

JOURNAL OF A MEDICAL AND POPULATION GENETIC  
SURVEY EXPEDITION OF THE RESEARCH VESSEL  
ALPHA HELIX TO THE BANKS AND  
TORRES ISLANDS OF THE NEW HEBRIDES,  
SOUTHERN ISLANDS OF THE BRITISH SOLOMON  
ISLANDS PROTECTORATE, AND PINGELAP ATOLL,  
EASTERN CAROLINE ISLANDS

1972

D. Carleton Gajdusek



Sept 21017









# **ALPHA HELIX EXPEDITION**

**1972**





*To Jack & Barbara*

JOURNAL OF A MEDICAL AND POPULATION GENETIC SURVEY EXPEDITION  
OF THE RESEARCH VESSEL ALPHA HELIX

TO THE  
BANKS AND TORRES ISLANDS OF THE NEW HEBRIDES,  
SOUTHERN ISLANDS OF THE BRITISH SOLOMON ISLANDS PROTECTORATE  
AND PINGELAP ATOLL, EASTERN CAROLINE ISLANDS

September 8, 1972 to November 26, 1972

D. Carleton Gajdusek

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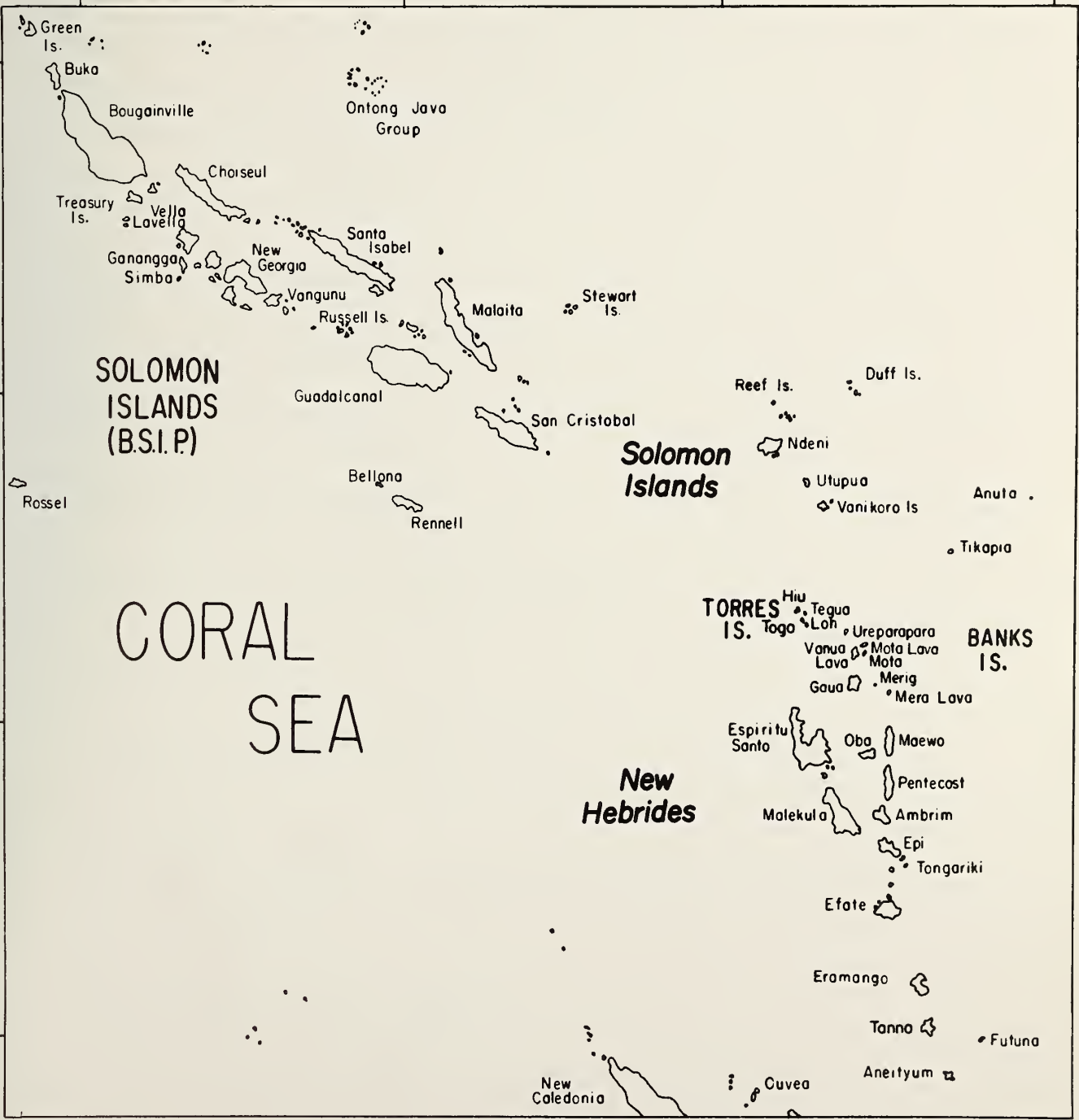
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**SOLOMON ISLANDS (B.S.I.P)**

**Solomon Islands**

**CORAL SEA**

**New Hebrides**

**BANKS IS.**





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Figure 1





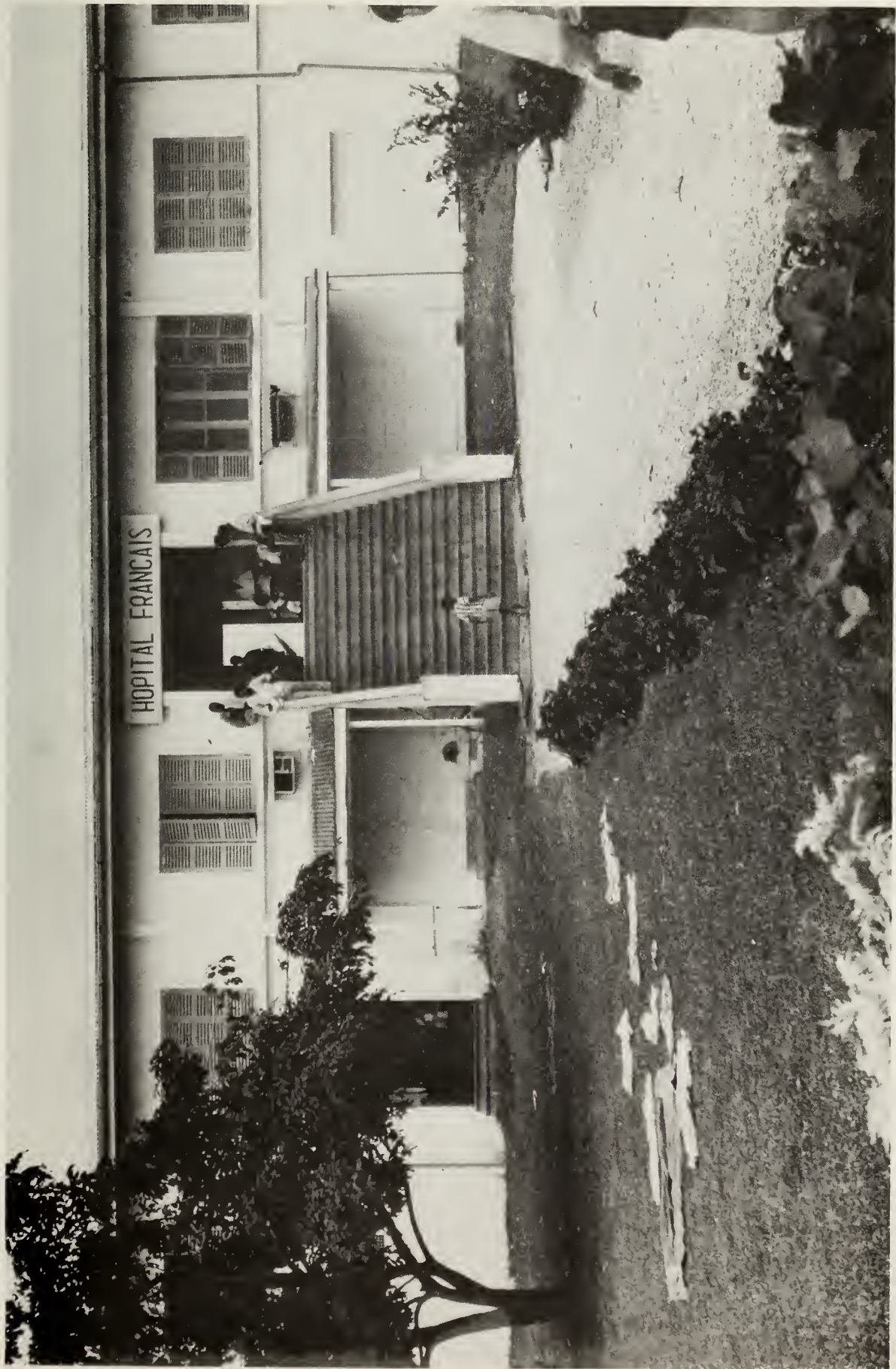


Figure 2





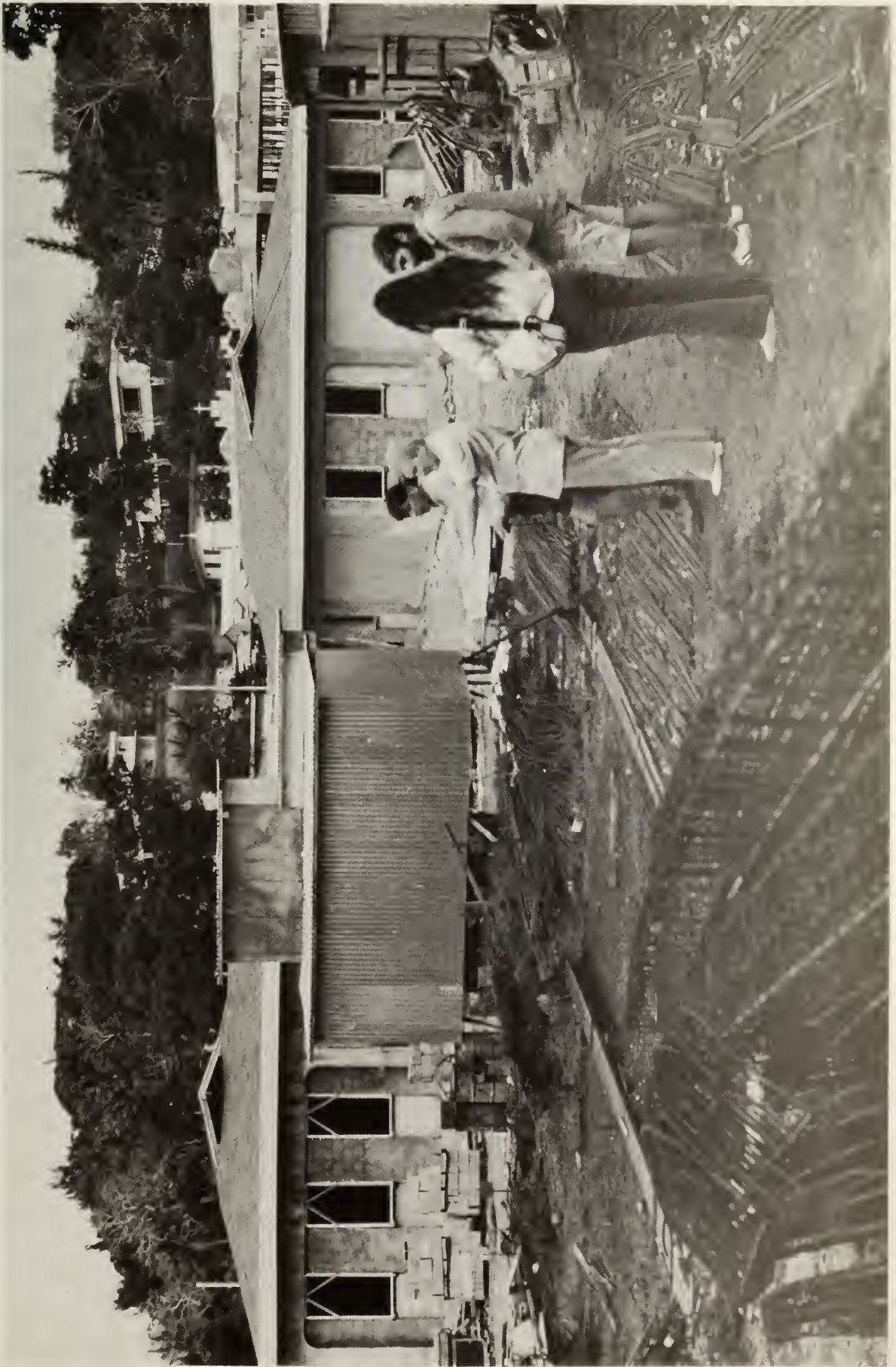


Figure 3





Figure 4







Figure 5



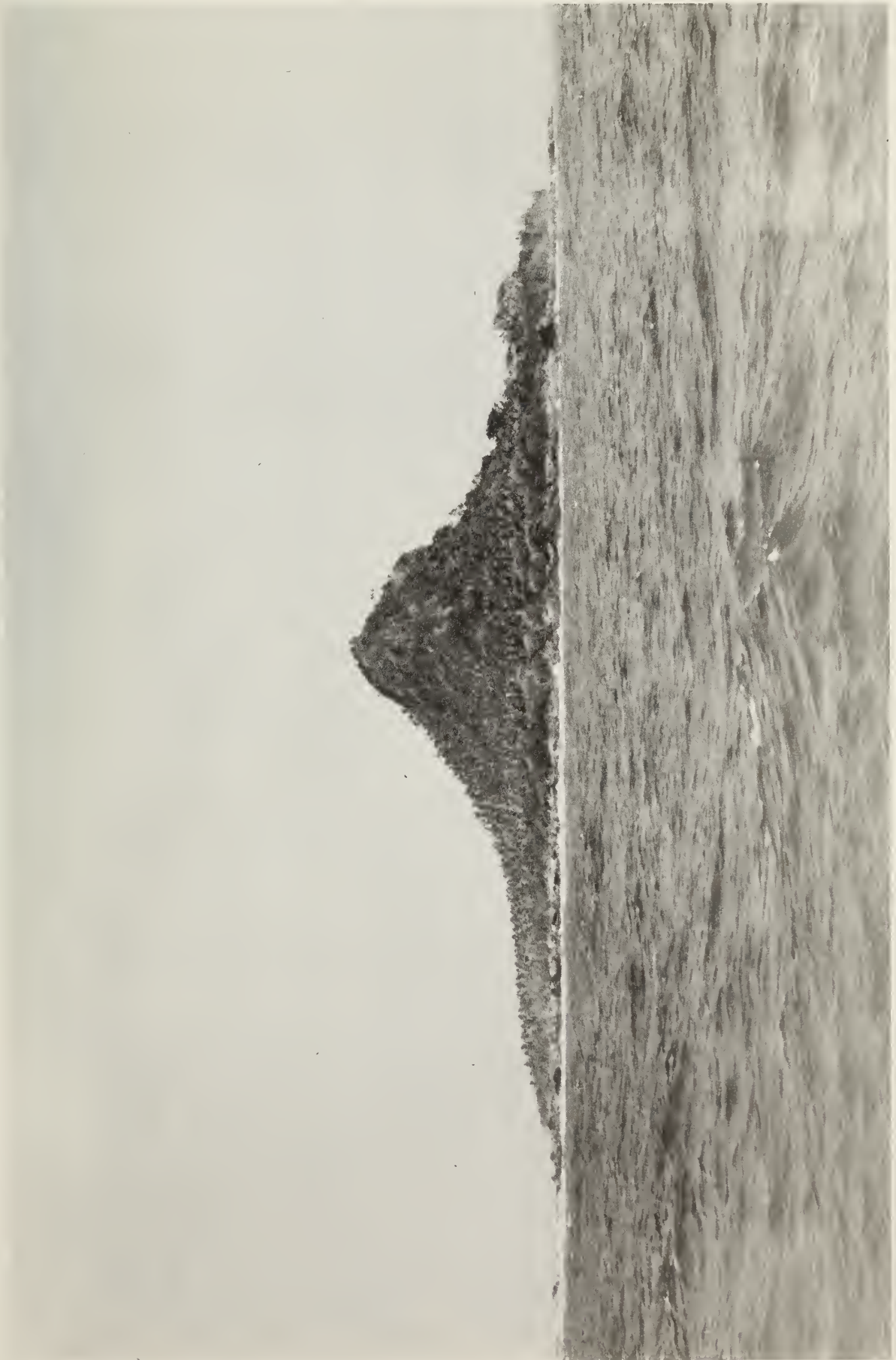


Figure 6







Figure 7





Figure 8







Figure 9





Figure 10







Figure 11







Figure 12





Figure 13







Figure 14





Figure 15





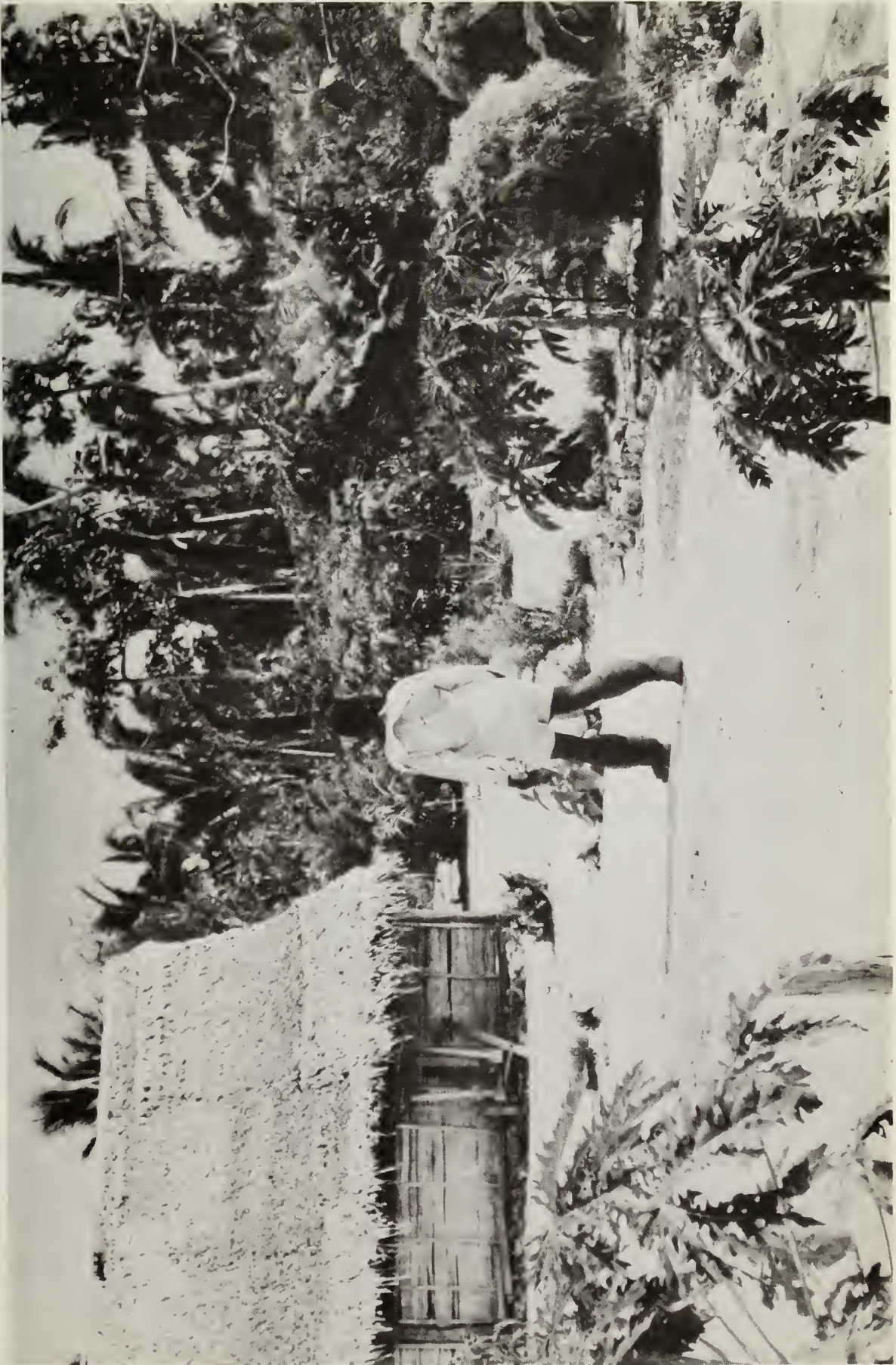


Figure 16







Figure 17







Figure 18







Figure 19







Figure 20







Figure 21





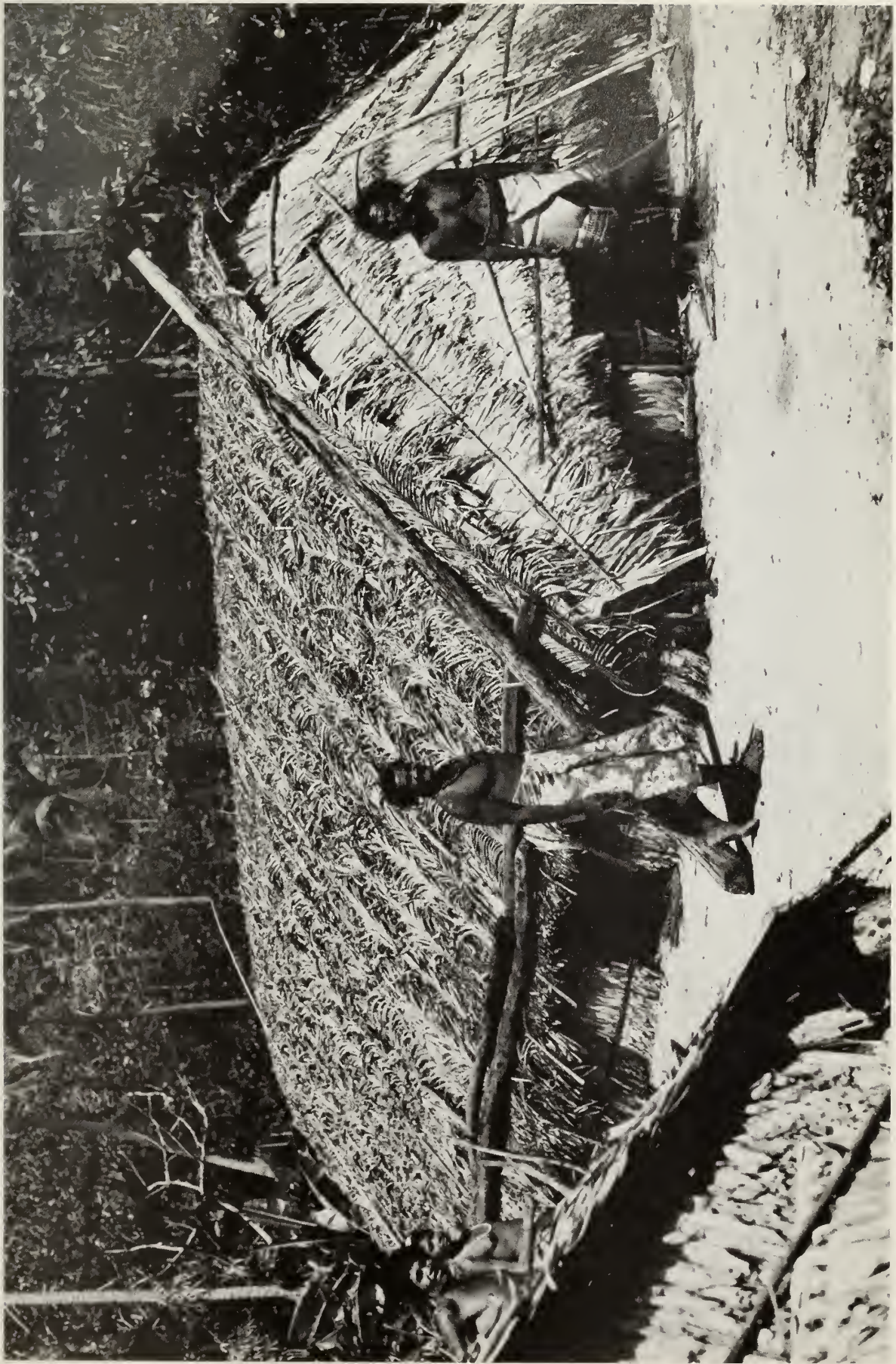


Figure 22







Figure 23



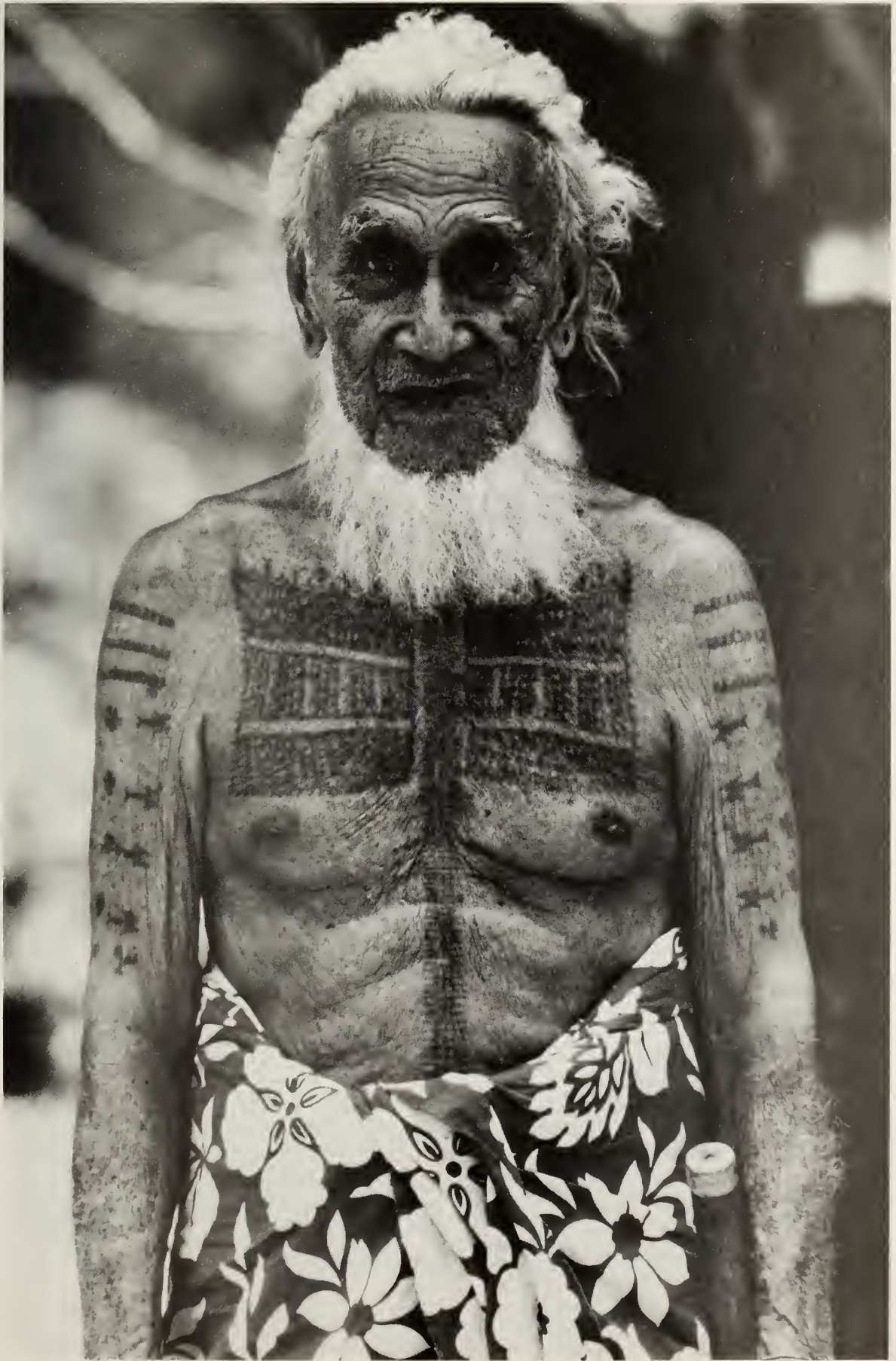


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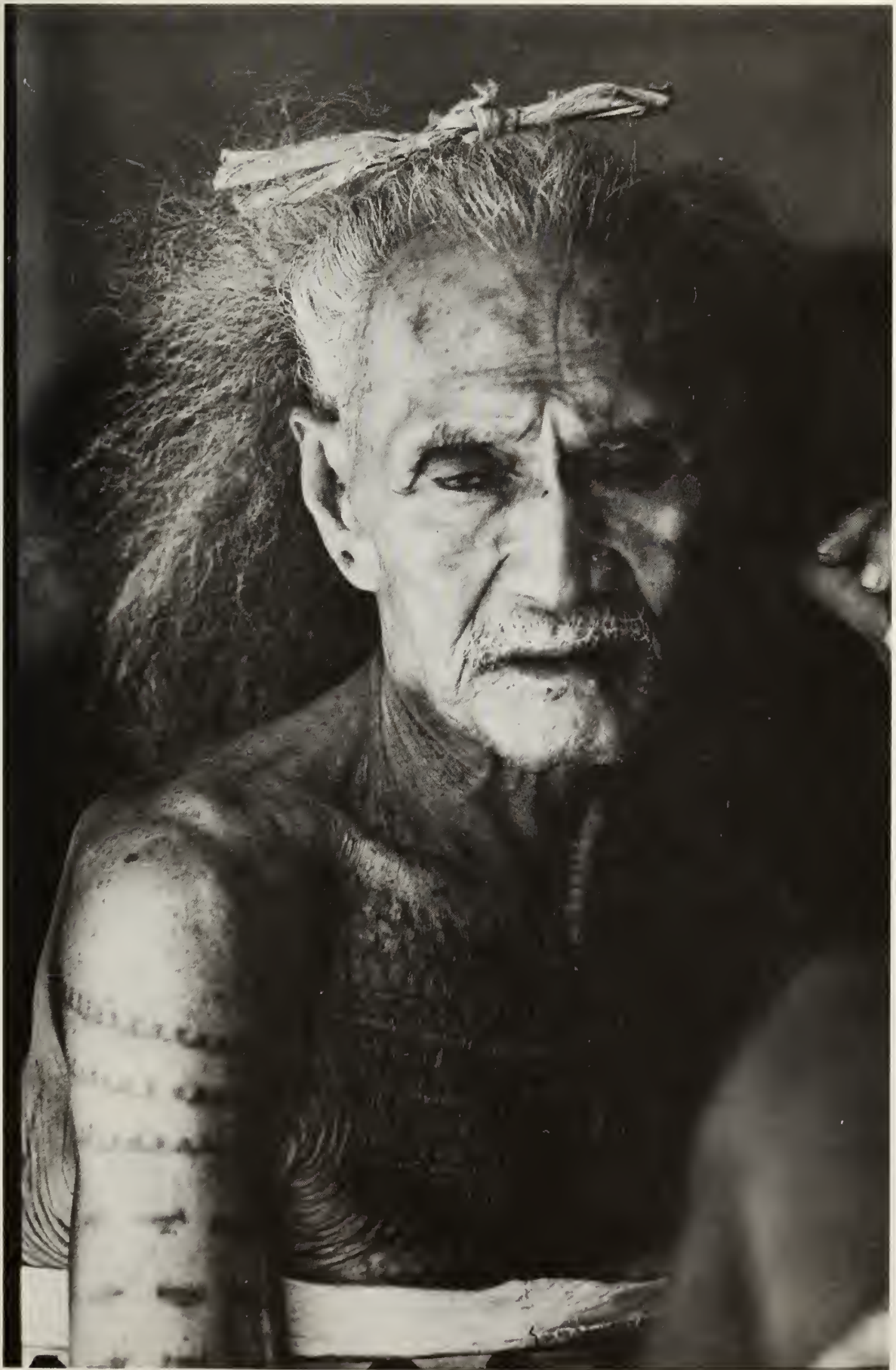


Figure 25







Figure 26





Figure 27







Figure 28







Figure 29







Figure 30







Figure 31







Figure 32







Figure 33







Figure 34







Figure 35







Figure 36





Figure 37







Figure 38







Figure 39







Figure 40





Figure 41







Figure 42





Figure 43







Figure 44





Figure 45





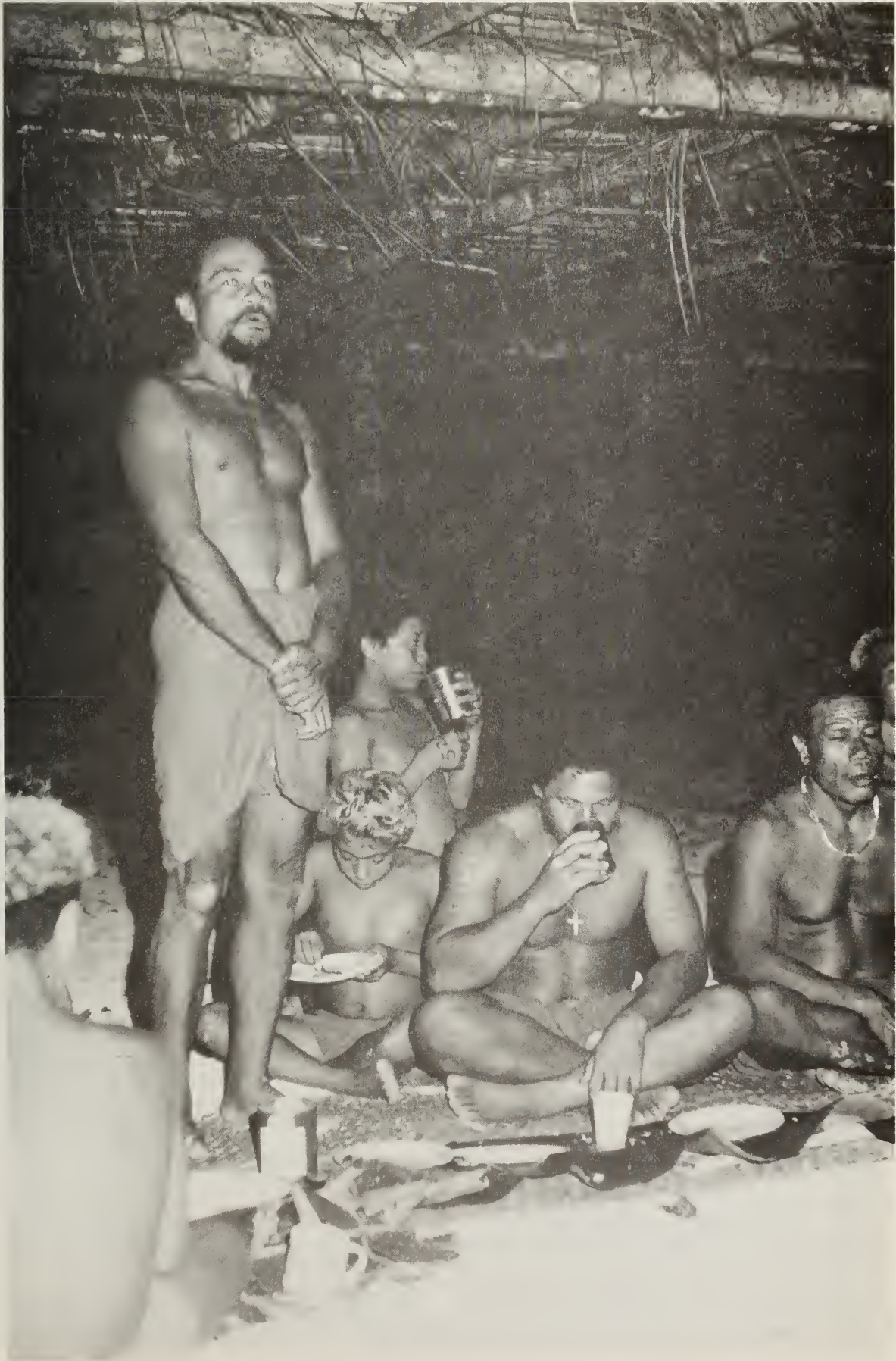


Figure 46





Figure 47







Figure 48





Figure 49







Figure 50



Washington, D.C. to Port Vila, New Hebrides

September 8, 1972 to September 19, 1972





Washington to San Francisco...UN Flight (DC-10)

September 8, 1972

The stereotype of departures is hard to break...that this one was with Ralph Garruto alone was redeeming.

Paul arrived at 4:25 on a TWA flight from France, and Jill met him and they came to see us at our flight departure gate. Jill was gaunt, tense, and unrelaxed. Is she ever relaxed, and is that what Paul has done to her? I remember seeing Wolf gaunt, tense and strained, and aged in his early twenties; the shock it caused me to realize how much I may well have had to do with this tense, unrelaxed and harrowed state! Paul and I exchanged a few details of our plans for the Alpha Helix trip, and he and Jill took off. I asked nothing of the outcome of Paul's fling at a new life in Paris, of his visit to his Parisian mistress, and it seemed as though Jill, too, had asked nothing.

Ralph and I had a beer together and discussed his future and his role at the NIH. He has been given only a GS-9, not a GS-11 rating, since his Ph.D. thesis is not done. It is a great shambles, for he remains very insecure, and the appointment for only one year is also a very frustrating thing to him...I must try to extend it to two years and make his position more secure.

Tamel and Mororui left me at the car rental, where I turned in the VW, in order to rush to their high school football game. We had left home before Yavine returned from school, and Ivan also was away when I stopped by the office to pick up the last stack of papers before leaving. I said goodbye to Mint, Lucille, Marion, Linda, Nancy van Wyck, and Steve Ono, and Judy, and Ralph and I were off. I missed Nancy Rogers, whom I had promised to see before I left; she was out when I stopped by the laboratory, where Mint and Lucille were setting up a new brain biopsy in explant culture. Mint's leaving leaves everything on Nancy's shoulders and we are back to where we were a full decade ago.

Joe Gibbs caught me on the phone at Dulles and I spoke with him at length. Joe is disillusioned and uncertain, insecure and uneasy about our future and his role in it, and about our whole program. He does not seem to share my enthusiasm for a total changeover and retrenchment, and cannot yet see his role in it. The fact that we must leave Patuxent has never pleased him, and no solution to the problem short of reestablishing a new Patuxent nearby pleases him. The concept of letting our contracts handle all the inoculated primates and using a new rejuvenated laboratory approach to scrapie, kuru and Creutzfeldt-Jakob disease in a new set of labs on campus, has not intrigued Joe, for he no longer sees himself running an independent program, as he has at Patuxent.

Mathias is with Jim Boykin, Martha and the other Micronesians at Valencia, College of the Canyons, north of Los Angeles; hopefully, he is off tomorrow or Sunday for Honolulu, where I hope to meet him at Leon Rosen's

home, where we may both be guests. He met Raglmar for an hour or so at the Los Angeles airport and took our Canonflex camera from him. Raglmar arrived almost directly from Fais Island, rushing through Ulithi, Yap and Guam, to make the first days of college at Hamilton. He was grimy and heavily bearded, with a beard that made him look very much like Czar Alexander Romanoff, and his teeth were stained orange from betel nut chewing. He spoke Ulithian almost all of the time with the other Micronesians, rather than English. Mathias told me on the phone that one look at Jesse--almost reverted to a wild pagan islander--and he himself nearly abandoned his resolve to return to visit the islands. Raglmar flew last night to Utica with Joe Wegstein, to drive from there to Hamilton College. Joe should be flying back to Washington this afternoon, while Raglmar should have moved in and be ready to start classes on Monday. He had missed only last night's opening supper for the freshmen and their parents. Joe has agreed to take on Jesse's college expenses and has reimbursed me the seven hundred dollars I had paid to start his semester. In his case the \$2700 Hamilton scholarship that will cover tuition, and the \$500 student educational grant from the Trust Territory will make his expenses the lowest of any of the boys, and his promise as a student the best. I am grateful to Joe for having assumed this burden, but very fortunately, I can meet it if he withdraws. The less rewarding higher burden of financing adolescent turmoil and academic difficulties, such as I face with Mathias, Ivan and Josede, is my lot and I accept it gladly. I had started this by bringing the boys here, knowing full well that these problems lay before me. It remains now to see them through.

John Uolai, with his Trust Territory scholarship aid withdrawn, since his grade average at Northern Michigan University at Marquette has fallen below 3.0, is besetting me with pleas for a job at the NIH and financial help. I cannot act as a stopgap for all the Micronesians when and wherever the U.S. fails them. Odd it is that I try...and they seek me out for this role!

Maluwetig is worried about his senior year of high school and the possibility of college admission with a rather poor scholastic record, and the problem of his relations with Paul and Jill. I need to help him a great deal in the matter of finding a college and have done very little thus far.

The boys are wonderful. They all make me proud of them; their enormous diversity is in itself interesting, their devoted loyalty to me is a reward I could little hope for, and I am totally recompensed for all I do for them by the love and devotion they have all given me.

The dreadful political mess into which the NIH administration and direction has fallen leaves one in helpless bewilderment. I have tried through it all to stick to our scientific work and production. Only creative work that is fresh, innovative, original and provocative will save us in this mess and I am trying to direct all our efforts in that direction. It is hard, for so much of what we do becomes too easily sclerosed, methodologies freeze, and methods become hackneyed and habitual. If only this cruise gives us a chance of revising our goals and methods, I shall be very satisfied.



Bob Huebner was at the airport to catch this very plane for San Francisco and I spoke with him briefly, but since our relationship has never left that of conversation restricted to virology, I broke it off to attend to Paul and Jill who were already waiting and Ralph, who was standing by. Bob is probably partly right in his ideas on integrated "oncogenesis", but he is faced with the problem of where to go with these ideas. We are a bit better off with the etiological agents of kuru, C-J disease, scrapie and mink encephalopathy in our hands.

Bob Ledeen has found very different cerebral ganglioside patterns in chimpanzees with kuru from those with C-J disease, and this comes to me as a surprise. The data are consistent and significant, and yet, we do not know what they mean. We must pursue this further and see if it holds up for human brain and brains of spider or squirrel monkeys with the same diseases. Basically, the cellular pathology is so much the same in the two diseases that I did not expect this. We must also look at scrapie and TME. Of course, we may only be looking at secondary effects of the cell damage caused by the agents, and not at anything primary to virus synthesis, as we originally hoped might be the case.

Siakotos is enthusiastic to go on with our banding and purification of scrapie, and I am encouraging Joe to get more tissue to him promptly. Roger Traub is anxious to get involved in this work and to devote himself to the basic molecular chemistry of the scrapie-kuru group of agents, which is now the key question.

Yavine is very much alone, going alone to junior high school, left out of much of the Micronesians' camaraderie. Very fortunately, Mbaginta'o is close to him. Whether he can handle the U.S. eighth grade standards, into which he has been suddenly plunged, is a grave problem, and I am worried about leaving him. I need the open skies and the quiet nights of the South Pacific--very badly.

Over Utah (Colorado River)...one hour out of San Francisco

...An hour and a half long conference with Bob Huebner, who is completely 'turned on' with his oncogene hypothesis and sees all of tumor virology resolved by his armchair ideas! Yet, he and his group have done much and are backed up by some solid lab work. I have arranged two collaborative projects with him: 1) inoculation of chimps and monkeys with a tissue culture line of his "wild mice C-type virus", which causes slow progressive noninflammatory paralytic disease in Swiss mice when given intracerebrally about one to two months after inoculation. The neurons show budding of the oncornavirus from their surface; and 2) study of our active scrapie-affected mice (plus some aged controls) for GS1, GS3 and envelope antigens to mouse C-type viruses, and for mouse C-type virus reverse transcriptase. It now rests on getting Joe Gibbs' enthusiasm about these projects. Joe is more depressed--as Marion and Dave Asher and others see it--than I see and, yet, I too can see his disaffection. I have failed to reward him with captainship of a tight battleship, and have given him only a floundering whale boat in which to reach unknown shores. If I can only convince him that this is the best way to cap one's career--Torres' and Captain Bligh's great voyages in small lifeboats were their best--he might revive his enthusiasm and interest. That is the task before me.



Bob Huebner and I talked each other out with "shop talk" and, fortunately, we have now separated, leaving our relationship spotlessly "professional." Huebner shows an agitation and a hyperkinesis which reflects his tension more than does his stream of uninterrupted talk. He is a man possessed, as I often appear to be to others.

As S... shrewdly observed, Mat remained loyal to me, devoted exclusively to me, and never consented to become one of Joe's boys. He insulted Joe by pointedly turning down camping and fishing trips and "family" excursions, flouting his preference for the company of others to that of Joe and the boys (even to my own company) when I forced him to share experiences with the others...behind it all an excess of love, loyalty and devotion to me!

Corte Madera, California...11 p.m.

...Well fed, relaxed and finally at ease, less tense than I have been for weeks. Linda, Karl Lawrence and Bobby met me at the airport, and we have been to a French restaurant. They ate, while I nibbled. Karl Lawrence behaved perfectly at the restaurant, the result of their thirty thousand miles of restaurants in Europe this past year.

Corte Madera, California

September 9, 1972

Steven Wiesenfeld tells me there is some delay in getting Judy's security clearance for her trip to the Pacific. This surprise comes as a shock and since I may invite foreign workers of any political bent, I am indignant at this development. There has been six months or more of warning to our administrators on this matter. The ridiculous and clumsy security check on me, resulting in the embassies checking with all my scientific colleagues in England and France--apparently taken from my travel orders--was a farce I can only be amazed at...how inept can these security people get?

Marion's, Nancy's and Joe's loyalties sustain our unit; from them the others derive strength and work on. Since it is too confusing a time for me to provide clear goal-directed leadership, I must rely upon the fact that we can find the work itself to be fun and challenge and its own reward. We must not look to recognition or praise from others--even their support--for our sustenance. It must all come from within ourselves.

San Francisco to Honolulu (Western Airlines)

September 10, 1972

"If a man is so unfortunate as to beg for food, give it to him and gain his gratitude. Never make him work for it and get his hatred."

Henry Miller quoting Henry Miller in "Big Sur and the Oranges of Hieronymus Bosch"

Steve Brown and I thrashed through a revision of the Paraguayan Indian and Chaco Mennonite blood group and serum factor genetics paper this morning, from 8 to 11 a.m. Although I felt captured and restive all the while, I was glad to get the work done and particularly happy to work creatively at something I know is valuable and rewarding, yet for which we can have no grandiose illusions. It is neither of vast importance or any real theoretical import...it can not make any great waves on the ocean of science. It is like doing competent, devoted, skilled and enthusiastic work on a minor miniature portrait of one whom one loves. Such work is refreshing.

Linda, Bobby and Karl Lawrence saw me off at the San Francisco airport. We spent one hour at the Marin County's Sunday flea market before we took off for Golden Gate Bridge and the airport.

I think of Reinhart Ruge and Yogi in Munich every time some new adverse comments on the Olympics reaches me. I have myself refused to follow them and fall heir to the faddism surrounding both the games and the Fischer-Spassky chess match. So much of our lives are now run by fad and instigated fashion that I find it salubrious to devote some energy to avoiding it, as avoiding mud puddles on a wet track. The book shops are almost gone from America; instead, a vaudeville-like display of current fads is before one. Even reputed "large" bookshops simply stacked by publishers' advertising campaigns, reviewers' reports and teachers' reading lists, now dump all stock that does not have a fast turnover. In this respect the fads of the past, as revealed by the titles on sale by the various private vendors at the flea market, correlate well with the age of the vendors who have come to divest themselves of their hoards. It is more interesting to so survey several periods of past fad than to be victim to the current one in a modern so-called book shop.

I detect in Miller's doting book a bit of gloating tone I often note in myself. Its arrogance and self-satisfied blindness has the pathetic ring of one trying to convince himself. In the introductory essay, he extols Gerhart Muensch beyond all other of his visitors, and I am spellbound trying to remember all I can of my evening in Gerharts's bedroom, as he told me about the genius of Klee and introduced me to the whole problem of notation in modern music. Tepoztlan is a far cry from Big Sur. Muensch seems to have found his Big Sur in that "black" valley of the Aztec...his description of its terrors and its blackness and fascination will always be with me. Thus, I can see from his alcoholic retreat to his grand mansion and heavily walled garden in Tepoztlan a vastly different "solution" than the rugged American one of a Utopian "pioneer" community, which Miller is defending. The vastly different choice has been made by that one of his guests he respects most and extolls most lavishly.

In TIME I read a review of P and find it chilling. This hope of returning to rural roots, when we can no longer do, is of little service. Mobility itself is hard to digest and I remain most moved by Mat's tearful cry that Bethesda-Chevy Chase and our house are the only homes he has, all in the face of my threats to throw him out, trying to divest him of any ties to this only anchor he has in life! I must think hard of the role of Yonkers in my wandering life, still owning it and sending "my boys" to occupy the room I was born in.

May I be more tolerant and sane, less demanding and more openly loving with Mat this day and tomorrow, if we are together in Hawaii.



Honolulu, Hawaii...midnight

September 11, 1972

Linda, David, Albert, Leon and Ann Marie are all at home and have opened their home to Mat and myself. Leon and Linda drove to pick us up at the airport. I have done so little for Leon, have been his host but once and am so indebted to him for the repeated hospitality to me and the boys, that I am embarrassed to impose on the Rosens in such a one-sided hospitality.

I am sleeping in David's room with him. He is the only one of Leon's children who gives some lip service to the possibility of studying medicine, but in typical adolescent fashion, he says it is his mother's idea, not his, when she tells me this.

Mathias says it is thirteen years--I know it is over eight years--since he has seen his full brother Jesus Marahalau. We found Jesus at Chaminade College this noon hour, just before Gordon Wallace drove us to the airport, where I am taking the American Airlines flight to Fiji. Jesus remembers Mat as a small, nearly-naked, urchin; they have corresponded but once in the past six years. Jesus has a self-supporting job at the college, working in the cafeteria. He promises to find Mat at the Rosen's tonight and to bring the other Micronesians in Honolulu with him. He jokingly says they will cut Mat's long hair, which Mat does not accept as a joke.

Nicholas has had a row with Sewel Claber, Jesus tells Mat, and this only increases Mat's anxiety, for he already anticipates such a row for himself. Jesus thinks Nicholas Figir is now back in Ponape, and I believe he is at the University of Guam.

I have worked for two to three hours with Gordon Wallace, trying to iron out the embarrassing frustrations in our joint toxoplasmosis paper. He has been intimidated enough to list it as Gajdusek, Wallace and Zigas, and I change it to Wallace, Zigas and Gajdusek now that I have gained time and distance from the problem. Vin is beleaguering him in a rush to press, just as he has been doing with me. I have advised Gordon to assuage Vin with a letter, telling him that the paper is now done and about ready for submission, since I have worked over all the serum sorting problems with him. I am still very worried with Vin's wild rush to print, without concern for quality or accuracy. He threatens to submit the kuru laboratory data thus, without me, and the paper still remains hopeless and in some places inaccurate.

Mat was asleep in the guest room when I arrived at Leon Rosen's home yesterday evening. He travelled well and competently, but remains argumentative and belligerent with me, so that I cannot get him to agree to come on the Alpha Helix, although I am still counting on him to join us at Ponape. I have so disillusioned him and so undercut his moorings by kicking him out of the house and finally reversing myself and withdrawing him from college and sending him home, that he remains lost and bitter, totally mistrustful. "Home" to Mat means only our Chevy Chase home, and I have all but destroyed that for him, as he sees it. He senses his lost-ness as an unwanted and unwilling wanderer, and absolutely refuses to look on Ulithi, Falalop Island, or Micronesia, as his home. Last night, he said repeatedly that he wishes that he were dead.



How dreadful the discovery of rootlessness and rejection has been for Mat. The wound may heal, but a large scar will always remain. My angry affirmations of rejection and total mistrust of him, my total lack of faith in his word, and final rejection has cut him irremediably, and he has not settled for the affront, nor faced the necessity for a change in his ways and relationships. I continue to only hope that he will continue on to Micronesia and that he will work productively there on his islands and join us on the Alpha Helix expedition which departs from Ponape in mid-November.

Linda, Leon's daughter of twenty, is now a secretary in Honolulu, having dropped out in her junior year in Chinese studies at UCLA. She feels some empathy for Mat, more so than do the boys, David and Albert. Linda has a boyfriend who is also disaffected and obviously does not fill Leon with pride and approval. Davis, twelve, and Albert, sixteen, show us four amateur movies they directed and filmed (super 8mm). Albert, especially, wants to be a film producer, professionally. Ann Marie and Leon have been fine, gracious hosts to me and Mat, and I am very embarrassed to have Mat on their hands for another five nights; however, they insist he is welcome. I have a repeated urge to shake Mat and slap him when he makes his outlandish demands and pouting "spoiled child" self-defeating decisions and threats; yet, I know how near to tears we both are and I restrain myself and withdraw, or I argue on. Oh, what a bore are these late-adolescent miseries, and yet, how real to their possessor. Henry Miller's account of Thomas in the first part of his "Big Sur and the Oranges of Hieronymus Bosch" comes to mind...he too was exasperated.

I dictate letters to Jose Torres in our NINDS laboratory on Guam, and to Kenneth Groves at the Ulithi High School for Mat confirming his work for us on the islands, and his participation on the Alpha Helix expedition.

The very low incidence of toxoplasma positive serology in the cat-free populations of New Guinea holds up. We shall finally report it.

Honolulu to Pago Pago, American Samoa...American Airlines flight #71...

September 11, 1972

Leon's new half-million dollar laboratory at the Leahi Hospital is fine, but how much more fun to enjoy its facilities as a guest worker, than to have been enslaved for over a year by its design and construction! Huge, heavy Polynesians sprinkle our plane with the flavor of the South Pacific; boisterous black-American musicians, going to Australia, sit on all sides of me. I have written to Bobby-Linda-Karl, and to Yavine, and I feel good.

## Pago Pago

...Little change since my last visit in and out of this airport. The enormous size of the Samoan men and women remains the most striking feature when one is more accustomed to the gaunt Melanesians. A few youths have the "wild man" appearance and belligerent manner of Mat's Samoan friend, who rarely has a greeting and does not deign to ask permission to use the record player, library, desk, etc., or even the bed when he is at our home and a stranger to most of us, the product more of mainland U.S. than of Samoa. Perhaps the islands may again civilize them? No mail service, but the airline takes letters for Yavine, Joe Wegstein and Bobby to mail for me.

## Nandi, Fiji

September 13, 1972

I did not call the NIH, although I had planned to do so. As an afterthought, I asked if American Airlines would cover my overnight accommodations; they did, at the Fiji Mocambo Hotel.

Nandi airport and the surrounding Togoa and Travel Lodge and Macombo Hotel are little different from such international stopover points throughout the world, and the taxi driver warns me of tourists getting fleeced and robbed in the Nandi night clubs and on the streets. A few Fijian porters and desk clerks at the hotel are the extent of the local color. The decor might just as well be Trader Vic's in the Capital Hilton...orange juice for breakfast is canned. Two German Lufthansa men, who arrived with me, quickly phone for accommodations at Korolevu Hotel and take a taxi there (eighteen dollars)...very wise and well informed indeed.

I mailed letters to Tamel, Mororui and Mat (c/o the NINDS laboratory in Guam), and to Joe Wegstein (a second letter) from the airport; now we are off for Vila.

Nandi, Fiji to Port Vila, Efate (Air Pacific 503)

September 13, 1972

The last lap before boarding the Alpha Helix! Gordon Wallace tells me that he had received sera from the Ontong Java collection by the Harvard group which, under Damon, has just finished its expedition to Malaita, Ulauwa and Onton Java. I have my misgivings as to just how efficient a team we shall be and how much we shall get done. We are under-organized, rather than over-organized, and I am counting on the next week to set our plans. An eighty passenger BAC1-11 jet now replaces the eight passenger four-motor Heron, on which I used to make this flight.

"Knowledge comes but wisdom lingers," from our Public School No. 5 assembly hall walls comes to mind. In my fiftieth year to heaven, may I begin to find wisdom. The Greco-Roman Pantheon provides me with all the dieties to whom I need pray. I have never come to grips with Judaic-Christian-Moslem morality and cosmology. It places too much emphasis on the word, has too little comparative outlook on love, sex and family, and links Grace too closely with meekness, abrogation and humility, rather than on awe and wonder.

Joe Gibbs is my most serious loss on this trip...I need him and should not have settled so quickly for indirect notice that he could not go. He did not want to go, I feel, because of our program's need of him at NINDS, the situation in his family and his medical problems. All this is probably exaggerated and he would surely have been a great asset on the expedition. I must find for him a suitably rewarding substitute quickly. Could he join us at Santa Cruz or on Ponape?

I am now trying to plan an attack which will make our expedition the most successful on record for "new" observations in the Pacific area since La Perouse's and Captain Cook's Voyages.

Port Vila, Efate

I am logged in on the Alpha Helix, occupying the luxurious stateroom recently vacated by Albert Damon, the Chief Scientist's cabin, next to the Captain's. Our captain is Alan W. Phinney.

Patrice de Carfort is lodging me at his home once again, and Roger Greenough has given me much time, help and advice and has tended to the receipt of all our supplies and had them loaded on the Alpha Helix already. Both Patrice and Roger have been of enormous help to me in their own very different ways. Arighi is still here, a surgeon at the French Hospital, but with his wife and children off in Toulon awaiting his arrival in early November. He will leave at the end of October and then end his eight years here; he does not hesitate to let me know that he does not want to leave and hopes to return and have Patrice's job. It is difficult to judge the relationship between the two French "colonial" physicians, but it seems to be hardly very amicable. A new, very young physician has just arrived from Paris, Dr. Riviere-Cazaux; he is to be stationed at the new French Hospital on Malekula at . There are two hospitals on this large island. In the south, at , the French have another physician, Dr. . On Efate the new hospital is still under construction and should be finished in mid-1973, with 150 beds. It can be expanded easily to over 300 beds later. Patrice



complains that it is too dark and will cost a fortune to light at the high local rates for electric power.

Port Vila, Efate, New Hebrides

September 15, 1972

Tonar Peter, from Makuro island in the Shephards, walked tonight in the moonlight with Françoise, Raymond and Richard were given a long tour of the girls' dormitory at the Epangtuei school by the girls, who all had to touch Richard's full and tangled beard.

One twenty liter, and four nine liter containers of liquid nitrogen arrived today and they clearly will not survive for long. Thus we are not going to succeed in much freezing of tissues, unless I can dig up further liquid nitrogen resevoirs for delivery later in our trip...it looks unlikely.

Kalafau, a sixteen year old boy, son of Michael, who as a much younger lad was my close companion at Makatea village on Emai island, came to the ship to visit me. I very much regreted the formalities and restrictions of my current role, which prohibit me from behaving naturally and truthfully with him. I was enormously pleased to see him again, and to have him recognize me. Chief Robert Makatea is still alive, they tell me. I have not yet been out to Vila island to see Toara Kali at PMH. However, we did greet and talk to Kaltipun as we passed through Pango village tonight.

The Rocinante put out to sea for Santo this afternoon, and thence for Torres, and finally the Banks in a BCG campaign. There are five New Hebridean dressers (two are girls), and no doctor on board. The captain is a Mr. Buchanski, a Polish man who has been twelve years in New Hebrides. I have introduced my team of four others to Keith Woodward and Roger Greenbough, and and Arighi and we spent the whole evening with Patrice de Carfort. We found the bistro closed and went to the Asiatique bar and then to the Le Saigonaise for a late supper, which was fine. We unpacked supplies for several hours and found most of the things we need. However, I have not yet seen the bleeding venules, nor the finger printing sets and am really worried, lest at the critical point of actually collecting data and specimens we lack the critical items.

Françoise gets along very well with Patrice; they have many friends in common. He blossoms forth with her stimulating questions and tells us more about his four years on Tahiti and in the Tuomotus and in Vietnam and He has had very wide experience and training in medicine and is a very well informed physician. In that Patrice is giving me hospitality and tending to our problems, I see less of Arighi than I would like to. He speaks better English than Patrice and in a bombastic way conceals much of what he is thinking. But he does have a real love for the New Hebrides and a strong attachment to the people, whom he seems to have served very well.



Captain Buchanski of the Rocinante is from \_\_\_\_\_, Poland, while his wife is English. I will try to learn more about him. He is a soft-spoken, mild-mannered, gentle man, whose story would be very interesting, I am sure. The five dressers on the BCG immunization cruise to the Banks and Torres are giving BCG to children under three years of age, and triple antigen to school-aged children, and tetanus toxoid to the older children. Greken Morris is the leader of the team, which includes two girl and three male dressers.

Port Vila, Efate

September 16, 1972

Toara Kali met Judy and me on the steep hill going up to the new post office, and explained our chance encounter with "I am doing nothing but looking for you!" He is a fine lad of about eighteen to twenty years and is still in the PMH dresser's school on Vila island, with three years more of training before him. He has been on board most of the morning, helping us with the unpacking and storing of supplies. I am finally leaving all this to Raymond, Richard, and Judy, and doing less of it myself.

Our supply of liquid nitrogen is short; we have only one reservoir full since the four new twenty liter reservoirs are misplaced and are not in Brisbane, where I thought we had sent them long ago.

A cable from Michael tells me that Wendy has had very serious surgery, but is now well, and that he must also move from his house in early November, and ending the cable with "O Lares". Thus, I cannot really expect him, nor is Steve Wiesenfeld planning on coming--so, both Michael and Stephen are out and I am hoping now to get Nancy and Joe Gibbs to reconsider and join us in Santa Cruz instead.

Roger Greenhough's wife drove their car into an iron post last night and she is only slightly injured, but the car is a full wreck. In spite of all these problems, Roger is still rounding up all our still-undelivered cargo and we are not yet all unpacked. Everyone is working well, while I do better coordinating than helping at this point. The immense job of sorting and arranging supplies for effective laboratory work has kept all six of us (Walter Schneider doing a good part of it) busy all day. Walter is the Scripps Institute laboratory technician who is assigned to alternate expeditions on the Alpha Helix, acting as a trouble shooter, liaison, and technical adviser to the non-Scripps Institute scientific staff on each expedition. He counts as one of our scientific staff, not as a member of the twelve-man crew, which includes the Captain. Thus, we shall leave Vila with eight 'scientists' (five M.D.'s) and twelve crew members. I have been wildly hoping for four more to join us: Stephen, Michael, Joe, Don Rubinstein, but now all looks very unlikely.

The Rocinante sailed yesterday, and the Euphrosyne II may head for the Banks and Torres shortly after our departure. This may provide a chance for Dr. Bowdin of PMH to join us for a week by leaving to meet us on the Euphrosyne II, and later leaving us on a second encounter with the ship. It is a shame

that PMH cannot spare him for longer. Dr. Greenough wants him to go, but apparently, not Dr. Walsh, his senior there. I sense a good deal of tension between Dr. Raymond Walsh and Roger Greenough, and young Don Bowdin is surely caught up in it. There is nothing quiet and smooth in the operation of these colonial medical services. Throughout the world, there seems to always be these problems of personality clashes, authoritarianism and jealousies. It is bad everywhere, particularly in these places of scanty medical facilities and limited personnel. The old adage that no two Westerners can share a primitive tribe, a village, or an island, still holds true, particularly with professionals.

I would like to get out to Ekiye and try to get some Tongariki bleedings there, if time permitted tomorrow. However, we have Paul Brown to meet and many other things to do. We shall see.

I have spent the late afternoon and evening with the Archdeacon of the Diocese of Melanesia, D. A. Rawcliffe of Lolowai, Longana (Aoba), New Hebrides. He flew down from Lolowai with Dr. this afternoon for the government council meeting this week here at Vila. He has loaded me with specific information about each island of the Banks and Torres group, where his mission has dominated the scene for generations. Deacon Rawcliffe is a small, thin, intense man who has had vast experience in the Banks and Torres islands.



Village Name List of  
the Banks and Torres Islands of the New Hebrides  
and the  
Southern Islands of the British Solomon Islands Protectorate





## Village Name List

## NEW HEBRIDES (CONDOMINIUM)

<u>Island</u>	<u>Village</u>	<u>Alternative spellings and names</u>
Efate	Vila	
Shepherd Islands		
Emai	Makatea	
Tongariki	Erata	
"	Levaima	Leiwaima
"	Tavia	
Banks Islands		
Mere Lava	St. Barnabus	Auta, Aota
" "	St. John	Lewotnot
" "	St. Luke	Levetmise, Levetmese
" "	St. Paul	Lekwel, Leqel
" "	St. Steven	Tasmat, Tismet
Merig	Levolvol	
Gaua	Beam	
"	Dorig	Durig
"	Kwitevut	Puetevut, Bwetevur, Dorav
"	Kuru	Koro
"	Lamonmon	Lemonmon
"	Lebot	
"	Lendawal	
"	Losolava	
"	Namasarig	Namasari, Massary
"	Narau	
"	Nume	
"	Ontar	
"	Qetegaveg	Bwetghaver, Qetegabe, Qeteqaveg
"	Siridi	
"	Tarasag	
"	Tolav	Dolav
"	Tuvrat	
Vanua Lava	Arep School, Sola Plantation	
" "	Mossina	Musina, Mosina, Moussina
" "	Levetimbozo	Vetimbozo, Vetomboso
" "	Kerepeta	Crepeta, Kerepita
" "	Pakea Island	
" "	Vatrata	Vatarata

## Village Name List

## NEW HEBRIDES (CONDOMINIUM)

<u>Island</u>	<u>Village</u>	<u>Alternative spellings and names</u>
Vanua Lava (continued)	Vureas Bay	Vurias
" "	Wasaga	Vusaga, Wrasaga, Wrasara
Mota Lava	Avar	Var
" "	Nerenigman	Nerenieman, Nereniuman, Nerenuman Nerenignam, Nrnngmn
" "	Qermagde	Qeremande, Queremande, Qerimande, Queremagde, Queremaghda
" "	Rar	Rah, Arah, Ra
" "	Totolag	Totogalag, Totoulagh, Totolai
" "	Valua	
Mota	St. Mathew	
"	Lotowan	Lotawan
"	Lowutgei	
"	Nauque	
"	Tasmate	
"	Veverau	Viverang, Viverau
Ureparapara	Lekwarangle	
"	Lehaloro	
"	Lehali	Letau
"	Tanno	
Pentecost	Tapwairu	
Torres Islands		
Loh	Longharagi	Longhargi, Longharegi
Toga	Litau	
"	Lekwol	Likwol
Tegua (Tughwa)		
Hiu	Yagwaha	
"	Yoghavigamene	Yoghavigamena, Yoghavighamena

## Village Name List

## BRITISH SOLOMON ISLANDS PROTECTORATE

<u>Island</u>	<u>Village</u>	<u>Alternative spellings and names</u>
Eastern District		
Tikopia	Faretapu	
"	Pasantaumako	Posataumogo, Posataumaga, Posatamako
"	Asanaga	Asanga
"	Botikorokoro	
"	Rafaea	Pitifareata, Putifariata, Patimua
"	Posagafiga	
"	Matautu	
"	Ratia	
"	Putifara	Potifara
"	Matafanga	
"	Safoa	
"	Posafangarere	
"	Sugumarai	
"	Nugu	
"	Tai	
"	Akitun	Akitunu
"	Teiava	
"	Aramera	
"	Nukutureki	Nakutureki
"	Sapei	
"	Tugutangoa	Tukutaunga
"	Botsiku	Botisigu
"	Koimarama	
"	Teakiroa	Teakaroa
"	Botimotuangi	
"	Namo	
"	Ravenga	
Anuta		
	(no villages listed)	
Vanikoro	Buma	
"	Lale	
"	Lavaka	
"	Emua	
Santa Cruz	Vanua	
"	Repe	
"	Nep	
"	Luwepe	
"	Bimbir	Bibir
"	Neboi	



## Village Name List

## BRITISH SOLOMON ISLANDS PROTECTORATE

Santa Cruz, continued	Menevi	
" "	Carlisle Bay	
" "	Noka	
" "	Pala	
" "	Loesalaba School	
" "	Nelua	
" "	Bainu	
" "	Venga	
" "	Mateone	
" "	Nangi	Nanga, Nangu, Nagu
" "	Nea	
" "	Luemimi	
" "	Banga	Bange
" "	Manoputi	Manuputi
" "	Matu	
" "	Bania	
" "	Noli	Naoli, Noole, No'ole, Nolie
" "	Io	You
" "	Malo	
" "	Nemba	Nembau, Nemboi
" "	Luova	Luava
" "	Nambablawi	
" "	Nonia	
" "	Lepa	
" "	Bonebo	
" "	Maleu	
" "	Neo	
" "	Bebin	
" "	Leunumi	Luemimi
Reef Islands		
" "	Nemou	Nimo, Nimoa
" "	Napale	Napali
" "	Nifiloli	
" "	Tua	Tuo
" "	Malapu	Malabu
" "	Otambe	
" "	Ngauwawa	
" "	Nanumbo	Nenumbo
" "	Lepei	Lipe
" "	Ngamumbelo	
" "	Nandele	
" "	Tanga	
" "	Nola	
" "	Namanye	Namange
" "	Laro	
" "	Namubuloli	Nganumblou, Nganumbulou
" "	Pileni	Bileni
" "	Otelo	Hotelo
" "	Nukapu	
" "	Niupani	Motalele

## Village Name List

## BRITISH SOLOMON ISLANDS PROTECTORATE

## Reef Islands (continued)

"	"	Namanie	
"	"	Nemumbo	
"	"	Lokuvabia	
"	"	Nimbenge	Nimbanga
"	"	Matewa	Matawa
"	"	Nibanga	Temoa

## Utupua

"	Nembau	Nembao
"	Natembo	
"	Nepau	
"	Aveta	
"	Asumbo	

## St. Isabel

Regi

## Malaita

Ambu

## Duff Islands

Tahua

## Ramonga Island

## Vella Lavella

## Central District

## Rennell

"	Lugu	
"	Tengano	
"	Niupani	
"	Kagua	Kangua
"	Baitupu	
"	Lavagu	Lavangu
"	Matanga	
"	Hutano	Hutana, Hutuna
"	Tevaitahe	
"	Tahanuku	
"	Kanaba	
"	Teiavamangu	
"	Huti Mongu	

## Bellona

"	Gotokanava	Ngotokanava
"	Patonu	
"	Matahenua	Ahenua
"	Ngongona	
"	Kapata	
"	Pauta	Paita
"	Ngongau	
"	Kongobainiu	
"	Mantangi	

## Guadalcanal

Mavaaina



Banks Islands, New Hebrides

September 19, 1972 -- October 11, 1972





"Alpha Helix" at Sea

September 19, 1972

We finally sailed at 10:00 a.m., an hour late. Roger Greenhough was by still helping us to the last moment as he shoved the gangway on board, helping our crew. When, earlier, he heard us complaining about no wrapping paper as I packed our first box for air dispatch back to NIH, he soon reappeared with a stack of wrapping paper for us, having rushed from Star Pier back to town and back to our ship. Donald Bowdin finally joined us, and his wife and his two babies stood by until our sailing to see him off.

Captain Alan Phinney had a rough morning on discovering that the change of wharf from BP's wharf to Star wharf had resulted in the misunderstanding that we had sailed and a return of all the last order of provisions to the warehouse. He had to round the supplies up again between 7:30 and 9 a.m.!!

I rushed to town to check about returning our Avis rental cars (we have 2 of them!) and to buy blankets, a pillow and some other last minute supplies at the Chinese trade stores. We then went out to the home where Mr. had taken me last night to see a great many fine Ambrym slit drums. There were six large ones here all carved in the last six years, but all completely traditional. The six were obviously of three styles and I surprised myself and our host, Joseph Tungon, a native of Magam village North Ambrym, by spotting this and assigning the pairs of drums correctly. The carvers are:

Pala	Noha village; N. Ambrym	"poor" profile
Baul	Magam village; N. Ambrym	strong profile, esp. nose
Steven	Magam village; N. Ambrym	triple "heads"

The fern tree (liululu) carvings (puersing) were also interesting and Don photographed all of them. The heavier, longer breadfruit carvings are called atingtino in the language of Magam village. With the close up photography of all the artifacts in town, Don has made a fine collection of data on styles of carving and decoration. Yesterday Don took photos of many of the Ambrym carvings in the French Cooperative Handicraft Outlet, some of which are fine.

Late last night Captain Jack Barley again visited us and brought me the two bailers that go with our Futuna canoe which the captain has now brought on board from Jack Barley's home. Jack apologized for not yet delivering the canon ball from Laperouse's Astrolabe which he dove for and recovered at Vanikoro, since he has not found it. His boys were cleaning it up while at home on this vacation and he does not know where they put it! He still tells me that I may have it. He also refuses any payment for the Futuna canoe he had made for me. The outrigger is smashed and we shall have to see if Tikopians can repair it for me in the traditional fashion. Jack Barley has been of great help to us and cleared everything from customs promptly for us. I wish I had arrived two days earlier and met his two boys before they returned to school in New Zealand. He gave Captain Phinney further details on landing on Tikopia and Anuta.

We are scheduled to arrive off the northwest landing on Merelava at 6 a.m. and to take boats to shore--starting at 8 a.m. It is hard for me to envisage what we shall be able to do here on Merelava. I hope we can visit the school tomorrow and get some bleedings and patient study done by tomorrow night--at least all of the school children.

I am very irritated to learn of all the deficiencies in our supplies. We should have had the whole world library of the New Hebridean literature and all major works on Banks and Torres Islands. We do not! Actually, Nancy and Mint "pulled out" and did not give the careful attention to their tissue culture directions and supply. Ferber and Wiesenfeld are not lab men and have failed to supply many vital items for most procedures. They have not tried to practice the techniques in the laboratory which they suggest using; thus, we are often lacking one or two critical items. It will be a real challenge for us to work out just what we can and cannot do. I only hope that some successful laboratory work is accomplished for otherwise the use of the ship is hardly justified.

We have packed all supplies for landing tomorrow. Our major problem may be that only Walter Schneider is experienced with the outboard engine and use of the small boats. Thus we do not have seamen who can handle difficult landings. We are starting with one of the difficult islands, Merelava, and proceeding to a more difficult landing, Merig. I do not understand how the Scripps Institute gets into Oceanographic work in regions such as this without an expert crew for handling small shore boats.

Everyone but Don and I has turned in early and we are listening to cassette tapes in the study lounge and writing. Merelava and Merig are severe tests of our abilities and we are starting our work with these. They provide critical tests, and we must pass well. If only the sea and the weather stay with us and we can land and reembark easily and safely, all will then rest on my ability to get along with the people.

Jean Guiart tells me of Mathias-like problems with Arman, his middle son, now of about 21 years of age. He is out of work and he sleeps most of the day and roams most of the night getting into trouble. René, the youngest, may eventually get going again at factory work. He has dropped out of his studies. Michelle is off at Noumea where Jean has also left his wife. I tell him of my problem with Mat and we are almost typical American fathers faced with the almost fadlike, typical pattern of their sons dropping out of affluent educated suburbia.

Paul has arrived looking gaunt, haggard and aged and I am waiting for him to relax and get young once again. Obviously, from his very bearing and physical appearance, things have been hard for him in Paris and back in Bethesda. I have not spoken with him at all about this.

Françoise, Richard, Raymond and Paul have managed to separate off the serum from our first 40 bleedings. I did not help them but instead have tried to organize the records and plans of our expedition at Merelava.



I never got to Seaside in Port Vila, where the Tongarikians live, and did not see Willie Suran, the boy with severe reduction deformities, again, although I had promised to visit him.

If only we can do a good medical job, I shall be happy. If the work also permits exploring and enjoying the island families at night, I shall be most happy.

Don has prepared from notes I have given him a "fact sheet" and a sketch map of Merelava, one copy for each scientist--now we are ten!

Off Merelava, Banks Islands

September 20, 1972

We are here! I was awakened by Walter at 5 a.m. and found Merelava looming to our east, as dawn appeared, and off to the northwest, Merig rising like a pebble from the sea. Star peak, rising from the sea, is no less exciting than it was in 1963 from the L'Orientaise, and I am very near to tears of joy at being here once again. When I last left Merelava I swore to myself to be back!

Now I am dominated by anxiety about getting safely ashore with our party and supplies with our little skill in handling the small boats. I am filled with anticipation of what we can do on these next four days here.

I awoke the others to share in the awesome sight of this giant cloud-covered, symmetrical Star peak rising abruptly from the sea. On the captain's British Navigation Charts (19 ), the island appears as more a sketch than as an accurately surveyed map. It is shown far more radially symmetrical than it is. It is listed as 2800 feet high, while the French chart we have listed it as +883 meters. The offshore stone pylon of the northeast is shown as seven feet high (two meters on the French map). Merig's elevation is given as seven feet, or two meters on the French map.

St. Paul Lekwel, Merelava

September 20, 1972

We first pulled near to shore at St. Steven, or "Mission Basis," as the local native who came out in a conoe to greet us called the place. He told us that landing would be easier than on the north shore, but since we want to be based at St. Paul Lekwel, at the school and dispensary, we did not accept his suggestion, and instead reapproached the coast further northward. Around to the north of St. Stevens we found a deserted landing above high cliff-liek rocks below St. Luke Levetmese, and since there were no people here to help us over these steep rocks, we went on northeast to the landing below St. Paul's , where over a dozen people assembled on the landing below the village. It is here that we decided to try to land, and we have made it successfully. Jean and I came ashore first and climbed the cliffs to the village, where I quickly explained our purpose to the people. Head teacher, Judah Butu, and teacher Dimas Boy, and Dresser Andrew Gon, all met us at the landing.

Immediately it was clear that we were welcome.



St. Paul Lekwel, Merelava

September 20, 1972

Paul Brown, Jean Guiart and I are staying at this village where the dispensary and school are located, and at which we landed, as I planned at 8:30 a.m. this morning. All ten scientists (but none of the crew) had landed by 10 a.m. in three trips of the shore boat from the Alpha Helix in heavy winds and moderately high seas. The others in our scientific party who are not staying on shore tonight have now reembarked at 4:30 p.m. from the land just before the rock formation, called Vatoŋlav, just below St. John Lewetnok. Today has been a long and fascinating day of festivities at St. John Lewetnok commemorating the arrival of Bishop Paterson in the Islands in 1871. The Bishop was later killed on Nukapu in the northern Santa Cruz group. Our landing was somewhat delayed after a dramatic early morning awakening to find Merelava, looming with its cloud-capped conical peak before us as our ship slowly approached the island. Merig showed up dim and distant on our starboard side. I went to the bridge to help the captain decide whether we could land and where it should be. We finally located a landing, drew cautiously in, but found the fathomometer now working properly, and this made things difficult for the captain who had never visited any of the Banks islands before. We noticed several canoes laying on the rocky ledges far above the shore, and saw an anchor painted on the rock cliffs below the village, where a dozen or more people were assembled. While we hesitated offshore, a man lowered a canoe from the precipitous rocks and came out into the choppy sea to our ship. He told me that we were not off St. Paul Lekwel, but rather off Mission Basis, which we later learned was St. Steven Tasmak, the largest village on Merelava. The visitor claimed that this was the best landing, and that we could easily carry supplies over to Lekwel, but we decided to investigate further northward along the coast. We found two landings with canoes above them, but only one had people assembled on it and that was nearest to the buildings I took to be the school and rest house about which we had heard. The first boat to shore with Walter, Jean, Don and myself made the trip without trouble, but we were soaked completely en route by waves. At Lekwel, we were helped ashore and promptly met the head teacher, Judah Butu, and his associate, Dimas Boy, from Pentecost and Maewo, respectively. The Dresser, Andrew Gon, was also there; they told us the school was not in session for it was an island holiday with festivities all day at St. John Lewetnok. Thus, we quickly changed all plans and decided to visit the festivities and to start our physical examinations of the children at the school tomorrow. The hike to St. John from St. Paul took a bit over a half hour, loitering along the way. At St. John the festivities were already started, but the Priest, Thomas Butu, Judah's brother, led the people in singing to us a greeting and cheering our arrival. Then followed speeches about our arrival, traditional dancing by the St. John's men and boys with foot-stamping, a rattle dance, and finally, dancing to drums which are percussion boards lying on the ground and struck with long bamboo poles.

In midafternoon the traditional dancing gave way to electric guitar playing and desultory dancing, which was never very spirited, but Jean, Judy, Raymond, Françoise, and I took part at one time or another, much to the pleasure and amusement of our hosts.

Kwangrow, the name given to us by Archdeacon Rawcliffe, is the ground name for the church and festivity site at St. John Lewetnok. Vatvangar is the name of the soccer field below the village. Anjangaula is the hamlet near the soccer field. Thus, as everywhere in Melanesia, there are dozens of place names to each village site.

Our reception on Merelava has been very friendly and the festivities have been extremely enjoyable. We could not have expected as fine a welcome on any other day of the year. We now know the villagers rather well, and should have a good day performing physical examinations, measuring, bleeding, finger printing, photographing, etc. tomorrow.

Just after landing, and while awaiting the second trip of the shore boat, I shook hands with the only small boy who was with the men on the rocks. I found my hand grasping a right hand with only two digits and grossly deformed, with congenital loss of three of the fingers. I asked quickly if this were traumatic or from a burn, but was assured by the dresser, who is from St. Paul's, that it was congenital. This brings me to yet another case of reduction deformities, which I have spotted with Roger Greenhough at Vila, here in the New ebrides. It thus appears to be a genetic matter in the region, perhaps rather than a toxic reaction to attempted abortion using quinine or chloroquine, which I had suspected at first. It requires much further analysis, and this we must turn to. The boy with this defect is John Bol, a seven year old son of Martin Witinbir and Elizabeth Ruis, both from St. Steven Tasmal.

After the departure of the shore boat from Makundungon, below St. John, I climbed back to Kwangrow; a dozen St. Paul's boys walked back to their village with me at dusk, while we watched the Alpha Helix cruise slowly along the coast, far from the cliffs of the shore far below us. Along the way I got another gift of a laplap made of sweet potato and a nut called ngi. This laplap is called lukunbudit. The girls from St. John gave it to us, along with coconut fetched from the trees by the small boys. The loss of coconuts, hurled down to the trail and often bounding down the hill, was great, and their value seems not to be sufficiently high to run down and retrieve them.

The boys who accompanied me about St. John's were bright and a very informative group of schoolboys. All were from St. John Lewetnok.

