and delayed indefinitely their assimilation into the general population, while at the same time retarding their social and economic progress. The Ellice Islands colonists on Kioa, on the other hand, had never asked for, or been given, any special treatment; this Polynesian group mixed well with their Fijian neighbours and as a consequence were deservedly popular as well as being a happier and more successful community.

7. In recent months the Legislative Council had discussed the Rabbi settlement and, while refraining from open criticism of the Government's action in permitting it, had clearly indicated that they would not favour any further migration on similar lines. Sir Ronald considered, therefore, that if the Nauruans purchased land in Fiji (and there was nothing to prevent them doing so), they must be prepared to live in the Colony as ordinary citizens, without expecting any special legislative or other privileges.

8. I told Sir Ronald that I had myself come to the conclusion that the establishment of the Banabans on Rabi as a closed community administered under its own Regulations was a mistake. In the case of the Nauruans, however, it was not suggested that they should be given any special legislative or other treatment designed to separate them from the rest of the Colony's population. While they required a tract of land (ideally an island) which they could regard as being in a sense their new homeland, I hoped and expected that they would find employment throughout the Colony, and particularly in the urban centres. Thus living and working in association with Fijians and others, assimilation should be painless and relatively rapid; more especially since I anticipated that the process of migration from Nauru to Fiji would be a long drawn out affair with only a few families coming during the next decade.

9. His Excellency then said that he would like to discuss the whole question with his advisers, whereupon he would see me again to convey his decision. In the meantime he suggested that I should make a few discreet enquiries as to whether any suitable properties were, in fact, available; though he realised the difficulty of conducting any detailed investigation without disclosing the reason for my interest.

Second interview with the Governor.

10. At my second official interview with His Excellency, Sir Ronald said that he was prepared to consider favourably the acquisition of an island or other property or properties in Fiji for the Nauruans, and their settlement in the Colony, provided:-

(i) the provisions of the Immigration Ordinance, 1947, were complied with; and

(ii) the immigrants became ordinary citizens of the Colony, without any special legislative or other privileges.

From Fiji's point of view the sooner the Nauruans (and other immigrant communities) became assimilated the better and this process could probably be accelerated if only small numbers came at a time.

11. Sir Ronald added that public opinion in Fiji, as voiced by unofficial members of the Legislative Council, was hardening against any form of group migration into the Colony and that it would be of assistance if he could point, in the event of criticism in the Council, to some quid pro quo being offered by Australia in return for the provision of a second home for the Nauruans. He mentioned particularly the prohibition of banana importations into the Commonwealth and hoped that this bone of contention could be reviewed in due course, though there was, in fact, no immediate prospect of Fiji shipping any but a negligible quantity.

12. Sir Ronald suggested that the best procedure for expediting action on the settlement project, if Australia decided to go on with it, might be for the Minister for Territories to write direct to him, thus continuing our unofficial discussions on a more formal basis. I gathered that His Excellency was anxious to deal with the matter himself in order to prevent, as far as he could, the possibility of something going wrong or action being held up in the secretariat. A tentative draft letter is accordingly submitted for consideration as Enclosure Vll.

13. It was perhaps fortunate that in Sir Ronald I was dealing with a Governor who possesses an unusual grasp of Pacific problems, having served for many years in the Gilbert and Ellice Islands, the Solomons and the New Hebrides as well as Fiji. I found him particularly sympathetic to the argument that Australia was at present open to attack in the Trusteeship Council by Russia and others for not having provided an alternative home for the Nauruans when in point of fact she had no suitable area available. It was thus essential that the other members of the British Commonwealth should do all they could to help: to refuse to do so would represent a distinct victory for the Iron Curtain countries, who would be in a good position to use it for their own political propaganda among the Pacific Islands peoples (including those in Fiji). I believe that Sir Ronald will, in fact, do everything that he can to assist, even to the extent of relaxing the normal immigration requirements, as set out in Enclosure 11, wherever discretionary powers under the Immigration Ordinance are vested in him. At the same time he has perforce to proceed carefully in view of the opinions held by the unofficial members of his Executive and Legislative Councils on immigration into the Colony and, perhaps even more important, for fear of arousing Indian opinion to demand a similar relaxation of immigration restrictions in the case of their compatriots. It was to curb Indian immigration into Fiji that the Ordinance was originally enacted, though it is naturally drafted on a non-racial basis.

<u>The availability of suitable properties.</u>

14. In investigating the possibility of acquiring land in Fiji, particular attention was paid to island properties, since the ownership of an entire island, which they could make their headquarters and base of operations, would undoubtedly appeal more to the Nauruans than that of a section on Viti Levu or one of the larger islands. The following is a list of the principal freehold islands in the archipelago, underlined in black on the attached map:-

<u>In the Lau Group</u>

(i) Vatu Vara
(ii) Kaimbu (off Yathata)
(iii) Naitamba
(iv) Kanathea

<u>Elsewhere.</u>

(i) Lauthala.
(ii) Wakaya.
(iii) Rambi.
(iv) Kioa.

In the Lau Group (Cont.)

(v) Mango
(vi) Nania
(vii) Matafunga

of these the most suitable for the Nauruans are, in my opinion, Wakaya and Lauthala (in that order), whether from the standpoint of proximity to urban centres, fertility or availability. The islands situated in the Lau Group are rather too isolated from the main towns to be ideal; though, on the other hand, they are in many cases exceptionally fertile and close to islands inhabited by the Tongan-Fijian Lauans with whom the Nauruans might be expected to inter-marry freely. Other freehold islands, e.g. around the coast of Viti Levu, are too small for the purpose required.

15. (i) Wakaya, of which a description is given in Enclosure III, is 5 miles long and 1½ miles in greatest width, with an area of 2,200 acres. In 1940 the Nauruans asked that this island should be bought for their new home in Fiji, but in the event it was decided to purchase Nanui as being larger and possessing a better water supply. Wakaya would not, of course, accommodate all the Nauruan community if they were to settle there as agricultural small-holders but this, I submit, is not at all essential. What is wanted is a small but attractive island close to the mainland and to an urban centre, which the Nauruans can look upon as their home or headquarters in Fiji. Here they would have their own village (or villages), their church, school, hospital and other amenities. But for employment they would, in the majority of cases, look to the urban areas, where having regard to their intelligence, commercial sense and educational advantages, I have no doubt that they would obtain good positions as clerks, professional workers and artisans and take their share in the commercial and industrial life of the Colony. Some of them might become agriculturalists and require land; but this need not necessarily be in Wakaya itself. The importance of a home island is to cushion the period of cultural transition (and without a centre which they can call their own the Nauruans would not consent to migrate), but if too large it may result, as in the case of Nanui, in the Nauruans living on it in isolation from the rest of Fiji, thus preventing assimilation and encouraging a state of cultural and economic stagnation.

16. Wakaya is not too small for a community centre and pied-à-terre, its great advantage being the fact that it lies only 10 miles from Levuka, the capital of Ovalau and former capital of Fiji. Here there is a good secondary school, cinema, bank and other urban amenities to which the Nauruan is accustomed. Its main drawback is a water supply which is at times restricted, though it has never been known to fail: this difficulty (if it proves to be one) can, however, be readily overcome by the construction of catchment areas.

17. The island of Wakaya belongs to a Mrs. Bentley, one of the three daughters of Mr. Watson, the previous owner. She asked £F.25,000 for this freehold property in 1941, when enquiries were being made on behalf of the Banaban. Although Mrs. Bentley has not been formally approached, it is understood that she is still willing to sell, the price to-day being about £F.48,000.

18. (ii) Lauthala is a volcanic island lying off the eastern coast of Taveuni. It is 3½ miles long by 2½ miles wide, with an area of 4.7 square miles, and is separated from Nggamea Island, which is surrounded by the same barrier reef, by a strait of 500 yards: Nggamea in turn is only 1½ miles from Taveuni.

19. While Lauthala is not situated near any town, the nearest semi-urban centre being at Somosomo and Waiyevo on Taveuni, the island lies close to Rambi, the Banaban settlement, and Rabi, which has been colonised by the Polynesian Ellice Islanders - see map in Enclosure IV. It is regularly visited by inter-island shipping based on Suva and possesses a well-developed copra plantation which produces several hundred tons more than Rambi. The agricultural possibilities for subsistence and export crops are superior to Wakaya and it would therefore support more Nauruans; but this fact does not, in my opinion, outweigh the advantages of Wakaya's greater accessibility.

20. Lauthala was sold by its owner, Mr. McGowan, in the 1940's to Messrs. Morris, Hedstrom and Co., Ltd., for £F.40,000. This firm has now sold its entire business to Messrs. W.H. Carpenter & Co., Ltd., which is understood not to be particularly anxious to dispose of it at the present time. Carpenters are, however, an Australian concern with extensive interests in Papua and New Guinea and it would be surprising if some concession could not be given which would make them glad to sell the property at a reasonable price.

21. (iii) Nasauvula (Nacavula) Estate, Taveuni. Apart from islands, a number of estates were reported to be available, at a price, but none appeared particularly attractive as a settlement area for Nauruans. Particulars of a typical offer are given in Enclosure V and other similar properties are understood to be coming on to the market from time to time.

22. (iv) Savilevu Crown Freehold, Taveuni. His Excellency himself suggested that the Nauruans might take over the 10,000 acre Savilevu Crown Freehold, situated on the east, or windward, side of the island of Taveuni. This property is described in the 1939 edition of the Handbook of the Colony of Fiji as follows:-

> "A very fine block of land on the east coast of the rich island of Taveuni but, unfortunately, there is no sheltering shore reef and no safe anchorage. The land is all under light forest and rises from sea-level to 2,500 feet. Rainfall 140 inches or more, but soil is light and porous overlying

volcanic lava and scoria. The lower slopes are suited for coconuts, while the higher slopes would make very rich fattening paddocks for cattle. The great drawback is the lack of a really good outlet, and only a planter or company with a large amount of capital could afford to make a road to the south coast, eight miles distant, or erect a breakwater for a port for use in fair weather."

23. An ecological survey was recently made of the reserve, an epitome of the report being given in Enclosure VI. I consider the property unsuitable for Nauruan settlement since the high rainfall and steep slope makes it particularly subject to erosion when cleared; the fact that 157 creeks were crossed by the survey party in 6 miles speaks for itself.

SUMMARY.

24. The various points detailed above may be briefly summarised as follows:-

(i) His Excellency the Governor has indicated that no objection would be raised to the Nauruans settling in Fiji, provided no special legislative concessions are required;

(ii) it is considered that a number of freehold islands or freehold sections of larger islands could be acquired for settlement by negotiation with the present owners; and

(iii) of these properties Wakaya Island is recommended as the most suitable for a Nauruan headquarters centre, followed by Lauthala Island.

25. The choice at (iii) is based on my view that accessibility to urban centres is more important than the ability to support the entire population of Nauru as agriculturalists. Probably no property in Fiji except one or two freehold islands in the Lau Group, e.g. Lakeba, could support the Nauruans off the land - these are all relatively isolated and, at present day values, could not be bought except at a very high figure. It cannot be too strongly emphasised, however, that the Nauruans are not agriculturalists and Wakaya or Lauthala should be sufficiently large to provide small-holdings for the few who may desire to become so. If not, further properties could be acquired from time to time as required.

Recommendations for action.

26. The following course of immediate future action is recommended:-

(i) the Minister to follow up my visit by a demi-official letter addressed direct to His Excellency (see Enclosure VII);

(ii) preliminary negotiations, without commitment, should be commenced with a view to the possible acquisition of Makaya and Lauthala Islands (if desired, I am willing to undertake these immediately myself);

(iii) I should approach the Nauruan delegates to the South Pacific Conference, on a personal and unofficial basis, and endeavour to enthuse them with the desirability of acquiring a second home in Fiji;

(iv) arrangements should be made (if necessary by chartering a schooner) for the Nauruan delegation and myself to visit Makaya, Lauthala, Rambi and Kioa after the conference;

(v) the Government could then inform the Nauruans that they had obtained my services as the recognised Pacific specialist on colonisation and that I would be visiting Nauru forthwith for discussions with the community;

(vi) on arrival in Nauru I should go into the whole question of a second home with the local leaders and endeavour to bring public opinion gradually around to requesting the Commonwealth Government to purchase Makaya or Lauthala on their behalf.

(vii) on receipt of this request action to purchase the property would be taken by the Department, thus completing the first phase of the migration project.

The main advantage of my undertaking (v) and (vi) personally would seem to lie in the fact that I am known to the Nauruans as the person who successfully organised and carried out the migration of the Gilbertese to the Phoenix Islands, of the Banabans to Rambi and of the Ellice Islanders to Kioa. They might well, therefore, be prepared to listen to my advice when they would suspect that given by anyone connected with the Commonwealth Public Service, their own administration or the British Phosphate Commission.

27. The second migration phase would involve the preparation of the island for the first party of Nauruan settlers: presumably including (unless the Nauruans are to undertake this work themselves) the construction of houses and public buildings in consultation with advance representatives

of the community. Any actual shift of population must clearly be voluntary and I would report that I do not anticipate more than a handful of settlers proceeding to Fiji for many years to come. Much, of course, will depend on the experiences of the first pioneers and it is important, therefore, to do everything possible to assist them to establish themselves comfortably and happily: the Nauruans are materialists and if the new home proves to possess demonstrably superior advantages - economic, social and educational - they will move to it in time. For the present, however, the importance of the migration project appears to me to be twofold: it effectively silences political criticisms of Australian neglect of the Nauruans' future welfare, whether this criticism emanates from the Trusteeship Council or the islanders themselves, and at the same time it provides an essential outlet for the younger, better educated and more progressive elements on the island, who at present show unmistakable symptoms of frustration at the limitations imposed by their environment.

Sydney, N.S.W.,
11th April, 1956.

.....
H.E. Maude.

SCHEDULE OF ENCLOSURES.

I. The Immigration Ordinance, 1947.

II. Immigration Requirements.

III. Waiqava Island.

IV. Lautheala Island.

V. Qamavula Estate.

VI. Navileva Reserve.

VII. Draft letter to the Governor.

VIII. Map of Fiji.

FIJI **No. 33 OF 1947**

I assent.

[L.S.] J. F. NICOLL,

Officer Administering the Government.

3rd December, 1947.

AN ORDINANCE

TO MAKE BETTER PROVISION FOR THE CONTROL OF IMMIGRATION.

[3rd December, 1947.]

BE it enacted by the Governor of Fiji with the advice and consent of the Legislative Council thereof:—

1. This Ordinance may be cited as the Immigration Ordinance, 1947. Short Title.

2. In this Ordinance, unless the context otherwise requires— Interpretation.

"deportation order" means an order made by the Governor under the provisions of section 10;

"immigration officer" means any officer appointed under the provisions of section 4;

"passenger" means any person travelling or seeking to travel on board a ship who is not a seaman;

"seaman" means an officer or member of the crew of a ship;

"ship" includes aircraft and the expression "master of a ship" includes the commander of an aircraft, or if there be no commander, the pilot thereof;

"member of a crew" means any person employed in the working or service of a ship.

Ordinance not to apply to certain persons.

3. Subject to the proviso hereinafter contained the provisions of this Ordinance shall not apply to the immigration of—

(*a*) any person who is a British subject or British protected person and—

(i) was born or is domiciled in the Colony; or

(ii) has resided in the Colony for a period of five years: Provided that a person who is absent from the Colony for more than twelve consecutive months shall cease to be resident for the purposes of this section;

(*b*) any serving member of His Majesty's Forces;

(*c*) any officer or member of the crew of a naval ship of a friendly power;

(*d*) any member of His Majesty's diplomatic or consular services and his household;

(*e*) any member of the consular service of a foreign power duly accredited to the Colony and his household;

(*f*) any person employed in Government service in any part of His Majesty's dominions or of any territory under His Majesty's protection or of any territory in which His Majesty has from time to time jurisdiction and the wife and family of any such person.

Provided that until such time as any such person satisfies the immigration officer that he comes within any of the exemptions set out in this section the provisions of the Ordinance shall apply to him:

Provided further that—

(*a*) a person aggrieved by a decision of the immigration officer may appeal to a magistrate's court of the first class;

(*b*) a magistrate's court of the first class in hearing any such appeal shall have all the powers which may be exercised by the court in the hearing of a civil suit and may permit any party to appear personally or by advocate;

(*c*) appeal shall be by way of a petition in writing and shall be made within thirty days of the decision appealed against.

Appointment of immigration officers.

4. The Governor may appoint a Principal Immigration Officer and such other immigration officers as he may consider necessary for the proper carrying out of the provisions of this Ordinance.

Powers of immigration officers.

5.—(1) In the exercise of his duties under this Ordinance an immigration officer may—

(*a*) board any ship;

(*b*) require the master of any ship, or any person entering or leaving the Colony, or any person whom he has reasonable cause to believe is a prohibited immigrant, to give him such information and produce such documents in his possession as may be necessary to enable the immigration officer to carry out his duties under this Ordinance;

(*c*) require any person entering the Colony to be examined by a medical officer.

(2) An immigration officer may arrest or cause to be arrested any person whom he has reasonable cause to believe is a prohibited immigrant and—

(*a*) if such person be a passenger on a ship cause him to be handed over to the custody of the master of the ship until its departure from the Colony; or

(*b*) cause him to be taken before a magistrate's court and charged with a contravention of the provisions of section 7 of this Ordinance:

Provided that if such person demands to be taken before a magistrate's court he shall be so taken and charged with the offence aforesaid.

Duties of masters of ships and passengers.

6.—(1) The master of every ship arriving in the Colony from some place outside the Colony shall—

(*a*) deliver to the immigration officer a complete list in duplicate of all passengers carried on the ship;

(*b*) not permit any passenger to disembark until disembarkation has been authorized by the immigration officer;

(*c*) inform the immigration officer if he knows or has reasonable grounds for believing any passenger to be a prohibited immigrant, and prevent such person from disembarking unless authorized by the immigration officer;

(*d*) prevent, with such reasonable force as may be necessary, the disembarkation of any person—

(i) who has been given into his custody under paragraph (*a*) of subsection (2) of section 5;

(ii) in respect of whom a deportation order made under the provision of section 10 is in force;

(iii) in respect of whom he has been notified by the immigration officer that such person is prohibited from landing in the Colony.

(2) Every passenger arriving in the Colony by sea or air from any place outside the Colony shall appear before the immigration officer at such time and place as the immigration officer may direct and shall furnish him with such information in such manner as the immigration officer may require or as may be prescribed.

Prohibited immigrants.

7. The following persons are prohibited immigrants and it shall be an offence for any such person to land in the Colony—

(*a*) any person who is not the holder of a valid permit issued under the provisions of section 8 unless such person is exempted under the provisions of that section;

(*b*) any person with respect to whom a deportation order is in force;

(*c*) any person with respect to whom the Commissioner of Police has, with the approval of the Governor, notified the Principal Immigration Officer that, as a result of information or advice received from a reliable source, the entry of the said person into the Colony is likely to be prejudicial to peace and good order and should be prohibited;

(*d*) any person who has been convicted by a court outside the Colony of an offence which, if committed within the Colony, is punishable with imprisonment for more than two years.

No person to enter the Colony without a permit.

8.—(1) Unless exempted under the provisions of subsection (4) of this section no person shall enter the Colony except in pursuance of a permit issued to him in that behalf by the Principal Immigration Officer or by some person acting under his authority.

(2) The Principal Immigration Officer may issue a permit to any person entitling him to enter and reside or remain in the Colony upon such conditions as to the security to be furnished, the profession or occupation which the holder may exercise or engage in within the Colony, and to any other matter whether similar to the foregoing or not which the Principal Immigration Officer may deem fit to impose or as may be prescribed.

(3) Subject to such directions as the Governor in Council may deem fit to issue to him the Principal Immigration Officer shall have a complete discretion as to the persons to whom permits to enter the Colony may be granted under the foregoing provisions of this section.

(4) The following persons shall be exempt from the provisions of subsection (1) of this section—

(*a*) a person who enters the Colony and departs without landing, or if he has landed from an aircraft without leaving the airport at which he arrived;

(*b*) a person who enters the Colony and leaves the Colony on the ship on which he arrived immediately upon its departure;

(*c*) a person who, having entered the Colony for an intended stay of not more than four months, appears before the immigration officer in accordance with subsection 2 of section 6 and if required by him so to do furnishes such security for his compliance with the provisions of this Ordinance as the immigration officer may require:

Provided that the provisions of this subsection shall not apply to a person who by secreting himself on a ship has obtained a passage to the Colony without the consent of the master, owner or agent.

(5) If a person who has entered the Colony in pursuance of the provisions of paragraph (*c*) of subsection (4) of this section—

(*a*) becomes incapable of supporting himself and his dependants;

(*b*) behaves in a manner prejudicial to the peace and good order of the Colony; or

(*c*) fails to leave the Colony within four months of his arrival,

it shall be lawful for the Principal Immigration Officer, by writing under his hand, to order such person forthwith to leave the Colony and if such person fails to carry out such order he shall be guilty of an offence.

(6) If any person enters the Colony in pursuance of the foregoing provisions of this section and contravenes or fails to comply with any of the conditions of the permit under which he has been allowed to enter or any of the provisions of this Ordinance, then, in addition to any other penalty to which he may be liable—

(*a*) if security has been furnished by way of deposit such deposit may be forfeited;

(*b*) if security has been furnished by bond the Principal Immigration Officer may sue and recover the amount secured by the bond,

and any sum forfeited or recovered under the provisions of this subsection shall be paid into the general revenue of the Colony.

Offences and penalties.

9.—(1) Any person who acts in contravention of or fails to comply with any of the provisions of this Ordinance or any conditions lawfully imposed in pursuance of the provisions thereof or any lawful order or requirement given by an immigration officer, or aids or abets in any such contravention or harbours any person whom he knows or has reasonable grounds to believe, has acted in contravention thereof, shall be guilty of an offence against this Ordinance. In particular, any person shall be guilty of an offence who—

(*a*) refuses to answer any question lawfully put to him by an immigration officer, or withholds or refuses to give any information in his possession or to produce any document which he is lawfully required to give or produce;

(*b*) whether within or without the Colony, knowingly makes any false declaration, return or statement for the purpose of obtaining or assisting another person to obtain a permit to enter the Colony under this Ordinance;

(*c*) alters any permit or copy of a permit issued in pursuance of this Ordinance;

(*d*) wilfully obstructs any immigration officer in the exercise of his duty;

(*e*) knowlingly uses or has in his possession any forged passport, permit, certificate or other document, or any passport or document on which any *visa* or endorsement has been forged, or any passport permit, certificate or document which has been altered or issued without lawful authority;

(*f*) unlawfully remains in the Colony after the expiration or cancellation of a permit issued to him under the provisions of this Ordinance.