	<u>Age</u>	<u>Class in School</u>
Martin Ton	13	6
Dunstan Phillip	12	4
Judah Tingris	12	3
Henry Ofking	7	2
Nelson Kanal	7	2
Edmond Rawcliffe	8	2
Kuba Mak	5	0
Mak Mul	4	0



Merelava, St. Paul Lekwel

September 21, 1972

The collection of 216 blood specimens from the children, with finger and palm prints and identity photographs on the first 100 or so, done along with complete physical examinations on the first 70 or so, represent a vast accomplishment. Paul and I started to bleed the school children who assembled by 8 a.m., before the shore boat arrived from the Alpha Helix with the rest of our party. We had finished with some 75 of the children by the time the boat arrived! Soon after our party joined us, I set the others to work on bleeding, and organized the physical examination station so that Don Bowdin and Richard Ferber did the examinations together. Eventually, Raymond Roos and Paul Brown joined them. A bottleneck in the whole procedure was collecting bloods along with individual documentation of what could be learned by this interview of family relations, travel history, and school status. We have a heavy day before us tomorrow as well, but today was a very promising start. At 1:00 p.m. Walter and Paul took the first 100 blood specimens back to the ship, where Paul managed to make the serum separations of the whole series before supper. By 4 p.m. we had to terminate everything, for the last shore boat came to pick up everyone. The heavy surge against the rocks made all landings today very difficult and dangerous, and we cannot trust that these can remain safely executed, and must cut them to a minimum. This evening, after supper and a break on board, Françoise, Paul and Raymond returned to shore, leaving Ferber to handle the remaining 100 blood specimens, which is no easy job!

The people came, in spite of drizzle and occasional heavy downpour, all of brief duration, and instead of 80 school children we had over 200 to bleed and study! Tomorrow there will be others, and we shall also take on some of the adults. The heights and weights have not yet been taken, more have many of the physical examinations been completed. These are our remaining chores.

I hope to spend tomorrow night in St. Barnabas, and to round the island to St. Steven the next day, and return to St. Paul for our final night on the island. The Captain is having trouble keeping the ship offshore, and cannot anchor it safely along the shore. Thus, he is steaming slowly at sea the whole time. At night the ship is very uncomfortable and noisy, everyone tells me...I have not been back on board since I landed!

Jean found four major lines of descent, all matrilineal here on the island. There are, in addition, lines from Fijian origin, and others from the Solomon Islands and from G . He is trying to determine the "lines" for the group of over 200 children we bled today. For St. Paul's, he has finished this task this evening. We were so continuously busy all day, and had so thoroughly occupied the whole island population, that little else could be accomplished by Jean Guiart here in St. Paul. Now, seated by kerosene pressure lamp light and typing with a dozen boys of St. Luke and St. Paul around me, I work up the day's journal and records. With another equally successful day we shall be far ahead of anything I anticipated accomplishing on Merelava.

Lekwel village, Merelava

September 21, 1972

We are sleeping at Lekwel again, after a very hard day's work. Ten of the Lekwel boys are sleeping at the school with me, having brought here their mats and their blankets, sheets or pillows--few have more than two of these items. They like to sleep in pairs and joke about genital play together very casually and unembarrassedly. Tonight a group of four older boys aged 14 to 17 asked to have me examine them now rather than in the daytime when they would be embarrassed by girls seeing them examined. To be examined even under the distant eyes of girls and women is very embarrassing to them.

Jean is sleeping alone in a deserted house nearby and Paul, Ray and Françoise have fine quarters with Father Thomas Butu, the Anglican priest who has been here for two years already. I have just joined them all in Father Thomas's home where we were offered pumpkin cooked in coconut milk, a very refreshing dish.

The weather is often windy and overcast with intermittent showers and drizzle and the landings are always difficult on Merelava. We will have to exercise more caution than in the past, for ship to shore circuits are truly hazardous!

There was late night dancing to guitar music at both St. John and St. Barnabas. This occurs regularly on both Wednesdays and Fridays at St. Barnabas. There is only Friday dancing at St. Steven and St. Paul's and none at St. John's or St. Luke's. Why St. Barnabas dances more often I do not know, but the boys imply they simply like to dance there more.

There are many Merelava people away. I get the following list of students at Torvil Village School, Lolowai:

Viktor Walang Sirsir	(F. Merdon)	M 17	Class 7	St. Barnabas
Janet Elizabeth	(F. Manasi)	F 15	Class 7	St. Steven
Stella Anitta	(F. Fubin)	F 13	Class 7	St. Steven
Leo Swedon	(F. Manesi)	M 16	Class	St. Steven
Henry Stakis	(F. Christen)	M 16	Class	St. Steven
John Esera	(F. Edwin)	M 16	Class 7	St. Paul
Ili Rolir		M 16	Class 7	St. Paul
John Young		M 18	Class 7	St. Paul
Thomas Erikson		M 17	Class 7	St. Paul
Michael Sur	(F. Bauwmin)	M 17	Class	St. Paul
Ataben Calintula		M 15	Class 7	St. John

There are no Merelava students at Port Paterson. At Lolowai there is a Merelava carpenter:

Morris Lulu	(F. Edwin)	St. Paul
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This very partial list of people off the island may be of help to us in tracking down absentees from Merelava, who are many.



St. Barnabas A'ota, Matliwag Church Site

September 22, 1972

Don Rubenstein and I are seated in the Bishop's house at the Diocese of Melanesia Church site. We hiked here along the trail which goes east from St. Paul Lekwel via St. John Lewatnok and reached here in about 1½ hours of easy walking in wind and moderate rain. Clouds covered patches of the ocean whipped by 30-40 mile per hour wind into a heavy swell. The whole day has been very windy and our team of three caught on the Alpha Helix could not be landed all morning. In mid-morning they made attempts to land but could not manage the huge swell at St. Paul and at the calmer landing below St. Luke Levetmise they could not scale the cliff-like rock formation rising 10-15 feet above the boat along the shore. I kept in radio contact with the ship and tried all morning to urge them to find a site for landing, but the high winds and heavy seas have made all such small boat movements dangerous!

Paul, Raymond and Françoise had arrived at 5:30 p.m. last night in a very dangerous landing. The three left on board managed to separate all the remaining bloods, freezing down the clots and sera to -70°C in the Revco and leaving a small suspension of red blood cells in residual sera at 4°C, in the refrigerators. Thus 220 specimens are already processed. The three who joined Jean Guiart and I found lodging in Father Thomas Butu's home and late in the evening we had pumpkin cooked with coconut oil and other fine dishes to eat.

I slept again at the school with about eight St. Paul's boys, William sharing my mat with me. There is now an almost full moon. There will be dancing at St. Paul's, St. Steven's and at at St. Barnabas and the latter village dances also on Wednesday night.

We have had one hour of St. Barnabas at dusk, and we have now moved into the Bishop's house for the night. The "family" of Alban Lias, my closet helper from here, has had "market" open this evening and I have purchased from his family at 10¢ a slice most of a large pie of laplap made of manioc and "cabbage" (greens) and coconut and yam and four large plates of grated manioc "dumplings" covered with cooked and grated coconut in coconut milk!! This has filled everyone.

After eating, we arranged mats on the floor of our house for the six "strangers" (i.e., St. Paul and St. John boys). With a group of boys and three small girls we climbed steeply above the Matliwag site to the home of Erik Por, the father of a family of small children, who is febrile and toxic. He is no longer able to walk from a severe systemic reaction to the huge deep abscess and cellulitis, and perhaps even osteomyelitis and septicemia from a deep and penetrating wound of the right arm resulting from the penetration of his arm muscles with a stick, while doing garden work. He pulled out all of the stick, but obviously much debris has remained. I came with no medical supplies other than a small vial (250 mg. capsules) of ampicillin and 250 mg. capsules of tetracycline...thus, I could treat him, and have given him 750 mg. of ampicillin stat and 500 mg. for consumption at 6 a.m.; tomorrow, I shall arrange for the dresser, Andrew Gon, to come here with procaine penicillin injections for a few days. I must examine the patient more carefully tomorrow.

William Tule, the 13 year old St. Paul's boy who has identified most closely with me, tore a severe laceration in the sole of his right foot on our way here and I have only been able to bandage it with a cloth I purchased here (again 10¢) after washing it off with water.

Alban's family has made tea for us! Alban is our host. Now as I write, the villages are dancing to guitar music. It is largely European-style party dancing, and they enjoy it. Pairs of girls usually dance together as do small boys. Some boys of only 8-10 take large adolescent girls as partners. Don has danced one round and returned to his language recordings. Thus we work by kerosene lantern and listen to the guitar music. Alban's family has prepared hot tea for us, given us sheets and clean pillows and seen to it that we have fine mats and bedding and we are to have a breakfast made for us by them. I have told them we will stay to examine Erik again, see other sick and to interview the two old sisters who remember the ancient, now extinct language (dialect) which was formerly spoken here at A'ota. I find Alban one of the most helpful and charming of all the lads of the island. If I were to stay with any of them for long it would be him. He is mature for his 13 years, and could well be 15 years old already, which is far along for the 6th grade. His English is good and precise and he is a reliable informant. His English perfection seems to interfere with his comprehension of my New Guinea Pidgin, for others do rather well with it and he does not, doing excellently if I speak English distinctly.

This village has very beautifully constructed houses made of native materials only or of only a minimum of sheet metal and they thus have a far more traditional appearance than most of the houses of St. Paul and St. John. There is no landing here at A'ota and only in the best of weather is a landing from a ship's boat possible. Nevertheless the people do have canoes which they launch in good weather. We have spotted interesting styles of out-of-door benches and a log-cabin pyramidal bird trap at house sites on our way into Matliwag. We also visited Dorothy, one of the two old sisters who still recall some of the ancient A'ota language. Don plans to interview them both tomorrow.

I wish I had brought with me extensive dressing material and injectable Bicillin for Erik Por and to dress William's cut foot. Luckily I do have the broad spectrum antibiotics with me. I have left the others to carry out responsibly the completion of our program at St. Paul's and will see just how well they do now that I have really deserted them by rushing off to St. Barnabas this evening. If tomorrow we can land a shore boat load safely and without too much risk and get 100 more venules and needles I shall bleed a group of adults (some 30-50) and those further children whom we can round up, such as the dozen I find here who do not go to school but who stay in the village and did not come yet to see us at St. Paul. Among them a Class 6 graduate of only 15 years of age, John Paama Ronlimetluau, is obviously facing the classical adolescent dilemma of all such partially acculturated villagers who have remained subsistence agriculturists and fishermen and yet have in their religion and schooling glimpsed the outside world. Back at home he has no choice but to become a fully integrated villager once again, but to abandon the vaster horizons



of a schoolboy is a difficult thing to do. It is a lifelong turning point which these boys would rather not have reached.

The guitar music, singing and dancing outside of our Bishop's house will, obviously, go on for most of the night. Most of the dancing is with couples and solo dancing, such as I see so often in New Britain and New Ireland, is not a part of the dance. Instead, even the small boys have age-mates of their own sex to dance with, as most girls dance with other girls, and the men and boys often interrupt them and dance with girls or women much older or younger than they. Boys of seven to ten years of age dance with girls of fifteen to twenty, and men with girls of ten to twelve are often dancing partners.

St. Barnabas, A'ota, Merelava

September 23, 1972

Here I find a nineteen year old youth with a hypoplastic right leg, some two to three inches shorter than his left, which is normal. He is said to have had hot, tender swelling of the inner thigh, just above the knee, as an infant, and the leg has since remained hypoplastic. He stands with tilted pelvis and walks with a waddle. He has developed a compensatory scoliosis for his tilted pelvis, and his thigh and leg are both atrophic, with very hypoplastic musculature. I do not think any further surgical correction is likely here in New Hebrides, but need to discuss orthopedic recommendation with someone doing work in this field. Obviously, we can do nothing, for even a builtup shoe sole would not be acceptable to him here. He gets around well as it is with a stick, but now prefers to waddle without using the stick. His name is Frank Adam, and his difficulty is traced to the acute inflammatory leg disease since early childhood.

The people have prepared for us an enormous breakfast of sweet potato, yams and manioc, meat, rice and sugared tea, and we are all stuffed. They treat the six boys from St. John, St. Paul and St. Steven as guests as well, and provide them with food and with sheets and blankets for their sleep with us last night.

The buildings of A'ota are almost all made traditionally, and the stone work on the terraces and platforms is executed very finely. I find the village very much more beautiful than that at St. Paul Lekwel, with none of the messy building material used at Lekwel. The houses are more compact on a very steep slope near the church site of Matliwog, although the A'ota group have scattered homesteads which lie far apart, along the south side of Merelava, as well as those clustered about the social center of the community.

I revisited Erik Por, who has the huge abscess of the right arm, and have given him another 0.5 gm. of ampicillin.

## St. Steven Tasmat, Merelava

We have stopped to see several of the oldest people at St. Steven Tasmat.

<u>Sese</u>	F-aged	<u>David Langer</u>
Husband:	Ellison (from Lekwel) died	Wife: Mosen
Father:	Charlie, from St. Steven Tasmat	Children: 1. Fanny
Mother:	Laisa, from St. Barnabas A'ota	2. Kuana-10 yrs. died
Children:	No pregnancies	3. Fanny-2 yrs. died
		4. Nancy-1 mo. died
		5. George Mulder

<u>Flori</u>	F-aged
Husband:	Simon (from St. Steven Tasmat)
Children:	1. Elsie F.-died
	2. Mary F.
	3. Cyril M.-died
	4. Cyril M. at Vila
	5. May F. at St. Paul Lekwel
	6. Edwin M.-died
	7. Piting F.-died
	8. Jocelyn Mary F.-died
	9. Nesta F. at Vila
	10. Infant-died
	11. Infant-died

<u>Anjen</u>	F-aged
Husband #1:	Mak-died
Children:	1. Joe Watkin-died
	2. Muriel F.-died
	3. Emily F.-died
	4. died
Husband #2:	Richard-died
	5. Steven

<u>Anis</u>	M-aged
Had 11 children, only 3 still living:	
	Basil
	Helena
	Elizabeth (on Guam)

<u>Peter Wesur</u>	M-70 St. Luke L
Wife:	Iruwellrovel Lawarmaram-died
Children:	1. Lionel Tar-M.
	2. Albert M. (in Santo)
	3. Martha-F. (married to Bob Phil of Santo and Australia, teacher)
	4. Helen-F. (married to Maewo)
	5. Ada-F. (married)
	6. Emily-F. (in St. John)
	7. Jonas-M.-died
	8. Joyce-F.-died
	9. Sarah-F.-died
	10. Dorothy-F.-died



St. Paul Lekwel, Merelava

September 23, 1972

The boys who have walked with Don and me from A'ota to St. Steven, St. Luke, and St. Paul today, and visited a dozen households of sick or very old people en route, have been:

Alban Lias	15+	St. Barnabas
John Collieridge	10	St. Barnabas
Marshel Rors Flander	16	St. Steven
William Tule	12	St. Paul
Henry Wiris	12	St. Paul
Martin Ton	13	St. John

Jean Guiart has just sat down with me to talk and I have turned to these pages and did not keep giving him my attention. He has got up, mumbling that he will turn in like the others, since I do not manage to keep up conversation! It is well that he has been so verbal, since I have lapsed into a dreadful habit of turning off my boys and everyone with my work. I did not realize how boorish it has become, and that I even shut out colleagues from my life and thoughts quite rudely by this increasing "failure to sustain conversation." Good for Jean!

Drowned on Merelava:

Mata T.	F.17	Father (from Pentecost) Mother: Hane (from St. Paul)
Fell from stones into sea and drowned in <u>1971</u>		
Rutias Frenda	F.14	St. Barnabas
Drowned in Quantamagaveo stream during flood in <u>1970</u>		
John Collieridge	M.18	St. Luke
Swimming at Magdulap and shark attack is suspected in <u>1969</u>		

At St. Steven today, we saw several interesting patients; among them:

1. Emily Rutur F.35  
No husband. Left leg with flaccid paralysis which started in infancy. It is not attributed to an acute "swelling up" of the leg, as is the hypotrophic and flaccid leg and foot of Frank Adam, a 19-year old boy in St. Barnabas A'ota. I found no ankle jerk, no spasm, no Babinski or ankle clonus, and no anesthesia. The leg appears to be the result of a post-poliomyelitis with foot drop. It is not hypoplastic and atrophic, as was the leg and foot of Frank Adam of A'ota.
2. Phillip Morris Nwou Father: Barnabas Mother: Ester  
With congenital defective right eye, hypoplastic and "out." Not fully examined. He suffers from extensive impetigo, with open pussy and weeping lesions. Given Terramycin Rx and  $1 \times 10^6$  units PCN by Paul later.

It is also obvious that I have worked our team a bit too hard and done little to make sure that they have enjoyed their stay on Merelava. The adverse conditions of living ashore and the hazards of landing from and reboarding the ship, have discouraged them, as has the rough sojourn on the ship in high seas, and finally, once on shore the climbing and hiking has been a bit much for Judy and Richard, and the work load of over 250 children's 50 adults' physical examinations and a great many additional sick patients with complaints has exhausted everyone. Paul has taken on direction of our studies at every stage when I have been absent, and the group has gone to huge concerted effort to get the work done. It has been a bit too much to have undertaken, for the circumferential walk around Merelava requires four to six hours, and the population is now about 1000. Four days to survey all of the complex culture has been far too little. The Alpha Helix crew has not set foot on shore, and all night the ship cruises the sea far offshore. We have had a waxing moon since our arrival and full moon tonight. The dangers of some of the landings cannot be exaggerated and I must seek to be more cautious in the future. The small boat operation has fallen almost exclusively to Jean Guiart. Jean and I have been on shore all the time since disembarking, and Paul has also managed to sleep all four nights on shore, as we have. To have been so thoroughly enthralled with the people so as to leave almost no time for discussions with any tema has been the major problem and error of this short and strenuous initial survey. I hope that now we shall be more realistic and more efficient on the other islands, and that we shall not tackle such an extensive population again on this trip.

The local school boys speak and read English well and thus cramp my style severely when reading over my shoulder all I write herein, almost as fast as I write. This makes it necessary for me to remember much that I wish to record for later.

...10 p.m...

It is late, and with all five of my team who are on shore with me now asleep, the guitar music for moonlight dancing has started. The people have tactfully come down to the school playing ground field for the dancing in order not to awaken the "waitmen" who are sleeping. I am writing by Coleman lamp light at the Dispensary porch where I have worked on three of my previous four nights on the island. The girls have clustered about noisily and tried to get me off to the dance. I have not obliged them. Seeing my reluctance and hesitation and noticing that I often beat time or sway to the guitar music, Alban tactfully tells me: "If you want to dance, you must try!" and all the boys say they want me to dance. Yet, it is the same deep revulsion and shyness in social gatherings that thrust me from then in childhood and adolescence that remains with me. I prefer to turn instead to any kind of work and look on at these gatherings as social or cultural events from which I am excused. The ease with which Alban spots the problem is amazing. Fortunately he is very verbal and minces no words and loses no time in setting me straight. The dancing remains, as was yesterday's, very conventional and "Western" and none of the solo dancing by men or accomplished boys has yet turned up...although when they are not seen publically, I notice that the boys often practice steps of the solo-type dances, which must thus sometimes be performed.

The older schoolboys have a huge musical repertoire of tunes and words in Mota language and in their own, and in English, French, and Bis-la-man. The Diocese of Melanesia used to use the Mota language in all their instruction; it now uses English. In singing, as elsewhere in the Pacific, where introduced by missionaries, the hymns have largely replaced traditional songs and music. The people sing the words, which are in their own language, and the tune, which is a well known hymn, and they also enjoy part-singing and do very well with it.

There are two cows on Merelava, both at St. John. Previously, there had been more cows elsewhere than at St. John. There have been no goats, sheep, horses, mules or donkeys, and no turkeys. There are many dogs, cats, pigs, chickens, and many wild rats, and flying foxes of two types. There are no ducks now, but in times past there were some.

Merig Island, Levovol Village

September 24, 1972

All of our party, exempt Raymond, are on shore for the night, and Walter is also on shipboard. Don Bowdin has left to go to Santo on board the Rocinante with Captain Buchanski, who made the appointed rendezvous with us at 3 p.m. today just off Merig Island. We arrived at 2 p.m., after studying the southeast end of the island, and as we approached it we found no houses or people, and absolutely no possibility of a landing; then we lay off the more sheltered northwest, along which we still found no possible landing. Then Captain Buchanski came across to us in his dory of the Rocinante on the surf-washed ledge with the help of the villagers, and we unloaded some of the supplies I had packed and then hiked about one eighth of a mile inland to the compact village of Levovol. The island has been laid waste by three fierce hurricanes earlier this year. All the houses, but one, were blown down and the village had been reconstructed quickly.

I promptly informed the villagers of our purpose and asked if they would be examined here in the center of the village, and if they could house a total of eight of us for the night, if we came ashore. They said they could.

Walter Geary has not received a report from me; thus, just before leaving the ship this evening I rapidly drafted a report of our completed work on Merelava, and our new work starting here on Merig. Don Bowdin has taken the serum suspended red cells in residual serum, after pipetting off the serum, and will air freight them to Bob Kirk in Canberra perhaps tomorrow, in the huge styrofoam icebox we have used on land at Merelava. I trust they will arrive in good shape in Canberra, and that Bob will not be furious with me for obstructing his planned publications. I have not yet finished with the draft of the Colombian paper he sent back to me, and that I must now do quickly while on the Alpha Helix.

It is clear that the Alpha Helix was not designed or envisaged as a base for shore-based medical work. The captain and the crew, and even Walter are astonished to see us all ashore and missing meals on the ship, and they



also are very astonished to see anyone sleeping on shore. Although excellently equipped for life at sea, the Alpha Helix is not equipped to provide shore parties with the optimum support, either for sleeping and eating, or for work. Such items as collapsible light camp chairs and tables are needed in large number and large water containers and camp beds.

...9 p.m...

Working with Cinderella, Erema, Veronica, and Mary, girls of Merig aged 15, 10, 8, and 15 years, respectively, who are seated in our camp again tonight. They obviously would not mind any liaison possible and await overtures on our part. Judy, Don and Ray have returned to the ship. Wind has blown up and yet the anchorage remains good. We have used the passage into the small lagoon at high tide this morning and evening, but at mid-day at low tide we could not get our small boat out.

We have found 48 Merig residents to bleed and have left two babies unbled, --a population of 50 on the island!!

#### Review of Recent Deaths in Merig Community:

In April, 1971 there was a very sudden explosive outbreak of vomiting on Merig with six children dying over the course of only three days and two adults as well -- a total of eight deaths. There were no convulsions.

Lansdale	M5	} Three sons of Pauline, (eldest daughter of Chief and <u>Luke Mul</u> Mathias Venbiv)
Philip	M3	
William	M1	
Alban	M 9 mos	son of Deacon Charlie Noah
George	M 5 mos	son of Dorothy Rutias & ?father
Greta	F9	daughter of Mathias & Ruth Rom

The illness was sudden severe vomiting with dehydration I suspect it was bacterial. All died after 1 - 2 days of illness and emesis was the most characteristic symptom.

Pauline, wife of Luk Mul and mother of three children who also died, was the only adult victim. Alban, infant son of Charlie Noah was first to die.

Joyce, a female aged 50, wife of Albert (dead 1959) died of the same disease.

Anjen Rutus, female, aged. Husband: John Wokab--died of old age long ago at Merig.

Ruth Rombal, female, 25. Husband Mathias Edward (fr. Lekwel, Merelava), died of "short win" on Aug. 5 on Merig.

No deaths in 1972 as yet. No deaths in sea for many years. No deaths from coconut palm or trees for many years. Injury (broken wrist) in fall from tree: Henry Morris, M-20 died about 1960.



There are several one-house hamlets or dwelling sites along the trail around the island. They are the houses of the following people:

<u>Resident</u>	<u>Place Name</u>
Norman Dickson & Korin Ruler	Tesmarik (Tismiriu)
Robert Sem	Tetum
Barton Ves	Teman
Deacon Charlie	Vare
Simon & Anne	Kuarangmar
David	Tutung

Mountain place names: Makalver (west); Makdelat (east); Makdosus (east)  
 Inlet basin: Lesulab  
 Anchorage: Lematsar

Paul gave nine skin test antigens: PPD-A, B, F, G, S, T, Y, coccidioidin, and histoplasmin to 45 of the 48 patients whom we bled and all 48 were weighed and measured today and about half examined by Raymond and Richard. Thus, we got a great part of the work done here in short order.

Richard is a bit depressed and bored with so many infant physical examinations and is not sure why we are doing them. That the discovery of more spleens palpable here than on all Merelava is a case in point. Yet the job is tiring and it is easy to get sloppy. I am directing less, leaving more to the originality of the others, and this may prove very good.

Swimming in Lesulab basin this afternoon, after the shore boat returned with Ray and Judy and Don, I struck my toe severely on a submerged stone and broke the anil of my left big toe and lacerated the toe as well. I hope it heals without any chronic sore or ulcer developing for I have hiking to do on Gaua.

Paul, Jean and I have not returned to the ship since we left it and the others are now getting enthusiastic for life on the shore. Ferber finds much of this roughing it a bit new to him, but he seems to enjoy it.

Lavolvol village, Merig Island

September 25, 1972

We have had a problem of recording! All notes on loose paper are getting misfiled, lost or damaged and thus we have used much of the morning to transcribe notes taken on loose sheets into our standard red-bound notebooks. The fact that we sent over 20 such notebooks from NIH has proved very important.

Walter Schneider stayed on shore all day today, and Walter did a good deal of cinema documenting our work with the people.

We are finding the routine physical examinations to be boring and of little yield. Ferber and Roos have had most of them to do and they are disgruntled from this. The yield seems at times to be very meagre, but it is in this way we have located those with large spleens, moluscum contagiosum and neurological syndromes. I am trying to let everyone have interesting jobs to do and I let Paul and the others take over the WBCs, Hgb, and thick and thin smears. The people are very ammenable to all our disturbance of their lives and have submitted to all of our procedures, ranging from the venepunctures to the 9-antigen skin tests and the WBCs, Hgb's. Only the toddlers have raised an understandable fuss.

The basin or lagoon in which we are landing and embarking is called Matvaghvugh and the tricky passage into it is called Laselap (Lesulab) and the stone wall that separates it from the sea is Lemetsa.

One old lady here has peripheral neuropathy with anesthesia and paralysis below the knees without fasciculations and without any other neurological signs elsewhere. We do not know the cause of her chronic illness. Françoise and Raymond are studying her carefully.

Captain Buchanski of the M.V. Rocinante arrived today on return from Espiritu Santo, where he left Don Bowdin with our blood specimens for the Jeep trip down to Santo. Since I did not want the dressers to give BCG or triple antigen while we are doing Hgb, CBCs, and skin tests, they departed to do their work on Merelava and to return here in a few days. Although Captain Buchanski has been here 12 years he has never sailed to the Banks and Torres before. He seems to be having no problems.

Lavolvol, Merig Island

September 26, 1972

Paul, Jean and I are alone on Merig tonight. At about 4 p.m. we sent everyone else on board ship and no one was really reluctant to go, although several had planned to stay ashore. Since high tide only permits safe leaving of the "lagoon", we must be out by 8:30-9:30 a.m. tomorrow so we have sent most of the supplies on board already and only the three of us and our supplies for the night need to be taken off.

I spent the last hour before dark on the small strip--or rather, hill of sand on one end of the lagoon or basin (Matrughrugh) playing with Steven Tsai, Steven Rangle, Supel, Veronica, Erema, Juliette and Linsey Goodwin, all children of 6 to 11 years. Supei of 7 and Lindsey of 6 go about naked among the girls, but Stephen Tsai of 10 does not. The children built enormous trenches and . . . holes and walls to hold off the rising tide, unsuccessfully, of course.

We have been given three varieties of boiled sweet potato, well-cooked flying fox, and a fine sweet potato laplap cooked in coconut milk. Now with tea we are really set and comfortable. Insect repellent for small mosquitos and flies has been very handy here, where insects are moderately bad pests.

It has been impossible for us to get anything but the most prosaic of canned foods, condiments, cookies etc. on shore from our cook, and the whole ship operates a bit resentful of the scientific party on shore. It is as though they did not want us to escape from their discipline and routines and accommodations on board.

We have now only to read the skin tests and depart with WBCs and hemoglobins now done on the whole populace today along with thin and thick smears, we have little more to do here, for we have not yet set up for other studies very well. Bacteriological cultures, stools for ova and parasites, biochemical studies and X-rays and EKG we may get to on other islands, but not here.

The village goes to sleep early, even on these moonlit nights. Thus, the children's playing has abruptly stopped at 8:30 p.m. and there is no more rowdy playing or rough house among the small children--all have gone to their own houses where all is quiet!! They tell stories, converse and listen to transistor radios.

The well of brackish water dug high on the eastern beach to a depth almost to the sea--or deeper--is used as a source of brackish water for food and cooking and for other water uses where brackish water will serve. This well, called "Letup", is lined with stone walls against collapse of its sides. I took pictures of this and also of the clean white lime made by burning layers of coral between layers of hard wood and heating it to high temperature to make the lime. It is this locally made lime, together with sand and water that is used to make the setting-mortar for island construction, such as the fine new church and the catchment basin at the hamlet of Tismiriu (Tesmarik), now being built.

After first finding three, later six, Jean Gulart has toured the island thoroughly to find a total of nine dwelling sites with houses different from the compact village of Lavolvol. He finds that the land is all inherited through the father and that status and social importance is largely a matter of land ownership. However, marriage is governed by maternal line and "origin" is traced through this maternal line.

With Leonard Wotuel, a 2 year old son of Paton Fais, bled today we have left only one current Merig resident unbled: a baby of less than 1 year: John Margaret, son of Deacon Charlie Noah.

We are having a hard time keeping records of all the odd observations and facts we encounter. Thus, I find it necessary to use these journal pages for data which would better fit into our work notebooks on each village and island, but they are not yet so organized as to be ready for this. Our Master Bleeding List is definitive and so are our Master Records of Physical Examinations on all patients bled. However, most of us have not yet started notebooks for odd observations not destined for our personal journals. This obviously creates a problem. The journals must obviously suffer as literary exercises as a result. In recent years this has also been a problem in New Guinea. I may take shortly to keeping separately a Notebook and a Journal!



...Midnight...

When I lay down, telling Jean Guiart I hoped to arise in an hour or so and continue work, he surely did not believe me! It is probably after midnight. Jean has gone to bed--I have awakened and I have been working wide awake for over an hour and I am very self-satisfied.

Jean comments on my failure to record linguistic information in an acceptable phonetics. He is right. Actually my ear is not that good and for phonetics I have a great handicap. I usually write phonetically using a Pidgin or Spanish use of our alphabet, more Pidgin than Spanish. This works for languages without complex sounds, but not others. I actually try quickly to arrive at the alphabet that results after a phonetic analysis of a language is made and an adaptation to a Roman alphabet is achieved. This is, if anything, a bit presumptuous, but it has the advantage of quickly arriving at generality and avoiding the attention to minutia of pronunciation and dialect. Even American English would yield a dozen dialects and a vast "variance" of form if approached with phonetic purism.

I am sleeping on the ground in the open walled frame for a school building which has been our center for work here on Merig. The sheet metal roof is fine and the lack of sides is surely an advantage as long as we do not have wind driven rain. The building is beside the white mortar church, across the track from the main village. After darkness sets in girls and men often visit us here but only in "safe" groups. It is only 50-100 meters from anyone's dwelling, but that is already a bit far afield after the village has begun to retire. Thus, even the individual dwellings are arranged so that doors do not face each other and so that stone walks provide a modicum of privacy, and private family life proceeds just in and around the family structures and not throughout an "open" village, tiny as it is! The desire for privacy is reflected in the further nine dwellings scattered around the island, each isolated by gardens, walled pig enclosures and bush from each other.

Today, after loading our supplies and personnel onto the Alpha Helix, Walter secured from Captain Phinney permission to bring on board a few Merig Islanders and returned with the boat to bring three of them on a brief tour of the ship.

If only good weather stays with us and we get to Gaua by tomorrow noon, we will be on schedule and our Merig and Merelava studies will be far along. On Gaua I hope principally to locate the Merig and Merelava people there.

Lavolvol village, Merig Island

September 27, 1972

We are on the calmest sea we have seen on the trip thus far and all goes well. All the 50 people of Lavolvol came in to have their tuberculin tests read between 7:30 and 8:30 a.m. and by 9 a.m. we were ready to leave for the ship.



Steven Tsai, Steven Rangle, Veronica, Juliette, Erema, Supei, May and Cinderella had all become rather close friends with me. Steven is the coyest, most anxious to have my attention and yet most embarrassed by it publically. He is too old to accept a fauning interest in him unequivocally as do Steven Rangle and Supei and yet he is surely enchanted to awaken such an interest.

The people asked us to pause while they all sang a parting song for us and then we carried all of our supplies down to the Lematsar landing.

Losolava Plantation, Gaua

September 27, 1972

We have Leslie from Merig Island on board as our aid to finding anchorage here and as our guide. Last night we brought three men of Merig on board to see the ship. The calm sea has brought us to an almost prosaic New Hebridean shore of Gaua, almost indistinguishable from miles of shore on Espiritu Santo, Malekula, Pentecost and other large islands. It is not an exciting island up close, but the large distances promise adventure inland and we know that the huge crater lake is located high up the slopes.

On Merig the people told me that there was one U.S. Military sea plane landing on the lake during the World War II years. I am suprised to hear of only one such landing. On Rennell the Lake was a regular Catalina Base, I am told. The people tell of a plane that crashed in the sea off Gaua with a survivor and a death, and confirm only one Catalina landing on the Lake during the War.

We find strange immigrants here on Gaua including two Torres Islanders!

Namosari village:

Steven (Etiene)	from Wallace Islands
wife: Joyce	from Loh Island, Torres Islands
Harry M-70	from Tegua, Torres Islands
wife: Mary	from Ontar village, Gaua Island

Tarasag village of Gaua (Namosari-Lebot-Tarasag Linguistic Group)

September 27, 1972

Don and I are staying the night at Tarasag beside the Gaua Junior Primary School, with Moses, son of Paterson and Mary, and Jackie (Sakius), son of John Noel and Salome, both of Merig but residents of the Merig people's Gaua village of Lemonmon just ten minutes walk from the school. They are both drawing pictures with the colored pencils, as I type between them. We have just returned to Tarasag from Lemonmon, where we have had a fine filling meal of sweet potato, canned corned beef, and Milo. Jean

Guiart is staying in the Lemonmon house the people offered us when I visited there this afternoon, but Don and I have elected to stay with our supplies at Tarasag, since we hope to examine all the 30-odd school children here tomorrow, and some others as well. This school has 32 students now, three having been sent home as "trouble makers." It has only classes 2 and 4 this year, because the teachers cannot cover more. The teachers are Norah Rorona, Head Teacher from Pentecost, and Nicholas Brown from Mota.

Our arrival here and itinerary for the day has been complex. Thus, we finally embarked from Merig at about 9 a.m., very satisfied with the work we had finished there. The one to two hours of passage from Merig to Gaua we used for cleaning up and washing clothes, then I shaved, as I do once after each island thus far! Françoise kindly sewed up my torn trousers, the split crotch in the Chinese shorts, etc.--and Jean Guiart washed my few soiled clothes with his in the ship's washing machine. I showered, ate a good lunch, and rushed to the bridge to help the Captain find Losolava Plantation, which we first passed by without noticing. We had gone around too far northwest, and had to return a few miles to locate the reefs and the passage through the reef to Bay at Losolava. Leslie, our guide pilot from Merig, knew what he was looking for, but his sight is so poor that he could not recognize where we were on the coast. We finally found the passage and slipped far in between the two sides of the break in the reef, and dropped anchor about a half mile from Losolava Plantation, on the eastern end, near Namasari village. The entire school population from Tarasag, and the two teachers and much of Lobot and Namasari villages were waiting there to greet us. We landed in two loads in the small boat, and then brought in a load of small supplies which the school children could carry and set off on a two mile walk through Namasari, Lobot (where there is a dispensary and a nurse, Sister Hilda Leo from Pentecost), Nume, and finally Tarasag. The whole trek is somewhat over two miles, along a hibiscus-lined track, and only gently undulating leaving the coast at times to round points. The Tarasag school and village have large cut grass fields around it and it lies directly on the coast. The recent hurricanes have destroyed the church, and a temporary new church is erected.

Soon after arriving at Tarasag, I set off with a group of Merig boys for their hours at Lemonmon village, and sat there for over an hour, getting information about the villages around the island. Clockwise from Losolava:

Losolava Plantation

Namasari }  
Lobot }  
Nume }  
Tarasag }

Language I

Lemonmon

Merig Language

Lembal

Merelava Language (Lekwel & Lewetmese)

Kwition }  
Doriu }

Language II

Beom (Makion Bay)	Language III
Kuru	
Kwitivut	Language IV
Kwitigabu (Qetegaveg)	Language V
Ontar (Pusman - extinct)	
Vatlis	Language I

Language I and Language II are mutually intelligible with the Merig and Merelava Languages, but the others are not. A place called Pusmanbi, formerly occupied, is now said to be deserted; Language I is said to be spoken there.

Don and I are working more productively and quietly tonight than on any previous night. Moses and Sakius (Jackie) are helping us and drawing pictures, and the two "brata" of the two teachers (Agnes of Norah and Richard of Nicholas), are also with us. We have already copied out the information from the school registry and attendance records listing all 32 students, and thus we can save a great deal of recording time tomorrow, I hope.

Paul, Judy, Richard, Ray and Françoise returned to the Alpha Helix late this afternoon for supper, hoping to return here with a shore boat, but it has become dark and they are not back. We cannot reach the ship with our portable radio, and thus we have no contact. All we can do is start work early tomorrow and hope that they will arrive soon thereafter to give us a hand. We have all the equipment here on hand to do all the examinations and work we need to do. It is a clear night, but without a full or nearly-full moon of our previous nights. The school provides chairs and tables for work by Coleman lamp, which makes good work easy. It is a good evening.

Tarasag village, Gaua, Tarasag Junior Primary School      September 28, 1972

Only Jean Guiart and I are staying on the island tonight. The others have all gone back for supper and to separate off the 105 blood specimens we collected today, and to do the hemoglobins and white counts we took on the entire group of some 443 children at the school this morning. It has been a very successful day of work and the evening has ended wonderfully, with Jean and I sharing a fine feast of laplap and special foods cooked for us at Lemonmon village. Everyone worked well and steadily all morning long, and yet, by mid-afternoon we had done so much we could relax, swim and play a bit with the kids. In late afternoon we went to Lemonmon village and bled another 62 people from there and Merelava people from further down the coast. We managed to bleed the 43 school children before the others arrived at 8:30 from the Alpha Helix in the 16 foot launch, which Paul operated. They brought far better food with them than the cook had given us on previous days, including turkey meat and Guyere cheese, raisins and powdered coffee cream. Thus, we were well fed both by the people and from the ship on shore today. Radio contact with the



Alpha Helix has been tricky, for we cannot reach them most of the time. Sometimes, however, conditions for receiving are good and we get them loud and clear.

With physical examinations done at four stations by Raymond, Françoise, Richard and myself, while Paul did the hemoglobins and WBCs with the help of Don and the local nurse, Hilda Loe, and with Judy doing measurements and identity photos (from where Don and I left off this morning), we have accomplished much this morning. At the village Raymond and Françoise located a woman with flaccid paralysis which occurred after an acute illness during an epidemic on Merelava about a decade ago, and which left over a half-dozen people paralyzed. This may have been the same epidemic that struck Frank Adam of A'ota (St. Barnabas). Thus, they had a possible severe polio outbreak there a decade ago to look into.

I have with me five Lemonmon boys and two from Tarasag drawing pictures at the school desks, as I write by Coleman lamplight. I have just gone over our bleeding lists and am beginning to make cross-references between family members as far as I can do so. The night is clear, and I shall probably sleep out-of-doors again, as I did last night with Moses and Jackis of Lemonmon. We have all wanted to hike in to the waterfall of Santa Maria, called Lesiriu, but it is a hike of several hours from Lemonmon. Everyone also wants to see the crater lake, but it is probably a three to four hour walk or more from here, and there is hurricane damage to the track inland from Losolava. The lake is deep and has fresh water; the people say it is dirty. The crater lake is called Letes. There are some fumes emitted somewhere along the trail to the lake. No villages or gardens are found near the lake; not even canoes, but bamboo rafts are made for lake travel. People do collect large crayfish there, but there are said to be no fish or eels in the lake. On the small island in the middle of the lake the volcano is still active; there is a little fire and hot lava, and much smoke there.

The walk all around the island is a trip requiring two or three nights on the track. It can be made by sleeping only two nights, but people suggest three stops. Kuru is a two day walk away, they say. Few Merig people have ever walked there, and similarly, few have walked up to the lake!

Jean has been working hard on marriage laws and patterns, finding the Merelava/Merig/Gaua system complex and very different from that previously described for the Banks. He finds the people divided into ten clans of matrilineal descent, the tenth such clan reserved for outside immigrants from Fiji, and elsewhere. Clans one to five cannot marry at all with clans six through ten; this produces an incredible degree of genetic isolation or apartheid. However, one clan of one to five "marries wrongly," and this provides the essential genetic mixing between the two groups, which by conventionally stated practice do not intermingle their chromosomes. Within each mutually exclusive group of five clans, there is considerable intermarriage between the five clans comprising each, but not between members of any one of the clans. This is a system that obviously invites interesting genetic sorting of our subjects and I have urged Jean to work hard at assigning everyone we have bled to the appropriate clan.



If all goes well, we shall work here tomorrow, stay here tomorrow night, and move to Kuru on the southwest coast the next day, finishing there in a half day, to go on to Mota Lava that afternoon or evening, or next morning.

I am most worried about Bob Kirk's availability and willingness to handle all the specimens we shall be sending him. The first batch of 300 is already off to him, and we have another 200 ready to go. Most important, is whether the Revco operates well and preserves the red cell enzymes intact. All the colts have been frozen promptly after separation on the Alpha Helix. Operating temperature is about -50°C.

Kuru Village, Gaua Island

September 29, 1972

An expedition to Kuru!

Solotis Woriri, a young man of 20-25 from Kuru, still unmarried and living at Namasari where he works for the Anglican Priest, Father James Mwera from Aoba, is on board with us to sail at 5 a.m. down the east coast of Gaua around to Kuru on the south west coast. I have picked Kuru for Aesthetic reasons--as a matter of symmetry--for we could have picked almost any other of the Gaua groups. We may really need a guide to find our way into the anchorage and to locate the village and people for us.

Today, everyone arrived at Tarasag prepared to hike into the interior to visit the Crater Lake which dominates the center of the island and is almost 1000 feet above sea level. I told them that the better trail was from Losalava to the lake. The trail from Tarasag is an uncut track, closed by the hurricane. No one here admits to having taken it this year. Thus, our team decided to return to the Alpha Helix with all of our supplies and to immediately set forth for Losolava and Namasari village from which they would hike in with a Namasari guide. We have various reports that the walk is two to four hours long. Nicholas, the teacher from Mota; decided to go with them. Judy could not because of small tropical ulcers on her feet and some edema at one side and Françoise decided not to go, wisely for her enormous ulcer from her ankle-level vaccination is still not fully healed! She started to the tropics from France with an enormous Parisian "tropical ulcer" with central gangrenous necrosis and deep pitting!

Judy, Françoise, Jean and I, therefore, stayed on at Tarasag to finish our study of the people here and the others took off leaving us only the minimum of supplies we still needed. Judy did the identity photos over, found trouble again with too bright a background for our automatic exposure and I did them a third time with my rapid "lining up" system. Judy stuck it out to the last finger and palm print and although I think she was not feeling well she worked right on. Françoise, Jean and I left her at the Tarasag school and went over to Lomonmon where we measured heights and weights on all the people there and I did heart, lung, and abdomen

examinations on all the children, looking especially for spleens. There were several enlarged spleens in infants and toddlers!

Walter came over to Tarasag before noon hour and took Judy and all remaining equipment back to the ship. His Boy Scout manner and solicitous rigidity and boyish desire to please and make things work is charming. I like him and feel sorry that I must so often simply use his many abilities without involving him as thoroughly in the scientific program as the doctors, Jean, Don and Judy. Yet it is only he who knows how to handle so many of the logistic details. He is caught in a strange position between the scientists of whose team he is a part, and the Captain and crew to whom he is one of themselves masquerading as one of the scientific team. He is directly responsible for getting our scientific work done in such a way as to reflect credit on the Alpha Helix program and in this capacity is even as responsible as the captain! Walter is hard of hearing, reputedly from shell noises in his military career.

Kuru village, Gaua

September 30, 1972

We arrived here shortly after sunrise and Solotis showed us the anchorage and passage for the shore boat through the reef. He and I and Paul went in through moderate seas until we cleared the reef and found ourselves in a marvelous small bay of clean green water. Kuru village is about 200 feet above the bay. It overlooks the bay from a wonderful steep wall on which Kuru lies and the village is built on several levels. Beyond the village is a gully carrying a small trickle which because a rushing river after flash floods. There is a canalized water system conducting water in long bamboo cylinders to a site near the village, where a clean flowing source of drinking water is thus available. Don found the system ran for over 500 meters from just above a waterfall which falls into a basin deep enough for swimming. Thus, an unusual supply of fresh water is available here at Kuru.

Beam village, Gaua (Mekion Bay)

September 30, 1972

The small shallow reef covered bay or lagoon before Beam gives it a charming setting. It is a strange village with less sign of European influence than any others I have seen on Gaua. Only Paul and I and Don landed while the Alpha Helix rode the sea offshore. We bled and studied all the inhabitants we have found here, as we did at Kuru, and now we are ready to embark over again. We have not found anything here in the way of handicrafts, but Don has purchased here a clear amber-covered Japanese glass fishing sphere for only \$2.00.

The people have been very friendly, receptive and helpful and our work has gone smoothly. With this full bleeding of Beam and we have covered all of the Kuru-Beam language Group.

Dorav village, Gaua (Kitevut Bay)

September 30, 1972

A quiet setting--a flaming sunset--a staggeringly beautiful cove off the seldom visited northern coast of Gaua, a coast of immense beauty with its black and white sand beaches, steep cliffs and small stream valleys entering the sea. We have just made a late after supper visit to Dorav village where only 14 people now live in four households. We met most of them including the four men of the village. They claim that although Ontar, just up the coast, speaks the same language as Qetegabi, the next village along the coast, some generations ago they spoke a separate language. They quickly affirm that although they can understand the Kuru and Beam language, they do not speak it and insist that it is a different language. The same applies to that language spoken by Ontar and Qetegabi.

Few villages in the world are as beautifully situated as the three we have seen today: Kuru, Beam and Dorav.

Dorav lies on a high point between a beach of pitch black sand onto which a stream opens and a white sandy beach. The clean black sand is extremely heavy and appears to be an . The village is far too small to be of great interest to me. It is also extremely isolated since it is a good days walk from Kuru and near-by Ontar has only some 30-40 people.

Jean points out to me again the extreme depopulation that has gone on here in the last 150 years, particularly in the first half of the last century. All these groups we have visited today are remnants or all that remains of much larger groups that have almost completely disappeared. These small remnants come from groups that were very much larger than they are today. With such a sparse population on shore I was not sorry to have to be on shipboard tonight. I would find the surviving remnants too small, I fear, to provide the range of personalities and human contacts I so enjoy in larger villages.

Dispensary Neriniuman village, Mota Lava

October 1, 1972

We have used the day to locate the chronic disease patients and those with the degenerative diseases, and the defective patients on the island, by making a long walking tour of the island with Stanley, the Fiji-trained doctor who had the dispensary here for twelve years. He is himself a man from Hiu Island in the Torres, and he plans to go with us there, but we have not yet solved the problem of getting him back here from there. The possibility that the M.V. Selwyn from the Lolowai Mission on Aoba or the British Euphrosyne II may do the job for us, picking him up at Hiu, remains, but the necessary arrangements are not yet firmly made. Stanley himself may prefer to remain at Hiu for a while.



We spent some three hours on the first circuit of the four mainland villages on this end of the island: Nereniuman, Qeremagde, Totolag, and Avar. Value (Aplu) village is on the far end of the island, some two hours' walk away.

By noon hour we were fully exhausted and severely bothered by the long exposure to heat and sun. I stayed in the shade at the New French School with a number of the schoolboys and then slept under the palms down on the beach beside Nereniuman. Aspirin and rest in the breeze and shade made me recover slightly and then we took a small aluminum boat across the channel to Rah Island. Stanley took me to see another four patients in the Rah village called Aiya. Finally, Gordon Latanen, Council Chief of Mota Lava, had Jean Guiart and myself in for tea and biscuits with him. A half dozen cups of tea and a half pack of biscuits made me slowly recover, and I left completely cured of migraine, which was well under way when I got there. In fact, during two of the physical examinations I was so nauseated, that I had thought it necessary to rush out to vomit, but succeeded with hyperventilation and cautious restraint to avoid emesis even when the excessive salivation phase and retching had started.

We have seen many old patients, four with cataract, several presumable trachoma patients, three defective children: one cretinoid, one with marked motor disturbance and flaccidity, and one motor-wise normal; and several deaf and dumb people. We also met a man at Avar village who had recently returned from three months in Sydney, where he was taken for plastic repair of a destroyed mouth and lower face, resulting from a chronic ulcer, he claims, from a pineapple fiber wound of his buccal mucosa.

There is one woman who is aged with a large goiter, and has hepatomegally and I believe some icterus, and now shows anemia and marked pitting pedal edema. One woman at Avar had lymphangitis and slight swelling of her lower extremity. She was the only patient we treat (PCN injection) today.

There are four cases of severe cataract in aged subjects; one woman who has them complains of parathesis and motor difficulty with her feet, which suggests diabetic etiology, which we shall look into.

This evening we have done ophthalmoscopy on two of two young adult albino boys, and collected genealogies on six of the albinos. Five are from Qeremagde village, four born to one couple, and one is from Rah Island.

There are over 180 children in grades 1-7, at the Anglican school where there are six teachers. Two French teachers run the French Primary school competitive to the Anglican school, with only some 50 students in grades 1 and 2 only.

The Port Paterson School on Vanua Lava was so destroyed by the gurrricane that it has been closed, pending rebuilding. Thus, a seventh grade has been started in the school here, but only for boys and girls from this and nearby islands. Others on Merelava and Gaua are back at home on indeterminate holiday awaiting completion of the school at Vupeas Bay.



Doctor Stanley Reveag has put our group up in one of the male wards of his new dispensary hospital, which was only completed two years ago. It was damaged by the hurricane and has been repaired already. Two Australian carpenters are here supervising work on rebuilding the Anglican School, which is a long and tedious and expensive task. Men from each of the six villages of Mota Lava are working with them. One is a four year immigrated New Australian from Yugoslavia. They are at the moment unable to work any farther because of lack of building supplies.

Dispensary, Nereniuman village, Mota Lava

October 2, 1972

...midnight...

We have danced passed midnight to an accomplished band of guitar and ukelele players all singing beautifully to their playing and accompanied by spirited singing of a half dozen schoolboys without instruments. Notably, Stanley Webb and Meken Festus were prominent in the singing and seem to know the songs better than do most others. Words of the wonderful renditions of American and British songs into Bislama, or partially into Bislama have been transcribed into a number of notebooks used by the singers. Base is provided by a bow placed into a pail. The two late adolescent full albino school boys from Qeremagde village and , were the most spirited guitar players and singers, actually leaders of the band. It is fine to see this emormously important role in island social life, occupied by these albinos, who in many Melanesian communities occupy a somewhat outcast role.

The feast and dance were all given (and paid for) by Stanley in memory of the death of his father on Hiu a month ago. All day the visitors assembled in and behind his house to eat and talk and after sunset the bands and dancing began.

Guiart, Ferber and Françoise all danced a great deal and Don and I danced some. I am clumsy enough as a dancer to find little fun in it and at 50 I cannot overcome my basic dislike of parties and such pleasant festivity which I had already at 15. I prefer private relationships with one other or a few to those diffuse socially proscribed relationships which I learned to shun as a boy. Bobby was our party boy and I usually retired hoping that one--only one--of the many guests would seek me out privately, as usually occurred. Here on Motalava it was Stanley Webb who sought me out yesterday and tonight because it is Stanley and David too, they both embarass each other and I shall find myself with neither.

Stanley Reveag is the most "important" man on Motalava as the doctor of the Banks. Whether Stanley is a graduate or dropout from the Fiji Medical school, I do not know, but I find him able and very pleasant to work with. He has put us up well in the dispensary with six beds all with clean sheets. His wife keeps us supplied with hot tea and biscuits as we work.

I slept out on the beach in a small sideless shelter with Stanley Webb yesterday. Because of rain tonight I shall sleep down at the school in an open-sided classroom. I dislike sleeping indoors!

Just aboard the Alpha Helix from Aya village,  
Rah Island, Mota Lava

October 3, 1972

Dick Ferber, Ray and I took the small dory belonging to Rah over for a visit to the patients I have seen here two days ago. Before we set out, the first boat load including:

1. David Hunt
2. Stanley Webb
3. Dick Rawcliffe
4. Frank
- 5.

and Judy and Don, with most of our remaining supplies, left for the Alpha Helix which sailed by Nereniuman without anchoring offshore, loaded on passengers and set forth. I came from ashore this morning onto the ship to discuss with Captain Phinny our program possibilities. We had agreed to load supplies and some of our scientists on board at 3 p.m. and I would myself try to finish by 4 to 4:30 p.m., leaving us the possibility of sailing to Vanua Lava today for anchorage there in Port Paterson. However, if we were to be late we should have to anchor off Mora Lava as the ship has done for two nights. Dick, Ray, and I took far longer than I had anticipated to examine two patients on Rah island and we only finally got back to the Alpha Helix at 5:15 p.m. after a fine send-off by over a hundred of the islanders all wanting to shake hands and standing knee-deep in water to wave us off. It has been a memorable experience to be here on Mota Lava and this island has been the happiest and most rewarding experience of our trip thus far for almost all of us. Dick, Judy, Don and Ray affirm this emphatically and it is hard to state what makes Mota Lava so special for them even over our experience on Merelava, Merig, and Gaua. They could all talk to the people here more easily since English is better spoken than on the other islands, and the cluster of five villages on this end of the island gives a high population density which contributes to the pleasant social aspect of the island. Everyone comments with surprise as to how friendly the people have all been and also on how courteous they are and how they try to please and how tactful they are in trying not to offend.

Stanley Webb of Qeremanda village expressed his willingness to stay with me on the beach overlooking Rah Island. David Hunt, a 15 year old from Nereniuman village has been friendly and solicitous, but David is a later adolescent than Stanley and is more self-conscious and cautious of his role in the islands. He thus tries to make sure that he does not jeopardize his own position by leaving himself open to jibes because of his solicitousness of me, care to help me and being with me. Stanley can take it more easily and converts such teasing and taunting to his own psychic advantage but not so with David.

Dick Raucliffe, another 15 year old like David and a 7th grader like both David and Stanley has been the third most helpful and intimate lad with me on Mota Lava. Moken Festus, a 12 year old and 6th grader has also been helpful.

I got permission to bring these three boys plus Frank and on board to see the ship, and Don and Judy took them around the ship while we were looking at patients on Rah. Before they had completed their tour, which made them wide-eyed with wonder, Don relates, Stanley and David were sea sick and vomiting. This phenomenon of Pacific Islanders being often and severely seasick, I have noted in Micronesia and the British Solomon Island Protectorate in the past. Most of my Island boys were seasick on shipboard field trips with me around the Outer Islands of the Yap District.

Our party is operating well, but Judy and Paul tend to be moody and I have hints that they may both leave us at Santa Cruz if they can. I shall be very disappointed if this is so, but I shall not object. Jean Guiart has a November deadline to make in Paris and thus he too may have to leave. I am hoping that he can stay at least for Tikopia and Anuta and will plan to try to get him off thereafter from Santa Cruz or elsewhere, if necessary. I am sorry not to have filled our two empty scientific berths, and wish that Joe and Nancy were with us! Michael's absence is also a real loss. However, the hard work and loyalty of Dick, Ray, Paul, Françoise, Judy, Don and Jean, and Walter's untiring help have made a great accomplishment already. If only we can sustain our performance for the British Solomon Islands Protectorate part of the expedition!

Judy has taken on immense jobs of boring clerical work which she knows will determine the success of the expedition. John often helps. Everyone has pitched in vigorously to the huge job of separating sera from clots, I have not done my share of the laboratory work since the others have done it for me. In our course they will defer and let me at it. If only they can all be enthusiastic about the trip and remain so through the important British Solomons adventure.

Walter's severely infected foot sores which in 24 hours had become acute tropical ulcers with lymphangitis, edema, pain and redness and in 48 had already cratered necrosis, have finally responded to Ampicillin prescription. He is much better today. He got the scratches climbing a coconut tree at teh Tarasag school to put up a high antenna for our shore radio station.

The walkie-talkie shore to ship radios have been a great aid on this trip and without them we should have often been in trouble.

The problem of meeting people like Stanley Webb and William Tule who give their all to me after only a half day of acquaintance and who stick by me loyally, even enduring teasing and jibes from their elders and jealous quips from their peers, working diligently for me for days, and then suddenly leaving them so that after a half dozen more islands, their loyalty and devotion becomes blurred in memory into only a nostalgia for the South Pacific and its people, is a serious one. They want more



personal attention and reward than that of simple gratitude to their people for their remarkable personalities! I find that I am hopeless in remembering names, yet good at recalling details of events. In fairness to them and myself, therefore the premeditated recording and tabulating of these highly personal encounters is all I can rely upon for eventually fulfilling promises made, renewing friendships and reciprocating or recompensing these fine people for what they have given me. Verbal and ordered as I am, it is in this further step of ordering that I finally succeed in retaining and enduringly imprinting upon both my memory and my conscience my obligation and gratitude.

Sola Plantation and Arep French Primary School,  
Port Paterson, Vanua Lava

October 4, 1972

M. Paul Vidal and his wife have helped us immensely in our study of their 140 school children and we have managed to get a vast job done correctly and thoroughly and we are off tonight for a visit to Musina village of Vanua Lava, a one hour walk from the Arep French Primary School, which has been reconstructed since it received the heavy hurricane damage. The Sola plantation from which the French bought the land for the school, has been extensively damaged and there is now no copra production. It is said to have been to von N who has been buying up all alienated land he can secure in the Banks Islands from the much "safer" French Plantation owners. Jean still insists that the land titles have not been fully recognized by the Land Claim court and thus he may be blocked by the French and British governments which both dislike his presence in these islands.

St. Alban School, Vetlegheir Ground, Vetumboso,  
Vureas Day, Vanua Lava

October 5, 1972

After an evening on shore with all of our party but Walter and Françoise, we are back at the school buildings awaiting the arrival of the shore boat to take most back home. Judy and I are remaining on shore, and a horde of school children are crowded about us at their school building. They have just sung a final song over the walkie-talkie radio to Walter in our 9 p.m. shore-to-ship communication. I recorded a half dozen songs up at the village this evening sung by some three or four dozen children. There was also a skit about kava drinking with an exaggerated pantomime of the effects of kava. A Diocese of Melanesia morality play!

We have bled the entire school of 74 students and have only some half of the physical examinations to complete tomorrow. We also plan to see all sick patients and those with complaints at the Vetumboso village. There is a dispensary here at the village run by Timothy from Aoba and Father Gregory Maluwos of this very village is the Anglican Priest



of the island. These two sophisticating influences together with the school adjacent to the village make for a high degree of skill in English and a great sophistication. The children are all disappointed that we do not bring shore radios, microscopes and tape recorders.

However, visitors are rare enough so that each of us has a fawning group of youngsters surrounding us, and there are plenty to go around. We shall start work early tomorrow, and try to finish and be off for Mota Lava by noon hour. However, this is a very beautiful site, some several hundred feet above the steep shores of black volcanic sand and I would like very much to be here for many days. There are far fewer mosquitoes than we found last night at Mosina village, which is coastal and near a swampy area.

Jean has helped trace out further details of the extensive geneologies of the albinos from here and from Mosina which I worked out last night in spite of the mosquito menace. The family of four albinos, the last one is one of two boy twins, as is one who is darkly pigmented, the other, a full albino, is here.

Most of the 74 children at the school are from Vetumboso village itself. There are three boys from Mosina, and six boys and two girls from Wosoga and four boys and eight girls from Vatarata village. The new school is to be constructed a hundred yards or so below the current school site, at a site called Sanlang. Two Australian carpenters have been here to supervise the construction, but they have gone back to Santo for supplies. All students from other islands than Vanua Lava are back on their home islands.

Father Gregory and other informants list Vetumboso (about 200 inhabitants), Wosanga (about 100 inhabitants), and Kwakea (about 24 inhabitants) as all speaking one language, while Vatarata (with about 100 inhabitants) speaks a second language and Mosina (about 68 inhabitants), yet a third. The small village of Kwanglav at Prot Paterson has only about 20 people and uses the Motalava language. The whole island of Vanua Lava now has 700 inhabitants, Father Gregory says. He adds that he found recently some 120 from the island living in Santo, and there are a number living and working in Noumea.

We have been too constantly at work and without sufficient rest to remain at our best. In spite of this the Captain has some wierd idea of preferring everyone on shipboard doing laboratory work which under any conditions would be meaningless, without far more and better field work and clinical medicine on shore. He resents the use of shore boats for the party to amuse themselves on shore in the evening and wants the shore night tied in with the work. That it obviously is, in that every bit of socializing is an important part of liason with the people with whom we are working, and that it is more likely at dances and song fests, feasts and strolls arm-in-arm with the kids on the beaches that we learn the most important matters about illness, traditional medicine, attitudes pertinent to reproductive behavior, disease transmission, nutrition, marriage patterns, and all else that pertains to health, medicine and human biology, our

"sponsors" do not seem to understand. All my previous criticisms of the Alpha Helix were justified; its naivete with respect to any valid medical research use is enormous. How juvenile, unimaginative and hopelessly out of touch with the realities of medicine and medical research the people have been who planned medical investigations from the ship as a base cannot be overstated. We are forcing it to serve our purposes, for with its enormous sophisticated facilities it does hardly much better than would a small copra ship or one of the Condominium or French or British government launches. They could be so equipped and so organized as to render enormous support to medical studies, but these even at their most sophisticated laboratory level, are with people who must be solicited, and with whom we must keep in close touch all of the time. This is a matter of extreme importance in working with remote and unfamiliar populations. No provisions have been made for real support of shore-based and shore-hiking parties, and it is here that the whole concept of medical research from the ship falls down. However, Walter and the Captain are trying hard to meet our extreme demands upon them and it looks as though the expedition will be highly successful after all.

We have the histories of two old persons who have died from severe elephantiasis of one lower extremity, each in Mosina village: Olive, who died in the 1960's, and George, a male of sixty who died in Santo in 1971 of cancer, secondary to chronic elephantiasis. Filariasis surely exists here and we shall take thick and thin smears tomorrow on most of the school children. Crocodiles still exist here, but no one admits to any known human death from them; shark bites are not admitted either. There are snakes on the island, but these are not supposed to be venomous. Sea snakes rarely cause trouble--one recent bite which was not fatal was recalled. Already we know of other asmatics besides the two we saw this morning at Mosina, and the one school boy at Sola (Arep) with recurrent asthmatic bronchitis.

Veverau Village (Koimarama village), Mota Island                      October 6, 1972

Jean, Paul, Stanley and I disembarked at 5 p.m. at Veverau village, or Mission Passes, which is the site where Bishop Paterson first landed on Mota. We had an hour of light in the village to find a place to sleep, meet the dresser, and the priest, Father Oscar, from Central Pentacost Island, and then to walk over to Lotawan. Lotawan is the next village clockwise around the island below which, at a site called Nwapaka is the Mota school, with forty to fifty pupils. At Lotawan we met two Australian builders who live in a house at the center of the village. They have been here for three weeks and are building the new school for Mota--they have just started on the first building. In the three weeks, they could work but one week because of too many feasts and celebrations, which usually last for two days, they tell us.

The villages, in clockwise sequence are: Veverau (Koimarama), Lotawan, Tukwetap, Napo'e (Nau'que), Liwotupwei, Tasmate. There are now some five hundred people on the island, or just a few under that, whereas a census only two years ago enumerated about four hundred. Lotawan has about one hundred inhabitants, and Veverau about seventy-one. Tukwetap is the largest village, with "many children", we are told.

Our two hour trip here from Vureas Bay was over gentle swells, but the Alpha Helix bucked the seas, and almost everyone, including Stanley, was seasick in short order.

The children of Veverau are timid and withdrawn on our sudden arrival, and I have not succeeded in allaying their apprehensions as readily as I am accustomed to do so. Thus, it seems as though some word about our arrival may have preceded us and set the pattern. This, I would credit to the "help" that the dressers on the M.V. Rocinante on their BCG circuit had given us, telling the people of our coming. I always feel it is better to arrive unannounced and unprepared for, and that all such warnings or preparations result in increased anxiety.

Veverau Village, Mota Island

October 7, 1972

All eight of our scientific party, plus Stanley, are on shore for the night in this village. The Alpha Helix arrived from Port Paterson, Vanua Lava at about 8 a.m. and our party became complete. The ship stood offshore for about a half hour, having sent word in that the Captain wanted to anchor again at Vanua Lava. I thus asked to have more antibiotic eye drops brought in, along with the return to the ship of eye swabs from a child with acute conjunctivitis of three days' duration, which was not purulent, for freezing and virus and bacterial isolations. We also sent in a culture of pus from a boil on a man with several furuncles. The ship took these and rushed over the quiet seas for Vanua Lava. It would have been an easy landing from children's canoes all day long from the shore under Veverau, or under Lotawan. Instead, the Captain insisted on pulling away and we have no support from the ship today or tomorrow, until I call for its return. We need now to get the blood specimens we took today on board, but I shall try to ask for it by 8 a.m. tomorrow.

Paul and Françoise ran a clinic here in Veverau for a couple of hours this morning, and then joined us at the school below Lotawan, at a site called Nwapaga (Nwapuka), where we bled some school children, and later with Françoise and Paul helping, we examined them, completed heights and weights, color blindness tests, finger prints, and identity photographs of many of them. In the meanwhile, in another temporary schoolroom at the Nwapaga site, we held a clinic for all those with medical complaints, where Ray and Richard kept busy all morning and much of the afternoon. At mid-day, I was exhausted and so were the others. They thus agreed with me to stop work for two to three hours, and I went off down to the beach area below Nwapaga, called Wolanga, with twenty of the school boys. They all



went swimming and diving from a great coral rock called Ilianna Kwoei (Ilianna Kbei), all totally in the nude, and of this I got good pictures of body color, from partial with blond hair on down to brown skin and dark brown "normal" skin.

Desmond Taptasom, a boy of ten in this village, of the blond hair, light-complexioned type, and very similar to his thirteen year old brother, Jonas Win, has helped me make a comfortable bed on the green dance ground beside the traditional ground drum, "Takpasaraf", which lies in front of the very tastefully constructed church. We slept there under clear and very star-filled skies, and toward morning, responding to the diuretic efficiency of the six cups of lemon grass tea I had drunk earlier in the evening, I noted as fine a view of the Magellanic clouds as I have seen. Desmond and I counted only six stars in the Pleiades and watched Jupiter rise in the morning! It was a cold, windy, insect-free night and I enjoyed it greatly and rested well. Desmond and his brother, Jonas Win, are truly red-skinned and very blond-brunette-haired. In Mota Lava, Stanley Lias has very blond hair, which I wrongly attributed to peroxide at first. He is himself dark-skinned, yet grows very blond hair. There are several full albinos on the island, but it is again significant that they have blond hair and non-albino red skin. They are obviously people with a very deranged pigment metabolism, which runs in families.

In the family of my small friends, Jonas Win and Desmond, is yet a younger brother, Cyrus, five years, and two older sisters, and all five are light red-skinned and dirty-blond-haired children. This partial albinism may go with urinary DOPA excretion, as in the red-skinned trait in New Guinea, but I do not recall such blond hair in the usual New Guinea red skins of the Wabag area where they abound. The New Guinea albinos often have brown eyes and darker hair than the albinos we are seeing here in the Banks Islands.

There is a feeble-minded girl with hyperlordosis and very strange gait. Her facial expression, slightly protruding tongue, and her gait, all suggest cretinism to me.

The hurricane has taken down every old church on each island that we have visited, with only a few exceptions on Mera Lava. The crumbling cement foundations alone remain, with new temporary churches standing beside the old.

I am somewhat ashamed to marvel and wonder, as a small boy, at each new island we succeed in finding and landing on, and each time we reembark from an island, our brief mission completed. I am very astounded and filled with awe as I stare back at the island site of our adventure receding from us, another dream realized. It is an enchanting fairyland we have entered, and our adventure is more related to a fairy tale than to ordinary existence.

Mota Lava and Vanue Lava are beautifully stretched across the horizon as viewed from Mota.



The recording that I did of this guitar music for dance yesterday has turned out well. The people have decided to dance again tonight at Veverau for our benefit. Paul and Jean danced extensively last night, and when solo dancing started, Paul put on some very fine displays that sent the people into gales of happy laughter and applause. They really appreciate dancing by others. Besides this dancing to modern guitar music, they still preserve the traditional dances and there is a dance ground in the center of all villages, usually before or beside the church. The children and adults are very conscious of song and often ask us to sing for them or teach them a new song.

The girls do most of the dancing, starting the dance by dancing together, even in pairs of six to eight year olds. Boys then start in, usually dancing with the girls and inviting them, but occasionally the boys are invited by the girls or women who come over and ask them. Boys of sixteen to twenty-five years are the dancers, but occasionally boys of ten to sixteen dance as well, and sometimes those of eight to twelve years dance in pairs, as the girls almost all do. The dance permits the smallest children to try. They do not elicit the slightest comment or embarrassing attention. Only star performance, obviously display-oriented, is applauded. Most dancing is two-step and rather slow, and few of the dancers would be considered to be accomplished by European standards.

The village starts to arise at 5 a.m. with daybreak, but is slow in getting started and many sleep on until 7 a.m. or later.

Tasmate, Mota Island

October 8, 1972

I am seated under a huge fig tree (paka) on the trail from Tasmate to Veverau with Frank Suel, who has walked here with me; in fact, he has been my unique companion all day, and I am very grateful to him for all he has done for me. We have just met his older brother, Ngasatil, who is married to a Tasmate girl. He has been carrying two woven baskets (tapera) to Veverau and I have purchased the larger one from him.

The visit here leaves only two of the six villages of Mota unvisited by me: Navgoe and Lewotgei (Leiwotkwei). The walking around the island is very easy and beautiful, but the circular trail lies inland enough to make it too far from the sea to provide many views out to other islands. Tasmate has been largely rebuilt since the hurricane. Old Tasmate was laid low. The houses are built around too large a level clearing, and this is a bit jarring aesthetically. It has no view of the sea. There is at one end of the village a wonderful huge fig or banyan tree.

Tasmate has very extensive grounds, and along the way this huge paka, under which I write, is a major landmark, revealed only about five minutes before arriving at Tasmate. It is immense and provides beautiful shade and coolness.

As we left Veverau two side trails to the right--toward the coast--crossed coconut plantings to reach two one-house hamlets of Mavatpaka and Pegilworo. Then after finally leaving land belonging to Tasmate, we reached the one house hamlet of Loghie still occupied by one family and later a second of Loghera, now deserted. Both are on the plateau perhaps one hundred feet above the shore, Loghie is above a shore site called Ghogh.

Frank told me of his family's gardens and coconut trees on Veverau land as we walked from Veverau to Tasmate and pointed them out to me. He explained that there has recently been a huge fight in Veverau between his father, , and Arthur, the dresser, and as a result his family has left Veverau and settled in his mother's village of Tukwetap. He cried at the time of the departure he says and the final settlement of affairs has not yet been achieved. The quarrel was over nothing traditional or ethnographically interesting: a squabble with Arthur over who had helped and who had not in the building of the dispensary.

On our way back Frank and I plan to visit Loghera and Loghie hamlets.

Ureparapara, Lehaloro village on Lemesu (Big Bay) October 9, 1972

Fifty people reside in Lehaloro tonight and we have examined all of them and bled all but four babies. We have also taken chest films on 24 adults and EKG's on all the middle aged and older people. We saw no truly old people in the village. The Anglican school which was formerly here has been moved across to Lehali on the other side of the range that walls in Lemesu, or Big Bay. Down the bay the wreck of the Elysee lies almost high and dry in offshore mangroves. The hull still appears to be salvageable but the ship has been chalked off as a total loss. The villagers are waiting for tools with which to start tearing it apart so that they can utilize parts of the ship in the reconstruction of their hurricane-ruined village.

We arrived here early in the morning and descended on the village like a swarm of vampire bats. I fear that we had half of the them bled (20 ml vacutainers bleedings) before they warmed up to us at all or understood a thing of our purpose. However, as the morning rolled on and we weighed and measured and examined everyone, finger and palm printed and photographed everyone in family groups, and toured their rebuilt village--every structure had been destroyed in the hurricane!--looking for baskets, carvings, mats they might sell, they warmed up considerably to us. I found heavy hard wood pounding and mixing trays in every household and I began to purchase these at \$10 to \$20 each. At this price they all wanted to sell them and I bought the four largest and best in the village. These all have legs or stands on them whereas the large rather crude one and many others I saw on Mota did not. Stanley tells me that the nalots of the Torres Islands also do not have such a base.

The people warmed up to us considerably as the day wore on, and the adults went to the ship for chest X-rays and EKGs with enthusiasm.

The people are almost all reef islanders; they call their reef islands Rowa. The tidal wave that destroyed their village occurred in 1944, and they had abandoned Rowa and moved here permanently. They still make the launch or canoe trip in three to four hours to their coconut plantations on Rowa.

Our party is suffering from on-shore life: Walter, Judy and Don all had tropical ulcers start with associated lymphoangitis and edema. I have had a split toenail, and the party that had climbed to the crater lake on Gaua suffered for two days from nettles. Don has spots from his still-uncured fungus infection and Paul has had a severe URI. Our Captain now has classical herpes zoster of a left thoracic dermatome.

Late this evening, about 9 p.m., a canoe-load of Lehalora young men, six in number, who had been off across Big Bay (Lemesu), arrived at our ship and we took them on board for bleedings, hemoglobins, thick and thin smears, hematocrits, EKGs and full PEXs. Four of the six were unmarried, and they obviously provide much of the life of Lehaloro; and with these in our study also, the whole resident community is now under survey.

Paul has been brooding and vacillating on his decision to leave us at Santa Cruz. It is not an option I had given him, but he has taken it and has worked hard, even furiously, doing more than his share, obviously with the probability of his early departure in mind. I can ill afford to lose him and, yet, I cannot afford to raise any issue with him, nor would I want to. No one has worked better or more diligently than Paul, and it is thus a great loss to us not to have him for the last half of the expedition. Yet, he has now decided that he must be off. I have no word from him about how things went in Paris, but I suspect that he is not rushing back to his family, but rather to still-unsettled emotional ties in France. This is only conjecture, for nothing certain has been said to me by Paul or by anyone else.

The steep slopes or canyon-like walls on all sides of the bay, leaving only a small 45° slit open to the sea and sky, produce a depressing atmosphere here, from my point of view. Judy, however, finds the tight little community fascinating and lovable, and compares their existence to that of the household in "Women of the Dunes". It is a fine comparison and psychological insight to separate those enchanted and those terrified by such a situation.

Lehali, Ureparapara (Noibipai)

October 10, 1972

We landed at about 8:30 a.m., after an hour of reconnaissance of the coast, during which the Captain all but abandoned hope of landing us. We first tried with the sixteen foot shore-boat and could not attempt



the surge over the rocky shore and the breaking surf with this clumsy boat, although the people stood in the water off Lehali to receive the boat. However, we tried using the Boston whaler and this made it much more easily. A canoe came out to the sea, and its occupant advised us to head west of the village for a third of a mile, where there was a diagonal break in the surf and where we then came on to the shelf very easily first with the whaler and then even with the shore-boat.

In less than one hour we managed to bleed the forty students at the Lehali school, where there are two teachers: Frederick Willia, from Lehaloro, and George Selwyn from Gaua. At the school we found twelve children from the Torres Islands, nine from Lehaloro, and all the rest of the Ureparapara children from this side. We bled the forty school children and then saw and recorded sixty-eight others from the villages of Lehali, Lekwarangle and Tanno, of whom we bled all but four infants. The 104 plus the fifty-seven from Lehaloro gives us a total of 161 subjects on Ureparapara studied.

We completed heights and weights, palm and finger prints on everyone, examined them and did hematocrits, hemoglobins, thick and thin blood smears, and identity photographs on the forty school children. Tomorrow we hope to complete the adults, and all those children not in school.

I passed around colored pencils and drawing paper and asked about twenty-five school children to draw pictures of whatever they wished. Many worked diligently from one to two hours, but all produced "skul boy" works of art or design, many with the teachers in them.

Opposite Lehalori, Big Bay (Lemesu), Ureparapara

October 10, 1972

Late in the evening, with over thirty of the forty-four school children still crowded about, I left off the examinations and brought out the Nagra. The three guitar subjects.....

Five hours of sleep later, midnight...I was exhausted and have written the above note while falling asleep, a phenomenon that has occurred to me more than once, when forcing myself to record to the brink of exhaustion. I fall asleep as I write--as I just did above--and yet, before doing so I produce lines and statements that are more dream than fact. I still write clearly or set down phrases, but they have little relationship to factual reality. Thus, I have written above:"I left off the examinations and brought out the Nagra"; yet, I was not doing examinations and was only collecting drawings in the evening when I brought out the Nagra. I than wrote before falling asleep "The three guitar subjects...", and there were no instruments brought out nor any instrument players!



Obviously, this admission of total unreliability at the point my journal writing occurs in a state of dream-like exhaustion, allows one to question the "validity" of anything that I write. One can always claim that I was exhausted! Well, that is how I would have it, for if I can bring the validity and the substance of the dream world and fantasy life of a Proust or a Joyce to these prosaic pages, I am fulfilling myself and my purpose far more than I am when I mechanically and routinely record "facts".

Walter Schneider coming to bed awoke me and I have gotten up with a bad conscience to write and work and see what my colleagues have done without my help with the vast backlog of work before us. Even yesterday's bleedings were in the refrigerator, not yet off the clots. We had over fifty hemoglobins, blood smears and hematocrits from today's work to attend to in the laboratory, and I do not know whether anyone in our party felt up to handling them all.

Judy has been on the ship all day with a very inflamed foot. Her cuts have become acute endematous tropical ulcers, and we now have her on parenteral antibiotic.

The day started with confusion and changed plans when Walter told me on the walkie-talkie, as the ship approached Lehali from its anchorage in the Big Bay for the night, that the Captain would be willing to take ten to twenty people back to the calm anchorage of Big Bay for X-rays and EKGs, if we so desired. We did and I quickly sought out and found fifteen volunteers from Lehali to make the trip and return after noonhour. However, ever, at the landing, some twenty minutes walk over the rocky beach from the village, we further decided to try to shoot six or twelve X-rays on the ship and send the people back ashore, and then take ten to twenty on to Big Bay, where the developing tanks could be filled, the first six to twelve developed, and the work go on.

This scheme wasted an hour and a half, for the swell out at sea was too much and Richard could not take adequate chest films. Of the thirty-five (!) we sent out to the ship, 13 were sent ashore, only three of them with X-rays done and 8 with EKGs, and 22 went on to Big Bay, where Judy and Walter were helping Richard and Ray and with Jean Guiart helping with the problems of interpretation, managing to get chest films on all, along with EKGs, physical examinations, measurements, hemoglobins, hematocrits and thick and thin blood smears.

On shore, Paul, Françoise, Don and I completed the physical examinations and hematological studies and measurements on most of the subjects left a home. It was a clear and windy day--at times with strong gusts of wind--and we spent it quietly and productively at work growing ever closer and more intimate with the people. They brought themselves and all of their babies for these further examinations and cooperated completely. Their natural cultural modesty made the providing of stool specimens a problem, but my extremely good rapport with the forty school children prevailed and I soon had all the boys and the girls bringing us neatly wrapped samples of feces done up in leaves. They had run off to the bush in groups of threes to sixes and returned amused,

laughing and dutifully presented me with these nicely packaged feces and out in the sun I made up stool suspensions of each with Paul's help, with the tricky holding medium which requires the addition of KI to the awful mixture of merthiolate and formaldehyde with which we start. The younger children of four to eight years looked on with studied interest and amazement at these manipulations of their feces; while the older children revealed a much more stereotyped and extreme cultural bias in their embarrassed scatologically directed smiles and laughter, and at times truly coy embarrassment they clearly showed on presenting and watching the manipulations of this "shit party".

Interestingly, the feces ranged from white through yellow to light brown and all are fibrous and pasty and none formed or hard or dark! The bulky, high carbohydrate and fiber diet causes this. A few are even streaked with undigested green vegetable fibers. None are particularly foul smelling. Also interesting is that 30 children can in mid-day provide a stool specimen within ten to fifteen minutes on demand, even more successfully than American students can provide such "to order" urine specimens! None said he could not, and none failed! Don recorded us "stooling" on cinema.

I slept out in high winds and under clear skies with Athelstan Bowlen Tangparwos, Alfred Wonau and Marsdan Dungei and we slept well until the first bell for morning service awoke us and drove John from his slumber in the church-school building where he was asleep in the altar area. A temporary corrugated iron building serves as school and church now. The new church is completed as far as frame is concerned. Athelstan is the only boy in the 6th grade and he is a small immature 12 year old. Vivian Helen in 6th grade also--the class has but 2--is already 15 or 16 years old. In grade 5 Marsden is 14 (or 15) and Wilfred Willeike is only 12 and one girl, Mary Martha, is 14 (or 15). Of the six students in class 4, Luke (13 years) and Adams (14 years) are from the Torres Islands and small immature Rawcliff Emmanuel Pisiwok of 11 years of age is by far the youngest student. It is Athelstan Bowden and Rawcliff Emmanuel who interest me the most; both stand about quietly seeking my smile or other attention.

Albert Wonau from Lehaloro, a Rowa Islander born since their re-settlement in Big Bay, is close and affectionate with me. He is only in grade 4. I like him and Athelstan and Rawcliff immensely and have spent much time with them.