(2) Any person convicted of an offence against the provisons of this Ordinance shall be liable to a fine of two hundred pounds.

(3) Where any person is convicted of an offence under paragraph (*b*) of sub-section (1) of this section the court may, in addition to any penalty imposed for such offence, cancel any permit which was issued in consequence of such false declaration, return or statement as is mentioned in that paragraph.

(4) Any person in respect of whom a deportation order has been made who fails to leave the Colony in accordance with the terms of the order or returns to the Colony whilst the order is in force shall be liable to a fine of five hundred

pounds or to imprisonment for three years or to both such fine and imprisonment.

(5) Where any person lands in the Colony from any ship in contravention of the provisions of section 7 relating to prohibited immigrants and the master is in respect of such person convicted of contravening any of the provisions of section 6 then, in addition to any other penalty, the ship may, by order of the court, be detained until provision has been made by the master, owner or agent, as the case may be, to the satisfaction of the immigration officer for the conveyance out of the Colony of such person.

(6) Where any fine is imposed under the provisions of this Ordinance upon any master, owner or agent of any ship, such ship may, by order of the court, be detained until such fine has been paid and it shall be lawful for the court when imposing any such fine to order execution against such ship in satisfaction of such fine.

Governor may order certain persons to be deported.

10.—(1) Where a person is convicted by a court in the Colony of—

(*a*) landing in the Colony in contravention of the provisions of section 7;

(*b*) acting in contravention of the conditions of a permit issued under the provisions of section 8;

(*c*) remaining in the Colony after the expiry or cancellation of such a permit; or

(*d*) failing to leave the Colony when ordered so to do under subsection (5) of section 8,

the court shall certify its finding and recommendation to the Governor and the Governor may, if he deem fit, make an order in this Ordinance referred to as a deportation order, requiring the said person to leave and remain thereafter out of the Colony.

(2) A person with respect to whom a deportation order is made shall leave the Colony in accordance with the order and shall remain outside the Colony so long as the order is in force.

(3) A person with respect to whom a certificate is given or a deportation order is made under the provisions of this section may be detained in such manner as the Governor may direct and upon the making of the order may, whether or not he has completed any sentence of imprisonment which may have been awarded under the provisions of this Ordinance, be placed on a ship about to leave the Colony and shall be deemed to be in lawful custody whilst so detained and until the ship finally leaves the Colony.

(4) A person against whom a deportation order has been made shall be deported to the place whence he came, or, with the approval of the Governor—

(*a*) if he is a British subject, to a place in some part of His Majesty's dominions or country under His Majesty's protection to which he belongs, or to any place to which he consents to be deported, provided that the Government of such last mentioned place consents to receive him; or

(*b*) if he is not a British subject to some place in the country to which he belongs, or to any place to which he consents to be deported, provided that the Government of such last mentioned place consents to receive him.

(5) The master of a ship who is proceeding to a place to which a person is directed to be deported and is required by the Principal Immigration Officer with the approval of the Governor to do so shall receive a person against whom a deportation order has been made and his dependents, if any, on board the ship and afford him and them a passage to that place and proper accommodation and maintenance during passage. Except as provided by section 11 the cost of such passage accommodation and maintenance shall be paid by the person deported or if the Governor so directs out of the general revenue of the Colony.

Liability for expenses incurred in respect of a prohibited immigrant.

11. The master and the owner and the agent of any ship from which any prohibited immigrant disembarks shall be jointly and severally liable to pay to the Government all expenses incurred by the Government in connexion with the care, maintenance or treatment of such prohibited immigrant and his deportation or conveyance from the Colony. The amount of any such expenses as aforesaid shall be recoverable in an action brought by or in the name of the Principal Immigration Officer:

Provided that in no case shall the amount for which the master owner or agent of the ship is liable in respect of such deportation or conveyance from the Colony exceed the costs of deporting or conveying the said person to the place from which he was brought by the ship concerned:

Provided further that the Governor may if he thinks fit direct that the whole or any part of such expenses shall be paid out of the general revenue of the Colony.

Enclosure I.

COLONY OF FIJI.

THE IMMIGRATION ORDINANCE, 1947.

ARRANGEMENT OF SECTIONS.

SECTION

Enclosure II.

IMMIGRATION REQUIREMENTS.

The 1946 Census of Fiji revealed that the population of the Colony was increasing very rapidly. It was estimated that the total population, which numbered just under 260,000 in 1946, would have grown to 340,000 by 1956 and might pass the half million mark soon after 1970. In November, 1947, therefore, an Ordinance limiting immigration was passed by Legislative Council.

Freedom from Restriction—

The restrictions on immigration do not apply to:—

(*a*) British subjects born or domiciled in Fiji;
(*b*) British subjects who have lived in Fiji for five years and who are returning after an absence of less than twelve consecutive months;
(*c*) serving members of British or Allied forces;
(*d*) persons employed in Government service in territories of the British Commonwealth.

Those concerned must prove to the satisfaction of the immigration authorities that they come within the categories listed.

Tourists—

Tourists arriving in the Colony may stay for a period of up to four months. They are required to be in possession of valid passports and, except in the case of British nationals, must have *visas* for Fiji affixed to the passports.

The immigration authorities require a tourist to be in possession of an order for a return air or sea passage or to deposit a sum sufficient to cover the cost of a passage to the country from which he has come. They may also require him to deposit a sum of money or to furnish other security for his compliance with the provisions of the Immigration Ordinance.

Short-Term Permits—

Permits to reside in Fiji for *less than four years* may be issued at the discretion of the Principal Immigration Officer to apprentices, skilled tradesmen, miners, students, persons under medical treatment, and persons entering the Colony under short-term contracts of employment with local commercial or agricultural undertakings.

Residents' Permits—

In general, permits to land and reside *permanently* in Fiji will be granted only to the following:—

(*a*) farmers and planters if they have already acquired a property in the Colony of not less than 100 acres, three quarters of which is productive land;

(*b*) professional men and women with recognized qualifications who intend to practice their profession in the Colony;
(The entry of teachers must be approved by the Director of Education).

(*c*) Ministers of religion;

(*d*) persons who are employed outside Fiji by local firms or undertakings and who are transferred to the Colony;

(*e*) persons who satisfy the Principal Immigration Officer that they have an assured income, that they will not become a charge on public funds, and that their entry is not contrary to the public interest, and who accept any conditions which may be imposed;

(*f*) persons absent from Fiji on June 11th 1948, who hold Fiji passports issued before that date, provided that they—

(i) were originally admitted into Fiji under the indenture system and were resident in the Colony when the passport was issued, or

(ii) had resided continuously in the Colony for not less than ten years before applying for a Fiji passport and also have permanent business interests or employment in the Colony;

(*g*) persons who have established or who establish a residential status under the Ordinance by living for five years continuously in the Colony, and who, having left the Colony with the intention of returning, lose that status by remaining away for more than twelve months; provided that the person concerned satisfies the Principal Immigration Officer that he was unable to return because of circumstances beyond his control, or for some other good and sufficient reason.

Only in very exceptional circumstances will permits to enter and reside permanently in Fiji be granted to persons not included in the above categories.

Application for Permits—

Applications for permits to enter and reside in Fiji, and correspondence on immigration matters should be addressed to—

The Principal Immigration Officer,
Suva.

Applications for permits to enter and reside in Fiji should be made on a special form of which copies are obtainable from the Principal Immigration Officer, Suva.

An applicant should not leave for Fiji until he has received a permit. Requests for telegraphic permission to land and reside in the Colony cannot be considered.

2 P.R.O. 51—500

Regulations.

12. The Governor in Council may make Regulations prescribing anything which may be prescribed under the provisions of this Ordinance and for the better carrying out of the provisions thereof, and in particular for—

(*a*) the procedure to be followed by persons applying for permits to enter the Colony, the particulars or documents to be supplied by them, and the persons through whom application may be made;

(*b*) the forms to be used for the purposes of the Ordinance;

(*c*) the amount of the security which the Principal Immigration Officer may require to be furnished by persons entering the Colony;

(*d*) prescribing further terms and conditions upon which permits to reside in the Colony may be issued.

Repeal and saving. Cap. 57.

13. The Immigrants Ordinance is hereby repealed: Provided that—

(*a*) any permit issued or security given under the provisions of the Ordinance hereby repealed shall be deemed to have been issued or given under the provisions of this Ordinance;

(*b*) any person who entered the Colony in contravention of the provisions of the Ordinance hereby repealed shall be deemed to have entered the Colony in contravention of the provisions of section 7 of this Ordinance.

Passed in Council this twenty-fifth day of November in the year of our Lord one thousand nine hundred and forty-seven.

By Authority: A. J. Elphick, Acting Government Printer, Suva.—1947.
Price, 1s.

Enclosure 111.

2.

WAKAYA ISLAND.

Total area	-	2,200 acres.
Area under coconuts	-	500 "
Arable land (excluding coconuts)	-	200-300 acres.
Copra yield per annum	-	150-200 tons.

Situated 10 miles N.N.E. of Levuka.[2]

5 miles long by 1½ miles wide at its greatest width.

Area - 3 square miles.

Privately owned and operated as a plantation. It was one of the first islands in Fiji to be sold to Europeans, being bought from Cakobau in 1840 by Houghton, owner of the schooner "Currency Lass". Later acquired by Mr. Brewer, for many years U.S. Vice-Consul for Fiji.

Wakaya was the scene of the earliest trials of sheep in Fiji, after which Mr. Brewer planted areas in cotton and sugar-cane and erected the first sugar mill in the Colony.

The island is overstocked with goats, deer (introduced early in the century), pigs and cattle, so much of the undergrowth has disappeared.

The following food crops grow well : Cassava, bananas, breadfruit, bele, sugar-cane, kumalas and yams. Fruit trees include: breadfruit, ivi, lemon, orange, custard-apple, mango, guava, dam, liberian coffee and rhododendron. Fish are numerous.

Rainfall is probably less than on Taveuni, but the soil is similar. There are no permanent streams. Water is reported to have been restricted at times, but "fresh water supplies have never entirely failed even in the dryest seasons". The Director of Agriculture of Fiji considered that, as a purely agricultural project, Walayn could support immediately 50-60 families totalling say 200-300 persons. The cash income from sale of copra, plus the existing fruits, fishing, etc., would support them comfortably until they settle down and grow food crops, when they should be relatively prosperous.

1.
Information obtained from:-

(i) Derrick, R.A. "The Fiji Islands". Suva, Government Printer, 1951. Pp. 282-284.

(ii) Survey made in 1941 by W.L. Parham, Agricultural Assistant, in connection with the proposal to settle the Banaban community on the island.

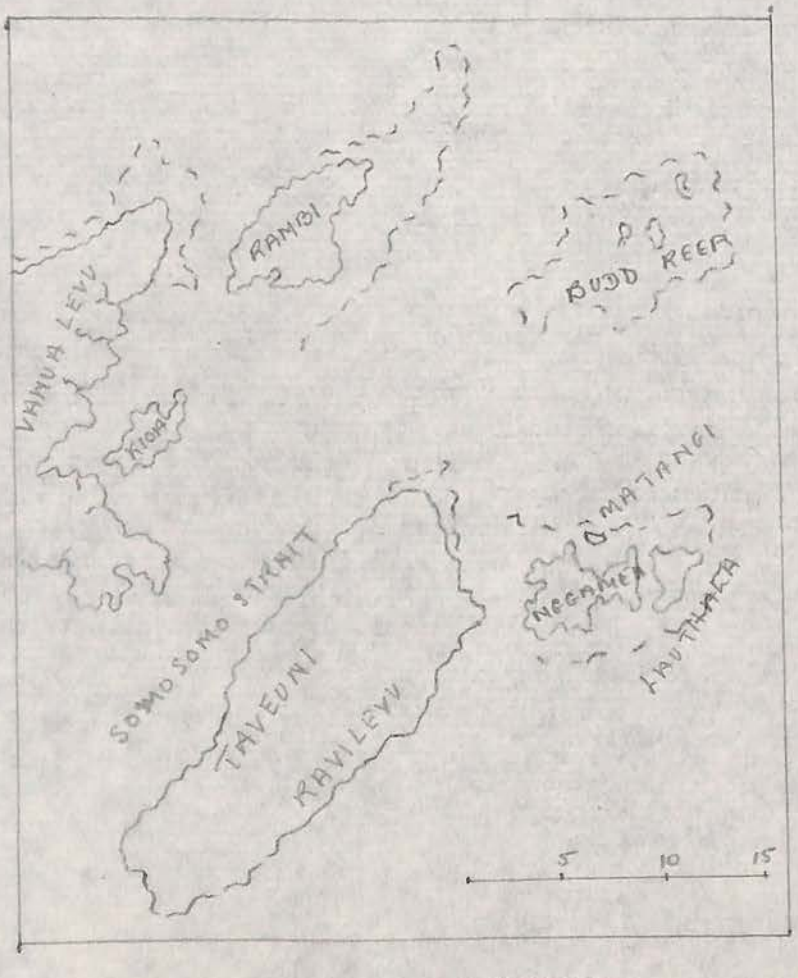
2.
Levuka, on the island of Ovalau, is an important centre of the copra industry and its principal industries are connected with the production, handling and transhipment of that commodity. Other small industries include boat-building and pineapple canning. There is a limited tourist trade and daily communication by launch and road to Suva with frequent shipping services to Suva and other island ports. An important educational centre, possessing several higher training institutions, Levuka has a population numbering about 2,000.

ENCLOSURE IV.

1.

LAUTHALA ISLAND.

LAUTHALA IN RELATION TO TAVEUNI.



RAMBI, KIOA AND LAUTHALA.

Laufuka lies east of Nggamea, separated from it by a strait which, in the north-west, is about 900 yards wide. It is 3½ miles long, and from 1 to 2½ miles wide, with an area of 4.7 square miles. There are patches of forest in the interior, and a large part of the north end is under grass and cocounts. The island is privately owned, and worked as a copra plantation, the homestead being situated in the north. In 1946 the population of planters and their labourers was 66.

Nggamea is situated 1½ miles from Thurston Point, Taveuni, and is native owned, with a population in 1946 of 410 Fijians.

Matangi is privately owned, with a population in 1946 of 10.

Laufuka, Nggamea and Matangi are all enclosed in the Taveuni barrier reef, which is far enough from their shores to permit of navigation within the lagoon.

1.
Information obtained from Derrick, R.A. "The Fiji Islands" Suva, Government Printer, 1951. Pp. 261 and 262.

Enclosure V.

1.

NGGAGAVULA ESTATE, TAVEUNI.

The following advertisement regarding this property appeared in the "Fiji Times and Herald" on the 22nd February, 1956:-

FOR SALE.

QACAVULA ESTATE, TAVEUNI.

TENDERS ARE INVITED for the purchase of the 300 ton copra plantation known as "Qacavula Estate" on Taveuni.

The property is in excellent condition and consists of:-

1. Freehold land, C.T. K1/05-852 containing 802 acres on which are erected a modern commodious wood and iron residence with usual outbuildings of laundry, garage and workshop; labour lines, copra shed; smoke dryer and sun drying vatas. Excellent piped water supply to houses and cattle troughs.

2. Native Lease of 352 acres known as "Naunici" expiring 26th February, 1968. Transfer subject to approval of the Native Land Trust Board.

3. Yearly tenancy of 100 acres known as "Dromoninuku". Transfer subject to approval of the Trustees of the Church of England.

Further particulars may be had from the undersigned who is authorised to accept the best tender above £F.45,000 received before 31st March, 1956.

S.G. GOULD. Chartered Accountant (Aust.),
Attorney for the Owners,
Bank of New South Wales Chambers,
SUVA.

A similar advertisement will be found on page 125 of the "Pacific Islands Monthly" for March 1956.

I understood from Mr. S.C. Gould, Attorney for the owners, and other informants that the original price asked for this estate was £F.60,000. It is considered that there will be little difficulty in selling at £F.45,000.

2.
Vacuvula according to the Fiji standard orthography.

Enclosure VI.

1.

NAVILAVU RESERVE.

Crown freehold comprising the whole of the central section of the east, or windward, side of Taveuni Island.

Area - 10,000 acres.

Originally sold to the Crown in 1912 for £F.3,750 as a possible area for settlement and development.

Climate continuously wet, with heavy rain falling every month. At Salialevu Estate, which marches the area on its south-east side, the rainfall averages 220 inches a year. The altitude and location make the climate relatively cool.

Situation on one slope of a lava flow, the slope being about 15°. High rainfall and steepness cause extensive geological erosion. There are many creeks, close together and often in deep ravines: 137 were crossed in 6 miles. The distance from the central ridge (average height 3,000 feet) to the sea is about 4 miles.

Beaches are few and narrow. Coast rugged, with steep cliffs 200-400 feet high overhanging a rocky foreshore. Only one anchorage - at the mouth of the Wainimbau at the north-east end of the block.

Almost the entire area is covered with high forest (canopy height 60-70 feet). Undergrowth dense. No flies or mosquitos.

Soil moderately fertile, the chief drawbacks being some acidity and lack of phosphate. But the fertility is dependent to a large extent on organic matter present and any clearing of bush, with subsequent exposure of soils to the weather, would result in an increased rate of decomposition of organic matter and a corresponding drop in soil fertility (after an initial increase). Soil erosion would be a hazard if the bush were to be cleared for the establishment of plantation crops. With such a heavy rainfall the tall bush does not afford sufficient protection to the exposed soil surface.

Agricultural development would need to be limited to the growing of crops tolerant of the conditions obtaining. It is considered probably too wet for cocoa. Coconuts would grow but yield would be low.

1.
Summarised from "An Ecological Survey of Navilevu, Taveuni", by I.T. Twyford (Soil Scientist) and J.T. Hall (Agricultural Officer).

DRAFT. ENCLOSURE VII.

His Excellency Sir Ronald Garvey, K.C.V.O., K.C.M.G., M.B.E.,
Governor of Fiji,
Government House,
SUVA ... FIJI.

Dear Sir Ronald,

Some months ago my Department asked H.E. Maude, who was then on the staff of the South Pacific Commission, to advise us on possible localities for resettling the people of Nauru, whose island will be unattractive as a home when its phosphate deposits are exhausted.

This problem has recently come to the fore owing to efforts at meetings of the Trusteeship Council to make political capital out of it. Its solution has therefore assumed an urgency which it would not otherwise possess (since the phosphate deposits are estimated to last for another 50 years).

Maude, who as you know has had considerable experience of Pacific migration projects, reports that the only islands or other properties suitable for Nauruan settlement are situated in Fiji and offered, on a recent visit to Suva, to sound out quite unofficially the possibilities of Nauruans being permitted to make their home in the Colony and of a suitable location being obtainable for their headquarters.

I understand from Maude that you were good enough to see him and kindly undertook to give your sympathetic consideration to any request received from the Commonwealth Government. I am therefore taking the liberty of writing to you direct to ask you to see your way to permit the immigration of Nauruans into Fiji and the purchase of sufficient land to provide a home for those who may desire to go.

The Nauruans are, in general, well educated by island standards, English speaking and accustomed to a semi-urban life. It is anticipated that in Fiji few would choose to become agriculturalists, for which they have no particular aptitude, but that they would, for the most part, tend to take on clerical employment with the Government or in business, become professional workers and artisans, or be employed in other capacities in industrial and commercial concerns. In view of this fact, and also that they will, to a certain extent, be self-supporting from phosphate royalties, it is hoped that strict adherence to the requirements for Residential Permits set out in the Fiji pamphlet headed "Immigration Requirements" will not be insisted on in this special case, as to do so would effectively debar any but a small minority from being allowed to enter the Colony. I would emphasise, however, that no exemption from the provisions of the Fiji Immigration Ordinance, 1947, is sought, or any special legislative or other privileges for the intending settlers.

I should explain that in the event of your being able to agree to this request, I would propose that the Nauruan delegation to the South Pacific Conference should examine one or two likely properties available for purchase and that, in the event of any being considered suitable, negotiations would be commenced, subject to the approval of the Nauruans themselves, for their acquisition.

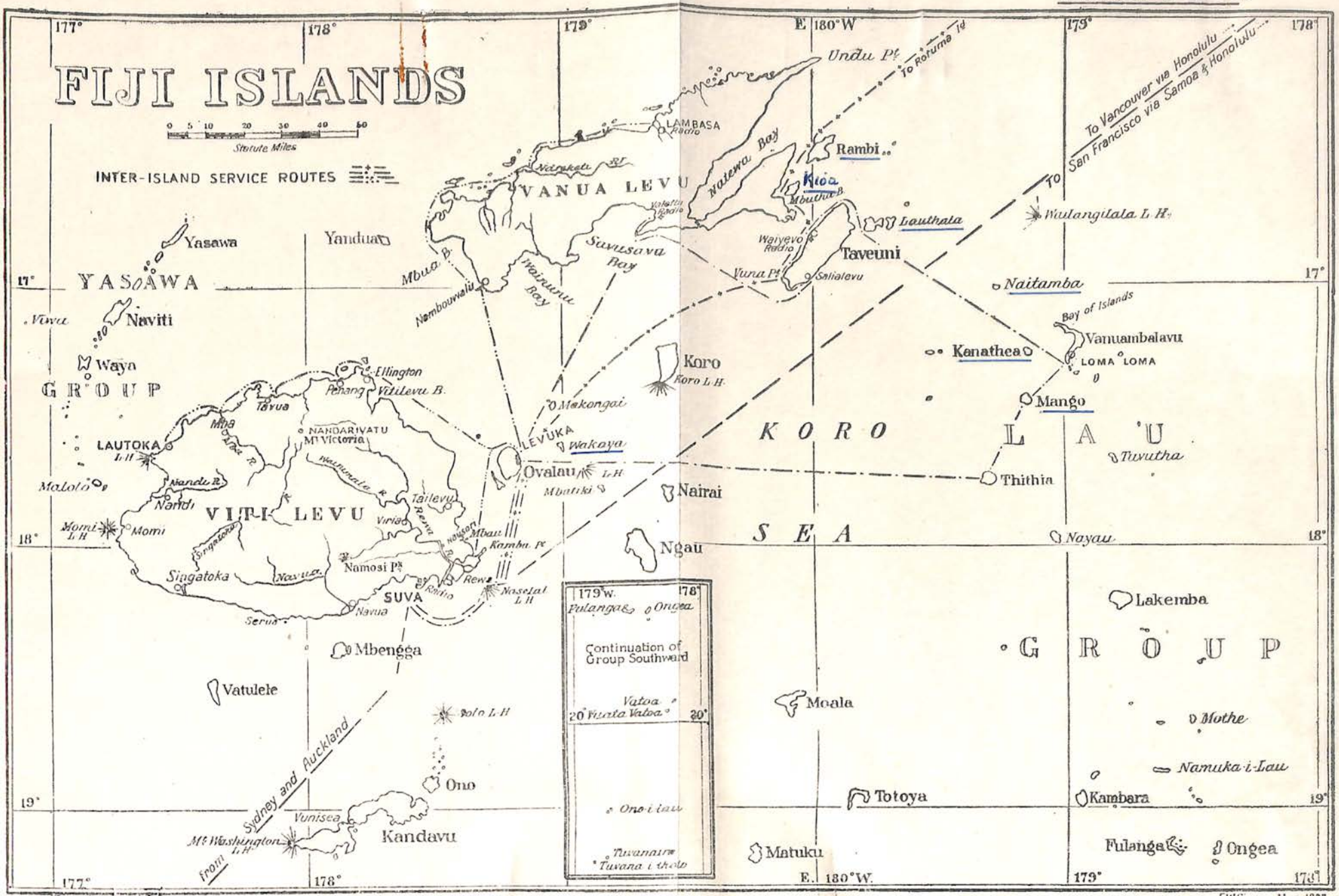
It is recognised that any property which could be acquired would, in all probability, be too small for the entire support of the Nauruan community as an agricultural estate. In the first place, however, it is not anticipated that more than a few Nauruan families would migrate to Fiji during the next decade and that most of those would obtain employment in the main Colony centres, regarding their home property merely as a community centre and base. Nevertheless, should the need arise, further properties could be acquired.

In conclusion I should add that in not suggesting any special privileges for the Nauruans, I have in mind the desirability of their being assimilated as rapidly as possible into the general life of the Colony and, by acculturation and inter-marriage, into its population. I feel sure that this would ultimately prove to be to the benefit both of the Fijians as well as the Nauruans themselves.

Yours sincerely,

(Paul M. Hasluck)
Minister for Territories.

Enclosure VIII.



Lands Department, Fiji

E.W.Simm - May 1927

~~DRAFT.~~

3rd April, 1956.

C O N F I D E N T I A L.

MEMORANDUM to:-

C.R. Lambert, Esq., C.M.G.,
Secretary,
Department of Territories,
CANBERRA ... A.C.T.

FUTURE HOME FOR NAURUANS.

In conformity with the Minister's directions set out in your letter DR.118/6 of the 3rd February, I visited Fiji from the 10th to the 18th March for the purpose of investigating whether:-

(i) the Fiji Government would be willing to permit the acquisition of land in the Colony for the purpose of providing a second home for the Nauruan community and, if so, the terms on which they would be permitted to enter the Colony and settle on this land; and whether

(ii) any islands, or other suitable properties, are available for purchase in Fiji and, if so, at what approximate prices.

2. I left Sydney by Qantas plane on the 10th, spent the night at the Mocambo Hotel, Nandi, and arrived in Suva by Fiji Airways at 11.30 a.m. on the 11th. On my return Suva was left at 8 a.m. on the 18th and Sydney reached at 3 p.m. Three of my seven days in Suva were spent at Government House, by kind invitation of Sir Ronald Garvey, and the remainder with Mr. G.K. Roth, the Secretary for Fijian Affairs.

First Interview with the Governor.

3. At the first of my two interviews with His Excellency, held at 11 a.m. on the 12th, I outlined the problem of providing a second home for the Nauruans, which I POINTED OUT had become a matter of some urgency owing to the growth of political ~~consciousness~~ CONSCIOUSNESS in the community, the example before them of the successful re-settlement of their former ~~Banaban~~ BANABAN neighbours on Ocean Island,

and criticisms made (particularly by Russia and India) at meetings of the U.N. Trusteeship Council. I emphasized that Australia recognised that the phosphate deposits on Nauru had a limited life, though they would not be exhausted for many years to come, and that Nauru would then, in all probability, cease to be an attractive home owing to its isolation and infertility: the Commonwealth Government was therefore anxious to do everything possible to ensure the welfare of the community by obtaining a suitable alternative home to which those who desired could proceed at once, with the expectation that the remainder would follow gradually over the next ~~decade or so~~ few decades.

4. I explained to Sir Ronald that the main criteria which any new home for the Nauruans should possess were reasonable fertility, salubrity of climate and proximity to an urban centre where clerical and other employment could be obtained as well as secondary and technical training for their children. The last requirement was possibly the most important, as the Nauruan was an urbanized wage-earner rather than an agriculturalist.

5. Unfortunately, a careful survey of the Australian territories had established the fact that they contained no suitable locality for Nauruan colonization: indeed, as a result of over 20 years spent in planning and supervising migration projects, I considered that the only suitable areas in the entire Pacific were in French ~~Polasia~~ OCEANIA (which would not be acceptable to the Nauruans) and Fiji. Fiji, furthermore, possessed the great advantage of having a population with which the Nauruans would readily mix, and eventually no doubt inter-marry ~~with~~.

6. His Excellency stated that he had every sympathy with Australia's difficulties in resettling the Nauruans and would do all he could to aid their solution. He had no objection in principle to the Nauruans coming to Fiji but there were certain practical obstacles, which might prove to be insuperable. In the first place, the experience gained from the colonization of Rambi Island by the ~~Banabans~~ Banabans demonstrated that it was neither in the Fijian interest, nor in that of the immigrants, that they should isolate themselves on an island and, with their own system of local Government and local legislation, constitute a sort of imperium in imperio divorced from the normal Fijian administration.

...3

This made them unpopular throughout the Colony and delayed indefinitely their assimilation into the general population, while at the same time retarding their social and economic progress. The Ellice Islands colonists on Kioa, on the other hand, had never asked for, or been given, any special treatment; this Polynesian group mixed well with their Fijian neighbours and as a consequence were deservedly popular as well as being a happier and more successful community.

7. In recent months the Legislative Council had discussed the Rambi settlement and, while refraining from open criticism of the Government's action in permitting it, had clearly indicated that they would not favour any further migration on similar lines. Sir Ronald considered, therefore, that if the Nauruans purchased land in Fiji (and there was nothing to prevent them doing so), they must be prepared to live in the Colony as ordinary citizens, without expecting any special legislative or other privileges.

8. I told Sir Ronald that I had myself come to the conclusion that the establishment of the Banabans on Rambi as a closed community administered under its own Regulations was a mistake. In the case of the Nauruans, however, it was not suggested that they should be given any special legislative or other treatment designed to separate them from the rest of the Colony's population. While they required a tract of land (ideally an island) which they could regard as being in a sense their new homeland, I hoped and expected that they would find employment throughout the Colony, and particularly in the urban centres. Thus living and working in association with Fijians and others, assimilation should be painless and relatively rapid; more especially since I anticipated that the process of migration from Nauru to Fiji would be a long drawn out affair with only a few families coming during the next decade.

9. His Excellency then said that he would like to discuss the whole question with his advisers, whereupon he would see me again to convey his decision. In the meantime he suggested that I should make a few discreet enquiries as to whether any suitable properties were, in fact, available; though he realized the difficulty of conducting any detailed investigation without disclosing the reason for my interest.

Second interview with the Governor.

10. At my second official interview with His Excellency, Sir Ronald said

that he was prepared to consider favourably the acquisition of an island or other property or properties in Fiji for the Nauruans, and their settlement in the Colony, provided:-

(i) the provisions of the Immigration Ordinance, 1947, were complied with; and

(ii) the immigrants became ordinary citizens of the Colony, without any special legislative or other privileges.

From Fiji's point of view the sooner the Nauruans (and other immigrant communities) became assimilated the better and this process could probably be accelerated if only small numbers came at a time.

11. Sir Ronald added that public opinion in Fiji, as voiced by unofficial members of the Legislative Council, was hardening against any form of group migration into the Colony and that it would be of assistance if he could point, in the event of criticism in the Council, to some quid pro quo being offered by Australia in return for the provision of a second home for the Nauruans. He mentioned particularly the prohibition of banana importations into the Commonwealth and hoped that this bone of contention could be reviewed in due course, though there was, in fact, no immediate prospect of Fiji shipping any but a negligible quantity.

12. Sir Ronald suggested that the best procedure for expediting action on the settlement project, if Australia decided to go on with it, might be for the Minister for Territories to write direct to him, thus continuing in continuation on a more formal basis, our unofficial discussions. I gathered that His Excellency was anxious to deal with the matter himself in order to prevent, as far as he could, the possibility of something going wrong or action being held up in the secretariat. A tentative draft letter is accordingly submitted for consideration as Enclosure VII.

13. It was perhaps fortunate that in Sir Ronald I was dealing with a Governor who possesses an unusual grasp of Pacific problems, having served for many years in the Gilbert and Ellice Islands, the Solomons and the New Hebrides as well as Fiji. I found him particularly sympathetic to the argument that Australia was at present open to attack in the Trusteeship Council by Russia and others for not having provided an alternative home for the Nauruans when in point of fact she had no suitable area available. It was thus essential that the other members of the British Commonwealth should do all they could to help: to refuse to do so would represent a distinct victory for the Iron Curtain

...5

countries, who would be in a good position to use it for their own political propaganda among the Pacific Islands peoples (including those in Fiji). I believe that Sir Ronald will, in fact, do everything that he can to assist, even to the extent of relaxing the normal immigration requirements, as set out in Enclosure 11, wherever discretionary powers under the Immigration Ordinance are vested in him. At the same time he has perforce to proceed carefully in view of the opinions held by the unofficial members of his Executive and Legislative Councils on immigration into the Colony and, perhaps even more important, for fear of arousing Indian opinion to demand a similar relaxation of immigration restrictions in the case of their compatriots. It was to curb Indian immigration into Fiji that the Ordinance was originally enacted, though it is naturally drafted on a non-racial basis.

3 places

The availability of suitable properties.

14. In investigating the possibility of acquiring land in Fiji, particular attention was paid to island properties, since the ownership of an entire island, on which they could make their headquarters and base of operations, would undoubtedly appeal more to the Nauruans than that of a section on Viti Levu or one of the larger islands. The following is a list of the principal freehold islands in the archipelago underlined in black on the attached map:-

In the Lau Group	ELSEWHERE. Elsewhere.
(i) Vatu Vara	(i) Lauthala.
(ii) Kaimbu (off Yathata)	(ii) Wakaya.
(iii) Naitamba	(iii) Rambi.
(iv) Kanathea	(iv) Kioa.
(v) Mango	
(vi) Munia	
(vii) Katafanga	

Of these the most suitable for the Nauruans are, in my opinion, Wakaya and Lauthala (in that order), whether from the standpoint of proximity to urban centres, fertility or availability. The islands situated in the Lau Group are rather too isolated from the main towns to be ideal; though, on the other hand, they are in many cases exceptionally fertile and close to islands inhabited by the Tongan-Fijian Lauans with whom the Nauruans might be expected to inter-marry freely. Other freehold islands, e.g. around the coast of Viti Levu, are too small for the purpose required.

TONGAN

...6

15. (i) Wakaya, of which a description is given in Enclosure 111, is 5 miles long and 1½ miles in greatest width, with an area of 2,200 acres. In 1940 the ~~Rambars~~ Banabans asked that this island should be bought for their new home in Fiji, but in the event it was decided to purchase Rambi as being larger and possessing a better water supply. Wakaya would not, of course, accommodate all the Nauruan community if they were to settle there as agricultural small-holders but this, I submit, is not ~~what is required~~ at all essential. What is wanted is a small but attractive island close to the mainland and to an urban centre, which the Nauruans can look upon as their home or headquarters in Fiji. Here they would have their own village (or villages), their church, school, hospital and other amenities. But for employment they would, in the majority of cases, look to the urban areas, where having regard to their intelligence, commercial sense and educational advantages, I have no doubt that they would obtain good positions as clerks, professional workers and artisans and take their share in the commercial and industrial life of the Colony. Some of them ~~may~~ might become agriculturalists and require land; but this need not necessarily be in Wakaya itself. The importance of a home island is to cushion the period of cultural transition (and without a centre which they can call their own the Nauruans would ~~never~~ not consent to migrate), but if too large it may result, as in the case of Rambi, in the Nauruans living on it in isolation from the rest of Fiji, thus preventing assimilation and encouraging a state of cultural and economic stagnation.

16. Wakaya is not too small for a community centre and pied-a-terre, its great advantage being the fact that it lies only 10 miles from Levuka, the capital of Ovalau and former capital of Fiji. Here there is a good secondary school, cinema, bank and other urban amenities to which the Nauruan is accustomed. Its main drawback is a water supply which is at times restricted, though it has never been known to fail: this difficulty (if it proves to be one) can, however, be readily overcome by the construction of catchment areas.

17. The island of Wakaya is owned by the ~~[illegible] family~~, who asked £F.25,000 for this freehold property in 1941, when enquiries were being made on behalf of the Banabans. Although Mrs Bentley has not been formally approached, it is understood that she is still willing to sell, the price today being about £F.48,000.

(belongs to a Mrs Bentley, one of the three daughters of Mr Watson, the previous owner. She ...?

18. (ii) Lauthala is a volcanic island lying off the eastern coast of Taveuni. It is 3½ miles long by 2½ miles wide, with an area of 4.7 square miles, and is separated from Nggamea Island, which is surrounded by the same barrier reef, by a strait of 500 yards. Nggamea in turn is only 1½ miles from Taveuni.

19. While Lauthala is not situated near any towns, the nearest semi-urban centre being at Somosomo and Waikevo on Taveuni, the island lies close to Rambi, the Banaban settlement, and Kioa, which has been colonized by the Polynesian Ellice Islanders - see map in Enclosure IV. It is regularly visited by inter-island shipping based on Suva and possesses a well-developed copra plantation which produces several hundred tons more than Rambi. The agricultural possibilities for subsistence and export crops are superior to Wakaya and it would therefore support more Nauruans; but this fact does not, in my opinion, outweigh the advantages of Wakaya's greater accessibility.

20. Lauthala was sold by its owner, Mr. McGowan, in the 1940's to Messrs. Morris, Hedstrom and Co., Ltd., for £F.40,000. This firm has now sold its entire business to Messrs. W. H. Carpenter & Co., Ltd., which is understood not to be particularly anxious to dispose of it at the present time. Carpenters are, however, an Australian concern with extensive interests in Papua and New Guinea and it would be surprising if some concession could not be given which would make them glad to sell the property at a reasonable price.

21. (iii) Nggathavula (Qacavula) Estate, Taveuni. Apart from islands, a number of estates were reported to be available, at a price, but none appeared particularly attractive as a settlement area for Nauruans. Particulars of a typical offer are given in Enclosuve V, and other similar properties are understood to be coming on to the market from time to time.

22. (iv) Ravilevu Crown Freehold, Taveuni. His Excellency himself suggested that the Nauruans might take over the 10,000 acre Ravilevu Crown Freehold, situated on the east, or windward, side of the island of Taveuni. This property is described in the 1929 edition of the Handbook of the Colony of Fiji as follows:-

"A very fine block of land on the east coast of the rich island of Taveuni but, unfortunately, there is no sheltering shore reef and no safe anchorage. The land is all under light forest and

rises from sea-level to 2,500 feet. Rainfall 140 inches or more, but soil is light and porous overlying volcanic lava and scoria. The lower slopes are suited for coconuts, while the higher slopes would make very rich fattening paddocks for cattle. The great drawback is the lack of a really good outlet, and only a planter OR company with a large amount of capital could afford to make a road to the south coast, eight miles distant, or erect a breakwater for a port for use in fair weather."

23. An ecological survey was recently made of the reserve, an epitome of the report being given in Enclosure VI. I consider the property unsuitable for Nauruan settlement since the high rainfall and steep slope makes it particularly subject to erosion when cleared; the fact that 137 creeks were crossed by the survey party in 6 miles speaks for itself.

SUMMARY.

24. The various points detailed above may be briefly summarized as follows:-

(i) His Excellency the Governor has indicated that no objection would be raised to the Nauruans settling in Fiji, provided no special legislative concessions are required;

(ii) it is considered that a number of freehold islands or freehold sections of larger islands could be acquired for settlement by negotiation with the present owners; and ~~that~~

(iii) of these properties Wakaya Island is ~~considered~~ recommended as the most suitable for a Nauruan headquarters centre, followed by Lauthala Island.

25. The choice at (iii) is based on my view that accessbility to urban centres is more important than the ability to support the entire population of Nauru as agriculturalists. Probably no property in Fiji except one or two freehold islands in the Lau Group, e.g. Mango, could support the Nauruans off the land - these are all relatively isolated and, at present day values, could not be bought except at a very high figure. It cannot be too strongly emphasized,

however, that the Nauruans are not agriculturalists and Wakaya or Lauthala should be sufficiently large to provide small-holdings for the few who may desire to become so. If not, further properties could be acquired from time to time as required.

26. Recommendations for action. The following course of immediate future action is recommended:-

(i) the Minister to follow up my visit by a demi-official letter addressed direct to His Excellency (see Enclosure VII);

(ii) preliminary negotiations without commitment should be commenced with a view to the possible acquisition of Wakaya and Lauthala Islands (if desired, I am willing to undertake these immediately myself);

(iii) I should approach the Nauruan delegates to the South Pacific Conference, on a personal and unofficial basis, and endeavour to enthuse them with the desirability of acquiring a second home in Fiji;

(iv) arrangements should be made (if necessary by chartering a schooner) for the Nauruan delegation and myself to visit Wakaya, Lauthala, Rambi and Kioa after the conference;

(v) the Government could then inform the Nauruans that they had obtained my services as the recognized Pacific specialists on colonization and that I would be visiting Nauru forthwith for discussions with the community;

(vi) on arrival in Nauru I should go into the whole question of a second home with the local leaders and endeavour to bring public opinion gradually around to requesting the Commonwealth Government to purchase Wakaya or Lauthala on their behalf.

(vii) on receipt of this request action to purchase the property would be taken by the Department, ~~completing~~ thus completing the first phase of the migration project.

The main advantage of my undertaking (v) and (vi) personally would seem to lie in the fact that I am known to the Nauruans as the person who successfully organized and carried out the migration of the Gilbertese to the Phoenix Islands, of the Banabans to Rambi and of the Ellice Islanders to Kioa. They might well, therefore, be prepared to listen to my advice when they would suspect that given by anyone connected with the Commonwealth Public Service, their own administration or the British Phosphate Commission.

...10

27. The second migration phase would involve the preparation of the island for the first party of Nauruan settlers: presumably including (unless the Nauruans are to undertake this work themselves) the construction of homes and public buildings in consultation with advance representatives of the community. Any actual shift of population must clearly be voluntary and I would repeat that I do not anticipate more than a handful of settlers proceeding to Fiji for many years to come. Much, of course, will depend on the experiences of the first pioneers and it is important, therefore, to do everything possible to assist them to establish themselves comfortably and happily: the Nauruans are materialists and if the new home proves to possess demonstrably superior advantages - economic, social and educational - they will move to it in time. For the present, however, the importance of the migration project appears to me to be twofold: it effectively silences political criticisms of Australian neglect of the Nauruans' future welfare, whether this criticism emanates from the Trusteeship Council or the islanders themselves, and at the same time it provides an essential outlet for the younger, better educated and more progressive elements on the island, who at present show unmistakable symptoms of frustration at the limitations imposed by their environment.

Sydney, N.S.W.,
31st March, 1956.

SCHEDULE OF ENCLOSURES.

I. The Immigration Ordinace, 1947.

II. Immigration Requirements.

III. Wakaya Island.

IV. Lauthala Island.

V. Qacavula Estate.

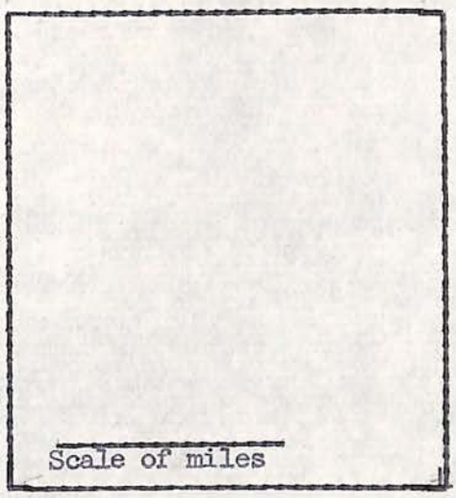
VI. Ravilevu Reserve.

VII. Draft letter to the Governor.

VIII. Map of Fiji.

Enclosure 111.

WAKAYA ISLAND.



Total area	-	2,200 acres.
Area under coconuts	-	500 "
Arable land (excluding coconuts)	-	200-300 acres.
Copra yield per annum	-	150-200 tons

Situated 10 miles E.N.E. of Levuka.

5 miles long by 1½ miles wide at its greatest width.

Area - 3 square miles.

Privately owned and operated as a plantation. It was one of the first islands in Fiji to be sold to Europeans, being bought from Cakobau in 1840 by Houghton, owner of the schooner "Cumerey Lass". Later acquired by Dr. Brower, for many years U.S. Vice-Consul for Fiji.

Wakaya was the scene of the earliest trials of sheep in Fiji, after which Dr. Brower planted areas in cotton and sugar-cane and erected the first sugar mill in the Colony.

The island is overstocked with goats, deer (introduced early in the century), pigs and cattle, so much of the undergrowth has disappeared.

The following food crops grow well: Cassava, bananas, breadfruit, bele, sugar-cane, kumalas and yams. Fruit trees include: breadfruit, ivi, lemon, orange, custard-apple, mango, guava, dawa, Liberian coffee and shaddocks.

Fish are numerous.