The school boys, seated under a nut tree near the shore at midday, have given me word lists for the four languages used here. Thus, I find that the Lehali-Lekwarangle-Tanno language of Ureparapara is very different from that of the Rowa people on Big Bay but most words are easily recognizable, cognates and some are identical. Similarly Hiu and Loh and Toga have languages of their own, and these, although clearly more distant from Lehali speech than is Rowa, these two languages are closely related to each other, more distantly to the Rowa and Lehali languages.

Cognates and shared words are going to be high between all four groups and Rowa-Lehali; and Loh-Toga and Hiu form two pairs, each language, closer to the other of the pair than to either language of the other pair. Tegua is said to once have had its own language. Now it uses Loh-Toga. Now Hiu is regarded as the more difficult language and many Hiu people handle the Loh-Toga language as well as their own but not vice versa.

Torres Islands, New Hebrides

October 12, 1972 -- October 15, 1972





Longharagi (Lungharigi) village, Loh Island, Torres Islands

October 12, 1972

Don, Jean, Paul, Ray and I are on shore at Longharagi village, where I once arrived in 1963, crossing the island along the trail we have taken twice this afternoon to the anchorage, on the west side of the island. This village, beside two fine, white sand beaches, is at the end of a bay, facing eastward, called Reghmo, but which is incorrectly called Baie Narain on the French maps that we have with us. Narain is the name of the basin further inland beyond the small strait which separates off the island of Linua (not Linoua) on which a small school is situated in which there are nine students in grades 1 and 2. We had already left Big Bay before sunrise and at 7:30 a.m. we were off the village of Litau (St. Marks) on the southeast coast of Toga. There was a heavy wind and the sea was high, and we could see no possibility of landing. We reconnoitered the coast carefully along the south and then along the whole western coast, finding no feasible landing. Stanley did not know of any. Along the north coast we spent some time trying to find the small second village of Likwol on Toga, which we eventually identified with two canoes covered with palm leaves and the village site deserted. With no one there to help us with landing, to guide us across the island or carry our supplies to Litau, I gave up the idea of working on Toga today, and instead we headed for Loh. We talked our Captain into a cautious entry into Reghmo Bay (Baie Narain on the map) and found the sand beaches with people on them and the village houses above them. Our shore boat brought us over high seas into the Bay and onto a quiet beach landing. We were promptly and enthusiastically greeted and soon started our work, taking blood specimens of the 78 residents of Loh at present, including four boys from Toga at the school here and three families from Hiu who were here for dispensary care (with a total of ten persons). We completed all this by noonhour, and before Françoise, Judy and Richard returned to the Alpha Helix, at anchor now on the west side of Loh, we completed heights, weights, finger prints and hematological studies on everyone and physical examinations on more than half of the islanders. This evening we have been checking over a few problem cases carefully, and I now type as Don gets his records up to date and a half dozen children draw pictures on our well-lighted table in the dispensary.

The village seems to be situated exactly where it was when I was last here, and even though it has been rebuilt after the hurricane damage it appears far more well-built and clean than I recall it from a decade ago. We shall complete our work here tomorrow, hopefully, with seas quiet enough for Dick and Françoise and Stanley to make chest films and EKGs on several dozen people on the Alpha Helix while Paul finishes physical examinations here at the village and puts on nine antigen tuberculin, histoplasmin and coccidioidin skin tests. The rest of us will cross Toga to Litau village with the Toga school boys from here and a half dozen adult carriers, and stay there overnight, to return to Likwol for reembarkation on the following morning, hopefully with the Toga study done. We shall then proceed to Hiu. All this depends, of course, on the weather and the seas.

There is one man here with Australian-Aboriginal blood and there is one family of children with long, wavy hair of remarkable beauty, who obviously have the hair and the features of Melanesian-Aboriginal crossing, but who are from a family reputedly not of an Aboriginal line here. Since the likelihood is that they are of this Australian line, we dare not press the matter of genealogical inquiry too far...it is a touchy matter.

There is here one small boy about eight years of age (Cyril), who has spastic hemiplegia since birth with brain stem and probably cerebellar injury, but he is an intelligent schoolboy in spite of his motor disturbances.

The old Chief, Cecil Tugorben, is a bit ataxic, with real peripheral weakness of his feet, yet which is a cerebellar type of ataxia. He also has enormous, probably filarial, testes--the right one lies in the canal, having never descended. Thus, an ectopic atrophic filarial enlarged testes presents a peculiar disorder.

The community is very pleasantly situated and is also very well constructed in spite of the recent hurricane damage. The dispensary was built in 1969, and it has withstood the hurricane very well.

The boys who were drawing unself consciously at our table have now completely stopped drawing, or have crept into corners or even under the table, to hide as they continue their drawings now that many others from the village have crowded in. The embarrassment of drawing before their villagers is obviously great, while drawing before strangers was not so embarrassing.

We have been planning to sleep on the sand beach, but rain has started, and I suspect that I shall be forced to use the guest house on the beach. Paul and Jean have made up cots in the dispensary.

The plan for work tomorrow is extensive and I shall be surprised if we manage it at all, but it is worth aiming at. I plan to take to Toga the four Toga schoolboys who are here and another six men help carry the supplies across the island from Likwol to Litau village.

Here we have found fine colored baskets, made from pandanus leaf, a large number of wooden laplap knives, thinner and differently carved than the wooden blades made in the Banks Islands, and several fighting clubs and a few well-decorated pounders. We have found no nalot boards, most of them having been sold earlier to collectors who arrived earlier.

There are several people with elephantiasis here on the island, two involving the lower extremities, and the Chief with involvement of the testes. At least one of the first two is from Hiu where the filariasis problem is far worse than here, we are told.



The study on Ureparapara exhausted us all. I fell asleep early on the Alpha Helix last night, Paul and others separated over a hundred sera from clots, froze down the clots, and did hemoglobins and hematocrits and white counts on all specimens we collected on shore. The long hours of work both day and night, without a day of rest since departing from Vila, has left everyone a bit exhausted and this pace cannot be maintained forever.

There is a good deal of good English spoken here, and a surprising number of local people, even adults, have been born in Vila, Santo or Lolowai. Thus my previous impression of the Torres Islands as so isolated that there was a greater pressure on the young men to leave and go to the centers of "civilization", more than that on young people in the less remote islands, is confirmed. The very remoteness, as in New Guinea in the interior, predisposes the youth to travel far, to travel often, and to stay away for long. If they themselves do not seek such outside contacts they come too seldom to them. The same situation seems to prevail here.

A number of the older boys here have been to school previously at Ureparapara, and have not returned there since the school at Big Bay was moved to Lehali, after the hurricane. The decision to rebuild at Lehali is well taken since the Big Bay area is so heavily mosquito infested.

We are a bit behind schedule with the extra day spent finishing our work at Ureparapara, and thus we are rushed here in the Torres Islands. I cannot spend an extra day at Toga, and must rush on to our work at Hiu. Captain Phinn~~s~~ has agreed to return Stanley directly to Mota Lava from Hiu and return there to pick us up the next day, and then leave for Ndeni (Santa Cruz) in the British Solomon Islands Protectorate.

Litau village, Toga Island, Torres Islands

October 13, 1972

We have landed on Toga's northwestern shore with the sea surging high over shore rocks, but safely, just before Lakwol village where no one lives but Father Harry, the Toga, Torres Islands priest, and his family. Lakwol is still hurricane battered, with few structures standing and none of the debris cleared away. The trail between, Lakwol and Litau, however, was very clear, and across the whole plateau it was almost Jeep-track in width. The people want to buy a four wheel drive vehicle for making the trip, since ships usually land at the northwestern part of the island, leaving a full hour of carrying--or two hours--to reach Litau, where most of Toga's 100-odd residents live.



Already it is evident that we have here an interesting genetic mixture. One large family is that of a man who is a half-caste Italian; his children are rather dark-complected, but they have very fine features. There are no albinos. There is also a genetic line from Australian Queensland-Aborigines, with two men of Aboriginal blood. It is a problem of tact to pursue this any further. The children, who clearly show Aboriginal features, are reported from different fathers.

The central plateau is some 200 meters above the sea and most of the trip is across it. The final descent to the coastal plain, on the southeast, where Litau lies, is the only somewhat dramatic feature of the trip. There are no other very scenic vistas. We made the trip in about 1½ hours. A group of three Litau men met us when we landed, and along the trail we met another half dozen Toga people.

The village has an enormous flat sandy central field and dwellings are scattered about the periphery. It lies about 100 yards from the coast. There is a first grade here, and children are then off to Loh island for further school years. We have brought back the four Toga schoolboys from Loh as carriers and guides, but we have not had a great deal for them to do. John Marelet (M12), John Browning Raputinlete (M16), and Joseph Towia (M9) from Longharagi village on Loh came with us along with a half dozen adult carriers from Loh. We have moved in quickly, and have distributed our bleeding equipment and examination treatment instruments in the church where we shall do the venepunctures and physical examinations. It is a quiet, very hot afternoon.

The hot sun beating down on the village, stripped of any shade by the recent hurricane made work all after noon very difficult. The church, where we assembled the people for bleeding was very hot and I became uncontrollably drowsy while taking the geneological data for the bleeding lists. It was a terrible effort for me to keep going until 5 p.m. when I finally finished recording the 99 persons bled on Toga. The four Toga school boys who we bled on Loh Island and the two at Lehali school Ureparapara bring to 105 the Toga population we have bled.

Yoghavighamena village, Hiu Island

October 14, 1972

Pattesson, Jim, Zacharias, Daniel, Jakob, Joseph, Manley, Codrington, Steven, Dunstan, Roy and Dominik...almost all the boys of Hiu who are now on the island, crowd about as I type by Coleman light in the blown-down ruins of Stanley's old house in Voghavighamena village, the only village on Hiu. The boys reflect the history of the Diocese of Melanesia Mission arriving here with Bishop Selwyn, Paterson and Codrington from New Zealand, and the immortalization that these monopolizing Missionaries have achieved here in their competition-free enclave of the Banks and Torres Islands for over 100 years. Their names are

the commonest ones used generation after generation, and other names come right from their Scottish roots. Scottish names in South Sea Islanders is a strange thing to get used to, but it is nothing new. The oldest subjects we interview name their long since deceased parents with these same names! Island names are easily provided here, unlike on Mota Lava where many did not have any or know of any. However, even a father or mother or brother or sister has often to pause and discuss the matter with others before arriving at the island name for many of the children. Many prepubertal and adolescent children do not know their island name and we often have to shout about to find an informant who can provide it for them.

The phonetics here is the most complex we have encountered in the Banks and Torres Islands. Jean says the language is tonal. It has enormously long place and personal names with very complex sounds, and the traditional names are provided for everyone, even babies, with only a couple of exceptions on the island.

I have typed while the night time church bell has rung, and the whole village has gone to church. The older boys have chased off the younger boys to the service, but remain here with us. They have also chased off to church all the girls who had begun to arrive and stand behind them, to get a peek at my using this machine.

We bled a total of 49 people here today. The people tell us that there are 73 Hiu islanders, but many are away. Five others have returned here with us today whom we brought back from Loh: Raymond and his wife and two children and John Wi'oi, husband of the woman who went to Loh for delivery of an infant. Raymond is totally blind from some retinal degeneration we do not understand and whether he has retinitis pigmentosa or not we are not certain. I was very frightened about his climbing on and off the ship on the high seas. When he disembarked into the shore-boat at Hiu we were in ten foot waves, and the boarding of the boat was not easy. He did very well! John Wi'oi came back to start new gardens, but his wife has remained behind at Loh convalescing from her delivery.

Hiu does not show much hurricane damage now; the destroyed church site is all cleared away and a new temporary church has been built and only a few undemolished wrecked buildings remain, such as Stanley's old house we are now using for its open airiness, it lacking any walls.

John Marelete slept out of doors with me last night, but at day-break we had to retreat to the copra shed in which Don and some of our carriers from Loh were sleeping because of the rain. I slept very well and the small crabs covering the sands when we went to bed did not crawl into our blankets or mats. John William and Terry William, sons of old William who told me that his father was Joseph, from Italy, spent the evening with me along with Leonard Mugoligwo and Joseph Hubbard. Hubbard and Terry had hidden themselves from us during the bleedings of the whole Toga community yesterday, and I only caught them this morning,

using open needles and three times alcohol-rinsed vials that had previously had heparin in them. These boys--especially Hubbard and Leonard, and some of the young married men--have been carving traditional long clubs for sale to the French Artifact Cooperative. We have purchased several of them.

We took identity photographs of perhaps half of the children this morning and I took extensive cinema of the small boys, Charles Gordon, who has epilepsy of a focal type for about three years and after one attack developed a severe distonia of his right arm and leg. He now has a permanent dystonic disorder, with severe dystonic spasms of his right hand. He is embarrassed about it, and tries to hide it from view against his body, in his shirt or with his other hand.

The coast at Litau has a fresh water spring, contaminated with sea water when the tide comes in, but fresh while it is out. The reef here is very hard to cross even at high tide and thus small boat landings are very dangerous.

We finally left Litau at about 8:30 and walked to Kalwol in about one hour, but along the way, while discussing Kogaisantamba in the kuru region and adjacent Auyana villages with Raymond along the wide highway-like trail on the plateau, I ran my face into an overhanging dead branch and cut myself severely just below my right eye, fortunately not injuring my nose or eye. I am now hoping that the well-washed laceration will heal well, without infection. We arrived at Lakwol a half hour before the Alpha Helix appeared from behind Loh, and boarded with difficulty. The Toga people had got to know us for only 24 hours, and yet we seemed to have become good friends and long-time acquaintances. Many walked across the island with us and waved us off.

Back on the ship I learned that Richard Ferber has had very bad luck with his Loh Island X-rays, taking 34 of them at Loh bay anchorage and then developing them on the quieter anchorage at the western side of the island. To his horror, he discovered that the films were all unexposed, and this had occurred because he had left the yellow wrapping paper over the films to help wrap them after each cassette was emptied. He had thought this paper would be totally radiolucent, but had not realized that the film is sensitive to light wavelengths from a fluorescent screen, and not from the X-rays themselves. The yellow paper completely screened off the fluorescent screen.

There are two youths here with super numerary digits, and interestingly and predictably, they are the siblings of the young woman with six fingers on each hand and six toes on each foot, who is now in Loh Dispensary after having delivered her baby there. She is Evelyn Rewutuiye. Her brother, Paterson, is a sixteen year old boy with six fingers on each hand, and no super-numerary toes. Her thirteen year old sister, Doreen, has only one extra digit, a right-sided sixth toe. Their parents are Belam and Madeline, but neither has extra digits. Two other brothers, James and Benedict, do not have extra digits.



Hiu Island

October 15, 1972

Paul and Don left for Loh today at 6:30 a.m. planning to stop at Tegua en route for about one hour to get blood specimens from the six to eight residents. The Alpha Helix will then set off for Mota Lava with Stanley and his niece to deliver them there late this afternoon. Tomorrow morning it will pick us up here again, and shuttle us via Tegua to Loh to pick up Paul and head for Ndeni (Santa Cruz) in BSIP. Our work here in the New Hebrides will thus be done.

There is increasing friction between my scientists and our Navy-style captain, who wants tighter schedules, command, orders, and discipline, not appreciating that we do not run our work by levels of authority. He is very upset by various of our party attempting to give orders for the shore boat, and trying to determine what food stuffs are sent ashore for us. Thus, there have been some very sarcastic exchanges between him and my crew and he has retaliated with by being stricter than ever with the use of his shore boats. Our captain likes well-delineated authority and responsibility and exact schedules. Thus our disembarkings and embarkings are run like scheduled trains and we have no chance of leisurely planning our work until we are once on shore. Then, we are often too rushed to take things as we please. Actually, the Captain has never been able to settle for the scientists living on shore. He seems to resent our insistence on doing so.

...midday...

We are all resting from the heat, and the islanders have asked to go out to their gardens to bring in food. We have examined everyone this morning and taken identity photographs and records of the inguinal and femoral filarial lymphadenopathy, of the herniae and hydroceles we are finding, and of the severe cases of elephantiasis on the island. There are many flies in the village in daytime. In the high breezes of the evening, we found very few insect pests, and I slept without being bothered by mosquitoes on the beach with a half dozen of the children, Jim, Paterson, Daniel, Zacharias, Jakob and Joseph staying with me all night. Our morning work has fared well and evening blood smears and hematocrits and hemoglobins are our only remaining problem.

During the afternoon I walked down the beach which faces southeast toward Tughwa, as the Hiu people call Tegua, and into the bush and overgrown coconut stands beside this sandy beach where I found Paterson and Zacharias, Jim Collin and Philip making stick traps for ground birds (wild fowl) in the form of log cabin pyramids propped up on one side with a triggered "fall" which the bird upsets when it goes after the copra "bait", trapping itself in the pyramidal cage. We spent a half hour on these traps, then another in fetching and opening coconuts, and finally returned to the village. I took some still and cinema film of all the procedures.



Paterson has a large 5 cm diameter tropical ulcer on his left foot which Françoise opened, cleaned and dressed today and we gave him  $1.2 \times 10^6$  units of Bicillin im. He has been walking on the ulcer all day and this evening is ill with a fever of  $39^{\circ}\text{C}$ , some headache, and his ulcer is painful. I fear a bacteremia resulting from "opening" of his ulcer, not covered by the penicillin. We have put him on Aralen and Ampicillin and redressed his ulcer. We are leaving him with four days of Aralen and one week of oral Ampicillin (1.0 gm/day), and ample dressing materials.

Jim Collin Tawioi has a small right indirect inguinal hernia which should be repaired and has an enormous hernia on the right (grapefruit size) and smaller one on the left. He has been to Lolowai where they decided against surgical repair "because he had had it a long time already". I do not find it a fibrosed filarial mass, and think that surgery is indicated. Thus, he and Jim should go into Santo for further workup and Paterson for grafting and further antibiotic treatment of his ulcer. The several cases of severe elephantiasis are beyond any therapy we can suggest for them. Zacharias is enormously fat, and this tends to obscure the fact that he does have elephantiasis of his lower limbs. At 13 years of age he is already crippled with the disease. He also has a history of several bouts of generalized edema but we see nothing suggesting renal disease on his physical examination now.

One small girl of nine without evidence of elephantiasis, is enormously fat, two of the women are similarly obese, as one expects to see them in Polynesia but not in Melanesia. What is the reason for this? There are two men with enormous elephantiasis of their lower extremities.

From dusk on, five of us worked at sticking fingers for hematocrits, hemoglobins and thick and thin smears, completing the whole community by 7:30 p.m. We then had a wonderful supper of rice, peas, tinned baked ham, and boiled green pawpaw, along with a pot of soup and dessert of cooked pawpaw in coconut milk, and hot tea. We have eaten well. All day and yesterday our "camp" has been the surrealistic setting of Stanley's nearly destroyed house, with the roof askew, walls gone, cement patio open to the sky and a base of packed fine beach coral. In the intermittent showers of the day it has leaked badly, but by shifting supplies and activities to dry space, we have managed to use the house. Its open-sided quality provides for ample breezes and relatively few mosquitoes.

During the afternoon, the boys picked up three filled hemoglobin tubes with the numbers in the 1200's on the sand beach of the cove facing southeast. Obviously, these have been discarded on the high seas and foolishly just off this bay, and some have reached the sandy shore intact. It is embarrassing to have them show up this way, and we have to assure the people that they have been studied and used and are now discardable.

Hui people are singing their evening church service, conducted by Andy Yiungtughaghe, a young man with the most severe elephantiasis on the island. As I looked in at him reading from the Bible in Mota language in robes of an Anglican priest, with his huge filarial lower extremities giving him an elephantine firmness in his role, I could not help but be amused, amazed, and in some way very sad--for this most remote of all New Hebridean islands distresses me in its beauty, I cannot help but look on the children here as other than captives. The very intelligent and able people crippled by elephantiasis are truly captives of their homeland. The four children of the French citizen, Marcel (one-half Ambryn, one-half French), who married Alice from here, who has now remarried after her husband's death, a man from Vila, are all here cared for by two families. Stanley apparently brought them here from Vila after Marcel's death. The fact that he came now to take sixteen year old Marcelline back to Mota Lava as his house servant, which is what his brother, Andrew, says of the matter, comes as a surprise to us. Apparently, Andrew and Stanley quarreled over the matter last night. We had not thought of the situation at all when we agreed to bring his "niece" back to Mota Lava with him. Jean is rather disturbed by the three totally uneducated "French" children here on Hiu: Daniel, 12, Doris, 8 and Marcelline, 16. Their sister Maria is somewhere in Vila with Alice, the mother! He points out that they are all entitled to French government supported education through Lycee-level, and feels that they have been cheated by being sequestered here.

There has still been some wailing today for the death of Stanley's father by his half-sister, who greeted him on the beach as we landed yesterday, and burst into loud wails for the loss of their father in September, I believe. The remembrance dance and feast given by Stanley at Mota Lava was for his death, but Stanley had not been home to see his family since the death was reported to him.

Marcelline's departure seems to have left many people dejected and disturbed. Stanley's visit and quarrel with his brother Andrew, over his taking Marcelline off to work for him at Mota Lava has not gone well with everyone. Jean considers that we have been tricked by Stanley into believing that this was his real niece, really adopted by him!

The day has really been stormy, but only light rains have struck us. This night is clear but very windy with a very stormy sea on the windward, southeastern side. I have hiked along the southeastern Bay shore to the outer side of the small island-like peninsula and finally seen a large number of birds, whose species I do not know.

If all goes well we may get to Tegua tomorrow briefly. We shall miss the old Torres Islander, ex-captain of the New Hebridean Recruiting Vessel, Jonny, owned by Jean My of Santo. He now lives alone with his wife from Aoba on Metoma Island just off the northern coast of Tegua, usually totally alone.

The isolation of the Torres Islands is extreme. One feels it here. The people are remote from all sources of outside help. In emergencies they can go to Tegua and on to Loh by canoe and they usually do. However, it is open sea, and dangerous.



The Hiu people have been marrying each other for the last several generations, and since they are so few in number it is clear that many cross-cousin marriages must occur. Jean Guiart points out the conveniently they have "forgotten" their grandparents' names already and thus the women are not clearly from known lines, and the degree of relationship is dimmed or lost making the marriage possible. The current older boys, such as Jim and Paterson, would not have a girl on the island totally unrelated to them to marry!

One woman, \_\_\_\_\_, with an eight month history of rectal bleeding of red blood and a weight loss has shown nothing on vaginal or rectal examination. She needs further workup in Santo. The older man and Jim need herniorrhaphies in Santo, and Paterson needs prolonged treatment of his tropical ulcer, perhaps even grafting. They should all be taken to Santo soon.

Hiu needs a teacher, a dresser and a small radio station, and some mosquito control. There is a salt water inlet behind the village where mosquito breeding may be excessive. A sanitary engineer visiting with a view to mosquito control is also needed and finally, probably village spraying prophylactic Hetrazen, as is being used experimentally on Capt. Gloucester in New Britain.

This has been a wonderfully quiet and restful day of leisure. The examinations of the whole population and the evening blood smears were all done easily and quickly.

The tapaya here is without legs or a stand, and is simply flat or curved at the bottom. I am offered only a much split old one, which is small. One huge old local tapaya is too treasured to be sold and I cannot get it. I have only purchased two stone-hard shell adze blades, one coconut shell kava cup (well blackened), and about fifteen local Hui island style cutting knives. These are simple, undecorated, and some are with exquisite lines. They want a standard price of one dollar (Australian) each, which is much higher than elsewhere.

There is no copra production this year, or for a year or two to come, because of the extreme damage to the coconut trees from the hurricane. The islanders are thus in great need of money, and welcome any purchases we can make...if only they would sell the fine large tapaya, I should be very happy.

The village sleeps...we finished supper at 9:30 and packed for a half hour...now, only I have a light on in the village and soon I shall go down to the beach to my sleeping gear on the sands. Francoise had preceded me and I am actually avoiding her, Judy, Dick and Raymond, for I want to be alone tonight to my own thoughts and devices. My eye laceration has not bothered me and I have less edema than anticipated.

British Solomon Islands Protectorate

October 17, 1972 -- November 14, 1972





Graciosa Bay, Nande, Santa Cruz, BSIP

October 17, 1972

Dr. Richard Lee has told me a great deal about this Eastern District of British Solomon Islands Protectorate where he has been the first resident physician for over a year. There are some 9,000-10,000 people in the district with 3,000 to 4,000 on Santa Cruz itself and perhaps 1,500 of these with easy access to the small hospital and clinic which he runs. The Reef Islands have another 3,000 people, with Duff Islands only about 200. Tikopia now has about 3,000 people with only slightly over 1,500 on the island. Many have left to resettle permanently elsewhere and others are slowly drifting back. Vanikoro has only about 200 inhabitants, Utupua about 200 and Anuta about 200!

When I last discussed Anuta with Raymond Firth I continued to urge him to get someone to do anthropology on Anuta and now I learn that he has an American student there: Rick Feinberg, who has been living there since February and will stay through the end of the year. He has even made the long eight to twelve hour canoe trip to Fataka, the most remote uninhabited island of BSIP, which is made traditionally once a year supposedly to collect birds from this bird sanctuary. There is no way to land the canoes so someone must stay all the time with the canoes while others are on shore--a rocky mass rising from the sea. Jean Guiart is very disappointed and upset to learn of Rick Feinberg's work on Anuta, for he does not want to intrude upon the young student nor ask any genealogical questions that the young anthropologist has surely already been asking. We can easily work with Rick Feinberg, but that leaves Jean without any role in our Anuta studies. He is right that the appearance of someone like himself on the scene may fill the your man with suspicions and jealousies and make life harder.

The island of Santa Cruz is called Ndeni on some charts and Ndenö on others. Yet Francis Waleinia from Malaita, the District Officer, says it is Nande on its correct form. The airstrip is very near to the station. The station has been well-built but consists only of a Police Station, Government Offices, Hospital, quarters for the six nurses, telegraph office, post office, and two trade stores and a government store for their supplies, and a couple of "European" residences.

Dr. Lee tells me that the chiefs of both Anuta and Tikopia refused free rice from the government after the hurricane even though many people were short of food. This was to prevent them being charged with a debt of gratitude. They do not want to later be charged a Council Tax and have refused to take part in Council elections, wanting to keep their old traditional system of chiefs. Lee complains that the chiefs fail to get people together for medical survey, to get children together for medical survey or immunization and that they have failed over many years to provide their share of funds for the half built dispensary now already decaying.

Anuta especially, and Tikopia as well, are heavily mosquito-infested and we will be well advised to bring mosquito nets ashore. On Anuta the chiefs have been more cooperative and seem to have more authority and desire to cooperate. He also tells me there is a sign on Tikopia

which indicates that only the chiefs are permitted to use the betel nut which many people grow in their gardens. It is easy to see that Polynesians give him more "trouble" than do the Melanesians, and he reiterates what Frasier told me nine years ago about cooperatives; they survive and lose money slowly in Melanesian hands with government subsidy and extreme government support; on Polynesian islands they fail miserably, usually after enormous financial losses and total consumption of government subsidies, repeated until, in exasperation and almost pouting, the government officials close them down.

Graciosa Bay, Nande (Santa Cruz)...October 18, 1972

I was writing last night here, in Dr. Lee's home in such an exhausted state, that several times I lapsed into sleep writing, and produced dream-like sentences:

"A few neonatal infants easily brought on board" in the middle of an account of chieftainship on Anuta and Tikopia surely reflects my concern for Dr. Lee's desire to bring his wife and two small children of 1 and 4 years to Anuta and Tikopia with us on the Alpha Helix and the captain's wise reluctance since the ship is really dangerously rough! Later I produced a phrase "dormitory for the students from afar" in a list of buildings of the Santa Cruz station when there is no such structure! I will have to stop compulsively trying to keep notes when I am at the point of exhaustion.

Dr. Lee has shown me a remarkable role of Santa Cruz traditional feather money made by one of the four old people who still make custom money well. It is a long flat, 2 inch wide, belt-like coil of minute red bird feathers (only a few mm long) all glued to the outer surface of the thick belt-like coil which is made of flying fox bones covered with a fiber braiding of very fine and tight weave. Even here it is worth over \$200 Australian and in U.S. Museum circles might fetch \$2,000 or so! Beautiful plume-like sticks covered with such small red bird feathers are also made to be worn in the hair or placed on ceremonial food bowls and these sell for about \$3.00 Australian each here. The custom feather money is used for bride price, buying pigs or adoption payments in adoption ceremonies. Each time it is used and grows older and it loses value (rather than gains in value, as I would have predicted). It is stored carefully wrapped in leaves over the house fires to keep it free of insects and in such storage it is preserved very well for years. The people in villages along Graciosa Bay try to sell us for \$20-\$30 the old, "beat-up" custom feather money with few feathers left on them. These I reject and finally a very fine colorful and moderately well-preserved ceremonial money is offered to me for \$160. I now have purchased it for \$65.

The new and extremely beautiful roll of such custom money which the Lees have is one of the most beautiful Pacific artifacts I have ever seen!



Only last year an ethnobotanist, who worked most of his life out of the Bishop Museum, came to Anuta for three weeks with two student assistants. They got stuck on Anuta for eight weeks, and the students had a dreadful time. So distressed were they back in Santa Cruz on their return there, that they used all their money to charter a flight from SOLAIR to get them to Honiara for five hundred dollars, instead of waiting for open seats on the scheduled flight only three days later.

...8:00 a.m.

We pulled up anchor in Graciosa Bay at 7:00 a.m. and are heading out to sea enroute to Tikopia. The Captain is satisfied with our new itinerary, complex though it is. We packaged the Santa Cruz feather money and left it as the fourth box of the shipment waiting there, to go to Honiara and on to the U.S. next week. There is much doubt that SOLAIR can find the space for it all...I hope they can.

At the Santa Cruz Hospital we made extensive ward rounds with Dr. Lee yesterday afternoon and saw a half dozen really interesting patients. Tuberculosis is obviously a great problem and our failure to find it much of a problem in the Banks is surely erroneous. Thus, we did find one reactivated case requiring long term treatment in the hospital again and a half dozen suspicious cases of which a few will probably be proved and require long term therapy. This thus produces the biggest hospital case problem we have encountered.

Here is the Captain's sailing itinerary which has resulted from my revised schedule:

October 19	0700	Depart Santa Cruz
October 20	0600-2200	Tikopia
October 21	0600-22/2300	Anuta
October 23	0700-0800	Tikopia
October 24	0600-25/0300	Santa Cruz (Graciosa Bay)
October 26	0600-27/2300	Anuta
October 28	0600-31/2000	Tikopia
November 1	0800-3/1600	Vanikoro
November 4	0600-1800	Santa Cruz (Graciosa Bay)
November 6	0600-9/0200	Rennell
November 9	0600-11/1500	Bellona
November 12	0700-14/0300	Honiara
November 18	0800-22/0800	Ponape

The only letter I got off from Santa Cruz was to Joe Gibbs. The only mail I received was from Raglmar at Hamilton and with his letter I was most pleased. He has moved in well. I am worried about Yavine and hope to get a long letter off to him from ship today, to send off to Santa Cruz with Jean when the ship leaves us at Anuta.



We arrived at Graciosa Bay, opposite the airstrip, at 7 a.m. and by 8 a.m. the first mate had located Dr. Lee and brought him on board to clear Paul Brown's for the shore, to catch the SOLAIR flight to Honiara. The plane was due at 9 a.m. for departure at 10 a.m., and Paul is booked. I have never learned why he decided to desert us, and I will miss his very competent and devoted service greatly. He says he is not heading back for Paris, but to Bethesda, and I cannot believe that his family really need him that badly. Thus, to all of us his decision to leave now is strange. It is a strange move, since he never really discussed it with me and simply left it a rumor and a possibility for the last two weeks. I never really objected or openly complained to him about it, but I do in fact feel deserted. I would much rather he stayed with us; I need him and had counted on him. I now feel that I should have explicitly told him this, rather than leaving it unstated, and the option open to him. Paul may have felt insufficiently needed or appreciated. It is likely that by not openly expressing my extreme pleasure in his performance with us, giving him more explicit authority, and not explicitly stating to him how lost and disappointed I feel to be without his help, that I actually encouraged him to leave. If some other aspect of the trip has displeased him or left him dejected, I have not noticed what it might be.

We have met Mrs. Tom (Diana) Hepworth, whose family owns Pigeon Island in the Reef Islands, where they have been living for the past fourteen years, as the only Europeans there. There are some three thousand people in the Reefs, and part of these are Polynesian, and the rest are Melanesian. The Polynesians live on the "outliers" and do not mix or intermarry much with the Reef Islanders and Diana Hepworth explains that they are not even called "Reef Islanders" locally, and that some ten to twenty years ago rarely crossed the channel separating Polynesian islands from Melanesian. The Hepworths are building a trade store and residence here, to be occupied by a Canadian couple who they have requested to come. The side fore the wonderfully built home is below the station grounds...we do not like it and wonder why such a fine house is being built in such a hot and sultry hollow. I suspect it is because the usual feuds between the kiaps and government people, and the private enterprise and the missionaries. Diana fully confirms this and claims that the District Officer simply is against free enterprise, and does not let anything be built on the current station grounds, which were set aside for commercial enterprises. She is prompt to tell us that it is a private feud between her and the District Officer, who wants no commercial activity on "his" station.

I have purchased with Australian dollars with over \$400 U.S. with a personal check authorized by the Accountant General whom Paul tracked down and brought to the radia. He authorized the Alpha Helix to give the District Officer \$400 U.S. in personal checks--my own--for receipt of Australian dollars from the Sub-district Office at a poor rate of .79 Australian per \$1.00 U.S.

...Falling asleep again...

Thus, we get \$316 Australian cash, after Paul's two long radio conferences with me from Honiara, where he tracked down the treasury official who had to authorize this for us, by radio approval to D.O. Francis.

Alpha Helix in Graciosa Bay, Nande (Santa Cruz)      October 19, 1972

...1 p.m...

The captain has approved our revised and elaborate itinerary, including the extensive double shuttle to Santa Cruz from Anuta. We leave Jean Guiart on Tikopia tomorrow--trying to bleed one village there--and pass on tomorrow night to Anuta. Thus he is escaping from the embarrassing meeting with Rick Feinberg whom he is afraid of intimidating by appearing. Dr. Richard Lee has joined us and left his wife at home since Captain Hinney would not--and could not--approve of the two small children of one and four years coming with us. He has been of enormous help to us all thru our sojourn here. With Lee and John Sheridan on board our scientific party is up to ten (including Walter), and of these, seven are doctors! How strong a team we would be if Joe and Nancy were here and Paul had remained.

I continue to worry most about a possible breakdown of the Revco freezer which stays flatly at  $-38^{\circ}\text{C}$  all the while. I am also worried about how I am going to get enough dry ice at Honiara to ship off the clots to Bob Kirk in Canberra. If they thaw or rise much in temperature they are no longer good for some red cell enzyme studies. The 1500 clots we already have are blocking space for further specimens in our Revco.

When I returned to the ship this morning, having slept at the Lee's last night, I found many canoes alongside and over a dozen villagers from nearby coastal villages on board. They came out to try to sell carvings (bowls, paddles, nose pieces) and asked \$30 for a very poor custom feather money belt in contrast to the beautiful new one owned by Dr. Lee. I asked for one of better quality and such was brought promptly and \$60 was asked for it! Unlike the Banks and Torres transactions where the price was dropped, this did not occur here. I only succeeded in bargaining down the price of the custom feather money belt to \$55 Australian. It is very traditional, in fair shape and very tightly packed to be stored over house fires. It has with it a notched board record of transactions made with this feather money.

This afternoon in clear horizons we can see the recently active volcano of Tinakula. The Reef Islanders on the Polynesian outlier of Niupani have canoed over to Tinakula, an hour's canoe trip, and back for many years and regularly attend to their gardens. However, fresh volcanic activity this year has made it necessary to abandon both their home island and their gardens on Tinakula. They are now on Santa Cruz, fed and housed by the government, and restless to return. Two geologists tried to land last year at Tinakula and their boat overturned and one, Dr. Ken Barnes, was drowned.



The possibility that bad weather may interfere with our landing on Tikopia, and especially on Anuta, has me worried, for Anuta is the primary goal of this entire expedition and I want to do our most thorough work there.

Yesterday, at the Santa Cruz hospital, the thirteen year old Tikopian boy, Falos Manuvak, was a very fascinating child. He has recovered from what appears to have been tuberculous meningitis, but the diagnosis was never been proved. Now out of coma, he is said to be well by Dr. Lee and his parents, but this can hardly be the case. He is dull of expression, very slow speech and slow to respond, and has many signs that indicate mental impairment. He engages in extreme echopraxia, and ecolalia to a slight degree. He smiles, rubs noses, hold hands, twitches and grins after a brief delay in direct response to what I do. Like most Polynesian youngsters he loves to embrace and fondle, but excessively so, I believe, pathologically so. He hugs my thighs, pats and rubs my arms and tries to be excessively affectionate. He is not markedly demented, to be sure, for he quickly corrects my mispronunciation of his father's name-- but in so doing he does so repetitively. Thus, I suspect a real cerebral deficit, residual to his now apparently cured meningitis. His father is here with him, a known pulmonary tuberculosis patient under therapy. His younger sister and his mother are also here. Falos also shows an extraordinary flattened occiput, with a craniotabes-like appearance. The same odd skull shape is extreme in his mother, and present but less extreme in the sister and father. This is not an uncommon oddity of skulls among Tikopians, I believe, and we will have to devise some way of demonstrating it clearly, perhaps quantitatively. It may be difficult to do so. It is not a subtle or minimal anomaly, but a very marked and flagrantly different skull shape than we see in other Islanders in the Banks and Torres, and Solomon Islands.

Lawrence Faiyoa and Sarah Manuvaimuno, Falos' father and mother, are both beautifully and extensively tattooed. When I take blood from them all, Falos cried with his and was only slowly soothed. Among over 1500 bleedings, no one over eight has cried in the Banks and Torres Islands that I recall, and certainly no boy of ten or older. Yet the first teenage Polynesian boy I bleed cries...how typical! The extreme differences in personality, physique and behavior of the two races is again dramatically seen in the British Solomon Islands hospital, as it is in Honiara, where one can see both races side by side. The more emotional, more sensitive, less pain-tolerant, and more hypochondriacal Polynesians stand out in sharp contrast to the darker more stoical Melanesians. The warm cuddling, messaging behavior of Falos is distinctly Polynesian, although in his case I am forced to consider it somewhat pathological and the result of brain injury from his recent tuberculous meningitis. It would be fine to know his mental status before the illness, but of that I can learn nothing from his parents. They consider him normal as of now, as far as I can ascertain. When Falos clung to me too tightly, when he joked in an echopraxic way a bit too much, as to be most rude from his father's point of view, his father chided him abruptly, but Falos paid little attention to these admonitions. The admonitions were far more characteristic of Polynesians with their children, than most Melanesians who would have corrected or spoken less to the child and left the matter more in my hands.



I am fascinated by these people and am looking forward with immense enthusiasm to our work on Tikopia and Anuta.

I have finished letters to Raglmar and Yavine, and must now write to Tamel, Mororui, Mbagintao, Mathias and Maluwetig. It has been dreadfully difficult to get any letter writing or paperwork done on this trip thus far.

...At Sea...Santa Cruz (Nande) to Tikopia

October 20, 1972

...1 a.m...

The day we hope to land on Tikopia--after all these years of hoping and planning. I am restless, and excited and worried, for until we succeed in getting ashore safely at both Tikopia and Anuta, the major goals of this expedition have not been met. The landings are often rough and sometimes, even often, impossible. Thus, we are by no means sure of success until we have landed safely. From there on, I am confident that we can accomplish much.

I have written to Steven Wiesenfeld, along with those to my boys and have thus my first correspondence of this month off at sea...I have many further letters to write.

The ship rolled sideways all the way from Hiu to Santa Cruz; now we are pitching and bucking, but rolling little.

I browsed today through Raymond Firth's "We the Tikopia", and admire him and his work more each time I read him.

Jean approached me, almost belligerently, about what I was trying to do in my journals. In fact, the major function they serve is done once I write them each day, for in so doing I organize my thoughts a bit and imprint more firmly on my memory the details I wish to preserve. They are, in fact, a stage for catharsis and self-vindication, for confession and self-analysis, for trial of crackpot ideas, and appraisal of old and new ideas of my own and others, and a record of changing values and judgements which help keep me sober and yield to me a more solid equanimity after writing than I could have before. I also use it as a field notebook and verbal sketch pad, and as such they are often poorly organized and filled with undigested minutia.

I can only then justify them in the knowledge that at the fierce pace at which I live I would have little which I noticed or think if I did not record as fast as I do. The only alternative is to live slower, do less, see less or analyze more and present more critical summaries and more abstracted and digested findings...I often do not have the time nor the ability to do just that.

Thus far, it appears that only Don and I may be going on to Ponape from Honiara. All the others want to start their tours of Asia and New Guinea from Honiara out.

There was a wide halo about the moon last night as we lay on quiet Graciosa Bay. It was of enormous diameter, perhaps a dozen moon diameters across or more, and appeared to be a great circle of clouds. I had not seen such a halo before, but rather a smaller halo, without an enormous disk of clear, dark star-filled sky within, as this had, with the moon in the center.

Tikopia, British Solomon Islands Protectorate

October 20, 1972

We made Tikopia by 0800 on rather rough sea but in the lee of the island we found very calm anchorage right over the reef, with some thirty feet of water above the reef off shore, even at low tide. Here to my surprise, Captain Phinney anchored, and a canoe came out from the sand beach to meet us. Lawrence, the Dresser was in it, and he led our Boston whaler into the reef edge, from where we walked about a hundred feet over the reef, and then sand to shore at Botikorokoro village. Richard Lee, Jean Guiart, and I landed first, and the literal embraces and fondling reception we received was in sharp contrast to what one usually expects in Melanesia. In spite of the physically warm greeting, it took a direct request ignored by many to get our supplies carried up the beach to the dispensary, where a sturdy European-materials building stands, without louvered windows, which Richard pointed out has been years in getting installed, since it is now the responsibility of the Tikopians to finish it off.

The island is very clean, the villages almost spotless, and the people are clean and neat. Boys up to the age of puberty are often nude on the beach, and even the little girls to up to ages eight or ten often go about nude. Thus, there is less dress modesty in the children than in the Banks and Torres. However, the children horseplay rougher, they are more aggressive with one another than are the Banks and Torres Melanesian children, and they tease, quarrel, mock and jeer at one another more than do the Melanesian children we have been with. Judy and the party were quickly aware of this and found it disagreeable and surprising. The bold jeering, mockery, and shaming of other children and lack of obedience to adults, strikes almost that of American in quality and rather different from what one has been living with in the Melanesian islands. This comes as a surprise, when it was the Polynesians who were usually thought of as sensitive and gentle, and the Melanesians rough, coarse and aggressive. In the children, it is the other way around. Melanesian children tease each other, and hold peers in tow with ridicule and shame. However, the jeering and shaming of each other for every intimacy with the visitors and attempt to behave individualistically with them, is a more potent force here. Again, Judy, Françoise and the others all notice.



In walking hand in hand with us, in cuddling closely to us on the trails, there is always a self-consciousness in the kids, sometimes even a mockery, and if they do not mock us, they mock each other.

The villages are totally traditional in construction and the houses are marvelous. With low walls, roofs to within 3 feet of the ground, and crawl-in entrances and fully coconut frond matted floors, they are beautiful within and without. The massive hand-hewn frames on which they are constructed are excellently wrought, the workmanship is neat and expert, and the houses have all withstood the hurricanes, unlike the houses of the Banks and Torres. We soon decided to go to the far side of the island, near to the lagoon, where the first chief of the island, Te Ariki Kofika, lives, to start work there. Near the dispensary, at Matautu village, we met the second chief, Te Ariki Tafoa. A group of a dozen boys from this anchorage side of the island came with us but no one spontaneously carried our gear, and Judy and Françoise were even carrying large boxes before I returned to the dispensary and specifically requested aid in carrying the supplies. Then a few of those I admonished joined us and carried well.

Two teenagers have latched on to me and have been my closest associates on Tikopia thus far: Ralph Wycliffe Ritia (Ridia) of Botikorokoro village, who is 16 years old and has done standard 4 in school on Tikopia and not been off the island but speaks good English and Mathew Taro of Botifareata village who has lived for over seven years with his family on Rossell Island but has had only two years of schooling, "because no one could pay the school fees", he claims. It is quite obvious that school here on Tikopia is not taken very seriously and the great majority of children do not go at all. Those who do go are far behind children in many Melanesian islands and few speak good Pidgin or English. In addition to Mathew and Ralph, other boys from our anchorage side of the island who have clung to me all day are Walter Furitofi (of 12 to 14 years of age) from Rafea's village, Solomon Atu, 11 years, from Botikorokoro and Steven Linden Fria, 13, also from Botikorokoro.

At Botisafarea we went quickly to the first Chief's house and the children staying discretely behind, we were motioned to enter. We entered to find a very formal reception, the chief squatting with great dignity on the matted floor with his translator before him, and adorned with beautiful white floral lae around his neck and white flowers behind each ear, to set off his straight, stiff, long grey-white hair. His immense house was a regal reception hall and we all bowed and shook hands from our squatting positions and squatted before him. I explained to him our mission and he approved and offered us help and hospitality and invited us to start working. We spent about an hour in his presence, and then retired to set up our blood collection at the church at Botisafarea beside which a large tree gives fine shade. Here the situation of assembling the children and community was far harder than in Melanesian villages. Children ran off, others refused to come, and when only some fifty were at hand I distributed venules and we started collecting blood specimens. It went smoothly enough, but those not assembled tended to withdraw further rather than arrive to participate, and in assembling them more fled than came voluntarily. In



the end we collected some 99 specimens from children and adults, and could have collected many more. However, there was more suspicion, more episodes of children fleeing or refusing, and of reluctant adults than we had encountered elsewhere, and this discouraged the others a bit. I should myself have taken on the task of assembling more people, but the bleeding went so much faster than did the recording, that I found myself completely tied up with recording and giving numbers for several hours, and welcomed the end when it came, not trying to drum up further volunteers. It is evident that I can do this easily on our return, and I could on easily be getting 100 to 200 more specimens from Tikopia. With the four from the family in the Santa Cruz hospital we now have 103 Tikopians bled. We did not do any finger and palm prints, any measurements or examinations today. We did take a dozen or so photographs of umbilical hernias, common here, whereas they are in Melanesia. In fact, there are some six or eight here in children three to eight years old, larger than any we saw previously on the expedition. One boy of about 8 years old is dumb, but apparently intelligent and his dumbness is from deafness, I presume. That flattened occiput as a common type here is amply evident and we shall try to document it better on our return.

I was too busy for some four hours with the attempt to get names, villages, parents etc. of the subjects bled that I did little touring of the villages in and near which we were working. While we worked, the chief sent word that he would like to go to Anuta with us and I agreed gladly, and he planned to take his brother, Luke, a teacher here, as translator. He planned to stay the whole week on Anuta with us and return here with us. I made arrangements for Luke, him and me to board a canoe from the anchor-age side of the island, and at 4 p.m. we walked back to the dispensary, radioed the Alpha Helix and sent our party back on board with the blood specimens. Leonard, the dresser, went on board, inspected my Futuna-made canoe and agreed to try to repair some rot in it and repair or remake the outrigger, and thus we off loaded it and he brought it to his homestead in Matautu village where his old father may work on it this week. It is built very differently from Tikopian canoes that I have seen thus far.

Only Jean Guiart and I stayed on shore after dusk, and I made a tour of the villages down the beach from the dispensary: Botikorokoro, then around a promontory which is reached by the high tide so as to isolate them from the rest of the beach at high tides, Rafea, Patifareata, and finally, the last (and only two-house) village of Potimua. Walter Furitofi lives in the latter, and Mathew Taromaori in Patifareata. There we visited several houses and found them built like that of the chief's but smaller and less carefully but none-the-less impressively and firmly constructed. I was quickly presented with four chronic medical complaints in adults here ranging from chronic paralysis of the legs after a poliomyelitis epidemic here in the 1950's to a deeply pigmented bordered fungus-like skin lesion which looks psoriasis-like in the centers which has been erupting for several months on a man who also has severe abdominal and urinary complaints. Shortness of breath--a very common complaint here in the Banks and Torres and Solomon Islands meaning many different things--and low back pain--also common and usually associated with "hard work"--were other complaints I noted and promised to attend to when we returned in a week from Anuta.

The anthropologist, Richard Feinberg from the U.S., who has been resident on Anuta since last February, has been most concerned about the generalized tinea, called bakur here, in a number of Anutans. Richard Lee saw nine cases of this when he visited on October 7th, 1972, and seven cases of scabies. There are apparently a few lepers on Anuta who were treated in the past. One patient, with a nose lesion that Richard tells me is inoperable basal cell carcinoma, and another with a destroyed nose, sounds more like gangosa from old yaws than leprosy...we shall see. He knows of three follow-up tuberculosis cases which have been treated.

Today, while we worked on the far windward side of Tikopia, Captain Phinney and his first mate came ashore and visited the nearby villages. They are very impressed with the construction of the large Tikopian canoes they saw. The anchorage was calm enough, so that we could have taken both x-rays and developed them. I certainly hope we have such luck at Anuta and on our return to Tikopia. We need it.

We are short of vacuutainer needles and have thus had to reboil those we used today, and also clean them with fine wire. The blood clots have already been separated and the clots frozen.

While visiting Ralph Wycliffe's family at Patifareata, I was given a watermelon and apologies that they had no food prepared. I spent a half hour with his parents and older brother. It is strange that off on Russell islands for seven years, he was not sent to school. Later the message came that the Chief had changed his decision and that he and his brother were not coming with us to Tikopia. I thus went back to Matautu village, found Leonard and asked for a canoe back to the ship, it now being too dark for the shore boat to find a landing. We all trooped down the beach to Botikorokoro where Mathew Teromaori took me out to the ship, and in high winds with a long paddle, paddled the small canoe. In payment I gave him a package of cigarettes. He is a fine youth and I like him. The story, explaining the Chief's fickleness, is that his wife insisted on going with him to Anuta; he said she could not and finally rescinded his decision and cancelled his plans. I wish he were with us. At first, I thought that Jean had probably influenced him to change his mind, for he would surely prefer that he stay here on Tikopia, but I have now been given the family squabble as an explanation.

Back on shipboard, having missed lunch and now supper, I nibbled on crackers and drank much boullion and tea, and went to sleep at eight until midnight. I am now up for the next few hours to work and read. We are sailing overnight to Anuta; it is only seventy-five miles, but at low speed we should reach there at 6 a.m., and after breakfast land at 7:30 a.m.

Anuta

October 21, 1972

A day in which we have dropped suddenly into as primitive a Polynesia as exists any longer, and a day not easily summarized. We sailed from Tikopia at 8 p.m., and arrived at Anuta only at 7:00 a.m., because we had been going at low speed. The seventy-five miles can be done in much less time. The trip was rough and off Anuta we had whitecaps breaking with high waves.



The surf breaking over the reef at low tide was fierce, and it looked hopeless for landing, but before we had found an anchorage or place to even attempt the surf, a canoe came out from shore. We had to maneuver for some time, making it very difficult for the canoe to find us. But finally, the Captain did find a rough, deep anchorage, and the canoe came alongside with three Anutans, among them Basil, the Chief's brother and an "American Anutan," Rick Feinberg, the anthropologist who has been living here since March. Basil speaks a few words of English and understands a bit of Pidgin. He was very peremptory and regal in his bearing, and asked to see the Captain immediately, and promptly requested a tour of the ship. I gave him a full tour and hardly had he reached the stateroom, when he demanded a change of trousers...thus, I lost another pair of pants. He also wanted a belt, but since mine was a bit too large for him, he had to settle for a bit of rope. After breakfast with us, our Anutans prepared to try to make use of their canoe to land the supplies and personnel.

Rick suggested that we carry the supplies through to the passage--a third of a mile from anchorage over high seas--and there off the break in the surf, to ferry the things to the canoe which would go through the hopefully lower surf to shore. This we did for the two whaler loads of supplies, and with the second one I went to shore. The canoe trip to shore was frightening, for we had to wait outside the surf for a quarter of an hour, fighting the sea before we could find it calm enough to go through. We misjudged it somewhat, were hit by the high waves, but were carried in up-right and we jumped from the canoe into the sea, in time to hold on to it and get the supplies to shore. As the morning wore on, we had Ferber, Richard Lee and John Sheridan in with several more loads of supplies, and then the people found the surf too much and called off the unloading. I think we could have still made a few loads and got the other four off the ship, but they obviously wanted to get on with their feast preparations and custom ceremonies for our arrival, rather than continue to work with the canoes.

Even when our offloadings were thus brought to a halt, they objected to our wandering about the island, and asked the others to stay under the shade near the sand beach, while I was asked to come inland to a site where the feast was being prepared. Here I took cinema of taro scraping and grating, and the boys playing a spear-throwing game (called "tikatika") with a heavy phallic-pointed spear, which they throw by hand along a sandy court. **This sandy court, some fifteen meters wide and perhaps a hundred meters long,** an enormous playing field at the center of the island. (This is of such a very strange clean, sandy construction, that I must wonder how it was first built. This is used for the spear hurling game called "tikatika". In mid-day, we got tired of waiting in vain for more canoe assistance, and although the boys of the island had become our mascots, they did not provide much help with the hard work of landing the supplies. Walter Schneider came in with the Whaler, filled with supplies--mostly soaked--and finally we gave up. It obviously being too rough for any further passenger landing and the swim was too dangerous for any one of our party but Walter, who is an expert surfer.



After a last 4:30 p.m. contact with the ship, leaving on board most of our critical supplies and bedding, etc., we came back to the feast site before the church and beside the small school building which has been turned over to our party. Here the entire Anuta community was assembled, without one stitch of cloth clothing evident. Everyone was dressed in ceremonial bark tapa cloth loin coverings and skirts and bare chested; even naked little boys had donned the traditional bark covering. The Chief was sitting with his staff bearing guardsmen behind him, and his translator, Basil, beside him, and we crawled up on our knees to kiss his cheek and rub noses as we have been doing with everyone whom we meet since our landing, only crawling up to the Chief, however. We then backed off to our mat where the Chief eventually had us served with immense portions of puddings of ground and grated taro and steamed fish. We started to eat and then everyone else was served, seated around in a wide circle of family groups with the chief and dignitaries together to our right. This was about as traditionally Polynesian as is possible in the world today, in a community which still lives this tradition. As we first sat down, the man who officiated in serving us later, and seemed to be in charge of all the preparation for this welcoming and feast, turns out to be the father of John Paromatua, who has been my mascot all day.

Anuta Island

October 22, 1972

Today the one canoe which has been uncovered went out to meet the Boston Whaler outside of the surf at low tide and brought in further loads of supplies, so that we are finally stocked with what we packaged for shore. Our waterproof packaging was hopeless and most of it has leaked, for no one really bargained on the long submerging the packages usually got in the landing. The second and first canoe trips brought in our four missing scientists, and with Judy, Don, Françoise and Ray ashore, we are now all here. We have filled the schoolhouse with our gear and when it comes to sleeping time, we must move it all aside in order to find sleeping room.

After Sunday morning service, we passed out venues as the people left the church and started bleeding almost immediately. We managed to bleed a total of 140 during the rest of the morning, but it took me hours to record all their names, their parents and their travel. It was a long, boring, and very tedious task, and Rick stuck to it with me giving me all the names, the parents, their origins, etc. through the whole series, until we were both sick with the sun which was beating down upon us, and tired from the long questioning. Rick knows the people well, and can tell me most of the parents, and needs only an occasional reminder from the people. The record looks fairly complete and accurate. I needed to learn from him the Pu and Nau prefixes for man and wife, who after marriage share the same name. For married people these are the only names I usually get, and their Christian name comes forth at times, if I ask for it. To get in addition their premarital "custom name" is a matter of long inquiry at times, but for a number of people we have it, and for all the unmarried.

I am surprised at the number of marriages that are Anutan to Anutan, with hardly any outside marriages admitted. Several women and a few men have come from Tikopia, but other than Tikopia, I have no "foreign" blood. Rick points out that visits of English, Japanese, American and Russian ships may well have left half-caste children behind, but this is not acknowledged. There are a number of children whose mother only is known and whose father is simply stated as unknown.

Last night, after I finished typing, we were invited to take part in a final feast for the first eating of fish by Kaspar Rauniu son of R. Penuakimoana. The family had given the feast last week in honor of the boy's eating of his first fish. Now, the recipients of the feast were returning the feast, with a night time distribution of food, including taro in ground balls, cooked with coconut milk poured over it (called tepoke). This was eaten with fine fish, cooked as they always do here in Anuta, with the scales left on. It was too much to eat after our enormous ceremonial welcoming feast of the late afternoon, but it was fine to attend. Richard, Rick and I attended, while John and Richard Lee slept.

It rained most of the evening, so I could not sleep out. I slept at one end of our schoolhouse, very comfortably. The children all retire to their appropriate family houses not long after dark, and few walk the beaches or trails on such windy, rainy nights.

I have not had a chance to explore the island far and wide yet, with all the problems of our formal reception yesterday and our restricted movements until that was done. The Chief is a young man of 38 to 40, who is very jovial, and he enjoys poking me in the belly, and playing tricks on me, such as pointing to distract my gaze and then poking me. I reciprocate. He and Basil are full brothers, Basil some six to nine years younger. Basil has been off to Guadalcanal for three years of mission schooling, which has made him somewhat of a catechist here on the island.

The Melanesian Mission recently changed from the Mota language which it has used for almost a century as the lingua franca, to English in the church services. The large church beside which we live is used for such services. However, some old people and the chief do not follow English and have built a second church for Mota language services. Thus there are two churches on the island.

The Chief has offered to house two of us and yesterday I did not accept. Tonight, however, we shall accept, since we are so crowded in our small house.

I found the kneeling and prayer rather long and intolerable, but the dreadful dirge-like chants which form the singing and group song responses were so out of pitch and so grotesque as to astonish me. It is a wierd and very un-European music, and one has the uncomfortable feeling that it may not be much influenced by the old traditions, but may simply be the result of insufficient tuition and leadership in singing European hymns. If this be the case, it was a strange dirge-like one of the most unmelodious and mournful wails



and long drawn-out, out-of-key chants that I had ever heard. We must record these astonishing masses, and try to learn from others what is native tradition, and what is inept and untutored perversion of European hymn singing, toward which they were aiming.

I ran out of cinema film on my first crossing of Te Mau'unga and have thus returned with more film later in the afternoon. On my first circuit at Pu Tuapi's (Ataban's father) garden, he showed me a basket filled with recently harvested roots of turmeric (te ango) from his garden. We then went further up to Pu Paone's garden, where he was planting new taro, high up on the slopes. With Pu Tuapi, I used up two hundred feet of film, recording his use of the Polynesian fire plow method of lighting a fire. He did so expertly, with minimal effort, using only what he found in the garden, just to light his pipe. The boys and I had some sugar cane from him and then climbed to Pu Paone's new taro planting. There his daughters and Joseph Poromatua, his son of eight years, were cooking large crabs over a fire, beside the garden. The boy is called Matua for short...shortened names are often made up of the last syllables of the larger name.

The two circuits were wonderfully interesting and relaxing. Later in the day, all our party, except Judy, made the circuit to Te Mau'unga's. After the church service this morning at St. James, the whole community assembled at the regular Monday morning meeting (called " "Here, many speakers harangued the crowd; later, Rick told us that it was mostly about providing us with a ceremonial pakape or series of feasts in different households over the week, given to new arrivals to the island, or to those who return after a long absence. Thus, we are in for a week of heavy eating and much serious visiting.

Anuta...at the Home of First Chief Jakob Tearaman Pu Koroatu...October 22, 1972.

Don and I have come to the other side of the island to sleep in the home of the First Chief, having accepted the invitation he made yesterday, now that our party numbered eight "scientists" ashore.

The afternoon shore boat trip was a daring feat of seamanship--or a foolhardy one--in which crewmen brought in the eighteen foot launch through the pounding surf at high tide. The huge waves caught the boat and almost capsized it, and Walter seeing the boat go, leaped into the water and swam ashore. The boat swung about to meet the oncoming surf and from there on the five men in the water were able to hold it, while Dr. Lee and Rick climbed in and a final stack of supplies was hauled out. The boat then did make it out through the surf, but it was a dangerous adventure, and I doubt that we shall dare it again.

The First Chief, Jakob Tearaman Pu Koroatu, asked me again if the Alpha Helix could take two from here to Santa Cruz to purchase betel nut, since all the betel nut trees here were damaged by the hurricane. He



wanted Basil, his brother, and Paterson, to be his appointed messengers. I managed to get Captain Phinney to agree and when the whaler brought the three Anutans and Rick Feinberg, who had gone out to the ship with Dr. Lee back to swim in through the surf, Basil and Pattesson swam out to climb into it. At 8 p.m. the Alpha Helix sailed for Tikopia to pick up Jean Guiart and bring him to Santa Cruz.

Richard Lee has done us an enormous service in agreeing to pipet off the sera from the Anuta clots and freeze down the clots in the Revco so that none of our team is forced to make the return circuit to Santa Cruz. If all goes well the 140 specimens we collected here today will be an enormously valuable collection. However, I continue to worry about the frozen clots for red cell enzymes until we get them to Kirk in Canberra frozen!!

I write as Harry Joel Mataki, Jakob Pu Koroatu's only son, sleeps already beside me and Pu Koroatu, our host, and his wife Nau Koroatu look on as Don reads and I write. The house is on the beach, just above the line of surf pounded sands. The landings here have been tricky and a bit dangerous. I hope things get quieter, so that we can get back and forth to the ship on October 26 and 27th when it returns, but in the meanwhile all is well. With everyone ready for bed I will close our Coleman lamp and turn in. All the family look on as I write. They have spread out an enormous Tikopian mat for Don and me to sleep on.

At Night in Moonlight and Colman lamplight, beside Teaukene, the Home  
of Chief Jakob Tearaman Pukoroatu, Anuta October 23, 1972

We did only some 30 physical examinations today, mostly of children, but also of a few adults with significant findings. Three subjects have a grey-blue border around their entire optic disc bilaterally, which is moderately wide and a very impressive finding. These subjects also have a peculiarly hyperpigmented retinal background. One boy has this finding only in one eye, and the ring is not closed, but open on the nasal side of the disc. We guess it is a racial feature and can link it with no pathology we know of.

One middle-aged man, still a bachelor, has a deformed face from an old jaw lesion, which has brought him to Honiara for surgery. We do not know what the primary lesion was. He also is a bit mentally retarded, and shows moderate spontaneous nystagmus, and hyperkinesis of his upper extremities, with some dystonic movements of his upper extremities, especially evident in walking. We attribute it all to birth injury. I spent a good part of the afternoon with two of the boys wandering the mountain of Anuta, which is referred to as Te Mau'unga, and on the first crossing in the garden of Pu Paome, we were joined by his son of 12, Ataban. Both boys are affectionate, cuddling adolescents, a bit risqué in their talk when out of ear shot of the adults and realize that I allow them a joking relationship without social sanctions. They fill me with a sexual and pornographic vocabulary with glee, when giving me a body parts and function list, and with such

gusto, that I have difficulty getting a non-scatological and non-sexual vocabulary from them. The hill is fantastically beautiful, with sweeping views of the Pacific. Off the south and southwestern coast are two enormous rocks protruding from the sea, some half mile to a mile from shore, and over these the wave crashes with better than twenty feet high surf today. These stones are visited in calmer times by the fishing canoes, but the people cannot land on them. They are called Batu and Batu Oveiu, and between them, and the outer reef, far closer to shore, are large protrusions of smaller rocks, called Tetoka or, specifically, Te Urapatu Ngapua and Te Urapatu Tapu. Each of the houses seems to have a proper name, as does each residence.

Specific names for the Chief's house, and two successively inland houses away from his are: Taeukene, Tunga Porau, and Pongatau, the home of Christopher. I must ask Rick whether these are not simply the married names of the residents--thus, Pu Pongatau lives in Pongatau! The canoes are also named. As we pass them, the wonderful huge Anuta canoes are all lined up, like sport cars in a showroom, with protective covers of plaited coconut matting, to keep the hot sun from drying them out and cracking them. Whether these names are proper names of canoes, or references to their owners, I am not yet sure. Only one canoe is now uncovered and on the beach at the "basis", or launching site, where the reef is most easily breached for exit or landing. Today, the sea is very high, and no canoes can be launched. In really calm weather, as many as three canoes may be moved down the beach opposite to the "basis" for launching each day, for fishing beyond the reef. The high seas are out of all proportion to the winds, and this may represent the result of the hurricane some hundreds of miles to the east which has moved southward. We were told this by the ship's radio yesterday, before the Alpha Helix took off to pick up Jean Guiart and deliver him to Santa Cruz, to catch the SOLAIR flight tomorrow morning. The ship will be sailing all today and tonight on these very rough seas.

Our day started with our hosts waiting for us to arise and go to the Mota language church service with them. The church on this end of the island was only recently built at the Chief's instruction, for those who do not appreciate the mass in English. The new Mota language church is called St. James, and the English language church, near where we are housed in the school building, is St. John. Don and I attended the long morning service, with much kneeling and praying.

Vasiana Ground, Anuta Island

October 24, 1972

Vasiana ground is, I think, the name of the school site adjacent to the public feasting area, just outside the school which stands before St. John Church.

We had managed to get physical examinations done on 120 subjects, to push the documentation of the people on the island from the 140 we bled to 150 exactly...there are surely others, but not many.



The physical examinations have yielded three patients with partial albinism and spontaneous nystagmus, one girl with a healing septic arthritis, several normal adults and children with a remarkable bluish ring entirely surrounding the optic disc, but not unlike the crescent of unmyelinated nerve that is sometimes seen on the medical border of European fundi. This ring usually goes along with increased bluish-pigmented streaking of the retina. We are not seeing this in the Melanesians of the Banks and Torres Islands.

We are still under pakape and being feasted all day long. Thus after a morning breakfast at two houses--which we solved by sending half of our number to each--we had a lunch at 11:30 a.m. for all of us at another home. Then in three successive homes we had supper tonight, with grated hot taro at each ( te uoa taro ) along with chickens and fish cooked wrapped in leaves, and also some baked taro. This was a welcome contrast to the balls of coconut milk covered taro ( te poke ) which we had for the past two days both morning and evening. All three meals were excellent, but any one of them was ample for our whole group, and yet it was tactless to decline or to be unable to eat any of them.

In the late afternoon I again crossed the island over the hill, Te Mau' unga, with Christopher, Ataban, and Noel, who have become my almost constant companions. However, they all compete for attention and get bored when they do not get what seems more than the others are getting.

On the radio station which Rick operates during Arthur's absence, Rick learns that the Alpha Helix did reach Santa Cruz this morning at Graciosa Bay, and the plane did arrive, but it did not depart, and there is no explanation for this. The hurricane is apparently not coming this way. However, the wildly turbulent sea with waves crashing on the reef, and the inner reef too turbulent for even inner reef fishing and all canoe launchings for deep sea fishing impossible, make the arrival of the ship on schedule a matter of little import if we cannot get things to and from it. In the seas of the last two days we certainly could not have done so. The high tide waves are coming right up to the trails beyond the first row of shorelined coconut trees, and such invasion of the living sites by the sea did not even occur with the hurricane in February. Thus, Rick admits that this is the roughest sea he has seen here since his arrival in March. I certainly hope that we can finish our work here well and depart approximately as planned.

Don and I are still sleeping in the chief's house on a huge Tikopian mat we share together and with Harry, his son. We awake each morning at about 5 a.m. to find the church officials of St. James, the Mota-speaking church, discussing morning service loudly to wake us up, and as soon as we are awake it is suggested that we join them for the services.

We plan to try to put on the tuberculin and mycotic skin test antigens tomorrow, and to continue the physical examinations through to the end. Rick is still giving most of his time to translating for us, and informing us of the local problems, the current activities, and general logistic support. He cannot keep this up much longer and will have to get back to his own work which our visit has so completely interrupted.



Teaukene, home of Jakob Tearman Pu Koroatu, Chief of Anuta      October 24, 1972

Pu Koroatu, Don and I have walked back along the white sand shore side track from Vasiana Ground and St. John--our station and the English Church site to the Chief's shoreside residence just above the pounding surf. It is late and the whole island is asleep. We have had an exhausting day and if we had not planned for a vigorous attack on the physical exams we should have fallen far behind in our studies today. It will eventually be necessary to curtail some of the planned program, but the less we must forego the better.

Of course, unless the surf improves we may have grave problems in getting supplies and specimens back to the ship. We could easily be stuck here for several days or a week or more beyond our scheduled Friday or Saturday departure. Now the Chief wants us to stay for a final parting ceremony on Friday afternoon and a Saturday departure will lose a whole day on Tikopia or Rennell. However, we must finish our work well here on Anuta.

Christopher Tapumuri is jealous of the attention I give to other boys and shows it clearly. He wants to possess me uniquely. I like him immensely and appreciate his attention and do what I can to give him privileged position with me. Ataban and Joel and Ezekiel are my major other companions and Nemuleas and, of course, small Joseph Poromatua are also very close to me. He is the most charming small boy on the island.

Vasiana, Anuta Island

October 25, 1972

We have managed to get all but some 15 physical examinations finished on the island, and color blindness testing done and all older people measured. There remain fewer than 10 of the 149 people we now know of on Anuta to bleed. Today we also got 115 people injected with the nine skin test antigens (7 mycobacterial and histoplasmin and coccidioidin). This kept us busy until midday and early afternoon, and then we took our time to enjoy the island. I again crossed Te Mau'unga, and this time we had fine views of Fatataka to the southeast as we climbed the hill. I took many feet of cinema of the surf beating down on various parts of the island and also of Fatataka off in the distance some 30 miles away. Rick tells us that they paddled there in 22 or 23 hours against the wind, and made the return trip under sail in only six or seven hours.

We had three breakfast invitations today, and managed to divide ourselves into three groups to honor them. Françoise and I enjoyed fine fresh fish caught last night from the reef, since the seas remain too rough to launch the canoes. However, today the sea is a bit calmer than yesterday, and we hope for yet quieter seas tomorrow.

The high tide surging across the paths has not occurred before, during Rick's eight months' sojourn, so the seas are really high. One house, near the beach, has dug trenches to divert the high waves from rushing into the house. Jakob Pu Koroatu, the Chief, lives just beside the sea, but the waves did not quite reach the house a few feet away. Near his house is an old sea wall, which is usually not reached by high tides, but which is now pounded heavily and at times breached.

The modesty of men and boys, covering their genitalia with their palms cupped over the penis and scrotum, even while bathing or showering together, ostensibly because the girls and women pass and bathe nearby quite in view through the foliage, is not very deep. Boys and girls to the age of eight, or even ten, run about stark naked at home, in the village, and on the beach. Older children are considerably more modest. However, some of the boys who hang about with us, such as Christopher Topumari and Ataban, suddenly give up their traditional modesty and shower or bathe without protective hand covering. They boast that they are doing it "American style", having watched us breach their male etiquette so often, even though we try to "cover up", as the custom here dictates.

Artifacts of interest are carved, but not with the polished carving of some of the Rennellese work I had purchased in the past. Coconut grating seats are very well made, and are similar to those of the Mortlocks and Tench Islands, to some extent. Dance paddles, clubs and spears are made in the traditional pattern, most for Rick at his request. Model canoes of their sown style are made in lengths of .5 to over one meter, and these are sold to the ship visitors. Their pandanus leaf mats are finely woven, and forms another interesting artifact. Dance paddles are well carved, while the canoe paddles are rather simple; the canoe bailers are all heavy and not particularly graceful in design, the trough-like canoe-shaped bowls for mixing ground taro and other foods are the largest wood carvings I have seen, other than the canoes.

The cemetery lies just beyond the village, but there are some graves on the sand within the village, between the houses and adjacent to the beach and coconut leaf mat-covered canoes. The careful sheathing of the canoes from the sun, with the tight-fitting, custom-tailored armor of coconut matting, is a very impressive thing. We have seen no canoes out on the beaches, other than the one used to land us, and that was covered promptly from the sun even when it was left for only a few hours on the beach. In the graveyard, the children identified for me the more recent graves, but said they knew nothing about who were in the earlier graves.

To dispose of garbage we have been accumulating, I got some of the men to dig a deep pit, in which we burned what we could and covered up the rest. The sea will only sweep much back to the beaches, and put burial is the usual way of disposal.

Defecation is done with little modesty, and women or men may pass near the beach, where others are defecating, without embarrassment, but also without diverting their gaze or attention to those so engaged. They usually dig a small pit in the sand just above the wave line at that time,



but sometimes get hit by a high wave which they did not anticipate in the process. In the Caroline Islands people usually went right into the sea. Here they do not, but use the shores of the steep sandy beaches. They wipe themselves not with stone or sea water or sand, but with coconut husks, usually using a narrow crescent from copra husking. The same kind of coconut fiber is passed around for us to wipe our hands after meals in our hosts' home. Thus, the disposable "two-wipe" anal cleansers, which fit well the interbuttock crease are a fine and readily available toilet item on every shore, and serve as well for napkins.

The large tikitika playing field, called the Te Moraea, is often filled with small groups of children throwing the tikitika. It is their most serious organized sport and it is often played casually by groups of two or more boys. I have not seen a girl throw the tikitika.

We have three hosts tonight, as last night, and if we do not start our evening meal circuits soon, it will drag on to very late indeed.

Another three feasts in three separate homes this evening and we are all exhausted from the eating. I recorded dancing and singing by nine girls and three boys on the beach tonight. It was windy and the batteries were low, but the dancing was fully traditional and I hope we have a good tape.

As a matter of record: many cats on Anuta, some ailing and dying recently; no dogs and no pigs. The 1970 BSIP census shows 157 people on Anuta in 29 households (69 males and 88 females). For Tikopia the figure is 1039 total population (481 males, 558 females).

Rick finds the luxury of the Alpha Helix offshore very enticing and spends all the time on it that he can. He is an able and powerful swimmer and he and Walter have done most of the swimming for equipment through the surf to shore, when the seas were too rough for launching a canoe. He has been here on Anuta eight months, and one cannot blame him for enjoying the luxury of the ship, its meals, hot showers, and insect-free air-conditioned study, with a typewriter and cold drinks--or hot coffee at hand. Yet, he lives well on Anuta, using one half of the Chief's house near the school house, which is Basil's home. Living with Basil and his family, he has learned much, and Basil has been his chief informant and teacher of languages, and much of his other work. I admire Rick for his abilities, his accomplishments and his willingness to help us in our work.

Anuta Island

October 26, 1972

Pu Koroatu has brought fifty guests to the feast, which we held tonight in gratitude for the seven days of feasting we have been given on his island. That we managed to feed all the people and ourselves well, was a great surprise to us. Two huge pots of rice and two pots of macaroni provided the staple, and pressed beef, tuna and salmon in cans, beans carrots, peas and corn, corned beef and other tinned meats, provided dozens of plates from which our guests helped themselves. Twelve large



tins of preserved fruit (pears, pineapple, peaches, and plums) served as dessert. We had enough food and most of it our guests had never eaten before. During the feast Pu Koroatu gave me a beautiful white floral lae, which he hung around my neck, although I surely have worn ones such as this as a forehead band. After the feast, almost all the guests danced traditionally for us and I recorded three of the six songs and dances they presented. These, plus last night's recordings, will give us a good record of Anuta dance music. There is little or no European influence that I can see in this. The meal was a real success, served outside on mats arranged in two rows, running from the Chief's mat, and everyone seemed happy...most of the people had some of everything we served to eat.

It is late, and a beautifully clear night, and Judy, Ray, and Françoise are asleep under the feast shelter on which we just had our feast. Ray has a serious, but small, tropical ulcer and is limping. Ampicillin therapy for three days has not yet controlled it, and he is now still on it.

Don and John are making some tea and cocoa in our finally cleared and sorted-out school house. Ferber is asleep at Martin's house, where he has been living during our full sojourn. Walter Schneider, whose namesake here has made much of the coincidence of their names is not staying at the house tonight, but rather on the ship with Rick Feinberg. Both swam out, carrying the sixty-two iced stool specimens and the pharyngeal swabs we collected today for immediate Revco freezing and eventual virus isolation attempts. We also took the stools in parasite-holding media for ova and parasites.

I hope we can go on with this tomorrow, bringing to over a hundred the virus isolation stool and throat swabs. We shall also read the tuberculin skin tests. All the atypical tyberculins are reacting, and reaction rate and size is going to be much greater than on Merig or Loh islands. I hope we get no sloughs.

Anuta Island

October 27, 1972

We have all been irritable today, this our last day on Anuta. I contributed to everyone else irribability by grumbling and complaining and pushing everyone rather strongly. Thus, I wanted everything packed and loaded onto the Alpha Helix early in the morning, and yet, it was mid-morning before we got the first canoes off to meet the whaler beyond the reef. Everyone was buying artifacts and tending to personal matters, and half the packing was not done, and we were far into the morning. By noon hour, I had read skin tests on all hundred of about 120 people who each had nine skin test antigens inoculated on October 25th. Hemoglobin, hematocrits and thick and thin blood smears were made on them all, and on an additional ten to twenty subjects. However, with further stools and throat washings not yet collected for virus isolations, and urine, hair or cerumen specimens not yet collected, even finger prints and identity photos not yet quite complete, I felt uneasy. As the afternoon wore on, it was clear that we were not going to finish off all of this work today, in spite of our rushed attempt to do so. As we got into further and further confusion, it grew later; I got more and more irritable. The feast for us,

which was to be held this afternoon, was cancelled, since the taro was not really yet fully cooked in the ovens by early afternoon. It has now been postponed until tomorrow morning. This is also a religious feast day and also a ceremony for the Tikopian chief, who is visiting and was brought here by the Alpha Helix on its return from Santa Cruz. We too shall be honored at this feast.

The big problem is how to get work done in the face of all this feasting and social life.

I was finally informed by Basil, the Chief's brother, and Walter Schneider that the last canoe the people would take out would be at 4:30. It was just 4:00 p.m. then and we had started to collect more stool and serum specimens for virus isolation. I could thus not get them in the freezer tonight and in sudden chagrin and ill temper I gave up all attempts at getting off the island tonight, or of finishing our work right and so I cancelled all plans for departure for Tikopia tomorrow or tonight. I announced that we would stay through Sunday a.m. Thus my own and the Captain's schedule is now all thrown off and he is probably very worried!! We had better do all we set out to do here and not simply rush off as we were preparing to do. I found that Judy, Richard, and Ray had all had their fill of the island and wanted to go on board, especially since all bedding and personal gear had been loaded. Judy and Ray have bad tropical ulcers; thus they left this afternoon and only Don, John, Françoise and I remain on the island with Rick.

Suddenly seeing the impossibility of finishing the many gaps in our work here without a day or two of successful work, I cancelled completely our plans of returning to Tikopia tonight or tomorrow morning. Instead, we shall devote tomorrow to filling all the "holes" in our studies. The four of us are caught on shore with no bedding or personal supplies. This sudden change of plan may irritate many on the ship and my colleagues are all a bit chagrined and keyed up by my fickleness and by my earlier indecisions.

On board they had the enormous job of sorting our wet supplies out in the lab from the embarkation and all the laboratory work (Hgb, Hct, WBCs and sorting all the slides) and separating off the recent sera by second decantation from Richard Lee's first separation, which he did for us in Graciosa Bay. Judy is exhausted and irritable, Ray is touchy, and they are all hard pressed by my many requests and demands. If all goes very well, we may get a very profitable final day of medical and genetic work done here on Anuta and at the least, a far better coverage of the studies we have done than would have been the case had we left today.

We have been invited for supper of te uoa taro and te ma manioka, green pawpaw (te nooro) and pumpkin (te pomuten) soup and fresh fish tonight at the home of Basil, where Rick also lives. One canoe was out beyond the reef fishing today from 9 a.m. until 6 p.m. with two men and a 12 year old Fredrick on it. It returned with a huge load of fish at 6 p.m. It was the first canoe sent out for fishing in the past week.



Our ship unloadings have been the only cause for launching any of the canoes at all. Today is the calmest we have seen of the surf around Anuta in a week and this week has been the roughest since February.

If we can work smoothly, in spite of all the feast preparations and activities tomorrow, we may end our work here very successfully. I intend to make an enormous effort to do so.

Many of the boys of 9 to 16 swam into the deep sea today far beyond the reef. Robert and Joel actually swam the half mile out to the Alpha Helix to visit the ship. I bathed out at the reef's edge in the surf, but the occasional six to eight foot waves proved a bit frightening and I did not bathe for over half an hour before giving up. There had been little bathing even within the surf-pounded reef until yesterday and today!

The Chief has presented us with three enormous bunches of bananas, and wanted to give us two large baskets of taro as well. I refused these. The island is still short of food since the hurricane, especially of taro and coconuts. Most of us have also been given gifts of pandanus fiber mats. I have also bought a men's pandanus fiber shirt with a red embroidered design for the exorbitant sum of \$16.00! The red pattern is made from strips of red cloth, rather than from red dyed pandanus fiber, as traditionally.

Joel came in and gave me a small ring, for no apparent reason than that of his gratitude for the "calico" I gave him. These I gave also to: Christopher, Araban, Joel, Ezekiel, Namaleas, Teperan, Albert, Fresher, Harry, Joseph Poromatua, Ruthie, the Chief, Walter, and Martin.

Before we leave Rick Feinberg gives me this last bit of information on deaths on the island since he has been there (March 1972 -- to date): Nau Tevava's still born infant girl; and Nau Nevauneva, died June, 1972 of basal cell carcinoma of face (post-op).

Tikopia, British Solomon Islands Protectorate

October 29, 1972

We have now collected blood from 150 Tikopians, including the four at Santa Cruz during our last one-day sojourn here a week ago, and 47 today. Today we started only at the noon hour, and attempted to collect saliva and throat swabs for both bacterial cultures and virus isolations on as many of those we had bled earlier as possible, and on all 47 of those whom we bled today. This did end up rather successfully with 17 of those formerly bled, bringing to 64 the total number of virus and bacteria cultures and saliva specimens we obtained. Don also started to collect finger and palm prints, so that work was really started. We did not get to see many patients. Ray went to Matafanga to see Bartholomew, the teacher with fractured leg now two weeks in a cast applied by Richard Lee. He is still in pain, but we cannot do better by bringing him to the ship for X-ray, for the danger of the trip and on and off loading would outweigh



possible advantages. He does not seem to have an infection, and we had best sit tight on the leg, hoping that he does get good primary union.

I have given Don intensive instruction on use of the Nagra, and he is now tape recording a group of Tikopian boys and girls singing on the sands. The first song they sang turned out to be a farewell for Raymond Firth, when he finally left here after his last visit three years ago. We spent a half-hour trying to work out "M" and "S" settings on the microphone, to be sure which is the unidirectional and which is multidirectional, and we are not yet absolutely sure.

We are finding the rather aggressive self-confidence and near brazen behavior of the Tikopian boys, girls and youths a bit hard to take. It is a self-confidence amounting almost to rudeness, based on a feeling of cultural superiority and self-certainty, which is surely admirable, though in the long run does not speak well for complex or individualistic personalities such as I am accustomed to in Melanesia. In general, almost all the youths fall into a very similar style of aggressive flaunting and self-certainty, assertive of their superiority and beauty and expectant that it will be honored and reciprocated as they determine. There is less cultural self-assurance among the Melanesians, and more individuality of style and approach, even less constancy of method or manner of establishing and maintaining relationships in most New Guineans and Melanesian islanders, than among these culturally rich and self-assured Polynesians. I enjoy this 'high culture' greatly, but would not exchange it for my Melanesian adventures, either.

We have a full program here but cannot give the time necessary to carry it out thoroughly. The eight days we spent on Anuta have left but three more for Tikopia. A total of four days, with two additional days of work by Jean Guiart, gives us a very cursory picture of this great island with its over one thousand inhabitants, as opposed to the one hundred fifty on Anuta. However, we shall get a good genetic sampling and a good microbial survey, if all goes well.

In making up the solutions for the stool ova and parasite specimens, we discovered that the solution B, a Lugol's solution, should have been 5% iodine containing and colorless, as we had used it on the islands to date. Paul failed to note this and Raymond, who prepared it, forgot to add iodine. Thus, the stool specimens have all been incorrectly preserved. We hope that the formaldehyde-merthiolate fixation will be adequate and that the Lugol's can be added for a second time, belatedly--but this is unlikely. We have radioed Paul about the matter and hope that he learns that the late addition of Lugol's is still possible. If he fails to return our radio message soon, we shall add the Logol's solution late anyway, trusting to luck, since we do not know the dynamics of the fixation and staining at all. And if we do collect stool specimens here, we shall surely use the Lugol's correctly.

Only Don and I are on shore tonight; all the others are back on the Alpha Helix, anchored just off the Tikopian reef. We went back on ship for supper, the first such meal on board that I have had in a week or more, and then rushed back to shore for our evening of work here.

There are two schools on Tikopia, one at Safoa with four teachers, and the other at Teramo with three teachers. They have 90 and 50 students in each, respectively. Safoa has Standard 1 through 4, and Teramo Standard 1 through 3.

This evening, while I have been down at Botikorokoro and Rafaea, and the final hamlet beyond of Pitifareata, which is at times called a subdivision of Rafaea, Don got the boys drawing pictures with colored pencils by Coleman lantern light. I responded to Ralph Wycliff Rafia's continued entreaties to see his father, whom I had visited briefly at night just before embarking on a canoe with Mathew Taro for the ship over a week ago. In the meanwhile he has become even more seriously ill. The story is a complex one of back, shoulder, and lumbar region pains for some 3 to 6 months. Previous to this he was reputedly well, but some claim this with reservation. The pain developed into a more generalized arthritis, and along the course, abdominal pains have appeared. There has been a mild cough, but the cough has not been a prominent symptom. In the past month or so skin lesions have developed; he is said not to have had them previously. Some are heavily bordered scaly areas that look very much like tinea, but others appear more raw and inflamed and much smaller. Even these "bakua"-like lesions are said to be of recent origin over elbows and knees and elsewhere, but the other smaller lesions are scattered over trunk and extremities, with chest and face relatively free of them. In the past two weeks his hands have swollen up markedly, so that he can no longer make a fist, and the palms are involved with a deep series of small lesions, some of which feel like deep pustules. He has a fine, marked hand and finger tremor when trying to make a fist; tongue protusion results in a marked fine tongue tremor. Abdominal palpation reveals a tender RUQ with liver percussible about two finger breadths below the RCM, and over the spleen tip is not palpable. There is no diarrhea, hemoptysis, hematemesis, melena and no urinary symptoms are reported, but on suggestion the patient admits to occasional difficulty in voiding. I do not know what he has and have asked the ship's four doctors to examine texts for lupus, tertiary leuetic skin lesions, psoriasis with systemic symptoms, etc. It might, in calm seas be possible to get the patient on the ship for EKG, chest and abdominal films, etc. along with hematological workup. We hope to do many chest X-rays on board tomorrow.

Ferber has spent the evening developing the Anuta X-rays which were taken yesterday on seas far too rough for developing them, for the fluids would have spilled from the tanks. During the early afternoon and all morning the sea was calm enough to permit good X-ray taking, but suddenly between 2 and 4 p.m. the wind blew up, and the sea became so rough that patients could no longer descend from the ship to canoes and had to jump into the sea and swim to the canoes. The surge beside the ship made direct descent into the canoes very hazardous and some near serious accidents occurred. Thus, it was a rather panicky situation trying to get over 20 Anutans off the ship and back to shore, but the crew and my staff were far more concerned than the Anutans, who seemed to treat it all with little concern, all being quite sure that they could swim ashore if need be, and just hoping to persuade our crew to ferry them



to the passage through the reef in the whaler, which we did. There, the canoes carried them across the surf to shore or they swam.

Over forty chest X-rays were taken before the wind and waves made X-raying impossible...this was a great achievement. Now that Richard has managed to develop them, and we know that we have not had another fiasco as we did in Loh, where all the film was lost after being covered with wrapping paper when shot, I am hopeful that we can do as well, or even better here than on Anuta. It is a far easier landing here and the canoes by the dozens have been at the ship's side all day.

On Anuta yesterday, only four of us on shore tried to wind up our work. As the afternoon drew on, it was obvious that we were not going to accomplish all that I had hoped for. We had collected many further stool specimens for virus culture and throat swabs in tissue culture medium for virus culture, and we managed to get the heights and weights on all or most of those whom we had missed, hematological studies on many of the few we missed, and all but two or three of the over one hundred tuberculin and mycotic skin-tested patients read. The last few might have taken days to chase down and I settled for a nearly complete study, which we had. I was anxious to get to our last supplies on board, as the sea became rough and the surf high, and when the chance came to get John Sheridan and Françoise into a large canoe I sent them on. The four of us, they, Don and I, had attended a noontime feast, at which we had to sit serially with every one of the eleven families who had separate matted areas for the feast. At each of the eleven families, fish and pudding of taro and manioc, sometimes fresh and grated, sometimes beaten taro not grated, and sometimes fermented taro, which is left for months in holes covered with stones in the garden sites in pits between the gardens, were served.

In the last hour, I raced to pack up supplies before the surf got too high for launching the canoes, as it has been for most of week on Anuta. As I finally tried to carry the last supplies out across the village to the landing site, Pu Paone stopped me and told me to sit down in the covered eating area for a ceremonial departure. Then a dozen women came and sat closely around me and began the traditional wailing chant of farewell. They took it all very seriously, and the older women promptly brought the tears to their eyes, and fell into a song-like crying dirge, which is the traditional farewell chant. A few of the younger women were all smiles, even a bit embarrassed and amused.

When the wailing farewell chant by the women was well underway, older men including Pu Paone himself took part. I watched him sob deeply and bring streams of tears to his eyes and a profuse flow of nasal mucus streaming down over his beard. I was really surprised. Then Walter and Martin and all the other men who had been our hosts and helpers over the last few days joined in. Small children and boys and girls of 6 to 12 walked by smiling embarrassedly, but not taking part; I spent the first ten minutes in amazement at the ability of everyone to evoke tears so spontaneously. However, as time wore on, I slowly became aware of Ezekiel and other boys, not sitting with the group of mourners, but off by themselves, almost in hiding yet sobbing away, with tears streaming



down their cheeks. The most moving of all was poor Christopher, who had been so jealous of my relationships with Ezekiel, Noel and Ataban, although he had a most privileged position with me. He stood alone against a tree somber from the onset, without a smile on his face, and as the leave-taking wails got underway, tears began to fill his eyes, and for over a half hour he stood there, tears streaming down his face, puffy-eyed, in as miserable a countenance of grief as I have ever seen. Here was the sincerest traditional departure crying I could earn, and the whole ceremony rose in my mind to one of more true emotion than I had first attributed to it. After a quarter hour of wailing, the women all rubbed noses with me. They had managed to provoke an intensive flow of nasal mucous during their paroxysmal crying, and thus it was a sloppy slobbering mess one had to kiss. Then all the other men gathered close about me and since with their wailing everyone had produced copious flows of nasal mucous, I was tempted to rush for further specimen vials for collection of discharge from yet another orifice.

Tikopia, British Solomon Islands Proctectorate

October 30, 1972

I write on while sitting on the porch of the dispensary in a cool breeze, not yet bothered by the mosquitoes which plagued me so much last night when I slept in the sands with Mathew Taromaori and Harry-Jim Tafao Okini, who yesterday remained my closest companions. We were bitten severely all during the early night until I arose and sprayed us voluminously with insect repellent.

Late last night I roamed over to Safoa, where the men and women of several villages were practicing their dancing for the all-islands dancing celebration on November first--which we shall miss. On our arrival, they were lounging in the sand, many asleep, having already finished their practice. They were embarrassed by my presence, and I withdrew shortly. Don and I were later invited to Chief Cedrik Tangata Teava's home by him and his older son, Edward, who speaks English fairly well, for a late supper of Talapia fish, from the fresh water lake here on Tikopia, and a pudding made of ground banana. We spent an hour visiting their home. The younger son of the Chief, Philip Muaki Tafua, twelve years of age, and Andrew Matakifena Tafua, eleven years, hang about with us constantly. Philip is an odd, light-complexioned rather strange boy with almost half-cast features, obviously clever, and with a certain audacity and impudence.

Don and I remained on shore all day, while noone else landed. Everyone was kept busy on the ship at laboratory work and attending to the X-rays of the almost one hundred Tikopians whom I had sent aboard in groups of ten, after seeing that they had been bled, saliva collected, and their hands properly numbered. Thus, the X-ray work went smoothly, but it was fatiguing for Ferber who is doing it all. Last night, he developed the forty-two Anutan chest films and they seemed to have come out well. Thus, we are managing to get some interesting base-line data, and we are also enriching our experience of island pathology.

By getting Walter to bring the whaler across the reef to Rafeaa, we managed to carry Charles Pa Afara out to the ship for a thorough workup. EKG, chest and abdominal films have all been done, and hematology as well. The white blood count of 12,000, with an unremarkable smear, the enlarged, tender liver, lymphadenopathy, the pedal and hand edema, and the psoriasis-like rash, have all produced a difficult diagnostic problem. Whether it is a case of miliary tuberculosis, of lupus, of metastatic neoplasm, or of some collagenous disease, we do not know. He needs lymph node biopsy, liver biopsy, perhaps bone marrow study, and a thorough workup, but his illness does look ominous. We have not arrived at any diagnosis.

One very old man from Matautu, Steven Fonorol Pa Tavaia, has chronic swelling of his feet, chronic foot ulcer, dyspnea, tremors and ataxia and an apparent anemia. He went on ship for a chest film, but in the rush we missed getting an EKG on him and a thorough physical.

We have the generator on shore tonight, attempting to show cinema to the islanders after their repeated entreaties. There has been an hour's delay trying by canoe to get a new bulb from the ship since we blew the first one. The picture chosen by the Captain, foolishly eschewing violence, is some juvenile slapstick comedy in Donald Duck-type English...it will surely fall flat. The cowboy gunfights which would have done well have been censored by our Skipper. When Don and Walter radioed back our objection to the choice of film, the Captain was very irate indeed. He emphatically does not want to show a violent Western...such naivete!

George Goroa, an overgrown lad of thirteen years, is one of the most sensuous boys on the island, and a warmly affectionate friend to Don, myself and the others. He had left school after only going through Standard 3, but he reads a bit and follows a little English. He has a large, distinctive dark-pigmented spot in the medial aspect of his left sclera, which lends charm to his face. He brings up the name of Raymond Firth reverently, and speaks, as do the other islanders, of Firth in quiet, subdued reverence...we hear little other than the mention of his name, always respectfully, but never with any specifics. George Goroa seems to be one who remembers him very intimately from his 1968 visit.

We have had a second bulb burn out in the projector and Walter is making the nearly one hour round trip by canoe to the ship to fetch a third bulb. We had gotten through only some ten minutes of cinema when Walter tried to adjust the generator and again the bulb blew. The two hundred to three hundred people assembled to see the film are all singing their traditional songs and clapping. I have started typing and Don is trying to record what they sing. Chief Cedrik Tangata Teava leads the singing vigorously. It is loud and filled with shouts, but still melodious.

In the presence of the whole community, the children are very well behaved. In less socially controlled situations, they are very wild and undisciplined. On our ship, they roam about touching everything--without asking permission, trying the faucets, switches, beds, showers and the toilets as they wish. They



are very much like the undisciplined and incorrigible American children in this respect, and all of our scientific staff is exhausted in trying to keep track and tabs on these Polynesians.

The boys have produced many pictures with references to male and female genitalia in their "draw anything" attempts last night. In their teasing and jesting, they refer to sexual practices and irregularities. They often jest with such references in association with our attempts to get the names of some of their peers and the smaller boys, often bringing these youngsters to tears. Their limited English already includes "clitoris", "circumcise", "vagina", and "penis"--at the ages of eight and ten years, and they draw many pictures with these words symbolized. Apparently, they have picked up recent American slang and genital reference from the crews of yachts that have stopped by.

The singing, accompanied by clapping, is loud and noisy and not very disciplined. They match the Tikopian exuberant, aggressive, domineering personalities well. They are a loud, not a quiet, silent people. They are not gentle.

The island is loaded with fine artifacts: clubs, tortoise shell neck pendants, bone and clam shell (mother-of-pearl) fish hooks, necklaces, headrests, bowls, coconut grating stools, canoe bailers, bows and arrows, dance paddles. I have not yet purchased anything, but everyone else has been buying avidly.

...11 p.m.

We have shown a terrible cinema film, which hardly drew a laugh, and which rightfully put many to sleep, an inane comedy of World War II, stupidly put together and hardly worth showing to these movie-starved people. They have more taste than to be interested in such trash.

I am now preparing to pay for the repairs to my Futuna canoe which the dispensary medical aid, Leonard, arranged to have done for me by his old father. The job seems to be moderately well done, and I think we can detach the outrigger for shipping and later reassemble it easily. The Futuna canoes, however, are very differently made from the more sea-worthy Tikopian's, and the modest comment that Leonard made was that my canoe was for very calm seas.

With the further 78 bleedings today, we have a total of 228 Tikopian specimens. However, 6 of those bled are Anuta children attending school here at Tikopia. These are:

	School Child		Father		Mother		Grade
1774	Cecil Vaipa	M 12	Pu Parekope	1728	Nau Parenkope	1729	3
1802	John Mark Taukar	M 14	Pu Akope	1671	Nau Akope		4
1863	Colin Taurava Vakope	M 10	Pu Notau	1631	Nau Notau	1632	2
1862	Stet Mapana	F 12	Pu Paone	1679	Nau Paone	1725	3
1858	Ruth Tokitanaki	F 14	Pu Raropuko	1753	Nau Rarokuko	1751	3
1898	Lesley Tufak	M 13	Pu Notau	1631	Nau Notau	1632	2



Tikopia, British Solomon Islands Protectorate

October 31, 1972

Don, John and I have walked with a huge crowd of youngsters to the three hamlets that comprise Namu, the final settlement of Tikopia on the south eastern coast, along the far end of the lake, called Te Roto. The Tikopian children remain so strangely inconsistent, aggressive, lewd, and jeering--more at each other than at ourselves, shrewdly operative along clearly defined lines of self interest, and, basically so much alike to each other, that I am a bit baffled, and can only wonder how it is that they resemble so much American children. Jokingly, I have said that after six months on Tikopia I would perhaps no longer like children. They are intimidated by adults and in turn intimidate adults whom they rule with their knowledge that adults want them, value them, and live for them. In their wild inconstancy, their sudden selfishness, their unsentimental brutishness, and willfulness they are charming. And adults often say that such is childhood. It is not, most emphatically not, childhood in all cultures, not Melanesian childhood. In its very freeness it is a stereotyped pattern more enslaving to the adult personality that emerges than the restrained and more patterned childhood of the French or Melanesians. I must say, that although I find all patterns of childhood enchanting and loveable, I do not try to be without value judgement, and in my personal preferences I cannot be...I prefer the Melanesians. Yet, as they intended to do, these kids have seduced us. They set out to do so willfully, know the techniques, whether they be cuddling, direct erotic aggression, coy withdrawal, teasing aloofness, manipulation of jealousies, or others. They feel confidently that they have a right to win in all such encounters and an intention to do so. Their rewards are transient and small...for it is only the immediate they seek. Herein they differ from the French or Melanesians, whom I have used as contrasting examples. In that a long, long delay for a more wildly anticipated and more extravagant, often still unformulated reward is common motivation for these latter groups. We were soon given their all and anything we would take from the kids here, and we shall soon be forgotten! That is Polynesia.

Anuta was calmer, less aggressive, less sophisticated or more naive, and less mercenary than Tikopia. Many on Tikopia clearly are concerned with not missing any opportunity to make material gains in cash sales of curios, or in any chance of eliciting a gift or a hand out. Some show considerable loyalty and devotion as long as the reward seems clearly in sight, and that reward is in my eyes often trivial. Thence I call the behavior mercenary.

Ralph Wycliff Ritia and Mathew Taromaori were on both visits very close to me, but not willing to compete with the younger kids in my entourage. They were substantial, rather dependable youths of about 16 or 17 years of age whom I wish I had more time to know well. Harry Jim Tafoa Okini, Henry and George Goroa slept out with us and helped us devotedly for all three days. Judah Ariki, son of the fourth chief at Boti, and Fraser Pare Vaione devoted today to us with great enthusiasm and gave us a great deal of help and sudden, spontaneous friendship. Yet, the four Anutan boys going to school here latched onto me more firmly than did any Tikopian, except perhaps George Goroa, who found it difficult to

share the attention both Don and I lavish on him. He courted and won us both and seeing that Don was devoted to him, I withdrew and solicited his often proffered help and attention less than I did those of the other kids, for although I found George immensely attractive and interesting, and an unusually devoted and helpful boy, I did not want to compete with Don for his attentions. Don visited his family and got to know them well, and managed to obtain from them several fine artifacts of the sort that the Tikopians rarely part with, that is, the hair rings from deceased husbands or fathers which the older women often wear, and the family coconut-grating stool. With our whole party avidly collecting artifacts during our Tikopian visit, I withdrew here also. Leonard, the dispensary medical assistant, had assumed the task of repairing the outrigger of my Futuna canoe. On our first visit to Tikopia we had off-loaded it and on my return I found that the old man had completed the construction of a new outrigger, using the old one and replacing the attachments. This they have done well, but it was not quite the polished work of the Futunans. Thus, the sail pegs at the end of the three arms that hold the outrigger to the canoe have not been made, for they had no drill, they said. The small sticks used to attach the outrigger to the three arms are less neatly cut and regular than those from Futuna, but they seem to be nearly like those the Futuna people made. The rotted cordage and "corking" of the canoe at both ends has been replaced neatly, and the canoe looks fine. I was asked for cigarettes and tinned fish in payment, rather than money. I could supply neither. Instead, this evening I have just given Leonard's father some fifteen dollars worth of stick-twist tobacco, a well made French bush knife and four tins of Chinese tinned duck. As a final parting gift, his father gave me a fine old dance paddle, far better than several I had been offered for purchase today and had rejected because of the crudeness of the work on them. This was the only real gift I received on Tikopia, with the exception of a fine shell from one of the boys.

George's family had expected Don and me to a meal at their home tomorrow, and had prepared to give us gifts of mats, Don tells me, but we have not stayed for this. Tomorrow, there is an island feast of All Saints Day at Botisakafika, and I debated much whether to delay our departure to see it or not. I finally decided to do so and to take intensive cinema of the dancing, but on returning to the northwestern side of the island, I found our ship ready for departure. The Captain was ready with his sailing plans and the anchor was being raised. It was too late to inflict on him my proposed change of itinerary and Judy and the others were not so keen about prolonging our Tikopian stay. Since any prolongation would cut into our Vanikoro or Rennell and Bellona time, I was ambivalent and we missed the dancing and the ceremonies on Tikopia today.

Dick developed all ninety-odd Tikopian x-rays today, and the forty-two from Anuta were developed yesterday. Thus, we had some success with the x-rays; only one of the chest films shows dramatic, probably tubercular, pathology. This is in a forty year old Tikopian man whom we had not spotted as being ill.



Tikopia is beautiful. Lakes such as Te Roto are rare on Pacific Islands. It is well stocked with Talapia, and fishing boats lie on the surface all day. The villages on the southern side of the island face the sea and sand beach with just behind them the lake shore and the rugged hills of Tikopia rising beyond the far side of the lake. Precipitous raised coral cliffs alternate with the sand beaches along the sea side and the villages lie strung along these beaches. Those on any beach are almost continuous, one with another.

Buma Village, Vanikoro, British Solomon Island Protectorate November 1, 1972

We have anchored in the mouth of Manevai Bay after entering through the narrow Hayes Channel which we could not negotiate until 9 a.m. because of heavy rain and squalls descending from the Bay and Mt. Kapokio, the 3031 foot peak which dominates Vanikoro. The Bay is deep until very near shore at Buma (Puna) Village, the tide was low and we had to wade through 100 meters or more of low coral reef to reach the sand beach at the village which appeared to be deserted until we had landed. Then, along the beach came two men, one the Dresser of Vanikoro, Walter, and the second a fine English speaking Buma resident who is actually from Reef Islands but has married here, John.

They told me that the people of all four villages of Vanikoro were assembled at Emoā for a long meeting about "custom laws" and "custom matters" and that the rain, wind and rough seas would surely prevent them from returning today. They estimated that there were some 10-12 people remaining in Buma. Richard, Judy and I who had landed in the first trip radioed the ship to ask the others to remain on board and assembled all who were still in the village at the small palm leaf dispensary and there we took blood specimens on 22 people--and one old woman of over 80 who was blind and remained in her home. Thus we found 23 including nine adults and the others all smaller children, mostly girls! After lunch hour Judy returned to the ship with the bloods and Françoise and Don and John came off and helped examine all 23 people left behind at Buma village, got heights and weights and throat cultures for virus isolations and bacteriology and finger prints on the nine adults and older children. Thus it was a profitable day of wind and rain and cold on cloud shrouded Vanikoro. We are actually working on Tevai Island to the Northeast of the main island of Vanikoro. Buma (Puma) is the largest village with 58 people in the 1970 census. The other three censused villages are Emoā (Emua) 39, Lavaka 23, and Lale 43, or 163 total population! The small school is at Emua.

The Vanikoro canoes are wide and without outriggers and surely not good on high seas. In this windy weather they cannot come back from Emua safely. If they returned early tomorrow all would be well and we should even find the Lavaka people on their way home. If they do not we will not get much done here unless we go around to Emoā. How easy it would be to land there on the windward southeast side of the island we do not know but we have misgivings. The passage between Tevai and Vanikoro--Navacanero passage--is surely too small for our captain to try it.



Peu (Paeu) is an old timber company and cowrie and trochus shell trading site where the government also had a station. It is now all deserted and the panelled doors and painted timber with which Walter the dresser is building his house is salvaged from there and hauled here to Buma.

This is a vast island barely populated. The 163 people are scattered in four widely separated settlements. From our brief contact today with 23 of them it is clear that there are many outside marriages. Reef Islanders are here. Perhaps it is significant that the Reef Islanders here have not gone to the meeting about "custom laws". I cannot get much of an explanation for the meeting other than that it deals with morality, marriage and "not going into other people's house's" and not with government, church, tax or land or financial or even ceremonial matters!

One of the women we have bled today is from Utupua and one woman and two men from Reef Islands (the Melanesian part). Thus, as to be expected, Vanikoro is clearly a mixed population.

The Melanesians are docile, timorous, cooperative, obedient and gentle in comparison to the self-assertive Polynesians we have been with. These character traits should all make for less intellectual vigor and less individuality. On the contrary, each has his own, his very own personality not beat quite so uniformly into a mold as in the Polynesian islands and all are more receptive and interested in the outside and innovations from without than are the self-satisfied Polynesians. I am happy to be back with Melanesians.

The somber atmosphere of a Melanesian village in a cold rain storm, surrounded by mangrove swamps and deep jungle is a very comforting site and situation for me and I felt very much at home with these strange group of Vanikoro people "left at home".

There are well-carved large food bowls on the house porches which I would like to purchase. Thus far they are the only artifact of significance that I have noticed.

The old blind woman is of Buma parentage, and since her daughter appeared to me to be a woman of 60+, she is perhaps over 80! Thus her childhood is not far removed from people who may have known about the French stranded here from the Astrolabe and Bousoule wrecks.

At 6 p.m. Raymond telephoned from our ship just off Buma village Vanikoro, to his wife in bed (3 a.m.) outside of Baltimore, making the connection in a few minutes. At Anuta Richard Feinberg telephoned his family in New York just as easily. We have satellite radio-telephone communication with the California phone company.

Walter says that Emoa (Emua, Emo), Buma and Lavage all speak one language. Lale speaks a different but closely related language, he says.

...10:30 p.m...

I have just called home and at 7:00 a.m. found only Mororui awake. Of all the boys I needed television telephone for it was Mororui who communicates so much more and better by gesture than by word. All others were still in deep slumber. Yavine, Tamel, Mororui, Mbagintao and Mathias were all at home and well and the boys, at least so Mororui says, are all doing well at school. Morris Schaeffer is also at the house. Thus things appear to be OK and I am only concerned about whether Mbagintao will join me for the Pingalap Atoll work and whether Mathias will be able to live a more stable life than he has. He could be causing a real problem for Joe and the others at home and I only hope that this is not the case. He apparently did make it to Ulithi, but more than that I did not learn from Mororui. I told him that we had finished work on Anuta and Tikopia and were now at Vanikoro but I do not know whether this registered.

It is pouring now and intermittent showers of wind driven rain hit our ship. If the bad weather continues we may find it a real problem to see more of the Vanikoro people for I do not know whether we can navigate the narrow channels through the reef in bad weather. The Navacanero channel between Tevai Island and Vanikoro is only 12 feet deep at times and too narrow for us to navigate it. To get to EMOA we will have to go back out to sea and around. The smaller costal and interisland vessels of BSIP make the channel.

Vanikoro, Emoa village (Emua on the maps)

November 2, 1972

We are returning to lay off Buma for the night, from Emoa where we have worked successfully all day. We have just made it out through an uncharted passage thru the outer reef of Vanikoro to the sea and are sailing now for Buma on Tevai Island again, but we cannot make Hayes Channel into Manevai Bay any longer today. In fact, it is so hazy out that we had great difficulty navigating out of the Bay of Emoa between the Inner and Outer Reefs and the many coral heads. It was a tricky entry and exit and Captain Phinney handled it cautiously and well. At Emoa two Vanikoro canoes with four and three Buma people in them, respectively, came out to meet us and carried much of our equipment ashore for us. They are large, wide canoes with no outrigger, they are made for open sea but they did handle the high surge out where we finally anchored very well.

Walter Sinevio, the Vanikoro dresser from Buma, came onto the ship with me this morning when Roy, Walter, John and I went ashore at very low tide to collect all our supplies which we had left at Buma village last night. The small girls and women of Buma helped us carry it all far out over the almost dry reef to the Whaler and we were underway at 8 a.m. on the two hour trip out to sea thru Hayes Channel and around Tevai Island to the southeast point of Vanikoro--Astrolabe Point--just beyond which lies Emoa village and here there is also the 18 student, class 1 and 2, one teacher school of Vanikoro.



By 10:30 we were outside the reef at Emoa and preparing to land.

By 11:30 we had eaten a rushed lunch and I landed with Don and Judy for a quick beginning of the bleeding of all the adults and children present. We finally bled 81 persons, bringing our specimens from current Vanikoro residents to a total of 104. There are several marriages now and in the past with Utupuans, all from Tanumbili village. There are also extensive Reef Island contacts with a half dozen Reef Islanders now settled here. One Reef Island boy, Roy Maake, from \_\_\_\_\_ has finished 7th grade but did not make it into secondary school. He is resident at Emoa for one to one and a half years only he says. There were several Tikopians here at Emoa whose presence was not explained.

Of the 163 censused Vanikoro residents, to have already studied 104 is not bad. We have collected throat cultures for virology and bacteriology but no stools as yet. Heights and weights and some physical examinations are done but only nine finger prints. In general, we are finding that our basic routine keeps six doctors busy for several days with only 100-200 people to deal with. To carry out a further level of study and laboratory work would demand far more than a week at each population studied. As it is we are trying to do too much.

One woman of 45 years of age has a flaccid post polio paralysis of her right leg with marked hypodevelopment of that leg. She says others died in the epidemic in which she was afflicted. At Lale there is another survivor of this early polio epidemic who is similarly afflicted. He is Pattesson of Lale. The epidemic occurred before the Dresser, Walter, was born. He is now 27. We are slowly navigating at low speed and five miles or more off shore around the southeastern corner of Vanikoro and will lay off cruising back and forth off Hayes Channel all night. Only in clear daylight can Captain Phinney find his way through the channel. He was furious with me and Walter for loading on several Buma people this afternoon to sail with us to Buma, for he claimed he would be stuck feeding and accommodating them if we did not make the anchorage as we have not. Since earlier it was suggested that we fetch 50 or so back to Buma with the ship for X-rays and study, I thought that a modest four needed no advanced notice. I was wrong.

Walter claims that the Tikopians at Emoa are the only Tikopians on Vanikoro. There are none in the other villages and they have not married with Vanikoro people. They have arrived to reassert ancient land rights to a part of Vanikoro which the Vanikoro people seem to acknowledge.

The small Buma Cendall Vanikoro Cooperative Society store at Buma is sparsely but very interestingly stocked; hydrogen peroxide solution, Williams Aqua Velva, razors and blades, torch batteries, instant coffee, sweetened condensed milk, toothbrushes and tooth paste, shirts, trousers (long and short), undershorts and singlets, sweat shirts, yardage of "Kaliko", Chinese "Bone China", teacups and saucers and plates, axes, rice, tinned fish, chewing gum, pots and teapots, biscuits, and toilet soap.



Vanikoro to Graciosa Bay, Santa Cruz off Utupua

November 3, 1972

Judy and Ray Harber, our crewman who helps Walter with the shore boats, and who gets on marvelously with Judy, Françoise and me and John and Ray Roos have spent an hour on the bow looking at the flaming sunset with the silhouette of the many peaked horizon of Utupua to our northwest on the horizon and Vanikoro receding behind us. It was the calmest and most pleasant hour we have spent on deck of the entire trip and by far the most marvelous sunset. Utupua is the first inhabited island we shall "pass up" since we started on Merelava and I had debated hard with myself whether to curtail our stay on Rennell and Bellona and instead add Utupua and the Reefs and Duffs to our trip instead. I decided not to do so and to leave Utupua, Santa Cruz and the Reefs and Duffs to another visit. We have undertaken too much as it is!

Earlier this evening a large school of bluefinned tuna swam along with our ship just at the bow for about an hour, keeping up with our 10 knots and always the same fish--one individual of the school had a large rear white patch which we could not diagnose but which identified him specifically. I took cinema of these interesting fish. We have seen no whales or porpoises yet on the trip.

Work at Buma went slowly today. We collected blood smears, Hct, Hgbs on only persons and feces on only 8 children ( stools for virus isolation) and urine on only 9 persons. We examined the six adults and one boy who had returned from Emoa. There were no others until, in late afternoon, with the high tides, two canoes sailed around the point of Tevai Island far down Matevai Bay and then along the shore of the Tevai they pulled in the sail and poled along the shore to Buma. I wish we had had several more days here on Vanikoro for it is a fascinating island. I should like to visit Lale or Lavaka by canoe and return by canoe to Emoa.

Before leaving, I purchased one cylindrical wooden bowl, nicely curved and used for making "puddings" and one oddly shaped deep ellipsoidal bowl decorated in typical Vanikoro style. There were another half dozen larger beautiful bowls in the village but none of these could be sold since their owners were not present.

On the 1970 Census, Utupua had 227 Melanesian and 5 Polynesian residents. Strangely Vanikoro had 163 Melanesians and no Polynesians yet we have bled six Polynesians (5 Tikopians and 1 Sikianan) now at Emoa on Vanikoro. The Utupuan populace is listed as belonging to 49 households including 2 Polynesians.

In the late morning I sent 10 adults to the ship for chest X-rays. Thus, we have done a lot here on Vanikoro but we also leave a great deal undone. Don did six additional fingerprints and palmprints and thus we have a total of only 15 from Vanikoro.

If all goes well, I shall try to get a good deal done on the school boys from everywhere in the Eastern District and perhaps extend our work even to those from the Reefs, Duffs, Utupua and Santa Cruz!

Paul is trying to get NIH to sponsor Ivan to join us in Ponape. I hope he can do so. We need his help badly. Everyone else is running off either at Honiara or on our arrival at Ponape.

Vanikoro's vast mountains and jungles and large uninhabited stretches with its four small and widely separated villages seems to be a very enchanting and satisfying island. One does not feel so captivated by the land and the people as on the Polynesian islands we visited where no one has much free space--or initiative--where the culture also tries to contain the personality of the people and one's personal space in other dimensions than those of terrain.

The possibility that Simons has not been able to salvage blood groups on the erythrocytes he has received--he took them all--now worries me greatly since he claims he needs 2 ml clotted blood and we have provided instead about 0.5 ml thick serum suspension or red cells. I do not understand his requirement unless he is after serum factors as well--for that we have ample frozen serum.

In one house along the beach trochus shell is still being collected. The market has almost disappeared, I thought. In now deserted Peu there was once a full trochus shell buying center!

There are a few dogs in Vanikoro villages. There are some pigs kept by the natives and some wild pigs in the bush.

There are ducks and chickens in Buma and Emoa.

At sea en route to Santa Cruz ...midnight... November 3, 1972

I have packed four cases of films, tapes, completed expedition record books, stool specimens for ova and parasites in holding media and fixative, thick and thin blood smears, and other field notes and also the Tongariki populations index from Jean Guiart ready for air-dispatch to NIH.

I now regret that we are not going to have a chance to even cursorily study the Reef and Duff Islands, Santa Cruz itself and Utupua.

Graciosa Bay, Santa Cruz (Nende)

November 6, 1972

A too exhausting day--too busy, too fatiguing, and too nervously frustrating to have been wisely planned. Yet we have accomplished much. We bled 294 of the 340 students at Luesalava School of the Anglican Diocese of Melanesia this morning and afternoon, cornering even the school launch load of soccer players who left for the Station before our arrival at Luesalava. We took finger and palm prints on all the school children whom we sent to the Alpha Helix for chest X-rays. There were 111!



On arrival at the school we saw the M.V. John Brown leaving and to our waves and shouts that they stop the overloaded tiny coastal trawler simply sailed on and the students and teachers waved greetings and good bye's to us. On the black sands of the beach some 300 remaining students and Miss Ann Anderson, a New Zealand teacher, greeted us and invited us to a comfortable two-story school building where we started to bleed. We bled some 273 students in about three hours and with Miss Anderson, a Solomon Island teacher and Judy and myself all recording, we had the bleeding lists done by noontime. I sent out all 1 students who had Mantoux tests over 15 mm in diameter when Richard Lee tested them last month to the Alpha Helix for chest X-rays and then all the standard 6A, 6B, 7A and 7B students plus a few of the older standard Standard 5A, 5B and 4 students for chest X-rays. It was a grueling task. We made one major error which I knew was an error when it started and which foolishly I did not stop in time. Thus, as I was getting the 16 Mantoux positive students located and hand numbered with felt-tipped ink serial numbers on the back of their hands before sending them to the ship for X-rays, the others started bleeding upstairs in the school building. This produced so much anxiety and worry in the over 200 assembled students outside that I had to quickly insist that my doctors move the operation outside to the lawns in the midst of the students where they should have been at the start. It was a bit too late however and a moderate level of anxiety had crept into most of them. I managed, however by quickly starting to bleed out of doors among them, to provoke some laughter and when we all moved out into the open things went far better. However, the first wave of anxiety had its effect. One student fainted ten minutes after being bled and during the morning three others did as well.

We had broken several of my tenets about taking blood specimens from villagers:

- Bleed only in public and in the open
- Bleed only after the whole group is assembled and all seated and lined in sequence and holding their venules.
- Do not let anyone move around or stand up after bleeding (they can best be bled standing) and let no one set down their own blood.
- Let no one hold blood for another, not even for a toddler.
- Bleed first any child who whimpers, cries, indicates possible flight or otherwise shows high anxiety.
- Do not collect blood specimens and "release" any subject until all the population is assembled and "captured" and laughter and relaxation characterize the operation. If there are many bleeders then work at different parts of the assembled group and quickly shift to any part of the line where boredom, anxiety or too much discussion develops.
- Bleed small children first and capture the anxious and "wise guy" adolescents quickly.
- Employ as assistants holding arms and cotton wads and alcohol and venules all the children who might otherwise lead flight or dissent... mostly adolescents.
- Keep subjects out of heat and sun before and after bleeding.



Although all went well after moving out of the building where we had unwisely started, we still had four cases of fainting in those whose originally stimulated anxiety never abated. By treating these as a joke and haranguing the students to sit down in the shade, we managed to get by even this without panic.

With 111 students X-rayed and fingerprinted and 273 bled and all documented, we had a fine lunch at Miss Anderson's home and then sailed back to Graciosa Bay in midafternoon. I took with us Ambrose Teava, a 15 year old Anuta boy in Standard 5--the only Anuta student at the school--and George Bili, a 16 year old boy from Nembau Village on Utupua in Standard 4, as linguistic informants. From them I have obtained an extensive body parts and functions word list for their respective languages. George Bili says that there are two languages spoken on Utupua.

There are about nine Tikopians and seven Vanikoro students at the school. Most of the students are from Santa Cruz or from the Reef Islands. There are a few Duff Islanders. We have thus been able to quickly get a genetic lead on the Eastern Islands we failed to study intensively: Duffs, Reefs, Nende and Utupua.

After finishing lunch we packed up and returned to the ship. We then sailed back to Graciosa Bay where we had stopped to pick up Dr. Richard Lee at 6 a.m. this morning and there we boarded some 17 patients whom he wanted us to X-ray and 21 additional students who had left Luesalava School to come to the government station for a soccer game. The additional 50 X-rays and 38 bleedings took us until 6:30 p.m., and now we have until midnight to try to separate off sera and erythrocytes and freeze down clots and develop the X-rays.

Listening to tapes of well-selected music, which the Alpha Helix is rich in, and reading Natural History magazine and The Pacific Islands Monthly and finishing Henry Miller's "Big Sur and the Oranges of Heironymus Bosch"...and copying out the Anuta and Utupua word lists from Ambrose Teava and George Bili---I can finally relax and wonder what we have really accomplished on this cruise of the Alpha Helix. It is a long sea voyage with little relaxation and all we do is preliminary to much more laboratory work if the specimens survive.

My mother used to dress me up,  
and while my Dad was sleeping  
We would walk down to your house  
without speaking.

I wonder how deliberately Bob Dylan and other songsters set about finding situations of estrangement and alienation about which to write their captivating lyrics. They certainly are aimed at the "lost" adolescent.

Paul has written me a brief and a sad and an honest letter which completely confirms my suspicions for his decision to leave us and makes me glad that I left matters so completely in his own hands. He is depressed and found our overscheduled, enormously demanding program no place to ponder and solve his problems, and he was unable to let them simmer under the burden of work and

involvement as I should have done. I admire him for all he has gone through while yet preserving well-functioning, highly integrated behavior. To advise him on the complex problems of his private life is impossible. I must now depend on him completely to "rescue" the huge serum and red cell and virus isolation collections we have made.

I am still hoping that Ivan will join us in Ponape. Mathias is living back at home--his only real home!--in Chevy Chase, and I will not have him with me as I hoped I would. That too is sad. For Mat this young in his life and Paul this mature in life to pass up high adventure for the muddied waters of infatuations is, to me, sad. Nay, love that operates on so restricted a plane is bound to bog down and dry up!

Sailing Graciosa Bay, Nende (Santa Cruz)  
to Kanggota Bay, Rennell Island

November 5, 1972

On smooth waters, a beautiful clear and calm day, we are reading, writing, listening to music, and resting--and above all puttering. We have finished separating off the red cells and serum from the clots of yesterday's vampiring and frozen the clots--but only to  $-12^{\circ}\text{C}$  since our  $-38^{\circ}\text{C}$  Revco is full! I am particularly worried about two matters:

1. The possibility that Simon's objection to the last large series of New Hebridean red cells is really serious and that he may have discarded them without doing ABO and Rh and MnSs grouping and typing. If so, we might still salvage some cells from the frozen clots to get ABO groups at least. I am sure he had adequate specimens to do this and thus do not understand his objection. I hope we have not lost out herein.
2. I am not sure how well red cell enzymes are preserved for 1-8 weeks at  $-38^{\circ}\text{C}$  storage. All our clots have been frozen promptly after separation of serum to  $-38^{\circ}\text{C}$  (until recently when we must settle for  $-12^{\circ}\text{C}$ ). I only hope red cell enzymes' activity is adequately preserved at this temperature??

We have had an X-ray "Grand Rounds" in which Dick presented some 25 films with severe interesting chest pathology (about half) or with questionable findings on which he wanted our opinion. We have surely found some very interesting chest pathology.

We have taken over 350 chest films on the trip thus far, and we have very little X-ray film left as a result. It has been good to have the X-ray potential with us. In many places, however, it has been too much a landing and boarding problem to get many subjects out to the ship. Now that we are all much wiser in the potentialities of the ship and the use of its facilities, we could plan equipment and work far more effectively and use both our time and efforts more suitably. However, the vast background information one needs in order to survey for anything involving human disease and genetics is only now in our possession and on second-go-round we could really do a superb job--but I would

not want to attempt that until our earlier work of this trip is in, digested, and written up! As with all good research, it should only open up new problems and new things to do!

Captain Phinney has had three days of terrible toothache. Only tonight have we put him on antibiotic. He has no tooth tenderness nor submental adenopathy nor soft tissue or gum swelling or fever, but excruciating, almost disabling pain. We may have to let him head for a dentist on Honiara if it continues, for he does not want to lose the offending tooth which is not tender to pressure!

Judy, Don, and Raymond are all nursing chronic, indolent tropical ulcers, soaking them, and debriding them many times a day. They probably need more vigorous and cruel opening and debridement than any of them are willing to give them.

I have reread my previous Rennell and Bellona paper and my Tongariki paper (with Chris Plato) to check on background data. If I can only put together a Rennell-like account for each of the islands on which we have worked, how fine it would be!

Henry Miller at his best:

a "clear" (Dianetics)... "you usually get what you want when you need it."

on religion: "the will of God" "the intelligence which directs the Universe, or the Mind which is the Universe, is there to draw on, there to collaborate with, when you stop trying to run the show."

Lavangu village, Rennell Island

November 6, 1972

In the house of Erik Saunga at Lavangu village on Rennell Island, Don and I have moved in for the night, while the rest of our party lies anchored in the Alpha Helix just off the reefs. We are some 100 feet or so above the beach on the plateau on which most houses of Lavangu are built, although there are also a row of houses along the beach below. Kanguva Bay is vaster than I remembered it to be, and when we arrived at 8 a.m. after a couple of hours sail along the southern coast of Rennell, we first lay off the reef at Lugu village. We first went ashore to empty houses, which I learn were built for Council purposes, and then decided to go further down the shore to a small village high above the beach. However, when we approached this, we found there seven people easily bled, examined, finger and palm printed, and examined hematologically and even chest X-rayed. This took us some 2 hours, and so by 10 a.m. we were again on shore, this time because other canoes had arrived, from far down the Bay, from Lavangu. We met these canoes and were told that the Medical Assistant of Rennell Island, Wilmot, was on the beach before us, having just walked out of the bush from Tengano and Niupani village on the Lake some three hours walk away. On shore we found him along with William, Erik Saunga, and Charles



Tengei, boys of 15, 14, and 12, who had come down the shore in a large canoe. We pulled their canoe onto the beach along with that of some men, left them there, and took on board with our whaler a total of 10 men and youths for Lavangu, whom we examined and from whom we collected blood and hematological specimens during the trip down the Bay. After lunch we disembarked at Lavangu and promptly bled and recorded another subjects, whom we later studied hematologically, and with dermatoglyphics, throat cultures for virology, and with identity photographs. By late afternoon we all boarded again, had supper, and only Don and I are ashore tonight, while John and Richard try to develop the remaining undeveloped X-rays from Santa Cruz and those we took at Lugu this morning.

The most interesting medical matter found has been a high incidence of clubbed foot here at Lavangu with severe intoeing and raised heel. Three male siblings all of the same parents have the syndrome bilaterally, and in addition, there are three other children with clubbed feet, all unilateral but one, who has the deformity severely on the left, and mildly on the right. Thus, we have found 6 child and adolescent patients with this deformity already in this small population.

The people tend to call this whole bay and region Lugu, and to use the term Kanganu Bay for the eastern side of this Bay, off Lugu and the Kanganu Council station, now deserted. This western end of the Bay they call Lavangu Bay.

Erik Saunga has offered to let me sleep in his house. He is the youngest son of the Chief of Lavangu, who is off in Honiara with his wife. Erik lived there for several years going to school through Standard 5 there, and residing at White River, which he did not like. He reminds me of Raglmar when I first met him on Fais...a bit of a "Spiv", always courting strangers, making sensuous advances to visitors, and sporting a sophisticated savoir faire and self assurance which often wins him the attention and the material gains which he seeks. However, like Raglmar, he is himself his own victim, being captivated by the personal relationships he thus so easily makes, and finding in them more value and motivation than in the material favors he uses to cloak his first approaches....which are a way of saving himself embarrassment before his own people, who pardon more easily exploiting foreigners than identifying with them too closely or intimately. The latter leaves one open to much teasing and shaming.

Tengano village, Lake Tengano, Rennell Island

November 7, 1972

There are four cases which Medical Assistant Wilmot has spotted of periodic or recurrent episodes of exanthematous ecchymotic eruptions on skin and mucosae which he describes as "swellings" with painful, slow increase in size, sometimes accompanied by fever and other systemic symptoms of malaise, and which eventually, after a course of several days, become "black" discolorations

which then last 2-3 weeks before they begin to fade. Development of these painful swellings to maximum size requires several days to a week. Only after this do they discolor and become "black". He claims that he has not seen this syndrome elsewhere in BSIP than in Rennell, and on further thought says he has also seen it on Bellona. Patients continue to have such episodes several times a year over many years, even decades.

We have seen one woman with such a disease: Miriam Tepoa, a woman of 30 years of age from Tevaitahe on Tengano Lake. However, she is well now, between attacks, and shows nothing. During the attacks there may be involvement of vagina, lips, gums, tongue, conjunctivae, buccal mucosae, and even penis. Wilmot recalls also three patients from Nuipani village with this syndrome: Timothias Panio (45 years old); Makasi Moa (40 years old-male); and a woman (      years old). The Rennell bush village of Matangi has another such patient      of about 21 years of age. In addition there are others from West Rennell whom Wilmot does not recall exactly.

There are four villages now inhabited on the Lake shore: Tevaitahe, Niupani, Tengano, and Hutuna. The old village of Tigoa across the lake from Tengano now lies abandoned and everyone from it is now living in Tengano.

This evening a number of patients with medical problems wandered in as we were preparing for bed. They included Miriam Tepoa, above, and her husband, Felix Tawika, who has chronic lung disease with bronchial asthma. He is severely dyspneic tonight, and we have him on penicillin and Tedral.

We have bled over 110 patients from these lake-side villages and this forms a valuable further Rennellese collection. We worked only here at Tengano village, but people from Hutuna came in the afternoon and then some patients from Niupani and Tevaitahe came this evening.

I was very sleepy all mid-day while trying to record our bled subjects and could hardly finish the work. Judy helped me. At about 3 p.m., we took off: I and Charlie Tatai, Lucy, and Davis. We reached Hutuna about 4:30 p.m. The trail is wide and clear; rarely in view of the sea, and very rough, often over sharp coral. Hutuna itself is beautiful and so prim and neat that I must attribute much of it to the Seventh Day Adventist influence. The Moore Adventist School at Tekoko (Teukena ground) along the shore, some one half hour along the trail from Tengano to Hutuna, has four teachers (one a local Hutuna woman) and 56 students in standard 1 to 5 inclusive. It will have also a standard 6 next year, and perhaps as many as 70 students. The school is now on a two months holiday and three teachers are living for the holiday at Hutuna.

Hutuna is some one hour of walking beyond the school. The Seventh Day Adventist church in the center of Hutuna is a marvelous example of bush architecture with cane floors, open sides, and well-carved benches. I spent one to one and a half hours in Hutuna, shot 300 feet of cinema film, and started back down toward Tengano at dusk. Many Hutuna people had come to see us at



Tengano this morning by canoe across the lake. As we left some canoes were returning. They pole along the shores when wind is strong and the lake is rough, but today it is calm enough to paddle out far from shore. I have seen no sails.

Torben Monberg was back on Rennell with three other Danes working at the lake villages for about two months on language principally, the people tell me. The boys are vague about dates, but suggest March and April. Others tell me that he also stayed with his whole family for several weeks on Bellona this year.

The Mitsui Company has opened up a road from Lugugi Bay and Aboi village inland via T village into the center of Rennell for its high grade bauxite ore mining. They first tried building the road into the interior from Lavangu, climbing the coastal cliffs to Lavangu village, but later abandoning this for Lugugi. They have now withdrawn pending resettlement of the political problem of distribution and sharing of profits locally and with the entire BSIP government. There is still a plan, the boys tell me, of a road from the upper Lavangu village to be extended to Kangava and from there into the interior to reach Lake Tengano at Niupani. This is planned largely for recreational purposes, so that the Company employees could relax at the lake on days off. The people of the lakeside villages want such a road badly, although from our point of view it will spoil their isolation, remoteness, and quiet--almost unique for an inhabited lakeshore in the modern world.

There is a full industry here of carving clubs, masks, animal figures, and canes all decorated with inlaid mother-of-pearl shell and tight ensheathing black and straw-colored braiding. This "traditional" Solomon Island handicraft is hardly Rennellese, but has been learned by the Rennell men at work on Honiara, and extended to embellish their Rennell clubs and maces and other traditional items of carving. Thus, whereas in 1963 I got many plain Polynesian-style clubs and maces from the Rennell carvers, now they are more decorated and adorned, more "polished", and the high gloss black finish is much sought after. I suspect that it is often applied with dry-cell battery manganese oxide as a base and perhaps even shoe polish for the gloss, but the people all insist that the carvings are buried in mud for days or weeks and then removed, with this treatment having produced the blackening. I am skeptical, and recall on Mota Lava when the boys and men were telling me of the use of traditional ground shell and other dyes for the coloring they used, how my youthful friends with me mumbled "lies, all lies" as they heard this! This carving commands high prices now in artifact and craft-conscious Honiara, and our party here has purchased everything available anywhere they have seen it. This has so stimulated the carving shop here at Tengano that the atelier is open and work continuing far into the night, and carvers rush works to completion in the hope of a sale before we leave tomorrow. The carving shop is well-equipped with primitive but adequate tools, and several of our party have already contracted to buy items which are unfinished as yet. However, we have all run out of the Australian currency with which to make purchases.



The government station has been established at the airstrip on West Rennell and there a British officer has been in residence and a small school with about 40 students is functioning. However, the officer has recently left and a Solomon Islander administrator is now there. The Japanese have all pulled out pending settlement of their contract, which settlement involves the percentage of profits that will go to Rennell itself and that which will go to the BSIP as a whole. The Solair plane continues to land once weekly on .

It would have been fine if we could have had a week or more on these shores of Lake Tengano. Everyone in our group wants it. The people are cooperative and are bringing us many medical complaints, and in a leisurely week of work we could see many chronic complaints which will not show up for consultation on such a rushed visit as this. As it is, by spending tomorrow and the next day at West Rennell off Lugugi Bay, we will have only two days on Bellona. The whole youthful community here is very gonorrhoea conscious and boys of 12 to 25 often describe recent or current dysuria and pyuria. They use the term "gonorrhoea" for their complaints, and confuse malarial medication with medication for their urethritis. I often am not sure whether the young boys are bragging or telling the truth as they describe their penile pain and pus. Often they show nothing. Erik, however, has a very large pendulous chronically edematous prepuce, residual after a recent bout of dysuria and pyuria which he calls gonorrhoea. He has more homosexual than heterosexual contacts, but enough of each to be right, although I am not sure that his symptoms are gonorrhoea or simply frictional problems.

Everywhere people want us to give them bottles of "malaria medicine", "aspirin", and "medicine for gonorrhoea" often asking for "quinine" for the "gonorrhoea". No one presents anything like syphilis, and I have seen no convincing acute pyuria or urethritis. Not even any pus to examine. I suspect many are right, however, and that the promiscuous nonprohibitive sexuality of Rennell and Bellona is little match for the introduction of VD by outsiders from Europe, Asia, and elsewhere in BSIP, who now arrive more frequently than ever before.

Japanese words creep into the boys' talk, and at times Japanese profanities and vulgarities.

Charlie (12 years), Davis (17 years), and Lucy (10 years) of Tengano accompanied me to Hutuna and back, gossiping, joking, playing, and teasing me along the long track. We stopped several times to lounge on the rough coral along the trail, and after reaching the gardens and coconut plantations of Hutuna, they stopped to climb coconut trees and fetch coconuts for us all to drink. Although I have not been taking the care I should of steadiness or selection of subject matter, I have shot 500 feet of cinema of Lake Tengano today, over 300 feet of it on my trip to Hutuna. The wide expanse of the lake itself, with the distant shore hardly visible, and the beautiful fairy tale-like offshore islands, often with the wide dugout canoes sliding by, continually draw my camera to the lake.

The spotless order and neatness of Tengano and Hutuna may well reflect the SDA influences. I must see Niupani now to learn if it now has the same atmosphere of simple beauty, by restraint to almost Puritanical neatness. I certainly do not recall such on my 1963 visit there. Grass is planted and cut, there is no litter, houses are well aligned and neat, and the church is beautifully constructed and cared for, especially at Hutuna. Tengano is a bit more free in layout and housing locations, but similarly neat and clean.

Everywhere we go on Rennell we encounter well-educated Rennellese at home for holiday. Thus we have John Tipaika from Lavangu who is Master (Captain) of the M.V. Elizabeth Ann for the Coral Sea Trading Company in Honiara with us. He is from Lavangu and visiting home for a few weeks. He no longer has a house in the village and is staying with "relatives". In Tengano we have met a young man who drives a truck in Honiara for another company. He too is home for vacation. Both speak good English.

At Tengano and Hutuna there are teachers from the SDA school. Two, one from each village, are local Rennellese, whereas the other two are from Malaita and Vallua. The teacher from Hutuna is a woman.

Rennell Island, Lugugi Bay

November 8, 1972

We have finished our work on Rennell without exploiting the possibilities of our arrival on this wild coast sufficiently, but to push for more at this late stage of our adventure would be overdoing things. We have bled beyond our available low temperature ( $-38^{\circ}\text{C}$ ) Revco storage space for clots and virus isolation specimens and are holding all recently collected specimens at only  $-12^{\circ}\text{C}$ ! We have X-ray films to develop and hematocrits and hemoglobins to do in large numbers and over 100 further Rennell Island bleedings to separate off serum from clots. Our records are falling behind. Tonight was no time to push for a further large chunk of work with the bush people of Western Rennell. As it is we have seen, bled, studied hematologically, and collected throat cultures from some 48 of them today at Aboi, a coastal settlement of Tahanuka people whose main village is 1 1/2 - 2 hours walk into the interior along the Mitsui Company's mining road. Those who came down came from the interior specifically to meet us here at Abo'i on Lugugi Bay.

Erik Saunga was quiet and withdrawn when I left today and puffy eyed and ashamed to be seen, so I finally went over to bid him goodbye. He had avoided being ashamed by too much special attention from me at Tengano, had carried for us back to the coast, and had returned to Lavangu with us only to ask to stay with us on our visit to West Rennell. So he boarded the ship again and sailed with Wilmot and two other Rennellese to Lugugi Bay. I don't like to see his disappointment, for he was a bit overwhelmed by the kindness and lavish hospitality I gave him on the Alpha Helix and by the way I met his boyish bravado of asking for my best towel as a gift which I gave to him.



Rennellese carving is accomplished and a real industry. We have as a group purchased a great deal at very low prices. I have purchased two fine black and natural color, woven, Rennellese, pandanus fiber bags, and Wilmot has given me a gift of the best black fiber decorated mat we have seen here and which I turned down for \$12.00, since I did not have the money to spare. Black fiber designs on the natural buff pandanus fiber are most typically Rennellese. We have seen crabs, hermit crabs, crocodiles, men and women in traditional garb, owls, turtles, snakes, and lizards carved on the canes, usually inlaid with mother-of-pearl. The carved, brown wood artifact is buried in black swampy soil after being carved, and on its recovery from the mud a couple of weeks later it is all very black.

The staffs or canes are often precisely bilateral, symmetrical, and covered with traditional animal motifs. One cane which I saw at Hutuna had a bit of humor and informality with the owls catching the snakes in their claws, and the man in traditional dress bent over backward to wrap himself around the cane. The natural, with an Eskimo art-like shift to the grotesque, develops in some of the masks and even carved canes, and the humorous is at times espoused; most however, are conventional and ceremonially serious. One unfinished carving at Hutuna was of a woman bearing a child. It was good and I yielded to John's desire to purchase it although I badly wanted it myself. He then only failed to remember to retrieve it after sending it back to the carver to finish it. I am very disappointed to have lost this strange piece.

Pauto village, Bellona Island

November 9, 1972

We reached Bellona at about 7 a.m. and went ashore at 8 a.m. with the sea covered with white caps and the waves 6-8 feet high. It was a rough approach to the reef and we did not dare to take the shore boat in over the reef with the mild surf beating upon it. Thus we disembarked in hip high water and Bellona people on shore came out and helped us carry cargo in over our heads, keeping it all dry. It was not a dry landing. Wilmot left us promptly to walk halfway down the length of the long island to his home village of Tamgakitonga between Pauto and Ngongona. There his Bellona wife lives with their two small children. He mobilized the Bellona Council tractor for us, and by the time the three shore boat landings were over, we had the tractor there waiting for us at the Matahenua road head above the coral-paved hill down to the beach: Ahanga. Most of those who met our landings and carried supplies ashore were girls and women, among whom were only a few boys...perhaps six females per male. This is what one often expects here in Bellona. Among the few boys, Tuhaika Poingi, a boy of 11 in Standard 5 of the Adventist Primary School at Mataiho (between Ngongona and Ngongau) was the most helpful, and it is he who has stayed with me all day. Now he is with me in the home of Solomon, an ex-police man of the Solomon Island force, who is uncle of Milly, the nurse here at Bellona who runs the dispensary.

We loaded all our supplies, bedding, medical equipment and food onto the trailer of the tractor, and together with no fewer than two dozen Bellona women and children and a few men, we drove the length of the island--almost. We passed the dispensary, visited the Mataiho school and met the headmaster and



went beyond Ngongau to visit the airstrip at Ngongau. Then we returned to the Dispensary at a site just before Pauta village and dropped all our supplies here. I elected to spend the day seeing patients with complaints. We soon saw three patients who had had goiters surgically removed in Honiara during the past decade, and five patients with the new syndrome I am now intensively pursuing of recurrent, painful febrile swellings that appear to be either a deep-seated hemorrhage, fat necrosis or myositis. These are usually multiple, they appear spontaneously in most of the patients, but in others appear only after recognizable minor trauma to the site involved. The story of trauma is missing in the attacks of others, and some have had spontaneous attacks in the past but now have episodes only secondary to minor trauma. We tracked down accounts of six such patients on Rennell from Wilmot, and here we have now the story of ten such patients, five of whom we have already seen, bled, and examined. Of these five, three have acute symptoms with currently raised, painful, deep-seated, soft tissue swellings all with the report that they will eventually be deeply pigmented and finally subside and fade after a course of a few days. We are doing hemoglobins, thin and thick blood smears, and hematocrits on all the patients and will do WBCs tomorrow along with X-rays. None of this will probably yield any leads.

Of the five patients we have seen, two are from Rennell island, the Lake area, from where the Rennell cases also come. Most have had onset in their young adult life. One patient has a daughter who has started with the syndrome in her mid teens and now, at 18 and married, has had two years of such episodes. Two report subsidence of attacks during pregnancies.

We have seen no cases which are ecchymotic or deeply pigmented, but those three with swellings are too recent. One lying at home has deeply pigmented lesions now, and we will see him tomorrow. One patient reports that his lesions do not go on to deep black pigmentation.

At four p.m. we all returned down the road on the trailer of the tractor and reembarked in a deep sea loading, swimming to the shore boat in the surf. On the Alpha Helix all but myself decided to stay, and thus we have no one on shore but me. Wilmot and Milly and I have made a list of some 40 people on Bellona whom we can X-ray on the Alpha Helix tomorrow. They are old tuberculosis cases, or those currently on INH therapy (often diagnosed by symptoms without any laboratory study or X-ray possible). Others have been to Honiara for diagnosis, treatment, and even some for reevaluation. We shall also X-ray the multiple recurrent swellings that are active, a couple of cases of chronic bronchial asthma, and many family contacts of active tuberculosis cases. We have only 54 more large X-ray films, and this limits the total number we can do. All depends, of course, on the seas being calm enough for the X-raying.

We also hope to assemble the 60-80 school children in the Adventist School, where there are six standards, six teachers, and perhaps 60 pupils. School is at present out on holidays. The headmaster, however, will try to reassemble the pupils tomorrow. He is Taheniu from Ngongona village, Bellona.

We should then run further clinic in the afternoon and continue on the following day until mid-afternoon when we can finally depart for Honiara. Unfortunately, our arrival on the 12th is on a Sunday, when it will be very difficult indeed to get anything done. To get the frozen clots safely off to Bob Kirk on dry ice is our major task, and that not an easy one. However, the more we can get off and thus free up the Revco, so much the better, but nothing will be possible unless the dry ice and shipping containers for it arrive from Port Moresby to where Paul Brown has had them sent, arranging with Ian Maddox to have them filled with dry ice and shipped to Honiara for us on the 12th or 11th, I hope! We shall see.

Tino Golden, a 13 year old 5th grader, is drawing along with Tuhaika Pongi at the desk in Solomon's home where I have been given chairs, a fine table, and clean sheet and pillow case covered bed. The house was prepared for a large group of us, and three could have had cots, and the rest ample clean floor space for our own camping cots, mats, and sleeping bags. As it is, I am using the house alone with Solomon's family. He is Milly's paternal uncle. Tino is his youngest son. A rather flashy, long haired, suave and erotically conscious boy of 15 or 16, Pungeba Henuangua, is now drawing with the other boys. Outdoors his remarks were all about his dog's penis and semen, and other genital references to the younger boys, and a very coy, hypersexually conscious reference, as he lounged about the darkened lawns in sexually suggestive postures. He is a rather typical Bellona teenager.

The second school on Bellona is the Angai'ihō (Angaiho) SSEC school with some 40 children in Standards 1, 3, and 4 and with three teachers. This is located near the airstrip. Tino goes there in Standard 4 while Tuhaiko goes to the Mataiho school in Standard 5.

The people tell me that Tino, when a boy of 5, was playing in the surf at our landing beach, Ahaga, when the heavy surf and strong current suddenly carried him out to sea. Matahenua people saw him off the shore as a coconut or something in the sea, and recognizing the drowning boy, swam out and rescued him, already unconscious. He has periodic severe headaches which he and his family trace to this episode of near drowning.

Honiara, British Solomon Island Protectorate--1 a.m.

November 14, 1972

On a moderately clear, starry night with the harbour calmed down considerably over the breaking waves which we had this morning, Françoise bid me goodbye undemonstratively. I have not had much intimate sharing of ideas or life with Françoise on this trip, but I have enjoyed having her with us, working near her, working with her, and watching her enjoy herself. Jean Guiart's leaving left her a bit lonely, and Paul's departure had the same effect. She liked John Sheridan when he arrived and they got along well together.



John Sheridan is loaded with the responsibility of couriering to Canberra our enormously cautiously packed shipments of frozen clots (all numbers 1898-2642 inclusive), which we chilled with a maximum of five or six pounds of dry ice which Walter heroically manufactured from compressed CO<sub>2</sub> cylinders on the ship, while Don and Françoise and I furiously worked at packing into new padded boxes the 800 clots, manufacturing insulated carrying containers for the specimens well enough insulated to keep the minute quantity of dry ice for the trip to Sydney tomorrow. We covered the boxes, each some 12 cubic feet in size, with aluminum foil and rushed them ashore to the Solomon Island's Trading Company freezer where they are stored until just before departure tomorrow morning--or rather this morning. Hopefully, the -15°C freezer will prevent much dry ice loss overnight, and John can manage to get the boxes well insulated from the sun to the plane. He is cabling ahead for dry ice and freezer space in Sydney for the overnight hold-over before the flight to Canberra. John is also taking the whole BSIP collection of -40°C stored unfrozen erythrocytes with him to deliver to Bob Kirk where they can be handled for blood grouping and to dispatch them accordingly.

The whole Honiara sojourn has been weird. We have arrived at colonial Honiara on one of the year's major holidays, with Monday a full holiday, the Queen's Birthday. Thus radio, post office, overseas telephone, and all banks, government offices, and shops are closed. With nothing but work requiring these services on our hands, it has been very difficult indeed. I have had to interrupt Jimmy McGregor a dozen times during his holiday either at his home or at the Yacht Club, where he is participating in three days of sailboat racing. Brian Eyres also met me at the club, and after I helped him assemble and inflate a rubber outboard motorboat, he took me to the Medical Department Headquarters building to collect the mail waiting for us there.

Strangely, there was hardly any curiosity or questions about our month of work in the islands, and a most British nonchalant attitude toward anything we may have found. The British are good at showing such nonchalance and feigning disinterest in what privately concerns them very much. Also, they manage beautifully to present total detachment from their work, careers, and professional lives while on holiday or "at home". Thus, our colleagues have managed not to ask or discuss a word about medicine with us after our month or two in their most remote islands and a second month in the Banks and Torres. It is strange and defensive.

Yet, in typical British "fair play" manner, they have done all possible in meeting out rather outlandish requests for help in the middle of their holiday. The officers of the airline office and the agent for our ship (Solomon Islands Trading Company) have managed to get off our much delayed four boxes from Santa



Cruz which have been stuck for two weeks here in Honiara, and an additional huge box of records, films, artifacts, etc. which Don and I packed last night. The four other boxes of specimens (fixed stools, blood smears, etc.) and records and films and X-rays etc. which we packed earlier are ready to go off as one shipment tomorrow, and these nine boxes of air cargo represent all we have from the trip that we can now get off for NIH.

In desperation, beholding the vast collection of artifacts our group has accumulated on the ship, I finally managed to get it all off-loaded and turned over to a Chinese shipping agent who will attend to packing, clearances, and shipping. The canoe from Futuna, the many huge ceremonial dishes of wood from Ureparapara, and the vast collection of smaller artifacts amounts to over 180 cubic feet of packing space, and the freight estimate is over \$550 (Australian). Thus, with a bill for some \$650 Australian, I was astounded and finally I learned that the routing of the cargo to Baltimore was via Sydney and thence to Baltimore (\$40 A. from Honiara to Sydney and \$83 A. from Sydney to Baltimore), instead of directly to Fiji and onto the United States which should cost one half to two-thirds as much! We have left them recalculating the charges for the more direct routing.

At the Honiara Museum I brought an old Kwaio, East Malaita fighting club, but nothing more. Don and the others spent a good deal of money on shell money ornaments. Very excellent BSIP carvings with inlaid mother-of-pearl work are on sale at many shops--all closed now--and in the evening in front of Hotel Mendana.

Thus, with the artifacts all off and all the blood clots which would have deteriorated if left longer in the  $-10^{\circ}\text{C}$  refrigerator also off with the whole final collection of red cells, we can take it easy for a while while returning to Ponape, from where we must empty the Revco of about 2000 further frozen clots and virus isolations specimens (stools, conjunctival smears, and throat swabs).

Yesterday evening we drove before darkness to St. Mary's School, on the northern part of Guadalcanal, and then on, passing the teacher's Training College, to the end of the road, some 45 miles from Honiara. Then I drove back to the Tavea Village Resort where we had a long, leisurely fine supper of roast duck or crayfish tails with Australian wine. It was a great treat to be able to linger long at the table over food and conversation. On the Alpha Helix we are rushed away from the table after less than 30 minutes! Only Judy was not along, for she is devoting all her time on shore to Ray. Their infatuation has been intensive and parting seems to be hard for them. Thus, we see little of Judy here in Honiara.

At the wharf we had only a few hours of wharf-side luxury, before the Alpha Helix had to go out into the harbour and drop anchor, to make room for the M.V. Chengtu from Hong Kong (registered in London) which came in with its monthly load of cargo for Honiara, and finally left this evening

for Fiji. The gigantic freighter dwarfed our small ship, and it has forced us to be out in the harbour, in touch with our ship only once every two hours by small ancient harbor ferry boat.

However, this ferry boat did manage to carry ashore all our artifacts. That the canoe (15 feet long) and the huge Ureparapara wooden dishes and our other collected items will require 180 cubic feet of crating or the equivalent of 4.5 metric tons came as a surprise. To have it all off our hands is a great relief, and we shall now only be worried about the costs and interminable delays usually associated with such shipping. We shall see. If the canoe ever gets to me in the U.S. along with all these artifacts intact I shall be most pleased, and we shall have made a very sizeable collection from the southern Solomon Islands and the Banks and Torres. In fact, the combined collection rivals anything in the Solomon Islands Museum here in Honiara.

The same teacher at St. Mary's school who took me around the last time I visited here with Yavine, a light red-skinned man from Northern Malaita, met us there again. I did not recognize him at first. He told me that John Tope had finished his work at the school and would probably go into the police force school in Honiara. This means that he may have flunked out or not made it into secondary school. I thought of him as an excellent student, and did not get a chance to inquire of how it was that he was now out, when it is not the end of a school year. I had heard from , the Anuta boy at Luesalava on Santa Cruz, that John Tope had just passed by with the Bishop en route back to visit Anuta. We shall see. I shall try to reach him by mail! I recall John as a 15 or 17 year old, yet everyone on Anuta places him at over 20! I wonder.

Jean Guiart has sent me a first draft of his paper, the first report from our expedition, of his work on marriage in the Banks Islands. It is called "The Marriage System of Merelava and Merig". I have also outlined for all our party a memo on the "Scientific Value of Ethnographic Collections made on the Alpha Helix Expedition", in which I have requested everyone to turn in a full catalogue of their entire loot, with photographs of every item. From it Don Rubinstein (with me and Peter Fetchko or Ivan Mbagintao, or whomever else helps sufficiently) could get out a paper or a small catalogue on the material culture of these islands, for the combined collection is extensive and comprehensive. Supplemented by the photograpic record of housing and other unpurchasable items, it would be a rather complete coverage and an interesting side product of our work.





Eastern Caroline Islands

November 14, 1972 -- November 26, 1972



Alpha Helix at Sea...approaching Ontong Java

November 14, 1972

We have had as catastrophic a loss as could be imagined in our specimens. The Revco was opened this morning by Richard to try to fit into it a bottle of insulin, and he found its entire contents totally thawed. In it we have had all of our virus isolation specimens (stools and throat washings) for the entire expedition and all the blood clots from specimen No. 1 through specimen No. 1897. Thus, everything in the New Hebrides and all of Anuta and half of Tikopia are lost for red cell enzymes and all virus isolation work is lost. These were the most important matters of our expedition and those which most justified the use of the Alpha Helix, and the loss is total. What we got off yesterday with John Sheridan had never been in a Revco and was defective in that its storage had been only at  $-10^{\circ}\text{C}$  since collection. What we have relied upon in the Revco is what we have lost.

We have been checking the temperature of the Revco several times a day, and it has remained fixed at  $-38^{\circ}\text{C}$  as it was today. On opening the box it was fully thawed, and on rapidly emptying its contents into the walk-in freezer at  $-10^{\circ}\text{C}$  I found no sign of coldness even down to the bottom of the Revco, although the specimens were cool...i.e. cooler than the hot outside temperature. There has been some breakage of tubes on thawing (or freezing) and there is no evidence of putrefaction, which might (?) mean that the temperature has not been above  $0^{\circ}\text{C}$  for long. We are not sure when the box was last opened and found to be frozen. The last clots put into it and frozen were from Tikopia. I will check, once all has frozen down again, to see the numbers (and dates) of the last virus isolation specimens. They may have been those from Vanikoro. I have no idea how long the Revco would successfully isolate the six cubic feet of solid  $-38^{\circ}\text{C}$  ice the packed specimens represented, and thus how long it would keep them at temperature under  $4^{\circ}\text{C}$ , once the refrigeration failed. Perhaps for a few days, Thus, the thaw may have gone on for less than a week. Whatever it is, I fear the loss is total. I shall go ahead with heroics we have planned on to transport the clots out in dry ice and to Bob Kirk. I shall warn him of the catastrophe, and beg him to search for hemoglobin J Tongariki and for red cell enzymes in a small portion of the New Hebridean clots, and to thus determine just how bad or good the specimens now are; I have little reason to hope for much success.

The fiasco resulted from our not checking the box by opening it to inspect it thoroughly, and trusting the temperature gauge, which is obviously simply stuck at  $-38^{\circ}\text{C}$  where the box has always registered, even though we have turned it down to below  $-70^{\circ}\text{C}$  for our work. Thus, it may well have been down where we wanted it, and the temperature gauge may have been out all of the time! My only justification for not opening the box any longer to check was the fear that this itself might impair the Revco's functioning. It is now obvious to me that the heroics of Walter and Ray in constructing a covering box to shield the Revco from the sun at Santa Cruz, (Nov. ) during which operation they had to move it around a bit, was very inadvisable. I had real qualms and misgivings about this at the time, and objected to the moving, but I settled for the real advantage of screening it further from the direct hot sun on ship deck. At that time it was functioning well, and it could easily have failed during the operation without our knowing of it.



The magnitude of the loss so stuns me that I try not to think of it. Had we simply had the Revco fail, I would have been horrified, but the freezer would have given us a good chance of saving much by a quick transfer. I had idiotically never contemplated that we would have a total unrecognized thaw of the Revco's contents under any emergency, for I had naively assumed that for some reason it would be checked once or more every few days. This was not the case, and my magical thinking and hoping has led to this catastrophe in our work. Everyone is depressed. I have tried not to show it nor to dwell too much upon it but it dominates all my thoughts.

Tomorrow I will do all possible to determine when was the last time we know it was all frozen. Perhaps Françoise would know best, since she put into it the last virus isolation specimens. If those happened to be the few from Rennell which I pleaded with her to try to get into the Revco, we would be much better off, for that would have been on November 6th, and we could expect three or more days of maintained cold after failure, I believe. At the very best, however, we must allow for several days of warming to low non-freezing temperatures. That is enough to ruin much in red cell enzyme work! Perhaps the hemoglobin J Tongariki and other hemoglobin studies may be retrieved.

I am already planning a return and repetition of the bleeding to repair the loss. It cannot be very soon, but it must be done!

Earlier in the morning I have sent radio messages to Paul trying to arrange every possible security for the dry ice shipment of the Revco contents from Ponape. Now it is a farce, but we shall go through with it.

What we have from all this enormous bleeding effort is a little more than I have regularly achieved over the last twenty years of bleeding alone on remote islands without any Alpha Helix or professional assistance from colleagues. Namely, serum promptly frozen and chilled red cells for blood groups and types. This remains a successful collection, almost ideally collected and preserved, and I can continue to hope that red cell and serum factors will be had for the whole island groups we have studied. If the last 800 specimens are through OK to Canberra today, perhaps Tikopia through Bellona are covered for red cell enzymes adequately. However, the most important and exciting islands, Anuta and the Torres group and all the Banks are lost unless miraculously we caught the thaw just as it was "warming up", and the specimens had been well-frozen until a day ago...we have no way of knowing. The failure to have an alarm system on the Revco independent of the temperature gauge is obviously indefensible, and we have all been most stupid. The magnitude of my disappointment I cannot well assess. I can only see my dogged determination to wring from what we have all that I had expected the Alpha Helix to permit us to do and which it has not. Thus, the virus, tissue culture, white cell typing and red cell enzyme studies, on which I most justified the use of the ship, have not come off. I now have a challenge to aim at, for we must find a way of doing these correctly on these same remote populations, and I shall surely do so soon and carry it through.

I finally turned to our laboratory problems and slow virus work last night. Paul Brown's manuscript on an interferon inhibitor in normal primate brain and the kuru and C-J disease brain specimens is well done, and represents all that he can salvage from so disappointing a negative after such intensive work in Paris for a year. The paper should be submitted soon. Steven Brown's paper on Paraguayan genetics is finally in good shape, and I think we can submit it next month. Bobowick's paper on C-J epidemiology is still very bad in parts, and Jean Guiart's paper on Marriage Patterns in Merelava and Merig requires very extensive revision. I managed to check over these, today, and this is a good start. I hope that tomorrow permits me to go on with this work.

At Sea...Honiara to Ponape

November 16, 1972

John Sheridan should have delivered the frozen blood clots and the unfrozen, chilled erythrocytes to Bob Kirk in Canberra by now, and the main matter on my mind is in what condition?

The Revco contained the virus cultures of throat washings from Lugugi Bay on Rennell Island, and thus Francoise put them into the Revco on the afternoon or evening of November 8! If only we can be sure that she would have noticed a temperature change. Obviously she should have immediately noticed this, but did she really do so, if it were out? Assuming that she would have, the Revco was still frozen them, and would have held its temperature still frozen, or largely frozen, through November 12th at least. Thus, the clots have been only one or two days unfrozen. This is some reason for hope--and such reasoning is plausible, at least. Thus, I am proceeding as though the clots were still fine, and we shall see what comes of it. We have wired for dry ice from both Guam and Honolulu and hope that Paul manages to arrange for its dispatch.

Radiograms have been flooding into our ship in answer to my many pleas. The Genetics Supplement papers I-V are due to come out any day and the Brain paper on C-J disease should soon be out since galley proofs have been returned. Genetics VI, however, was rejected and these two papers on which I count so heavily, Genetics VI and VII, which both impinge so heavily on our competitive colleagues, Neale, Morton and Cavelli-Sforza, are still meeting with obstruction, as I expected that they would. We shall have to go over them again and get them out by some "captive editor" who is not so jealously involved in what Steven has been doing. It is obvious from the criticism Steven got to these manuscripts that those most involved in this field have diametrically different ideas about what is "right" and what is "wrong" with his work...and as it is it stands quite well on its own without respect to their criticism. Genetics papers VI and VII, the familial C-J disease paper, and the summary of spongiform virus encephalopathy transmissions to primates and other laboratory animals which Joe and I were preparing, and finally, the Benfante paper on kuru serology in man and experimental chimpanzees are the papers we must now get out most quickly.



Richard Ferber has thrown a matter of ominous mystery into our cruise. Last night both Don and Raymond were awakened toward dawn in the cabin they share with Richard by moaning or retching from his bunk. Raymond thought it was dry heaves from sea sickness or drinking and Don thought only that it was moaning. Richard awoke late in the morning and found himself sore about the jaws, triceps and trapezius muscles and back muscles in a very serious way and very strange way, and slowly decided that this must be from having a convulsion. Raymond surmised that he would have bitten his tongue and suddenly noticed that he had! Richard has a rather severe peripheral bite on his tongue of which he was unaware. Thus, we can only assume that he had a grand mal seizure toward dawn of which he is unaware, and which the others misinterpreted. He has no bruising elsewhere from the movements. Raymond has inquired of the entire crew to make sure that none were retching from sickness or a "hang over" in the adjacent lavatory to produce the noises he heard. None were. He did not defecate or void. Richard has never had a seizure before and has no reason for one now. His WBC is 10,600 with 80% polys this afternoon, none of them bands. All we can do is watch and wait and advise him to get an EEG and skull films at the NINDS laboratory on Guam.

Even more uncanny is Don's account of his dream, on falling asleep again after he had been awakened by Ferber's "periodic moaning". He was photographing a girl who kept falling into full convulsions each time he was ready to pull his shutter, and when she fell "blood gushed from her vagina in spurts". All this "convulsive" dreaming upon a late evening when we had all seen a rather overdone moving picture on alcoholism in which the exaggerated DT scenes were most dramatic: "Days of Wine and Roses". I keep hoping that Richard has had a nightmare of unusual intensity, provoked by the film on alcoholism and the graphic presentation of "overdone" DTs, in which he simply bit his tongue. The soreness of all his muscles and the tongue bite and the dual report of his deep groanings all suggest, however, the likelihood that he has had a grand mal seizure in his sleep!!

Radio from Washington says that Ivan is en route to Ponape to join us. I am very happy indeed, and disappointed only in that he will be with us only in Ponape and Pingalap and that I did not succeed in getting him to the New Hebrides and Solomon Islands where he should have been and where we needed him!! How I can prolong his sojourn now in the South Pacific so that it will be most valuable to him is my problem.

If only we can get the frozen clots and serum and virus isolation specimens (certainly most of the latter are "lost") off to Kirk and to NIH successfully this time through Ponape, I shall be most satisfied. We cannot ship to Kirk very easily, since I have no airline accounts we can use. We must thus ship either back to NIH and from there to Canberra, or to Rosen in Hawaii, if he can receive freight collect government shipments, and from his laboratory on to Canberra. I am thus trying to telephone NIH tonight at midnight from the Alpha Helix, to get answers to these problems.

We are trying to pack up supplies to have the ship ready for the new crew. I step down as Chief Scientist at Ponape, and Carr arrives to take charge of "his" expedition, on which Don, Ivan and I are only "hitchhikers".