Rainfall is probably less than on Taveuni, but the soil is similar. There are no permanent streams. Water is reported to have been restricted at times, but "fresh water supplies have never entirely failed even in the dryest seasons". The Director of Agriculture of Fiji considered that, as a purely agricultural project, Wakaya could support immediately 50-60 families totalling say 200-300 persons. The cash income from sale of copra, plus the existing fruits, fishing, etc., would support them comfortably until they settle down and grow food crops, when they should be relatively prosperous.

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[1] Information obtained from:-

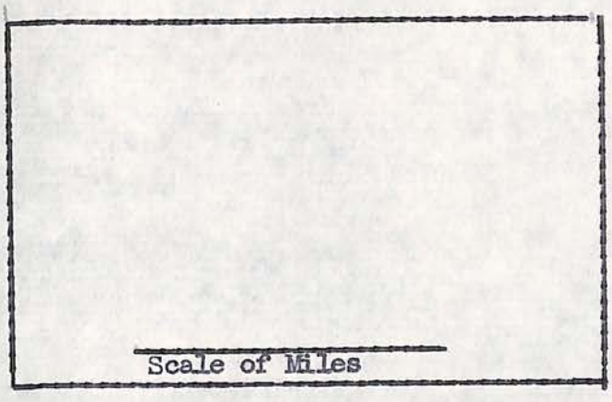
(i) Derrick, R.A. "The Fiji Islands". Suva, Government Printer, 1951. Pp. 282-284.

(ii) Survey made in 1941 by W.L. Parham, Agricultural Assistant, in connexion with the proposal to settle the Banaban community on the island.

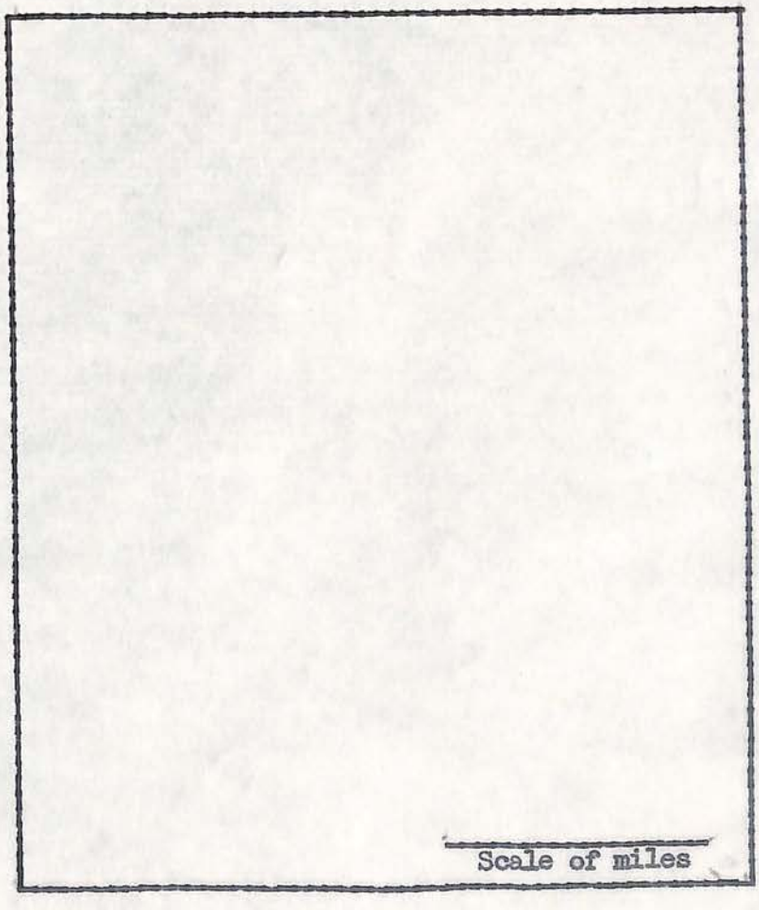
[2] Levuka, on the island of Ovalau, is an important centre of the copra industry and its principal industries are connected with the production, handling and transhipment of that commodity. Other small industries include boat-building and pineapple canning. There is a limited tourist trade and daily communication by launch and road to Suva with frequent shipping services to Suva and other island ports. An important educational centre, possessing several higher training institutions, Levuka has a population numbering about 2,000.

Enclosure 1V.

LAUTHALA ISLAND.



LAUTHALA IN RELATION TO TAVEUNI.



RAMBI, KIOA AND LAUTHALA.

Lauthala lies east of Nggamea, separated from it by a strait which, in the north-west, is about 500 yards wide. It is $3\frac{1}{2}$ miles long, and from 1 to $2\frac{1}{2}$ miles wide, with an area of 4.7 square miles. There are patches of forest in the interior, and a large part of the north end is under grass and coconuts. The island is privately owned, and worked as a copra plantation, the homestead

...2

being situated in the north. In 1946 the population of planters and their labourers was 66.

Nggamea is situated 1½ miles from Thurston Point, Taveuni, and is native owned, with a population in 1946 of 410 Fijians.

Matangi is privately owned, with a population in 1946 of 10.

Lauthala, Nggamea and Matangi are all enclosed in the Taveuni barrier reef, which is far enough from their shores to permit of navigation within the lagoon.

Information obtained from Derrick, R.A. "The Fiji Islands" Suva, Government Printer, 1951. Pp. 261 and 262.

Enclosure V.

NGGATHAVULA ESTATE, TAVEUNI.

The following advertisement regarding this property appeared in the "Fiji Times and Herald" on the 22nd February, 1956:-

FOR SALE.

QACAVULA ESTATE, TAVEUNI.

TENDERS ARE INVITED for the purchase of the 300 ton copra plantation known as "Qacavula Estate" on Taveuni.

The property is in excellent condition and consists of:-

1. Freehold land, C.T. X1/05-252 containing 802 acres on which are erected a modern commodious wood and iron residence with usual outbuildings of laundry, garage and workshop; labour lines, copra shed; smoke dryer and sun drying vatas. Excellent piped water supply to houses and cattle troughs.

2. Native Lease of 352 acres known as "Maumici" expiring 26th February, 1988. Transfer subject to approval of the Native Land Trust Board.

3. Yearly tenancy of 100 acres known as "Dromoninuku". Transfer subject to approval of the Trustees of the Church of England.

Further particulars may be hade from the undersigned who is authorised to accept the best tender above £F.45,000 received before 31st March, 1956.

S.G. GOULD. Chartered Accountant (Aust.).
Attorney for the Owners,
Bank of New South Wales Chambers,
SUVA.

A similar advertisement will be found on page 125 of the "Pacific Islands Monthly" for March 1956.

I understood from Mr. S.G. Gould, Attorney for the owners, and other informants that the original price asked for this estate was £F.60,000. It is considered that there will be little difficulty in selling at £F.45,000.

Qacavula according to the Fiji standard orthography.

Enclosure VI.

RAVILEVU RESERVE.

Crown freehold comprising the whole of the central section of the east, or windward, side of Taveuni Island.

Area - 10,000 acres.

Originally sold to the Crown in 1912 for £F.3,750 as a possible area for settlement and development.

Climate continuously wet, with heavy rain falling every month. At Salialevu Estate which marches the area on its south-west side the rainfall averages 220 inches a year. The altitude and location make the climate relatively cool.

Situation on one slope of a lava flow, the slope being about 15°. High rainfall and steepness cause extensive geological erosion. There are many creeks, close together and often in deep ravines: 137 were crossed in 6 miles. The distance from the central ridge (average height 3,000 feet) to the sea is about 4 miles.

Beaches are few and narrow. Coast rugged, with steep cliffs 200-400 feet high overhanging a rocky foreshore. Only one anchorage - at the mouth of the Wainimbau at the north-east end of the block.

Almost the entire area is covered with high forest (canopy height 60-70 feet). Undergrowth dense. No flies or mosquitos.

Soil moderately fertile, the chief drawbacks being some acidity and lack of phosphate. But the fertility is dependent to a large extent on organic matter present and any clearing of bush, with subsequent exposure of soils to the weather, would result in an increased rate of decomposition of organic matter and a corresponding drop in soil fertility (after an initial increase).

Soil erosion would be a hazard if the bush were to be cleared for the establishment of plantation crops. With such a heavy rainfall the tall bush does not afford sufficient protection to the exposed soil surface.

Agricultural development would need to be limited to the growing of crops tolerant of the conditions obtaining. It is considered probably too wet for cacao. Coconuts would grow but yield would be low.

Summarized from "An Ecological Survey of Ravilevu, Taveuni", by I.T. Twyford (Soil Scientist) and J.T. Hall (Agricultural Officer).

DRAFT. Enclosure V11.

His Excellency Sir Ronald Garvey, K.C., V.O., K.C., M.G., M.B.E.,
Governor of Fiji,
Government House,
SUVA ... FIJI.

Dear Sir Ronald,

Some months ago my Department asked H.E. Maude, who was then on the staff of the South Pacific Commission, to advise us on possible localities for resettling the people of Nauru, whose island will be ~~unproductive~~ UNATTRACTIVE as a home when its phosphate deposits are exhausted.

This problem has recently come to the fore owing to efforts ~~being made~~ at meetings of the Trusteeship Council to make political capital out of it. Its solution has ~~further~~ therefore assumed an urgency which it would not otherwise possess (since the phosphate deposits are estimated to last for another 50 years).

Maude, who as you know, has had considerable experience of Pacific migration projects, reports that the only islands or other properties suitable for Nauruan settlement are situated in Fiji, and offered, on a recent visit to Suva, to sound out quite unofficially the possibilities of Nauruans being permitted to make their home in the Colony and of a suitable location being obtainable for their headquarters.

I understand from Maude that you were good enough to see him and kindly undertook to give your sympathetic consideration to any request received from the Commonwealth Government. I am therefore taking the liberty of writing to you direct to ask you to see your way to permit the immigration of Nauruans into Fiji and the purchase of sufficient land to provide a home for those who may desire to go.

The Nauruans are, in general, well educated by island standards, English speaking and accustomed to a semi-urban life. It is anticipated that in Fiji few would choose to become agriculturalists, for which they have no particular aptitude, but that they would, for the most part, tend to take on clerical employment with the Government or in business, become professional workers and artisans, or be employed in other capacities in industrial and commercial concerns. In view of this fact, and also that they will, to a certain extent, be self-supporting from phosphate royalties, it is hoped that strict

...2

adherence to the requirements for Residential Permits set out in the attached Fiji pamphlet headed "Immigration Requirements" will not be insisted on in this special case, as to do so would effectively debar any but a small minority from being allowed to enter the Colony. I would emphasize, however, that no exemption from the provisions of the Fiji Immigration Ordinance, 1947, is sought, or any special legislative or other privileges for the intending settlers.

I should explain that in the event of your being able to agree to this request, I would propose that the Nauruan delegation to the South Pacific Conference should examine one or two likely properties available for purchase and that, in the event of any being considered suitable, negotiations would be commenced, subject to the approval of the Nauruans themselves, for their acquisition.

It is recognised that any property which could be acquired would, in all probability, be too small for the entire support of the Nauruan community as an agricultural estate. In the first place, however, it is not anticipated that more than a few Nauruan families would migrate to Fiji during the next decade and that most of these would obtain employment in the main Colony's centres, regarding ~~the~~ their home property merely as a community centre and base. Nevertheless, should the need arise, further properties could be acquired.

In conclusion I should add that in not suggesting any special privileges for the Nauruans, I have in mind the desirability of their being assimilated as rapidly as possible into the ~~economic and by inter-marriage,~~ into the social life of the Colony.

(NO N.P.) I feel sure that this would ~~be to~~ ultimately prove to be to the benefit ~~not only to the Fijians~~ both of the Fijians as well as the Nauruans themselves but to the Nauruan community itself.

Yours sincerely,

general life of the Colony and, by acculturation and inter-marriage, into its population.

(Paul M. Hasluck)
Minister for Territories.

Wakaya Island.

Memo from D of Agriculture to C.S. dated 27.3.54

	Rabi	Wakaya
Total area	17,000 acres	2,200 acres
Area under coconuts	2,500 "	500 "
Arable land excluding coconuts	500-800 "	200-300 "
Copra yield per annum	500-600 tons	150-200 tons
Water supply	Very good	only fair
Population	1400 (c. 300 families)	?

Though copra supply is lower per acre in Rabi unlikely Banabans could maintain present standard in Wakaya.

As regards water "our information suggests that although restricted at times, fresh water supplies have never entirely failed in the driest seasons".

Concluded Wakaya could support 50-60 families totalling say 200-300 souls in the first instance. "Cash income from copra plus existing fruits, fishing, etc would support them comfortably until they settle down and grow food

crops when they should be relatively comfortable."

In forwarding this information to the C.S., W.P.H.C., the C.S., Fiji, says "... but the size of the settlement would be subject to the provisions of the Immigration Ordinance No. 33 of 1947.

Enquiry re possible settlement of Wakaya was originally made by R.A., G.&E.I.C., through the H.A. by telegram dated 2.9.53. In connection 7 of same stated (30.9.53) "I have been informed that Wakaya is for sale and the price mentioned to me was £48,000". He then quotes Derrick's "Geography of Fiji" 10 miles E.S.E. of Levuka, 5 miles long & 1½ miles wide at its greatest width area of 3 square miles.

Scene of the earliest trials of sheep in Colony — grew cotton and sugar cane. First sugar mill in Colony erected there. Red deer a bit of a nuisance.

In 1941 island visited by late W. L. Parham, Agricultural Assistant, when Levy considered by H. C. for Barbados.

Survey states rainfall probably less than Tarawa, but soil is generally similar.

Island overstocked with goats, deer, pigs and cattle so much undergrowth has disappeared.

No permanent streams.

Fish are numerous.

Following food crops are growing well — cassava bananas breadfruit bele sugar-cane kumalas taro.

visited by but not seen

Tree fruits   Breadfruit   Lime   Lemon   Oranges

Custard-apple   Mango   Guava   Dawa   Liberian

Coffee   Shaddocks

H.E. then mentioned matter in Ex Co (2.3.54); Council advised no community should be permitted to establish itself on Wakaya as a separate entity with its own form of Government. As Wakaya is freehold the sale to any British purchaser could not be prohibited but H.C. should be informed that no special treatment under the Immigration Ordinance would be accorded to purchasers. Governor concurred & acted accordingly.

Governor informed H.C. that he could see no prospect of allowing entry of any appreciable number of persons

from the Pacific territories. There could be no question of permitting the establishment of another closed community administered under its own Regulations separately from the rest of the Colony.

Legislature Council had discussed Rabi settlement and Fijians, while refraining from any criticism of Govt's action in allowing settlement, made their views as to any future settlements quite clear.

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at rate of 100 acres per purchase Wakaya could take 18 families (a say 80 persons)

List of freehold islands in Lau (J. Archie Read).

Vatu Vara

Kaiba

Naitasiba

Kanacea

Nago

Munia

Katafaga

And in Lomaiviti.

Wakaya.

Ravilevu – Tavenni

Ecological survey by I T Twyford (soil scientist) and
J T Hall (Agricultural Officer, Rotuma).

On windward side of Tavenni

Sold to Crown in 1912 for £3,750 as a possible
area for resettlement and development.

Continuously wet climate with heavy rain falling every month
at Saliolevu Estate which ranks on its o-w side
rainfall averages 220 inches p.a.

altitude & location make climate relatively cool.

Ravilevu block situated on one slope of lava flow,
slope being about 15°. High rainfall plus slope
causes extreme geological erosion.

Many creeks, close together and often in deep ravines.

Distance from ridge to sea about 4 miles. Average height

of ridge about ~~4 miles~~ 3,000 feet. slope of creeks therefore steep. average distance between creeks 77 yards.

Almost sheer cliffs fall 200 - 400 feet to shore. Beaches few and narrow. Coast rugged, with steep cliffs & rocky foreshore.

Only one anchorage at the mouth of the Wainibau at n-e end of Ravileva.

Almost entire area covered with high forest (canopy height 60' - 70'). Undergrowth dense.

No flies or mosquitoes.

Moderately fertile soil - chief drawbacks being some acidity & lack of phosphate.

But fertility dependent to a large extent on organic matter present and any clearing of bush, and subsequent exposure of soils to weather, would result in a greatly increased rate of decomposition of organic matter and a corresponding drop in soil

fertility, after an initial increase.

Considerable degree of erosion, despite heavy bush canopy, attributing factors being high rainfall and steep nature of topography.

Soil erosion factor would be a definite & serious hazard if bush were to be cleared for the establishment of plantation crops. With out a heavy rainfall the tall bush does not afford sufficient protection to the exposed soil surface.

Roading difficult. In 6 miles traversed 137 creeks were crossed.

Soils fair though bouldery and would probably not constitute a limiting factor in crop plant growth.

Agricultural development would have to be limited to the growing of crops tolerant of some wetness obtaining. Too wet probably for cacao. Coconuts would grow

but yields would be low. No good for cattle. Not suitable for rice. Doubtful for tea or rubber.

Chief Clerk & Registrar   Mrs Kidd.

Clerk & Typist

Temporary Clerk & Typist

Court Orderly

2 Labourers

£2,000 salary pensionable

£300 ~~non-pensionable duty allce~~ non-pensionable salary

\+

~~£2,300~~

£200 non-pensionable allce

Pension calculation

EXTRACT FROM THE 1929 EDITION OF THE HANDBOOK OF THE COLONY OF FIJI (PUBLISHED IN SUVA BY THE GOVERNMENT PRESS).

CHAPTER X - LANDS AND LAND TENURE.

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Realising the difficulty, especially for prospective settlers not resident in Fiji, of obtaining land in the manner above outlined, the Government holds "open to settlement" some 180,000 acres of land in different parts of the Colony, which have been in many cases surveyed and classified, and which can be divided into smaller lots to suit settlers, provided that the leasing of the balance of the block is not thereby prejudiced.

.....

The following is a list of the more important areas of land held open to settlement. They are all in an "unimproved" state :-

Name	Area (acres)	Situation	Province
Island of Vanualevu			
1. Bua	4,600	On Bua River	Bua
2. Tiliva	8,060	On Bua River	Bua
3. Koroinasolo	2,180	Rukuruku Bay	Bua
4. Dalomo	6,060	On Bua River	Bua
5. Nakavakea	4,747	North-west Coast	Bua
6. Burenitu	7,400	North-west Coast	Bua
7. Dreketi	50,000	East of Dreketi River	Macuata
8. Wainunu	20,000	Wainunu	Bua
9. Korolevu	7,000	Wainunu	Bua
Island of Vitilevu			
10. Tuva East and West, Waqaliqali and Loma	44,574	Nadroga	Nadroga
11.	4,400	Nailaga District	Ba
12. Namau	7,000	Upper Ba River	Ba
13. Koro No. 2	1,247	Tavua District	Colo North
14. Waidalici	5,000	Tailevu	Tailevu
Island of Taveuni			
15. Ravilevu	10,000	Taveuni East	Cakaudrove

Blocks Nos. 1 to 6 are generally undulating to hilly, from sea-level up to 1,000 feet. Rainfall, 60 to 80 inches. They have frontage on the sea-coast or on navigable streams near the coast. Five to fifteen per cent. of their area is suited for coconuts, and they are now covered with reeds, grass and ferns, and on the higher parts with bush, so that there should be no difficulty in procuring fencing posts.

/Those lots

Those lots should form useful mixed farms, with coconuts on the better lands of ploughable slope, and cattle on the remaining parts. The rent is as follows:- Grazing lease: 21 years with option of renewal for a further 21 years, at 1d. per acre for first 5 years and 3d. per acre for next 16 years. Agricultural lease: About 77 years, 3d. per acre rising every fifth year by 3d. increments to 1s. per acre. Re-assessment in 30th and 60th years as hereinafter explained.

Block No. 7 is a tract of native-owned land open for leasing by the Government for periods up to 99 years, subject to reasonable reservations being made for three native villages. It is estimated to contain upwards of 10,000 acres of arable land of medium quality, suitable for coconuts, etc.. The flats and gently undulating arable areas are interspersed by low hills of poor quality. The block should be well suited for the establishment of a Pineapple Cannery, provided that sufficient capital be available for the construction of means of access by road or railway to navigable water on the Dreketi River, a distance of approximately three miles.

The land has no frontage to the sea coast, but it is bounded on the south-east for a long distance by the Dreketi River, beyond tidal influence and unnavigable except by light punts. There are no roads within the area at present suitable for vehicular traffic. The annual rainfall is probably about 80 inches.

Blocks Nos. 8 and 9 are in the wet zone with 120 to 150 inches of rainfall, close to the Wainunu Tea and Rubber Estate. They have frontage on the sea coast, or come within one mile of the sea with easy access to the coast. The land rises from sea-level to 500 feet, and though none of it is flat much is of ploughable slope, while the soil is good. It is perhaps the finest rubber block in the Colony, but is suitable for coconuts, cocoa, kava, or the catch crops usually planted with these.

The rent is:- Agricultural lease: To 99 years, 3d. per acre for first five years rising by 3d. increments every fifth year to 1s. per acre, then 1s. 6d. per acre for 13 years. Usual re-assessment in the 33rd and 66th years as hereinafter explained.

Block 10 is typical reed, grass and fern pastoral land as described above. There is not even enough timber for fencing posts, which would require to be imported from the forest country at a cost of about 1s. 6d. each. Fencing with live posts can be done for as little as £40 per mile, but with hardwood posts it may be as high as £80. This block has two outlets, one on the east to the Sigatoka River and one on the south to the Tuva River, and other coast outlets could be arranged, as it is at places only four miles from the sea. The rainfall is about 60 inches, and there are many perennial streams through the block. It is estimated to be able to carry in its present state one beast to seven acres, but with proper grass planted its carrying capacity could be materially increased. The rent is, for a pastoral lease, £10 per 1,000 acres for the first 10 years and 4d. per acre for the next 11 years, with renewal for a further 21 years at a re-assessed rental. The terms for an agricultural lease of 99 years are:- 3d. per acre for the first 5 years rising by 3d. increments

/every fifth

every fifth year to 1s., and then 1s. 6d. per acre for 13 years subject to re-assessment in the 33rd and 66th years.

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Blocks 12 and 13 are situated in the hills about ten miles south-east and east respectively from the Rarawai sugar mill, are of the same class as block 10, and rise from 100 to 1,000 feet above sea-level, but are not so favourably situated with regard to outlet and are therefore offered on grazing lease terms at a rental of 1d. per acre for the first 10 years and 2d. per acre for the next 11 years, with renewal for a further 21 years at a re-assessed rent.