I am glad to return to such a role and perhaps I can get more done. These last days sailing over very calm seas, with no islands at all in sight since Ontong Java, have been very profitable. I have almost finished my coverless copy of Henry Miller's "Big Sur and the Oranges of Heironymous Bosch", and I am finding his chapter, the last, on Conrad Moricand the best part of the book. I dropped into tears as he described Conrad Moricand's arrival in the US in recognizing the insane generosity of personal assumption of non-existent "responsibility", which I have myself so often assumed, just as he describes his assumption thereof. The writing had become sloppy and the material a bit mundane, until this last chapter, which has set me back to intense pleasure and I read with avid curiosity.

The horizon is studded with small rain showers, occasional rainbows, and at times we pass through a brief deluge, but always the sea remains calm and smooth, far smoother than we ever saw it in the Banks, Torres or Southern Solomon Islands where we needed such a calm sea desperately.

I have written to Bob Kirk at length, describing the problems we have had with the Revco and specimens. I corrected the Western Caroline red cell enzyme paper on which I have been sitting since August, and have mailed this to him along with the long letter discussing this expedition and its specimens. I still have to clear up the South American Indian and the West New Guinea red cell enzyme studies with Bob Kirk and I have promised him that I would do so. If only he will be further patient and tolerant this Winter and Spring will surely see all of these papers done.

I have finished correcting Steven Brown's Paraguay Indian paper and I am still overcome with pleasure to see his new maturity as a paper writer. It is good. Perhaps now we can also get off the seroepidemiology paper.

I have finished Miller's "Big Sur and the Oranges of Heironymous Bosch" and I find his account of his friendship and its denouement with Conrad Moricand most sobering:

"I abhor people who have to filter everything through the one language they know, whether it be astrology, religion, yoga, politics, economics or what."

"To make anything truly significant one has to poetize it."

"Knowledge weights one down; wisdom saddens one. The love of truth has nothing to do with knowledge or wisdom; it's beyond their domain."

"Live simply and wisely. Forget, forgive, renounce, abdicate."

"Reviewing their encounter that afternoon in my mind's eye, I see them as two egomaniacs hypnotized for a few brief hours by the mingling of worlds which overshadowed their personalities, their interests, their philosophies of life." (Reminding me of Gustav Regler and myself, and later of Gerhard Muensch and myself, both meetings in Cuernavaca under Reinhart's tutelage).

"Art is a healing process, as Nietzsche pointed out. But mainly for those who practice it. A man writes in order to know himself, and thus get rid of self eventually. That is the divine purpose of art." (my journalizing).

Ferber has been well today. The sea has been calm again. The Captain tells me that a typhoon with gales over 100 miles per hour is north west of the Marshalls, but not likely to disturb us in Ponape or Pingalap. I stand breathless at the thought that Mbagintao arrived today in Ponape and will be with us the day after tomorrow. How I wish that Mathias had stayed in Micronesia to join us now in Ponape for the Pingalap trip. He could have strutted so well in showing off "his islands" to Ivan, and it might have done him so much good. But for all of the boys I must take Henry Miller's words to heart. I can only go so far in playing Jehovah. And along the way my best service to them is to make them realize this early, and to learn face Jehovah themselves, alone, as every man must face life and death alone.

At sea..approaching Ponape, Micronesia

November 17, 1972

We arrive in Ponape tomorrow morning. Early this morning I spoke on radio telephone with Paul and Marion. Mbaginta'o stayed with Rosen in Honolulu and should have arrived yesterday in Ponape. The dry ice left today for Ponape from Guam in four small and three large hat boxes. Our Revco is working again, the temperature gauge is not. It is very cold, but how cold we do not know. We have transferred back into it the clots, to get them as cold as possible for shipping off tomorrow. I do not know whether we can collect the dry ice and get the boxes packed in time for the mid-day flight to Honolulu. I certainly hope so.

Most pleasing is the news that the boxes we saw leave Honiara by Air Pacific for Fiji have arrived safely at NIH and that John Sheridan did get the erythrocytes and frozen clots to Canberra in good shape, and they seem OK. I am now worried that the thaw of the Revco may have really ruined our large collection of 1800 clots, but we will not know about this until Kirk has a chance to examine them. Bob Kirk is undertaking the blood grouping of the clots, Paul has arranged a \$2500 contract for this, and Leon Rosen has an empty Revco standing by for intermediate storage of clots and sera which we send off to him at Hawaii. He can receive "collect" shipments. Thus, many problems may be solved if we have a successful day tomorrow.

I have spent the day reading Edmund Wilson's "The Bit Between My Teeth", and I find him interesting but by no means as penetrating or as convincing or as stimulating a critic as Bobby. Here I think I am objective. Bobby is always more exciting and usually less outlandish. Wilson belittles Marquis de Sade too much, fails to penetrate either his personality or his philosophy deeply, and in his commentaries on "Dr. Zhivago" leaves me cold.

Yet it is good to be poring over serious works of letters once again.

We have packed a box containing all the field note books of the expedition and many other books, films, finger prints, and the last few artifacts I have on hand for air shipment to NIH. I am only retaining the major serum list notebook from the BSIP, and without having made Xerox copies of it, it is too risky to ship it, for if it is lost, so too are the results on all the sera and clots and erythrocytes we are to send off and those we have already sent off, as well.



I am beginning to write "thumb-nail" sketches of geography, ecology, demography, ethnography and history for each of the islands we have visited, which will have to be revised, augmented and corrected through several drafts before we arrive at a usable essay on each island. It is, however, a much needed task, and I enjoy working on it.

Raymond is restless to get off, but I have persuaded him to delay his flight to Honolulu until the 22nd, so that he can take with him the last of the sera and clots. However, if we get much packed and off tomorrow he would like to leave with them. This would preclude the possibility of his bringing with him heparinized blood specimens on Micronesians for chromosome studies which Steven is doing. Steven has found real abnormalities in Mororui's centromere placement on the first chromosome pair and in banding on others. These are consistent differences from anything seen in Caucasians, he says, and also different from the banding differences which he found in Mbaginta'o's chromosomes. If this holds up we may have a fascinating study. But Mororui's is obviously a distinct type of physique and neuromuscular coordination unlike most other Outer Islanders. He and a few others are strangely coordinated and constructed. The same may be said of Ivan and the "short of stature" Anga.

I have written to Mathias, trying to encourage him but not finding myself able to write a light, breezy letter and slipping into morose tangles as I write. How much fun there is to be had in living. Can I only get this spirit of fun back into the house and keep it there? That is my main hope, and it must come from my own ability to be jovial, light hearted and gay. This I get from my work and from the enthusiasm that builds up in me as work prospers. Thus, I am hoping to find a way to work productively and with satisfaction in spite of the administrative obstacles which I know will beset my return.

How wonderful if Dick were happily off in the New Hebrides having resigned from our section and maturely gone his own way. What wild wishful thinking such a hope reflects. Instead he will be off with some amazing probably underhanded "deal" having been cooked up which assures his continued parasitism of my department and professional and private life. I am humorously resigned to this inevitability, and prepared to finally die with this Dostoevskian tangle unresolved.

Our Captain and I have had a peculiar polite and respectful and very distant relationship for these two months. Rarely have we conversed, always in a restrained, formal way, and rarely have we clashed face to face. He is a very competent navigator and a very conservative, cautious captain, whose extreme caution has served us well in some fairly dangerous situations. He also has single-mindedly pursued the goal of supplying us with all the logistic support he could with this ship and I have no complaints. I am, admittedly, a bit disappointed with my scientific crew for their many complaints and disappointments. The lavish facilities and support we have received is far beyond anything I ever had before or expect in the future in work in remote Pacific islands. To complain about food supplied to us on shore and delays in landing or being picked up is ridiculous. Captain Phinney is a lonely and strange man. I recognized this early and have tried to avoid any intense involvement which might lead to more clash than friendship. I owe him a debt of real gratitude for all he has done for us and I



am astounded that he did as much as he has done for us, and that he stuck to our program when suffering for almost two weeks with an excruciatingly painful dental abscess...from Tikopia to Honiara!

On basic issues of politics, religion, morality...Weltanschauung... he and I would differ as much as have Joe G. and Joe W., Nancy R. and Joe Smadel and I. But I have always worked better and maintained better friendships with those who have very different values and Weltanschauung from my own than with those who correspond too closely to my peculiar penchants and values.

Ponape, Caroline Islands

November 21, 1972

Tomorrow is the critical day. For four days we have been working on a messy job of rescuing frozen blood clots by taking them from broken venules and transferring them, hardly able to keep them sterile, to vials. Dozens of venules broke among the packed vacutainers when the Revco thawed. The boxes of 100 vacutainers each (we have 27 such boxes!) were a bloody mess; the tubes stuck together and froze together as the clots refroze. It has been both a messy and a dangerous job, and two have already been cut with broken blood-contaminated glass doing it. We have also had to have three shipments of dry ice flown in, about 150 pounds of it on Friday and Saturday and yesterday another 200 pounds. The first two from our Guam laboratory, exhausting there all insulated containers, and the last 200 pounds from Leon Rosen in Hawaii. Thus, we have just enough dry ice to get us by, to pack up some 288 sera in each of five large "hat boxes" with dry ice and scattering the throat and stool virus isolation specimens--which handles only 1440 sera of the 2700+ we have on hand--and to pack up six insulated containers of blood clots. The latter six go off with Raymond to Leon Rosen's laboratory for transshipment from there to Bob Kirk in Canberra and the five of us hoping that the dry ice in them lasts until they are received at NIH. Only the sera are in excellent shape. The Virus isolation specimens have been stored only at  $-10$  to  $-15^{\circ}\text{C}$  in either the walk-in freezer or the freeze compartment of our refrigerator for several weeks already and those that were in the Revco have completely thawed for one day or more and since then, 8 days ago, have been only between  $0^{\circ}\text{C}$  and  $-15^{\circ}$ , with the walk-in freezer warming up to almost thaw as we use it excessively. The clots have also been thawed in the Revco for one day or more and I am not sure that they will be good for the red cell enzymes. We still hope they will be, but all our vast efforts and expenses will be to no avail if they are not. Thus, this has been a most gruelling and frustrating endeavour, and the only part of the expedition that we all could curse. We have been very foolish in not providing proper packaging for the clots and proper containers for dry ice shipment off to our laboratories. This is the worst part of the whole trip's logistic problems.

I have a few small bites on my legs which I scratched two days ago and again yesterday morning. By mid afternoon one had started to be a rapidly advancing tropical ulcer, and within three hours I developed severe painful inguinal lymphadenopathy on that side. The femoral glands were also very

tender and so were the lymphatics below them. With this I started to have aches and pains and chills, and by early evening I had a temperature of 100<sup>o</sup>F and violent shaking chills, as violent as I have ever had from malaria. I took 1,200,000 units of Procaine penicillin im and oral penicillin as well and went to bed, only to awake at 9 p.m. freezing and in a more violent chill. Raymond gave me a second shot of 1,200,000 units of Procaine penicillin and my WBC was 16,000 with 16% bands and 75% polys. This morning I was still at 100<sup>o</sup>F, sore all over, and with 11,000 WBC at noontime, 70% polys with 10% bands. The tropical ulcer is not a 0.5 cm diameter, but it is deep and below the surface it is larger. This acute bacteremia and septicemia is a form of tropical ulcer onset I have often seen before but never myself had. For my first real tropical ulcer of the expedition it is in port, at the end of the trip, and violent to boot.

The real work of this trip has been since Honiara...i.e. the unraveling, packing up and sorting out and dispatch of specimens and supplies. All before this has been relaxing and real fun. Thus, Paul, Judy, John Sheridan and Françoise have escaped before the worst of this work was upon us. Don and Mbagintao, Richard and Raymond and I have had it all on our hands here.

It is good to have Ivan with us. He is a real help. However, the \$850 I have spent on his ticket and the \$50 additional costs thus far in hotel bills, etc, are an expensive investment for only two weeks for him here in Micronesia. Money is made to be spent, however, and there is no point in hoarding it. He has certainly already learned much. He is finding Micronesia badly undeveloped and not even as prosperous or well developed as most of New Guinea and is critical of the U.S. work here to the point of irritating us all. In some respects, however, he is very right.

The islanders give all that they have and can give: trust and self-sacrifice, friendship and love, and the liberal use of their limited resources to the "occupying" big nations. In return they expect the fruits of love and friendship: i.e. giving on the part of the big powers of all they can to develop the islands, provide medical care and education and economic development, etc. The balance is a very one-sided on an economic level, for their share is negligible. However, it is impossible to set any price on the trust, friendship and love they have returned, and if it is coupled with loyalty, it behooves the wealthier to give unstintingly. This is then the problem. We, as Australia in Papua New Guinea, and Britain in the British Solomon Islands Protectorate must give disproportionately and be prepared to continue to do so. To expect economic return in kind is ridiculous. We give to fulfill our part of the love contract. If we do not, as with all love contracts, it is in danger of falling into a hate relationship.

Captain Phinney left yesterday to move into a hotel on shore, and our new captain came aboard. This sojourn in Ponape has been unsatisfactory in that we have not had time to look about much or to spend much time with our friends at the Community College of Micronesia, for the work I have complained about above has saddled us with enormous responsibilities on the ship. We have rented a car, however, and that has made it possible to move about easily on shore. We have seen most of Kolonia, and have made only the long road trip to almost the end of the road at ,



where the new Community College of Micronesia will be built. It is a well chosen site, and the road out to it, still under construction, promises to be a fine job of road building. Ponape looks like a shanty town and gives little sign of the neatness and planning that British and French Colonial towns display, but there are many healthy signs of Ponapeans developing their own businesses and of large scale economic advance just in sight. With huge new wharf facilities under construction, large cargo ships arriving that so dwarf the Alpha Helix they look as though they could lift it onto their upper deck with their cranes, and with sewage going in and piped water already in, I suspect that within a decade the town will be transformed and show great economic advance.

The blue-ring surrounding the whole optic disc in many Anutans, which we discovered there, certainly warrants reporting. It was really blue, and although many more had a medial and lateral crescent, almost enclosing the disc, a few persons had a full ring totally encircling the disc. The bluish pigment mottling of the entire retina which often went with this is also interesting. It is a shame that we were unable to photograph it.

Ponape to Pingalap--departing Ponape

November 22, 1972

Raymond Roos left a very worried young man. The 11 insulated, aluminum foil-covered boxes containing all the remaining 200 blood clots and 1500 frozen sera and all virus isolation specimens over the packing of which we have slaved for the past week are off with him on a collect GBL shipment to Rosen in Honolulu. The tremendous imposition this means upon Leon is my major concern now, and whether he can manage to clear release of the shipment tonight at midnight in Honolulu is a further problem. But, at any rate, they are off to where there is a good possibility of preserving them.

It is recorded here that the sera are all in fine shape, never having been thawed since they were first frozen immediately after separation from the clots, usually in well under 24 hours from drawing, and clot retraction was permitted for from two hours to ten hours after venepuncture, the shorter times being rather inadequate, at room temperature.

The clots were all stored at low Revco temperatures of below  $-70^{\circ}\text{C}$ -- because of an unrecognized faulty temperature gauge we did not realize that the Revco was still colder than  $-38^{\circ}\text{C}$ . They remained at this temperature from immediately after separation of serum until the "thaw" during which they slowly warmed up as the Revco broke down unknown to us, to reach a "cool" temperature, considerably below ambient temperature but completely thawed, for a period of one or more days...we do not know whether it could have been longer, but circumstantial evidence indicates that it probably was not over 2-3 days, and it may have been under one day. They were then promptly frozen again in the  $-15^{\circ}\text{C}$  walk in freezer, and for only the period of packaging for a few hours did they raise in temperature, but most did not thaw at all. They were for only eight days or so at  $-15^{\circ}\text{C}$  and then packed in dry ice here at Ponape...and so they are going off.



The virus isolation specimens mostly suffered the same history including the "thaw", as the clots, except for one lot in the laboratory refrigerator freeze compartment at about  $-10^{\circ}\text{C}$  for the whole time until packed in dry ice.

The huge logistic problem of getting the shipment to Rosen's laboratory and the clots safely into a Revco, and the serum and virus specimens all off to NIH is still on Raymond Roos, and we are still sitting on some 1300 serum specimens on board the Alpha Helix in our  $-15^{\circ}\text{C}$  cold room.

I am comfortably no longer Chief Scientist and can thus relax further, and by this time I should be superbly happy. Ivan has worked well with us and been of enormous assistance when we needed it most. He is seeing a good part of the Pacific he had not known of before.

Raymond has been an enormous help on this trip, enormously conscientious and professionally competent, enormously willing to undertake the most menial of chores and ready to learn anything and everything he did not previously know. He has become a superb member of the expedition and will be a most valuable expeditionary coworker anytime in the future I can have him along. He neither shunned late hour work, early risings, hard manual work nor excruciatingly boring packaging and serum separating chores, and he worked wonderfully with the people. He knew very little of anything about work on such expeditions when he started, and during the trip learned rapidly. Obviously Paul Brown's expertness and efficient, able, and responsibility-assuming behavior has influenced all the others, and thus Paul contributed immensely even though he did leave us in mid-stream, before the going got really tough--Raymond's final high level of responsibility in delaying his departure to work fiendishly with us for four days to package and get off the specimens and to shepherd them to Honolulu and see to the logistics of their further handling is an immense contribution to our effort! I admire him greatly and feel heavily indebted to him for all he has done.

Dick Ferber has had a very heavy role of clinical and laboratory responsibility which he has managed expertly. I unfairly shifted all the responsibility for equipping and planning the laboratory work and field supplies of this trip onto him and Steven without giving them adequate supervision at all, and I have unfortunately whined and complained too much about the failures and shortcomings of the supplies and planning, to which I did not lend a hand. This has put Dick at a disadvantage, and thus Paul Brown, and later, Raymond Roos, tended to push more aggressively to the fore in assuming responsibilities and displaying self confidence. However, stuck often with the most boring and unrewarding chores, such as long hours of routine physical examinations of infants on Merelava and endless hematologic examinations he has stuck it out marvelously and performed excellently. In his dedication to photography and to roentgenology he has been totally indispensable. He and only he mastered our camera and X-ray developing on board, and he mastered the X-ray techniques from beginning to end. He has alone taken with the Buckeye the 500 or so X-rays films we have taken on the trip, and at times performed heroically when we loaded 40 or more onto the Alpha Helix in rough seas for X-rays when he was without sufficient assistance for all the tasks of numbering, coding, sorting of the patients and handling of the films and cassettes. On top of all this he has managed to rush and take EKGs and blood studies at times when

I sent aboard notes requesting these. He has also taught many on the trip to use the dark room.

Judy assumed an enormous responsibility of caring for almost everything everyone else neglected, and of policing everyone in their own responsibilities. She even pitched in to the serum separation, did most of the spectrophotometer hemoglobin determinations and many of the hematocrits, and the major part of record keeping and labeling--two of the most enormous chores of the entire trip. Having also assumed the role of mediator between us and the crew on many matters of friction and tact, and of attending to the personal problems of many of us, she performed heroically. At times I was amused how much she had and did fill the role of both herself and of Marion and a bit of Nancy in my department, and thus she was performing three jobs simultaneously all a bit to the sacrifice of her first interest: ethnic photography, and I usurped her role in cinematography. With her infatuation for our sailor, Ray, we had the necessary home romance of the trip, and whenever we would relax and become irresponsible she wisely held us to our goals. It was marvelous to have had her on board, and we miss her greatly since Honiara.

Françoise suddenly had to speak English--even Pidgin English. She did so nobly. Françoise suddenly had to become a clinician again, she met the challenge with amazing competence and determination. She had to display her command of neurology again, and taught us all much as a result. She competed with Ray and Paul in assuming the horrible long tasks of late night serum separation, hematological examinations, and on shore she often did more than her share of physical examinations, and laboratory specimen collecting. She was an expert in seamanship and instructed us all.

Paul joined us in the middle of psychological turmoil, leaving for Vila to join the Alpha Helix only a few days after rejoining his family whom he had left for his return to Paris alone during the summer. I did not know at all what he had decided while in Paris, and thus he joined us in Vila without any of us knowing--and not sure that he himself knew--whither he was going in his private life. It was soon clear that perhaps he was uncertain, but that he had probably decided to return to home and Bethesda for the time being, but our trips to Vila and then all the Banks and Torres Islands proved to be an overwhelming task, with very little leisure and no time for private thought. Thus, Paul, on whom I depended very heavily since he was the only one with previous field and island experience besides myself, lived up to my expectations, and worked doggedly to see that our work was successful. He held more than his own in everything from routine chores of serum separation and hemoglobin determination to stool collections and physical examinations. I was very proud of him, and also proud to see how well he took over responsibility for me whenever I was off or tied up with something else. The others all had far to go to keep pace with Paul's efficiency and also his readiness to work hard and long hours of the day and night. He set a hard pace for everyone to keep up with, and also demonstrated superb clinical and laboratory ability, as well as practical common sense in everything pertaining to logistics and



seamanship. He announced early, however, that he might try to leave at mid-trip, without giving explanations. I said nothing, but hoped this were not true. As he wanted to leave, and I conceded the point by transmitting his requests on the radio and saying nothing, disappointed though I was. We finally lost him just upon our arrival at Santa Cruz. He had done a great deal of training of the others in field ways, and they took on well when he left, and we survived excellently. However, everyone suffered a real let down to lose his expert abilities and willing hand at all the tasks. It was a big loss.

John Sheridan was the only replacement I could round up, and I shall be long grateful to him for having appeared. Joe Gibbs and Nancy Rogers turned down repeated radio overtures and pleas, and Mathias deserted me completely, even though I had paid his way to Micronesia and back via Ponape, hoping that he would be with us for a least this final part of this expedition.

John Sheridan, however, was a great addition to our party. He arrived better prepared for camping and work in the bush than were most others, and equipped superbly with camera, sleeping gear, ruck sack, etc. which no one else quite had. He pitched in immediately and completely and did a heroic job, finally crowned by an amazing couriership of the first stack of frozen clots all the way to Canberra via Port Moresby for us. We have thus had wonderful good fortune in his arrival just when Paul left us. John did a great deal of both the clinical work and also the laboratory work on the ship, and had good stamina for the long boring physical examinations and tedious specimen collections and processing. He was a fine expedition companion, and I am very glad to have got to know him better on this trip.

...midnight at sea, approaching Pingelap Atoll

November 22, 1972

We have had a relaxed, easy night of conversation, a moving picture on board ("The Last Tomahawk"), and good food and I have not even thought much of our program on Pingelap. I do not have any plans for collecting genetic information, since Newton Morton has done such an enviably thorough study of Pingelap already, and the achromatopsia studies which Dr. Carr is to continue have so fully exploited what can be wrung from that disease to date that it would be stupid to work on that direction. Thus, it is a leisurely period for snooping around and observing, and to excuse our presence I shall keep busy seeing sick persons and perhaps examining many of the children, if it proves a wise direction to take. Obviously, for genetic chromosome banding studies we can get plenty of Micronesian pure blooded people from California and Hawaii and Ponape--even Pingelapese--so it is ridiculous to try to get such specimens here on the the atoll and preserve them all the way into our laboratory.

I feel badly having seen so little of Tigweiyor and Nicholas Figir, and the other Yap Outer Islanders in Ponape. Mathias is on my mind, of course, since he has obviously not solved many of his problems and still is causing distraction at home, exactly as when I left. If I find this to be the case,



I have no longer any recourse but to be more determined and severe in my reaction, although I obviously fear pushing him to drug or psychotic reaction. In this case I must not let my fear of losing his respect or love enter into the issue, for to date it has been a concern leading only to destructive results. Firm, nonvacillating behavior is all I can choose. If all seems wise, I shall simply insist that he live at the college and finance him adequately but minimally to avoid the trouble he gets into with excess funds at his disposal. If his car is handled wisely, I shall leave it with him, still registered and insured in my name. If he gets into wilder behavior, I have no recourse but to get rid of it. I hope I can steer this course wisely and avoid confrontations and arguments with him, which are to him unfortunately the proof of my continued involvement with him.

Ivan is a bit sea sick. He ate a meal although feeling sick and had to rush from the table to vomit. Later he reappeared to eat a meal all over again. Rarely have I seen such pluck.

Pingelap Atoll, Caroline Islands

November 23, 1972

There are three islands in Pingelap; Pingelap itself where all the people live, Sukura, and Teko. On Pingelap there are four villages, each with a church of its own, arranged along one straight road which parallels the beach and the reef. These are Kakarakap, Moniap, Kakalia, and Namal. In addition, each of these villages has a second division with a name of its own.

Daniel is the Medical Assistant or "nurse" here. His wife, Eruku, is in her second month of her 7th pregnancy and she has started to vomit several times each day. Yesterday he gave her 500 ml of 5% glucose venously. I have told him that if she keeps it up we shall give her 500 ml more of 5% saline, but in the meanwhile I am giving her 25 mg Phenergan every six hours. She has a negative abdomen, which is soft and nontender even to deep palpation, her blood pressure is 116/70, her pulse about 70 and she is not dehydrated and shows no edema of ankles or sacrum. She feels ill, is nauseated often and has vomitted twice today. Her leucocyte count is 7,700. Their six children are all boys: Phillip (8th grade, 14 years old); Donald (6th grade, 12 years old); Nupuo (5th grade, 10 years old); Andrew (1st grade, 6 years old); Kenti (5 years old); and Willy, (3 years old).

Mbagintao, Don and I are staying on shore. We have had a large Thanksgiving meal on the Alpha Helix and come ashore again for the evening. The Captain has let the people have "The Last Tomahawk" for showing on the island-owned 16mm projector. However, the generator at the school was producing insufficient power and too low voltage to pull the projector at all when the take up reel was empty and when we wound it by hand it projected at the right speed but with very weak sound. None the less, by much tinkering and much hand winding of the take up both at the beginning and end of each reel, the film got shown. It was really a silent showing for most of the several hundred in the audience, but a few of them could hear the sound, and these were fortunately school boys who understand enough of the English to

follow it. There was sufficient shouting and clapping for the heroes--usually at the time of a fatal blow or stab or show to indicate that the people were interested in the film, and everyone sat through it all outside the grass before the school.

Pingelap Atoll, Caroline Islands

November 24, 1972

I quietly and uninterruptedly did physical examinations cautiously and thoroughly today by myself. Mbaginta'o took heights and weights as I finished with the students in the grade eight of the primary school, and we did the entire class of 32 before noon hour. In the afternoon I did only another seven physical examinations of the seventh graders.

Don, Ivan and I are again staying on shore tonight, having eaten supper on the Alpha Helix. The day went quickly because I was busy, but at noon-hour and after 2 p.m. I took time off to walk across the atoll to the sea side and to again walk around the immense depressed taro patch which forms the center of the island, separating the villages which are arranged linearly along the lagoon shore from the sea side of the island.

We have over 400 feet of cinema taken on Pingelap now, and that is a moderate start. There has been little time devoted to the cinema record, but if I keep at it for the three or four remaining days it should be of considerable value. In view of Newton Morton's vast genetic and human population study which includes demography and geneologies, I am not trying to do anything in these lines.

There are 206 students in the Pingelap Elementary School with grades 1 through 8, two class 6, and a total of ten teachers, including one substitute teacher. The whole school is conducted in English, and all teachers are Pingelapese. The 8th graders are all 14, with a very few 13 and 15 year olds, and the 7th graders are all 13, with a few 12 and 14 year olds. All the children apparently know their birthdays. I wonder whether it is a valid birthday, or one arrived at later, by guess, even to the year, as is so often the case in Micronesia?

There is a Boy Scout Program on the island, and almost the entire 8th grade and 7th grades are off camping some quarter of a mile from Sakarakap on the island which represents the extent one can go and "camp out" away from home on Pingelap, unless one crosses to one of the two other islands. This takes from us the group of 11 through 14 year olds who have surrounded us since our arrival, and a group of whom slept here at the Dispensary with us last night. It is already a strange island, being almost devoid of older teenagers beyond 14--i.e. all of High School age, who are off at PICS in Ponape. Those who are here have probably never made it to high school level or have dropped out for one reason or another. Now, with the "junior high school" age group out "Scouting", the island is deserted down to the really elementary school age group.



Pingelap Atoll, Caroline Islands

November 25, 1972

We have spent another lazy day on this hot atoll, but it has been profitable both from the point of view of our work and of establishing better rapport with the people and friendship with the children. In a couple of dozen medical consultations at the dispensary I went through many mundane complaints from backache to chronic osteoarthritis, but eventually a large diffuse non-nodular goiter in a woman in her late 30's appeared, with a six year history of the goiter. She is one of four goiters in Pingelapese women. They are not obviously closely related as far as I have yet obtained from their genealogies. But they are quite likely distantly related.

A rudimentary external ear in a school boy, with the canal and drum OK, one boy with cryptorchidism and one with a hernia, and a few children with small, hairy nevi of a few cm. diameter are all of the other anomalies I have found in addition to the achromatopsia, which is the genetic disease that has brought medical attention to this atoll and the reason why we are here. A few school boys have large patches of tinea and one severe tinea cruris, but there is not the generalized skin tinea we see in the BSIP and New Hebrides in anyone. The children are, in general, wonderfully healthy with clear skins, good teeth, and little lymphadenopathy.

We have now found that Dr. Carr will be finished with his work on Monday, and thus we shall sail back to Ponape Monday evening. This curtails much of what I had planned to do at the school during the week, but we shall have had enough work done and experience on Pingelap by Monday afternoon to have made this a very valuable sojourn.

There are some 600 to 700 people on the atoll. There are far more Pingelapese living on Ponape in two settlements, one called Sokes and another newer one established by the U.S. Trust Territoryship, called

Mbaginta'o has found a woman here on Pingelap whose mother was Pingelapese and whose father was a German administration police sergeant from Manus Island in what is now Territory of Papua and New Guinea. This marriage took place in the days of the German administration when Rabaul was the center of German South Pacific activity, and German ships sailed often between Manus in the Admiralties and Rabaul and Yap, Ponape, and other Micronesian islands. Thus in those days mixed Micronesian Melanesian marriages were far more likely than since then. This family has taken him under their wing, and he has been given great hospitality by them. Tonight they are holding a real party for him.

When Don, Ivan and I boarded the ship tonight at 4:15 I found a radiogram waiting for me from Paul. It astounds me with the report that all the clots carried out by Raymond Roos have been received in good shape by Kirk in Canberra, and that all the sera and virus isolation specimens are at NIH in  $-20$  and  $-70^{\circ}\text{C}$  storage, respectively, also in good shape. This speed of delivery and acknowledgement, and a success in shipment I had hardly anticipated, and it encouraged me to an enormous effort to still get off the remaining saliva, sera, and other specimens in good condition. We shall have a great deal of real work to do in Ponape, and I am not adverse to getting there a bit early.



It has been impossible to record much of the busy activity of my nights here on shore at Pingelap, or the full days of work, play and adventure. That there should be this lapse in reporting of my work and play at the end of this long expedition is rather appropriate....even wise.

Pingelap Atoll, Eastern Caroline Islands

November 26, 1972

Don, Ivan and I have again landed at 6 p.m., as the sun was setting across the lagoon, with the Alpha Helix this time far out to sea, and we had almost a mile of trip in to the reef. On the shore several dozen golden boys faced the glowing horizon and we had to come in between two large buxom women, immersed to their nipples in the sea, who stayed just a few meters off shore like walrus. Once on shore, surrounded by the small toddlers of 4 to 8 and a dozen of our standbys of 10 to 14---there are very few youths of 15-20 on the island---a view out to the sunset and the ship with the two walrus-like women in the foreground emerging from the quiet lagoon was simply hilarious. Their silhouettes made it difficult indeed to see that they were women emerging from the surface.

We had a fine meal of lamb chops and pie on the ship and then came ashore. This week we have been eating heavy meals once a day on board the ship, and going aboard only at 4 to 4:30 p.m. to return at 6:00 p.m. I usually shower, change and shave, and this makes the expensive off-shore ship nothing but a fabulous luxury which I have never before nor probably never will again have when island-based in my work as now.

This quiet sojourn on Pingelap has been very pleasing and relaxing. We have got to know the children here even better than on any of the other islands, for we have had far less work to do and far more leisure to spend with them. They are the same radiant, tolerant, and immensely tactful and discrete children I have learned to know so well in the Western Caroline Islands. The languages of Pingelap, similar to that of Ponape, nevertheless has many cognates with the Ulithi-Woleai dialect of the Ulithi-Woleai-Satawal language. I recognize a great many words, and others, once I know them, are clearly cognates. The languages are clearly of one family.

I have now taken a total of 700 feet of cinema about the island. It has been a rather desultory activity with very little happening. People are lounging about and I have seen very little craft, work or community activity at all during these days. Mostly just sitting about, wandering to and from church, and hanging about with members of our party.

My plan for tomorrow is to examine the rest of class 7 and to try to get blood specimens from the three goiter patients of the four Pingelapese with goiter (one is on Ponape). Don has finger and palm prints and identity photos to make for the whole of Classes 8 and 7. I had hoped to so study the whole school, but the weekend has made that impossible.



**Pre-Expedition Correspondence**

**January 6, 1971 to August 31, 1972**





December 17, 1970

Dr. D. Carleton Gajdusek  
Collaborative & Field Research  
National Institute of Neurological  
Disease and Stroke  
National Institute of Health  
Bethesda, Maryland 20014

Dear Dr. Gajdusek:

Now that the Scripps Institution of Oceanography Research Vessel ALPHA HELIX has had five years of operation, the National Science Foundation has requested a review of its accomplishments. The National Advisory Board for the ALPHA HELIX is gathering data for such an evaluation. The Board wishes to consult you, as one of a select list of wise men, from the most Olympian viewpoint.

This vessel was built with a grant to P.F. Scholander as a floating laboratory for modern experimental physiology and biochemistry, expressly for the advantage of conducting research on favorable species at remote locations. The vessel operated for four years full time on this mission, generally by accomodating groups of about ten scientists for 8-12 week "programs" which comprised several projects within a compatible problem area. At the request of the N.S.F., ALPHA HELIX is being used at the present about one-half time for such long programs at more distant places, and one-half time for shorter programs (several days to a few weeks), within about 1,500 miles of San Diego, for general biological oceanography. The enclosed report summarizes the operations to date.

The R/V ALPHA HELIX is a superlative small laboratory ship beautifully designed for its purpose. What the National Science Foundation needs is a broadly based assessment of its value and a re-examination of its mission in the service of science.

The Board would greatly appreciate your judgment and advice. If you could struggle with the enclosed questionnaire and add any comments, to reach me by January 7, it would be most helpful in determining, in the national interest, the best use of this specialized facility.

Yours sincerely,

Theodore H. Bullock  
Chairman, National Advisory Board for  
R/V ALPHA HELIX

January 6, 1971

Dr. Theodore H. Bullock, Chairman  
National Advisory Board for R/V Alpha Helix  
University of California  
San Diego, California

Dear Dr. Bullock:

With the W.H.O.-P.A.H.O. meetings on vaccine prevention on disease, and the heavy holiday schedule, I have been hopelessly behind in my work and am far too late to attend to the matter of my comments on the use of the Alpha Helix and my proposals for an expedition based on its use in 1972. As I understand your needs from your letter of December 17th and from several telephone conversations, you could use a general statement from me about my ideas of how the vessel might best be used, and a second more specific proposal for its use for a period of two to four months in 1972.

I am attaching both herewith and hope there will be some way of getting this to you on time. I hope that my extreme delay and procrastination has not jeopardized completely the possibility of our being considered for the use of the ship in '72, since I think I could plan a wholly justified expedition in which the vessel would be an indispensable component, unlike the situation in which the ship has been used on some of its recent trips, about which I know little.

I am very grateful to you for bringing the matter to my attention and have already profited greatly from my discussions with you about it, and I hope it will prove possible to work with you and the Alpha Helix next year. I wish you good luck with your conferences with the National Science Foundation.

Sincerely,

D. Carleton Gajdusek, M.D.



Comment on the Use of the Alpha Helix for Land Based Research in Human  
Biology, Medical and Other Biological Sciences

Although I have never taken part in any of the expeditions of the R/V Alpha Helix, I have had to use naval, civil government and commercial ships in many remote parts of the Pacific for our work on remote islands and atolls, and on remote shores of New Guinea. With fifteen years of experience working yearly with remote island populations in New Guinea, I would consider the ship superfluous and unnecessary for most work in New Guinea. Certainly, on the Australian administrated part of the island and, to a large extent, even on the Indonesian side, small commercial and government airstrips are so thoroughly spread throughout the country that they offer access to almost every human population group and every ecological region within brief walking, canoe or launch distance from an airstrip. On both sides of the island, Catholic and Protestant missions and small mission airlines have provided almost daily service from such small strips, such that a research team can get liquid nitrogen, microbial culture specimens, frozen tissue, fresh blood, urine, and even living cells in tissue culture shipments out from the hinterland to a larger airstrip where competent intermediaries can arrange for connecting air shipment within a day or two to an international airline connection. Because of this, we have succeeded throughout the past fifteen years, both in the Territory of Papua and New Guinea and in West Irian (formerly Netherlands New Guinea) in getting ice-cooled or frozen tissue, serum specimens and other labile biological specimens to major base laboratories either in New Guinea's urban centers or on the Australian, American or European continent. Furthermore, in almost every anchorage base where a ship can be stationed safely offshore there are good living accommodations and usually electric current. At every urban center in the Territory of Papua and New Guinea there are hospitals with moderately well equipped laboratories. By air dispatching necessary specialized equipment almost any modern laboratory technique can be performed, often in air-conditioned comfort. Portable electric generators can be purchased in the shops in every center for use in villages and in the field.

This long discussion of conditions in New Guinea has been given in order to make it understandable to the reader not familiar with this reputedly wild and remote area why I would disparage the use of the vessel for most land-based research in New Guinea. It is truly extravagant, superfluous and unnecessary under such circumstances for all but true off-shore investigation while at sea. A similar criticism could be leveled at the use of the ship in many other areas where it is similarly unnecessary. I can think, however, of a few remote regions of the New Guinea coast where it might be of real service in work with human populations. Yet, even there I would simply use the vessel to shuttle supplies to the nearest airstrip and land based laboratory, an extravagant expense for such an unsophisticated service.

I would recommend, however, that the ship be used instead to provide access, living accommodations and laboratory facilities and frozen storage for specimens collected in remote regions where the on-shore facilities are not superior to those on the ship and where the possibility of more convenient and

rapid access by plane and reliable air dispatch of labile specimens is nonexistent. In such localities the ship could permit research on human biology and medical and other biological studies in areas where this kind of work had not been previously possible and where it could not be done in the foreseeable future without the facilities of such a ship. Specific examples of such areas where human ecology and human biology, and medical and genetic studies of the isolated population has not yet been possible are:

The remote, little visited islands of Eastern Indonesia, excluding West New Guinea (West Irian); such as the Kai, Aru and Tanimbar Islands; Seram; Misođl; Babar; Obi; Pisa, and islands of the Radja Ampat group.

The isolated southern islands of the British Solomon Islands Protectorate (Tikopia, Rennell and Bellona); and the northern islands of New Hebrides (Torres and Banks Islands groups).

The more remote islands of the Indian Ocean.

D. Carleton Gajdusek, M.D.

January 6, 1971

D. Carleton GAJDUSEK, M.D.

DateNameNational Institutes of Health  
Institution

Questionnaire Contributing to Assessment  
and Recommendations on R/V Alpha Helix

## I. Past accomplishments

A. How do you assess the value of the Alpha Helix as an instrument for aiding modern biology?

1. Extremely high      2.      3.      4.      5. Very low

(please encircle one and add comments below)

B. How effective has the Alpha Helix operation been in relation to its mission?

1. Excellent      2.      3.      4.      5. Poor

C. How would you evaluate the quality of the scientists and the scientific research that has been done on the Alpha Helix programs?

1. Excellent      2.      3.      4.      5. Poor

D. How would you appraise the justification of the vessel for the operations it has supported, all things considered?

1. Well justified      2.      3.      4.      5. Not justified

## II. Future mission

A. What do you recommend should be the mission of the vessel?

Providing access and facilities for land-based research only in regions where regular commercial seas air transport are not available, and its use in ecological studies involving man in such isolated locations. Intensive human biology, genetic and medical studies aimed at a few selected isolated populations, such as those we have been conducting in New Guinea and elsewhere in the Pacific, could be greatly facilitated by the vessel.

B. How would you evaluate the national need for that function?

1. High      2.      3.      4.      5. Low

C. What alternative uses of the ship do you believe to be not feasible or desirable?

Provision of residence transport and housing and laboratory facilities for research which can better be done using existing land-based facilities and where air and sea transport is commercially available and reliable, as in most of New Guinea.

D. Have you any suggestions for improving the ship's capability for the mission you recommended, or for programs or organizers?

Including some medical and human biological investigators on all expeditions which reach remote, inaccessible human settlements.



January 15, 1971

Dr. Theodore H. Bullock  
 R/V ALPHA HELIX PROGRAM  
 Scripps Institution of Oceanography  
 Post Office Box 109  
 La Jolla, California 92307

Dear Dr. Bullock:

There are two specific projects which we would be able to execute with the aid of the ALPHA HELIX in 1972 and which without the aid of the ship we could not manage. In both cases they include equipping the ship for handling tissue cultures from small skin biopsies and skin lesions in explant culture, in a tissue culture laboratory I believe we could establish on the ship. Leucocyte culture, as well, would be performed and if the laboratory facility permitted we would also be prepared to carry equipment for electromyography and electroencephalography and other physiological studies.

Preliminary laboratory processing of specimens which could not otherwise be collected would also be carried out. The studies envisaged are a continuation of our long-term human biology studies on isolated populations, with specific interest in certain disease syndromes on which we have been working. The following personnel for staffing the laboratory would be chosen from my own laboratory and those of my colleagues, depending on the current status of our work at the time and the availability then of these people:

C.J. Gibbs, Jr., Ph.D., NIH, Bethesda, Md.: virologist and  
 microbiologist  
 Miss Nancy Rogers, NIH: virologist and tissue culture expert  
 Mint Basnight, " " " " " "  
 Paul Brown, M.D., " internist  
 Michael Alpers, M.D., University of Western Australia, Perth:  
 epidemiologist and human biologist  
 Malcolm Simons, M.D., University of Singapore, Department of  
 Bacteriology: immunologist  
 Raymond Roos, M.D., NIH: neurologist  
 Larry Frye, Ph.D., NIH, molecular microbiologist and immunologist  
 Richard Ferber, M.D., Boston Children's Medical Center: pediatrician  
 and psychologist  
 David Asher, M.D., NIH: pediatrician and virologist  
 John Hooks, Ph.D., NIH: microbiologist  
 Judith Meyer, NIH: cinematologist-ethnographer  
 Richard Sorenson, NIH: anthropologist, behavioral scientist  
 Michael Nicholson, NIH: radio telemetry expert, physiological  
 telemetry  
 Ralph Garruto, Ph.D., NIH: physical anthropologist, physiologist  
 Barry Adels, M.D., Harvard Medical School: pediatrician,  
 microbiologist  
 David Lang, M.D., Duke University School of Medicine:  
 virologist-immunologist, pediatrician

The two areas in which we would like to work in 1972 are:

1) The southern Solomon Islands where we have initiated extensive work in the Rennell and Bellona Islands in the past, and have had long-term interest in Tikopia and Cherry Island (Anuta). If the vessel were being used by Dr. Damon's group in Malaita and the northern Solomons, we could use it thereafter for a period of six to eight weeks divided about equally among these four islands. We also have quite similar studies underway on the Banks and Torres Islands of the northern New Hebrides, and if the vessel could be used in both islands, it would need a full eight weeks or more of planning to work in the Torres group (at Ureparapara in the Banks Islands).

The work would entail keeping the vessel offshore for the processing of specimens collected from sick and healthy individuals, perhaps bringing some of them to the ship for physiological studies, for the equipment could not be off-loaded. Some of the islands have very poor anchorage and this can often cause problems. It is important that a proper season for the work be picked. Specifically, we would try to cultivate viruses from skin diseases in tissue culture, and to cultivate a whole range of microorganisms from ulcers. We also have several other disease syndromes on which we have been working and where the offshore laboratory would facilitate investigations greatly.

2) The second area we would like to work in is the remote islands of West Indonesia, particularly the Kai Islands, the Aru Islands and Tanimbar Islands; also the islands off Waigeo: Seram, Misoöl, Babar, Buru, Obi, Pisa and the islands in the Radja Ampat group. In these areas we need to do the same type of work, with the addition of a good deal of human genetics and growth studies, which have also been initiated in the more accessible areas of West Indonesia.

Here, in Indonesian waters, the matter of frozen preservation of specimens with preliminary processing (even serum, spinal fluids, urines, and tissue biopsies) which might in other regions be made simply a "collecting task", would justifiably require the use of the ALPHA HELIX and its laboratory, since here, unlike in the Solomon Islands and New Guinea, reliable air dispatch back to base laboratories is NOT available and without the use of a vessel such as this such studies cannot be done. However, we would surely still keep both microbiological culture and isolation work and tissue culture work on human cells (biopsies, leucocytes, buccal smear specimens) active in the laboratory.

Here, also, we have many close collaborators from Indonesia itself, such as the virologist, Dr. Biroum Noerjasin, Microbiology Professor, Surabaya Medical School, and Dr. Ben Kawengian, epidemiologist from Djakarta, and Dr. Sulianti Saroso, Chief, Communicable Disease Center, Djakarta (also Minister of Health of Indonesia), who are all close friends and coworkers.

Sincerely,

D. Carleton Gajdusek, M.D.

My present title:

Chief, Chronic Disease Studies Section  
National Institute of Neurological Diseases  
National Institutes of Health  
Bethesda, Maryland 20014

Director of: Laboratories of Slow, Latent and Temperate Virus  
Infections

Director of: Study of Child Growth and Development and Disease  
Patterns in Primitive Cultures

Containing: Research Film Archive on Child Growth and  
Development and Disease Patterns in Primitive  
Cultures

Addendum:

We have numerous foreign collaborators, but they are not listed, for their selection would be governed somewhat by political considerations as to where we were working. Thus, in New Hebridean waters we would have the help of several French and British coworkers, whereas in BSIP, rather British and Australian than French. In Indonesia this is also an important consideration, and the use of some national collaborators is important.

D. Carleton Gajdusek



February 22, 1971

Dr. D. Carleton Gajdusek, Chief  
Chronic Disease Studies Section  
National Institute of Neurological Diseases  
National Institutes of Health  
Bethesda, Maryland 20014

Dear Dr. Gajdusek:

On behalf of the National Advisory Board of the R/V ALPHA HELIX and the Scripps Institution of Oceanography it is my pleasure to inform you that your research program on studies of viral diseases in the Southern Solomon Islands has been approved. A schedule is being developed for the ALPHA HELIX with aims of providing the selected programs with the requested amount of ship time in the desired season and locale.

You should realize that this invitation to carry out the research outlined in your proposal is dependent entirely upon continuing support of the ALPHA HELIX operations by the National Science Foundation.

Prior to your program the ship's laboratories will be set in order and outfitted with the necessary glassware, chemicals and general laboratory equipment and expendable supplies. The ALPHA HELIX office at Scripps Institution of Oceanography will lend administrative and logistical assistance to you during the preparatory, executionary and follow-up phases of your work.

We at the Scripps Institution of Oceanography wish you every success in your upcoming research program.

With best regards,

William A. Nierenberg, Director

Falalop Island, Ulithi Atoll  
Western Caroline Islands  
March 18, 1971

William A. Nierenberg, Director  
Scripps Institution of Oceanography  
(San Diego) La Jolla, California 92037

Dear Dr. Nierenberg:

I am happy to receive your letter of February 22, 1971 announcing that our research program for the use of the R/V ALPHA HELIX has been approved. The Southern Solomon Island program which I outlined embraced the Banks and Torres Islands of the Northern New Hebrides, as well, which are the immediately adjacent islands. Ureparapara, Loh (Torres), and then Rennell, Bellona and Anuta (Cherry) Island and Tikopia are the major islands of our interest in these areas, and we would be happy to get to a few of them, with those of the Southern Solomons on highest priority. Since I am leaving the Western Caroline Islands in a few days for work in New Guinea (West Irian and TPNG) and then I shall be visiting Honiara and the New Hebrides, I can make more final plans with our colleagues in the Health Services of BSIP and the New Hebrides while I am there in May, if I know more specifically by then approximately what dates the ship could be at our disposal.

Since I submitted a proposal for early use in 1971 to fill a gap in your programming, and a more involved longer plan for 1972 in the remote islands of Indonesia, I am a bit more uncertain as to what year your approval is for, and the dates are crucial to my planning.

I must also know whether the ALPHA HELIX funding will cover costs of travel to meet the ship, since the major problem I have for my staff is the problem of foreign travel expenses, which have severe limits at NIH, and these I myself exceed in the course of any year. Thus, to bring the technical staff along will require some support for their travel expenses, etc. We can send out supplies by air mail and air freight to any appropriate port, but need 1 month or more to insure their arrival there. I must also know what ports of call would be best for arrival of the scientists.

During these critical months of planning, Mrs. Marion Poms, my secretary, Mrs. Judith Meyer, my sociologist and cinema archive assistant, and Dr. Joseph Gibbs and Dr. Paul Brown, two medical virologists in my department are at the NIH laboratories able to make plans and arrangements for the trip in my absence, and they will be in close touch with me. Any correspondence addressed to me had best be sent through my NIH, Bethesda, Maryland address for there it is xeroxed and sent to various addresses in the South Pacific where I can next receive mail. Urgent matters reach me by radio regularly.

Again I thank you for your offer and proposal, and I look forward to the possibility of finally finishing work and getting new work started in these remote islands where we have had a problem with off-island work for years, because of their remoteness and landing problems.

Again, please let me know via my office provisional dates for the Solomon Island-New Hebrides work. Specifically, can you manage to get us also to the northern New Hebrides islands as well or not? Also, is this approval for the "pinch-hitting" 1971 proposal I was asked to provide---for which I listed these Western Caroline Islands and/or the Southern Solomons-New Hebrides Islands? -----Or does it apply to the 1972 proposal for which the eastern remote islands of Indonesia was our first choice?

Here in the Western Caroline Islands I am again, as usual, restricted to work on the island where we have an airstrip, for the remoter islands of Fais and Satawal and Ifaluk where we also work we can only visit for one day or two days with the field trips (once every 2 months) or remain there for 2 months, in both cases without facilities of laboratory on hand for much of the virus work we would do. If you can ever let us have the use of the ship for a few weeks it will be of vast assistance in getting things done which in a decade we have been unable to accomplish and which again, this time here, I will not get done.

Finally, and as a preliminary request, I can already list as most urgent of all the provision of ample refrigeration and freezing capacity in the ship or laboratory. Thus we really do need a  $-70^{\circ}\text{C}$  REVCO-type freezer, or a well-supplied liquid nitrogen or dry ice source. Liquid nitrogen tank plus small carriers and reservoirs (which my laboratory can provide) would be important to have, but ample  $4^{\circ}\text{C}$  (or approx. that) refrigerator space for many things including blood, urine, cell specimens is essential as is FREEZER space. Temperatures of  $-20^{\circ}\text{C}$  can serve, but  $-70^{\circ}\text{C}$  (dry ice or REVCO-type box) is ideal for virus work. Liquid nitrogen can cover this phase if the low temp. electric box is not available, but the luxury of having both is great.

Also, Anuta and other islands often lack suitable anchorage, and the problem of getting from ship to shore may be great. Adequate shuttle for both staff and equipment and islanders is important. When possible, we can do most medical work on shore, but specimen processing will be on ship, and some test might be only done on ship. If x-ray and other equipment of this sort is finally decided upon, this will demand bringing subjects to the ship.

I look forward to hearing from you soon, and if other mail is already en route to me, I am sure my office will have it to me on Guam when I return there next week en route to New Guinea.

Sincerely,

D. Carleton Gajdusek, M.D.



May 4, 1971

Dr. D. Carleton Gajdusek, Chief  
Chronic Disease Studies Section  
National Institute of Neurological Diseases  
National Institutes of Health  
Bethesda, Maryland 20014

Dear Dr. Gajdusek:

Your letter to Dr. Nierenberg has been directed to me for reply. In January the National Advisory Board of the R/V Alpha Helix heartily endorsed your proposed viral research on natives from the Southern Solomon and Northern New Hebrides Islands, assigning it a time period in the fall of 1972. Now a projected schedule for Alpha Helix ship operations has been drawn up with the dates 9 September through 9 November 1972 set aside for your research program.

As stated in Dr. Nierenberg's letter, the invitation to conduct these studies is dependent entirely upon continuing support of the Alpha Helix operations by the National Science Foundation.

The Alpha Helix completed in February a highly successful two-month research program in Antarctica and is presently beginning a two-month effort at Eniwetock on coral reef metabolism. We feel that the administration of the scientific program is working efficiently and regard optimistically the continuing vital role of the R/V Alpha Helix in the support of experimental biological research for the United States.

This office will work closely with you and others of your department at the NIH Laboratories in planning for a most productive research effort in 1972. The enclosed booklet, "Alpha Helix Research Program, 1969-1970," outlines areas of support and responsibility. A necessary first step is that you submit to me a budget including requests for scientific equipment, supplies and estimated transportation charges for personnel and the supporting gear.

The Alpha Helix has a walk-in freezer laboratory of 48 square feet which is held at  $-20^{\circ}\text{C}$ , a 24 cubic foot refrigerator-freezer in the main laboratory and a 21 cubic foot freezer chest held at  $-18^{\circ}\text{C}$ . If none of the foregoing satisfy your requirements for the viral work, specify a suitable unit in the budget request.

It is planned that the floating laboratories of the Alpha Helix will support three separate human medical programs in the Western Pacific during 1972, under chief scientists Damon, Gajdusek, and Carr. Dr. Damon's work at Auki, Ulawa, and Ontong Java is scheduled for the period 11 July through 8 September with the scientific staff embarking and disembarking at Honiara. This port seems a good choice for logistics of your program also.

Dr. Carr's program follows in the vicinity of Pingelap Island in the Caroline Islands.

We look forward to assisting you in preparations for the viral studies in 1972. Best wishes to you in your current studies.

Walter Garey

October 21, 1971

Mr. Walter Garey  
University of California  
Scripps Institute of Oceanography  
P.O. Box 109  
La Jolla, California 92307

Dear Mr. Garey:

I apologize for my tardiness in supplying you with a list of expenses in connection with our use of the Alpha Helix in September 1972. Although we have not been able to work out a detailed budget at the present time, preliminary figures can be given. The round trip fare: Washington, D.C. to Honiara via Nandi is \$1,482.20, and I have calculated the fares on the basis of eleven berths for our scientists. It is likely that two or three of the persons may be arriving from England or Australia, which would certainly cost less, rather than more.

A low temperature Revco freezer is essential and I have included one thereof. An x-ray unit for chest films and growth assessment skeletal films is another requirement. If a portable unit that can be landed on the islands can be found, we are interested in in such a unit as well, and I am investigating Army units that are reputedly operated by radioactive source, rather than by electricity, but we have no specific information about these as yet.

I will be writing to you soon again with further details, but hope this preliminary account is of some help.

Sincerely,

D. Carleton Gajdusek, M.D.

January 7, 1972

AIRMAIL

D. Carleton Gajdusek, M.D.  
NINDS, National Institute of Health  
Bethesda, Maryland 20014

Dear Doctor Gajdusek:

I recently talked to Doctor Walter Garey on the phone at the Scripps Institution of Oceanography. I was fortunate enough to work with Scripps on the Alpha/Helix last summer in their project out at the Marshall Islands. I spent three of the last four years in the tropics working as a neurologist in Samoa, the Marshall Islands and have visited Fiji and a number of the other tropical islands.

I understand you are going to do a survey of the slow virus diseases of the nervous system in the New Hebrides and Solomon Islands sometime in the later part of this year. I did a survey of neurological diseases in Western Samoa in 1970. I would be extremely interested in participating in your project to the South Pacific this fall. I would not expect any type of remuneration. I am particularly interested in the slow viruses since I have two children that I saw in consultation with a pediatrician in Ceylon when I was on the Project HOPE in 1968 and I am preparing to submit their cases to the editor of one of the neurological journals in the next few weeks.

My schedule is loose enough that I could be available anywhere from six weeks to two months time. I am enclosing a copy of my curriculum vitae for your perusal.

Very sincerely yours,

William W. Anderson, M.D



February 18, 1972

AIRMAIL

D. Carleton Gajdusek, M.D  
NINDS, National Institute of Health  
Bethesda, Maryland 20014

Dear Doctor Gajdusek:

On January 7, 1972 I wrote you about the trip on the Alpha/Helix that you will be taking in the latter part of this year. I asked you if you had room for another neurological hand to help in your investigations.

As I mentioned in my previous letter, I was a physician on the Alpha/Helix last year during their expedition to the Marshall Islands and have previously worked as a neurological consultant in Western Samoa and have visited Fiji, New Caledonia and medical schools in Australia.

I would appreciate hearing from you regarding any possibility of your needing another investigator. I am board certified in both adult and pediatric neurology.

Very sincerely yours,

William W. Anderson, M.D.

March 1, 1972

Dr. D. Carleton Gajdusek, Chief  
Chronic Disease Studies Section  
National Institute of Neurological Diseases  
National Institutes of Health  
Bethesda, Maryland 20014

Dear Dr. Gajdusek:

It was a distinctive pleasure for me to meet with you and your associates for the discussion of the upcoming Alpha Helix supported research in the Solomons and New Hebrides Islands. Provided the subjects can be easily brought on and off the ship, the Alpha Helix should constitute a highly effective clinical laboratory.

Dr. Damon, whose program precedes yours, will leave his Bucky Miniature Model E portable x-ray unit aboard for your work. This unit operates at about 24V. They shoot 8" x 10", 10" x 12" and 14" x 17" plates, but other sizes can be used.

Your requested needs for as much as 12 ft<sup>3</sup> of the walk-in freezer space and 1 ft<sup>3</sup> of refrigerator space for pharmaceuticals prior to your program can be accommodated.

Your letter of 15 February listing 10 of your participating scientists has been happily received. We plan to send within 10 days the computer sheets for equipment and supply requests to the seven participants from NIH. Judith Meyer informs me that the requests from the scientists listed from other institutions will be coordinated by she and Dr. Wiesenfeld.

It is planned that the supporting gear and personnel from your program will be off-loaded at Ponape prior to start of the Carr work at Pingelap. By now Dr. Carr has contacted you, and I understand there is a good possibility of some members of your group collaborating with his study. As many as 8 scientific accommodations are potentially available. It is not likely, however, that the Alpha Helix can leave any of your people at Puluwat, Pulusuk or Satawal.

Our institution must soon initiate through the State Department a request for permission to operate the Alpha Helix in the vicinity of the Solomon and New Hebrides Islands. This request must necessarily mention the nature of the proposed research work and present a document permitting its conduct. Having been apprised by you of the difficulties encountered when dealing with the British-French Condominium, we will await your prompt reply regarding the suggested procedure.

The Alpha Helix sailed yesterday for the Bering Sea. We look forward enthusiastically to the research programs of the coming months, feeling confident that the proposed bio-medical studies will be most effectively supported by the facilities of this unique laboratory ship.

Best wishes,

Walter Garey

March 17, 1972

Dear Participant:

In the interests of efficiency and economy you are encouraged to designate virtually all of your equipment and supply requests on the attached computer sheets. Thoroughly plan your research work and anticipate well your needs.

You may request items from the Alpha Helix inventory for use during the upcoming Solomon B Expedition by indicating in the appropriate spaces on the accompanying lists the quantity desired and whether your work will demand exclusive use of an item or will permit a shared usage. Expendable items listed in the inventory, but not currently in stock, may be requested and any special supplies not listed may be requested also at the end of the inventory in the designated space. Retain the copy of the list and airmail the original by March 31, 1972 to Mr. Walter Schneider at the address below. A composite listing of the equipment and supply items which will be provided to you, as well as those which will be supplied to the other scientific participants will be forwarded to you.

Normally the shipping of personal supplies or equipment is discouraged and any gear transported on your flight to or from the research site should be within the limits of the regular baggage allowance. Discuss with Dr. Garey your desire to send any support items to the Scripps Institution of Oceanography for their incorporation with the expedition's containerized van shipment to the R/V Alpha Helix. Anything sent is to be addressed to Dr. Walter Garey at the Scripps Institution of Oceanography. It must be packed and labeled according to ICC regulations and arrive by May 22, 1972.

Send a letter one week before such a shipment giving the dimensions and weight of each box along with a detailed list giving the quantity, description, and valuation of each supply or equipment item. In addition, a serial number and the name of the manufacturer of each foreign equipment item will be needed for U.S. Customs clearance.

Failure to meet the deadlines of March 31, 1972 for the return of the request sheets and May 22, 1972 for any shipment will necessitate that you provide your own scientific support times and arrange for getting them to the Alpha Helix.

Effective planning and preparations now will assure your getting off to a good start.

We wish you a highly productive research experience on the R/V Alpha Helix.

Sincerely,

Mr. Walter Schneider  
Marine Technician  
R/V Alpha Helix



March 30, 1972

Dr. D. Carleton Gajdusek, Chief  
Chronic Disease Studies Section  
NINDS, NIH  
Bethesda, Maryland

Dear Dr. Gajdusek:

Thank you for your letter of 18 March 1972 giving an expanded version of the expedition itinerary, completing the scientific roster, advising on the ship operations clearance and outlining your post-expedition transport wishes.

Your NIH associates are now filling in their equipment and supply requests on the computer sheets and within two weeks we will begin the assemblage of the scientific support items for your upcoming research program--Solomon B. Each member of your scientific party will ultimately receive a summary listing of all the support gear we will provide aboard ship. This listing will describe each item and indicate the quantity to be supplied. It will identify as well the person(s) requesting it and the planned usage of instrumentation.

Our institution will proceed immediately to obtain clearances from the BSIP and New Hebrides governments for the operation of the Alpha Helix in their waters. We will pass on to the U.S. State Department your plans to meet with their Public Health Department directors, and that Professor Jean Guiart will participate in this research effort.

Following your program the Alpha Helix will proceed directly to Ponape where scientific gear will be offloaded and people disembarked. As you know, Ronald Carr welcomes the collaboration of any of your scientific staff in the five-day program at Pingelap. The Alpha Helix will return from Pingelap to Ponape where its laboratories will be set up for sea snake studies to be carried out at Rennell Island.

The ship will have a full scientific complement as it leaves Ponape, but we would like, if possible, to accommodate the transport of your people to Nukuroro and Kapingamarangi on the way to Rennell. Inform me about who of your scientists would wish to be transported to these islands.

I trust all is going well with your preparations and your work in New Guinea.

Best wishes.

Sincerely,

Walter Garey.

Date: April 7, 1972

To: Acting Associate Director, C&FR, NINDS

From: Assistant Administrative Officer, C&FR, NINDS

Re: Proposed expedition of Dr. D.C. Gajdusek on the Scripps Institute of Oceanography research vessel Alpha Helix

Before Dr. Gajdusek's recent departure for New Guinea I believe he briefly discussed with you an opportunity for him and some members of his staff to spend a period of approximately two months working on studies of viral diseases in the Southern Solomon Islands from the research vessel Alpha Helix. In Dr. Gajdusek's absence I feel you may want some background information on this trip.

After some preliminary discussions with Theodore H. Bullock, Chairman, National Advisory Board for R/V Alpha Helix, William A. Nierenberg, Director, Scripps Institution of Oceanography, and Mr. Walter Garey, Co-Principal Investigator, R/V Alpha Helix Program, Mr. Nierenberg on February 22, 1971 advised Dr. Gajdusek that his proposed research program on studies of viral diseases in the Southern Solomon Islands had been approved and that a schedule was being developed for the Alpha Helix with the aim of providing the requested amount of ship time in the desired season and locale as requested. This approval was based upon continuing support of the Alpha Helix operations by the National Science Foundation. In a letter from Mr. Garey of May 4, 1971 Dr. Gajdusek was advised that the National Advisory Board of the R/V Alpha Helix heartily endorsed his proposal for virus research on natives in the Southern Solomon and Northern New Hebrides Islands and assigned a time period in the Fall of 1972; 9 September through 8 November 1972. This letter also requested the submission of a budget, including requests for scientific equipment, supplies, and estimated transportation charges for personnel and their supporting gear. On October 21, 1971 Dr. Gajdusek submitted to Scripps the requested budget which totaled \$42,304. On February 15, 1972 Dr. Gajdusek submitted the names of ten investigators as candidates for the expedition. This listing has now been revised and will be detailed later in this memorandum. The itinerary which has been agreed upon between Dr. Gajdusek and Mr. Garey is as follows: All personnel for the expedition will be flown from Bethesda, Maryland to Honiara on approximately 8 September 1972 where they will board the Alpha Helix. The vessel will then proceed as follows:

Bellona  
Rennell  
Vanikoro  
Tikopia  
Cherry (Anuta)  
Ureparapara  
Loh  
Tegua  
Hiu  
Torres Group  
Vanualava  
Motalava  
Merig

Merelava  
Ponape

The group will disembark Ponape on approximately November 1972. There is a possibility that Dr. Gajdusek and a selected few of the previous group would proceed with the Alpha Helix for a collaborative project with Dr. Carr in the vicinity of Pingelap Island and the Caroline Islands. This additional trip is uncertain at this time.

For the present, Dr. Gajdusek has requested, in addition to himself, the following employees to join him on this trip: Dr. C.J. Gibbs, Miss Nancy Rogers, Mr. Mint Basnight, Dr. Steven Wiesenfeld, Dr. Richard Ferber, Mrs. Judith Meyer, Dr. Michael Alpers, Dr. Paul Brown, Dr. David Asher, Dr. Jean Guiart of the Ecole Pratique des Hautes Etudes, who has collaborated with Dr. Gajdusek on Pacific studies for several years. In addition to these employees several other foreign collaborators will be joining the expedition at various points. In his last letter to Dr. Gajdusek of March 1, 1972 Mr. Garey states that the Scripps Institution will soon initiate through the State Department a request for permission to operate the Alpha Helix in the vicinity of the Solomon and the New Hebrides Islands.

In addition to the budget proposed through the Scripps Institution, certain items must be furnished for this expedition from Dr. Gajdusek's own budget. The following items and approximate costs are proposed: 1) Medical Books - \$770. 2) Film - \$2,637. 3) Camera equipment - \$68. 4) Drugs - \$1,000. 5) Medical supplies and virological supplies - \$2,000. Total - \$6,475.

Before Dr. Gajdusek's departure for New Guinea he asked me to check with our personnel office regarding procedures to be followed for the NIH personnel involved in this trip. Mr. Ludeman, NINDS Personnel Officer, has assured me that no personnel actions are necessary but that the employee will be placed on official travel orders at no expense to the Government for the total period of the trip. In addition we will do DHEW-348 forms for the acceptance by the employee of travel and subsistence in kind from the Scripps Institution of Oceanography.

Your approval of this expedition is requested and if approved a copy of this memorandum will be forwarded to Dr. Gajdusek.

George L. Durall

APPROVED:

\_\_\_\_\_  
Acting Associate Director, C&FR, NINDS

Date: \_\_\_\_\_

cc: Dr. Gibbs  
Mrs. Poms  
Dr. Weisenfeld  
Mr. Waugaman

GD:do



La Jolla, California 92037  
12 April 1972

LCDR Michael Fleming  
Office of the Special Assistant for Fisheries  
and Wildlife to the Undersecretary  
Department of State  
Washington, D.C. 20520

Dear Commander:

Beginning the latter part of July 1972, the Scripps Institution of Oceanography, Harvard University, and the National Institutes of Health are planning an anthropological-medical research project to the Solomon Islands and the New Hebrides. The expedition will be divided into two phases. Phase A, under the leadership of Dr. Albert Damon of Harvard, will be conducted entirely within the British Solomon Island Protectorate, and will span a time period of approximately 27 July, 1972 to 11 September, 1972. Research will commence at Honiara, Guadalcanal Island, and will include work on Ulawa Island, Auki Island, Malaita Island, and on the atoll of Ontong Java. Phase A will terminate at Luganville (Santo), Espiritu Santo Island in the New Hebrides. Please note that no Phase A research will be conducted within the New Hebrides.

Phase B, Dr. D. Carleton Gajdusek of the National Institutes of Health, Scientist-in-charge, will commence after a replenishment stop at Luganville on about 18 September, 1972. Expected island itinerary in the New Hebrides will be Ureparapara, Torres Group (Loh, Tegua, and Hiu), Vanua Lava, Motalava, Merig, Merelava, and perhaps a brief call in passing at Valua and Gaua Islands. In the B.S.I.P. Part of Phase B, calls at Bellona, Rennell, Vanikoro, Tikopia, and Cherry (Anuta) Islands are planned. Phase B research will terminate at Ponape Island in the Eastern Carolines about 18 November, 1972.

The Scripps Institute's research vessel Alpha Helix will serve to support this expedition and I request that you arrange the necessary clearances for this vessel to operate in both B.S.I.P. waters and New Hebrides waters. It is my understanding that separate clearances and permits are being secured by Drs. Damon and Gajdusek to conduct their particular research. This letter is specifically a request for vessel clearance in support of these scientific programs.

I can foresee one possible problem during Phase B. Alpha Helix will arrive at Luganville (Santo) at the end of Phase A and clear in to the New Hebrides. Phase B will then take over and conduct their research (in part) in the New Hebrides. When the New Hebrides part of Phase B is completed, will it be necessary for Alpha Helix to return to Luganville for final clearance before she heads for the Solomon Islands, or could special arrangements be made so that final clearance is granted at the beginning of Phase B. If this could be done, a significant savings in time would result. I am enclosing a copy of the proposals of Drs. Damon and Gajdusek which includes a detailed description of their programs.

I am also enclosing three copies of "ALPHA HELIX RESEARCH PROGRAM 1971" for your information and/or distribution.

Thank you for your assistance, and if additional information is required, please contact me.

Very truly yours,

R.B. Haines  
Staff Officer

cc: A. Damon  
D. Gajdusek  
W. Garey

Date: April 19, 1972

To: Chief, Central Nervous System Studies Branch/C&FR/NINDS

From: Acting Associate Director, C&FR, NINDS

Re: Your Proposed Expedition on the Alpha Helix to do Various Research for Two Months this Fall Among the Southern Solomon Islands

Before any approval can be considered or given for such a project, we still have to have exact details of your research plans.

We note that the project involves ten of the Institute staff. What plans do you propose for supervising the research now going on in your laboratories both here in Bethesda and at Patuxent during your absence?

Dr. Leo Fox's appointment as Associate Director for C&FR has been approved. He will probably come on duty sometime in May. Your proposal must have his approval so I would suggest you send justification for it as soon as possible.

Eldon L. Eagles, M.D., C.M., Dr. P.H.

cc: Mr. Durall (Please hold for Dr. Fox)

NINDS:EEagles:Ijo



April 28, 1972

Dear Solomon B Participant:

You recently received a computer print-out listing of all the supplies and equipment requested by individual scientists and the relative anticipated use of each piece of instrumentation. The cancellation of original requests was noted. Further, a cost accounting was given for supplies and equipment being purchased.

You may be assured that all scientific support items being furnished will be on the Alpha Helix for your work.

Please notify Walter Schneider, who has the scientific logistical responsibilities for the program, of any discrepancy between your requests and their realization on the print-out you received.

Mr. Schneider will ship the supporting gear to Hawaii, he will functionally arrange the laboratories of the Alpha Helix prior to the Solomon B work and, as resident technician, he will importantly serve the scientific effort during its conduct.

Please contact us regarding any remaining questions.

Best regards.

Sincerely,

Walter Garey

May 3, 1972

D. Carleton Gajdusek, M.D.  
 c/o Rev. Hartmut Gericke  
 Lutheran Mission  
 Tarabo, Eastern Highlands District (via Goroka)  
 Papua/New Guinea

Dear Carleton:

Regarding the Alpha Helix:

1. Dr. Eagles wants you to reply to his latest letter to you as soon as possible.

2. Enclosed are copies of all communications to date with Scripps.

3. Our expedition is now starting from Port Vila, New Hebrides approximately September 18.

4. We have used your latest list of the personnel going. As shown on the enclosed xerox, they are:

1) Gajdusek	5) Gibbs	9) local female
2) Ferber	6) Brown, P.	10) OPEN
3) Meyer	7) Alpers	11)
4) Wiesenfeld	8) Guiart	

5. 10 x 12" x-ray film costs \$45.00/100 sheets and one can x-ray both wrists on a single sheet. How many should we order?

6. Enclosed is a computer print-out of all supplies and equipment supplied by Scripps.

7. A list of all drugs ordered by Ferber and Wiesenfeld for treatment of investigators, crew and islanders is enclosed. Please send additions as soon as possible.

8. A list of all supplies and books ordered from N.I.H. by Rogers, Basnight, Ferber, and Wiesenfeld is included. Send additions as soon as possible.

9. Further tissue culture material will be ordered later by Nancy and Mint.

10. Shipment to Scripps for the containerized van shipment cannot take place until approved by Dr. Eagles. Deadlines for receipt of material by Scripps is May 22.

WIESENFELD, FERBER, MEYER & ROGERS

P.S. Dr. Gajdusek, I am starting today to work on the Anga Bibliography. Nancy and Steven Ono have just come back from the Library of Congress. Will try to get it to you next week.

Sharon

May 4, 1972

Dr. Stephen Lee Wiesenfeld, M.D  
NINDS  
NIH  
Bethesda, Maryland

Dear Stephen:

Port Vila is the probable logistics port for the Solomon B program. Fiji Airways link this city with Nandi, Fiji.

Our agent in Honolulu, Hawaii will be:

Castle & Cooke, Inc.  
Ship Agency Division  
P.O. Box 2990  
965 Nimitz Highway  
Honolulu, Hawaii 96802

You may send parcels to them at the above address indicating on all boxes "Hold for arrival of the R/V Alpha Helix."

The present schedule calls for the Alpha Helix to be at Honolulu for at least a week beginning June 23.

Burns Philp will probably serve as our agent in Port Vila. We will send you the name and address of the agent when confirmed.

It has been a pleasure working with you these last few weeks preparing for the Solomon B scientific effort.

Best regards.

Sincerely,

Walter Garey



Kuru Research Center  
Awande, Okapa, Eastern Highlands District  
Papua New Guinea  
May 8, 1972

Dear Eldon,

The cables that keep coming indicate that there is some urgent need of quick approval of the Alpha Helix trips before Joe gets back and I return. I had not thought this necessary, but the staff tells me that this is because of June 1 as late date for getting necessary supplies off to La Jolla or Honolulu to meet the ship. I have not been near a radio, and much of the time I do not get cables for many days. Thus, I now suddenly have three radiograms and your urgent Memo.

Joe has finally seen kuru--I managed to get a half dozen cases near the road system, and by suffering no more than hours of rough riding he got to see them. He was ecstatic, and very, very satisfied, I believe. We are now launching into the completion of the field epidemiology, which has some exciting developments. The 51 cases we have this year already outdoes the world series of C-J disease available at any one year to study, and thus one cannot easily belittle the advantages of work here, although this is less than one-fifth as many patients as we were once able to see in one year. Last year total deaths number 71.

As to the Alpha Helix. It solves the problem I have been having for years of completing our Tongariki studies which have been the goal of three previous expeditions. They have already netted us an intense village focus for us of familial periodic paralysis, including the first human cases with COMPLETE heart block during attacks. Also, we have odd patterns of arbovirus (mostly encephalitic agents) distribution on these isolated islands, where there are very few species of insect vectors and of possible mammalian host. Thus, the simplified ecology has given us a great advantage in these islands, and since they are adjacent to larger islands wherein the prevailing "tropical" pattern of multiple arbovirus infections endemic always prevails, we have good reason to hope to sort out variables more easily with these limited populations in small, isolated and limited ecologies.

It is in the Banks and Torres islands and on Tongariki (New Hebrides) that we have found the first and only alpha-chain human hemoglobin variant which we published as HEMOGLOBIN-J-TONGARIKI with its complete structure down to the amino acid substitution some time ago. This is the FIRST real Melanesian marker, and it permits us the trace genetic relationships in Melanesia as we have been unable to do previously. Already we know of coastal people on New Britain with the variant! These, then, are some of the previous and on-going studies which we have initiated and continued to work on in the past in these New Hebridean and Solomon Islands. My Rennell Island genetics study also summarizes other studies of this kind we have started.

The current expedition will make it possible for us to exploit the background of one decade of earlier work and effort, and to follow up the seroepidemiological and child growth studies we have started. It will also permit an expanded approach to the genetics of these populations, and with the data we hope to gather, I expect that the techniques of population genetics with mathematical modeling of their migrations and interrelationships will be much advanced. These techniques are now in press with respect to kuru and genetic factors interacting in its occurrence, and Stephen's latest paper poses a method quite applicable to a vast array of other human diseases. We expect to work out this kind of study in much greater detail, by getting from these people further genetic data to augment what we already have.

Most noteworthy, we shall attempt for the first time to establish from each subject by a biopsy procedure no more than a needle prick for blood collection, a fibroblast cell line in the ship-board laboratory, which we shall then freeze down in liquid nitrogen, for cell revival later back in the laboratories at NIH. This should provide pilot study for all population genetic studies of the future, for instead of preserving serum or hemoglobin, or red cells for future study of new pleomorphisms by newly evolving techniques, we plan to bank the full genetic information of each subject in viable cells. It is the working out of this technology under ideal field conditions that we hope to exploit on this trip. It has not been done before, and will add greatly to the information we already have on these islanders.

As for the matter of leaving our current program adequately attended. Nancy Rogers, Mint Basnight, and John Hooks, among those I hoped to take, will not be able to come. These three workers can easily carry our current load of laboratory work, as they have often done in the past. This applies to both Patuxent and Building 8. David Asher is also not able to join us, and he has in the past supervised our clinical liasons, which require a physician, completely, and he will do so for the two months of the expedition. Thus, NOTHING is left uncovered back at NIH, and all studies that those who are to come are now doing back at NIH are either in preparation for these Alpha Helix studies or creative work on genetic factors as they affect pathogenesis which can be done as well in the community of workers on the expedition as back at NIH. I thus request permission for myself, Dr. C.J. Gibbs, Dr. Stephen Wiesenfeld, Dr. Paul Brown, and Dr. Richard Ferber and Mrs. Judith Meyer to accompany the expedition. We need them all. Dr. Michael Alpers from Perth who has worked with us for about a decade on kuru and on these island population genetics and growth and development studies will also be with us. He is currently in the Department of Microbiology, and the Department of Human Biology at the University of Perth, Australia. Professor Jean Guiart, sociologist and anthropologist and foremost expert on the New Hebrides---also Chief of Sociology and Anthropology at the Sorbonne in Paris---will also join us. The other positions will be filled by local public health service persons from the British Solomon Islands and the New Hebrides Condominium Health Services.

There is no human experimentation involved, no treatment of human patients, and we shall only, as we always do in primitive areas, provide the necessary emergency medical care that the local population requires---since there are no physicians on any of the islands we will work on. Paul Brown will act as ships

physician, since each Alpha Helix expedition requires that one of the team fill this function. He is best qualified for this task, having had extensive experience in the South Pacific on ship and on shore. He will also, on shore medical studies, be my first assistant, and Joe Gibbs will be in charge of laboratory studies.

Thank you for your patience.

I am storm-bound here at Awande, and I must drive over 100 miles of rough roads--mostly in 4-wheel drive--to meet Joe in Goroka, to where he returns after a brief few days of conference with Vin Zigas in Rabaul. We will have two days of further work together and then he is homeward bound. He was in excellent health while here---in fact better than he has been in back home or in Europe for several years!!! I hope he returns well. Thank you and Ed MacNichol for all your support and encouragement.

Sincerely,

Carleton



Dear Stephen:

I wrote a long letter to you, but deciding to suppress it along with three others to Dick, Durall, and others because of the paranoid furor I was in when I wrote, I fear I have also suppressed a good deal of important information. Not knowing what I had written which needed to be said---when I suppressed what was better left unsaid----I now write with misgivings and uncertainty.

DO NOT EVEN SUGGEST ANY REPLACEMENTS FOR ANYONE FOR THE ALPHA HELIX. I have plenty in mind and I do NOT want anyone from other sources than my own suggestions. Make no offers to ANYONE, and be sure Dick Sorenson and others in our department DO NOT GET ON THE LIST beyond those I have already designated.

The urgency in this cannot be overstated, for I will sooner cancel the trip, turn it over to others, than let it get off with anyone on whom I do not want to travel with. This is of primary importance. I am completely without compromise on this issue.

I am worried that you and Judy have NOT sent me copies of all correspondence relative to Alpha Helix...thus my own direct correspondence with them is at times at odds with yours. Please be sure I get everything, including copies of all they send to you. I would have had copies of the letters activating people, and even of their curricula vitae etc. sent in. Please get this off to me soon!!! I am NOT isolated, and I do attend to all these matters with dispatch.

NO TECHNICIANS. I do not want a single slot filled with "service personnel"...i.e. juniors to do scut-work for seniors. That is NOT the spirit of expeditions. Thus, be sure that Paul Brown, Richard Ferber and Stephen Wiesenfeld know all and everything they need to know about handling tissue cultures and plan to do it all on beaches and on board WITHOUT anyone doing the lab work for you.....I am planning an approach which will mean that we need all the doctors we can get, and we shall all be busy with general survey matters, and EVERYONE will help with EVERYTHING...thus in blood collecting, there will be absolutely NO ONE free from the chore of separating off sera, freezing them down, etc. etc. The division of labor may be wise--but it would be demoralizing on such a trip. More about this later.

About Equipment: TRAVEL FUNDS ARE CRITICAL...if we get there we can manage with stethoscope and hands and eyes and ears alone. DO NOT WASTE THE SCRIPPS FUNDS FOR OUR TRAVEL ON ORDERING EQUIPMENT FROM THEIR OR THE U. OF CALIFORNIA SUPPLY. Thus, all that you order is taken from the total sum, and cuts down on the travel funds needed. The three unfilled berths may come from France or Chile or Argentina, and travel funds to bring them there and back MUST BE LEFT in the Scripps total of only \$20,000. Thus, I would rather not take ANYTHING from Scripps or U. of C. and supply it all from our own lab on our own shipping funds. We can use Govt. Bill of Lading, our own shipping and franking privilege to California, Hawaii and even to Honiara without touching our budget or travel funds. DO NOT dent the \$20,000 for such things. Joe thinks you are and I think you are doing so. Forget about equipment. We can always scrounge it the last minute as we do here and have done for 15 years. We have NO OTHER SOURCE

OF TRAVEL FUNDS FOR PEOPLE BUT FROM SCRIPPS AND THAT I DO NOT WANT TO RUN SHORT. Whatever is the maximum left intact of the \$20,000, for even if Alpers drops out I may replace him with someone from Africa or Europe with MAXIMAL travel costs.. Ship from NIH our AT OUR EXPENSE. Do not make much use of Scripps and California supplies and shipping. That all comes from the funds. LEAVE EXCESS FUNDS FOR EMERGENCY PURCHASES IN HONIARA AND ELSEWHERE EN ROUTE!!!

Summary: Contact Scripps and CANCEL any listed orders that are unessential and that invade this principle. Joe thinks there is a great deal. Start shipping NIH equipment to wherever Scripps wants it. Use our own budget for it. Do not use up our Scripps budget for this and do NOT let Alpers or Paul Brown or others do so. THIS IS VERY, VERY URGENT. I need \$2,000 or more stand-by funds. If it is too late to get anything to Scripps from us, we can even air mail it to Honiara to await the ship there and save the Scripps funds that way. The important thing is that Scripps funds be left intact for travel funds and for emergencies which NIH CANNOT meet. All normal lab stuff and supplies can be met without using Scripps funds. DO NOT EVEN THINK OF EKG AND EEG MACHINES IF THEY USE UP FUNDS. I thought we were getting these borrowed from Harvard (Damon's equipment). If we are being billed anything for them—forget them. They are NOT that important!!!

Please get me clued in to every order and all supplies and expenses.

I am awaiting papers from you and Ferber. Also what else are you working on! Finally, please urge Dick to start getting himself placed, for I want him to move on academically and NOT stay with us.and that is urgent and mandatory. If I do not succeed, I will be forced to rapidly cancel all work in our section, closing it down, that involves him and his type of work, for I cannot go on with Dick clinging to our section. I shall approach the Director about this as an urgent matter if Dick does not soon get moving. I order that the Annual Report contain NOTHING about any of our old population and anthropological problems, for Dick appears to want to use this to cling to us. --Thats all

Carleton



May 9, 1972

Dear Dr. Gajdusek,

We have just received your letter and have sent you the enclosed cable which you hopefully have received. You should have also received a list of all supplies ordered and of all correspondence with Garey. We have been working about 100% of the time for the last few months on arrangements for the Alpha Helix program based on your instructions to us before you left and on your letters. This has included continued reworking of supply lists, repeated conversations with Garey, meetings with Patuxent and Building 8, filling out hundreds of order forms, constantly interacting with drug companies and supply company representatives, and unpacking and repacking shipments. All this has had to be based on your limited instructions before you left, conversations with Dr. Gibbs, and on the instructions you have added in your letters.

Your latest letter appears to be in contradiction with your previous instructions. Be assured that only those people you have requested are listed as going, and no one has ever invited anyone from this end, nor has this ever been considered. No one is considering technicians.

You previously stated (see enclosed copy of your letter) that you wanted 2-3 positions left open for local people because you felt we would not be able to visit most of the islands without local officials and local M.D.'s. With the approval of Dr. Gibbs, these orders were followed and the appropriate arrangements were made through Dr. Garey. It now appears that you want to abolish these positions (see enclosed copy of your most recent letter).

In summary, on the day before Dr. Gibbs left for New Guinea he told us to do the following: (1) list the 8 people you had stated as going, have 3 positions open for local people as you requested, and adjust travel funds to fit this, (2) cancel over \$6,500 worth of orders that had been placed by Gibbs, Asher, Rogers, Basnight, Ferber, and Wiesenfeld, (3) order a \$1400 small Revco, and (4) leave some funds available out of the \$20,000 for unexpected expenses. This has all been done (with the cancellation of \$6,500 worth of supplies).

We have tried, unsuccessfully, in several phone conversations with Garey, to effect your latest directives at reorganization. Dr. Garey has refused, saying that all orders had already been placed and many shipments had already arrived. This was necessary in order for Scripps to be able to meet their deadline for shipping, and Garey is unwilling to make any significant changes at this time, at least without communicating directly with you or Dr. Gibbs. Had you been able to inform us of your changes immediately upon the arrival of Dr. Gibbs in New Guinea, Dr. Garey might still have been willing to accommodate them.

As it stands now, funds are allotted for the transportation of 8 researchers (at a cost of around \$14,000), for a Revco (\$1400), and for supplies (\$2500). We have furthermore been able to free up a little more than the \$2,000 that you requested for ad hoc expenditures.



We understand that you may change your mind in regards to priorities for the trip, but it is most difficult for us, acting as middle men, to carry out all instructions when they vary greatly between letters and represent major shifts in fund allocations, at least at this late date. We have viewed our responsibilities as the carrying out of the instructions of you and Dr. Gibbs rather than the making of major policy decisions ourselves. To date, this is what we have done. Further changes, at this time, will require your direct communication with Garey.

Steven Ono has been working full time on updating the kuru census record and not, repeat, not on the genetics file. He has, however, encountered some programming difficulties. The updated kuru census will be sent to you as soon as possible.

Enclosed are two tentative graphs from S.W. for your inspection. Both the familial C-J paper and the kuru genetics paper have been held up because of the work on the Alpha Helix.

Stephen Wiesenfeld and Richard Ferber

M. ALPERS HAS REQUESTED EQUIPMENT LISTS BUT NONE ARE BEING SENT ON YOUR INSTRUCTIONS.

May 10, 1972

Dr. Walter Garey  
R/V Alpha Helix Program  
Scripps Institution of Oceanography  
P.O. Box 109  
La Jolla, California 92037

Dear Dr. Garey:

Thank you for your patience and assistance during our numerous recent telephone conversations.

We are unclear as to the exact amount of funds allocated from the \$20,000, to the various aspects of our Solomon B expedition, and we would like to be able to provide Dr. Gajdusek with this information. As we understand it now, the major items include shipping (\$500), purchase of small Revco (\$1,400), supplies (\$2,500), travel expenses (\$14,000), and uncommitted funds (\$2,000 or more). Could you please provide us with more accurate figures at the earliest possible date? Thank you.

As of this date no supplies will be shipped to you for the containerized van shipment. Could you please provide us with all information necessary for the proper shipping and handling of our supplies, including the names of your agents in Hawaii and Port Vila to whom we may ship our material along with deadlines for these shipments?

Again thank you for your help.

Sincerely,

Stephen L. Wiesenfeld, M.D  
Richard A. Ferber, M.D  
Laboratory of D.C. Gajdusek, M.D.

May 17, 1972

Stephen L. Wiesenfeld, M.D.  
National Institute of Neurological Diseases and Stroke  
National Institutes of Health  
Bethesda, Maryland 20014

Dear Dr. Wiesenfeld:

The following regard questions advanced in your letter of May 10.

The budget commitments for the Solomon B expedition are:

Flights: home institution-Vila; Ponape-home; plus per diem (Drs. Alpers, Brown, Ferber, Gajdusek, Gibbs, Guiart, Wiesenfeld and Mrs. Meyer)	\$10,100
Shipping: Scripps Inst. Ocean-Hawaii; Ponape-SIO	2,500
Equipment & Supplies: All items on print-out of 19 April 1972	4,000
	<u>\$16,600</u>
Uncommitted funds	3,400
	<u>\$20,000</u>

Address shipment to our agent in Hawaii:

Castle and Cooke, Inc.  
Ship Agency Division  
P. O. Box 2990  
965 Nimitz Highway  
Honolulu, Hawaii 96802

HOLD FOR ARRIVAL OF R/V ALPHA HELIX

Probable agent in Vila:

Burns Philp  
(New Hebrides) Ltd.  
Vila, New Hebrides

HOLD FOR ARRIVAL OF R/V ALPHA HELIX

The Alpha Helix is scheduled to arrive in Honolulu on June 23 for at least a 9 day stay. The definite starting date for your program at Vila is dependent upon the resolution of a crew rotation problem at Honolulu. We will forward this schedule information when it becomes available.

Best regards.

Sincerely,

Walter Garey



Port Moresby, Papua New Guinea  
June 18, 1972

Dear Dr. Fox,

I write because Joe Gibbs has indicated your concern for the relevance of the ALPHA HELIX expedition to the NINDS Mission. As you have probably seen, our entire Slow Virus program and our entire gamut of studies on virus persistence and disease has been an outgrowth of the Study of Child Growth and Development and Disease Patterns in Primitive Cultures for which I came to the NIH 15 years ago. From our work with South American and Asian tribal groups and isolated and primitive groups in Melanesia and Micronesia much of our world wide reputation has stemmed. It is from work in these groups that we have obtained the first evidence for a slow virus infection of man, and from this work uniquely we of my section introduced the concept of slow virus infections of the nervous system of man. We continue to develop methods of population genetic study and methods for analysis of polygenic effects on disease expression more successfully from study of primitive isolated groups than from any other source of human and epidemiological study. These, as our recent transmission of familial C-J disease shows, have vast relevance for slow virus infections as well.

The ALPHA HELIX trip has arrived to solve the problem of continuing and extending our many years of commitment to studies in these islands on foci of familial periodic paralysis (with complete heart block), on CNS defects with goiterous cretinism and its relationship to deaf mutism (Rennell and Bellona Islands), and to study the population dynamics of the distribution of the only alpha-chain hemoglobinopathy of man (which we discovered and molecularly defined on these islands years ago) and which has become both an important marker for such studies and also important in considerations on human evolution on a molecular biological level. We also have advance knowledge of chronic degenerative disease syndromes on these islands we wish to pursue in detail.

These on-going studies alone would fully justify the expedition. There are actually dozens of other studies in progress and ready to be extended in these island populations. We have never wasted our time on unoriginal research which any fool could do because it could be fully outlined and defined in advance, but rather, I have sought to seek out new questions and new problems and to slowly define them as problems so that other fools than we can later exploit them. (My Cal-Tech lecture of a few years ago presents an abridgement, as published, of some of these problems...and there are a great many others on which I have now been working). I do not come to the field with a clear picture of what they are or where they will take us, but gradually formulate them in the field. It is a basic research method I strongly defend and do not intend to waver from. (Dr. Fox, I hope you will not take offense at my forthright language before we have ever had a chance to meet socially. It is more honest than mealy-mouthed banter.)

I would therefore beg your indulgence to continue this approach to scientific inquiry which in the case of my section has proven to be rather

fruitful for NINDS over one and one-half decades, as witnessed by the number of laboratories in other groups in NINDS and in NIH whose major working problems stem from what we have started and continue to initiate.

Finally, Dr. Fox, there are numerous other leads pertinent to our Mission which I intend to exploit on the expedition. We know that the populations are unusual in an extremely early acquisition of cytomegalovirus and EB virus (as well as herpes hominis) virus infection by almost every child. These key viruses in modern teratology and oncogenesis research are also causing chronic CNS infection naturally and after "pump syndromes" and immunosuppressive routines. We have real expectations of virus epidemiological leads in pursuing the strange epidemiology of these viruses in these isolates. Please, Dr. Fox, do all in your power to make sure that we do not lose this long-sought opportunity to exploit this unique situation which has been impossible not because of restrictions or limitations of our budget, but only because of limitations of our foreign travel funds. The ALPHA HELIX offer is a great honor to NINDS and NIH and also solves this problem as well as vast logistic problems in the area. It will provide, as the work on these islands has in the past, vast amounts of important work for many laboratories in many Institutes of NIH as well as data and materials for much of our work on the epidemiology of persistent virus infections of man and on genetics of human populations, familial neurological degenerative disease, neurological disease incidence in such isolates, and in the interaction of genetics with such disease expression.

I ask your support on the venture and assure you that our laboratories will be well covered during the absence of the four physicians from our laboratory I have invited to take part on the expedition. I think it would be a dreadful blow to NINDS and NIH to be forced to invite collaborators from outside Institutions to fill these roles as I will be forced to do if our own team cannot take advantage of the offer. It would also be a dreadful blow to the morale of the creative investigators I have managed to attract to our branch, since the expedition stimulates and satisfies their highest scientific creativity and imagination.

I look forward to meeting you in mid July back at NIH. At the moment I have just emerged from several months of work in the bush and I am making the final 2 week plunge back before returning. We have at present 51 patients dying of kuru and this represents the largest number of patients with known slow virus infections of the nervous system under surveillance by any group in the world. That it is only 1/5 of what we originally had for surveillance each year is most significant, and vast oddities in the epidemiological behavior of the disease as it is diminishing warrant extremely intensive surveillance during the next few years. Fortunately, Dr. Michael Alpers, our long term collaborator from Australia in NIH and now from the University of Perth, is here with me and will continue to work for awhile after I leave, "Bursts" of cases in certain remote villages, obscured earlier by overall high incidence, promise to make it possible to determine mean and usual incubation periods for disease expression and to identify the specific event of contamination.

Joe Gibbs and all others in my laboratories have kept me closely informed of the progress of our work and a dozen odd papers have been revised and rewritten under my direction from here in the field. These will serve to bring you up to date on what we are doing--or rather, have done. We usually have finished the work when it is worth talking about.

Sincerely yours,

D. Carleton Gajdusek

Accept my greetings on coming to join us at NIH and my hopes that you have fun in your new job, with all its headaches. I shall call on you as soon as I get back. --Carleton G.



June 20, 1972

Dear Solomon and New Hebrides Participant:

The R/V Alpha Helix is presently en route from Dutch Harbor, Alaska with arrival in Honolulu, Hawaii estimated for June 21. Members of the crew will be rotated from Honolulu, general maintenance will be carried out and the ship's laboratories will be set in readiness for the first human medical program in the Solomons. The supporting scientific equipment and supplies for your work will be secured essentially in a containerized van in the hold of the ship.

It gives me particular pleasure to welcome your participation in the upcoming Alpha Helix Solomon and New Hebrides expeditionary program. The extensive preparations which have taken place should greatly facilitate your research work and significantly increase its scientific return.

Walter Schneider will serve as resident technician throughout the Solomon and New Hebrides program. You will find him most knowledgeable about the scientific equipment and supplies as well as the supporting facilities of the ship. Mr. Schneider has primary responsibilities to the total research program of the Alpha Helix; however, as time permits he will happily assist the ongoing scientific effort at the discretion of chief scientist Gajdusek.

You will find enclosed the booklet, "Alpha Helix Research Program 1971". Please read it, noting especially the scientific responsibilities attending your participation as outlined on the last page.

Paul Brown, a qualified medical doctor and your research associate to be, will function as the ship's physician during the Solomon and New Hebrides program. It is necessary that you have completed the enclosed medical examination form and return it to Wm. Orris, M.D. of the Scripps Institutions of Oceanography. A copy will remain at this institution and the original will be available on the ship during your period of participation. Regretfully, we cannot reimburse you for any costs attending the medical examination. Perhaps you can obtain such an examination at your institution at little or no cost to yourself.

Recently a new policy has been adopted regarding the consumption of alcoholic beverages on vessels of the Scripps Institution of Oceanography. It permits the consumption of liquor and alcoholic drinks, by crew and scientific party alike, while the ship is in port (Vila). But beer, and wine (with meals), are the only alcoholic beverages to be during the course of the research program. It is planned that beer, for purchase, will be available on the ship.

Your research program is to begin on September 18 with the sailing of the Alpha Helix from Vila, New Hebrides. During the preceding week of September 11 the ship will arrive in Vila, be refueled and have its laboratories re-arranged for the support of your work. You should plan to come aboard anytime after September 13 for familiarization with the facility and for pre-program preparations.

The research work will be carried out at a number of sites in the New Hebrides and the Solomons, with the Alpha Helix reaching Ponape on or about 22

November. Some members of your group will disembark at this port for a return to their home institutions, while others will continue on, joining in a 5-day collaborative effort at Pingelap Island under Ronald Carr, M.D. The study at Pingelap will be concerned with the possible genetic linkage between congenital achromatopsia (a disease affecting the retinal cones and resulting in total colorblindness) and myopia in this genetically isolated human population.

The Alpha Helix will return to Ponape where your scientific support gear will be packed in a containerized van(s) for shipment to the United States. The ship's laboratories will be readied for a study of sea snake biology off New Guinea. While en route to New Guinea we plan to stop at two islands in order to disembark some members of your party for a continuance of their research work.

For the present, virtually all of your needed scientific support items should have been requested and soon will be aboard the R/V Alpha Helix. Thus your personal baggage is to conform to the normal allowable limit of 44 pounds for international flights.

We will secure open round-trip tickets from this office. In order to do this, we must have your desired date and place of departure to Vila and your date and place of return. The most direct routing on American carriers will be used and the arranging and paying for any side trips will be your responsibility. Actual in-transit expenses will be covered. Please save all receipts. The University requires a receipt for any expense for over \$5.00. We will be unable to reimburse you without receipts.

A personnel form and travel expense voucher are enclosed. Please fill out the personnel form and sign the travel voucher (it will be filled in at the end of the program) and return to us. Tickets will not be issued until vouchers are in this office.

Our office maintains daily radio contact with the Alpha Helix. Thus messages relating to your safe arrival at Vila and your departure time at the end of the program can be radioed to us for forwarding. Emergency messages from your family or institution can also be transmitted to you.

Please contact our office if we may further assist you in any way.

I believe the Alpha Helix can well serve your needs for a sophisticated clinical laboratory which can operate in rather inaccessible areas. And, of course, I hope that you will be able to utilize this unique research facility to its optimum.

I wish you a most successful and satisfying research experience.

Sincerely,

Walter Garey

WG:jj

Enclosures

cc: R. S. Bandurski

A. A. Benson



## MEMORANDUM

Date: June 26, 1972

From: Research microbiologist, CNSSB:C&FR, NINDS

Re: Alpha Helix Expedition, 18 September thru 18 November 1972

To: Associate Director, C&FR, NINDS

The purpose of this memorandum is to provide you with information on the NINDS research expedition aboard the research vessel Alpha Helix.

Background: The Alpha Helix is a research vessel operated by the Scripps Institute of Oceanography, under the auspices of the National Academy of Sciences and the National Science Foundation. Although used in a wide variety of research studies, the ship's major contributory function to medical science is the deployment of mobile, versatile and sophisticated modern clinical and laboratory facilities in remote and frequently inaccessible areas of the world. At the present time the Alpha Helix is operating in Antarctica. Funds for the operation of the ship are derived from a grant from the National Science Foundation and include the necessary support for transportation and work of scientists participating in research expeditions.

From the middle of July until the middle of November, with the approval of the National Science Foundation, the Scripps Institute has programmed two expeditions. The planning phases for these studies began in January 1971. The first, designated Solomon Island "A" Expedition, under the direction of Dr. Albert Damon, Professor of Anthropology, Harvard University, will take place during the period of July 27th to September 11th, 1972. These studies are designed to collect anthropological and medical research data, including a study on bone age by x-ray diffraction.

At the request of the Director of Scripps Institute of Oceanography, the National Academy of Sciences and the National Science Foundation, Dr. D. Carleton Gajdusek, Chief of our Central Nervous Studies Branch, has organized and will head the Solomon Islands "B" Expedition, scheduled for the period of September 18 to November 18, 1972. Dr. Gajdusek has selected the following scientific personnel for participation in this expedition:

NIH	D. Carleton Gajdusek, M.D.	Sr. Scientist and Expedition Leader
NIH	Paul W. Brown, M.D.	Ship Physician and Expedition Medical Officer
NIH	Richard A. Ferber, M.D.	Asst. Expedition Medical Officer
NIH	Stephen Wiesenfeld, M.D.	" " " "
		and Geneticist
NIH	Mrs. Judith Meyer	Research Cinematographer
NIH	Clarence J. Gibbs, Jr., Ph.D.	Research Microbiologist
	University of Western Australia,	
	Perth: Michael Alpers, M.D.	Neurologist/Epidemiologist



Sorbonne, Paris, France:

Prof. Jean Guiart

Sociologist/Anthropologist

Three additional positions will be filled by local Public Health Service personnel from the New Hebrides Condominium Health Service and the British Solomon Islands Protectorate.

Area of Operation: All members will embark from their home laboratories by commercial air transport to Port Vila, New Hebrides. They will board the Alpha Helix in Port Vila and proceed to operate in the New Hebrides and the British Solomon Islands Protectorate, visiting Renell and Bellona Islands, Vanikoro, Tikopia, Cherry (Anuta), Ureparapara, Loh, Tegua, Hiu, the Torres Islands group, Vanualava, Motalava, Merig, Merelava and Ponape. All members will disembark at Ponape and return by commercial air transport to their home laboratories. Permission to operate in the areas referred above is being handled by LCDR Mike Fleming, Office of Special Assistant for Fisheries and Wildlife, Undersecretary, Department of State, and is being coordinated by Mr. R.B. Haines, Scripps Institute Staff Officer.

Most equipment is being provided by the already equipped Alpha Helix, which has been supplemented by stores maintained by the Scripps Institute. Specific equipment and supplies needed by the NINDS team has been collated here at NIH, but must be shipped immediately to Hawaii to assure delivery before July 23, 1972, the date when the Alpha Helix will commence to load supplies.

#### Proposed Scope of Study:

General: This study basically provides for the opportunity to conduct follow-up studies, most of which were initiated by Dr. Gajdusek over a decade ago, and which have been unqualifiably supported through the years by NINDS as on-going program studies on the health, physical development, patterns of child growth and disease patterns, particularly involving the nervous system, and medical/anthropological data of semi-isolated cultures. Population surveys of a wide range of genetic polymorphisms, dermatoglyphics and anthropomorphic measurements will be conducted. Specimens will be collected for continued viral and seroepidemiological studies, including attempts to isolate, characterize and develop methods of control of viruses and other infectious and contagious pathogens affecting the health status of these populations. In vitro cell lines of human skin, obtained by skin biopsy, will be established and preserved in liquid nitrogen which, upon return to the NIH, will be used to study polymorphisms, as well as for the study of latent, persistent and chronic viruses.

#### Specific:

Medical Studies: As part of the survey of the health of islanders studied, as many children and adults as possible will receive complete physical examinations. A shipboard x-ray machine, provided from the Solomon Islands "A" Expedition, will be used to estimate bone age in children, which in turn will be correlated with anthropometric and physiologic estimates of maturation, including height, weight, length, head circumference, pulse, blood pressure, nervous system development, and nutritional status, etc.

A search will also be conducted for the detection of various heredofamilial diseases known to occur in foci in Micronesia and Melanesia. Familial periodic paralysis with complete heart block occurs on Tongariki and has previously been investigated by Dr. Gajdusek in the field and in the laboratories at NIH. This disease may well occur on other New Hebridean Islands. Foci of neurologic disease have been reported throughout this area, from Japan to Guam to New Guinea, the most well known being ALS, ALS/PD, kuru and Creutzfeldt-Jakob disease, and we search for further foci of these and similar diseases during the conduct of this expedition. Oculocutaneous albinism also occurs in this region; however, whether both tyrosine positive and negative variants are present is unknown. Attempts will be made to identify the variant in albinos encountered. Pseudohermaphroditism is also not uncommon in this region.

Serum will also be collected for surveys of cholesterol, tri-glycerides, lipoprotein phenotyping, uric acid and other serum chemical measurements, as well as for virological studies, as mentioned below. Urine will be collected for determinations of VMA, urine catecholamines, Na, K, bacteria, routine urine analysis and attempts to isolate cytomegalovirus (see below). There will be no human experimentation and no routine medical treatment of patients. We shall, as always in the field, provide only emergency medical care, as there are no physicians on any of the islands to be visited.

**Genetic Polymorphisms:** For one decade this department has been collecting and analyzing genetic polymorphisms, including red cell enzymes, serum proteins, and blood groups in New Hebrides, the British Solomon Islands Protectorate and Micronesia. The current expedition will make it possible to exploit this background by obtaining further genetic data to augment our earlier collection data. In the Banks and Torres Islands, and on Tongariki in the New Hebrides, we have previously found the only alpha-chain human hemoglobin variant unique to Melanesia, which we have designated hemoglobin-J-Tongariki. This Melanesian marker, which will be investigated on this expedition, permits us to trace genetic relationships in these island populations. From earlier genetic studies in the Western Caroline Islands, we have determined that these island peoples are some of the most isolated and inbred populations in the world, even more so than in the Eastern Highlands of Papua New Guinea. Investigation of polymorphisms in the islands are crucial in understanding the mechanisms of human evolution. Material to be collected include serum, leucocytes (for leucocyte typing), red cells (for blood group enzymes), and cerumen (for cerumen typing, presence of lipases, lysozyme, IgA, IgM, IgG), and which will be maintained at liquid nitrogen temperatures. Fibroblast cultures of human skin/muscle will be discussed below.

**Virology:** Sera will be collected as mentioned above, and used for follow-up seroepidemiological studies previously reported in this geographical area, and in the Caroline Islands where investigations on the immunologic response to influenza epidemics led to our identifying the antigenic analysis and typing of the strain of influenza virus which was associated with the 1918-1919 pandemic. Studies will also be conducted on the unusual patterns of arbovirus distribution (mostly encephalitis viruses) which are encountered on these isolated islands wherein there are very few species of insect vectors and possible mammalian hosts that may



act as reservoirs. Virus isolations will be attempted from islanders who are ill with apparent and inapparent virus-induced illnesses, as well as from arthropod and ferral animals. Attempts will be made to isolate cytomegalovirus from urines of children during pre- and post-natal periods. Detailed medical examinations will be conducted to elicit long-term neurological sequellae in humans having a history and serological evidence of previous acute viral infections.

**Fibroblast Collections:** Human fibroblast will be obtained from as many people as possible by skin biopsy. The specimen will be maintained in tissue culture on shipboard as monolayer cultures of cells. Cells in culture will be frozen in cryoprotective medium in liquid nitrogen according to techniques developed in this laboratory for field useage. Upon return to the NIH, cells will be revived for a wide range of studies, including cytology identification of polymorphisms and attempts at virus isolation. This project is intended to be a pilot study for population genetics of the future where fibroblasts will be revived for study of new genetic polymorphisms as techniques and knowledge evolves without depleting a stock of biological material, as now happens with serum and red cells collected on a one-time only basis.

**Funding, Travel, Supplies and Equipment:** A large amount of equipment, such as small boats, engines, generators, extensive laboratory and medical supplies and equipment are being supplied and paid for with NSF grant funds held by the Scripps Institute. Additional equipment necessary to support most phases of our work is being provided by Dr. Damon from expedition "A". Twenty thousand dollars of NSF funds are being provided for travel and other expenses of participants. Funds have been allocated also for shipment of medical research supplies in the amount of \$2500. Scripps has already expended a further \$4000 for equipment and supplies not carried in their inventory, \$1500 for a small ultralow temperature freezer, and an additional \$3400 for travel and per diem expenses of local officials whose participation in this type of expedition is essential.

Additional supplies are being provided from our own laboratories by utilization of stock supplies, equipment on hand, supplies diverted from New Guinea field studies and supplies purchased for unique phases of this particular type of field study, including drugs for emergency treatment of personnel and islanders. X-ray film and developers, photographic material, tissue culture supplies, clinical and medical laboratory supplies, bleeding venules and needles, etc. have been collected at NIH and are awaiting approval for shipment. NIAID Reference Reagent Branch has provided all antigens for use in seroepidemiological surveys, at no expense to NINDS. Portable x-ray equipment is being left on board by Dr. Damon for our use. A liquid nitrogen freezing unit, purchased for use in our Building 8 laboratories, will be used on board ship and returned to our laboratory upon completion of this field trip. Cinema and still film used extensively in our on-going laboratory and field studies will be used to document clinical and anthropological findings.

It is respectfully requested that approval be given for this project and that authorization be issued allowing for the immediate shipment of supplies from the NIH to Hawaii to insure arrival prior to July 23, 1972.



## MEMORANDUM

Date: June 29, 1972

To: Associate Director, C&FR, NINDS

From: Director, NINDS

Re: The Voyage of the Alpha Helix or Gajdusek's Travels for 1972

This seems to be a very much worthwhile opportunity though, as I mentioned, I would like an expert opinion. All the personnel who are needed to the epidemiology, genetics, immunology and other essential functions should be allowed to go if there is adequate scientific justification for the projects for which each will be needed and provided no one is vitally needed at home.

As I recall practically Carleton's entire shop was in the original proposal which looked like a vacation cruise. The list seems to have been pared down to a reasonable number, particularly if Dr. Gibbs doesn't go.

Edward F. MacNichol, Jr., Ph.D.

July 31, 1972

Mrs. Judith Meyer  
National Institute of Neurological Diseases and Stroke  
National Institutes of Health  
Bethesda, Maryland 20014

Dear Mrs. Meyer:

Some of the one liter drip bottles included in your shipment to Hawaii were broken. Because I was unable to determine how many and what kind were damaged an inventory was taken to determine what bottles remained (see enclosed radio message). By examining the inventory you should be able to replace the broken bottles and fill out the enclosed freight inspection and claim form. I have indicated in pencil on the form the facts as I saw them.

Please contact me if you have any further questions.

Sincerely,

Walter W. Schneider

August 10, 1972

D. Carleton Gajdusek, M.D.  
 Chief Chronic Disease Studies Section  
 National Institute of Neurological Diseases  
 National Institutes of Health  
 Bethesda, Maryland 20014

Dear Carleton:

It was a pleasure talking with you yesterday regarding the Alpha Helix Solomon-New Hebrides Expedition. Your recent public relations work in the islands, and the other detailed preparations which have taken place over the months, should contribute greatly to the success of the approaching scientific effort.

The necessary forms, information and malaria medication have been airmailed to Dr. Cathala. We will return a roundtrip ticket to her upon receipt of the travel voucher. Two other travel vouchers and malaria prophylaxis medications are included with this letter in the event that a further change in personnel is necessitated.

We can only provide a ticket for the most direct round-trip flight from your institution to and from the Alpha Helix. A routing via San Francisco on the way out and Guam on the way back costs an additional \$166. Thus, we will supply you with an open ticket, but you must arrange for any itinerary entailing a higher cost.

Listed below are the rosters of the scientific parties which will immediately precede and follow your program.

Scientific participants of ALPHA HELIX Solomon Expedition:

Dr. Albert Damon, Chief Scientist, Department of Anthropology,  
 Peabody Museum, Harvard University, Cambridge, Massachusetts 02138  
 Mrs. Paulette F. Bayliss-Smith, Department of Geography, Cambridge  
 University, Downing Place, Cambridge, CB2-3EN, England  
 Mr. Tim Bayliss-Smith, same as above  
 Dr. Jerry Bloom, Brookdale Hospital Medical Center, Brooklyn,  
 New York  
 Dr. David Gundy 102 Charles Street Boston, Mass. 02114  
 Mr. Daniel B. Hardy, Department of Anthropology, Peabody Museum,  
 Harvard University, Cambridge, Massachusetts 02138  
 Dr. Mark Helpin, University of Connecticut Medical School, Storrs,  
 Connecticut.  
 Dr. Neville Henry, Angan Hospital, Lae, New Guinea  
 William W. Howells, Department of Anthropology, Peabody Museum,  
 Harvard University, Cambridge, Massachusetts 02138  
 Dr. L.Y. Lai, Department of Human Genetics, The University of  
 New South Wales, P.O. Box 1, Kensington, N.S.W., Australia 2033  
 Dr. Robert Moellering, Mass. General Hospital, Boston, Massachusetts  
 02144  
 Dr. Lobb B. Page, Newton Willsley Hospital, Newton, Mass.  
 Dr. David Verlee, Mott Building, Flint, Michigan



## Boarding at Vila:

<p>D. Carleton Gajdusek, M.D.            Chief: CNS Studies Branch; &amp;            Lab. of Slow, Latent &amp; Temperate Virus Infections            National Institutes of Health            Bethesda, Maryland USA</p>	<p>Chief Scientist            pediatrics &amp; neurology            microbiology            genetics            epidemiology</p>
<p>Paul W. Brown, M.D.            Senior Research Associate            Lab. of Slow Latent &amp; Temperate Virus Infections            National Institutes of Health            Bethesda, Maryland USA            (Also: Virus Laboratory            Hopital de St. Vincent de Paul            Paris, France)</p>	<p>Ships Physician            internal medicine            virology &amp; immunology            epidemiology            infectious disease</p>
<p>Raymond Roos M.D.            Department of Neurology            University Hospital            Johns Hopkins University School of Medicine            Baltimore, Maryland USA</p>	<p>neurology            virology &amp; immunology</p>
<p>Richard Ferber, M.D.            Research Associate            CNS Studies Branch            National Institutes of Health            Bethesda, Maryland USA</p>	<p>pediatrics &amp; neurology            population genetics            epidemiology            virology</p>
<p>Françoise Cathala, M.D.            Laboratory of Virology, Dept. of Neurology            Hôpital de la Salpêtrière            Paris, France</p>	<p>neurology            virology &amp; immunology</p>
<p>Michael Alpers, M.D.            Associate Professor            Department of Microbiology            (&amp; Dept. of Human Biology)            School of Medicine            University of Western Australia            Perth, Western Australia</p>	<p>immunology &amp; virology            human biology &amp; genetics            epidemiology</p>
<p>Stephen Wiesenfeld, M.D.            Research Associate            CNS Studies Branch            National Institutes of Health            Bethesda, Maryland</p>	<p>internal medicine            genetics            population genetics &amp;            demography            epidemiology</p>
<p>Jean Guiart, Ph.D.            Director            Department of Sociology and Anthropology            University of Sorbonne            Paris, France</p>	<p>anthropology            sociology            (expert on Melanesia, esp.            New Hebrides)</p>

Judith Meyer Coodinator, Archives of Child Growth & Development & Disease Patterns in Primitive Cultures CNS Studies Branch National Institutes of Health Bethesda, Maryland	anthropological recording social science analysis computer epidemiology
Mathias Maradol (Technician & University Student) CNS Studies Branch National Institutes of Health (Also University of California at Santa Cruz)	cinema & recording technician laboratory assistant
Donald Rubinstein Department of Anthropology Stanford University Stanford, California (also: Student Investigator National Institutes of Health)	anthropology (PhD stud.) linguistics
Joseph Gibbs, Ph.D. Chief Investigator Laboratory of Slow, Latent & Temperate Virus Infections National Institutes of Health Bethesda, Maryland USA	microbiology-virology immunology primatology
Dr. Donald Bowden Paton Memorial Hospital Port Vila, Efate New Hebrides	

Scientific participants in Alpha Helix Pingelap Expedition:

Ronald E. Carr, M.D., Chief Scientist, New York University  
Medical Center, School of Medicine, Dept. of Ophthalmology, 550  
First Avenue, New York, New York, 10016

Irwin M. Siegel, M.D. New York University Medical Center,  
550 First Avenue, New York, New York 10016

Plus one or two participants to be named.

Thank you for supplying the names of the island medical representatives who may participate in the expedition as well as the locales where they plan to meet and leave the Alpha Helix. This information and the desirability of contacting Capt. Jim Bartley will be passed on to our prospective captain, Garrett Coleman.

Best regards.

Sincerely,

Walter Garey



R/V Alpha HelixSCHEDULE & ADDRESSESKWAJALEIN

Global Associates  
Kwajalein, T.T.P.I.  
APO San Francisco 96555

19-20 July  
of web

HONIARA

British Solomons Trading Co., Ltd.  
P.O. Box 114  
Honiara, B.S.I.P.  
Cable address "TRADE"

25-27 July

PONAPE

Transpacific Lines  
P.O. Box 70  
Ponape  
Eastern Caroline Islands 96941

19-21 Nov

10 July  
19-20th July  
25-27th July  
28 July - 5 Sept  
18 Sept - 18 Nov  
19 - 21 Nov  
25 Nov  
6 Dec

Depart Honiara  
Kwajalein  
Honiara, Solomon Islands  
Ulawa & Ontong Java Islands  
New Hebrides, Solomons  
Ponape, Carolines  
Pingelap Atoll  
Ponape

Washington D.C. to Honiara and Return	11 investigators	\$16,304.20
1 REVCO [-90°C] freezer (2 compressors) + delivery		2,000.00
X-ray Unit: shipboard		4,000.00
Portable x-ray		2,000.00
Incubator - 37° - for Tissue Cultures with CO <sub>2</sub> Supply WEDCO Model #2-1388		3,500.00
Tissue Culture Media and Glassware (for Complement Fixing, Hemagglutination Inhibition, etc.)		1,000.00
Microtiter Equipment for Serology		500.00
Two Microscopes (Nikon inverted with Polaroid Camera Attachment, for tissue culture use) @2,000.00		4,000.00
Virus Complement Fixing Antigens and Hemagglutination Inhibition and Skin Test (Measles, rubella, mumps, arbo- viruses, psittacosis, cytomegalovirus, EB virus, etc.)		4,000.00
Liquid Nitrogen Refrigerator (Cryogenics, Inc.) for storing tissue		4,000.00
Medical Supplies for Treating Islanders who are ill in remote areas		<u>1,000.00</u>
		\$42,304.20

Crew List departing Vila 9/18/72 for  
Graciosa Bay, Ndeni Is.

Phinney, Alan W.	Master	U.S.
Mehling, Michael Joe	1st Off.	"
Price, Thomas Al	2nd "	"
Harber, Raymond L.	Seaman	"
Higgins, Robt. W.	"	"
Holmes, Bobbie	"	"
Trease, Gene	Ch. Eng.	"
Harlers, James G.	3rd Eng.	"
Addington, Jack L.	Elect.	"
Bridwell, Jack J.	Radio Off.	"
Jones, Chas H.	Cook	"
Richards, Peter	Messman	"



Harvard University  
Department of Anthropology  
Peabody Museum  
Cambridge, Massachusetts 02138

31 August 1972

Dear Carleton:

Welcome to the Alpha Helix! I hope your trip will be as satisfying, personally and professionally, as ours was. This was by far the most successful of all our expeditions, in terms of numbers of subjects, (in)accessibility of locales, and particularly the quality of laboratory preparations and analyses. The creature comforts have spoiled us for all future field work!

There are two main points: 1) X-ray equipment. This is all explained by our radiologist, Dave Gundy, and will be conveyed to you by Dave Helland, the resident technician, who is a tower of strength and competence. After you have finished with it, please label carefully for return to us. It's a bit creaky and cranky after 6 years and 3 expeditions, but we (i.e., Gundy) picked up lots of pneumonia, tbc, chronic lung disease of other kinds, etc.

2) There are two tubes of cultured swabs and scrapings from trachoma patients. They are labelled MOELLERING; we have put them in your deep freeze and hope you will keep them at  $-70^{\circ}\text{C}$ , with your own samples, bring them back to NIH, and then notify me or Dr. Robert C. Moellering, Massachusetts General Hospital, when they arrive. We'd like to have them typed at the Harvard School of Public Health, where there's a laboratory that specializes in trachoma typing.

Your itinerary makes us green with envy. We did our usual exhaustive (and exhausting) work-up on two populations, but you've picked some real exotica!

Best of luck,

Al Damon

**Expedition and Post-Expedition Correspondence**

**September 18, 1972 to January 28, 1977**





Corte Madera, California  
September 10, 1972

Dear Marion,

Please deliver various notes to the appropriate persons. The check book stubs go into my "banking" drawer. Please see that Judy or Paul or Richard carries my Cambridge Trust Statement and/or American Express statement (ask Ivan to check mail box at home for it!) just before they leave.

I left my revision of the Guayaki manuscript as retyped by Sharon and the Aiyore portion as you were retyping it behind. I hope that they are all properly filed. Please have the retyped manuscript xeroxed two times and send Steven Brown one copy and me c/o Alpha Helix the second copy.

I revised the genetics paper (Paraguayan) with Steven today! He will send you a final version or me or ...

Please ask Stephen Wiesenfeld to advise Steven Brown about his problem of gene frequency calculations in the MNSS system, for by the gene counting method and by the program used at the Dental Institute the discrepancies between the two results are so huge that I cannot believe them. He must let me know whether this is true or whether there has been an error in using one or both methods. Ask Stephen W. to advise Steven B. and help him recalculate.

Since French and Indonesian communists, etc., can go on the Alpha Helix I do not see how Judy can be held up. They had months of time to "clear her"--she does not need clearance from the Alpha Helix point of view. Judy MUST come. I cannot let the ship sail without her. If there is still a security clearance delay let Drs. MacNichol and Eagles know we must have her! Thus, our Institute is the problem. Please, if this is not resolved when you get this, tell our Directors that we cannot sail without her for I have no one else to care for all the documentation.

Don Rubinstein's contact in Guam and Port Moresby is needed by us in Vila. Only Raglmar knows it. Telephone Raglmar at Hamilton and find out how we can reach Don and have Paul and Judy bring this information with them. If they can alert him to join us with Michael Alpers in Santa Cruz he should do so and I will "activate" him with Garey. It is probably too late for him to reach Vila by the 18th. If he can be phoned or cabled to do so--fine!

Tell Paul and Judy this.

Will telephone tomorrow from Hawaii.

With love,

Carleton

September 11, 1972

Miss Jaqueline Johnson  
c/o Dr. Walter Garey  
R/V Alpha Helix Program  
214 Physiological Research Lab.  
Scripps Institution of Oceanography  
La Jolla, California 92307

Dear Miss Johnson:

I am returning herewith Mathias Marodol's ticket; at the present time it is not required, and if it should be in the future, we shall let you know.

Thank you.

Sincerely,

(Mrs.) M. Poms, Secretary  
D. Carleton Gajdusek, M.D.

Port Vila, New Hebrides  
September 14, 1972

Dear Marion, Linda, Stephen, Ivan, Ralph, Nancy, Mint, Joe, Steven, Nancy, et. al:

Here on board! All marvelously luxurious and a bit embarassing in its luxury.

The most urgent matters are, of course, the hope that you would telephone around the world, starting at the Micronesian Hotel, Guam, and try to locate Don Rubinstein informing him to race for Vila. He could even arrive with Jean Guiart on the 18th (1600 o'clock in the afternoon) from Noumea and still be with us! However, since you have probably not found him, I guess we shall miss him for the first and most exciting part of the trip! However, the second part starting from Graciosa Bay, Santa Cruz, in mid-October, is still open to him. At present I am expecting the following:

Dr. Michael Alpers  
Dr. Stephen Wiesenfeld

to join us on October 15th or 17th--whenever the plane flies down--on Santa Cruz in the BSIP. There is only one flight of the small plane a month from Honiara to Graciosa Bay, Santa Cruz, and thus bookings, paid in advance are essential. Be sure the someone--tell Stephen and Michael--sends MacGregor or the SOLAIR company the \$100 odd dollars for these two bookings immediately! We might lose them if they did not and a charger flight would cost over \$400!

I am so amazed at the accomodations and luxury of the laboratory, and look with such hope at the future, that I urge Joe Gibbs to try to clear out and also come with us for the latter half of the trip. He could board from Santa Cruz on the 15th-17th and leave us in three and one-half to four weeks from Honiara on November 12th-15th. He could, if he had time, come on to Ponape, as well. It would be wonderful for us and for him as well. Urge him with all persuasion to do so. We need him badly. If Joe Gibbs can come, be sure to telephone and cable MacGregor in Honiara for a third place on that plane, and if Don Rubinstein is located and coming, a fourth place is also needed. I suspect that it only carries 5 or 6 passengers! Thus, this will require cables, telegrams, night radiograms, etc. QUICKLY. If all worked out, we would have added to our component in Santa Cruz, in addition to Michael and Stephen, listed above:

Dr. Joe Gibbs  
Don Rubinstein.

The final reservations paid to SOLAIR, Honiara, for that once-a-month flight are the critical part of the whole arrangement. One cannot just arrive and be sure of getting on!



We shall require confirmation at sea via radio from Walter Garey, of Scripps, as to just who of all these four are coming, and also confirmation of the date of the flight, for from here in New Hebrides out, I cannot find the SOLAIR schedule. Finally, even though MacGregor in Honiara has signaled us that the places are booked for Michael and Stephen, the money for the two flights has to be sent to SOLAIR, and the flights should be RECONFIRMED now by radio for both of them...and booked for Joe and Don, if they can come.

Jean Guiart is holding us up a day, having sent us the enclosed cablegram from Paris.

Liquid nitrogen: NO SIGN OF IT AS YET. I shall start telephoning Noumea from here if it is not on today's flight from Noumea. I am told that at Tontouta Airport, Noumea, it is likely to be fully forgotten. It is the most critical issue of the trip at the moment. You should phone Brisbane and learn of the consignment number and exact number of thermos flasks of liquid nitrogen sent and date of dispatch and route of dispatch. Without this, I do not know the direction to start hunting by radio and phone from here. If it went via Noumea, telephone Dr. Guy Loison, Director of Medical Services, South Pacific Commission, Noumea and ask him for help in getting it off on the next plane IF it is not already off.....if this letter is in your hands on Monday, September 18th or Tuesday the 19th. If we have not got the liquid nitrogen before then, we are seriously delayed, and I should be telephoning you before that and him as well. In all cases, I need the radio signal of the consignment number, quantity and route of shipment from Brisbane out! This needs to be sent by radio...Scripps radio cannot reach us here in port, for we are forbidden to use the ship's radio here in Vila, and must rely upon commercial telegrams.

---

Friday, September 15th. Françoise arrived non-stop from Paris yesterday and is moved into her stateroom--which she and Judy will share. We had a fine evening in Vila and are starting to "unpack" the stacks of mail and supplies which we sent. Most of it seems to have arrived well, but some is still to arrive today.

Should I signal you re. liquid nitrogen, that will be the most urgent matter, and must be handled by phoning Brisbane, Noumea, etc. etc. However, if it is not here by Monday we may have to sail without it, severely curtailing our program! The only hope then is to send it all on to Honiara and have it brought down a month from now to Santa Cruz--and that probably will not work without sending it all back to Noumea for refilling! We shall see.

I shall be writing at length shortly, for after Monday, unless we meet a ship at sea, there is no way to send off further mail. However, we will keep in close touch with you by radio.

PLEASE verify Michael Alpers' and Stephen Wiesenfeld's arrivals on the 15th (??), give us the date, at Graciosa Bay, Santa Cruz, by SOLAIR from Honiara promptly, checking with Michael by phone or telegraph. Also, be sure to reconfirm the SOLAIR flights and have Michael and Stephen send off the necessary fares.

Finally, also let us know whether Joe Gibbs can possibly join us on the second half of the trip. He could also have the chance of doing the last week or two at Ponape, but BSIP would be better. Try to reach Don Rubinstein by cabling Jack Baker, Ralph Bulmer and others at both University of Papua and New Guinea and also at Australian National University, New Guinea Study Unit, Port Moresby, with emergency messages to Don Rubinstein to cable you. Ask him also to join us at Santa Cruz and check with Garey. Be sure to say his participation is for his Ph.D. work in anthropology and linguistics!

With love,

Carleton

September 17, 1972

Dr. Arighi  
French Hospital  
Port Vila, Efate  
New Hebrides

Dear Dr. Arighi:

John Makali, a 59 year old male from Makatea village, Emai, who was in our study of that village 8 years ago, has arrived to complain of shortness of breath on exertion and no other symptoms. On examination he has flatness over the right lower lobe, anteriorly, and dullness extending laterally to the mid axillary line. He has increased tactile fremitus and depressed breath sounds over the right anterior and lateral chest and some limitation of movement of the right chest wall in breathing. His signs include moist rales over this lobe and laterally. This suggests a pleural effusion and consolidation in the RLL.

On later questioning the patient reveals he has been a long time in-patient in the French Hospital on treatment which sounds as though it were anti-tubercular. We have told him to return to see you for new x-ray studies and possible treatment of a recrudescence, should your studies warrant this.

Sincerely,

D. Carleton Gajdusek, M.D.



Port Vila, Efate  
September 18, 1972

Dear Marion:

Please mail (put stamps on--I left a book of 11¢ stamps in Ralph Garruto's desk) the American Express payment. It is for over \$1100 so it is urgent.

Please, in early October to mid-October, get next American Express statement and radio me the amount due to the Alpha Helix. Do not mail the statement--I cannot receive it on time anywhere! Radio me the amount due and I shall mail off the check to them. Please keep asking Joe Wegstein and the boys for it (it comes to my home, not my office) starting October 7!

Don Rubinstein and Paul Brown are here. The most urgent matter is the dispatch to Santa Cruz of three or four 20 liter liquid nitrogen reservoirs for the mid-October once monthly flight from Honiara to Santa Cruz. We hope Michael Alpers, Stephen Wiesenfeld, Joe Gibbs and Nancy Rogers will be on that flight. It is really a once-in-a-lifetime opportunity and we hope you can talk Joe Gibbs into coming. We need him in the tissue culture lab and Nancy too! Badly! They would have a wonderful time. I know that Michael has signaled me that he cannot make it. Do not give up our Santa Cruz plane reservations--keep them open for use by Joe Gibbs, Nancy Rogers, Stephen Wiesenfeld, liquid N<sub>2</sub> and others!

Above all, keep trying to get Joe Gibbs and Nancy to come. The ship is luxurious and fantastic and the laboratories are wonderful!

Urgent, find our new liquid N<sub>2</sub> reservoirs. They are not at Brisbane! Get them to Brisbane and have them filled for the October 15th flight Honiara to Santa Cruz to meet us! We need these four reservoirs of 20 liters each (no fewer than 2 will do!). Dr. MacGregor must be called to help be sure they get on the plane, and Brisbane must get the new reservoirs which were not there yet (where did they disappear to from the back room of our office when I thought they had gone off to Brisbane blood bank?).

We sail tomorrow. All is fine.

Remember Don Rubinstein is already with us. He made it!

With love to you all,

Carleton

4 a.m., September 18, 1972  
Port Vila, Efate

Dear Jean:

Greetings!!

We MUST sail at 8 a.m. tomorrow. Keith Woodward wants to see you badly and has planned to eat out with us (Rosi's??)--tonight.

Please go right to the Alpha Helix and check in and then do what you wish and find out from Keith when he wants to eat together and set a time.

We shall be back from Ekipé village (Tongariki) by 5-6 p.m.! on board ship.

We welcome you--it should be a fabulous trip!  
Carleton

September 28, 1972

Dr. Robert Huebner  
 Chief, Viral Carcinogenesis Branch  
 National Cancer Institute  
 Bethesda, Maryland 20014

Dear Dr. Huebner:

The R/V Alpha Helix is a floating laboratory facility having an unequaled capability for the support of expeditionary biological research.

Purposes of this letter are to better acquaint you with this laboratory ship and its research program, and to stimulate you to imaginatively consider the possible utilization of this scientific facility for first-hand investigations of biological problems of your interest.

The facilities of the Alpha Helix provide a scientific support capacity which permits one to carry on technical experimental research in all of the regions of the earth that are covered or approached by water. The laboratories of the ship are especially outfitted for each research effort, and sophisticated instrumentation (even including a Zeiss electron microscope) has been successfully used aboard ship. Further, any competent land-based scientist can quickly function nearly as effectively in the ship's laboratories as in his own. The essential difference between his home laboratory and those of the Alpha Helix is that those of the ship are mobile.

The ship and its supporting laboratories provide a particularly conducive environment where 12-member scientific teams, often of international and interdisciplinary character, are assembled for the concentrated practice of science, as the participants work and live together over a number of weeks. Six years of Alpha Helix programs have demonstrated that, under these conditions, scientific productivities are unusually high and that the total individual and group experiences are uniquely rewarding.

A greater appreciation of the essence and the variety of research activities supported by the Alpha Helix over the years can be gained from the enclosed booklets. The one entitled "Alpha Helix Research Program: 1969-1970" briefly recounts research efforts prior to 1969 by chronicling the expeditions and by listing the titles of the field reports and the resulting publications. Each research program of 1969 and 1970 is prefaced by a general account of the work and is followed by the abstracted field reports of the scientific investigations. The programs of last year are presented in a similar format in the booklet "Alpha Helix Research Program: 1971".

The most recent updating and projecting of the scientific program of the Alpha Helix appears below.

<u>Research</u>	<u>Locale</u>	<u>Chief Scientist</u>	<u>Institution</u>
Anthropology of Natives	Solomons	A Damon, MD	Harvard U.
Native health & disease	Solomons & Hebrides	C. Gajdusek MD	N.I.H.



Ophthalmology of Natives	Pingelap	R. Carr, MD	New York U.
Sea Snake biology	Off North Australia	Dr. W. Dunson	Penn State U.
Neurobiology of fishes	Barrier Reef	Prof. S. Hagiwara	UCLA
Photorespiration in aquatic plants	Barrier Reef	Prof. E. Tolbert	Mich. State U.
Marine mammal physiology	Bering Sea	Dr. R. Elsner	UCSD
Muscle protein & multi-enzyme regulatory systems in fishes	Off Hawaii	Prof. P. Dreizen	State U of NY
Enzymatic utilizaton of halogen ions in marine life	Baja California	Prof. L. Hager	U. of Ill.
Medicinal and toxic plants	Colombian Amazon	Prof. R. Schultes	Harvard U.

The above programs, excepting the last one listed, are currently scheduled to engage the Alpha Helix thorough February of 1974. The Amazon River and the Pacific Ocean are potential areas of operation for the ship during the remainder of 1974 and throughout 1975.

Your recognized scientific competence and perceptiveness qualifies you as a prospective chief scientist for an Alpha Helix expedition. I encourage you, therefore, to contemplate the exciting research possibilities in the offing, to discuss these with your associates and to consider the developing of a scientific proposal for the utilization of this facility during the period 1974-75. General Information regarding such a proposal appears on page 43 of the enclosed 1971 booklet.

Once a proposal has been approved and funded, our support group offers the chief scientist and members of his team major assistances in the coordinating, the scientific logistical preparations and in the carrying out of the particular expeditionary research program.

I shall be looking forward to receiving your telephoned or written reply to this letter.

Best regards.

Sincerely,

Walter Garey

October 11, 1972

Dr. Walter Garey  
Program Manager  
Alpha Helix Program  
Scripps Institution of Oceanography  
P.O. Box 109  
La Jolla, California 92037

Dear Dr. Garey:

Thanks very much for your interesting letter and background literature on the Alpha Helix. In our present program I don't see much need for the mobile facilities described. However, some of my colleagues (i.e., Dr. Carleton Gajdusek and Dr. Jacob Brody, Neurological Diseases and Stroke Institute) may be interested, and I have taken the liberty of referring your material to them. Another possibility would be Dr. Leon Rosen, Chief of the Pacific Research Section, National Institute of Allergy and Infectious Diseases.\* You may want to contact Dr. Rosen directly.

Sincerely,

Robert J. Huebner, M.D., Chief  
Viral Carcinogenesis Branch  
National Cancer Institute

\*Leahi Hospital  
3675 Kileuea Avenue  
Honolulu, Hawaii

October 16, 1972

At Sea: Hiu Island, Torres to Santa Cruz

British Resident Commissioner  
Port Vila, Efate  
New Hebrides

Dear Sir:

The Alpha Helix medical and genetic survey of the Banks and Torres Islands has been successfully completed. We are grateful to you for the enormous logistic support afforded by your personnel and for the participation in our program of Doctors Donald Bowden and Stanley Reveag. Dr. Stanley was returned to his home at Mota Lava by the Alpha Helix. Dressers, priests, headmasters and teachers of British Schools and the directors and staff of French schools were all very helpful on all islands. The people of all islands were enthusiastically cooperative and wonderfully hospitable.

We found no current evidence of malnutrition or insufficient food. Continuing drought now threatening the gardens has the people worried on some islands, particularly the Torres.

We encountered no epidemic illnesses, but varicella and conjunctivitis, both mild, are proceeding through several islands slowly and without major complications. Herpes zoster, probably related to the varicella, also was seen in adults.

A total of 1481 blood specimens were collected, 1232 from Banks Islanders and 249 from Torres Islanders. (Forty additional specimens had been taken earlier on Tongarikians on Efate.) All subjects bled were given full physical examinations. In addition, medical clinics for all those with complaints or desiring a physical examination were conducted on all islands. The survey of Merig, Ureparapara and all four Torres Islands was a total population study, with blood specimens collected and examinations performed on everyone on the islands.

Laboratory studies will be continuing for over a year in collaborating American, Australian, British, French and Singapore laboratories. Results of these studies will be sent to your Medical Director as they are completed.

X-rays, electrocardiograms, and complete neurological examinations were done on selected patients, particularly on Ureparapara and Loh. Mycobacterial sensitivities were done, using PPD plus six atypical mycobacterial antigens and using also histoplasmin and coccidioidin on Merig and Loh Islands. No mycotic sensitivities were found. Stools for ova and parasites were collected only on Ureparapara. Thick and thin blood smears and other hematology was done on many islands.



Laboratory studies to be done include seroepidemiological antibody determinations and selected biochemical studies and hematology. Genetic studies include red cell enzyme determinations on frozen erythrocytes, and palm print measurements, color blindness evaluation, and complete record of congenital anomalies found and observable familial traits. Full genealogical information has been collected on all islands including extensive study of marriage systems and specific patterns that have occurred.

A more detailed report of the overall medical observations and a detailed list of patients by island requiring further attention has been mailed to your medical director from Santa Cruz, and a copy is attached.

We thank you for your cooperation and assistance. We have enjoyed our work in the New Hebrides greatly.

The enormous special effort Dr. Roger Greenough, your Medical Director, has made in making this expedition possible and insuring its success has been fully realized and greatly appreciated by all members of our team.

Sincerely,

D. Carleton Gajdusek, M.D.  
Chief Scientist  
Alpha Helix Expedition

Enclosure: Report

## Overall Medical Observations:

General good health of both Banks and Torres island populations with no current evidence of malnutrition or insufficient food, although lack of rain with consequent risk to gardens a cause of concern in near future.

No respiratory or gastro-intestinal epidemic illness encountered, but varicella recently has passed through several islands. Majority of population noted to have been vaccinated. Spleen frequency suggests hypoendemic malaria on Mota, Mota Lava, Vanua Lava, Ureparapara and Hiu, lower on other islands. Specific data from hematologic survey to be forwarded when complete. Chronic filariasis severe on Hiu and Mota, with several cases of elephantiasis, but largely subclinical elsewhere. Tuberculosis not a severe problem with only possible rare scattered cases noted below. BCG scars noted on majority of population. Chronic bronchitis sometimes with asthma not uncommon among the elderly. Scabies, tinea and lice prevalent on Mere Lava, Merig and some villages of Gaua, much less elsewhere.

Clinical cardio-vascular and endocrine disease virtually absent. Scattered cases of gastro-intestinal and genito-urinary illness. Neurologic disease largely congenital or traumatic; in particular, little evidence of polio disability except on Mere Lava after single epidemic about 10 years ago. Epilepsy, parkinsonism, and sequellae of neonatal encephalopathy noted sporadically. Untreatable familial genetic disorders will be summarized later.

<u>Name</u>	<u>Sex</u>	<u>Age</u>	<u>Father</u>	<u>Mother</u>	<u>Village</u>	<u>Island</u>
<u>Chronic purulent otitis:</u>						
Eston Edwoyveluy	M	16	Selwyn	Julianna	Nereniuman	Mota Lava
Timothy	M	5	Eldon	Emily	"	" "
John Levy Austin	M	8	Joseph	Rotam	Vetemboso	Vanua Lava
Melody Tlesmes	F	8	Levi	Jesse	"	" "
Dudley Visti	M	8	Lolowia	Augusta	"	" "
Nancy Smit	F	5	Basil	Selina	St. Barnabas	Mere Lava
Emily Roban	F	45			Nereniuman	Mota Lava
Fraser Mantagtag	M	50			Avar	" "
(with conductive hearing loss)						
Alfred Vanleer	M	6	Victor	Fesica	St. Paul	Mere Lava
<u>Cataracts:</u>						
George Seranwia	M	53	Rupert	Panne	Levolvol	Merig
Disi Rundung	F	55	Lonsdale	Linges	"	"
Tambita Rugilmat	F	55	Rupert	Fanny	"	"
Basil Toghar	M	70	Luke	Jenny	Lehali	Ureparapara
Caroline Yenanmaslei	F	70	George	Alice	"	"
Mary Atkin Rosungnun	F	60	Colop	Merepaniel	"	"
Jurlea Munun	M	60	Johnson	Lese	"	"
Nancy Wovira	F	65			Rah	Mota Lava
Julian Sari	M	52	Tellie	Amelia	Togelap	Mota

Corneal Opacification or Scarring:

Rose Mary	F	10	Viktor	Jesica	St. Paul	Mera Lava
Martin Augustin	M	Adult			"	"

<u>Name</u>	<u>Sex</u>	<u>Age</u>	<u>Father</u>	<u>Mother</u>	<u>Village</u>	<u>Island</u>
<u>Corneal Opacification or Scarring, Cont.:</u>						
Amy Romarus	F				St. Stephen	Mere Lava
Margaret Mecella	F	12	Elwin	Augusta	Namasarig	Gaua
Jurlea Munun	M	60	Johnson	Lese	Lehali	Ureparapara
Dora Reneiow	F	40	Mark	Kati	Longharagi	Loh
Norman Menesley	M	34			Avar	Mota Lava
Estella Merepanum	F				Totoulagh	"
<u>Operable Strabismus:</u>						
Dunstin Roseltari	M	10	Simeon	Marion	St. Luke	Mere Lava
<u>New TB:</u>						
Simeon Moravu	M	Adult			Mesina	Vanua Lava
Mary Rovak	F				St. Barnabus	Mere Lava
Henry Rone	M	50	Albert	Kani	Veteboso	Vanua Lava
Emily Ramary	F				St. Barnabus	Mere Lava
<u>Old TB:</u>						
Charles Grosso					St. Paul	Mere Lava
William John					"	"
Elina Rotam					St. Stephen	"
<u>Possible TB:</u>						
Grace Morowoklikwe	F	6	Walter	Irene	Longharagi	Loh
(Unhealed wound from surgically excised supraclavicular node six months earlier, said to be non-specific inflammation, nevertheless on INH)						
<u>Inguinal Hernia:</u>						
Sailas Muighegha (Massive)	M	50	Misak	May	Yogavighanema	Hiu
Jim Collin Tuwioi	M	14	Simon	Mable	"	"
<u>Undescended Testicle:</u>						
Culwick Bedam	M	7	Zaccheus	Sarah	St. Paul	Mere Lava
<u>Hydrocephalus:</u>						
Winni	M	6 mo.	Song	Nancy	Aota	Mere Lava
(Definite hydrocephalus, possibly post injury)						
<u>Anemia:</u>						
Hamilton Rosel	M	14	Norman	Korin	Levolvol	Merig
Juliane Christine	F	30	Charlie	Jenny	Tanno	Ureparapara
Westa	F	75	John	Yeloppile	Lekwarangle	"



<u>Name</u>	<u>Sex</u>	<u>Age</u>	<u>Father</u>	<u>Mother</u>	<u>Village</u>	<u>Island</u>
<u>Possible new case of leprosy:</u>						
Billy Edward	M	40	Fred	Lessa	Veteboso	Vanua Lava
<u>Severe active trachoma:</u>						
Christine Rogartele	F	13	Morris	Mary	Lebot	Gaua
<u>Unknown lesion of sclera, possibly episcleritis, 1 month duration:</u>						
Joyce Levogogon	F	15			Avar	Mota Lava
<u>Myopia:</u>						
Mary Maidi	F	38			"	"
<u>Chronic ulcer:</u>						
Patterson Tatendikwe	M	16	Belam	Madelaine	Yogavighanema	Hiu
(Bilateral sixth fingers should also be removed)						
Salina Palalote	F	60	John	Mabel	Longharagi	Loh
William Tule	M	14	Caspat	Rose	St. Paul	Mere Lava
Erik Por	M	Adult			St. Barnabus	"
(Severe traumatic arm infection, treated by us but needs follow-up)						
<u>Orthopedic problems needing evaluation and therapy:</u>						
Rebecca Rien	F	9	George	Freada	St. John	Mere Lava
(Bilateral wrist deformities, probably post-traumatic)						
Jeffery Mol	M	7	Mathias	Joyce	St. Barnabus	" "
(Limited range of arm motion since fracture)						
John Bill	M	31	Sain	Naga	Lowutgei	Mota
<u>Abdominal symptoms for evaluation:</u>						
Vesuva	F	Adult			Rah	Mota Lava
(possible ascites, severe edema and anemia, possibly abdominal tumor)						
Laisa Gheteyang	F	40	Annes	Ella	Yogavighanema	Hiu
(Melean for eight months by history)						
<u>Possible cardiac disease:</u>						
Michael Dingeion	M	22	George	Martha	Lehaloro	Ureparapara
(No symptoms but cardiomegaly and murmur)						
George Selwyn	M	17	Jonathon	Alice	Lehali	"
(Cardiomegaly)						
Laisa Rokwirol	F	60	Willy	Merriam	Longharagi	Loh

Honiara, Guadalcanal, B.S.I.P.  
18 October 1972

Dear Carleton:

I hope everything done here works--some things are "chancy"--

- 1) Shipment to Santa Cruz of 9 cartons numbered by priority; all to go on the 24th
- 2) Standby for return flight for Jean
- 3) MacGregor storing remainder of supplies:
  - a) LN (3 full cannisters) in cold room
  - b) Dry goods locked up
  - c) tissue culture at 37° (HEK, will probably die in interim)
- 4) MacGregor checking out all possible sources of CO<sub>2</sub> at Honiara
- 5) Shipment of RBC to Singapore the 24th (directions including cable made explicit)

I will call Gary re: Mbaginta'o or/and Joe on arrival--also redispach cables to New Hebrides--also scout CO<sub>2</sub> containers--also check Kirk and Singapore for receipt of specimens--also alert Kirk and Guam re shipment CO<sub>2</sub> containers and CO<sub>2</sub>.

Hope the trip continues to be productive, I regret not seeing Anuta and the other isles, but I must pull myself out of this present situation.

Paul

October 23, 1972

Dear Carleton,

Three days of Tikopia is not enough, even with Firth's book around. Te Ariki Kafika is a crafty old fox, who put me in a kind of golden jail, and would not answer a straight question. The English of his son Edward is difficult. Te Ariki Tofua has a son with a better command of anything which can be a means of communication.

I would say, by all means, bleed in Mufuntu, at the landing spot. But do not forget to bleed in Namo, the farthest village, which commands the evacuation canal of the lake. It is out of the way, difficult, and could bring in the problems of people of exterior origin. They have the least control over the land. There are sick people there to be attended to and I promised them doctors would come.

They pretend in Yakarte that the German sailor which was Dillon's informant did not marry and that they killed him because of his wickedness. They state too that they killed a Haoli, who is said to have been R. Firth's grandfather (?), a man called Pilo Ponare.

The Tikopian islanders gone to the New Hebrides in canoe, via Vatkhanay (or Vitade as the Banks call it), are the following:

(in Namo:	Andrew Matofa (now on Tikopia)	Akefon village
(	Arthur Niumano	" "
1953(	Jazel Tekaumato	Naarek village
(in Matauki:	Frank Saparika, house of Koroatu	Mataafauga village
(	Martin & Tanap (twins), house of Paaka	" "
(	Ambrus Makoirangi	Faretupu village
1942(	Henry Sorumia	" "
(	Jake Tanuma	" "

When you take a name, ask for the "home name" which is the vernacular and for the name of the "house" or the "parito."

Difficulties of communication have rendered the genealogical task hopeless in two days. It needs a good three weeks stay.

They, being very patrilineal as regards transmission of land, resent being told that they might have exterior origins. Nevertheless can be listed:

- Frederic Sowaki, head inspector of police in Honiara, but present.  
Married with Malaita wife.
- Sikaiana " (Mary): Father Kidert, of Pohsiko, not present
- Bugoto, Santa Ysabel: Father Marvyn, of Namo, the present headmaster
- Santa Anna: Beka, Patauyma, of Matautu, not present
- Western Solomons: one man, not present
- Bellona Island: one woman, not present



married to New Hebrides wife:

- Jackson in Mota Lava (he is of Tukutaunga)
- Jones in Santa Maria (dakona) (he is from Alanga)
- Andrew of Matafauge, in Santo
- Joseph " " " "
- plus one

Former contacts, marriage and war, included the Banks, Santa Cruz, Reef and Duff Islands, Ellice Islands, Sikaiana, OTanglara, Rennell and Bellona, Rotunga, Tonga and Samoa. An ancestor of Te Ariki Tafua was killed on Ureparapara before the white men came, as they had set on an expedition to conquer the Banks Islands in a truly Tarzan fashion. Ask Tefua [of the] Famous Fathers [who] came from Rennell. The analysis of your blood samples should give the questions to which we might try and answer.

Firth saw two albinos in the same family. There do not seem to be many around and there is little evidence of European blood.

Firth traces albinism in the following parts: Resiake (p. 16-17)  
S'ku

You might get the descendants either at random or through asking for Mern specifically. One of Te Ariki Kafika's forefathers was an albino. As I am writing I am looking at Te Ariki Tefua in front of me. He certainly claims from some Melanesian blood, whereas the fine features and hooked nose of Te Ariki Kafika appear rather stable over the generations. Maybe they chose their wives differently.

Well, thank you for the ride, the joys and small sorrows of this trip. I leave with the the Tongariki file, and will try and send on the other data from the Banks and Torres. But please send me a copy of the bleeding lists so that I can go through, especially for Ureparapara and Merig.

With all the very best,

Jean

P.S. Don't sleep at the anchorage without a mosquito net. Defecating is done in the sea (bathing in the nude) or in the lake, not on shore. These are the Tikopia fed...

Te Arik Kafika and Te Arik Tafua should be given presents (food and money, 2 to 4 \$ each), equally Taumako and Fangarese.

I included traveler's cheques to the amount of 30 \$ US which is what I spent for myself from your pocket. We have been living cheap...

Santa Cruz

October 24, 1972

Dear Dr. Gajdusek,

Just a quick note. We are being transferred from Santa Cruz to Honiara on November 25th, so time is rather precious for me at this end, and I must remain here.

Leonard, the Medical Assistant at Tikopia, asked for some supplies. There are four bags of rice and two tins in the lab. Could you make sure he receives these please. Also the letter with this, addressed to Leonard. Inside this letter, to Leonard, I have put \$6 asking him to purchase me a mat. Perhaps you will be kind enough to bring this back to Santa Cruz for me.

See you in Santa Cruz.

In haste,

Richard Lee

R/V Alpha Helix  
Honiara, BSIP  
November 13, 1972 3:30 a.m.

Dear Marion, Paul, Stephen, Ralph, Linda, et al.,

As Paul has surely told you the program has been so rushed there has been little time for thinking, for relaxation, for anything but keeping up with what we set out to do. Thus, from 6-7 a.m. through the late night hours fully 7 days a week, everyone is busy beyond anything we anticipated, and there is little time to recount to you what is going on or to sit down and take care of personal matters. This surely applies more so to me than to the others, for I have an enormous load to carry on this expedition. It may now simmer down and in about 3-4 weeks I shall be home.

Here in Honiara there is simply no spare minute, with the furious attempts to get everything from x-ray films (almost 500 of them weighing 75 pounds!), record books, slides, specimens of every sort, films and artifacts off.

The four lost boxes sent from Santa Cruz--which Paul knew he had to leave behind--did get here but did not get off. Now they are supposed to leave on tomorrow's Air Pacific flight to Fiji and on to U.S. as Quantas (or Air Pacific) Consignment No. 081-24817715. In addition I have given four huge boxes more, packed today and yesterday, to our agent for similar shipment tomorrow or as soon as possible. We have packed yet a third box weighing 45 pounds up tonight (2 a.m.) and this we will leave with him tomorrow.

The real problem...getting off the frozen clots and blood specimens will be faced tomorrow when we see whether the plane from Port Moresby does bring in the dry ice or not and whether we can get much of the almost 3000 clots we are sitting on packed and off the next day. Fortunately John Sheridan is leaving here and will try to shepherd the specimens back to Canberra. If he runs expenses in the process, I am hoping that he can transfer them to Eric Shaw--who can reimburse him--and charge our contract with Shaw with them. I can see no other way of getting the matter paid for. It represents 8 doctors' work for 2 months or better than 16 months of professional work besides the captain, shop and crew! \$100,000 would be a low estimate of the value, and to have a "bust" with this would be very disappointing, indeed. As of the moment we must leave Honiara tomorrow night (3 a.m. the 14th) and nothing is yet solved. Tomorrow will tell.

I am hoping that Ivan will join us for Pingelap, and obviously I am furious with Scripps and NIH for leaving it to me. I have little to be grateful for from our administrators or NIH, for what we get done is as much in spite of them as with their assistance! If I listened to their advice and directions I would be a worthless research worker...puttering around with things neither intellectually worthy of my attention nor scientifically anything but obsolete before we started.



I thank you, Marion, Joe and others, for NOT loading me with all the accumulated mail and problems here at Honiara. I could not even open mail and read it while here at port. I have seen Paul's manuscript and, in a drizzle while awaiting a boat to take me out to the Alpha Helix laying in anchor in the harbor, I have scanned it and started to correct it. It will be mailed from Ponape when we reach there in 4 days. Good work! I am going over Genetics VII en route to Ponape also, but how in the world did Steven ever let me off with the ONLY COPY...it sounds ridiculous, since we NEVER do that, and also, my copy is xeroxed? I thought he could finish it off and submit it. Will do what I can in next four days.

My rent check, probably late when you get it, is enclosed. I had hoped my American Express bill would be here. Pray that it is in Ponape, for I will be in trouble if it is not. Please, Marion, send in the rent check promptly.

I need word from the boys, and Mororui told me very little when I telephoned him from the ship off Vanikoro one morning...virtually nothing about what was going on. It was a bust!

I am not even sure that Mat got to Ulithi at all before he rushed back to D.C., but do not intend to revive that story, even in my thoughts now. Plenty of time once I am back. Warning: from the tone of Paul's last cable, I am prepared to take off maximum leave and then sit at home doing real work on reading and papers and avoid all contact with our administration if it plans to bug me on my return. I had enough of that when last back and will not accept any more.

No, Joe Gibbs should NOT approve anything that will permit Dick to play the game of disappearing just before I surface to resurface himself just after I leave. A neat further trick of parasitism. I will not approve anything and if administration and those above me wish to, then it is on them and their judgement and they cannot throw the approval back at me later. I think Dick should go off on the trip but not continuing under my support. That is what it amounts to until he transfers to another supervision or finds himself a new post. If I approve, the situation will NEVER change. It must.

No more for the moment. 4 a.m. and we must be up at 6 a.m.

Tell the boys I miss them, and will soon be back.

Love,

Carleton

At sea: Honiara to Ponape  
November 15, 1972

Dear Bob:

Apologies and all that, but let me try at least, to calm you down.

The Western Caroline paper is fine, and I do not see what more you need from me on it. I have gone over it carefully and am returning it herewith for your submission--unless you have already submitted it.

I am finished with the New Hebrides and British Solomon Islands Protectorate expedition. There were 1519 specimens collected in the New Hebrides, under 100 of them from our Tongarikians and the remaining 1400+ from Banks and Torres Islanders, with COMPLETE COVERAGE of all the Banks and Torres Islands, none omitted! We similarly covered all of the southernmost BSIP islands, in the next bleedings: these number 1520-2769 inclusive. Within the numbered series are a number of missing numbers or lost or broken or qns specimens...not many.

Summary of disposition of specimens:

Erythrocytes (small volumes of 0.5-1.5 ml taken into 1 dram vials on residual sera from clots and kept at 0° to 4°C until delivered to either you or Simons in Singapore). You got two shipments of early NH clots, and the remainder of all the NH clots went off directly to Simons from Santa Cruz. He apparently complained that they were "inadequate" although Leyshon and Simons had managed with such specimens in the past. Thus, in NH we started taking 1.0 to 1.5 ml as often as possible. His request for 2.5 ml clotted blood overlapped with the clots and serum for ourselves and your laboratories.

The BSIP collection of erythrocytes 1520-2769 has all gone off with John Sheridan, at 0-4°C I hope, and you have it. I know that you cannot handle it all and that Paul is arranging with Leyshon and/or Simons and others to see who can. Since the logistics of getting them off were dreadful, I took the liberty of sending them to you via John Sheridan, radioing Paul Brown to decide with you in conference by phone (call him, collect) who should get which, and asking you to dispatch them accordingly. We will get you some sort of contract funds to reimburse you for these expenses.

RED CELL CLOTS: Residual in vacutainers after removing sera. These were promptly frozen in a Revco which should have stayed at -70°C but which did not drop below -40°C on the ship and stayed at -38°C unvaryingly the whole time. Specimens 1-1897 were so stored without ever being moved! The clots beyond Nos. 1897, i.e. all numbered 1898-2769 inclusive were instead placed directly into a walk-in freezer running -10° to -15°C and not moved from there until packed in some dry ice and quickly transferred to a colder freezer in Honiara until John Sheridan took off with them for Canberra.

THEN THE TROUBLE STARTED. The next morning, November 14, we found the Revco totally thawed although still registering -38°C on the gauge. Its



contents were not even frozen in the bottom, but were still "cool" (temperature not recorded) and they were rushed into the  $-15^{\circ}$  to  $-10^{\circ}\text{C}$  where they now are. Thus they have thawed briefly but not heated up. How long? We know the freezer was deep frozen on November 10th when new specimens were squeezed in on Rennell Island. The low temperature would have held for 2-4 days by the Revco even if turned off. Thus, they have been thawed for not over a day, if we are lucky. Those broken--and there were many--from the thaw, are NOT putrid or decaying, and thus is is NOT for even a day that they got "warm." The collection is unreplaceable and represents an enormous effort. Sera are all perfect, and I hope erythrocytes are OK. Specimens are beautifully documented. Thus it is with the effort to see just how damaged the clots are, if they are damaged, by the brief thaw. Hemoglobins should be OK and J-Tongariki is a key issue in these islands!! Please, Bob, do your best on them.

SERUM BLEEDING LISTS: Four bound volumes documenting the entire collection are now dispatched to NIH. The NH volumes went off 3 weeks ago but got held up on Honiara. They are all now off. On receipt Paul will xerox them, and send you copies.

Finger and palm prints, saliva collections, and total medical examinations have been done and we got more finished than in our Tongariki studies. Thus, all is in order for an enormous expansion of work beyond what we managed on Tongariki...and perhaps the new Tongariki bleedings may add a bit to that old study.

Final note: The Revco breakdown was a dreadful blow. The temperature gauge kept registering  $-38^{\circ}\text{C}$  and that threw us off. We purposely avoided opening it too often once it was full. However, we did put new virus isolation specimens into it on November 10, p.m., and on a.m. of November 14 the specimens were all quickly refrozen on discovery of the breakdown. We know that the massively filled Revco would have held its cold temperature for quite long: 2, 3 or 4 days? Surely at least 2...and the specimens did not warm up to ambient temperature. In view of the stuck gauge, we now realize that earlier storage was probably at  $-70^{\circ}\text{C}$  or nearer to it than the  $-38^{\circ}\text{C}$  the thermometer recorded, for it behaved as though it were down there in the speed of icing up.

No more for now, Bob, but please keep in touch with Paul and he can reach me daily by radio. On December 10th I shall be back at NIH and working full time on this study. I shall also complete any other outstanding work we have with you--some 2 years old and the Tongariki work almost a decade old.

Did you get the West New Guinea and South American Indian paper drafts off to me? I have finished the outline for the South American Indian paper and WNG should be easy now. Again, my apologies for all this hold up. I have most of the year back at the bench and desk and your collaborative work with me has top priority. Thank you for all the patience.

Greetings to your family.

Carleton



Chevy Chase  
November 13, 1972

Dear Carleton,

You have accumulated a pile of mail and I am sending five of the more pertinent looking letters along with Ivan. While you have not communicated with me on the matter, I have written a check for Ivan's ticket on the understanding from Paul Brown that you wanted Ivan to come even if NIH would not pay for it.

Things have been going reasonably smoothly here, except for the Matias problem. Yavine's grades in the first report: English B, Geography C, Science C, Mathematics A, Phys Ed B, Music B, Art A. Tamel and Mororui have not had a report yet. Jesse is taking Biology, English, International Relations, and Japanese. He got the \$464 from Micronesia. He is very anxious for news from his wife since Mathias brought back word that she was pregnant. Ivan has been spending many evenings reading in your library.

Morris Schaeffer took a job at NIH with FDA. The regulation of biotics or something resulting from Tony Morris' activities. While Morris and Josephine were looking for a house I invited them to stay here. Mrs. Schaeffer's presence in the house during the day helps control Mat's activity here.

I rarely see Mat because he comes in sometime in the middle of the night and leaves after I go to work. He almost never eats with us. I have not gotten too upset over him because I have been ignoring him as much as possible. I haven't been worrying about the car or anything. I have laid down the law that he is not to bring his girl(s) to the house without my permission. He has been observing this one rule, but that is about all. Ivan gave up the car soon after Mat arrived (Oct. 16) and now Mat uses it. I have not given any money to Mat for the car, but do give him \$5 a week allowance.

I also gave Ivan \$50 for this trip.

I am planning to drive the boys to Durham to spend Thanksgiving with the Langs. I told Jesse I would pay for his plane ticket so he can be with us too.

Well, so long for now. I must get up at 6 a.m. and drive Ivan to the limosine pick-up.

Sincerely,

Joe

Hamilton College  
Clinton, New York  
Tuesday noon, September 19, 1972

Dear Carleton,

I got your exciting and wonderful letter not more than an hour ago and I must rush this letter on so you may get it in time.

A tree or two has the hints of the fall coming and perhaps a bitterly cold winter after, but hopefully college does not do the same. So far I have found Hamilton a great place to be for studying. All the needed materials for studying are right on campus. A library twice the size of Chevy Chase Library has been completed and there we do most of our studying when our quarters at the dorm are too noisy since we share rooms and each student have different ideas how he may spend his time. I have a nice desk where I'll be doing half of my studies. I have, with the help of my roommates, built a bookshelf out of four cinder blocks and two boards and all of the books I brought up from home are on them now.