Block 14. - This block is the remainder of a considerable area situated on the east coast of Vitilevu, 45 to 50 miles from Suva by water. The Returned Sailors and Soldiers dairy farm settlement and butter factory is located in the vicinity, and most of the available alluvial river flats have been taken up for dairying purposes. A limited amount of low-lying flat remains and a considerable area of hilly land which is chiefly covered with reeds and bush, the soil being generally of good quality. The hilly land, though only rising to about 300 feet in elevation, is generally too steep for ploughing. A considerable area of flat and hilly land, now held under leasehold tenure by private individuals, is available for settlement purposes subject to satisfactory terms being arranged by negotiation with the lessees. Much of the land is very well suited for dairying purposes. Communication with this block is by water, about 45 to 50 miles to Suva and about 30 miles to Levuka. Loaded barges of produce are taken by these routes regularly. A motor launch maintains communication between Suva and the Butter Factory once a fortnight and the weekly motor coastal launch has a calling place on the coast a few miles from the settlement. A motor road is about to be constructed to give direct communication with Rewa and Suva by land. The rent for the land held by the Government is:- For an agricultural dairying lease of 99 years, 5s. per acre for flat land, and 6d. per acre for hill land for 33 years, subject to re-assessment in the 33rd and 66th years.

Block 15. - A very fine block of land on the east coast of the rich island of Taveuni but, unfortunately, there is no sheltering shore reef and no safe anchorage. The land is all under light forest and rises from sea-level to 2,500 feet. Rainfall 140 inches or more, but soil is light and porous overlying volcanic lava and scoria. The lower slopes are suited for coconuts, while the higher slopes would make very rich fattening paddocks for cattle. The great drawback is the lack of a really good outlet, and only a planter or company with a large amount of capital could afford to make a road to the south coast, eight miles distant, or erect a small breakwater for a port for use in fair weather.

The rent of this land is as follows:- A grazing lease for 21 years with option of renewal for a further

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21 years on re-assessment, 6d. per acre for first 5 years, 9d. per acre for next 5 years, 1s. per acre for next 5 years, 2s. per acre for next 6 years. An agricultural lease for 99 years: 6d. per acre for first 5 years, 1s. per acre for next 5 years, 3s. per acre for next 10 years, 4s. per acre for next 13 years, with re-assessment in the 33rd and 66th years.

In addition to the lands held by the Government open for settlement, various owners of freehold and leasehold properties, suitable for agricultural and pastoral purposes, are prepared to consider applications by intending settlers for the purchase or lease of improved and unimproved properties held by them. The terms and conditions of purchase vary and are dependent on negotiations between the applicant and the owners of the land. Applicants desiring information respecting such lands will be placed in communication with the owners.

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EXTRACT FROM THE 1929 EDITION OF THE HANDBOOK OF THE COLONY OF FIJI (PUBLISHED IN SUVA BY THE GOVERNMENT PRESS).

CHAPTER X - LANDS AND LAND TENURE.

.....

Realising the difficulty, especially for prospective settlers not resident in Fiji, of obtaining land in the manner above outlined, the Government holds "open to settlement" some 180,000 acres of land in different parts of the Colony, which have been in many cases surveyed and classified, and which can be divided into smaller lots to suit settlers, provided that the leasing of the balance of the block is not thereby prejudiced.

.....

The following is a list of the more important areas of land held open to settlement. They are all in an "unimproved" state :-

Name	Area (acres)	Situation	Province
Island of Vanualevu			
1. Bua	4,600	On Bua River	Bua
2. Tiliva	8,060	On Bua River	Bua
3. Koroinasolo	2,180	Rukuruku Bay	Bua
4. Dalomo	6,060	On Bua River	Bua
5. Nakavakea	4,747	North-west Coast	Bua
6. Burenitu	7,400	North-west Coast	Bua
7. Dreketi	50,000	East of Dreketi River	Macuata
8. Wainunu	20,000	Wainunu	Bua
9. Korolevu	7,000	Wainunu	Bua
Island of Vitilevu			
10. Tuva East and West, Waqaliqali and Loma	44,574	Nadroga	Nadroga
11.	4,400	Nailaga District	Ba
12. Namau	7,000	Upper Ba River	Ba
13. Koro No. 2	1,247	Tavua District	Colo North
14. Waidalici	5,000	Tailevu	Tailevu
Island of Taveuni			
15. Ravilevu	10,000	Taveuni East	Cakaudrove

Blocks Nos. 1 to 6 are generally undulating to hilly, from sea-level up to 1,000 feet. Rainfall, 60 to 80 inches. They have frontage on the sea-coast or on navigable streams near the coast. Five to fifteen per cent. of their area is suited for coconuts, and they are now covered with reeds, grass and ferns, and on the higher parts with bush, so that there should be no difficulty in procuring fencing posts.

/Those lots

Those lots should form useful mixed farms, with coconuts on the better lands of ploughable slope, and cattle on the remaining parts. The rent is as follows:- Grazing lease: 21 years with option of renewal for a further 21 years, at 1d. per acre for first 5 years and 3d. per acre for next 16 years. Agricultural lease: About 77 years, 3d. per acre rising every fifth year by 3d. increments to 1s. per acre. Re-assessment in 30th and 60th years as hereinafter explained.

Block No. 7 is a tract of native-owned land open for leasing by the Government for periods up to 99 years, subject to reasonable reservations being made for three native villages. It is estimated to contain upwards of 10,000 acres of arable land of medium quality, suitable for coconuts, etc.. The flats and gently undulating arable areas are interspersed by low hills of poor quality. The block should be well suited for the establishment of a Pineapple Cannery, provided that sufficient capital be available for the construction of means of access by road or railway to navigable water on the Dreketi River, a distance of approximately three miles.

The land has no frontage to the sea coast, but it is bounded on the south-east for a long distance by the Dreketi River, beyond tidal influence and unnavigable except by light punts. There are no roads within the area at present suitable for vehicular traffic. The annual rainfall is probably about 80 inches.

Blocks Nos. 8 and 9 are in the wet zone with 120 to 150 inches of rainfall, close to the Wainunu Tea and Rubber Estate. They have frontage on the sea coast, or come within one mile of the sea with easy access to the coast. The land rises from sea-level to 500 feet, and though none of it is flat much is of ploughable slope, while the soil is good. It is perhaps the finest rubber block in the Colony, but is suitable for coconuts, cocoa, kava, or the catch crops usually planted with these.

The rent is:- Agricultural lease: To 99 years, 3d. per acre for first five years rising by 3d. increments every fifth year to 1s. per acre, then 1s. 6d. per acre for 13 years. Usual re-assessment in the 33rd and 66th years as hereinafter explained.

Block 10 is typical reed, grass and fern pastoral land as described above. There is not even enough timber for fencing posts, which would require to be imported from the forest country at a cost of about 1s. 6d. each. Fencing with live posts can be done for as little as £40 per mile, but with hardwood posts it may be as high as £80. This block has two outlets, one on the east to the Sigatoka River and one on the south to the Tuva River, and other coast outlets could be arranged, as it is at places only four miles from the sea. The rainfall is about 60 inches, and there are many perennial streams through the block. It is estimated to be able to carry in its present state one beast to seven acres, but with proper grass planted its carrying capacity could be materially increased. The rent is, for a pastoral lease, £10 per 1,000 acres for the first 10 years and 4d. per acre for the next 11 years, with renewal for a further 21 years at a re-assessed rental. The terms for an agricultural lease of 99 years are:- 3d. per acre for the first 5 years rising by 3d. increments

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AN ECOLOGICAL SURVEY OF RAVILEVU, TAVEUNI

I.T. Twyford (Soil Scientist)
J.T. Hall (Agricultural Officer, Northern).

A. TERMS OF REFERENCE:

The objects of the Survey of Ravilevu Crown Freehold, Taveuni, were to assess the agricultural potential of the area, carry out a soil survey, make observations on rock types for possible mineral deposits, and to site a road which would be made through Ravilevu and over the central ridge of the island to Soqulu, to provide access for future development of the area.

B. LOCATION AND HISTORY:

Ravilevu is situated on the windward side of Taveuni between Salialevu Estate on the south-west side and Wainibau creek on the north-east side. The north-west boundary meets a Forest Reserve which stretches from the main Taveuni ridge downwards. The south-east boundary of Ravilevu is, of course, the sea. The land was sold to the Crown in 1912 for £3750 as a possible area for resettlement and development.

It was surveyed in 1914 by Da Zilva, who prepared the only existing plan. Leases were granted at both ends of the block in the early days to T. Douglas (south-west end) and C.Ensore (north-east end). It should be noted, however, that no development whatsoever of either of these subdivisions was carried out. Still visible at the north-east end are patches covered with weeds (especially Mile-a-minute and Koster's curse), which were presumably clearings, probably old native gardens.

A brief survey of the area was carried out early this year by Waring and Marais of the Lands Department and the present survey arrangements were based on their experience.

C. CLIMATE:

Since Ravilevu lies on the windward side of Taveuni, rainfall is controlled by the influence of the south-east trades. This results in a continuously wet climate with heavy rain falling in every month of the year.

Records are kept at Salialevu to the south of Ravilevu and over 28 years the yearly average has been 219.06", with two peaks of approximately 22" a month in May and September and with a decided minimum of about 15" a month during June, July and August. This rainfall is, of course, extremely high, and since Ravilevu is so much greater in altitude than Salialevu, it is very likely that the rainfall is considerably higher than that of Salialevu. The present year is very wet. Already 350" had been recorded at Salialevu by October 15th.

Observation from the sea and from Lavena Village show clouds over Ravilevu (i.e. touching the bush), even on sunny days.

Rainfall is probably low at the south-west corner near Salialevu and increases up the slope towards the Forest Reserve and towards Wainibau.

The altitude and location of Ravilevu also mean that the climate is relatively cool.

D. GEOLOGY:

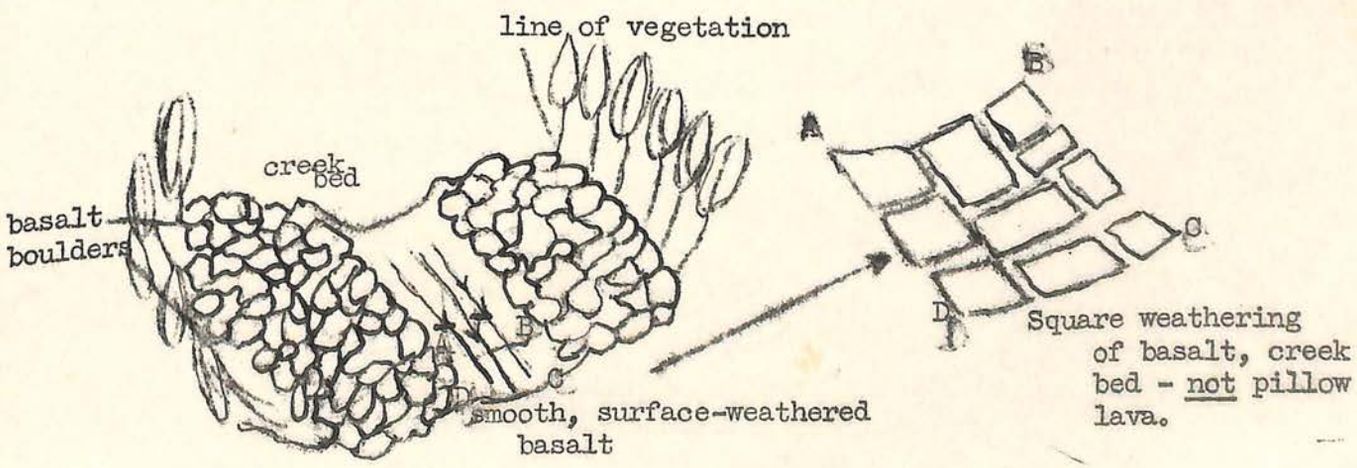
Taveuni appears to consist of a fissure eruption; the central ridge is the line of issue of lava and the slopes are fairly uniform lava flows, thus the rock types are limited and are not very different from one end to the other.

Section across Taveuni from NW to SE to show structure

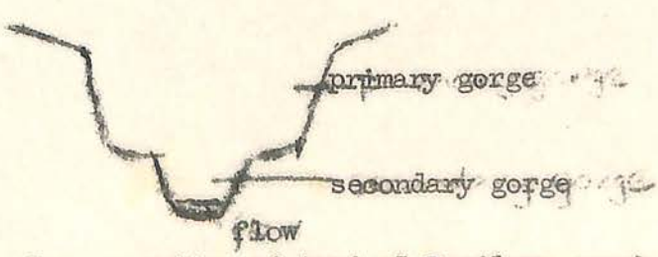
Taveuni showing line of fissure and direction of lava flow

The rocks appear to lie in basaltic series and the samples taken in Ravilevu bear this out. The latter consist of basalts of various types, basaltic agglomerates and associated basaltic scoriae. The range of chemical composition (from a soil forming point of view) is probably not very great. In addition to the above, a few areas on Ravilevu show a dull red scoriaceous rock which appears to consist of tiny felspars, with large quantities of a red, probably iron, mineral.

The basaltic weathering and river erosion showed up very well in the numerous creek beds of the block.



Cross section, creek 88



Cross section of typical Ravilevu creek in double gorge in basalt.

No minerals of any commercial importance were seen.

E. TOPOGRAPHY:

Ravilevu block is situated on one slope of the lava flow and the topography is therefore controlled by two main factors:-

(1) The slope of the lava flow, which is about 15° ; and

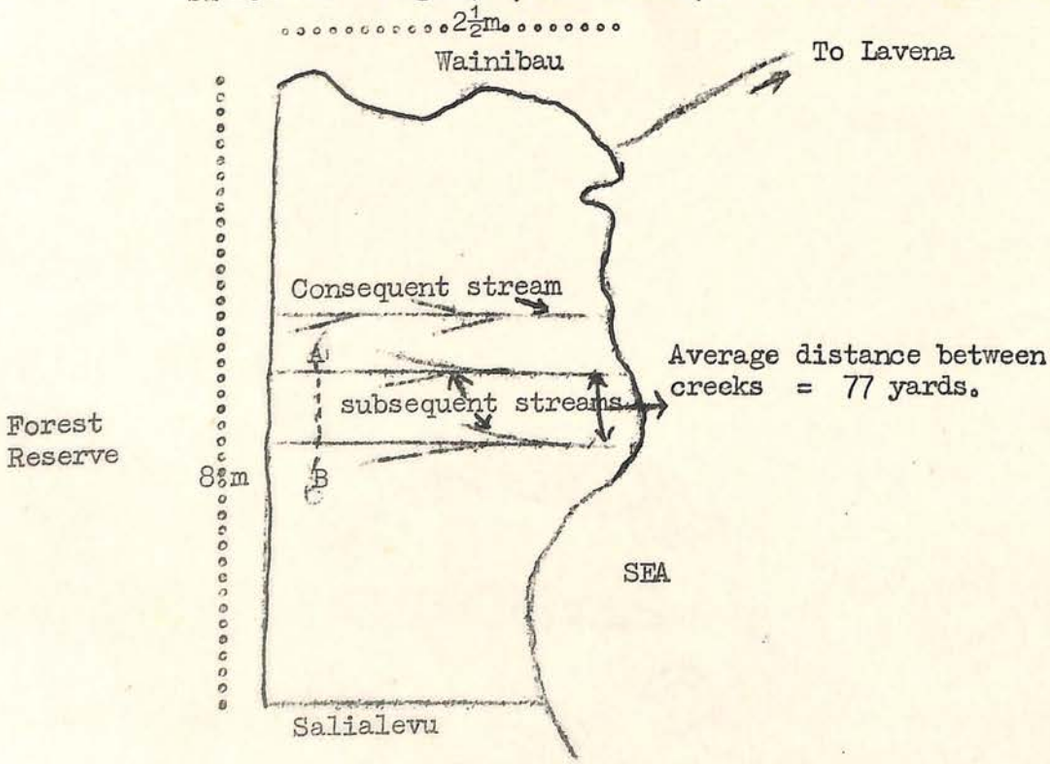
(2) Geological erosion due to the prevailing climatic conditions.

The high rainfall has caused extensive geological erosion, resulting in a series of parallel creeks at right angles to the ridge and to the coast. The intensity of the rainfall causes the creeks to be close together and very often in deep ravines.

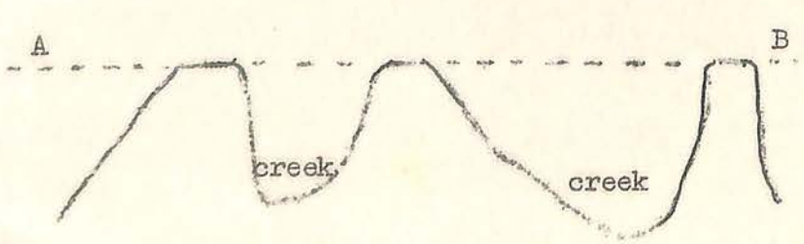
The distance from the ridge to the sea is about 4 miles and the average height of the ridge is of the order of 3000'. This means that the slope of the creeks is steep. Moreover, the lava flow is relatively young and the creeks therefore exhibit youthful characteristics such as numerous waterfalls, rocky beds, deep V-shaped gullies and no alluvium, except possibly in small valleys at the north-east end of Ravilevu.

The nature of the creeks is such that drainage of the large mass of water coming into Ravilevu is very rapid. This means that creeks rise and fall quickly and floods are frequent but of short duration.

Thus the block consists of a series of narrow, parallel ridges with very steep sides (slopes of 40° are common on sides of ridges, (see Diary), the tops of which slope at 15°

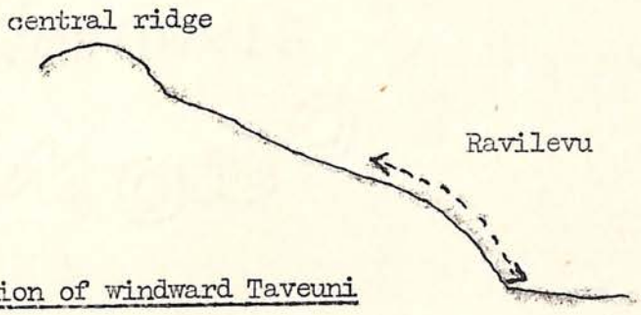


Ravilevu - showing drainage pattern



Section AB. Note differing types of gorges but constant height (and often width) of ridges, in a NE - SW section.

At the sea end of the ridges almost sheer cliffs fall for 200 to 400 feet to the shore. At the inland edge of Ravilevu, the backbone range of mountains of the island rises sharply above the slope.



Cross section of windward Taveuni

The beaches are very few and narrow. Generally the coast line is rugged, with steep cliffs and a rocky foreshore. Many creeks end in waterfalls, falling from up to 150' into the sea. With this type of coastline it is not surprising that there is only one anchorage, at the mouth of the Wainibau on the north-east end of Ravilevu.

The topographical character of the area changes slightly from south-west to north-east, creeks being closer together but in shallower gullies at the south-west end, further apart but in much deeper ravines at the north-east end. However, even at the north-east end creeks are still very close together, usually no more than 150 to 200 yards apart. At the north-east end the creek mouths are wider than at the south-west end and these wide mouths probably mean that there are small patches of alluvium.

F. FLORA AND FAUNA:

The Forestry Guard reports :-

> " Almost the entire area of Ravilevu is covered with high forest. The canopy height is roughly 60' to 70', which is less than that of the forest of Viti Levu. Timber trees are confined mainly to the ridges. Undergrowth is dense and climbers are common.....accurate timber counts were made over an area of 130 chains by one chain. These areas were selected as being representative of the entire area and gave an average result of 3000 super feet Hoppus log measure of timber species. This is a low timber density for virgin forest and considered in conjunction with the difficulty of constructing roads, and the extraction along narrow ridges or broken gullies, it indicates that the forest could not be logged economically".

The following trees were seen :- Yasiyasi, damanu, kauvula a few buabua, cibicibi, vau ceva ? (Kleinhovia hospita L. Sterculiaceae), vau dina (Hibiscus tiliaceus Juss. Malvaceae), but no dakua. In addition, various creepers and epiphytes, known by Fijian names -

Wa mere)
Wa me) Flagellaria species, Flagellariaceae
Wa damu)

and one or two orchids were seen.

Fern Basuvi. Angiopteris evecta,(Forst) Hoffmann. Marattiaceae.

Pandanus Liolio ? Freycinetia species, Pandanaceae.

Palms Niuniu, ?
Wata ?

Plantain Vava, Heliconia species, Musaceae

Grasses on Rocks Varavara, Spathoglottis species, Orchidaceae.
Nagasau, Miscanthus japonicus, Anders, Gramineae,
Axonopus species
Paspalum conjugatum on cleared patches.

Broad leaved weeds Mile-a-minute
Koster's Curse (very healthy - no thrips)
Yaqoyaqona, Piper macgillivrayi Casin. Piperaceae.

Canes, etc. Qanui = Calamus vitiensis

Timber trees grow most thickly on the very steep coastal rise. Undergrowth is light here but increases in density with height. On the upper slopes large trees are almost entirely absent.

Mushroom-like fungi are notable. Very few wild yams (tivoli) were seen, probably due to the ravages of wild pigs.

At nights the ground was often visible with many phosphorescent pieces of decomposing twig, weed or leaves, due to the presence of certain bacteria and fungi. There were also some fireflies.

Signs of wild pigs were seen but they gave the impression of being very few.

Toads abound, especially after 5 p.m.

Some birds were seen and heard, including native pigeon and sese. In the early morning a bird with a musical call of 5 or 6 notes and a grunt was often heard (Kukuru).

No traces of wild cattle were found.

There was a complete absence of flies and mosquitoes.

Prawns (Ura) and Eels (duna) abounded in large rocky pools, e.g. below waterfalls.

G. SOILS:

With the uniform conditions of climate, geology, vegetation and topography, it is not surprising that the soils over the area are uniform as well.

The main soil type, which covers the greater part of the area, denoted as Ravilevu clay, consists of about 6" of a dark brown, very dark brown, or very dark grey-brown clay, friable, with a fair structure, usually containing much humus from the forest litter and with a diffuse lower boundary. This rests on a dark brown or brown clay, very friable with a moderate blocky structure. Most profiles are stony, with large basalt boulders scattered over the surface and throughout the solum. The soil type rests on bouldery or solid in situ basalt. Ravilevu clay is often surprisingly deep, observations of 4' being common, with some profiles 6' deep.