My courses are OK but demands a lot and I understand and want to keep with them. Their readings per week are of course unknown [to] high school students but they are challenging and that's my attitude. I am now taking Biology, International Relations, a good and tough course, English, a lot of reading and writing, and Japanese which I have not started due to lack of arrangement by the instructors. They promise to contact the students so I hope to hear from them soon. I have always wanted to take Japanese and I was looking at the idea of going to University of Hawaii in the summer to pick up Japanese but now I can start here at Hamilton. Actually the course is at the girls' college. This is their first year to teach Japanese. I am thinking about an idea if I find Japanese worthwhile to have a summer program at Hawaii and a winter here at Hamilton sometime. If I can dig the money. I will try to contact the people there soon to find out about their summer program, etc.

I have found college enjoyable and hope it stays that way. I hope your trip is enjoyable and perhaps more important productive in whatever you're studying. If you give me your stopping points ahead of time I can write you. Please take care work and don't work too hard as this should be a pleasant and relaxing trip for you and I think you need it. I got a letter from Don only I do not know where it is at the moment. He maybe still in Guam, which is not his choosing, and he may already be in Manila.

He wrote from Guam last Sunday (9/17) and said he was at the airport awaiting his flight and not sure he was getting on since he is on standby. He didn't give me his address in Guam nor in Manila. But I will write to Stanford and hope they know where he is and send it to him. So he might get letter, but perhaps too late to catch up with you.

I will write and you also write and tell me a little about your expedition. I have not heard from home but I miss my wife. You can write her a card and tell her and Itheleng where you are. (That's a good idea.) Please take care and hope to hear from you soon.

With much love,

Jesse [Raglmarr]



Jesse J. Tamel  
 4 Laurel Parkway  
 Chevy Chase, Maryland 20015  
 October 21, 1972

Dear Carleton,

I am so sorry I haven't send you a letter since you left. I miss you and I think so does everyone at home. Yavine is fine and he is doing pretty well in school. He is studying very hard. Mororui is also fine and working very hard too. Ivan and Joe are both still fine. Mathias is home now and he is still the same as before he went back to Micronesia. Jesse called yesterday from his college and said he is still fine and is always busy with a lot of school works. He said the only time that he can see us is during Thanksgiving and Christmas. If he ever come down this Thanksgiving, he might come with em and the others to visit the Langs in North Carolina.

Dr. Morris Schaeffer and Josephine are living at our house right now and every day they would go out and look for a house for themselves. They have been here for seven days. They finally found a little house in Bethesda on Old Georgetown Road just across from N.I.H. Joe just left two days ago to go fishing with a friend of his in Florida. He will be back in two or three days. Mal, Jill and her children are all fine. I am still fine. I am having little trouble in chemistry and did not do too well but passed my last test. I am working very hard on it most of the time that now I always have a little time to spend on my other subjects. I don't think I will be able to start off this year as well as I did last year but I am trying very hard to come back. I am still doing pretty well in my math and Spanish.

It is very cold around here now and snowed two days ago. The snow is gone now but it is still cold outside. I got back some of the pictures that we took on our west coast trip last summer in they were beautiful. I hope you all are having a good time working. I wish I am there with you to see how clear the water is because I am getting sick of looking at Potomac River. I am just kidding.

Anyway, that is about all I would like to say. Good luck on your work and hope to see you in early December. Please give my greeting to all the others, especially Judy, Francoise, Mike Alpers, Paul Brown, Dr. Ferber and those I forgot to name.

Sincerely yours,

Jesus Tamel

P.S. 1. "We missed you"

2. We had a huge cake for my birthday yesterday on October 20th. I am 16 already.

Hamilton College  
Clinton, New York  
October 21, 1972

Dear Carleton,

I hope your expedition has been a successful and enjoyable. I envy you especially now as the winter is rapidly coming. Already we have had snow and the temperature is in the 40s.

When are you coming home? I hope soon because I missed you a great deal. I didn't have any time to talk with you as we were both flying almost immediately in opposite directions. I really have so much to talk to you about and am anxious to see you.

I just learned that Mat is back in Chevy Chase and I am not clear as to why he is back so soon. I thought he is to meet you at Ponape. Tamel told me over the phone that he spent two weeks on Falalop before coming back. I talked briefly with Mat but not long enough to find out what's going on. I just hope he will spend his time wisely before next semester. He sounded fine over the phone. He also told me that my bag which I left in Yap is coming with his own stuff which he mailed when he was on Yap. I am glad because I have some things for you and the boys in that bag.

I also learned from Mat that Christina is pregnant and I am still awaiting a letter from her in order to see whether Mat's telling the truth or just a rumor.

I have some letters in Washington, D.C. which Mat is sending up to me and maybe they can tell me whether or not Christina really is pregnant.

School is coming along smoothly in spite the huge amount of work. We are taking some of our mid-term exams already. I took my government exam last week which was not bad but still have to wait and see results early next week. I also took a Biology test and past it with a B. I got back my first paper for my Government and also past it with a B. These coming two weeks will be testing weeks for my English course. I am managing to survive in English with all the papers we have to write each week. We have to write a paper every week and it is strange why I feel encourage in the class. My teacher first of all is known to be the toughest on campus and second my papers are not too much worse than those of my classmates. We all write shitty papers. I am signing up for a three week inter course in Japanese which is going to be very hard but even if I don't pass I am sure I will learn some Japanese, especially writing. We are expected to spend 12 hours a day on the course which 4 hours of class and 8 hours of research and independent work.

I hope Don is doing well with you. He was happy to have joined you. What is he doing after the expedition? I will write him a letter soon.

I think I am going down to Chevy Chase for Thanksgiving but I am not sure whether I will join the boys. They are going down to the Langs. It sounds good but I want to work on our pictures. I also want to rest at our house and do some reading.

Again, I hope to see you soon.

With much love,

Jes [Raglmarr]

P.S. If you can obtain a copy of Ken's work on Ulithian please bring it with you. I need it for my work.



Hamilton College  
Clinton, New York  
November 2, 1972

Dear Carleton,

I am so very happy to have gotten your letter this morning. It is very nice to hear that your expedition is exciting and so far successful.

School is demanding but I am thus far doing well and I have taken some of my mid-term exams and did well. We got back our Government exams last week. I got 85% which is good for first try in Government. The highest mark in the class of 40 kids was 90%. I am thus far doing B work in my Biology class. I am planning perhaps to continue taking Biology course even if I am not majoring in the subject for each semester. Thus far I do not think I'll ever be majoring in science and go on to medical school but it is still early. The science department here is one of the finest--out of 36 pre-med students last year 31 of them made it into med schools while at Colgate only half that many went to med school. Half of the freshman class have the pre-med ambition but only one-fourth of them remain pre-med in their senior year. But the students chances of going to med school from Hamilton, if they are still pre-med in their senior year, is very good. Thus the pre-med program here is probably one of the toughest in the country. The pre-law is also very demanding and only half of freshmen who are pre-law in their freshman year remain pre-law in their senior year.

We will be in two weeks signing up for second semester courses and I am probably signing up for: Cultural Anthropology, Economics, English, and Biology. I think a taste of Anthro would be helpful and Economics is needed for the advanced courses in Government and International Relations for third, fourth and fifth semester.

Not hearing from my wife and home has worked to depress me because I do not know what's happening and miss them a lot, but I hope to get a letter soon. Mathias was very vague in his explanation of my wife's pregnancy and that has given me a lot of anxiety and longed a great deal for more information.

Mat is in Washington and I am not clear as to what he is doing and I will be with them for Thanksgiving and I will surely find out what he is up to. I join you in hoping that he has something fulfilling in mind.

Please give my best to Don, Judy and crew. I hope to see you all soon!

Much love,

Jesse [Raglmar]

P.S. Did Don get my letter, sent to Solomons!

4 Laurel Parkway  
Chevy Chase, Md 20015  
November 5, 1972

Dear Carleton,

How are you? I hope you are still well. I hope you received my letter which I sent few weeks ago to Santa Cruz Solomon Island.

Dr. Stephen Wiesenfeld is going to take our blood because he found some unusual chromosomes in Ivan's blood.

Raglmar wrote us and said that he might come down here during Thanksgiving Day. Dr. Lang is still inviting us down to North Carolina to join them. Raglmar said that he is getting homesick, because he heard that his wife (Christina Tokeliyor) is pregnant. He said that he has to read 400 pages homework in college. I'm trying to write to colleges one of these days.

Now there are lots of movies downtown. Joe sometimes take us out to see them. When we were in New York, we went down to the Metropolitan Museum and there was a good Russian exhibition there in the museum. We were hoping that you were there with us.

Carleton, I'm very sorry when I was talking to you on telephone. When you asked me if Mathias is doing the same business and I said no, because he was standing beside me near the telephone. At 2:30 a.m. that night they called from Alpha Helix Headquarters in California. The telephone in our house was ringing about fifteen or twenty times until I woke up and ran down and answered it. He said that you were going to call in two or three hours. I decided not to wait until then because we had school that day. I went back to sleep until 6:30 a.m. when the phone rang again. Then I went down and there was Mathias answering it. When he knew that you were the one who was talking he gave me the telephone. I asked him why did not he talk to you. He said that he doesn't want you to know that he is here.

Mathias is back home now and he is not helping us in the house. He rarely eat with us. He is not sharing the housework with us. He never let Ivan use his car. Before he came back Ivan spent most of his time trying to make the car run. Ivan spent about \$200.00 or \$300.00 on that car. Now Ivan goes to work with either Joe or Morris. Carleton you have to think about that situation. I feel so sorry for Ivan about that car, and I do not want to have brothers like Mathias who doesn't think and share with his family. Mrs. Morris Schaeffer said "Hello to you." Carleton I want to hear from you. Are you having a good time? Don't vomit too much.

With best love,

Jesse S. Mororui

4 Laurel Parkway  
Chevy Chase, Md 20015  
November 13, 1972

Dear Carleton,

Everything has gone quiet well at home. Everybody is fine. We are all happy. We are just waiting for you to come back. We missed you so much. Ivan will tell you about Mat--which I already mentioned in my letter before.

Raglmar is coming down next Tuesday. Dr. Lang called and he wants us to go down there during Thanksgiving Day. Which is going to be on Thursday next week. We are planning to leave here on Wednesday and drive down with Joe and come back on Saturday.

In school we have already had the PSAT for college and in January we will take the SAT and the teacher told us that we must have the social security for it. So would write back and tell us how to apply for social security. We must have them before January.

Yavine is doing well in school. He made a friend from his school. His friend is from Australia.

Tamel and I will get our first report cards on 28th of this month. I'm so worrying about English. I don't think I can pass English. It is so hard. We have to do lots of reading and all kinds of writing.

With love,

Jesse S. Mororui



Hello! Carleton. I am doing fine in my school works. I got my report card a week before your letter. Here are the grades. I got an A in Math, A in Art, C in Geography, another C in Science, B in English, B in choir, and a B in physical education. I like Science very much but I am not doing very well in school in Science. It is very hard for me to understand the English.

I read two book since you left. I have a lot of homeworks in the afternoons so I am not reading many books.

I received a letter from Atawei from New Guinea. Asoroka Luthern High School. He is doing very well in School. Here are his grades.

English -	A
Maths -	A
Science -	A
Agriculture -	A
Religion -	A
Commerce -	B
Social Science -	B
Manual Arts -	C+
Typing -	C+

He is one of the top students in all form twos.

Yavine L.R.

Raymond Roos: Departing Instructions

Contacts: Dr. Leon Rosen, Director

NIAID Pacific Research Center

Leahi Hospital (Old Tb. Hospital)

Wailai, HONOLULU

Telephones: home 737-4035

laboratory 732-7702

Dr. Gordon Wallace, his assistant in the laboratory.

1. See if you can get the pilot to radio ahead to phone Rosen to announce your arrival with bloods, and request 100 lbs. dry ice at laboratory on your arrival. We shall also try to radio from Ponape, but see if pilot will do it.
2. If all works out well; top-off to very full all 5 large "hat boxes" with dry ice in Honolulu morning of November 23rd and dispatch them to NINDS--Mrs. Marion Poms; NINDS Build. 36-5B16, National Inst. Health, Bethesda, Maryland (via Washington, D.C.). Phone: 301-496-3281.
3. Telephone Paul Brown early on Nov. 23rd and alert him to arrival of shipment, and again AFTER it goes off, with consignment number.  
  
(Only one of the large hat boxes should cause any problem: i.e. the one we covered with cardboard and foil, which has no black case.)
4. Mail to us immediately from Rosen's about 100 U.S. Government sticky "large package" franking labels (not the colored ones for packages under 4 lbs).  
Our address: R/V ALPHA HELIX  
Transpacific Lines, Inc.  
Post Office Box 70  
Ponape, Caroline Islands  
(use several 1st class envelopes, not in a package!!)

PAUL BROWN: Urgent:

1. Repeat to him my cable to NINDS GUAM--for he must authorize same action if we get no help from Guam:  
My cable: "400 pound shipment human blood on dry ice in danger of loss unless you can convince Ray Brown Air Micronesia in Guam to Authorize Bob Goodwin Air Micronesia Ponape to Accept Collect U.S. Government Freight Today's Flight to Rosens Laboratory Honolulu and to NINDS Washington."
- He MUST DO THE SAME. Word from Director Continental MUST get to Director in GUAM and, especially, to Director in PONAPE, who is our impasse. They do not want to accept any COLLECT FREIGHT. If nothing can be done then send us immediately Bills of Lading to issue here ourselves---if that can be done, and Authorize Ponape to accept these. DO SOMETHING. We have plenty more sera.

2. Rush back to Leon Rosen the FIVE HAT BOXES (Large) he receives with the sera. (For Rosen to dispatch to us filled with dry ice), on flight of November 30 from Honolulu to Ponape. We need at least 300 pounds more dry ice PLUS shipping containers, BEFORE the flight from Ponape to Honolulu and on to Washington. However, all will FAIL unless the collect air freight matter is solved! We can not continue to cough up hundreds of dollars in cash!
3. Ask Paul to again request GUAM to send us 200 lbs dry ice on flights to Ponape, November 20th and December 1st. Do something about containers for them.
4. Ask Paul and Marion to check with Waugaman and others immediately how I am to be reimbursed for hundreds spend on air freight since airlines refuse to send COLLECT. I have receipts, but no authorization in advance for this. They must arrange for this ex post facto.
5. If shipping containers from Honiara (arrived there after our departure) reach Rosen, these can be used to dispatch CLOTS to Kirk:
 

Dr. Robert Kirk  
 Department of Human Genetics  
 John Curtain School of Medicine  
 Australian National University  
 Canberra, A.C.T.  
 AUSTRALIA
6. Cable Kirk consignment numbers and flights of shipment so he can meet it or follow it by phone. CLOTS to Australia must go in new containers, for those we have used are "temporary" or, as the small hat boxes, "inadequate." If containers from Honiara do not arrive, LARGE HAT BOXES will hold one BRAIN BOX of clots plus plenty of dry ice. But do not use these until after we get them back for our return to Ponape. Do not rely upon these large hat boxes reaching Rosen on time to ship us dry ice on November 29. If they do not arrive, ship 300 lbs. as he did before.
7. Summary of Dry Ice shipments to us:
 

From NINDS GUAM		
November 29 (Wednesday)		200 lbs.
December 1 (Friday)		200 lbs.
From Honolulu		
November 30 (Thursday)		300 lbs.

(in the days of waiting for flight to Honolulu (Dec. 2nd, Saturday) more than half the dry ice will be lost. Redundancy in shipment is to insure that one, at least, gets here). Guam and Rosen must have containers to ship in, so we can use them to return shipment with sera. We still have half the sera (5 large hat boxes) on our hands and any virus specimens we may get from Pingelap.



March 1, 1973

Dr. Willaim A. Nierenberg, Director  
Scripps Institution of Oceanogrpahy  
La Jolla, California 92037

Dear Dr. Nierenberg:

I write to express the gratitude of all the scientists and the scientific party, and of our Institutions, for the facilities and support your Institution provided us in making the research vessel Alpha Helix available for our studies in the New Hebrides and Solomon Islands. The expedition was an ambitious one, with twenty islands on our agenda, and through the wonderful cooperation of Captain Alan Phinney and the crew, we were able to visit and work on all of them.

The logistics problems of handling our many landings and embarkations was huge, often dangerous. Capt. Phinney and his crew gave us every conceivable support with these problems, and our success in getting the scientific equipment ashore and back to the ship was amazing.

Walter Schneider as a valuable member of our scientific party and without his assistance and liaison work with the captain and crew the expedition could not have been a success. He worked well with everyone in the scientific party and filled all the critical gaps in our training where our ignorance would have endangered the expedition. My colleagues and I wish also to particularly thank the mates and crew for their boat-work, the radio operator for his critical assistance, and the cooks.

I would like to also inform you that a brief summary of our numerous medical and human genetic studies will be dispatched to you and to Dr. Garey shortly. I am sorry for the delay. Unlike most of your other expeditions, the work of the dozen-odd scientists on the Alpha Helix is strongly supported and complimented by an equal part of scientists who did not join the ship and the projects are, in general, joint projects of the whole team.

No one, or few of us, had sufficient skills to cover the range of the ambitious studies we are undertaking; I use the present tense since the ship and shore based laboratory and clinical studies formed only the basis for further study and analysis which will continue for several years before the full publication of the results of the expedition is ready for press. Thus, the outline of the studies states more their scope than their results.

In conclusion, I thank you all personally, particularly Dr. Walter Garey, for the invitation to accept as chief scientist and organizer my role on the expedition. Without the facilities of the Alpha Helix such a study in these remote islands could never have been undertaken. We shall keep in close touch with the Scripps Institution and send copies of each further study as it is completed.

Sincerely,

D. Carleton Gajdusek

March 16, 1973

Dr. Walter Garey  
Program Manager  
Alpha Helix Program  
Scripps Institution of Oceanography  
P.O. Box 109  
La Jolla, California 92307

Dear Dr. Garey:

Enclosed is a report of our Alpha Helix expedition, which I hope will serve your purpose. I think it will be quite evident that the nature of our work on this expedition is quite different from most of the others, in that medical work with patients on islands where it was rarely possible to get the islanders to or from the ship, was necessarily shore-based. Most of the time the seas were too rough to do even the simplest laboratory work, and to have used the ship's facilities for other than the emergency procedures needed for diagnosis and treatment would have been quite unjustified at times. Thus, the most significant laboratory findings will be slow in emerging from our own and other laboratories in the three countries and over the years you should have a series of publications resulting from the expedition to cite.

Would you please let me know of the use you put this report to, and should any or all of it be published--with or without modifications--could I see a copy of the galley proofs?

Sincerely,

D. Carleton Gajdusek, M.D.

R/V Melville  
At sea  
14 April 1976

University of California, San Diego  
Scripps Institution of Oceanography  
Marine Facilities Division P-005  
La Jolla, California 92093

D. Carleton Gajdusek, M.D.  
Chief, Chronic Disease Studies Section  
National Institute of Neurological Diseases and Stroke  
National Institute of Health  
Bethesda, Maryland 20014

Dear Dr. Gajdusek:

To you who accomplishes such prodigious and valuable amounts of work with such awesome energy it would seem totally unreasonable that a letter could be years late; yet this is the letter and I am the delinquent.

Ever since the South Pacific expedition in the Helix I have wanted you to know how much I enjoyed working with you and your staff. I am as sure now as I was then that it was the most pleasant and rewarding experience of my twenty years with the Institution. I was profoundly impressed with your dedication, energy and unquenchable enthusiasm. There were times when I felt I might be pushing a bit too hard, but the clock was running and I knew how much you wanted to do in such a short time. We just had to keep moving and cut corners wherever we could. I hope it was a help and not an irritation. I was very appreciative of your concern about my abscessed tooth and your generous suggestion that we go to Honiara prematurely just for that. I wouldn't have accepted if the tooth had come out of the top of my head (and it almost did). The dentist in Honiara drilled a relief hole and later a root canal was done so it was saved.

I have had the Melville since then so the Helix is just a pleasant memory. The Melville is more demanding and a different side of our work but I enjoy it too and we can't be everywhere at once. We are now at sea and will return on the 21st, leave again on the 27th and return late in Sept. So you see why I must get these few words to you before any more time goes by.

I was saddened to learn that Dr. Damon had passed on. He must have felt pretty bad while in the Helix. I have also often wondered about the pediatrician (an Aussie I believe) we took in to Honiara one night with severe abdominal or stomach pain. He was a fine fellow and really hurting. As I recall he was on the staff of a hospital in Port Moresby or near there.

I want to thank you also for your kind comments about the Helix cruise in a letter to Dr. Nierenberg. It is wonderful (and important) to know that what little we contributed was so well received. We are most appreciative.

Please give my best to those of your Helix group that you may see from time to time. I hope this finds you in the best of health.

Warmest regards,

Capt. Alan W. Phinney



January 28, 1977

Dr. Walter Garey  
Program Manager  
Scripps Institution of Oceanography  
University of California  
San Diego, California

Dear Dr. Garey:

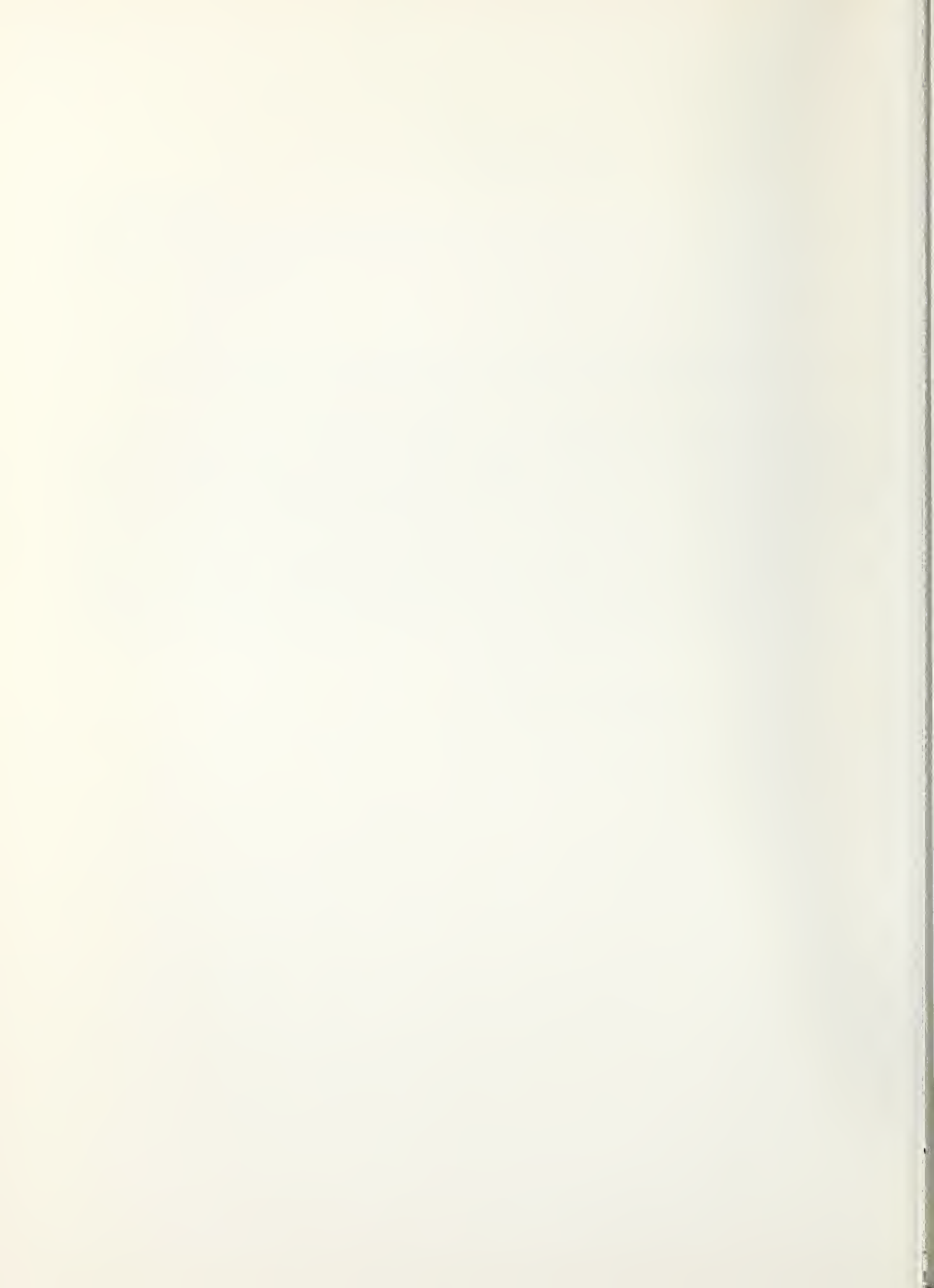
I am enclosing five copies of a reprint which originated particularly from our work on the Alpha Helix Expedition, as indicated in the papers.

While at the Ciba Foundation Symposium in London recently, on "Medical Problems of Tribal and Isolated Groups", I discussed with Jim Neel his medical work on the Alpha Helix on the Amazon. I would greatly appreciate an additional copy or two of the Alpha Helix report from the year that I was Chief Scientist on board, and any reports that were issued subsequently. I would be interested in the current itinerary and the proposed future itineraries, and wonder whether there is any possibility of your considering at some time in the future the medical expedition I suggested to you in the Eastern islands of Indonesia, which was the second of the two alternatives I proposed. I remain interested in this possibility since I have continued my work in that region, and there are inaccessible areas where the use of the Alpha Helix would be highly justified.

Sincerely,

D. Carleton Gajdusek

Cables





08 MAY 1972

NIGHT LETTER  
 DR. D.C. GAJDUSEK  
 C/O REV. H. GERICKE  
 LUTHERAN MISSION  
 TARABO  
 VIA GOROKA  
 PAPUA NEW GUINEA

DR. D.C. GAJDUSEK  
 OKAPA RESEARCH  
 AWANDE  
 OKAPA  
 PAPUA NEW GUINEA

SCRIPPS SAYS TRAVEL FUNDS FOR EIGHT PEOPLE PLUS TWO THOUSAND DOLLARS ARE AVAILABLE WITH THREE POSITIONS REMAINING OPEN FOR LOCAL PEOPLE AS PER YOUR LETTER OF LAST MONTHS STOP TO DO THIS WE CANCELLED LARGE NUMBER OF ORIGINAL ORDERS STOP ALL THE ABOVE DONE AS PER ORDERS OF DOCTOR GIBBS STOP DOCTOR GAREY REFUSES TO CANCEL REMAINING ORDERS AT THIS DATE STOP SHIPMENT TO HAWAII BEGINS JUNE FIRST STOP IF NOT SATISFACTORY CABLE GAREY IMMEDIATELY WITH INSTRUCTIONS STOP

FERBER/WIESENFELD

DC GAJDUSEK

ROGERS BASNIGHT ASHER HOOKS ABSOLUTELY NOT GOING ALSO BECK GIBBS ONLY FOR PART OF THE TIME IF POSSIBLE TISSUE CULTURE TECHNICIAN DESPERATELY NEEDED AS WELL AS ANOTHER WOMAN SUGGEST MONICA AT PATUXENT WRITE GAREY TO FORMALLY EXPLAIN THAT WE ARE NOT 11 INDEPENDENT INVESTIGATORS BUT THAT LARGE VOLUME GENETICS COLLECTION WILL REQUIRE COLLABORATIVE USE OF SHIP. ITS NECESSARY TO FACILITATE EQUIPMENT USE AND LOGISTICS. WHERE EN ROUTE CAN N2 BE SENT FROM BRISBANE AND PICKED UP. N2 FREEZING OF FIBROBLASTS AND RECOVERY SUCCESSFUL PLACING EFFICIENCY TEN TO THE THIRD NO SKILL BIOPSY MACHINE AVAILABLE WE ARE GETTING ARE OUR LETTER FOLLOWS

WEISENFELD/MEYER/NIH

290200Z  
 0200 29 JUL 72  
 JOHNSON/SCHNEIDER

OK FOR 202355Z NO DATA ABOARD. REFER 172010Z INVENTORY, 23 EACH 1000 ML DEXTROSE FIVE PERCENT IN WATER, 24 EACH 250 ML STERILE WATER, 23 EACH 1000 ML DEXTROSE FIVE PERCENT IN ONE HALF STRENGTH SALINE, 12 EACH 1000 ML DEXTROSE FIVE PERCENT IN SALINE ZERO POINT NINE PERCENT, 12 EACH 250 ML NORMAL SALINE ZERO POINT NINE PERCENT.

HELLAND

0836 08 SEP 72  
GAJDUSEK  
NINDS NATIONAL INSTITUTES HEALTH  
BETHESDA MARYLAND USA

REYRTEL PROVISIONAL BOOKINGS MADE ALPERS WIESENFELD FLIGHT SCHEDULED 17TH  
OCTOBER SANTA CRUZ STOP SUGGEST FORWARD DOLLARS 104.40 PAYMENT TWO SINGLE  
TICKETS SOLAIR BOX 23 SOONEST

DIRMED

1150 11 SEP 72  
S. GARTRELL  
2746A E MANOA RD  
HONOLULU, HAWAII

ARRIVING HONOLULU 11:45 P.M. TUESDAY NIGHT VIA PAN AM 811 FROM LA

JUDITH MEYER

1044 12 SEP 72  
DON RUBINSTEIN  
C/O REGGIE MOLONY  
2053 A.M. LAYUG STREET  
ST. MIGUEL VILLAGE  
MAKATI  
RIZAL  
PHILLIPINE ISLANDS

DON RUBINSTEIN  
C/O INTERNATIONAL SCHOOL  
BOX 323  
COMMERCIAL CENTER  
MAKATI  
RIZAL  
PHILIPPINE ISLANDS

ALPHA HELIX SAILS MORNING OF SEPTEMBER EIGHTEEN FROM PORT VILA NEW HEBRIDES STOP  
IF POSSIBLE BE THERE STOP IF NOT AND YOU WISH TO JOIN SHIP OCTOBER EIGHTEENTH AT  
SANTA CRUZ CONTACT POMS NIH OR WALTER GAREY AT SCRIPPS INSTITUTE OF OCEANOGRAPHY  
IN SAN DIEGO STOP

GAJDUSEK

1155 12 SEP 72  
DON RUBINSTEIN  
C/O MRS. DAWA LYNCH  
UNIVERSITY OF PAPUA NEW GUINEA  
PORT MORESBY  
PAPUA NEW GUINEA

ALPHA HELIX SAILS MORNING OF SEPTEMBER EIGHTEEN FROM PORT VILA NEW HEBRIDES STOP  
IF POSSIBLE BE THERE STOP IF NOT AND YOU WISH TO JOIN SHIP OCTOBER EIGHTEEN AT  
SANTA CRUZ CONTACT POMS NIH OR WALTER GAREY AT SCRIPPS INSTITUTE OF OCEANOGRAPHY  
IN SAN DIEGO STOP

GAJDUSEK

0903 14 SEP 72  
DR PAUL BROWN  
NINDS INSTITUTES BETHESDA MD

BRING PREVIOUS BANKS TORRES RENNELL BLEEDING LISTS REPRINTS JOURNAL PAGES  
ACTIVATE DON RUBINSTEIN HERE OR SANTA CRUZ URGE JOE GIBBS JOIN SANTA CRUZ

GAJDUSEK

1523 14 SEP 72  
JUDITH MEYER  
R/V ALPHA HELIX  
C/O DR ROGER GREENOUGH  
BRITMED VILA  
NEW HEBRIDES

ALBUMS ONE HUNDRED OR LESS AT FIFTEEN EACH AND TWO HUNDRED FIFTY AT THIRTEEN AND  
FIVE HUNDRED AT TWELVE STOP

POMS/NIH



240070Z  
0700 24 SEPT 72  
GAREY

POPULATION STUDY MERA LAVA COMPLETED. EXAMINATION 1000 PEOPLE. LABORATORY EXCELLENT FOR PROCESSING BLOOD SPECIMENS FOR RED CELL ENZYMES, BLOOD GROUP AND SERUM GENETIC FACTORS AND SEROEPIDEMIOLOGY. LANDING LOGISTICS, SHORE TEAM SUPPLY AND SPECIMEN RETURN HANDLED VERY WELL BY CAPTAIN AND CREW. DR BOWDEN OF BRITISH MEDICAL SERVICE LEAVING TEAM HERE AT RENDEZVOUS WITH MOTOR VESSEL ROCINANTE OF VILA. MERIG ISLAND STUDY BEGUN TONIGHT. GAUA ISLAND VILLAGE OF MERA LAVA AND MERIG PEOPLE TO BE VISITED NEXT WEEK. HELP OF WALTER SCHNEIDER OF EXTREME IMPORTANCE TO SCIENTIFIC TEAM. REQUIRE SHIPMENT ALL ADDITIONAL SUPPLIES TO SANTA CRUZ IN TIME TO MEET MONTHLY PLANE FROM HONIARA AND OUR ARRIVAL OCTOBER 17. PLANE SMALL, WEIGHT AND BULK MUST BE KEPT MODERATE. INFORM MY LABORATORY TO HAVE GIBBS, WIESENFELD, AND ALPERS JOIN US IN SANTA CRUZ WITH ADDITIONAL LIQUID NITROGEN FROM BRISBANE AND TISSUE CULTURE SUPPLIES. REQUIRE 10000 MORE FEET CINEMA FILM, 100 ROLLS KODACHROME, EKTACHROME AND TRI-X STILL FILM, AND 36 FIVE INCH NAGRA TAPES.

D C GAJDUSEK

1610 25 SEP 72  
DR ERIC SHAW  
"TRANSFUSIONS"  
BRISBANE  
AUSTRALIA

HAVE DISPATCHED TODAY FOUR LN CONTAINERS FOR TRANSSHIPMENT TO GAJDUSEK CARE OF DR RN LEE STOP LUOVA SANTA CRUZ STOP BRITISH SOLOMON ISLANDS PROTECTORATE STOP MUST REACH HIM IN TIME TO MEET R/V ALPHA HELIX EXPEDITION VESSEL IN SANTA CRUZ BY TEN OCTOBER STOP SHOULD BE SENT VIA HONIARA STOP ARRIVING VIA TN 1304 AT 8:40 AM ON SEPTEMBER TWENTY-NINE STOP AIRBILL NUMBER 026-26575451 STOP

POMS/NIH

260105Z  
0105 26 SEPT 72  
PHINNEY/GAJDUSEK/SCHNEIDER

SCIENTIFIC PROGRESS MSG 240700Z HAPPILY RECIEVED AND TRANSMITTED TO WIESENFELD. SUPPLIES SET ASIDE FOR EXPEDITION AT NIH WILL BE SENT. NO TISSUE CULTURE SUPPLIES LEFT THERE. TOTAL NEEDS WERE THOUGHT TO BE SUPPLIED. REPLY REQUESTING ANYTHING IN SHORT SUPPLY AND WIESENFELD WILL PROCURE AND SHIP. LETTER POSTED 19 SEPTEMBER RECEIVED SIO TODAY FROM ALPERS. INFORMATION HE WAS WAITING FOR HAS ARRIVED CAUSING HIM TO DECIDE DEFINITELY HE WILL NOT BE JOINING THE EXPEDITION. WIESENFELD ALSO SAYS HIS OWN PARTICIPATION IS IMPOSSIBLE. WORD FROM GIBBS IS AWAITED. REPLY ASAP SINCE I WILL TALK WITH WIESENFELD TOMORROW.

GAREY

270100Z  
0100 27 SEPT 72  
GAREY

MERIG ISLAND STUDIES TOTAL POPULATION COMPLETED MORE EXTENSIVE LABORATORY AND MEDICAL WORK DONE THAN ON MERA LAVA ALSO NINE ANTIGEN MYCOBACTERIAL AND MYCOTIC SKIN TESTING. PROCEEDING GAUA TO LOCATE POPULATION OF PREVIOUS TWO ISLANDS RESIDENT THERE. PLEASE URGE DR. JOSEPH GIBBS AND NANCY ROGERS TO REPLACE WIESENFELD AND ALPERS AT SANTA CRUZ IF AT ALL POSSIBLE WE NEED THEM BADLY. OTHER SUPPLIES URGENTLY NEEDED SANTA CRUZ INCLUDE 100 TB SYRINGES WITH 500 NEEDLES GIEMSA STAIN 1000 STERILE 20 ML VACUTAINERS WITH NEEDLES 500 HEPARINIZED HEMATOCRIT CAPILLARIES TWENTY RED LEDGERS HALF INCH ADHESIVE TAPE SMALL MEMORANDUM BOOKS MAGIC MARKERS CLOTH MICROSCOPE SLIDE LABELS DIAMOND PEN AND 144 BALL POINT PENS. IF GIBBS AND ROGERS CAN ARRIVE SANTA CRUZ WITH DRY ICE SUFFICIENT TO MAKE SHIPMENT OUT TO NIH THEY SHOULD DO SO. NEW SUPPLY LIQUID NITROGEN AND TISSUE CULTURE CELLS FOR ENTEROVIRUS ISOLATIONS NEEDED SANTA CRUZ. SUGGEST RESERVING SPACE ON HONIARA/SANTA CRUZ PLANE VIA SOLAIR FOR GIBBS ROGERS AND SUPPLIES.

GAJDUSEK

ALPHA HELIX HONIARA RADIO

RYC ONLY TWO FLIGHT SOLAIR HON/SANTACRUZ IN OCT STOP NANDI/HON AIRPAC OCT 15  
HON/SANTACRUZ SOLAIR OCT 17 OR NANDI/HON AIRPAC OCT 22 HON/SANTACRUZ SOLAIR OCT  
24

TRADE

MASTER ALPHAHILIX VILA RADIO

NO 111029 SUPPLIES HELD HERE 2000 TUBERCULIN SYRINGES 5000 NEEDLES 37 SETS  
EARLIES BASE 100 PIPETTES 2 BOTTLES KI SOLN 100 NUMBER 8 VACCINES 280  
VACUTAINERS 15 NOTEBOOKS 1 CAMERA TRIPOD STOP PLEASE ADVISE URGENTLY

BRITMED

1343 28 SEP 72  
DR J MACGREGOR  
MEDICAL DIRECTOR  
BRITISH RESIDENCY  
HONIARA  
BRITISH SOLOMON ISLANDS

HAVE DISPATCHED FOR GAJDUSEK ALPHA HELIX EXPEDITION CARE OF DR LEE SANTA CRUZ STOP SHIPMENT ARRIVING HONIARA MONDAY 11:45 AM AIRBILL NUMBER 026-26571963 FOR TRANSSHIPMENT SANTA CRUZ OCTOBER 17 STOP WOULD APPRECIATE YOUR ATTENTION AND ALERTING DR LEE THAT SEVERAL SHIPMENTS WILL BE ENROUTE AND THAT THESE REACH SANTA CRUZ WITH DISPATCH ON THIS FLIGHT STOP

POMS/NIH

292112Z  
2112 29 SEPT 72  
GAJDUSEK

YOUR ORDER FOR SUPPLIES WITH SOME SUBSTITUTIONS HAVE BEEN FILLED. I BELIEVE THEY WILL BE ADEQUATE. VERY DIFFICULT TO GET 20 ML STERILE VACUTAINERS THEREFORE PROVIDING SIX HUNDRED 20 ML AND NINE HUNDRED 5 ML ONES. TISSUE CULTURE CELLS FOR ENTEROVIRUS ISOLATION ARE MONKEY KIDNEY CELLS AND ARE BEING PLANTED. SHIPMENT TO BE MADE FROM NIH OCT 4 WHICH IS EARLIEST POSSIBLE. DO YOU WANT NEW 60 LITER NITROGEN CONTAINER IN BLDG 8 ALSO SHIPPED TO YOU VIA AUSTRALIA FOR FILLING THERE?

GARRUTO/GAREY

302030Z  
2030 30 SEPT 72  
GAREY

INFORM IVAN MBAGINTAO MY OFFICE NIH GUIART ACCEPTED HIS SECOND PAPER NOW IN PRESS. INQUIRE IF DR. JOHN SHERIDAN OF WALTER ELIZA HALL INSTITUTE MEDICAL RESEARCH MELBOURNE CAN REPLACE MICHAEL ALPERS SANTA CRUZ. IF JOE GIBBS CANNOT RECONSIDER ASK PROFESSOR ROBERT KIRK DEPARTMENT GENETICS ANU CANBERRA IF HE CAN JOIN AT SANTA CRUZ. IF NEITHER CAN THEN ASK RALPH GARRUTO AND/OR PETER FETCHKO FROM NIH TO JOIN AT SANTA CRUZ. CONTACT ALL THROUGH STEPHEN WIESENFELD. GAUA STUDY COMPLETED. POPULATION MARRIAGE PATTERNS OF SIGNIFICANCE TO GENETIC SORTING WORKED OUT BY GUIART. NEUROLOGICAL SEQUELLAE TO ACUTE VIRUS INFECTIONS AND CHRONIC DEGENERATIVE NEUROLOGICAL DISEASE FOUND IN CNS DISEASE SURVEY. DEPOPULATION ON GAUA EXTREME. MERIG, MERA LAVA OVERPOPULATED. PLEASE REQUEST PROF ROBERT KIRK CANBERRA INFORM US OF CONDITION OF FIRST 326 ERYTHROCYTE SPECIMENS AND STAND BY FOR SECOND SHIPMENT THROUGH NUMBER 540. ADVISE WIESENFELD HANDLE THICK AND THIN HEMATOLOGICAL SMEARS SENT BY AIRFREIGHT FROM VILA.

GAJDUSEK



0031 01 OCT 72  
 DR WIESENFELD  
 BETHESDA MD

YOUR 4LN CONTAINERS RECEIVED FRIDAY 29TH

MASON "TRANSFUSION" BRISBANE

022240Z  
 2240 02 OCT 72  
 MEYER

STILL FILM OK EXCEPT FOR RAF NUMBER 13 BLANK.

KROEBER/GAREY

022245Z  
 2245 02 OCT 72  
 GAJDUSEK

JEFFREY KROEBER RECEIVED MSG 302030Z TELEPHONED TO NIH. WIESENFELD HAS BEEN AWAY. HIS RETURN NIH EXPECTED TOMORROW WHEN HE WILL ACT ON YOUR REQUESTS. WE WILL INFORM YOU OF DEVELOPMENTS.

GAREY

PORT VILA 56/55 6 1555  
 DR C GAJDUSEK

NO 113906 TELEGRAM RECEIVED STOP QUOTE SAMPLES FOR BLOOD GROUPING DIRECT TO DR M SIMONS W H O IMMUNOLOGY RESEARCH CENTER UNIVERSITY OF SINGAPORE AND ADVISE BY CABLE STOP CLOTS AND SERA TO CANBERRA STOP LETTER FOLLOWING VIA WASHINGTON STOP KIRK JOHN CURTIN SCHOOL OF MEDICAL RESEARCH AUSTRALIAN NATIONAL UNIVERSITY UNQUOTE

BRITMED

032232Z  
 2232 03 OCT 72  
 MEYER

URGENT CONCERNING PROCESSING MAGNETIC TAPE ORDERS SEVENTY TWO SELF THREADING EMPTY REELS ORDERED. ARE 3.86 NOT 0.68 EACH. WHY ORDER EMPTY REELS AT ALL. IF NO REPLY WILL CANCEL EMPTY REELS AND PROCESS REST OF ORDER.

KROEBER/GAREY

032252Z  
2252 03 OCT 72  
GAJDUSEK

GIBBS CANNOT COME. GARRUTO WANTS TO COME BUT HIS SECURITY CLEARANCE FROM NIH WILL TAKE SIX WEEKS. THUS WOULD BE JOINING AT END OF PROGRAM. IF YOU WANT GARRUTO ON THIS BASIS NOTIFY GEORGE DURREL BY CABLE OR RADIO TO PUT THROUGH OFFICIAL PAPERS REQUESTING SECURITY CLEARANCE AND GOVERNMENT PASSPORT AND FOR EXPEDITING TRAVEL ARRANGEMENTS FOR GARRUTO. MBAGINTAO HAS UNUSUAL CHROMOSOMAL BANDING PATTERN. COULD YOU ARRANGE SHIPMENT BLOOD SPECIMENS OF CURRENT EXPEDITION TO NIH FOR CHROMOSOMAL ANALYSIS. NEED 2-3 CC HEPARINIZED BLOOD SHIPPED AT ROOM TEMPERATURE. URGENTLY NEED LIST OF CLINICAL MATERIALS THAT SHOULD BE INOCULATED AT DAVIS AND GSRI. KIRK AND FETCHKO CABLED. AWAITING REPLY.

WIESENFELD/GAREY

040300Z  
0300 04 OCT 72  
GAREY

MOTALAVA STUDIES COMPLETED EMPHASIS ON DEGENERATIVE DISEASES. MUCH CHRONIC OTITIS, CATARACT, SOME CHRONIC NEUROLOGICAL DISEASES AND CONGENITAL CNS DEFECTIVES. SEEKING TORRES BANKS CHILDREN BOARDING FRENCH AND BRITISH SCHOOLS. DR STANLEY OF MOTALAVA JOINED PARTY THROUGH TORRES ISLANDS. DO NOT DISPATCH 60 LITER NITROGEN CYLINDER TO BRISBANE TOO LARGE FOR SMALL PLANE. REPEAT REQUEST INFORMATION CONDITION ERYTHROCYTES ARRIVAL CANBERRA FOR KIRK. INFORM YAVINE BORIMA HIS EPANGTUEI COLLEAGUES REQUEST INFORMATION HIS STATUS. KROEBER CABLE REPORT QUALITY FIRST CINEMA FILM AND MERALAVA IDENTITY PHOTOGRAPHS. WHOEVER JOINS AT SANTA CRUZ BRING FILLED DRY ICE CONTAINERS.

GAJDUSEK

1148 04 OCT 72  
DR JOHN SHERIDAN  
WALTER & ELIZA HALL INSTITUTE  
OF MEDICAL RESEARCH  
MELBOURNE  
AUSTRALIA

IS IT POSSIBLE FOR YOU TO REPLACE DR ALPERS ON ALPHA HELIX EXPEDITION IN SANTA CRUZ SOLOMON ISLANDS AND MICRONESIAN AREA FOR MONTH FROM 15 OCTOBER TO END NOVEMBER STOP IF AGREED PLEASE CABLE IMMEDIATELY SO ARRANGEMENTS CAN BE MADE WITH SCRIPPS INSTITUTE REGARDING FUNDS TICKETS ETC STOP GAJDUSEK NOW IN NEW HEBRIDES ENROUTE TO BSIP STOP DO NOT DELAY REPLY STOP

WIESENFELD/GAJDUSEK

1148 04 OCT 72  
 DR J MACGREGOR  
 MEDICAL, HONIARA  
 BRITISH SOLOMON ISLANDS

SUPPLIES FOR GAJDUSEK DISPATCHED TODAY ARRIVING OCTOBER NINE AT 11:35 A.M. VIA  
 FJ 503 STOP AIRBILL NUMBER 026-0077106 STOP THESE SUPPLIES FOR TRANSSHIPMENT  
 CARE OF DR LEE SANTA CRUZ STOP COULD YOU LIKEWISE NOTIFY HIM ACCORDINGLY STOP

POMS/GAJDUSEK

1600 04 OCT 72  
 R/V ALPHA HELIX  
 DR MACGREGOR  
 MEDICAL DIRECTOR HONIARA

PLEASE SEND VIA SOLAIR TO ALPHA HELIX ARRIVING GRACIOSA BAY SANTACRUZ 17 OCTOBER  
 COPY OF COMPUTER PRINT OUT OF CURRENT BSIP CENSUS FOR SANTACRUZ ISLANDS. VERY  
 GRATEFUL FOR HANDLING TRANSSHIPMENTS TO NIH.

GAJDUSEK

042138Z  
 2138 04 OCT 72  
 GAJDUSEK

ALL REMAINING SUPPLIES REQUESTED BY GAJDUSEK EXCEPTING CELL CULTURES FOR  
 ENTEROVIRUS ISOLATION ARRIVING HONIARA 10 OCT FOR TRANSHIPMENT TO SANTACRUZ.  
 MACGREGOR NOTIFIED AND ASKED TO ALERT LEE IN SANTACRUZ. CELL CULTURES FOR  
 ENTEROVIRUS ISOLATION TO BE DISPATCHED FROM NIH 6 OCT MSG 040300Z TRANSMITTED TO  
 NIH

GARRUTO/GAREY

1150 05 OCT 72  
 DR ROBERT L KIRK  
 "CURTINSCHOOL"  
 CANBERRA  
 AUSTRALIA

PLEASE ADVISE CONDITION OF FIRST SHPIMENT OF 326 ERYTHROCYTE SPECIMENS SENT  
 RECENTLY FROM NEW HEBRIDES AND STAND BY FOR CONTINUING SPECIMENS TO NUMBER 540  
 STOP CABLE CAN BE SENT TO NIH FOR TRANSMITTAL TO GAJDUSEK IN PACIFIC AREA STOP

POMS



1109 05 OCT 72  
DR JOHN SHERIDAN  
WALTER & ELIZA HALL INSTITUTE  
OF MEDICAL RESEARCH  
MELBOURNE  
AUSTRALIA

TO EXPEDITE MATTERS RE YOUR ACCEPTANCE PLEASE CONTACT DR WALTER GAREY STOP R/V ALPHA HELIX PROGRAM STOP SCRIPPS INSTITUTION OF OCEANOGRAPHY STOP LA JOLLA STOP CALIFORNIA 92307 STOP OR CALL HIM BY PHONE 714-453-2000 EXTENSION 1544 OR CABLE SIOCEAN LA JOLLA CALIFORNIA AS SOON AS POSSIBLE STOP WE HAVE ALERTED HIM OF YOUR ACCEPTANCE STOP DEADLINE FOR ARRIVAL AT HONIARA FOR PROCEEDING TO SANTA CRUZ AND ALPHA HELIX WILL BE FURNISHED TO YOU BY GAREY STOP

WIESENFELD/GAJDUSEK

1048 06 OCT 72  
DR J MACGREGOR  
MEDICAL  
HONIARA  
BRITISH SOLOMON ISLANDS

CULTURE CELLS DISPATCHED TODAY ARRIVING HONIARA VIA QUANTAS 296 AT 11:35 A.M ON OCTOBER TENTH STOP AIRBILL NUMBER 026-30077703 STOP TO BE TRANSSHIPPED TO SANTA CRUZ FOR GAJDUSEK EXPEDITION BEFORE SAILING DATE FROM THERE STOP COULD YOU PLEASE MAKE SURE IT IS KEPT AT ROOM TEMPERATURE AT ALL TIMES STOP MOST APPRECIATIVE OF YOUR EFFORTS IN THIS VENTURE STOP

POMS/GAJDUSEK

061830Z  
1830 06 OCT 72  
GAJDUSEK

KIRK WAS CALLED REGARDING CONDITIONS OF ERYTHROCYTES, EXPECT REPLY SOON. DR JOHN SHERIDAN IN MELBOURNE ACCEPTS YOUR OFFER TO JOIN ALPHA HELIX IN SANTA CRUZ. GAREY MAKING ARRANGEMENTS. PETER FETCHKO UNABLE TO JOIN ALPHA HELIX DUE TO ILLNESS. FILM RECIEVED TO DATE. STILL FILM BY ROLL NUMBER JM, 1, 6-13. RAF, 2-5, 7, 10-13, 16-19. RR, 1-3. DR, 1-6. FC 1. CINE FILM TAKEN BY DCG ROLLS 1-12.

KROEBER/GAREY

062215Z  
2215 06 OCT 72  
GAREY/WIESENFELD

VANUA LAVA STUDIES COMPLETED ON BOTH INHABITED SIDES OF ISLAND. GARRUTO SECURITY CLEARANCE DELAY TOO GREAT. JOINING EXPEDITION IN SANTA CRUZ IS NECESSARY. REQUIRE AT LEAST ONE PHYSICIAN AND OR VIROLOGIST AT SANTA CRUZ. IF GIBBS, WIESENFELD, JOHN SHERIDAN OR KIRK CANNOT MAKE IT, TRY BARRY ADELS, HOOKS, ASHER, CHANOCK OR BRODY. NEED TWO STETHOSCOPES, ONE OPHTHALMOSCOPE-OTOSCOPE, 50 TYPE C OPHTHALMOSCOPE BATTERIES, MUCH MORE ORAL PENICILLIN, TEDRAL, ANTIBIOTIC EARDROPS, HETRAZAN (DIETHYLCARBAMAZINE), TUBEX PROCAINE PENICILLIN AND BICILLIN AND NON TUBEX PROCAINE PLUS DILUENT CARRIED BY FETCHKO.

GAJDUSEK

092200Z  
2200 09 OCT 72  
GAREY

RE OUR PREVIOUS DISCUSSION HAVE FOUND IT NECESSARY TO RETURN TO NIH LABS TO WORK. WOULD LIKE TO BILL ALPHA HELIX OFFICE FOR AIR FARE FROM SANTA CRUZ TO WASHINGTON DC

BROWN

092205Z  
2205 09 OCT 72  
GAREY

UREPARAPARA BIG BAY SETTLEMENT OF REEF ISLANDERS STUDIED WITH TOTAL POPULATION SURVEY INCLUDING CHEST XRAYS AND EKG AND LABORATORY WORKUP. MOTA STUDIES COMPLETED. EXTENSIVE INCIDENCE OF OTITIS FILARIASIS ALBINISM MALARIA LEPROSY TUBERCULOSIS CATARACTS AND TRAECHOMA ENCOUNTERED ON VANUA LAVA AND MOTA. LABORATORY INVALUABLE FOR CONFIRMING DIAGNOSIS. INSTRUCT WHOMEVER JOINS US IN SANTA CRUZ TO CARRY ALL STILL UNDELIVERED SUPPLIES AND CHECK WITH DR. MACGREGOR HONIARA FOR OTHERS. HAVE THEM BRING ANYTHING REQUESTED FROM NOW ON. REQUIRE FIVE INCH RECORDING TAPES MEDICAL LABORATORY URINE CONTAINERS VIALS FOR BLOOD CHEMISTRIES AND HORMONE ANALYSES FOR 200 INDIVIDUALS. REQUEST WIESENFELD REPORT STATUS OF BLOOD SMEARS ALREADY DISPATCHED. EKGS TO BE DISPATCHED SOON. REQUIRE ANALYSIS AND FILING. INFORM STEVEN ONO ALL SUPPLIES HE DISPATCHED ARE IN USE AND EDITING AND COMMENTARY ON EXPEDITION CINE FILM REQUIRE HIS UNIQUE SERVICE. REQUEST PETER FETCHKO INFORM US STATUS ARTIFACTS LEFT WASHINGTON. INFORM CHRIS PLATO OF EXTENSIVE DERMATOGLYPHIC RECORD ALL ISLANDS. INFORM ME STATUS TAMEL YAVINE MALUWETIG ACADEMIC STUDIES. TRY THEM FOR CHROMOSOME ANALYSIS.

GAJDUSEK

MASTER ALPHA HELIX PORT VILA

NO 116816 FOR GAJDUSEK RESIDENT COMMISSIONER REQUESTS TELEGRAPHIC SUMMARY OF YOUR STUDIES AND FINDINGS ESPECIALLY EVIDENCE OF MALNUTRITION ON DEPARTURE BEST WISHES AND BON VOYAGE

BRITMED VILA

102257Z  
2257 10 OCT 72  
GAJDUSEK

RE 062215Z. DO YOU WANT TABLET OR ELIXIR ORAL PENICILLIN? NOT POSSIBLE FOR ANYONE NAMED IN ABOVE MSG TO JOIN SHIP AT SANTACRUZ. IMPOSSIBLE TO SEND FROM NIH REQUESTED SUPPLIES OF ABOVE MSG OR THOSE OF 092205Z EXCEPTING FIVE INCH RECORDING TAPES, MET AND SHOULD REACH SHIP WITH SHERIDAN. SPECIFY TYPE OF BLOOD CHEMISTRIES FOR WHICH VIALS NEEDED. SPECIFY TYPES OF HORMONE ANALYSIS. WILL SHIP SMALL URINE CONTAINERS UNELSS 24 HOUR URINE CONTAINERS DESIRED. BLOOD SMEARS HAVE ARRIVED NIH FOR PROCESSING BY DR NEVA. ARE YOU SENDING 2 OR 3 CC PER PERSON HEPARINIZED BLOOD AT AMBIENT TEMPERATURE FOR CHROMOSOME ANALYSIS? GIBBS WAITING VERY IMPATIENTLY FOR LIST OF ANIMAL INOCULATIONS.

WIESENFELD/GAREY



ETAT GAJDUSEK CARE DR. LEE MEDICAL SANTACRUZ

FURTHER CONSIGNMENT SUPPLIES ARRIVE TODAY STOP SOLAIR UNABLE TO SHIP TO YOU PER AIRFREIGHT DUE TO AMOUNT OF VOLUME STOP WOULD YOU BE PREPARED TO CHARTER AIRCRAFT TO SANTACRUZ

DIRMED

102312Z  
2312 10 OCT 72  
GAJDUSEK

SEND BLOOD SPECIMENS FOR BLOOD GROUP STUDIES TO DR M J SIMONS, WHO IMMUNOLOGY RESEARCH AND TRAINING CENTER, FACULTY OF MEDICINE, UNIVERSITY OF SINGAPORE AFTER ADVISING HIM OF TIME OF ARRIVAL AND NATURE OF SHIPMENT. SEND FROZEN CLOTS AND SERA TO KIRK AFTER ADVISING OF SHIPMENT.

KIRK/GAREY

102315Z  
2315 10 OCT 72  
BROWN/GAJDUSEK

RE 092200Z. WHAT PREVIOUS DISCUSSION? MY UNDERSTANDING YOUR COMMITMENT FOR ENTIRE PROGRAM. WHAT DOES CARLTON DESIRE?

GAREY

102317Z  
2317 10 OCT 72  
MEYER

IDENTITY OF PHOTOS GOOD. CINE REPORT WILL FOLLOW.

KROEBER/GAREY

122100Z  
2100 12 OCT 72  
PHINNEY/SCHNEIDER/GAJDUSEK

FLEMINGER SIO DESIRES COPEPODS FROM HEBRIDES AND SOLOMONS FOR GEOGRAPHICAL AND VARIABILITY STUDIES. REPLY WHETHER WET, FORMALDEHYDE AND WIDE MOUTH JARS AVAILABLE AND WHETHER DEMANDS OF CURRENT SCIENTIFIC PROGRAM PERMIT MAKING SOME TOWS. WHEN POSSIBLE TEN MINUTE SURFACE TOWS WANTED USING ONE-HALF OR ONE METER PLANKTON NET IN PREFERABLY GREEN OR TURBID WATERS AROUND ISLANDS OR IN PROTECTED WATERS SUCH AS LAGOONS. SPECIMENS TO BE PRESERVED IN 5 PERCENT FORMALDEHYDE IN SEA WATER AND RETURNED VIA VAN FROM PONAPE. ADVISE.

GAREY

122122Z  
2122 12 OCT 72  
BROWN

EVERYTHING FINE AT HOME. NO NEED FOR CONCERN IF YOU WANT TO STAY ON.

MRS BROWN/WIESENFELD/GAREY

122125Z  
2125 12 OCT 72  
GAJDUSEK

GIBBS SAYS MUST HAVE INOCULATION LIST

WIESENFELD/GAREY

2129 12 OCT 72  
ALPHA HELIX  
PHINNEY/GAJDUSEK

SHERIDAN TELEGRAM STATES ARRANGEMENTS COMPLETE. HE WILL ARRIVE SANTA CRUZ OCTOBER 17.

GAREY

122130Z  
2130 12 OCT 72  
FERBER

SOME FILM NOT EXPOSED. TAKE LENS CAP OFF. CHECK ASA.

WIESENFELD/GAREY

122135Z  
2135 12 OCT 72  
SCHNEIDER

DUNSON REQUIRES USE OF FREEZER AH385-0010 AND TWO EACH INCUBATOR AH 462-0010.  
DO YOU HAVE COD ENDS AH 599-0010 -333EE AND JOINERS AH 601-0010? IS SHOTGUN AH  
770-0010 ON BOARD?

HELLAND

132130Z  
2130 13 OCT 72  
GAJDUSEK

REPORT FROM LAMPERT. AUTOPSY SQUIRREL INOCULATED GRISWALD SHOWS CHANGES  
SUGGESTIVE ALZHEIMERS OR C-J WITH SENILE PLAQUES. GIBBS AWAITING INOCULATION  
LIST.

WIESENFELD/GAREY

DR. R.M. LEE, LUAVA SANTA CRUZ BSIP

FILLED LN CONTAINERS CONSIGNMENT NOTE NUMBER 102-10449156 DESPATCHED VIA TAA  
FLIGHT 1304 ETA PORT MORESBY 1220 HOURS 13TH THEN TAA FLIGHT 1360 ETA RABAU  
1640 HOURS 13TH AND VIA TAA FLIGHT QF298 ETA HONIARA 1515 HOURS 14TH OCTOBER

MASON/"TRANSFUSION"/BRISBANE



170230Z  
0230 17 OCT 72  
GAREY/WIESENFELD

WIESENFELD RELAY FOLLOWING TO BRITISH AND FRENCH RESIDENT COMMISSIONERS VILA IN TWO SEPARATE MESSAGES QUOTE ALPHA HELIX MEDICAL AND GENETIC SURVEY OF BANKS AND TORRES ISLANDS SUCCESSFULLY COMPLETED. GRATEFUL FOR ENOURMOUS LOGISTIC SUPPORT AFFORDED BY YOUR PERSONNEL AND FOR PARTICIPATION OF DOCTORS DONALD BOWDEN AND STANLEY RAVEANG. STANLEY WAS RETURNED TO MOTA LAVA. DRESSERS, PRIESTS, HEADMASTERS AND TEACHERS BRITISH SCHOOLS DIRECTORS AND STAFF FRENCH SCHOOLS VERY HELPFUL ON ALL ISLANDS. PEOPLE ENTHUSIASTICALLY COOPERATIVE. NO CURRENT EVIDENCE OF MALNUTRITION OR INSUFFICIENT FOOD. DROUGHT THREATENING GARDENS NOW. NO EPIDEMIC ILLNESS BUT VARICELLA AND CONJUNCTIVITIS BOTH MILD. PROCEEDING THROUGH SEVERAL ISLANDS SLOWLY. 1232 BANKS 249 TORRES ISLANDERS INCLUDING ALL SCHOOLCHILDREN BLED FULLY EXAMINED. MEDICAL CLINICS CONDUCTED. RESULTS LABORATORY INVESTIGATIONS IN BRITISH FRENCH AUSTRALIAN SINGAPORE AND USA LABORATORIES WILL BE SENT AS COMPLETED OVER NEXT YEAR. DETAILED LIST PATIENTS BY ISLAND REQUIREING FURTHER ATTENTION MAILED FRENCH AND BRITISH MEDICAL DIRECTORS FROM SANTA CRUZ. XRAYS EKG SELECTED PATIENTS DONE UREPARAPARA AND LOH. PPD PLUS SIX ATYPICAL MYCOBACTERIAL ANTIGENS HISTOPLASMIN COCCIDIODIN SKIN TESTS DONE MERIG LOH. NO MYCOTIC SENSITIVITIES FOUND. STOOLS FOR PARASITES COLLECTED UREPARAPARA. THICK AND THIN SMEARS AND OTHER HEMATOLOGY DONE ON MANY ISLANDS. MEDICAL SURVEY MADE TOTAL POPULATIONS MERIG UREPARAPARA TORRES ISLANDS. RESULTS SEROEPIDEMIOLOGICAL ANTIBODY DETERMINATIONS BIOCHEMISTRIES GENETIC STUDIES HEMATOLOGY WILL BE SENT. SIGNED DOCTOR D CARLETON GAJDUSEK UNQUOTE

SCHNEIDER

1100 17 OCT 72  
COMMISSAIRE RESIDENT  
FRANCE VILA

HONNEUR ATTIRER VOTRE ATTENTION SUR LE CAS ENFANTS MARCEL PATRONYME INCONNU ANCIEN CHAUFFEUR RESIDENCE FRANCE DECEDE VILA DEPUIS PLUSIERS ANNEES STOP ENFANTS DANIEL ALICE DORIS SUR HIU NON SCOLARISES ONT OUBLIE LE FRANCAIS. ENFANTS MARIE ET ANNA SERAIENT VILA AVEC LEUR MERE ALICE. ENFANT MARCELINE ACTUELLEMENT MERE LAVA CHEZ DR STANLEY REVEAG. CES ENFANTS CITOYENS FRANCAIS VOUS PROPOSE FAIRE ASSURER PRISE EN CHARGE SCOLAIRE PAR ECOLE FRANCAIS SOLA POUR CEUX RESIDANT HIU MEILLEURS SENTIMENTS

JEAN GUIART

1631 18 OCT 72  
ATTN MR MASON  
"TRANSFUSION"  
BRISBANE  
AUSTRALIA

PLEASE DISPATCH SMALL CONTAINER WITH LN TO DOCTOR MAURICE JAY STOP HOPITAL SAINT  
PAUL STOP LA REUNION STOP MAURITIUS STOP VERY QUICKLY STOP PROVIDING YOU STILL  
HAVE CONTAINERS STOP

POMS/NIH

1631 18 OCT 72  
DR MAURICE JAY  
HOPITAL PSYCHIATRIE SAINT-PAUL  
LA REUNION  
MAURITIUS  
INDIAN OCEAN

HAVE REQUESTED RED CROSS BLOOD TRANSFUSION SERVICE BRISBANE AUSTRALIA TO  
DISPATCH LN CONTAINERS FILLED IMMEDIATELY STOP YOU SHOULD RECEIVE IT MORE  
EXPEDITIOUSLY STOP

GAJDUSEK

182201Z  
2201 18 OCT 72  
GAJDUSEK

CONSISTENT ABNORMAL CHROMOSOMAL BANDING FOUND IN ALL YOUR CHILDREN. IF POSSIBLE  
SEND NIH 2 TO 3 CC HEPARINIZED BLOOD AMBIENT TEMP. I UNDERSTAND LOGISTIC  
PROBLEMS.

WIESENFELD/GAREY

182205Z  
2205 18 OCT 72  
MEYER

RESPOND PREVIOUS LETTER. HOW MANY PHOTO ALBUMS SHOULD BE BOUGHT.

KROEBER/GAREY

192030Z  
2030 19 OCT 72  
BRANSON/MARFAC/GAREY

DEPARTED SANTA CRUZ 19TH 0800. DISEMBARKED DR PAUL BROWN. EMBARKED DR SHERIDAN AND LEE. ARRIVE TIKOPIA 20TH 0600. ALL GOING WELL.

PHINNEY

192100Z  
2100 19 OCT 72  
GAJDUSEK

DCG CINE FILM RECEIVING LIGHT EMULSION SCRATCHES ON SEVERAL ROLLS. NOTHING SERIOUS. SUGGEST CLEANING CAMERA AND CHECK THREADING MECHANISM FOR DIRT OR SAND PARTICLES.

KROEBER/GAREY

BRITISH SOLOMONS TRADING CO.  
"TRADE"  
HONIARA, BSIP

DELIVER TO DR JOHN SHERIDAN ARRIVING HONIARA OCT 17 TO JOIN ALPHA HELIX AT SANTA CRUZ. CHECK WITH DR MACGREGOR HONIARA RE ALL EXPEDITION SHIPMENTS TO GO ON SANTA CRUZ FLIGHT AS WELL AS AT POST OFFICE AND AIRPORT FOR THOSE ADDRESSED TO DR LEE, SANTA CRUZ.

GAREY

301628Z  
1628 30 OCT 72  
FERBER

DR MATHIAS ADEN AND ASSOCIATE ARRIVES PONAPE 20 NOVEMBER, 1328 LOCAL, VIA AIR MICRONESIA. PLEASE ACKNOWLEDGE.

WIESENFELD/GAREY



202155Z  
2155 20 OCT 72  
PHINNEY/GAJDUSEK/SCHNEIDER

URGE ALL US AND EUROPEAN SCIENTISTS DISEMBARK PONAPE RATHER THAN HONIARA.  
SIMILAR MILEAGE FROM BOTH PORTS TO US AND EUROPE. HOWEVER PONAPE TO WASHINGTON  
FARE \$430 AND HONIARA TO WASHINGTON \$810.

GAREY

202200Z  
2200 20 OCT 72  
GAJDUSEK/ROOS

MATHIAS NOW IN WASHINGTON. PAUL BROWN CONTACTED DR SIMONS IN SINGAPORE  
REGARDING SHIPMENT OF BLOOD SAMPLES. NO REPLY YET. ANNETTE WILL RECEIVE  
SPECIMENS NOVEMBER 23 IN HONOLULU.

POMS/WIESENFELD/GAREY

231343Z  
1343 23 OCT 72  
GAJDUSEK

MEDICAL SUPPLIES REQUESTED TOO LATE FOR SANTA CRUZ. WILL BE SENT HONIARA UNLESS  
YOU ADVISE OTHERWISE.

WIESENFELD/GAREY

242035Z  
2035 24 OCT 72  
GAJDUSEK

REGARDING SHIPMENT OF RED CELL CLOTS FROM HONIARA TO KIRK. DO YOU WISH US TO  
SHIP CONTAINERS TO PORT MORESBY OR SYDNEY TO BE FILLED WITH DRY ICE AND  
RESHIPPED TO HONIARA? PLEASE ADVISE ASAP WHO TO CONTACT RE DRY ICE IN PORT  
MORESBY OR SYDNEY.

WIESENFELD/GAREY

242045Z  
2045 24 OCT 72  
MEYER

CAPITAL IS MISSING ROLL ORDER ON WORK PRINTS. PLEASE KEEP GOOD DOCUMENTATION.

KROEBER/GAREY

24 OCT 72  
DR. MALCOLM J SIMONS  
WHO IMMUNOLOGY RESEARCH AND TRAINING CENTER  
UNIVERSITY OF SINGAPORE  
SINGAPORE 3

SHIPMENT OF CHEST CONTAINING SIX BOXES RED CELLS PACKED IN WET ICE SCHEDULED TO ARRIVE IN SINGAPORE DIRECT FROM HONIARA VIA PORT MORESBY ON TUESDAY STOP FLIGHT DETAILS TO BE CABLED TO YOU BY HONIARA IN ADVANCE OF FLIGHT STOP PLEASE CONFIRM RECEIPT OF SHIPMENT AND ANY PREVIOUS SHIPMENTS TO NIH BETHESDA OFFICE

D C GAJDUSEK MD/NIH

252155Z  
2155 25 OCT 72  
MEYER

RECEIVED LETTER FROM MARY COZAD ASKING ABOUT RETURN OF HER SCIENTIFIC FILM TAKEN IN UPPER VOLTA. KNOW NOTHING OF THIS AND FIND NO CORRESPONDENCE. PLEASE ADVISE.

KROEBER/GAREY

26 OCT 72  
DR. MJ SIMONS  
FACULTY OF MEDICINE  
UNIVERSITY SINGAPORE

BLOOD CELLS AIRFREIGHTED TAA HONIARA PORTMORESBY 24/10 CONNECTION FLIGHT TO SINGAPORE 26/10 AIRWAY BILL 102-10034662

SEPEC

260300Z  
0030 26 OCT 72  
GAREY

ENTIRE SCIENTIFIC PARTY ONE WEEK ON ANUTA. COMPLETING INTENSIVE TOTAL POPULATION SURVEY. LANDINGS OFTEN IMPOSSIBLE, LIAISON WITH SHIP DIFFICULT. NECESSARY SHORE SUPPLIES LANDED. PAUL BROWN MUST TELEPHONE PORT MORESBY TO LOCATE DRY ICE SUPPLY AND LOGISTIC SUPPORT THERE. TRY IAN MADDOX, TONY RADFORD OR ROY SCRAGG, OR ARRANGE VIA CONTRACT WITH DOCTORS SHAW AND MASON. HUGE SUPPLIES DRY ICE NEEDED HONIARA.

GAJDUSEK

0945 27 OCT 72  
 DR KOK AN LIM  
 "UNIVIRUS"  
 SINGAPORE 3 MALAYA

WOULD YOU CONFIRM DR. SIMONS PRESENCE OR ABSENCE FROM SINGAPORE STOP BLOOD SPECIMENS WERE SENT TO HIM FROM AUSTRALIA SOME TIME AGO STOP DID NOT RESPOND TO CABLEGRAM REGARDING RECEIPT OF THAT AND OTHER SHIPMENTS STOP GAJDUSEK SENT SPECIMENS TO KIRK W H O TRANSSHIPPED TO SIMON STOP APPRECIATE YOUR EFFORTS STOP

POMS/GAJDUSEK

27 OCT 72  
 DR JACOB BRODY  
 NINDS RESEARCH CENTER  
 GUAM MEMORIAL HOSPITAL  
 AGANA  
 GUAM

CARLETON HAS NEED OF DRY ICE IN APPROPRIATE CONTAINERS ON PONAPE ON NOVEMBER 18 STOP TO ELIMINATE SHIPPING FROM NIH HE SUGGESTED I CONTACT YOU ON GUAM AND ARRANGE SHIPMENT FROM THERE STOP DO NOT KNOW IN WHAT QUANTITY BUT EXPECT THAT SEVERAL BOXES WOULD BE NEEDED STOP HE WILL ARRIVE ON PONAPE ON THE EIGHTEENTH ABOARD ALPHA HELIX AND WILL NEED DRY ICE ON ARRIVAL STOP CAN YOU HELP STOP PLEASE SEND RETURN CABLE LETTING ME KNOW WHAT YOU CAN DO AND ARRANGE LOGISTICS WITH DR HOLDEN STOP SHALL BE ABLE TO GIVE PRECISE INFORMATION ABOUT QUANTITY VIA CABLE OR PHONE TO DR HOLDEN IN ADVANCE OF NEED STOP

BROWN

282300Z  
 2300 28 OCT 72  
 GAREY/BROWN

INTENSIVE STUDY ANUTA COMPLETED INCLUDING 9 ANTIGEN SKIN TESTING ELECTROCARDIAGRAMS CHEST XRAYS AND VIRUS STUDIES. TIKOPIA REVISITED AND STUDY OF SICK PATIENT UNDERWAY. REQUEST PAUL BROWN ASSURE ARRIVAL IN HONIARA OF SHIPPING CONTAINER AND SUFFICIENT QUANTITY DRY ICE FOR FROZEN BLOOD CLOT SHIPMENT. ALSO DISPATCH CATHALA PARIS SUMMARY VACCINA STUDY BEFORE NOV 10. ARRANGE FOR SECOND SHIPMENT DRY ICE AND SHIPPING CONTAINERS FROM NINDS GUAM TO PONAPE C/O AGENT TRANSPACIFIC LINES FOR NOV 17. STILL EXPECTING JOE GIBBS AND IVAN MBAGINTAO TO JOIN IN PONAPE. REPORT BRAIN AND GENETICS SUPPLEMENT PAPERS. BROWN APPARENTLY NEGLECTED IODINE ADDITION TO LUGOLS SOLUTION THEREBY INVALIDATING OVA PARASITE COLLECTIONS ALL ISLANDS TO DATE. URGENTLY CONFIRM EXPLAIN CAN ANYTHING BE DONE TO SPECIMENS SUCH AS ADDING LUGOLS NOW.

GAJDUSEK



278

2037 29 OCT 72

DR PAUL BROWN

INSTITUTE

BETHESDA MD

WIRED LAST WEEK FOR HAT BOXES CHECK WITH NEMO SEE NO OTHER PROBLEM GIVE DETAILS  
TO JOSE TORRES BRODIE

BACK NOVEMBER 8

BRODY

1614 30 OCT 72

DR MAURICE JAY

HOPITAL PSYCHIATRIE SAINT-PAUL

LA REUNION

MAURITIUS

INDIAN OCEAN

FROZEN AND TISSUE CULTURE SPECIMENS FROM BOULANGER ARRIVED SAFELY STOP NEARLY  
ALL TISSUE CULTURE SPECIMENS CONTAMINATED WITH MIXED BACTERIAL GROWTH STOP DO  
YOU HAVE ANY BACTERIOLOGY RESULTS FROM AUTOPSY STOP

BROWN/GAJDUSEK

311830Z

1830 31 OCT 72

GAJDUSEK

ALPHA HELIX PROGRAM CANNOT SUPPORT TRAVEL OF IVAN MBAGINTAO FROM WASHINGTON TO  
PONAPE. OTHERWISE HE CAN BE ACCOMODATED ABOARD SHIP FOR PINGELAP WORK AND WHILE  
IN PONAPE.

GAREY

310820Z  
0820 31 OCT 72  
GAJDUSEK

ARRANGEMENT FOR DRY ICE AND CONTAINERS ADEQUATE TO SHIP 30 VACCUTAINER CARTONS FROM HONIARA IN PROGRESS. ARRANGEMENT ALSO UNDERWAY FOR DRY ICE AND HAT BOXES FOR PONAPE. NO PROBLEMS PRESENTLY FOR EITHER ARRANGEMENT. PLEASE SPECIFY DATE WHICH YOU WISH ARRIVAL OF DRY ICE IN PONAPE AND NUMBER OF HAT BOXES, WHICH MAY BE SCARCE. VACCINIA STUDY IMPOSSIBLE TO SUMMARIZE BEFORE THOROUGH RETESTING UNLESS DESIRED RESULTS MERELY FOR ADMIN PURPOSES. GIBBS CANNOT JOIN IN PONAPE AND IVANS ARRIVAL IS CLEAR FROM NIH.

ROOS PREPARED MIF SOLUTION FOR OVA AND PARASITE COLLECTIONS. SUGGEST YOU CHECK WITH HIM POSSIBILITY OF IODINE OMISSION. ALL STOOLS COLLECTED BY YOU AND ME CONTAINED THE 2 SOLUTIONS PREPARED BY ROOS. SPECIFICATIONS ON PREPARATION ARE CORRECT AS WRITTEN ON DIRECTION SHEET IN YOUR POSSESSION.

DID SUPPLIES TO BE SHIPPED FROM HONIARA TO SANTA CRUZ 24 OCT ARRIVE?

BROWN/GAREY

311435Z  
1435 31 OCT 72  
PHINNEY/GAJDUSEK

PLEASE SPECIFY EXACT ARRIVAL DATES HONIARA AND PONAPE IF POSSIBLE FOR PURPOSES OF LIAISON WITH DRY ICE. TEN SHIPPING CONTAINERS RECEIVED TODAY AND WILL BE AIRSHIPPED TOMORROW TO PORT MORESBY. AM IN COMMUNICATION WITH IAN MADDOX. WILL KEEP YOU INFORMED OF EXACT ARRANGEMENTS. ALSO ARRANGING SEVERAL HAT BOXES DRY ICE FROM GUAM TO PONAPE. FURTHER INFORMATION FOLLOWS ON MIF FOR OVA AND PARASITES. DEANER LAWLESS, ORIGINATOR OF STAIN, SAYS NO DAMAGE DONE WHEN IODINE OMITTED FROM LUGOLS. SUGGEST YOU ADD PROPER AMOUNT OF CORRECTLY MADE LUGOLS NOW AS THOUGH LUGOLS HAD NEVER BEEN ADDED. SUGGESTS ALSO YOU CAN CHECK RESULTS BY EXAMINING A STOOL SO PREPARED. IF RESULTS UNSATISFACTORY, MORE OR LESS LUGOL CAN BE ADDED.

BROWN/GAREY

31 OCT 72  
DR GAJDUSEK  
NATIONAL INSTITUTES OF HEALTH  
BETHESDA  
MARYLAND, USA

FIRST TWO CONSIGNMENTS RECEIVED FROM KIRK STOP NO OTHERS REACHED SINGAPORE STOP RECEIVED NO DETAILS OF CONNECTING FLIGHT TO SINGAPORE STOP PLEASE ADVISE FLIGHT NUMBER URGENTLY

SIMONS

1249 31 OCT 72  
DR JAMES MACGREGOR  
MEDICAL SERVICES  
BRITISH RESIDENCY  
HONIARA  
BRITISH SOLOMON ISLANDS

DR MALCOLM SIMONS UNIVERISTY SINGAPORE HAS NOT RECEIVED RED CELL SHIPMENT BY YOU IN SINGAPORE AS YET STOP IF SHIPPED ON OCTOBER 24 COULD YOU INFORM HIM OF AIRLINE ARRANGEMENTS AND AIRBILL NUMBER SO SHIPMENT CAN BE LOCATED OR INFORM US OF THIS STOP IMMEDIATE REPLY URGENT STOP

DR PAUL BROWN/NIH

1249 31 OCT 72  
DR MALCOLM SIMONS  
W H O IMMUNOLOGY RESEARCH  
UNIVERSITY SINGAPORE  
SINGAPORE 3

HAVE CABLED MACGREGOR IN HONIARA TO INFORM YOU OR US OF FLIGHT ARRANGEMENTS IF CELLS WERE DISPATCHED ON DESIGNATED DATE STOP LISTS OF SAMPLES WILL BE DISPATCHED TO YOU STOP

BROWN/NIH

1249 31 OCT 72  
DR IAN MADDOCKS  
UNIVERSITY PAPUA NEW GUINEA  
PORT MORESBY  
PAPUA NEW GUINEA

COULD YOU FILL WITH DRY ICE TEN SHIPPING CONTAINERS WE CAN SEND AND FORWARD FILLED CONTAINERS TO GAJDUSEK IN HONIARA STOP HE HAS URGENT NEED STOP DETAILS TO BE CABLED TO YOU ON REPLY OF YOUR OWN WHICH IS TO INCLUDE TELEPHONE NUMBER STOP

BROWN/NIH



010015Z  
0015 01 NOV 72  
GAREY/WIESENFELD

TIKOPIAN STUDIES COMPLETED. STARTING WORK VANIKORO. 140 CHEST XRAYS SUCCESSFUL ON SEA ANCHORAGES ANUTA AND TIKOPIA. WILL ADD LUGOLS IODINE TO STOOLS NOW. CATHALAS NEED VACCINIA DATA IS ADMINISTRATIVE. URGE NIH SUPPORT MBAGINTAO AS REQUIRED FIELD ASSISTANT. NEED DRY ICE PONAPE NOVEMBER 18. REQUIRE REPORT ERYTHROCYTES DISPATCHED TO CANBERRA AND SINGAPORE. ALSO SAVE THEM IN LIQUID NITROGEN FOR LATER ANTIGENS.