Some variants of this are found. At some places, at the south-west end of Ravilevu, the surface looks reddish-brown. This, however, is merely caused by an overlay of about ½" of a reddish-brown clay on top of normal profile.

One or two profiles are found with traces of a B2 horizon, just above the basalt parent material. This is a reddish yellow or yellow sticky clay but only round the basalts and never more than ½" thick.

The sub-soil structure of Ravilevu clay in the lower parts of the region is only moderate but becomes stronger with increase of altitude, probably due to increased weathering.

Occasionally grits are found in the profile at 10"to 12".

The most interesting variation of Ravilevu clay is that which occurs towards the north-east end of the block. The sub-soil colour lightens to a yellow-brown and the structure becomes stronger. This would seem to indicate stronger weathering and probably leaching and a lower fertility. The top-soil is eroded on many steep places and at these spots the sub-soil colours show through, and often quite large areas of yellow are seen towards the north-east end. However, nowhere is Ravilevu clay so brightly coloured as in comparable Viti Levu basalt soil. Profile colours and boundaries are never very distinct.

In addition to Ravilevu clay there are a few very small areas of other types. A black, slightly platy soil occurs on odd flat places where the drainage is possibly slightly impeded, though gleying colours are not seen. However, in any case organic matter appears to be accumulating. A profile of this type consists of 4" of very dark grey clay, friable, with platy structure, resting on 3" of black clay, platy, friable, with a sharp but wavy lower boundary, on a very dark-grey gritty clay of poor structure, the whole resting on bright red weathered basalt. Stones are found throughout the profile.

One small area of a black soil derived from a brown basaltic gravel was seen. The profile is 7" of a very friable black clay of good structure, containing some basaltic pebbles throughout.

On the steep cliffs near the coast Ravilevu clay still predominates, though a few areas of a bright red soil are present. This consists of two or three inches of dark, reddish-brown clay, overlying two or three feet of bright red sticky clay of poor structure. This soil is derived from the bright red scoriaceous rock mentioned in the section on Geology.

Fertility Considerations:

The analyses in the appendix show the chemical characteristics of four typical Ravilevu clay profiles, one Ravilevu clay at high altitude, one Ravilevu clay covered with a thin layer of reddish brown clay, and a profile of soil from basaltic gravel.

Analytically, their characteristics are all similar.

The pH's are a good indication of the state of the Ravilevu soils. The topsoil is always much more acid than the subsoil. In general topsoil reactions are all similar (all except one (4.5) falling within the range 4.95 - 5.2) and the subsoils are similar, (falling within the range 5.1 - 5.9, and the majority of them round about 5.7). This is typical of leached soils, and indicates a need for liming in every case, in the event of agricultural development.

It seems likely that the acidity is caused to a great extent by the presence of large quantities of organic matter. The topsoil average content of organic carbon is of the order of 20% which almost puts these soils into the category of "organic soils". The subsoils are very rich also. In fact, it is highly probable that all the present characteristics of these soils are determined by the organic fraction.

Nitrogen contents are high, but relatively low for such large quantities of organic matter and the carbon-nitrogen ratios are high, indicating that organic build-up is taking place, i.e. decomposition is not keeping pace with addition. The exchangeable potassium contents are also very high, but this is typical of an organic matter controlled soil. Phosphates are low, and would need building up in any developmental work.

The picture of Ravilevu soils is one of moderate fertility, with some acidity and lack of phosphate the chief drawbacks. However, this fertility depends to a large extent on the organic matter present, and it must be realised that any clearing of bush, and subsequent exposure of the soils to the weather, would result in a greatly increased rate of decomposition of organic matter and a corresponding drop in soil fertility, after an initial increase.

H. ERODIBILITY:

There is a considerable degree of erosion, even under the heavy bush canopy of Ravilevu, contributing factors being the very high rainfall and the steep nature of the topography. Soil wash is everywhere apparent, both as muddy surface creeks and as soil columns carrying basalts. A typical soil column would be 6" high, covered with a basalt boulder 18" x 9" x 9", indicating severe erosion. The erosion factor would be a definite and serious hazard if the bush were to be cleared for the establishment of plantation crops. Soil erosion is considerably less on what appear to have been old clearings for food gardens and where there is now a very dense ground cover of Mile-a-minute and other similar creeping plants.

With such a heavy rainfall the tall bush does not afford sufficient protection to the exposed soil surface.

I. ACCESS:

There are 4 possible routes to Ravilevu:-

(1) Access from Vuna via Salialevu

A good motor road exists to Vuna and between Vuna and Salialevu there are two tracks -

(a) From Waimaqere; and

(b) From Vuna following the coast about half way, then behind a coastal hill.

They are both horse tracks. From Salialevu to Nabukabulu a path exists for a short distance and then the coast is followed, involving the crossing of numerous creeks and negotiating awkward, rocky headlands.

A road reserve is shown on the map from half way between Waimaqere and Salialevu into Ravilevu but it was not located on the present expedition.

(2) Access from Lavena

The motor road ends at Vunivasa Estate and from there to Lavena only a foot-path exists. From Lavena to Wainibau the beach is followed and is fairly easy but with three rocky headlands to go round. From Wainibau down the Ravilevu coast the going is difficult, consisting of some small sandy patches, many rocky patches, and some headlands, one of which, Vatubaria, is particularly difficult to negotiate. Moreover, some creek mouths are deep and at Wainibau it is necessary to swim.

(3) Access from the Sea.

This is nowhere easy. Copra vessels are often unable to call at Salialevu because of rough water and this would also apply to Ravilevu. At Wainibau there is a possible anchorage for small craft. Moreover the high cliffs which range along the shore line offer little chance of easy access from the beach to the block.

(4) Access over the Central Ridge

There are two possible places for this. Tracks exist from Somosomo and from Wairiki to the crater lake and also from the crater lake down the Wainibau.
A pass in the ridge is apparent in the aerial photographs of the area, showing a possible route from Ravilevu to Soqulu. This would be the shortest route but would necessitate building a road to a considerable height as the pass is probably about 2500' or even higher.

Any roading within Ravilevu would be most difficult and hence expensive, owing to the steep nature of the topography, the heavy rainfall and the large number of creeks. In the 6 miles traversed 137 creeks were crossed.

J. DIARY:

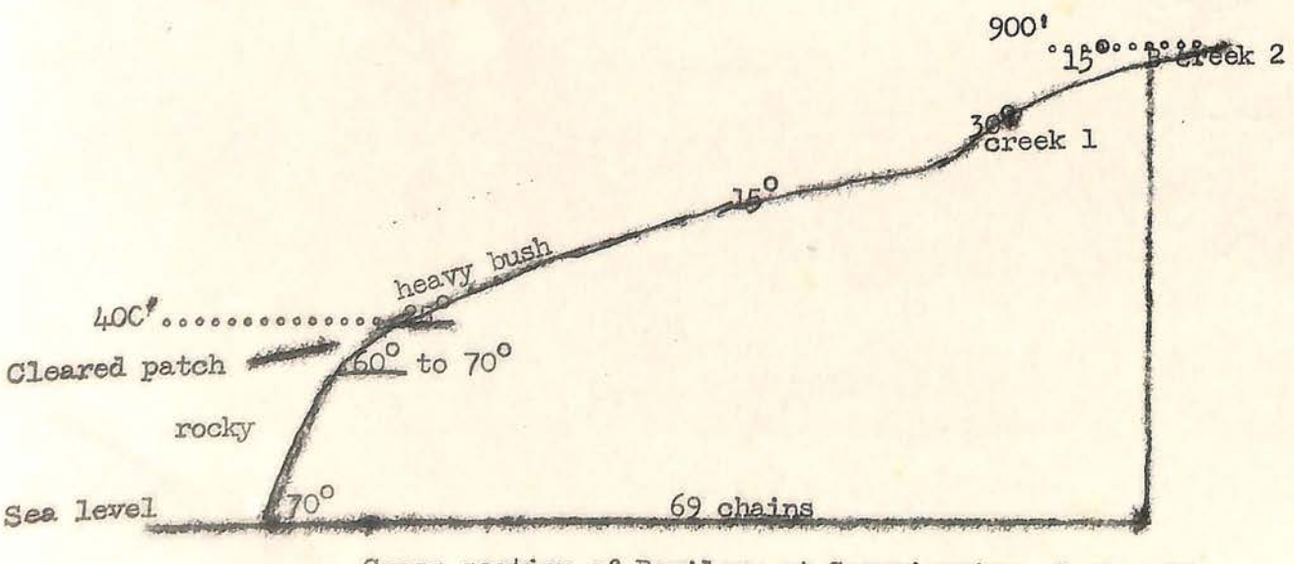
Friday, October 15th.

Suva party arrived at Salialevu from m.v. "Yanawai" at 7 a.m. Equipment and food supplies were unloaded and stored in a copra shed. This was to be our main base. Hall and two guides arrived on horses from Vuna at 11 a.m. The whole party set off along the beach at mid-day towards Savumiremire Creek, the southernmost end of Ravilevu, carrying the tents for the labour gang, the idea being to take as much equipment as possible as close as possible to the first camp site in Ravilevu. Creeks Naiau, Navolau and Lawake, passed en route, were in flood and difficult to cross. Savumiremire was a narrow, rocky creek, steeply sloping so as to be almost a waterfall. Since access to Ravilevu did not look hopeful at this point, the party walked along as far as Nabukabulu, the first creek marked on the plan inside the Ravilevu block. Nabukabulu proved to be a wide creek, very rocky, with a waterfall 70 to 80 feet high, a few yards inland. However, between Savumiremire and Nabukabulu a small creek was found where access was not quite so difficult. The party therefore climbed into Ravilevu beside this creek, up a slope of 70°, using large basalt boulders as foot-holds, to a height of 200 feet. Above this the slope was still 60° to 70° but an area was found which had previously been cleared and was overgrown with Mile-a-minute and other weeds. Above this the slope lessened to 25° . A track was then cut on a compass bearing of 350° and was followed for 600 to 700 yards, when the slope increased again to 30° but tailed off after 150 yards to 15° and this was held to the end of the traverse. The total distance covered from the coast was 69 chains. Two creeks were crossed, 150 yards apart, in steep gorges about 30 to 40 feet deep.

The altitude at the end was approximately 900'.

The kit was left at this point and the party returned to Salialevu for the night, arriving about 4.30 p.m.

Heavy rain fell from mid-day onwards.



Cross section of Ravilevu at Savumiremire, facing SW.

Saturday, 16th October.

It was our intention this day to establish the base camp inside Ravilevu, from which all subsequent work could be done. The weather was overcast but not raining. Loads of essential equipment and food supplies were prepared for the whole party and a start was made at 9.15 a.m. It was noticed how the creeks along the beach towards Savumiremire had fallen and were quite easy to cross. This suggested that the area was steep and very quickly drained. The party ascended to point "B" on the map and then turned there at a right angle and followed a bearing of 45° for 118.4 chains, arriving at "C" at 3.30 p.m. It was decided to make camp at this point as being well into Ravilevu but not too far from point "B" since the previous day's loads had yet to be picked up and brought to "C".

Accordingly Hall and two Fijians remained to clear a camp site and to prepare a shelter. Twyford and the rest of the party went back to "B" to collect the deposited equipment and returned to "C", making observations on soils, topography, creeks, etc. on the way. "C" was reached at 5.15 p.m.

Seventeen creeks were crossed in this leg, usually in gorges of up to 70' deep and the greatest distance between any two was about 200 yards. The general slope of the land was between 15° and 30° . The whole area was a uniform soil and covered with rocks, only very few patches of clear surface soil being seen. The bush consisted of tall, but thin trees with light undergrowth.

Sunday, October 17th.

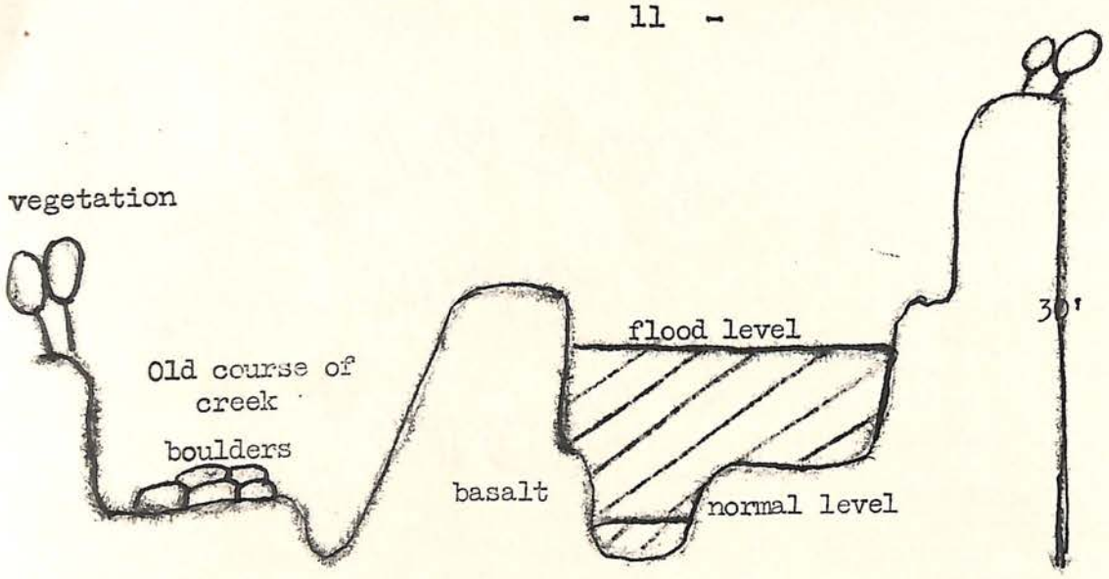
Heavy rain fell during the night and continued at intervals throughout the day.

Hall, Twyford, Forest Guard, Soil Survey Assistant and one Fijian, continued surveying. The other Fijians returned to Salialevu for more supplies. They returned to camp at 6 p.m., after having had considerable difficulty in negotiating creeks which rose so rapidly that on one occasion two men were caught in mid-stream by a flood and were swept off their feet.

The survey party set out at 9.15 a.m. and continued on the same line for about half a mile to point "D", arriving at 12.15 p.m. before commencing the first upward traverse obliquely towards the Forest Reserve on a compass bearing of 285° to point "E", arriving at 3.30 p.m.

Observations were made as follows :-

From "C" descended a slope of 10° for 50 yards to creek No. 18, which was slight, shallow but rocky. After this 8 further creeks were crossed to reach "D", varying from 3' to 10' wide in gullies from 15' to 40'. Creek No. 25 was the largest and being in flood offered some difficulty in crossing. The greatest distance between creeks was again about 200 yards.



Cross section of creek 25 in uniform basalt showing normal and flood levels, alternative course (sometimes used), and primary and secondary gorges.

The general slope was 10° to 20° , with medium undergrowth and thick top cover.

From "D" descended 10 yards to Creek No. 1, then ascended a general slope of 10° to 15° for 50 yards to Creek No. 2, then 40 yards to Creek No. 3. The slope then decreased to 5° to 10° for 500 yards to Creek No. 4, then 400 yards to Creek No. 5. Creeks 5, 6 and 7 were very close, all within the next one hundred yards. 200 yards were then covered to Creek No. 8. A steep slope was then ascended from Creek 8 for 50 yards to the end of the traverse "E".

It was noted that undergrowth increased from "D" to "E" and at "E" was very thick; many more lichens and mosses were noticed at the greater altitude. Some of the plants which were seen were liolio, niuniu, vava, basuvi and yaqoyaqona. Many of the larger trees were covered with creepers and epiphytes such as Wa mere.

The traverse generally followed the drainage pattern. Most of the creeks were met at a glancing angle. This means that the large distances between creeks were oblique distances and the normal would have been much less. The creeks were all slight and not so rocky or torrential as from "B" to "D". It seemed possible that the party may have been above the level of steep gorges towards the end of the 285° traverse.

At "E" the altitude was probably of the order of 1300'.

The party turned back at 3.30 p.m. and arrived at camp "C" at 4.45 p.m. It was found that, in general, it took three times as long to cut a track between two given points along a fixed bearing (the members taking observations could easily keep up with the track cutters) as to return along the same track. Visibility from the track was always limited, due to the diversified topography and the thick bush, so that the compass was constantly necessary. Although the party was at such an altitude and only half to three-quarters of a mile inland, very few glimpses of the sea were possible. In this case our exact position was never fixed.
An endeavour was made to return to camp every night by 5 p.m. to enable cooking to be carried out in daylight.

Monday. October 18th.

Heavy showers fell during the night. During the day the weather was wet from 9.30 a.m. to 12.30 p.m. and overcast in the afternoon. The carriers went to Salialevu for more stores.

They found the track too wet and so went down a creek bed to the sea and along the coast, returning at 5 p.m.

The survey party left camp to carry out the second traverse from "D" on a compass bearing of 345° towards the Forest Reserve. From "D" descended 20 yards at 15° to Creek 1, which was 6' wide and shallow, with a 20' gully. Followed Creek 1 for 40 yards, then up on to a narrow ridge. Along the ridge top, up a slope of 20° to 25° for 220 yards, when the slope lessened to nothing to 3 degrees. Then 50 yards more were covered to Creek 2, which was small, rocky and shallow. 30 yards to Creek 3, a shallow depression with some rocks, 60 yards at a slope of 10° to 15° , then the slope decreased to 0° to 5° for 80 yards to Creek 4, a narrow, shallow depression. The slope increased to 10° to 15° for 50 yards, then 20° to 25° for 40 yards to Creek 5, which was 6' wide, rocky, in a 15' gully. Slope increased to 30° to 40° for 150 yards along a sharp ridge to a small depression, then a further sharp ridge crossed obliquely to Creek 6, which was narrow, rocky and not sharply defined. Slope decreased between 25° to 30° , another ridge crossed for 40 yards to Creek 7, which was shallow and rocky. Slope eased to 0° to 3° for 10 yards to Creek 8, then 100 yards of easy going to Creek 9, rocky and shallow. The ground rose steeply from Creek 9 at 45° for 10 yards to Creek 10, which was surface wash but rocky. One hundred yards were then covered to Creek 11 in a 60' gorge, 40' wide, with a channel of 20', a rough, bouldery bed. Thirty yards from Creek 11 to Creek 12, which was a surface drain, thence on to a narrow ridge, sides 45° to 50° for 150 yards, down to Creek 13, rocky, 12' wide, 10' deep. Then 25 yards over a small ridge and in to Creek 14, 30' wide and 10' channel depth, rough and bouldery. This creek was followed for 50 to 60 yards, then 75 yards on a slope of 25° to 30° , after which the ground flattened to 5° and 200 yards were covered before going down to Creek 15, 4' wide, at the bottom of a steep gully about 40' deep. Then a razor back ridge for 150 yards, down a steep bank, 70' to 80' at 60° to Creek 16, 6' wide. After ascending the other side of the gully covered 30 yards at a slope of 3° to 5° to the end of the traverse "F".

This traverse was much rougher than D.E. At the upper end near "F" the undergrowth was very thick, making track cutting very slow, with mosses and lichens. The following striking plants were seen:- Wata, Qanui, Vau ceva.

Leaf litter was quite thick near "F" for Fiji conditions. Two factors probably influenced this - the increase of leafy undergrowth and the slower rate of decomposition at the high altitude (about 1500')

Part of the time the party was in moderate cloud.

The ground on this traverse was mostly very rocky with only a few cleared patches.

Tuesday, October 19th.

Heavy rain fell during the night and through most of the day. The porters stayed in camp, cleaning up, cutting a track to the creek from which water was obtained, rebuilding the shelter to keep out the rain and laying poles on the ground to facilitate walking round the camp. The survey party left in heavy rain for the traverse to the coast, D.G. From "D" took a bearing of 105° by compass. 10 yards to Creek 1, 45° slope on gully sides, 40' deep though narrow, but with much water. Down slope 20° for 160 yards, then 30° for 50 yards to Creek 2, 3' wide, shallow and rocky. Followed creek down for 75 yards and down slope 20° increasing to 30° for 20

yards, then down creek bank 30' at 45° to Creek 3, 6' wide, 1' deep. Up slope 20° for 20' (creek bank) then down 30° slope for 200 yards to Creek 4, 2' wide and very shallow. Up 10' at 10° (Creek bank), then down 5° for 25 yards to Creek 5, 2' wide, very shallow (soil wash but rocky). Down 350 yards at slope increasing from 0° to 45° to Creek 6, 15' wide, 3' deep, torrential and rocky. Down the creek 150 yards at slope 35° to 50° , then down creek for 25 yards at 5° . 650 yards down slope of 75° , then down a 300 foot cliff at about 80° (almost sheer). The coast was rocky and there was no beach.

It was found that "G" was about 150 yards south-west of Qaraniqio Point. One hundred yards south-west of "G" was a 300' waterfall from Creek 6 of this traverse. Ropes were necessary to negotiate the last 30' on to the beach.

A few coconut palms were noticed on the shore growing out of rocks or rocky pockets of soil.

The party then returned to Camp "C".

Wednesday, October 20th.

Heavy rain fell all night and all day except for two hours in the morning.

The porters returned to Salialevu down the creek as previously for more supplies and taking out soil and rock samples.

The survey party took kit, food and hammocks and set off in a 45° direction to establish a second camp "J", from which subsequent surveying could be carried out. It was intended to cover 4 miles from "D" to "J". In fact, however, due to the increasing ruggedness of the topography and the heavy loads, only 134 chains were covered and 800 yards of this was at right angles to our intended line made necessary to avoid a large creek in a 200' sheer-sided gully with a 150' waterfall at its head. Moreover, with the loads it was not possible to take any detailed observations and thus a section of the party had to re-traverse "D" - "J" later.

Thirty-seven creeks were crossed and camp made at "J" on a narrow, steep-sided ridge.

It would have been far more convenient to have had the porters with the survey party this day and hereafter but this was not practicable since (a) it was necessary for them to return to Salialevu for supplies, and from Camp "C" to Salialevu to Camp "J" was more than a day's journey and (b) it was found that the whole party could not carry all necessary equipment and supplies for one day and one night in one load.

Camp was made at 5 p.m.

Thursday, October 21st.

Rain fell during the night; it was moderately fine but overcast.

Since the survey party had made only 1¾ miles the previous day, it was decided to continue the 45 traverse as far as possible and return to camp "J" in the evening. The porters followed the previous day's track of the survey party, bringing up more food and returning to "C". The party descended slope of 40° for 10 yards to Creek 64, 6' wide, 1' deep and rocky. Then 66 yards over 320° ridges and gullies, then across a 30° slope, ascending at 10° to Creek 65, which was shallow, rocky and 8' wide. Distance Creeks 64 - 65,

140 yards. Up slope 20° for 10 yards, then down slope 20° for 30 yards to Creek 66, 4' wide, very shallow. Distance Creeks 65 - 66, 80 yards. 44 yards up slope of 15° , then 22 yards level, then 20 yards down slope 30° to Creek 67, 3' wide, very shallow and rocky. Distance Creeks 66 - 67, 85 yards. Ascended a slope 15° for 10 yards, then 22 yards at slope 5° to Creek 68, steep banks, 8' wide, 18" deep, rocky with much water. Distance Creeks 67 - 68, 32 yards. Down steep bank to Creek 69, 2' wide, very shallow, steep and rocky. Distance Creeks 68 - 69, 15 yards. Ascended slope of 15° for 40 yards to Creek 70, 1' wide, very shallow. Over a small ridge 37 yards to Creek 71, 30' wide in two branches of average depth 1', many boulders. Up 80° bank for 10', then down a 5° slope and another 10' 80° bank to Creek 72, 3' wide, very shallow. Distance Creeks 71 - 72, 40 yards. Down slope 5° for 40 yards to Creek 73, 3' wide, very shallow, quiet. Over a 5° ridge for 31 yards to Creek 74, 2' wide, very shallow, quiet. The country was not so rocky here with only a slight slope on the upper side of the traverse; steep, however, on the lower side. Descended slope 5° for 40 yards to Creek 75, 9' wide, 3" deep but sloping at 20° , quiet. Covered 150 yards of moderately flat country, then descended slope of 25° to the bank of Creek 76, which was 40' deep, with 60° banks. The creek was 40 yards across, with a 40' waterfall just above the traverse line. Distance Creeks 75 - 76, 220 yards. Went up stream for 70 yards to get round waterall, then down 66 yards on far bank of Creek 76 to a point opposite original track. Descended slope 25° for 88 yards, then the track cutter broke the cane knife. This brought an abrupt close to the day's operations and the party had to return to camp "J". The Fijian track cutter returned to camp "C" for two other knives, sleeping at "C" and returned to join the party at "J" early Friday morning. Survey party took the opportunity to write notes and improve the camp site.

Friday, October 22nd.

Heavy rain fell during the night. During the day weather fine but overcast until 3.30 p.m. when rain fell continuously until 6.30. Since the progress had been much slower than expected, it was decided to go straight through to Wainibau on a 49 bearing without attempting any side traverses (food supplies were limited).

The survey party left camp at 8.30, following the return of the track cutter, with the intention of pushing on further from the point "K", reached on Thursday, returning in the evening to camp "J". From "K" descended 22 yards at 25° to Creek 77, 2' wide, very shallow, quiet but rocky. Then 22 yards up a slope of 15° and down a slope 15° for 11 yards to Creek 78, 4' wide, 6" deep, rocky but quiet, banks 5'. Then up slope 10° for 44 yards, down slope 15° for 7 yards to Creek 79, 2' wide, very shallow. Level going for 10 yards, then down slope 20° for 44 yards to Creek 80, 2' wide, very shallow, quiet and rocky. Level for 11 yards to Creek 81, surface creek, rocky. Up a 5' bank at 10° , then down a slope of 5° for 75 yards, up a 68' bank at 25° and down into Creek 82, 20' wide, 1' deep, rocky but not containing much water for so large a creek. Distance Creeks 81 - 82, 118 yards. Up 20' bank at 25° , then down slope of 20° - 25° , then down a slope 60° to Creek 83, 8' wide, 18" deep, rocky and torrential. Distance Creeks 82 - 83, 93 yards. Ascended a 20' bank at 60° to a ridge, then down a slope of 20° to Creek 84, 2' wide, very shallow, rocky. Distance Creeks 83 - 84, 30 yards. Up 5' bank at 60° , then down a 35 slope to Creek 85, 18" wide, very shallow and rocky. Distance Creeks 84 - 85, 20 yards. Level going for 5 yards

to Creek 86, very rocky, slight. The country here was generally very rocky. Ascended 10 yards at 5° to Creek 87, 10' wide, 2' deep, very rocky and sloping at 30° . Up a general slope of 2° for 140 yards, down a steep 20' bank to Creek 88, 30 yards wide, 3' deep, bouldery. 40' waterfall just above traverse, below which was a rocky pool 8' deep. Up a 20' bank at 80° , then down a slope of 10° for 66 yards, then down a 60' bank at 80° to Creek 89, 4' wide, very shallow but bouldery. Distance Creeks 88 - 89, 108 yards. Down 20 yards at 20° to Creek 90, just below confluence of two creeks, 20' wide, 18" deep, torrential and bouldery. Up 15' bank at 80° , then up slope 15° for 45 yards, then down slope 20° to sheer bank 10' high into Creek 91, 6' wide, shallow, rocky, with many pot-holes. Distance Creeks 90 - 91, 54 yards. Up 10' bank, then down slope 5° , for 20 yards to the dry bed of Creek 92, 2' wide. Up 10' bank at 20° , then down 20° bank to Creek 93, 5' wide, dry. Distance Creeks 92 - 93, 22 yards. Up slope 10° , then down slope 20° to Creek 94, 2' wide, very shallow, rocky. Distance Creeks 93 - 94, 64 yards. General slope of land in this area 40° to 50° , with many surface rocks. Followed Creek 94 for 9 yards down a slope of 30° to Creek 95, 6' wide, 2' deep, rocky. Up 15' bank at 60° , then down a slope of 40° - 45° for 51 yards to Creek 96, 3' wide but dry. Up an 8' bank, then level for 17 yards to Creek 97, 4' wide, rocky and dry, sloping at 10° . Up an 8' bank at 5° , then down 59 yards at 10° to Creek 98, 3' wide and dry. Then 5 yards level to Creek 99, 2' wide, dry, with only a few rocks. Up a 10' bank at 80° , then level and down a 10° slope to Creek 100, 2' wide, rocky and with little water. Distance Creeks 99 - 100, 91 yards. Level for 66 yards to Creek 101, 2' wide, dry and only a slight slope. Ascended 45 yards at 5° , then down a 15° slope to Creek 102, 4' wide, rocky and dry. Distance Creeks 101 - 102, 114 yards. Up 10' bank at 10° , then down 25° slope to Creek 103, 5' wide, shallow, in 12' depth of channel. Distance Creeks 102 - 103, 22 yards, From the other bank down a slope of 5° , to a 30' sheer bank to Creek 104, 8' wide, rocky and torrential. Distance Creeks 103 - 104, 20 yards. Up 50' bank at 80° , then down a slope of 5° for 22 yards, increasing to 20° for 22 yards, then level for 22 yards to Creek 105, down a 10' bank, 4' wide, dry and steep. Distance Creeks 104 - 105, 82 yards. Ascended 10' bank at 20° , then along flat for 10 yards, then down a 5° slope to Creek 106, 3' wide, dry. Distance Creeks 105 - 106, 49 yards. Up 10' bank at 5° , then along flat and down a 10' bank at 10° to Creek 107, 8' wide, 8" deep, rocky and torrential. Distance Creeks 106 - 107, 45 yards. In this area the general slope of the country towards the ridge was 10° . Up slope of 5° for 20 yards, along the flat, then down slope of 25° for 25 yards, to Creek 108, 20' wide, shallow, rocky. Distance Creeks 107 - 108, 120 yards. Up a 10° bank for 10 yards, then down a 20° slope for 5 yards, up a 5° slope for 5 yards to Creek 109, which lay in a deep gully, sloping at 60° , and about 200' deep. Distance Creeks 108 - 109, 141 yards. Climbed down gully to Creek 109, rocky, sloping at 10° , 40 yards wide and 18" deep. Climbed out of creek 200' at 45° - 60° , moving forward 66 yards. Then level going for 286 yards, through country whose general slope was 10° - 12° , to top of the gully to Creek 110; a 70' high waterfall was on the line of traverse and gully sides here were almost sheer and 80' to 90' deep. It was therefore necessary to strike up-stream 66 yards to find a crossing. Creek 110 was 10 yards wide, 18" deep, bouldery. Out of creek and along the level ground for 60 yards, then down a slope of 5° for 40 yards, through a U-shaped gully, whose sides sloped at 20° to the top of the gully of Creek 111, 12' wide, 2' deep, torrential and bouldery. Distance Creeks 110 - 111, 154 yards. Ascended 25' bank at 20° , then 22 yards on the level to the top of the gully of Creek 112. Some equipment was left here and the party returned to Camp "J", arriving at 5.30.

Saturday October 23rd.

Some showers during Friday night, heavy rain throughout the day.

It was intended this day to split into two parties. Twyford, Dolo, the Soil Survey Assistant and Michael the Forest Guard, were to return to Camp "C" to instruct the carriers there to bring food on the following day to the furthest point reached by that time on the 45° traverse, returning then to Camp "C" to commence taking out their own equipment to Salialevu, thence to Waiyevo. Twyford and his party on the way back, along the 45° traverse track, were to survey from "D" to "J", which had previously been missed, and attempt to catch up with Hall and the track cutter, that night if possible, or Sunday. Meanwhile Hall and the track cutter were to push on along the traverse. It was decided that instead of returning along each day's outward journey to a fixed camp in the evening, to carry food and equipment, camping each night at the furthest point reached during the day.

Hall and the track cutter, carrying food and camping equipment for two days, left camp soon after Twyford and party, and took 3 hours to reach the furthest point of Friday's track, at the top of a very steep and deep gully. Considerable time was lost past this point in seeking means of descending and ascending the sides of very steep gullies encountered this day and through having to cut tracks through a few heavy thickets of Koster's Curse, which was met for the first time this day. The country traversed was a series of sharp, steep ridges, gullies and torrential streams at approximately 90° to the line of traverse. Camp was made only 40 chains further on from the previous day's mark, on a narrow ridge and in very heavy rain at 4.30 p.m. The carrying party arrived with more food at 4.45 p.m. and set off back again to Camp "C". It was later learned that they were caught by nightfall before reaching camp and had to spend a very wet night in the open. The disadvantage of having a fixed base camp, using one large tent for all the carriers, was quite apparent. It would have been much more convenient if the whole party had been equipped with hammocks or pup tents so that carriers could always have been with the survey party. That this was not so resulted in the survey party having to carry heavy loads.

Twyford and party returned to Camp "C" and instructed the porters to carry food for 5 men for 4 days (about all the stores there were left) on to Hall.

On returning a note was taken of topography and creeks from "D" to "J".

Down slope 20° for 10 yards to Creek 27, 16' wide and 1' deep, rocky and torrential, up a steep 80° bank for 10' and 20 yards up a slope of 10° , then level for 80 yards, down a 20° bank to Creek 28, 4' wide, 2" deep, rocky but quiet. Distance Creeks 27 - 28, 116 yards. Up a slope of 10° , down a 10° slope to Creek 29, 8' wide, 1' deep, with a 10' waterfall just above in a 20' gorge, rushing and rocky. Distance Creeks 28 - 29, 51 yards. Along the level (across a 40° slope which was general for land in this area) to Creek 30, 2' wide and 1" deep, quiet, with few rocks. Distance Creeks 29 - 30, 88 yards. Down a 5° slope (across a 40 ridge) to Creek 31, in a gully 20' deep. Distance Creeks 30 - 31, 44 yards. Up and then down a 5° slope to Creek 32, 18" wide and 2" deep, rocky but quiet. Distance Creeks 31 - 32, 62 yards. Up a 40° slope and down an 80° bank to Creek 33, 10 yards wide, very shallow, rocky and torrential. Distance Creeks 32 - 33, 25 yards. Up an 80° bank for 20' and down

a 20° slope to Creek 34, 2' wide and 2" deep, rocky but quiet. Distance Creeks 33 - 34, 100 yards. Down slope 5° to Creek 35, 2' wide and 1" deep, soil wash and hence slight. Distance Creeks 34 - 35, 22 yards. Along 39 yards to Creek 36, 3' wide, 2" deep, torrential, then 6 yards to Creek 37, which was much like Creek 36. Up a bank 30' at 45°, then along to Creek 38, 4' wide, rocky and dry. Distance Creeks 37 - 38, 50 yards. Up slope 5° and down 5° to Creek 39, 1' wide, 1" deep, rocky, soil wash. Distance Creeks 38 - 39, 36 yards. Up slope 10°, then down 15' at 80° to Creek 40, 20' wide, 6" deep, rushing and rocky. Distance Creeks 39 - 40, 32 yards. Up an 80° bank 20' high, down slope 20° to Creek 41, 3' wide, 3" deep. Distance Creeks 40 - 41, 85 yards. General slope of land in this area was 30°. Up a slope 10°, down a slope 40° to Creek 42, 4' wide and 3" deep, quiet and rocky. Distance Creeks 41 - 42, 60 yards. Up bank 50' at 30°, then down 30° slope, then level, then down 50' at 50° to Creek 43, 15 yards wide, 6" deep, rocky and torrential. Up a slope 30° for 50', then up a slope of 15° for 50 yards to the top of a 70' waterfall on Creek 44. Distance Creeks 43 - 44, 130 yards. Up-stream 800 yards to find a place to cross Creek 44, at an average slope of 25°. Creek 44 was 30 - 40 yards wide, rocky, torrential with many kettle-holes, and a striated erosion pattern. Up a 10' bank and down a 15° slope to Creek 45, 3' wide and 4" deep, rocky but quiet. Distance Creeks 44 - 45, 20 yards. Up slope 20° for 20 yards, then down slope 10° to Creek 46, 2' wide and 3" deep, rocky but slight. Distance Creeks 45 - 46, 68 yards. Up slope 45° for 30 yards, then level, then down a 10' bank to Creek 47, 8' wide, 6" deep, rushing and rocky, in a carved basalt gully. Distance Creeks 46 - 47, 53 yards. Up a 4' bank, down a slope of 30° to Creek 48, 4' wide, 3" deep, rocky, quiet but with a 12' waterfall. Distance Creeks 47 - 48, 40 yards. Up a 10' bank, along for 5 yards, down a 5° slope to Creek 49, 3' wide, 3" deep, rocky but quiet. Distance Creeks 48 - 49, 23 yards. General slope of land here 30°. Along 20 yards, down slope 5° to Creek 50, 2' wide, 1" deep, rocky and steep. Distance Creeks 49 - 50, 44 yards. Down a slope 10° to Creek 51, 2' wide, 1" deep, rocky but quiet. Distance Creeks 50 - 51, 41 yards. Up a slope of 5°, down a slope of 5° to Creek 52, 3' wide, 3" deep, rocky but quiet. Distance Creeks 51 - 52, 37 yards. Descended slope 30°, up slope 20°, down slope 20°, to Creek 53, 2' wide, 3" deep, rocky but quiet. Distance Creeks 53 - 54, 39 yards. Up a 3' bank, down a slope 20° to Creek 55, 6' wide, 6" deep, rocky but quiet, at the confluence of two other rivers. Distance Creeks 54 - 55, 42 yards. Up a slope of 5°, down a slope of 20° to Creek 56, 4' wide, 3" deep, rocky and quiet. Distance Creeks 55 - 56, 20 yards. Down a 5° slope, up 15° slope, down 10 slope to Creek 57, 2' wide and 3" deep, rocky and quiet. Distance Creeks 56 - 57, 60 yards. Up a slope 10°, down a slope 15° to Creek 58, 20' wide, 2' deep, rocky and torrential, sides water-worn to form a large cave. Distance Creeks 57 - 58, 30 yards. Up a 10' bank along and down 10' to Creek 59, 15' wide, 3' deep, rocky but quiet. Distance Creeks 58 - 59, 22 yards. Up 10' along and down 5' to Creek 60, 4' wide, 1' deep, rocky, quiet. Distance Creeks 59 - 60, 54 yards. Up a bank 45° for 12' along the flat and down 4' to Creek 61, 10' wide, 1' deep, rocky but quiet. Distance Creeks 60 - 61, 45 yards. Up a 3' bank along and then down 5° to Creek 62, 10' wide, 6" deep, rocky, quiet. Distance Creeks 61 - 62, 58 yards. Up a bank 5', along the level, and down a bank 30' to Creek 63, 10' wide, 3" deep, rocky and torrential. Distance Creeks 62 - 63, 20 yards.

This brought the party to Camp "J". Kit was collected and the line of the previous day's traverse followed until nightfall. By that time Hall's party was still ahead and so a temporary camp was made for the night at the end of Friday's traverse.

Sunday, October 23rd.

Heavy showers during Saturday night. Rained heavily in the morning, then overcast in the afternoon with some patches of sunshine. Hall and track cutter left their camp at 7.15 a.m. to continue traverse, carrying as much of the food left the previous day by the porters, as possible. Passed through country similar to that of previous day, until areas which had previously been cleared, were met. These were overgrown with Mile-a-minute and other creepers, with some heavy thickets of Koster's Curse. Cutting tracks through these old clearings was very slow. About 2 p.m. two very deep U-shaped gullies were met, the sides of which had previously been cleared. There were only a few trees, some ferns and heavy growth of Mile-a-minute and other creepers. At the top of the second gully, the Soil Survey Assistant, who had lost Twyford and the Forest Guard while looking for the cut track through a steep gully, caught up. Dolo was told to return along the track to find Twyford and Michael while Hall and cutter crossed the gully and established camp on the opposite ridge. Before reaching the creek at the bottom, however, Twyford, Michael and the Soil Survey Assistant, appeared again at the gully rim. They were not carrying packs which had become too heavy.

The survey party started at 6.15 a.m. and traversed the fresh ground made the previous day by Hall.

Down 44 yards at 60° to Creek 113, 10' wide, 3' deep, rocky and torrential, up around a 40' waterfall, then 30' up a 80° bank, then down a 5° slope for 11 yards to Creek 114, 3' wide, rocky but dry, steep. Distance Creeks 113 - 114, 15 yards. Up slope 5° and down 15° to Creek 115, 9' wide, 1' deep, rocky but quiet. Distance Creeks 114 - 115, 66 yards. Up slope 40° along the flat, then down slope 5° , increasing to 40° to Creek 116, 4' wide, 3" deep, rocky but quiet. Distance Creeks 115 - 116, 176 yards. Down slope 15° to Creek 117, 12' wide, 3" deep, rocky and quiet. Distance Creeks 116 - 117, 44 yards. Up a slope of 60° , down 45° to Creek 118, 3' wide, dry, with some rocks. Distance Creeks 117 - 118, 112 yards. Up slope 15° (average slope of land here 60°), increasing to 45° , along the top of a 50' waterfall on Creek 119, turning upstream to avoid it. Distance Creeks 118 - 119, 40 yards. Down a slope of 60° to Creek 120, 20 yards across and 18" deep, rocky and torrential. Distance Creeks 119 - 120, 140 yards. Up an 80° bank for 80', across a small ridge and then up and down a ridge sloping at 10° to Creek 121, 2' wide and 1" deep. Few rocks and quiet. Distance Creeks 120 - 121, 73 yards. Up slope 15° along level, then down slope 40° to Creek 122, 9' wide, 3" deep, rocky but quiet. Distance Creeks 121 - 122, 88 yards. Up slope 40° , along level, then down slope 70° to Creek 123, 10 yards wide and 18" deep, rocky, torrential. Distance Creeks 122 - 123, 147 yards. Up a 40' bank, along the level and down a 2' bank to Creek 124, 10 yards wide and 6" deep, rocky but quiet. Distance Creeks 123 - 124, 66 yards. Descended slope 40° then up a slope of 40° , down 10° through a small swamp to Creek 125, 10' wide, 3" deep, rocky, quiet. Distance Creeks 124 - 125, 176 yards. Descended 220 yards on a 40° slope to Creek 126, 2' wide, 3" deep, in a rocky gorge. Descended a 60° slope for 20 yards to Creek 127, 5' wide and 3" deep, still. Flat to Creek 128, 20 yards wide, 18" deep, rushing and rocky. Distance Creeks 127 - 128

22 yards. Up a 60' bank at 60°, meeting Creek 129 running into Creek 128 at 70°. Creek 129 was 6' wide, 2' deep, torrential and rocky. Distance Creeks 128 - 129, 22 yards. Along the top of the ridge above Creek 128, then down a 60° bank to Creek 130, 10' wide, 1' deep, torrential and rocky. Distance Creeks 129 - 130, 61 yards. Up a 45° bank, then ascended at 25° to top of slope, then down at 5°, increasing to 10° to Creek 131, 4' wide, 3" deep, rocky and quiet. Distance Creeks 130 - 131, 176 yards. Up at 25°, then down at 10° to Creek 132, 3' wide, 2" deep (soil wash). Distance Creeks 131 - 132, 71 yards. Up at 20° and then at 2 - 3 , increasing to 50° , to Creek 133, 6' wide, 3" deep, rocky but quiet. Distance Creeks 132 - 133, 255 yards. Up slope 40° and then down 150' at 60° to Creek 134, 12' wide, 2' deep, torrential and rocky, with a 60' waterfall just above line of traverse. Distance Creeks 133 - 134, 161 yards. Distance across top of gorge of Creek 134, 100 yards.

At this point the Soil Survey Assistant was found to be missing. Twyford and Forest Guard therefore went back to search for him and while doing so, found another track. Thinking Dolo might have followed this one, the new track was followed until suddenly Dolo appeared, having caught up Hall and returned. The whole survey party once more joined up after crossing three more creeks. The remains of Hall's camp for the previous night were found just above Creek 117 so Twyford's party loaded itself with as much food as possible from this camp (brought up the previous day by the carriers) and pushed on to Creek 125 when it was decided to abandon the whole kit and carry on unloaded. The reason for this was that the party found going very difficult with such heavy loads involving numerous falls, which caused cuts and abrasions.

When the whole party joined up at about 4.30 p.m. it was decided not to go on any further but to make for the coast and Lavena Village if possible by that night. The reasons for this were -

(1) that the country was getting more and more diversified, making the going much slower;

(2) three of the party by this time had severe colds; and

(3) numerous cuts, abrasions and sores made walking rather painful.

Eventually the party arrived at the coast at Valelevu and walked to Lavena Village, arriving at 10.30 p.m.

Monday, October 24th.

Weather showery but mainly fine. Soil Survey Assistant and the Lavena boy Mario returned along the beach to gather up belongings dropped in the darkness while negotiating Vatubaria Point the previous evening. Hall, Twyford and Forest Guard remained at Lavena.

Tuesday, October 25th.

Weather showery. Soil Survey Assistant, Forest Guard and two boys from Lavena, returned to Ravilevu to bring out the kit left by Twyford's party on the 23rd.

Wednesday, October 26th.

Weather fine. Returned to Waiyevo. Labour gang arrived Vuna late in the afternoon and returned to Suva by m.v. "Altair" the following day.

K. CONCLUSIONS AND RECOMMENDATIONS:

(1) Rainfall is very high and continuous.

(2) Topography would be the chief limiting factor in developing the area, being so steep and so diversified.

(3) Soils are fair though bouldery, and would probably not constitute a limiting factor in crop plant growth.

(4) Access is very difficult.

(5) Erodibility is high. Cutting of bush would certainly result in the loss of soil unless a ground cover was very quickly established.

On the basis of these 5 conclusions, possible agricultural development would have to be limited to the growing of crops tolerant of such severe conditions. The climate would probably be too wet for cacao, which would be liable to fungus diseases. In addition, cacao would not provide sufficient protection of the soil against erosion.

Coconuts would probably grow and in fact do so along the shore, but the interior, although providing adequate soil for coconut growing, would offer numerous difficulties in plantation organisation due to the topography. Moreover, yields would be expected to be much lower than on other parts of Taveuni.

No land suitable for rice was seen, although it is possible that there may be suitable small alluvial patches at the north-east end.

Cattle are not permissible on such steep ground.

Tea and rubber might possibly grow on Ravilevu but again topographical and labour difficulties would be very serious in such a place.

Summarising the above, it is felt that Government should not consider organised development of Ravilevu. If private applicants for parts of the area are willing to attempt development, the strictest control of land utilisation for erosion prevention would need to be exercised by Government.

In addition to the above conclusions, the following should be noted :-

(6) There is no timber on Ravilevu worth extracting.

(7) No signs of commercially valuable minerals were seen.

(8) Construction of a road in the block would be very difficult and very expensive.

(9) 20,000' aerial photographs are of little value for survey purposes in such heavily forested areas.

All the above conclusions are based on a survey of only three-quarters of the block. It is therefore possible, but unlikely, that the north-east end is of a somewhat easier nature. The aerial photographs show one or two river valleys, already referred to, but these are small and at the top end, near the Forest Reserve; the country appears slightly easier but access to this latter area would constitute a major problem. If, however, Government wishes to investigate this, it could be done in three or four days from Lavena.

Finally, if Government does not decide in favour of private applicants for parts of the block, it is recommended that the whole be included in the Forest Reserve.

APPENDIX I

SOIL PROFILE DESCRIPTIONS AND ANALYSES

Ravilevu clay (R1)

Parent Material:- Basalt, basaltic agglomerate.

Drainage:- Free to excessive.

Vegetation:- Virgin forest.

Climate:- Continuously wet (ca. 350" p.a.) moderate temperatures.

Topography:- Slopes, often steep.

Profile (i):- (typical S.W. end of Ravilevu)

Location:- Halfway between A and B.

Altitude:- 700'

Cover:- Tall forest, very light undergrowth.

Slope:- 25°

0" - 9" dark brown clay, well developed strong medium and fine nutty structure, very friable, many roots; many weathering basaltic stones; boundary diffuse.

9" - 14" brown clay; friable; moderately developed moderate medium blocky and nutty structure; many roots; many stones;

On olivine basalt.

Profile (ii):- (typical at fairly high altitude)

Location:- At B

Altitude:- 900'

Cover:- Thick bush, moderate undergrowth.

Slope :- 15°

0" - 6" 10YR3/3 dark brown clay; moderately developed moderate medium nutty and blocky structure; fairly friable; many roots; merging to

6" - 30" 10YR4/2 dark grey brown clay; very friable; moderately developed moderate medium and coarse blocky structure; some roots; very soft below 12", auger pushes right through to 30".

Many basalt boulders scattered on surface and throughout profile.

Profile (iii):-

Location:- 48 chains from B towards C.

Altitude:- 850'

Cover:- Heavy bush, moderate undergrowth.

Slope:- 25°

0" - 4" 10YR3/2 very dark grey brown friable clay; many roots; weakly developed moderate medium and fine nutty and especially blocky structure; easily crushed; some stones; boundary diffuse.

4" - 24" 10YR3/3 dark brown clay; very friable; weakly developed moderate medium blocky structure; some roots; some stones.

Profile (iv)

Location:- On 245° compass traverse, 30 chains from D towards F.

Altitude:- 750'

Cover:- Thick bush, moderate undergrowth.

Slope:- 5°.

0" - 6" 10YR3/2 very dark grey brown clay; moderately developed moderate medium and fine nutty structure; friable;many roots, some yellow weathering basaltic stones; boundary diffuse.

6" - 10" 10YR3/3 dark brown clay; weakly developed moderate coarse (1") blocky structure; very friable; few roots; some yellow weathered basalt boulders.

On bouldery basalt.

Profile (v) (steep slope)

Location:- 498 yards down 105° traverse from D towards G.

Altitude:- 500'

Cover:- Moderate bush, moderate undergrowth.

Slope:- 40°.

0" - 8" 10YR3/2 very dark grey brown clay; moderately developed moderate medium and fine nutty structure; many roots; some basalt stones; boundary diffuse.

10" - 54"+10YR3/4 dark brown clay; weakly developed moderate coarse blocky structure; many basalt boulders especially below 30".

2. Ravilevu clay (Rl) with red clay overlay.

Profile (i):-

Location:- 12ch. 10yds. from K towards L.

Altitude:- 850'

Cover:- Light top cover, heavy undergrowth.

Slope:- 50°

0" - 1" 5YR2/2 dark reddish brown clay; many roots; well developed moderate medium and fine nutty structure; very friable; loose; boundary sharp.

1" - 9" Slightly lighter than 10YR3/2 very dark grey brown

clay; poorly developed weak medium blocky structure; friable; many roots; boundary diffuse.

9" - 60" + 10YR3/3 dark brown clay; moderately developed moderate coarse blocky structure; very friable; breaking to very fine nutty; few roots; gritty below 58".
Some leaf litter on surface, very few boulders.

3. Ravilevu clay (R1) + grits.

Profile (i)

Location:- 69ch. 15yds. from K towards L.

Altitude:- 750'

Cover:- Hea vy bush, moderate undergrowth.

Slope:- 10°

0" - 6" 10YR3/2 very dark grey brown clay; moderately developed moderate medium and fine nutty and blocky structure; rather friable; some small basaltic stones; many roots; boundary diffuse.

8" - 12" 10YR3/3 dark brown clay; moderately developed, moderate coarse (1") blocky structure; some stones; few roots; boundary diffuse.

12" - 30"+ 10YR3/3 dark brown gritty clay; very friable; weakly developed moderate fine nutty and blocky, many grits, On basalt.

4. Ravilevu clay (R1) with distinct B2 horizon.

Profile (i) (vestigial B2)

Location:- Between C and D, about 8 chains from D

Altitude:- 750'

Cover:- Tall bush; light undergrowth.

Slope:- 10°

0" - 6" 10YR3/3 dark brown clay; moderately developed moderate medium nutty and blocky structure; fairly friable; many roots; boundary diffuse.

6" - 30" 10YR4/2 dark grey brown clay; very friable; moderately developed moderate medium and coarse blocky structure, some roots.
On basalt boulders surrounded with 5YR5/8 yellow red clay.

Profile (ii) (distinct B2)

Location:- Between L and M,10 ch, 2yds. from L.

Altitude:- 800'

Cover:- Moderate bush moderate undergrowth

Slope:- 25°

0 - 5" 10YR3/2 very dark grey brown clay; friable; moderately developed moderate medium and fine nutty structure; many roots; many basaltic stones; boundary distinct.

5" - 60" + 5YR5/8 yellow red clay; friable; moderately developed strong medium blocky structure; few roots; some stones.
Much erosion in this area.

Profile (iii) (distinct B2)

Location:- Between M and N. 34ch. 6yds. from M.

Altitude:- 700'

Cover:- Tall thick bush; very thick undergrowth.

Slope:- 40°

0" - 2" 10YR 2/2 very dark brown clay; fairly friable; many roots; moderately developed moderate medium and fine nutty and blocky structure; some basaltic stones; boundary sharp.

2" - 40" + 7.5YR5/8 strong brown clay; well developed strong medium and coarse blocky structure; friable; few stones.
This profile is probably eroded.

5. Ravilevu clay (high altitude)

Profile (i)

Location:- at E.

Altitude:- 1300'

Cover:- Medium top cover, thick undergrowth.

Slope:- 3°

0" - 5" 10YR3/2 very dark grey brown clay; weakly developed weak medium and fine nutty and blocky structure, friable, many roots; some basaltic stones; boundary diffuse.

5" - 30" + 10YR3/3 dark brown clay; almost platy; very friable; weakly developed weak medium blocky structure; some roots; some basaltic stones.
On basalt, vesicular and weathered.

Profile (ii)

Location:- At F.

Altitude:- 1500'

Cover:- Many heavy trees, undergrowth fairly light.

Slope:- 3°

0" - ½" leaf litter.

½" - 6" 10YR2/2 very dark brown clay; friable; weakly developed moderate fine nutty structure; many roots; some basaltic stones; boundary diffuse.

6" - 30" + 10YR3/3 dark brown clay; friable; moderately developed weak coarse (1") blocky structure; few roots; some stones; below 18" colour lightens to 10YR4/3 brown, and some yellow weathering basalt fragments.

6. Black soil from basaltic gravel.

Parent material:- Basaltic gravel.

Drainage:- Free

Climate:- Continuously wet (ca. 350" p.a.), moderate temperatures.

Topography:- Steep.

Profile (i)

Location:- 46ch. 3yds. from K towards L.

Altitude:- Ca. 900'

Cover:- Heavy bush, heavy undergrowth.

Slope:- 45°

0" - 7" 10YR2/1 black clay, very friable; well developed strong medium and fine nutty structure; many roots; many small pebbles;
On grey brown basaltic gravel.

7. Ravilevu deep black clay.

Parent material:- Basaltic alluvium

Drainage:- Slightly impeded

Climate:- Continuously wet (ca. 350" p.a.) moderate temperatures.

Topography:- Flat or slight slopes.

Profile (i)

Location:- 3ch. 8yds. beyond C towards D.

Altitude:- 800'

Cover:- Heavy bush, light undergrowth

Slope:- 2°

0" - 4" 10YR3/1 very dark grey clay; friable; platy structure breaking to fine blocky; many roots; some basaltic stones; boundary distinct.

4" - 7" 10YR2/1 black clay; somewhat platy; friable, breaking to fine blocky; some roots; boundary sharp, but varies in depth between 5" and 9".

7" - 15" 10YR3/1 very dark grey gritty clay, weakly veveloped weak medium blocky structure; friable.
On basalt weathered to bright red.

8. Ravilevu red clay.

Parent material:- Red basic scoriaceous rock.

Drainage:- Free

Climate:- Continuously wet (ca. 350" p.a.)" moderate temperatures.

Topography:- Steep

Profile (i)

Location:- On cliff above sea at Qaraniqio.

Altitude:- 350'

Cover:- Tall bush, light undergrowth.

Slope:- 45°

0" - 3" 5YR3/3 dark reddish brown clay; friable; many roots; moderately developed moderate medium and fine nutty and blocky structure; boundary distinct.

3" - 16" 10YR4/6 red clay; friable; moderately developed strong medium blocky structure;

On red parent material.

APPENDIX II

SOIL ANALYSES.

Soil Survey no. of sample.	Profile no. in Appendix I.	Depth	pH	%C	%N	$\frac{C}{N}$	Acidsoluble P_2O_5 mgr/100	Exchangeable K m.e. /100 gr.
363		0"-7"	4.95	19.6	1.18	17	0.9	1.25
364	4(i)	7"-18"	5.9	5.5	0.30	18	0.8	0.92
365		0"-5"	5.0	20.6	1.18	17	1.7	2.00
366	5(i)	5"-25"	5.45	5.5	0.34	16	0.8	1.22
367		0"-6"	4.5	18.6	1.38	13	1.8	2.20
368	1(iv)	6"-10"	5.1	6.2	0.39	16	0.8	1.48
369		0"-7"	5.0	23.7	1.08	22	4.8	1.76
370	5(ii)	7"-24"	5.7	4.6	0.25	18	0.25	0.64
371		0"-8"	5.2	27.4	1.30	21	1.2	1.32
372	1(v)	8"-54"	5.65	4.7	0.32	15	0.8	0.75
373		1"-9"	5.05	13.5	0.96	14	1.0	1.17
374	2(i)	9"-60"	5.85	6.0	0.22	27	0.3	0.79
375	6(i)	0"-7"	5.0	17.3	1.15	15	2.0	0.97

APPENDIX III

Petrological Descriptions of Rock Samples

by S.R. Harvey, Geologist, Geological Survey.

Sample No. 2

Location:- Creek no. 19

Vesicular olivine basalt

Hand specimen:- Light grey when fresh. Large olivine phenocrysts visible megascopically.

Thin section:- Fine grained intersertal with vesicles and large phenocrysts. Poorly developed flow. Elongation of vesicles trends across this. Present - subhedral phenocrysts of olivine, various sizes; iddingsite at borders; labradorite laths, magnetite, augites and glass in ground mass.

Sample No. 5

Location:- creek 15 on traverse DF

Basalt

Hand specimen:- Darkish grey with evenly scattered phenocrysts of plagioclase. Peculiar "tension cracks" near and parallel to surface of specimen.

Thin section:- Medium grained insertal texture with many sub - and enhedral phenocrysts. Haphazard flow structure, different and discontinuous trends. Present - plagioclase labradorite as laths or tabular formed phenocrysts. Prisms and sections of augite. Very abundant apatite, all finely divided. Much magnetite of minute habit.

Sample No. 6

Location:- Creek 12 on traverse DF

Vesicular basalt

Hand specimen:- Grey phenocrysts of olivine plagioclase pyroxene visible. Vesicles infrequent and of varying size.

Thin section:- Porphyritic intersertal. Slightly vesicular. Texture variable. Concentrations of plagioclase laths in random distribution. Present - Labradorite laths and phenocrysts. Olivine euhedral altered to iddingsite peripherally and along fractures, magnetite, rare apatites. Vitreous mesostasis.

Sample No. 7

Location: Creek 5 on traverse DE

Vesicular basalt

Hand Specimen:- Dark : grey "Brittle" in appearance, as slag material. Vesicles narrow elongated

and infrequent, yet with directional suggestion. Material between vesicles of uniform structure, apparently homogeneous.

Thin section:- Fine grained with scattered phenocrysts of large size. Plexus of plagioclase laths; strong directional tendencies. Slight flow round phenocrysts, less round vesicles. Present - Plagioclase(bytownite Labradorite) as laths and euhedral phenocrysts. Olivine rimmed by iddingsite. Ground mass. Holohyaline. Labradorite laths augites magnetite and glass.

Sample No. 12.

Location:- Creek 8 on traverse DE

Ferruginized vesicular basalt

Hand specimen:- Water worn pebble. Larger vesicles towards centre. Possibly a bomb. Vesicles subhedral. Plagioclase and olivine visible megascopically.

Thin section:- Intersertal. Vitrophyric. Present - Plagioclase (Labradorite) laths, often twinned; abundant but rarely large. No directional tendency. Odd phenocrysts of olivine and plagioclase and magnetite. Ground mass: glassy with scattered chips of subhedral augite. N.B. Two patches riddled with circular vesicles. Notable depletion in numbers of plagioclase laths. Darker megascopically than surrounding rock; and apparently less vesicular.

Sample No. R 5

Location:- cliff face at Qaraniqio, 150' up.

Vesicular basalt

Hand specimen:- Fragment. Fresh material grey. Weathers on exterior to Indian red vesicles ellipsoidal or elongate; minute, up to 2 mm greatest dimension, plagioclase laths.

Thin section:- Hyalophitic, vesicular hypocrystalline porphyritic. Present - Phenocrysts. Plagioclase, (lath form) Labradorite, augite, Magnetite Ground mass plagioclase (labradorite) pyroxene, Magnetite (augite). Accessories: Unidentified Brown mineral, positive relief, isotropic, no cleavage; in vesicles. N.B. Fe-staining on and round all ferromags. Masks birefringence colours. Vesicles often subhedral.

Sample No. R 6

Location:- Creek 76

Vesicular basalt

Hand specimen:- Grey, rough. Vesicles are not bubble holes as much as interstices between various sizes of basalt pellet, all pellets partly compacted and partially fused. Plagioclase visible in hand specimen.

[illegible] poorly developed

Thin specimen:- Porphyritic intergranular. Poorly developed flow structure of variable trend. Present - Blades and large tabular labradorites. Euhedral and subhedral olivine with peripheral altered to iddingsite? Augite (ground mass and phenocrysts). Magnetite, interstitial glass.

Sample No. R 9

Location:- Creek 51

Basalt, medium-grained

Hand specimen:- Pale grey; uneven fracture. Many plagioclase crystals easily discerned.

Thin section:- Porphyritic intersertal with irregular vesicles. Localised trend lines, but all variable. Present - Plagioclase (labradorite) as laths and phenocrysts (latter zoned often) Augite and Olivine (former pleochroic) Magnetite, glass.

Sample No. R 11

Location:- Creek 104

Basalt

Hand specimen:- Grey, homogeneous; occasional phenocrysts of plagioclase visible.

Thin section:- Fine-grained intergranular with occasional phenocrysts. Poorly-developed flow structure. Present - Labradorite, lath-like; small crystals, augite, very profuse, subhedral. Magnetite cubes and octahedral apatite. Rare phenocrysts of augite olivine and plagioclase (labradorite).

Sample No. T 1

Location:- Creek 5 on traverse DF.

Basalt (slight vesicularity)

Hand specimen:- Medium grey. Small vesicles arranged haphazardly: plagioclase phenocrysts visible.

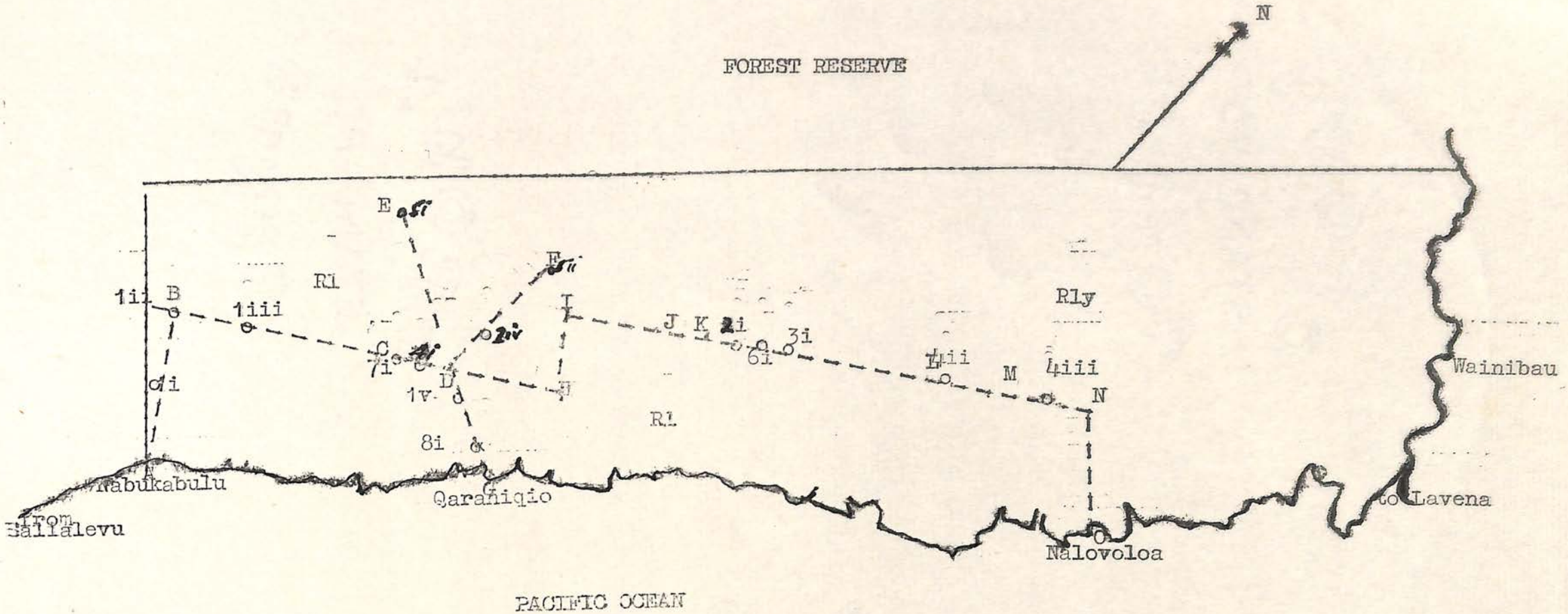
Thin section:- Fine grained intersertal, vesicles and phenocrysts. Present - Phenocrysts are labradorite often twinned on Albite law. Various sizes, mostly 1 cm long. Ground mass: labradorite laths. Magnetite (of variable size and profusion) subhedral and anhedral augite sometimes ringed with Magnetite.

APPENDIX IV

Note on the use of Aerial Photographs

The Adastra 20,000' air photographs were used by the party, enlarged twice. It was found that they were of little value as even quite large creeks did not show up, and the diversity of the topography was far less obvious than on comparable 8000' photographs. Moreover, alternate photographs in a run were used (based on 8000' photograph experience) but the distortion at the edges was so great that it was difficult to recognise the same feature on two different photographs. It is recommended that in future all photographs in a run should be used for work of this nature.

The photographs should be of more value on developed land showing unmistakable features.



LEGEND

Survey track

2i Profile no.

Meridian

R1 Ravilevu clay

R1y Ravilevu clay with yellow subsoil

RAVILEVU, TAVEUNI

Scale, 64 chains= 1 inch.