GAJDUSEK

1 NOV 72  
DR GAJDUSEK  
NATIONAL INSTITUTES OF HEALTH  
BETHESDA  
MARYLAND USA

SAMPLES ARRIVED TODAY

SIMONS

1046 01 NOV 72  
DR JACOB BRODY  
NINDS RESEARCH CENTER  
GUAM MEMORIAL HOSPITAL  
AGANA GUAM

CAN YOU CABLE INFORMATION ON EXACT NUMBER OF LARGE AND SMALL HATBOXES INCLUDING ONE LARGE HATBOX SENT BY YOUR LAB NIH TO GUAM TODAY THAT WILL BE AVAILABLE FOR GAJDUSEK ON PONAPE STOP

BROWN

1046 01 NOV 72  
DR MICHAEL ALPERS  
"UNIWEST"  
PERTH  
AUSTRALIA

CONTACT POINT FOR DCG IN HONIARA CARE OF DR. MACGREGOR STOP HEALTH SERVICES STOP BRITISH RESIDENCY STOP HONIARA BSIP STOP WILL BE THERE NOVEMBER TWELVE TO FOURTEEN THENCE TO PONAPE ECI STOP THENCE TO MICRONESIAN SPOTS STOP DOUBT HE WILL RETURN BEFORE DECEMBER STOP

POMS

2214 01 NOV 72  
DR PAUL BROWN NIH  
BETHESDA MARYLAND

DRY ICE AVAILABLE TWENTY CENTS PER POUND STOP CONTACT PHONE 55489 OR HOME  
571119

MADDOCKS

2213 01 NOV 72  
DR PAUL BROWN INSTITUTE  
BETHESDAMD

WITH LARGE BOX NEMO SENT WE WILL HAVE TWO LARGE AND FOUR SMALL BOXES AVAILABLE

JACOB BRODY

0836 02 NOV 72  
DR PAUL BROWN NINDS NATIONAL  
INSTITUTES HEALTH

MED278 REYRTEL BLOODCELLS AIRFREIGHTED 24TH ON AIRWAYBILL 102-10034662 STOP  
SIMONS CABLED SAME TIME AS PER INSTRUCTIONS STOP HAVE NOT CABLED HIM AGAIN

MACGREGOR/DIRMED

2 NOV 72  
DR GAJDUSEK  
NATIONAL INSTITUTES OF HEALTH  
BETHESDA  
MARYLAND USA

REGRET MOST OF LAST BATCH GROSSLY UNSUITABLE STOP TWO MILLILITRES CLOTTED BLOOD  
ESSENTIAL STOP CAN ONLY HANDLE TWO HUNDRED SAMPLES PER FORTNIGHT

SIMONS

1441 02 NOV 72  
 DR JACOB BRODY  
 NINDS RESEARCH CENTER  
 GUAM MEMORIAL HOSPITAL  
 AGANA GUAM

AM SHIPPING TWO LARGE EMPTY BOXES TOMORROW STOP TOTAL BOXES AT GUAM THEN WILL BE  
 FOUR LARGE AND FOUR SMALL STOP CARLETON ASKS ALL BOXES FILLED WITH DRY ICE AND  
 SHIPPED TO PONAPE ABOUT NOVEMBER 16 OR 17 STOP WILL CABLE HIS EXACT ARRIVAL DATE  
 SHORTLY STOP

BROWN

1441 02 NOV 72  
 DR IAN MADDOCKS  
 UNIVERISTY OF PAPUA NEW GUINEA  
 BOROKO  
 PORT MORESBY  
 PAPUA NEW GUINEA

YOUR CABLE RECEIVED STOP TEN DRY ICE SHIPPING CONTAINERS TO ARRIVE ABOUT 7  
 NOVEMBER STOP WILL SEND DETAILS FO FLIGHT ARRIVAL TOMORROW STOP FILL ALL TEN  
 CONTAINERS WITH DRY ICE BEFORE TRANSHIPMENT TO HONIARA STOP BILL DRY ICE TO B.P.  
 WHICH IS AGENT FOR ALPHA HELIX EXPEDITION AND BILL SHIPPING CHARGES TO QUANTAS  
 WHICH HAS DIRECT ACCOUNT WITH NINDS HERE STOP CAN YOU CABLE DATES OF FLIGHTS  
 MORESBY TO HONIARA NEAR NOVEMBER 10-12 STOP

BROWN

3 NOV 72  
 DR MALCOLM SIMONS  
 W H O IMMUNOLOGY RESEARCH  
 UNIVERSITY SINGAPORE  
 SINGAPORE-3

YOUR CABLE RECEIVED AS WELL AS MACGREGORS CABLE STOP HE SENT BLOOD CELLS 24  
 OCTOBER AIRBILL 10210034662 STOP SHIPMENT SHOULD HAVE CONTAINED ABOUT 800  
 SPECIMENS STOP WILL CABLE CARLETON YOUR ADVICE ON MINIMUM AMOUNT OF CLOTTED  
 BLOOD NEEDED AND WORK LIMITATION

BROWN NINDS NIH



1350 03 NOV 72  
 DR IAN MADDOCKS  
 UNIVERSITY PAPUA NEW GUINEA  
 PORT MORESBY  
 PAPUA NEW GUINEA

TEN SHIPPING CONTAINERS FOR DRY ICE AND TRANSHIPMENT ARRIVING PORT MORESBY VIA ANSETT 904 EIGHTH NOVEMBER AT 10:30 A.M. STOP AIRBILL NUMBER 02630089544 STOP SEND TO GAJDUSEK CARE OF DR J MACGREGOR STOP MEDICAL SERVICE STOP BRITISH RESIDENCY STOP HONIARA STOP BRITISH SOLOMON ISLANDS STOP MUCH APPRECIATION STOP

BROWN

1600 03 NOV 72  
 DR IAN MADDOCKS  
 UNIVERISTY PAPUA NEW GUINEA  
 PORT MORESBY  
 PAPUA NEW GUINEA

HAVE BEEN ALERTED THAT SHIPPING CONTAINERS FILLED MUST BE IN HONIARA BY ELEVENTH OR TWELFTH TO MEET GAJDUSEK STOP SENDING WIRE IN ADVANCE TO MACGREGOR STOP

PAUL BROWN, M.D.

032135Z  
 2135 03 NOV 72  
 BROWN/WIESENFELD

CAN BLOOD GROUPS AND TYPES BE SALVAGED ON SPECIMENS SENT TO SIMONS? DISCUSS WITH HIM FACT THAT FROZEN CLOTS AND SERA ARE WITH KIRK AND NIH RESPECTIVELY. IF NOT SATISFACTORY DISCUSS WITH SHAW BRISBANE HIS POSSIBLE INTEREST IN TYPING AND SAVING ERYTHROCYTES. CHECK AT NIH AND ELSEWHERE FOR ALTERNATIVES. REQUIRE AT PONAPE STERILE FOUR DRAM VIALS AND PASTEUR PIPETS. SHIPMENT TO ALPHA HELIX HONIARA FROM PORT MORESBY CAN BE CHARGED TO OUR TAA ACCOUNTS. THEY CAN ACCEPT TO CARGO FOR QUANTAS. IVAN MBAGINTAO SHOULD COME EVEN IF MUST BE ON ME PERSONALLY, IT SHOULD NOT BE SO. SCRIPPS OR NIH SHOULD COVER HIM. DISPATCHING BLOOD SLIDES. STOOL SPECIMENS FOR OVA PARASITES, DRAWINGS, DERMATOGLYPHICS, AND FILMS FROM HONIARA. ARRANGE FOR AMPLE STORAGE SPACE 2500 SERA AT NIH, PREFERABLY AT MINUS SEVENTY. THROAT SWABS BACTERIAL HOLDING MEDIA AND VIRUS CULTURE MEDIA FOR BACTERIAL MYCOTIC AND VIRAL ISOLATIONS RESPECTIVELY. FROZEN FECES FOR ENTEROVIRUS ISOLATIONS.

GAJDUSEK

050730Z  
0730 05 NOV 72  
BROWN/WIESENFELD

CHEST FILMS ON 161 BLOODS ON 309 SANTA CRUZ HOSPITAL PATIENTS AND LOESA LAVA STUDENTS EXTENDS STUDY TO COVER UTUPUA, NENDE, REEFS, AND DUFFS. PROCEEDING TO RENNELL. HAVE ERYTHROCYTES GROUPS AND TYPES BEEN SALVAGED ON ALL SPECIMENS SENT TO SIMONS? IF NOT CAN KIRK SALVAGE THEM FROM FROZEN CLOTS AS LYSHON HAS DONE IN PAST? REQUEST ADVICE HANDLING UNFROZEN ERYTHROCYTES 1500 BSIP SPECIMENS. SUGGEST DISPATCHING NIH OR TO SHAW BRISBANE IF SIMONS UNABLE. REPLY.

GAJDUSEK

0833 6 NOV 72  
DOCTOR PAUL BROWN  
NIH BETHESDA MD

WILL FORWARD FILLED CONTAINERS AIR PACIFIC FJ502 NOVEMBER 13TH

MADDOCKS

1058 06 NOV 72  
DR IAN MADDOCKS  
UNIVERSITY PAPUA NEW GUINEA  
PORT MORESBY  
PAPUA NEW GUINEA

CAN YOU SEND CONTAINERS TO ARRIVE NOVEMBER 11 OR 12 RATHER THAN 13 STOP

BROWN

1120 6 NOV 72  
DR JACOB BRODY  
NINDS RESEARCH CENTER  
GUAM MEMORIAL HOSPITAL  
AGANA GUAM

TWO EMPTY HAT BOXES ARRIVE NOVEMBER 8 AT 11:35 P.M. PA #801 AIR BILL # 026-30089780 STOP FILL ALL FOUR LARGE AND FOUR SMALL WITH DRY ICE AND SEND TO GAJDUSEK, DISTRICT HEALTH OFFICER, PONAPE TO ARRIVE NOVEMBER 16, 17 OR 18 STOP

BROWN

1409 06 NOV 72  
DISTRICT HEALTH OFFICER  
PONAPE ISLAND  
UNITED STATES TRUST TERRITORY OF  
THE PACIFIC ISLANDS

CARLETON GAJDUSEK ARRIVING PONAPE ABOARD THE RESEARCH VESSEL ALPHA HELIX 18  
NOVEMBER STOP DRY ICE AND OTHER SUPPLIES BEING SENT TO HIM C/O DISTRICT MEDICAL  
OFFICER STOP CAN YOU HOLD FOR HIS ARRIVAL STOP

PAUL W. BROWN

061703Z  
1703 06 NOV 72  
RUBINSTEIN/GAJDUSEK/PHINNEY/SCHNEIDER

TRAVEL VOUCHER WILL AWAIT YOU PONAPE. PLEASE SIGN AND RETURN IT SIO. UPON YOUR  
RETURN US APPLY FOR REIMBURSEMENT YOUR AIR FARE FROM INTERRUPTED POINT IN SEPT  
ITINERARY TO ALPHA HELIX. PARTICIPATING SCIENTISTS HOMEWARD TRAVEL SUPPORTED TO  
HOME INSTUTUTION ONLY. WILL ARRANGE CASH ADVANCE PONAPE RATHER THAN PREPAID  
TICKET.

GAREY

0623220Z  
2320 06 NOV 72  
GAJDUSEK

NIH PAYMENT IVAN STILL UNDER CONSIDERATION. IN ANY CASE WILL ARRANGE IVAN  
ARRIVAL PONAPE 16 NOV. RESUME MS VACCINIA SENT CATHALA PARIS. TEN DRY ICE  
SHIPPING CONTAINERS CURRENTLY IN TRANSIT TO MADDOCKS. CABLED HE WILL SEND  
FILLED CONTAINERS NOV 13 ON AIRPAC FJ 502. BY RETURN CABLE I HAVE REQUESTED HE  
ARRANGE FLIGHT ON 11 OR 12. WILL SEND YOU CONFIRMATION. MACGREGOR AND KIRK  
ALERTED TO SHIPMENT. WILL CHECK OUT YOUR VARIOUS PROPOSALS RE ERYTHROCYTES.  
SPECIFY VOLUMES UNFROZEN RED CELL SPECIMENS IN YOUR POSSESSION. FOUR LARGE AND  
FOUR SMALL HAT BOXES DRY ICE AND OTHER REQUESTED SUPPLIES BEING SENT YOU C/O  
DISTRICT HEALTH OFFICER PONAPE, WHO HAS BEEN ALERTED. ONLY PROBLEM FORESEEN IS  
TUBEX PENICILLIN. SIMONS RECEIVED ALL THREE RED CELL SHIPMENTS TO DATE. ALBUMS  
ORDERED. MACLENNAN CONTACTED ABOUT COPYING EARLY PACIFIC TAPES. SINCE HE  
LEAVES FOR SINGAPORE MOMENTARILY QUESTION WHETHER YOU PREFER TAPES BE DUPLICATED  
HERE BY CAPITAL. ADVISE.  
RECEIVED ONLY ONE CARTON FILM FROM SANTA CRUZ TO DATE. APPARENTLY OTHER THREE  
CARTONS REMAIN SANTA CRUZ IN TRANSIT. SUGGEST YOU CONTACT SANTA CRUZ.

BROWN/GAREY



072230Z  
2230 07 NOV 72  
GAJDUSEK

CABLES SENT TO ALL MENTIONED BLOOD CELL TYPING UNITS AND SIMONS REQUESTED TO INFORM ME ABOUT POSSIBILITY OF DOING SIMPLE TYPING ON MINIMUM VOLUME SPECIMENS AND HOW MANY OF YOUR PRESENT COLLECTION HE COULD HANDLE. ALL SUPPLIES SO FAR REQUESTED FOR PONAPE HAVE BEEN ARRANGED EXCEPT NEEDLES. IF UNABLE TO OBTAIN NEEDLES THERE SHOULD REMAIN AT LEAST 300 IN HONIARA AMONG STORED SUPPLIES. ASSISTANT FOR ROOS WILL ARRIVE HONOLULU AMERICAN AIRLINES FLIGHT 201 AT 1400 HOURS SAT NOV 18 IF NOV 22 ARRIVAL INCONVENIENT.

BROWN/GAREY

07 NOV 72  
NIGHT LETTER  
DR ROBERT MACLENNAN  
"UNICANCER" LYON FRANCE

ONO NOW AT SCHOOL STOP AM HANDLING AFFAIRS AND REQUEST AMOUNTS AND FORWARDING ADDRESSES FOR FILMS TAPES AND NAGRA HANDBOOK 34 STOP CASSETTES OK BUT IMPROPERLY LABELED STOP

J KROEBER

1631 7 NOV 72  
DR ERIC SHAW  
"TRANSFUSIONS"  
BRISBANE  
AUSTRALIA

CARLETON ARRIVES HONIARA WITH FIFTEEN HUNDRED RED CELL SPECIMENS FROM BSIP NOVEMBER 13 STOP IN EVENT SIMONS AND KIRK UNABLE TO TYPE COULD YOU HANDLE SOME OR ALL OF SPECIMENS STOP

BROWN

1633 7 NOV 72  
DR MALCOLM SIMONS  
W H O IMMUNOLOGY RESEARCH  
UNIVERSITY SINGAPORE  
SINGAPORE 3

CARLETON ASKS THAT YOU FREEZE CELL REMAINDERS AND AT LEAST SIMPLE BLOOD GROUPING CAN BE DONE ON SMALL VOLUME OF SPECIMENS ALREADY RECEIVED STOP KIRK HAS FROZEN CLOTS AND WE HAVE FROZEN SERUM STOP CARLETON HAS FIFTEEN HUNDRED FUTHER SPECIMENS FROM BSIP AND ASKS HOW MANY CAN YOU HANDLE STOP

BROWN

1634 7 NOV 72  
DR ROBERT L KIRK  
"CURTINSCHOOL"  
CANBERRA CITY, ACT 2601  
AUSTRALIA

GAJDUSEK WILL BE SENDING ABOUT TWO THOUSAND CLOTS IN DRY ICE ABOUT NOVEMBER 13 STOP HE WILL RADIO IN ADVANCE FURTHER DETAILS FROM HONIARA STOP SIMONS SAYS RBC VOLUMES MOSTLY INADEQUATE FOR HIS WORK STOP CARLETON ASKS IF BLOOD GROUPING CAN BE SALVAGED FROM FROZEN CLOTS SOON TO BE IN YOUR POSSESSION STOP

BROWN

2110 8 NOV 72  
PAUL BROWN  
NATIONAL INST HEALTH

MANY THANKS WILL AWAIT FROZEN SAMPLES NEXT WEEK STOP WILL DO EVERYTHING POSSIBLE TO RESCUE BLOOD GROUPS

KIRK DEPT HUMAN BIOLOGY

092150Z  
2150 09 NOV 72  
GAJDUSEK

MADDOX SAYS NO FLIGHTS POSSIBLE BEFORE 13 NOV THEREFORE 13 NOV DETAILS HOLD AS PREVIOUSLY CABLED. IVAN WILL BE IN PONAPE 16 NOV. JOE AND I HAVE BOTH SEEN WAGNER AND NIH FUNDING DECISION IMMINENT. KIRK CABLES AWAITING FROZEN CLOTS AND WILL DO EVERYTHING POSSIBLE TO SALVAGE BLOOD GROUPS. NO REPLIES YET FROM SIMONS OR SHAW.

BROWN/GAREY

2329 09 NOV 72  
PAUL BROWN  
NATIONAL INST HEALTH

REGRET UNABLE TO TEST SPECIMENS FROM CARLETON STOP CSL LIKEWISE STOP RED CROSS WILL HELP IF NECESSARY

SHAW/"TRANSFUSION"

0030 13 NOV 72  
PAUL BROWN  
NATIONAL INSTITUTES OF HEALTH

CONTAINERS NEGATIVE ARRIVED SEARCHING STOP

I MADDOCKS

0830 13 NOV 72

PAUL BROWN  
NATIONAL INSTITUTES HEALTH

FOUND CONTAINERS WILL SEND TUESDAY QUANTAS FLIGHT 296

I MADDOCKS



1044 13 NOV 72  
D CARLETON GAJDUSEK  
C/O DR J MACGREGOR  
MEDICAL SERVICE  
BRITISH RESIDENCY  
HONIARA  
BRITISH SOLOMON ISLANDS

MADDOCKS ONLY RECEIVED CONTAINERS 13 NOVEMBER SENDING SAME 14 NOVEMBER QT #296  
STOP

BROWN

1045 13 NOV 72  
DR JACOB BRODY  
NINDS RESEARCH CENTER  
GUAM MEMORIAL HOSPITAL  
AGANA GUAM

CONFIRM ARRANGMENTS FOR DRY ICE FOR PONAPE STOP SUGGEST EIGHER FRIDAY NOVEMBER  
17 OR SATURDAY NOVEMBER 18 FLIGHTS STOP

BROWN

131700Z  
1700 13 NOV 72  
BRANSON

DEPARTED HONIARA 14 NOV 0300. DISEMBARKED CATHALA, MEYER, SHERIDAN. CREW 12  
SCIENTIFIC GAJDUSEK, FERBER, ROOS, RUBINSTEIN, SCHNEIDER. ETA PONAPE 18TH  
0800.

PHINNEY

131925Z  
1925 13 NOV 72  
GAJDUSEK

GREEN STOPPERED 4ML HEPARANIZED VACUTAINERS SENT TO YOU PONAPE ALONG WITH 20 ML VACUTAINERS, NEEDLES, HOLDERS, DRUGS YOU REQUESTED. MORORUI HAS POLYMORPHISM OF CENTROMERE HETEROCHROMATIN ON FIRST CHROMOSOME PAIR AS WELL AS UNIQUE BANDING PATTERN DIFFERENT FROM IVAN AND NORMAL CAUCASIAN. STUDIES ON OTHER INCLUDING CONTROLS PENDING. SUGGEST YOU DRAW 2-3 GREEN-STOPPERED VACUTAINERS PER INDIVIDUAL, ALTHOUGH ONE IS ADEQUATE. AGITATE VACUTAINERS WELL. SHIP EITHER AT AMBIENT TEMP OR IN ICE WATER BUT NOT ON WET ICE ALONE AS CELLS WILL FREEZE. MAXIMUM NUBMER SPECIMENS WE CAN HANDLE PER DAY IS 25. SHIPMENT MUST ARRIVE WITHIN 100 HOURS WHEN SENT AMBIENT TEMP 120 HOURS WHEN IN ICE WATER. TRY AMBIENT TEMP FIRST. WILL CABLE YOU THE SHIPPING TIME. DESIRE SERIES OF AT LEAST 100 MICRONESIANS. SEND PAPER VII FROM HONIARA IF POSSIBLE. WHAT SHOULD I DO ABOUT FAMILIAL C-J PAPER? WILL YOU BE ABLE TO GET ANY NEW GUINEANS, AUSTRALIAN ABORIGINES FOR CHROMOSOME? UTMOST CONSIDERATION URGED BROWNS LATEST CABLE RE WAGNER.

WIESENFELD/GAREY

131945Z  
1945 13 NOV 72  
GAJDUSEK

WHAT SHOULD I DO ABOUT SORENSONS REQUEST? PLEASE ADVISE IMMEDIATELY.

GIBBS/GAREY

132130Z  
2130 13 NOV 72  
GAREY

PLAN TRUK 23-30 NOV. IS IT OK SEND FILMS TO NIH FOR PROCESSING? MEYER WILL SEND FREE COPY. VERIFY VALIDITY MCCLOSKEYI SCUBA CARD TO CRUISE END. ALL CO2 USED FOR DRY ICE.

SCHNEIDER

132132Z  
2132 13 NOV 72  
WIESENFELD/BROWN

BELLONA STUDIES COMPLETED WITH NEW SYNDROME OF CHRONIC RECURRENT HEMORRHAGIC SWELLINGS INVESTIGATED IN 18 PATIENTS ON RENNEL AND BELLONA AND FAMILIAL GOITEROUS CRETINISM OF BELLONA FURTHER STUDIED. CHEST XRAY SURVEY BELLONA DONE AND 200 MORE CHEST FILMS NEEDED PONAPE. CATHALA MEYER SHERIDAN DEPARTED HONIARA. TOTAL FAILURE DRY ICE SUPPLY. NO CONTAINERS NO ICE. SHERIDAN COURRIERING 800 CLOTS TIKOPIA THROUGH BELLONA TO KIRK IN TEN POUNDS SHIPBOARD MANUFACTURED DRY ICE ALONG WITH ALL UNFROZEN ERYTHROCYTES. YOU DETERMINE IMMEDIATELY DISTRIBUTION FOR PROCESSING IN CONFERENCE WITH KIRK. REPLY CONDITION SPECIMENS IN CANBERRA. LEAVE CONTAINERS MORESBY. EMERGENCY REQUIRE 200 POUNDS DRY ICE PLUS CONTAINERS FOR FULL REVCO PONAPE FROM WASHINGTON HONO OR GUAM. PLEASE NO FAILURE. FOUR SANTA CRUZ BOXES DISPATCHED AIR PACIFIC FIJI QUANTAS CONSIGNMENT NUMBERS 081-24817715 WITH ANOTHER BOX CONSIGNMENT NUMBER 081-24817726 YESTERDAY. FOUR ADDITIONAL BOXES LEAVE TOMORROW.

GAJDUSEK

132300Z  
2300 13 NOV 72  
WIESENFELD/BROWN

CAN ROSEN HONOLULU RECIEVE COLLECT SHIPMENT FULL REVCO CONTENTS CONVERT TO GOVT BILL LADING BY ROOS AND REDISPATCHED TO KIRK ON GOVT BILL? RESERVE AIR CARGO SPACE FOR FULL CONTENTS REVCO PONAPE HONOLULU 22 NOV FLIGHT AIR MICRONESIA 644 AND BE CERTAIN DRY ICE PLUS CONTAINERS ARRIVE FROM EAST AND OR WEST. DO NOT TRUST GUAM EXCLUSIVELY. RECONFIRM ROOS RESERVATIONS PONAPE HONOLULU THAT FLIGHT. INFORM ANNETTE HE WILL MEET HER PLANE NOV 22. SHE MAY CONTACT ROSEN IF DELAYED. SEND MBAGINTAO COURRIERING GOVT SHIPMENT CONTAINERS DRY ICE. TRY WAGNER AGAIN, OTHERWISE MY EXPENSE STUDENT RATE ROUND TRIP DULLES PONAPE USING BETHESDA TRAVEL AGENT.

GAJDUSEK

140130Z  
0130 14 NOV 72  
WIESENFELD

ROOS AND FERBER DEPARTING PONAPE NOV 22. MBAGINTAO EXPECTED TO JOIN AT PONAPE NOV 18. GAJDUSEK RUBINSTEIN MBAGINTAO JOINING CARRS GROUP TO PINGELAP ONLY. ALL THREE DEPARTING PONAPE ON RETURN DECEMBER 9.

GAJDUSEK



13 NOV 72

NIGHT LETTER

DR. MALCOLM SIMONS

W H O IMMUNOLOGY RESEARCH

UNIVERSITY OF SINGAPORE

SINGAPORE 3

APPRECIATE INFORMATION ON EXACT NUMBER OF SPECIMENS SATISFACTORY AND EXACT NUMBER YOU RECEIVED OF RED CELLS TO DATE STOP ALSO IF FROZEN CLOTS AND SERUM WOULD HELP IN TYPING ON UNSATISFACTORY SPECIMENS STOP CARLETON ASKS AGAIN HOW MANY OF FIFTEEN HUNDRED FURTHER SPECIMENS FROM BSIP YOU CAN HANDLE STOP APPRECIATE CABLE REPLY STOP

BROWN

141908Z

1908 14 NOV 72

REVCO FAILED. SPECIMENS THAWED. GAJDUSEK ATTEMPTING TO SALVAGE. TEMP INDICATOR ON MINUS 38 AND POWER IN UNIT AT TIME OF DISCOVERY BUT UNIT NOT COOLING. SHUT UNIT DOWN TO BEGIN RESTART PROCEDURES TOMORROW. WILL KEEP ADVISED. RE MSG 032030Z NOV IMPORTANT WE RECEIVE REQUESTS PONAPE.

SCHNEIDER

14 NOV 72

DISTRICT MEDICAL OFFICER

PONAPE ISLAND

UNITED STATES TRUST TERRITORY OF THE PACIFIC

MELANESIAN ASSISTANT FOR DR GAJDUSEK ARRIVING THURSDAY NOVEMBER 16 ON CONTINENTAL FLIGHT FROM HONOLULU STOP IF POSSIBLE COULD YOU HAVE HIM MET AT AIRPORT IF NOT HE WILL COME TO HOSPITAL STOP DRY ICE SHOULD ARRIVE FRIDAY OR SATURDAY STOP GAJDUSEK SHOULD ARRIVE SATURDAY OR SUNDAY STOP APPRECIATE ALL ASSISTANCE STOP

BROWN

142330Z  
2330 14 NOV 72  
GAJDUSEK

MSG ABOUT DELAY IN ARRIVAL OF DRY ICE UNACCOUNTABLY NOT TRANSMITTED MORNING OF NOV 13. PROFOUNDLY DISAPPOINTED THAT YOU DID NOT RECEIVE MSG, BUT WOULD HAVE THOUGHT YOU WOULD RADIO YOURSELF TO MADDOX WHEN DRY ICE DID NOT ARRIVE AS PLANNED ON NOV 13. BE ASSURED THAT NO EFFORT WAS SPARED HERE TO ARRANGE LIAISON. IN VIEW OF SUCH FAILURE DESPITE ALL POSSIBLE PRECAUTIONS I CANNOT GUARANTEE SUCCESS AT PONAPE. GUAM HAS REPEATED LETTERS, CABLES AND PHONE CALLS AS WELL AS ADEQUATE CONTAINERS AND PONAPE HEALTH OFFICER REPEATEDLY CABLED. TOO LATE NOW TO ARRANGE ALTERNATE PLAN. IVAN EN ROUTE. I AWAIT FURTHER INFORMATION ON ENTIRE STATUS OF SPECIMENS AT HONIARA. REPEAT ONCE MORE THAT KIRK WILL TRY TO SALVAGE TYPING, THAT SHAW UNABLE TO HELP AND SIMONS REMAINS SILENT.

BROWN/GAREY

15 NOV 72  
PAUL BROWN  
NATIONAL INSTITUTE OF HEALTH

RED CELL SAMPLES MOSTLY FAIR AND FROZEN CLOTS RECEIVED GOOD CONDITION STOP PLEASE ADVISE FUTURE NUMBER OF SAMPLES TO ARRIVE AND IF YOU CAN SUPPLY FUNDS FOR BLOOD GROUPING ANTISERA STOP PRESENT BUDGET AT LEAST FIFTEEN HUNDRED DOLLARS DEFICIENT STOP PLEASE TELEPHONE ME AT CANBERRA 493086 OR 732846 STOP

KIRK

1053 15 NOV 72  
PAUL BROWN  
NATIONAL INSTITUTES OF HEALTH

INFORMATION REQUESTED DESPATCHED NOVEMBER TWELVE

SIMONS

151855Z  
1855 15 NOV 72  
FERBER

SUGGEST DRASTIC CUTTING FAMILIAL C-J PAPER. SUBMIT LANCET OR NEUROLOGY. PLEASE RESPOND AFTER DISCUSSING WITH DCG. PLEASE INSURE GENETICS PAPER VII MAILED TO ME FROM PONAPE, ONLY COPY CURRENTLY IN DCGS POSSESSION. OUR GENETICS PAPER VI REJECTED. SO IT GOES.

WIESENFELD/GAREY

151805Z  
1805 15 NOV 72  
GAJDUSEK

GENETICS SUPPLEMENT PUBLICATION EXPECTED MOMENTARILY. GALLEYS ON ROOS PAPER RETURNED. GENETICS PAPER VI REJECTED. YOU HAVE ONLY COPY GENETICS PAPER VII. PLEASE INSURE IT IS MAILED TO ME FROM PONAPE. I WILL SUBMIT FAMILIAL C-J PAPER TO NEUROLOGY HOWEVER NO REVIEWERS COMMENTS OBTAINED FROM BRAIN. SUGGEST DRASTIC CUTTING OF THIS PAPER LEAVING IN ONLY TRANSMISSION DATA AND REPORTS ON FAMILIES DELETING LENGTHY DISCUSSION. PLEASE RESPOND.

WIESENFELD/GAREY

17 NOV 72  
DR CARLETON GAJDUSEK  
C/O R/V ALPHA HELIX  
PONAPE ISLAND E.C.I.  
U.S. TRUST TERRITORY OF THE PACIFIC

DR CARLETON GAJDUSEK  
C/O DISTRICT MEDICAL OFFICER  
PONAPE ISLAND, E.C.I.  
U.S. TRUST TERRITORY OF THE PACIFIC

GUAM SHIPMENT OF FOUR LARGE HATBOXES AND THREE SMALL HATBOXES FILLED WITH DRY ICE AND SEEN ONTO THE PLANE LEAVING GUAM 5:30 AM 17 NOVEMBER FOR PONAPE SHOULD BE IN CARE OF DISTRICT MEDICAL OFFICER STOP SECOND SHIPMENT FOLLOWING DAY POSSIBLE STOP ROSEN SENDING TWO HUNDRED POUNDS OF DRY ICE TO ARRIVE PONAPE 20 NOVEMBER ON AIR MICRONESIA FROM HONOLULU STOP SUGGEST YOU MEET FLIGHT STOP ARRANGING FOR HONIARA TRANSPORTING OF CONTAINERS TO BE SENT TO ROSEN FOR TRANSHIPMENT OF CLOTS EITHER TO KIRK OR US AS YOU WISH STOP SHOULD ARRIVE BEFORE DEPARTURE OF ROOS FOR MAINLAND STOP WILL SEND FURTHER DETAILS AS OBTAINED STOP

BROWN

17 NOV 72  
NIGHT LETTER  
DR RL KIRK  
DEPT HUMAN BIOLOGY  
"CURTINSCHOOL"  
CANBERRA  
AUSTRALIA

APOLOGIZE UNAVAILABILITY STOP APPRECIATE EFFORT RE CONTAINERS WHICH SHOULD BE SENT TO DR LEON ROSEN STOP LEAHI HOSPITAL STOP PACIFIC RESEARCH STATION STOP AUKAI AVENUE STOP HONOLULU HAWAII STOP CAN YOU CABLE ME AND ROSEN FLIGHT AND AIRBILL DETAILS WHEN SHIPMENT IS ARRANGED STOP

BROWN



220400Z  
0400 22 NOV 72  
WIESENFELD/FERBER

ROOS FERBER DEPARTED PONAPE TODAY ROOS WITH 11 CARTONS 360 POUNDS FROZEN BLOOD FOR ROSENS NIH LABORATORY HONOLULU. SEND NO FURTHER SUPPLIES MAIL PONAPE EXCEPT 200 POUND DRY ICE FROM GUAM NOVEMBER 29TH ANOTHER 200 POUNDS DRY ICE FROM HONOLULU NOVEMBER 30 FLIGHT EITHER ONE WITH SHIPPING CONTAINERS EQUIVALENT FIVE LARGE HAT BOXES.

PONAPE REFUSES FURTHER COLLECT GBL SHIPMENTS UNELSS YOU CAN CONVINCED RAY BROWN AIR MICRONESIA GUAM TO AUTHORIZE BOB GOODWIN AIR MICRONESIA PONAPE TO ACCEPT NIH SUPPLIES. URGENT INSURE PAYMENT TWO PREVIOUS SHIPMENTS TO ROSEN. GAJDUSEK, RUBINSTEIN, MBAGINTAO ON CARRS TRIP PINGELAP.

GAJDUSEK

222145Z  
2145 22 NOV 72  
GAJDUSEK

DID YOU RECEIVE DRY ICE SHIPMENT PONAPE? WHAT DATE RECEIVED?

BROWN/GAREY

222150Z  
2150 22 NOV 72  
COLEMAN/GAJDUSEK/SCHNEIDER

WHAT IS FUNCTIONAL STATUS REVCO? WERE ANY BIOLOGICAL SPECIMENS DAMAGED DURING ITS MALFUNCTION PERIOD? ARE GAJDUSEK AND RUBINSTEIN CURRENTLY ABOARD? THEIR NAMES MISSING FROM MSG 220410Z. WHAT ARE ROLES OF L AND V ALBERT? PLEASE DESIGNATE ALL MSGS ARRIVING WWD WEEKENDS AND HOLIDAYS BE TELEPHONED MY HOME.

GAREY

DR. LEON ROSEN  
LEAHI HOSPITAL  
WAILAI, HONOLULU  
737-4035

DR. ROOS ARRIVES 11:41 TONIGHT FROM PONAPE WITH 360 POUND SHIPMENT 11 CASES BLOOD. PLS MEET WITH GBL COLLECT SHIPMENT RELEASE AND ACCESS TO LABORATORY AND DRY ICE.

FERBER/GAJDUSEK

11/22

Carleton:

I tried calling Rosen for several hours. I got through briefly, but the connection was lost before I could communicate anything. So I had to send the telegram you wrote as an alternative. I hope it got through OK & Ray didn't have too much trouble.

We go to Guam tomorrow, and I'll call Holden regarding the dry ice shipment. I hope the week in Pingelap was interesting, I'm sorry to have missed it.

See you soon in Building 36

Ferber

230430Z  
0430 23 NOV 72  
GAREY  
INFO WIESENFELD/BROWN

ASK JAN REID TO MAIL URGENTLY TO PONAPE RUBINSTEINS 600 DOL SUMMER STIPEND WHICH JULIANN WAS TO DEPOSIT TO HIS ACCOUNT. CONFIRM CONDITION RECEIPT TWO SHIPMENTS BLOOD CLOTS AND SERA TO ROSENS LABORATORY AND ASSURE THAT DIRECTOR AIR MICRONESIA PONAPE WILL ACCEPT COLLECT U.S. GOVERNMENT FREIGHT TO ROSEN AND TO NIH WHICH HE NOW REFUSES.

GAJDUSEK

242115Z  
2115 24 NOV 72  
GAJDUSEK

1. CLOTS BY ROOS FROM HONOLULU RECEIVED IN EXCELLENT CONDITION BY KIRK.
2. SERA AND VIRAL SPECS SENT BY ROOS RECEIVED IN EXCELLENT CONDITION AT NIH SERA AT MINUS 20 AND VIRAL SPECS AT MINUS 70.
3. ROSEN ADVISES YOU NOTIFY HIM WELL IN ADVANCE OF FURTHER SHIPMENT AS HE HAS ALMOST NO STORAGE SPACE LEFT AND NO DRY ICE AVAILABLE NIGHTS OR WEEKENDS.
4. HAVE RETURNED FIVE LARGE HATBOXES TO ROSEN WHO WILL FILL WITH DRY ICE AND FORWARD TO YOU IN PONAPE.
5. AIR MICRONESIA GBL AUTHORIZATION ARRANGED.
6. GUAM WILL SEND 300 LBS DRY ICE IN MAKESHIFT CONTAINERS DECEMBER 1.
7. HAVE PUSHED KIRK AND MADDOX AS HARD AS POSSIBLE TO RETURN DRY ICE SHIPPERS TO HONOLULU CANNOT DO MORE AND AWAIT FLIGHT INFORMATION HOPING THEY WILL REACH HONOLULU BEFORE YOU DO.
8. YOUR AGENT IN HONIARA CABLED FOLLOWING QUOTE SUGGEST SYDNEY-BALTIMORE, SUVA-BALTIMORE REQUESTED MATERIAL GUJDUSEK. NO DIRECT. AMOUNT ADVISED LATER. REPLY DECISION URGENT UNQUOTE MESSAGE POSSIBLY GARBLED

BROWN

272100Z  
2100 27 NOV 72  
GAREY  
INFO WIESENFELD/BROWN

COMPLETED PINGELAP ATOLL STUDY OF SCHOOL CHILDREN AND GOITER CASES. PLANNING DISPATCH REMAINING 1500 FROZEN SERA DECEMBER 2. CONFIRM RECEIPT LAST 4 BOXES FROM HONIARA INCLUDING 400 CHEST XRAY FILMS AND MASTER BSIP BLEEDING BOOK FROM ROOS. CAN RUBINSTEIN CONTINUE ON TO DARWIN TO START FURTHER WORK FOR US ON ABORIGINE AND TIMORESE STUDIES BEFORE HE PROCEEDS TO NEW GUINEA. INSTRUCT MELANCHINE HONIARA TO SHIP WHEN POSSIBLE VIA FIJI AND QUOTE US CHARGES.

GAJDUSEK



272135Z  
2135 27 NOV 72  
GAJDUSEK

EXTREMELY SORRY HEPARANIZED TUBES DID NOT REACH YOU PONAPE. ADEQUATE HEPARAIN IN DRUG SUPPLIES AVAILABLE FOR BLEEDINGS. CHECK PONAPE AGAIN YOUR RETURN FOR HEPARANIZED TUBES.

WIESENFELD/GAREY

272155Z  
2155 27 NOV 72  
GAJDUSEK

REMINDE YOU OF FOLLOWING FACTS. FLIGHT FROM GUAM ARRIVING PONAPE 1 DEC WILL HAVE 300 LBS DRY ICE IN MAKESHIFT CONTAINERS. FLIGHT ARRIVING FROM HONOLULU WILL HAVE ABOARD 400 LBS DRY ICE IN 4 LARGE HATBOXES AND 7 SHIPPING CONTAINERS FROM HONIARA. THESE ARE LARGE ENOUGH TO HOLD CLOTS WITHOUT REPACKING INTO SMALLER BOXES. MARION EXPLAINING TO AMERICAN EXPRESS SITUATION OF UNPAID BILLS. WE ARE HOLDING THEM HERE AT THIS LATE DATE FOR YOUR RETURN. REGARDING 200 DOLLARS ADVANCED TO YOU FOR ME I HAVE REPAID SIO DIRECTLY. BOOKKEEPING IS IN PROGRESS. HAVE ADVISED HONIARA SHIPPER YOUR WISHES.

BROWN/GAREY

07 DEC 72  
DR RL KIRK

ONE CONTAINER WITH DRY ICE HAS CLOTS AND SALIVA SPECIMENS AND ANOTHER BOX WITH WET ICE HAS RED CELL SPECIMENS DISPATCHED TODAY STOP ARRIVING CANBERRA VIA ANSET 367 TENTH DECEMBER STOP AIRBILL NUMBER 026-30099705 STOP

PAUL BROWN

11 DEC 72  
DR PAUL BROWN

SAMPLES ARRIVED SAFELY AS SCHEDULED

KIRK CURTIN SCHOOL



APPENDIX I

Report on the Medical and Population Genetic Survey of the  
Banks and Torres Islands of the New Hebrides  
and the Southern Islands of the British Solomon Islands Protectorate





Medical and Population Genetic Survey of the Banks and Torres Islands of  
the New Hebrides and the Southern Islands of the British

Solomon Islands Protectorate

September 17, 1972 to November 18, 1972

Chief Scientist: D.C. Gajdusek, M.D., National Institutes of Health,  
Bethesda.

Cruise Participants:

D. Bowdin, Public Health Department, British Residency, New Hebrides  
P.W. Brown, National Institutes of Health, Bethesda  
F. Cathala, Hôpital Salpêtrière, Paris  
R. Feinberg, University of Chicago  
R.A. Ferber, National Institutes of Health, Bethesda  
W. Firipae, Public Health Department, Rennell Island, B.S.I.P.  
J. Guiart, Sorbonne, Paris  
R. Lee, Public Health Department, Rennell Island, B.S.I.P.  
I. Mbaginta'o, National Institutes of Health, Bethesda  
J. Meyer, National Institutes of Health, Bethesda  
S. Reveag, Public Health Department, Mota Lava, New Hebrides  
R. Roos, Johns Hopkins University Hospital, Baltimore  
D. Rubinstein, Stanford University, Palo Alto  
W. Schneider, Scripps Institution of Oceanography, San Diego  
J. Sheridan, Walter and Eliza Hall Institute, Melbourne

Local Collaborating Investigators:

New Hebrides:

J. Barley, Condominium Customs Department, Port Vila  
P. de Carfort, Director of Condominium and French Medical Services,  
Port Vila  
R. Greenough, Director of British Medical Services, Port Vila  
R.C. Walsh, Patton Memorial Hospital, Presbyterian Mission, Port Vila  
K. Woodward, Resident Commissioner, British Residency, Port Vila

British Solomon Islands Protectorate:

B. Eyers, Medical Service, Honiara  
J. MacGregor, Director of Public Health Department, Honiara

Other Participating Investigators:

D. Asher, National Institutes of Health, Bethesda  
M. Basnight, National Institutes of Health, Bethesda  
P. Fetchko, Peabody Museum, Salem  
R. Garruto, National Institutes of Health, Bethesda  
C.J. Gibbs, Jr., National Institutes of Health, Bethesda  
J. Hooks, National Institutes of Health, Bethesda  
R. Kirk, Australian National University, Canberra  
J. Kroeber, National Institutes of Health, Bethesda  
D. Lang, Duke University Medical School, Durham  
L.H. Miller, National Institutes of Health, Bethesda  
F.A. Neva, National Institutes of Health, Bethesda  
G. Pacheco, National Institutes of Health, Bethesda

C. Plato, National Institutes of Health, Bethesda  
N.G. Rogers, National Institutes of Health, Bethesda  
R. Saldino, National Institutes of Health, Bethesda  
K. Shah, Johns Hopkins University Hospital, Baltimore  
M. Simons, University of Singapore, Malaya  
S. Wiesenfeld, National Institutes of Health, Bethesda



The purpose of this expedition was to make use of the laboratories and support facilities of the R/V Alpha Helix for a thorough medical, population genetics and human biology survey of very remote islands, difficult of access because of their total lack of harbors and anchorage. These islands are all of particular interest to medicine, anthropology, and human biology because of their genetic and epidemiologic isolation, their limited ecology, and the fact that they are an area of high inbreeding and of overlap of Melanesian and Polynesian peoples. Almost all of them present difficulties in disembarkation and embarkation; at very few of them was it possible to anchor. During much of the year, including most of the period of this expedition, the seas are rough, often making landing impossible. These facts, and the remoteness of these islands, have made medical surveys and laboratory studies of these populations impossible in the past.

The difficulties in bringing people to and from the ship severely limited the possibility of shipboard laboratory studies of patients. Thorough medical, including neurological, examinations, x-ray studies, and other laboratory studies were often difficult or impossible on board ship because of the rough seas, without anchorage. Thus, such use of the ship's facilities had to be devised as would best serve the unique requirements for medical work on these small volcanic islands. Without the Alpha Helix's power supply, refrigerators, microscopes, centrifuges, incubators and liquid nitrogen, the expedition would have been impossible.

However, the purpose of the expedition was medicine and human biology, which demanded shore-based, not ship-based, research, and the uses to which the ship's laboratories were put was largely that of the complex processing of biological specimens for their continued study over a period of years in the collaborating laboratories of Europe, Australia, and America. Unlike many previous Alpha Helix expeditions, the major laboratory data from these studies will be accumulated for over a decade, and the definitive publications are not envisaged before several years of laboratory studies have been completed.

In June 1972 the Chief Scientist visited both the New Hebrides and the Solomon Islands to discuss the problems and purposes of the expedition with both administrators and medical services on the islands. He encountered enthusiasm for the expedition and received extensive hospitality; he was permitted access to census and demographic data, maps and medical reports which were essential to the work on the islands. Most important, the medical services and administrations informed the islanders of the arrival of the expedition and the medical team was met with enthusiasm on every island. On all islands, the Chiefs and the people cooperated, with patients anticipating our arrival; the interest in the extensive medical examinations was high, and no resistance was encountered to such examinations or to the collection of blood, urine, feces, saliva and other specimens, or to the skin testing and other diagnostic procedures. The people welcomed this opportunity to present their many medical complaints to the assembled medical specialists and were enthusiastic and careful in providing the necessary anamnestic and general background information. They showed great hospitality to the visiting scientists and were disappointed that the high seas and difficult landings made it impossible for Captain and crew to come ashore with the scientific team.

The nature and purpose of the studies were explained to the people on the

islands, particularly to the Chiefs and islanders who served in the local schools and churches. The medical findings of the expedition, particularly individual patients who required further medical attention, were brought promptly to the attention of the government medical services in both countries. On large islands, such as Efate and Santa Cruz, where the expedition did not concentrate on medical, genetic and human biology studies, the physicians on the ship were called in as consultants by the local doctors to see many of their hospital patients. The expedition provided all medical attention possible to those on the islands who required it, but no surgical procedures were attempted and patients requiring elective surgery were referred and reported to the respective directors of health services.

Most of the scientific party from overseas joined the program in Port Vila and left from Honiara, B.S.I.P., or from Ponape in Micronesia where the final laboratory work was completed and the complex packing and dispatching of incubated and refrigerated specimens was arranged. Drs. Brown and Guiart left the expedition from Santa Cruz in the Solomons after the first five weeks of study, and Dr. Sheridan joined us there. Dr. Bowdin was with the expedition only in the southern part of the Banks Islands, and Dr. Reveag only in the northern Banks and Torres Islands. Dr. Lee participated in the program on Tikopia, Anuta and Santa Cruz, Mr. Feinberg on Anuta, where he had been in residence for six months of anthropological field work; and Mr. Firipae on Rennell and Bellona Islands. Mr. Mbaginta'o first joined the expedition to participate in the final cataloging, packing and dispatching of specimens from Ponape. There the Chief Scientist, Mr. Mbaginta'o and Mr. Rubinstein continued on to the next expedition of the Alpha Helix, that to Pingelap Atoll, under the Chief Scientist, Dr. R. Carr, where they continued the medical and human biology studies on Pingelap children and departed two weeks later from Ponape.

The islands are also of particular interest because of their small size and limited ecology, with very few species of mosquitoes, ticks or mite vectors of disease; some have no mosquito vectors for malaria. They are also a major transition area in the Pacific between malaria-affected and malaria-free islands; filariasis, similarly, varies from high to low incidence or absence. Genetically and culturally they are of interest, in that they contain several Polynesian outliers, including proto-Polynesian populations in Rennell and Bellona islands within Melanesia. Furthermore, from our earlier investigations we had demonstrated a new hemoglobin variant, hemoglobin J Tongariki, in the Shepherd Islands, and also in the Banks and Torres populations. We have reason to believe this will serve as a unique genetic marker for tracing past migrations in the South Pacific. Also, in our earlier studies we had encountered extraordinarily high blood group B frequencies on Rennell and Bellona Islands, indicating a strange uniqueness in these populations which demanded further genetic analysis. Since we had described a focus of familial periodic paralysis on Tongariki Island in the Shepherd group, we specifically hunted for this disease and found none. The presence of familial goiter and cretinsim on Bellona we had also previously noted, and investigations of this disease have been expanded.

We are heavily indebted to the French and British Commissioners in Port Vila, and the British High Commissioner and his staff in Honiara for their permission to work in their respective islands, and for the administrative and logistical assistance they rendered us. We are extremely indebted to the local



collaborators, the chief of services in the local Public Health Departments in both countries, who went far out of their ways to give personal service and advice from their own experiences in the islands to our expedition. They have made the local documents and records available to us, and continue to participate in the scientific program and have thus been listed as local collaborating investigators. The various studies have been divided into three major categories:

- 1) Disease Patterns in Primitive Isolated Populations;
- 2) Population Genetic Studies in Relation to Congenital Defects and Heredofamilial Diseases in the Isolated Island Populations;
- 3) Epidemiological Investigation of the Demography, Kinship, Migration and Marriage Patterns of the Populations Studied; Documentation of the Ethnography, Natural History, Ecology, and Medical Procedures and Findings.

These are summarized below, with a list of the investigators who are contributing in each study. These summaries are not contemplated papers, but rather, fields of investigation in which one or numerous more specific publications are planned.



Disease Patterns in Primitive Isolated Populations

- I. Medical survey of the island populations.  
Investigators: 1. D.C. Gajdusek, M.D.  
2. P.W. Brown, M.D.  
3. R.A. Ferber, M.D.  
4. R. Roos, M.D.  
5. F. Cathala, M.D.  
6. J. Sheridan, M.D.
- II. Neurological disease in the Banks, Torres and Southern Solomon Islands.  
Investigators: 1. R. Roos, M.D.  
2. F. Cathala, M.D.  
3. D.C. Gajdusek, M.D.  
4. P.W. Brown, M.D.  
5. R.A. Ferber, M.D.
- III. Seroepidemiological investigations for viral, rickettsial, bacterial, mycotic, protozoal and helminthic diseases, and virus isolation studies.  
Investigators: 1. D.C. Gajdusek, M.D.  
2. P.W. Brown, M.D.  
3. C.J. Gibbs, Jr., Ph.D.  
4. N.G. Rogers  
5. R. Garruto, Ph.D.  
6. D. Lang, M.D.  
7. K. Shah, M.D.  
8. D. Asher, M.D.  
9. J. Hooks, Ph.D.
- IV. Survey of skin test sensitization to tuberculosis, atypical mycobacteria, coccidioidin and histoplasmin.  
Investigators: 1. P.W. Brown, M.D.  
2. D.C. Gajdusek, M.D.  
3. R.A. Ferber, M.D.  
4. R. Roos, M.D.  
5. F. Cathala, M.D.  
6. J. Sheridan, M.D.
- V. Chest roentgenographic survey of the islands.  
Investigators: 1. R.A. Ferber, M.D.  
2. R.M. Saldino, M.D.  
3. P.W. Brown, M.D.  
4. D.C. Gajdusek, M.D.
- VI. Parasitology: material and filarial and intestinal parasite studies.  
Investigators: 1. P.W. Brown, M.D.  
2. D.C. Gajdusek, M.D.  
3. L.H. Miller, M.D.  
4. F.A. Neva, M.D.  
5. G. Pacheco, Ph.D.

## Disease Patterns in Primitive Isolated Island Populations

### I. Medical Survey of the Island Populations

To determine the spectrum of diseases found on these islands, with emphasis on those of infectious, genetic, or congenital etiologies, and to identify the neurological syndromes present, detailed physical examinations, supplemented as needed by laboratory investigations, were performed on over three thousand people. Examinations of entire island populations were performed on each of the smaller islands, and selected medical surveys were made on those with larger populations. Protocols included the complete neurological and ophthalmological, as well as general medical examinations. On several islands, as well as in situations where medical problems indicated the need, urinalysis, hematologic examination of peripheral blood, thick and thin blood smears for parasite identification, x-ray and electrocardiographic study, appropriate cultures for bacteria or viruses, and intradermal skin testing with atypical mycobacterial and mycotic antigens were carried out. On all children, heights and weights were recorded and identity photographs were taken for use in future longitudinal growth and development studies.

### II. Neurological Disease in the Banks, Torres and Southern Solomon Islands

A survey of neurological disease was made in the Banks, Torres and Southern Solomon Islands, in order to determine the most prevalent syndromes and to search for any disease foci. The neurological disease encountered fell into several categories: congenital abnormalities, infectious or post-infectious disease, degenerative disease, peripheral neuropathy, and cervical and lumbar spondylosis.

The congenital disease frequently resulted from definite structural damage; examples include: hydrocephalus, focal epilepsy (with secondary dystonia involving one hand), spastic paraparesis, hypotonia with hyperreflexia, club feet with hyperreflexia. At least five cretins with mental retardation were seen; two had an associated severe myopathy (one cretin on Bellona had a goiter). The most common sequella of infection seen was lower motor neuron paralysis secondary to poliomyelitis. Over six cases of old poliomyelitis were seen; in each case the initial febrile illness had occurred in the setting of a presumed epidemic, since other islanders had died or been similarly affected at the same time. A number of cases of leprosy were seen, one having a classical mononeuritis. A case of herpes zoster with radicular pain was found, possibly associated with the high prevalence of varicella, presently active on the islands.

The degenerative diseases seen included two cases of Parkinson's disease and two cases of an olivopontocerebellar disease syndrome. The fact that the latter two cases were sporadic, and that one patient had a history of febrile illness preceding the onset of neurological signs, may indicate that the syndrome is post-encephalitis. One islander had dementia, hyperkinesia, cerebellar signs and hyperreflexia, possibly post-encephalitis as well. Two cases of severe optic atrophy of unknown etiology were seen.

Peripheral neuropathy occurred in two individuals with a typical Charcot-Marie-Tooth clinical picture, although both cases were sporadic.



Another peripheral neuropathy had a large component of posterior column disease. One patient with peripheral neuropathy had, in association, cerebellar signs, dementia and a long history of seizures. One of the most common complaints of the islanders was lower back pain, probably reflecting the severe spondylosis caused by physical labor. Several patients with sensory and motor radiculopathies, probably secondary to cervical spondylosis, were seen.

Certain diseases were noticeable by their absence. As has been recognized in the past, multiple sclerosis is rare in the tropics and no case was found. Only one patient with a cerebrovascular accident was seen, reflecting the relative low incidence of arteriosclerotic disease and hypertension on these islands. No focus of neurological disease was seen; in particular, amyotrophic lateral sclerosis, parkinsonism-dementia and kuru-like or other tremor syndromes were not encountered, and no reports of familial periodic paralysis-like disease, such as have been found on Tongariki Island in the Shepherd Islands, New Hebrides.

### III. Seroepidemiological Investigations for Viral, Rickettsial, Bacterial, Mycotic, Protozoal and Helminthic Diseases and Virus Isolations

Sera were collected from three thousand subjects, or over 60% of the population of the islands intensively studied. On islands given our particular attention, such as Anuta and Merig, over 90% of the population was bled. Over the course of several years the sera will be investigated for a wide variety of infectious disease antibodies. Techniques of complement fixation, hemagglutination inhibition, fluorescent antibody, neutralization, indirect hemadsorption inhibition, and agglutination will be used to identify viral and rickettsial antibodies. Appropriate antibody tests for infection with various specific protozoa, bacteria, helminths, and fungi will be conducted. Age incidence of acquisition of immunity or of first contact with each microbe will be plotted to increase our understanding of the pattern of spread of infectious diseases in these population isolates.

Particular attention will be given to arbovirus infections in view of the simple ecology of these islands, and the paucity of species of natural hosts and vector which are to be found. Continuation of our studies on the mode of transmission of toxoplasmosis will be major interest. Since none of the people have had contact with monkeys or vaccines prepared in monkey tissue cultures, the antibody survey of these populations for antibodies to the Simian viruses is of particular significance. Antibody patterns to the various papovaviruses isolated from human brain of patients with progressive multifocal leukoencephalopathy (SV40, J-C virus, and the related BK virus) to determine the frequency and age incidence of contact with these agents as possible clues to their epidemiology in man will be quickly determined. Similarly, in view of the importance to our understanding of the carrier state for herpes viruses in man, and the possible role of these agents in the genesis of cancer and other chronic disease, antibody acquisition patterns for herpes hominis types 1 and 2, Epstein-Barr virus, cytomegalovirus, and varicella and herpes zoster will be determined. Australian antigen and Australian antigen antibody will be determined, and also antibody response to respiratory syncytial virus and the kuru foamy viruses of man, chimpanzees, monkeys, and non-primates.



A large number of specimens for virus isolation work have been collected. These include, principally, throat washings, fecal and some urine specimens. They are maintained at  $-70^{\circ}\text{C}$  and are being slowly processed for the presence of viruses, over the next year.

#### IV. Survey of Skin Test Sensitization to Tuberculosis, Atypical Mycobacteria, Coccidioidin and Histoplasmin

Because of the high incidence of tuberculosis in the populations of some of these islands, an attempt was made to recognize all cases of tuberculosis early and to evaluate the true extent of the problem. The possibility that atypical mycobacteria may be contributing to the pattern of chronic pulmonary disease seen was thought to be great. Intradermal skin tests, using seven mycobacterial antigens (PPD, PPD-B, PPD-F, PPD-G, PPD-S, PPD-Y, and PPD-avian), coccidioidin and histoplasmin were performed on three hundred subjects of all ages on three of the islands: Merig, in the Banks Islands; Loh, in the Torres Islands; and Anuta, the most remote of the Polynesian outliers of the Solomon Islands. On Anuta, sixty chest x-rays were taken on islanders who could reach the ship and who had been skin-tested with all nine antigens. All subjects studied had had complete physical examinations.

#### V. Chest Roentgenographic Survey of the Islands

In order to determine the extent and characteristics of known and unknown pulmonary disease in the islands studied, over four hundred chest x-rays were taken by means of a portable x-ray unit aboard the ship. These studies included screening of about half the population on Anuta, one of the most remote islands, and surveys of various villages and clinically ill individuals on other islands. Also carried out was the screening of almost all the students from many different southern Solomon islands and the examination of many patients at the government hospital on Santa Cruz. These studies will be useful in determining what patients should be evacuated for treatment of tuberculosis, as well as for aiding our understanding of the distribution of disease, such as tuberculosis and atypical mycobacterial infection throughout the islands. Correlation of chest x-ray findings with PPD and atypical mycobacterial and mycotic antigen skin sensitivities will be performed. In addition, some individuals were found to have roentgenographic evidence of cardiovascular disease. Two cases of probably initial stenosis, one case of pulmonary stenosis, and several people with cardiomegaly of undetermined origin were discovered. An incidental finding was the occurrence of calcium on the aortic arch in about the same frequency as occurs in the United States, suggesting that the absence of vascular disease syndromes in this population is not the result of an absence of atherosclerosis.

#### VI. Parasitology: Malarial and Filarial and Intestinal Parasite Studies

Fifteen hundred thick and thin blood smears were taken on the island populations for evaluation of the incidence of parasitemia for malaria and filaria. Stool specimens in appropriate holding media provided a means for assessing the levels and kinds of helminthic and amoebic infestation in the populations. Hematological studies, including hemoglobin determinations and differential blood counts will also provide an index of anemia and of eosinophilia. Fluorescent antibody tests for malaria will be performed on selected population samples and correlated with the results of blood smear evaluations.

Population Genetic Studies in Relation to Congenital Defects and Heredofamilial Diseases in the Isolated Island Populations

I. Blood group genetic factors and hemoglobinopathies.

- Investigators: 1. D.C. Gajdusek, M.D.  
2. R. Kirk, M.D.  
3. M. Simons, M.D.  
4. P.W. Brown, M.D.  
5. R.A. Ferber, M.D.  
6. S. Wiesenfeld, M.D.  
7. R. Roos, M.D.  
8. F. Cathala, M.D.  
9. J. Sheridan, M.D.

II. Red cell enzyme pleomorphisms.

- Investigators: 1. R. Kirk, M.D.  
2. D.C. Gajdusek, M.D.  
3. P.W. Brown, M.D.  
4. R.A. Ferber, M.D.  
5. F. Cathala, M.D.  
6. R. Roos, M.D.  
7. J. Sheridan, M.D.

III. Polymorphisms of serum protein factors.

- Investigators: 1. R. Kirk, M.D.  
2. D.C. Gajdusek, M.D.  
3. P.W. Brown, M.D.  
4. R.A. Ferber, M.D.  
5. F. Cathala, M.D.  
6. R. Roos, M.D.  
7. J. Sheridan, M.D.

IV. Dermatoglyphics.

- Investigators: 1. D. Rubinstein  
2. C. Plato  
3. D.C. Gajdusek, M.D.

V. Genetic distance studies between island groups.

- Investigators: 1. S. Wiesenfeld, M.D.  
2. R. Kirk, M.D.  
3. R.A. Ferber, M.D.  
4. D.C. Gajdusek, M.D.  
5. J. Guiart, Ph.D.



## Population Genetic Studies in Relation to the Patterns of Disease on the Islands

A wide search for heredofamilial diseases and congenital abnormalities was carried out and genealogies collected on most of the island families. These data, taken together with laboratory data on pleomorphisms in erythrocyte surface antigens and red cell enzymes and serum proteins, the further genetic data on finger and palm prints, anthropometric measurements and color blindness, and from the medical survey for such genetic traits as albinism and pigmented rings around the optic disc, will all be used in studying the genetic structure of the populations from the different islands in relation to gene drift, and with respect to possible relationships, as indicated by their genetic similarities and dissimilarities. These data will also be used to search for linkage between genetic constitution to the occurrence of various diseases or morphological traits.

### I. Blood Group Genetic Factors and Hemoglobinopathies

Clotted red cells are being analyzed for blood groups ABO, MNS, Rh, Kell, Duffy, Diego, Wright, and Lewis, by Dr. Malcolm Simons, at the W.H.O. headquarters in Singapore, by Dr. Kenneth Brown and Mr. W.C. Leyshon at the National Institute of Dental Research, and by Dr. Robert Kirk, at the Australian National University, Department of Human Genetics. In addition, hemoglobin electrophoresis in search for hemoglobin J Tongariki, as well as other hemoglobin variants, is being carried out by Dr. Robert Kirk in Australia. These data, together with information on other polymorphic loci, will be used to determine genetic relationships and distinctions between the various island populations studied. Data on the distribution of hemoglobin J Tongariki will be invaluable to the study of genetic drift and migration in the New Hebrides, as well as data on other rare alleles among the red cell enzymes or other systems.

### II. Red Cell Enzyme Pleomorphisms

Red cell clots were obtained on over three thousand individuals from all the visited islands in the New Hebrides and the British Solomon Islands Protectorate. These samples are being analyzed in the Department of Human Genetics, Australian National University, for polymorphisms at twenty different red cell enzyme loci. The resulting data will be used in conjunction with other genetic information we have gathered to analyze the degree of genetic isolation in these island populations. This data will be also used in our studies on genetic heterogeneity and gene drift, as well as in genetic distance summaries. They are potentially of great value in indicating or supporting suspected migration patterns, and will be used together with other data on pleomorphisms to calculate genetic distance and to search for linkage to various diseases.

### III. Polymorphisms of Serum Protein Factors

Over three thousand samples are being analyzed in the laboratory of Dr. Robert Kirk, Department of Human Genetics, Australian National University, Canberra, for serum protein factors known to be polymorphic. These factors include transferrin, haptoglobin, albumin, group-specific protein (Gc), Gm and Inv allotypes of human immunoglobulin G (IgG). Part of each serum specimen will be maintained frozen at  $-70^{\circ}\text{C}$  for possible future analysis of yet to be



discovered polymorphisms. These data will further amplify the forces of genetic drift, migration, and possible selective forces acting on these isolated island populations suspected of having as high a coefficient of kinship as can be found anywhere in the world.

#### IV. Dermatoglyphics

Fifteen hundred subjects were palm and finger-printed on both hands for dermatoglyphic analyses by Dr. Chris Plato of the National Institute of Dental Research at the National Institutes of Health. The data will be used to search for phenotypic differences in palm printing pattern and finger print pattern distributions, and in ridge counting, in order to find evidence for relationships or genetic distinctions among the various island populations studied. An attempt is also being made to use dermatoglyphic data in genetic distance studies, employing erythrocyte antigens, serum protein, and red cell enzyme polymorphisms, for the study of genetic heterogeneity and gene drift by genetic distance techniques.

#### V. Genetic Distance Studies Between Island Groups

Information on close to thirty polymorphic loci, as well as dermatoglyphic phenotypes and kinship patterns, will be used in genetic distance analyses of the island populations surveyed. Genetic heterogeneity, as well as coefficients of kinship, will be determined. Graphic analyses, including the construction of genetic networks and principal components analysis, will also be attempted. Distinctions between kinship, determined by bioassay (from polymorphism data) and that determined by migration patterns, dermatoglyphics, and kinship patterns obtained from history, will be contrasted.

Epidemiological Investigation of the Demography, Kinship, Migration, and  
Marriage Patterns of the Populations Studied; Documentation of the Ethnography,  
Natural History, Ecology, and Medical Procedures and Findings

- I. Kinship systems and marriage and migration patterns.  
Investigators: 1. J. Guiart, Ph.D.  
2. D. Rubinstein  
3. R. Feinberg  
4. R. Lee, M.D.
- II. Research cinema record.  
Investigators: 1. D.C. Gajdusek, M.D.  
2. J. Meyer  
3. D. Rubinstein
- III. Cataloguing and collation of still photography from the expedition.  
Investigators: 1. J. Meyer  
2. D. Rubinstein  
3. I.G. Mbaginta'o  
4. J. Kroeber  
5. R.A. Ferber, M.D.  
6. D.C. Gajdusek, M.D.
- IV. Child drawings.  
Investigators: 1. D. Rubinstein  
2. J. Meyer  
3. D.C. Gajdusek, M.D.
- V. Recording of music.  
Investigators: 1. D.C. Gajdusek, M.D.  
2. J. Meyer  
3. J. Kroeber
- VI. Collection and documentation of ethnographic artifacts.  
Investigators: 1. D. Rubinstein  
2. J. Guiart, Ph.D.  
3. J. Meyer  
4. I.G. Mbaginta'o  
5. D.C. Gajdusek, M.D.  
6. P. Fetchko

## I. Kinship Systems and Marriage and Migration Patterns

Medical documentation for the entire three thousand-some patients who were examined and bled included name, age, sex, village and island, also marital status and name of the patients's spouse, names and villages and islands of the patient's parents, names of living children and reproductive histories of women, as well as travel and medical histories for each patient. Particular care was given to tracing the genealogical lines resulting from foreigners and immigrants to the islands during the last two or three generations. Individuals were questioned as to their assigned membership in exogamous, named social groupings (clans or lineages) and an attempt was made to elaborate the socially prescribed patterns of marriage among those groupings. This documentation makes possible a reconstruction of the genealogical and residential patterns on each island, and thus provides both an elucidation of the patterns of non-random mating and a measure of population dispersion among these isolated populations.

## II. Research Cinema Record

Cinema records from the expedition amount to more than eleven thousand feet of 16mm color film. Motion picture documentation was undertaken for several purposes: 1) Cinema records were made of patients with neurological and other movement disorders to permanently record and permit further analysis of their conditions; 2) as a supplement to the medical survey and population genetic studies, cinema material will provide ethnographic background essential to interpreting the epidemiological and human biological observations and laboratory findings; 3) medical problems (other than neurological) which could be effectively recorded photographically were filmed, including elephantiasis, other filarial infection syndromes, albinism, congenital deformations, goiter and cretinism, and skin diseases; 4) as part of the Study of Child Growth and Development cinema was used to record behavior patterns and early childhood learning; and 5) in accordance with the wishes of the Scripps Institution and the National Science Foundation, the field procedures of the expedition and the research use of the Alpha Helix facility in dealing with the island populations and handling of their medical problems were also filmed.

The entire eleven thousand foot corpus of motion picture film will be fully documented with supplementary material and will become Research Films of the Study of Child Growth and Development and Disease Patterns in Primitive Cultures of the National Institute of Neurological Diseases and Stroke in Bethesda.

## III. Cataloging and Collation of Still Photography from the Expedition

Eleven of the expedition participants used one or more still cameras, documenting extensively every area of their work. There are more than eight thousand photographs, 90% of them in color. They fall into the following categories: 1) Documentation of medical and genetic problems encountered, including filarial adenopathy, elephantiasis, tropical pyomyositis, tropical ulcers, trachoma, leprosy, gangosa yaws, goitrous cretinism, tinea versicolor and corporis, molluscum contagiosum, pedunculated warts, albinism and partial albinism, various congenital anomalies with and without mental retardation, club feet, reduction deformities, supernumerary digits, external ear deformities, diastasis recti, ptosis and atrophied extremities and post-poliomyelitis atrophy and paresis; 2) still photographic records of behavioral importance for the



Study of Child Growth and Development, and to be used in longitudinal studies of child development; 3) identity photographs on almost every individual for whom we have a blood sample, for later correlation with human biological results and for growth studies; 4) ethnographic background material to aid in interpretation of genetic and medical findings, and for a general understanding of their cultural setting; and 5) photographs documenting the natural history and ecology of the islands for use in epidemiological studies and studies of disease ecology.

#### IV. Child Drawings

Several hundred drawings were collected from children in most of the island groups studied. We have recorded the name, age, sex, and village residence of each of the child artists. The child's depiction, frequently in a culturally stylized manner, of his island world and the activities within the village and on the sea, provide a useful and unique document for the study of child growth and development. These drawings are being used together with the large collection of drawings from different cultural and linguistic groups in Melanesia, especially New Guinea, Polynesia and Micronesia which we have accumulated from children in low-aculturated societies over the past 20 years in the study of culturally determined symbolic styles and patterns of cognitive function.

#### V. Recording of Music

Ten hours of island music, dancing, and communal singing were recorded on magnetic tape, and will be used largely as supplementary material to the corpus of cinema and flash and still photography. On several islands we had the opportunity to make high-quality recordings of traditional Polynesian and Melanesian dance-songs and commemorative chants, which will become interesting ethnographic supplements to the studies of the human biology of these islands.

#### VI. Collection and Documentation of Ethnographic Artifacts

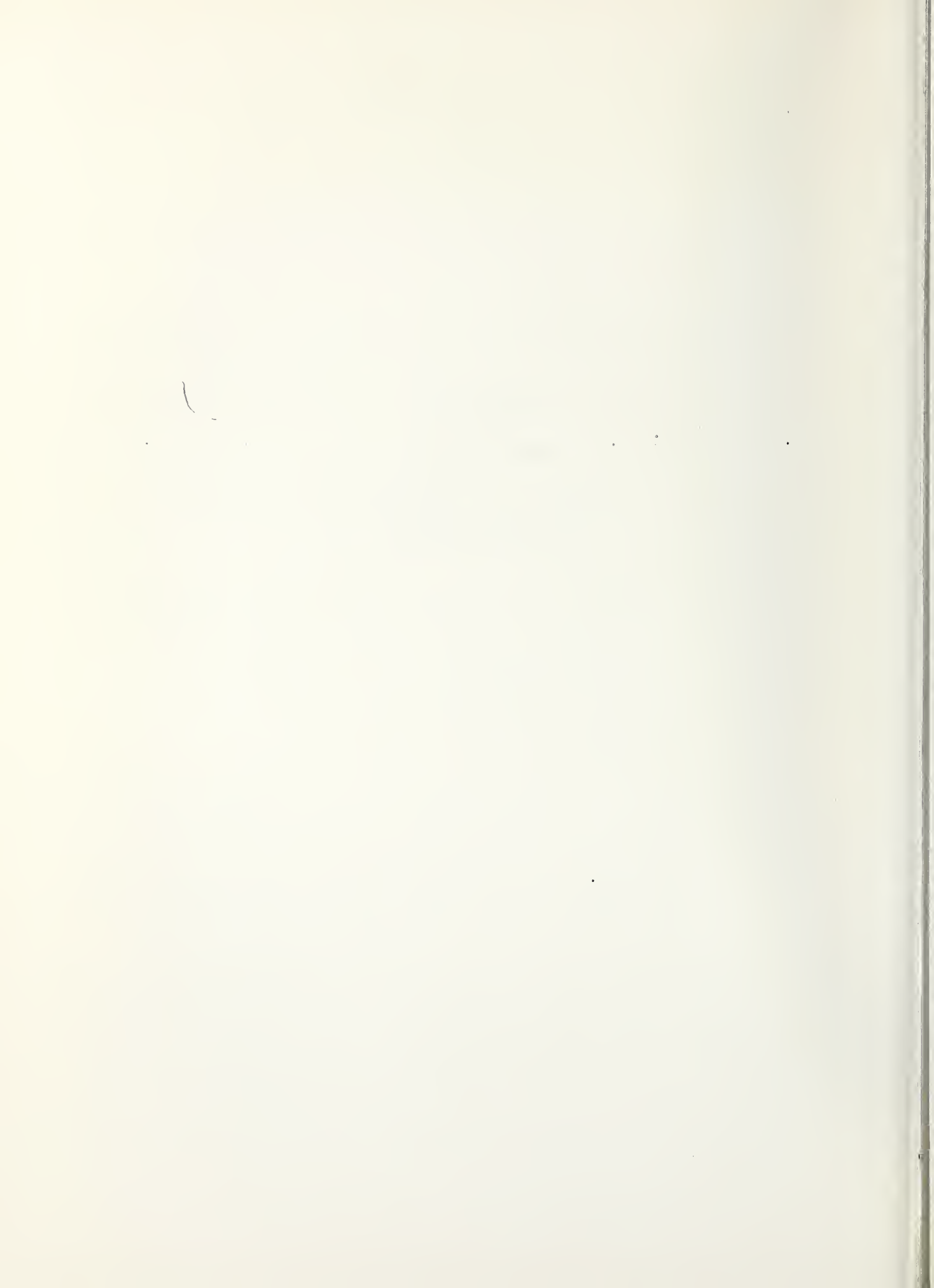
Several hundred tools, household articles, and ceremonial carvings were collected in the villages and district centers which the expedition visited. A principle aim of the photography during the expedition was to supplement this collection with a photographic record of several thousand artifacts in their village setting, particularly in reference to house architecture and settlement pattern, the use of indigenous tools, native art styles, tattoo patterns, canoe construction, traditional dress, and the technology of gardening, irrigation and food preparation.

The collection and documentation of these artifacts will provide an ethnographic picture of the living conditions and dietary habits of the islanders, and will be important as background cultural data for studies of child rearing and disease patterns on the islands. The documentation of cultural styles of art and technology will also be useful as supplementary data to the medical studies of genetic distance among the island populations studied.



APPENDIX II  
Field Notes on  
Each Island Visited in  
the New Hebrides





Field Notes on Islands

## MERELAVA (Mere Lava, Merelab, Merelav, Star Peak Island)

5 villages, church sites, in clockwise order:

- |   |                                |
|---|--------------------------------|
| 1. Leqel (Lekwel) = St. Paul Lekwel School<br>Nirngiriu = church site<br>Dispensary<br>Rest House | NW, facing Merig               |
| 2. Kwangrow (Quangrow) = St. John Lewetnok  | Near offshore rock<br>Vatotlav |
| 3. Matliwal (Auta) = St. Barnabas   | Near offshore rock<br>Vatotlav |
| 4. Sere = St. Steven Tasmata  | SW coast                       |
| 5. Pekwe = St. Luke Levatmise   | W coast                        |

Walk around the island: 5-6 hours

Size: c. 3 km north-south

c. 4 km east-west

Walk over extinct crater across island: 1/2 to 1 day (Elevation:  
2800 feet)

School: Anglican: Leqel (Lekwel)

Children: +80

Head teacher: Judah Butu (fr. Pentecost)

Teacher: Dimas Boy (fr. Maewo)

Rest house visible halfway up hill above anchor painted on  
rocks

Anglican Priest: Thomas Butu at Leqel village

Dresser: Andrew Gon at Leqel village

S/N: Annette Lehina at Leqel village

S/N: Anika Leten (fr. Pentecost) at Leqel village

## Revised Village List

	<u>Church Site</u>	<u>Population</u>	
		<u>1967</u>	<u>1972 (est.)</u>
St. Paul Lekwel	Nirngiriu		250
St. John Lewetnok	Kwangrow		150
St. Barnabas A'ota (A'uta)	Mat'liwal		150
St. Steven Tasmata	Sere		300
St. Luke Levatmise	Pekwe		100

Field Notes on Islands, continued

This total of 950, however, does not equal the 1200 claimed to be here on the island, though it is a good deal higher than the 800 in the 1967 census.

## MERIG

Only 1 village: Le'volvol  
(Lemanman village on Gaua is of Merig people)

Anglican Mission: No priest  
Deacon: Charlie Noah Damkel (from Merig)

No dispensary or dresser

## GAUA (Santa Maria)

11 villages, scattered over island, peripherally:

- |   |   |
|---|---|
| 1. Dolav village = Quetevat village, <u>+30</u>               | West coast  |
| 2. Ontar village, <u>+30</u>                                  | West coast  |
| 3. Qetegaveg village = ?Petskabilendrom village               | West coast  |
| 4. Bushman Bay ( <u>not</u> Pusman), few houses, ?people      | West coast  |
| 5. Maserono village, 1 family<br>Philip Elison (1/2 Tikopian) | West coast  |
| 6. Lemanman village of Merig people                           | east coast, below<br>cascade of Sta.<br>Maria, 1/4-1/2 hour<br>walk from Tarasag<br>school on E coast |
| 7. Wetamot village, <u>+30</u>                                | SE coast  |
| 8. Dorig village, <u>+30</u>                                  | SE coast  |
| 9. Makean village = Biam village, <u>+30</u>                  | S coast   |
| 10. Koro village, <u>+30</u>                                  | S coast   |
| 11. ??????  |   |

Dispensaries: Loebot village (Lembat), S/N Hilda Leo



Field Notes on Islands, continued

Losolava village = Namosari village, Nurse: Hilda Leo  
at nearby Baie de Ver ("sting ray")

School: Anglican at Tarasay (walk there from Losolava)  
Children: +40, classes 1-4 (boarding)  
Head teacher: Norah Rorona (from Mota Lava)  
Merig Children not boarding but living nearby at Laemonman  
village  
Second teacher: Nicholas Brown

Languages: 4 languages spoken and Merig-Meralava language at  
Lemonmon

Anglican Priest: Fr. James Mwera (fr. Aoba) in nurse's village at  
Namasari

Anchorage: Losolova Bay best (Ver Bay alternative)

Genetics: Wallisian at Namosari village: Steven  
Lobot (Levot): George Kwasvarong born in Australia to  
Australian mother.

## VANUA LAVA, Baie de Foreas (Vureas)

5 villages, no people living now on N or W of island:

- |                           |                     |
|---------------------------|---------------------|
| 1. Vetuboso village, +200 | School & Dispensary |
| 2. Vatrata village, +100  | 1 hour walk away    |
| 3. Wasaga village, +70-80 | South coast         |
| 4. Kerepetal, +30-40      |                     |
| 5. Musina village, +30    |                     |

Also, Sola Plantation destroyed by 1972 cyclones South End  
Van Nurum, the Belgian dentist, has bought  
this plantation.

Dispensary: none, French school headmaster's wife is a nurse

Languages: 3 spoken

Schools: French School at Arep, Port Paterson  
+150 students, Classes 1-5 (from everywhere)  
Head teacher: Paul Vidal (his wife a nurse)

Field Notes on Islands, continued

British School west side at Vureas Bay

+60 students

Head teacher: Alfred Wegas (from Motalava) and 1 other

Vureas school now moved to Lolowai, Aoba

Anglican Priests: Vetimboso village, Gregory Manliwas (fr. V.L.)  
Musina village, Esuva Ding, retired (fr. V.L.)

Medical Sources: Timothy Toa  
S/N Alice Hilda  
Madame Vidal, wife of head teacher at Sola

Genetics: Secretary of Council, Norman Ward is half-caste son of  
trader Whitford  
Wife of Esuva Ding, Priest at Musina, is half-caste

## MOTA

7 villages:

1. Veverau village on coast facing  
Vanua Lava
2. Lotawan village 10 minute walk from  
Veverau inland
3. Tugetak village (Tukwetap)
4. Naugoe village
5. Livotpe village
6. Tasmate village = Tavalosua
7. Lomamasa village (means "on dry ground")

Also, Pakea Island offshore (off Vanua Lava) = Jimmy Jones'  
Plantation has Mota laborers. Jimmy Jones, half caste son of  
Santo planter Jones.

Language: all speak one language now

School: Anglican at Lotawan  
Children: +50  
Head teacher: Alfred Wobar (from Gaua) and two others

Anglican Priests: Oscar Tou (from Pentecost)

Field Notes on Islands, continued

Lindsley Wotlemaro, retired (from Mota)

**Anchorage:** Two, but in bad weather best to anchor in north part of Port Paterson on Vanua Lava, 1 hour away.

**Dispensary:** Only S/N Anna Rosaverson at Tukwetap  
**Dresser at Veverau:** Arthur Pantatun from Veverau himself

**MOTALAVA**

7 villages (all speak one language: "r" changed to "y" in last century):

1. Ngerenigman (Guerniuman)
2. Quermagde North anchorage
3. Queremande North anchorage
4. Totoglag village
5. Var (wiped out by 1972 cyclone)
6. Ra Island village
7. Vlow village (called Falua or Valua by V.L. people)

**Dispensary:** near Ngerenigman (Guerniuman), Dr. Stanley Reveag

**Schools:** Anglican, +180 students, classes 1-6, 6 teachers  
**Head teacher:** Sala Vores

**French:** +40-50 (1/4 mile from Anglican)  
**Teachers:**

**Anglican Priest:** Charles Ling (from Motalava), wife a teacher

**Genetics:** Wife of Priest, Father John Ralph is ? half-caste with various complexioned children  
 Some Tikopians and Gilbertese have lived here.  
 Motalavans have gone to live as missionaries on Tikopia.

**UREPARAPARA**

3 villages:

1. Lehalurup (Lehaloro) village, +50 on bay



Field Notes on Islands, contineud

2. Lehali, +50 NW coast
3. Leikwarong Lei (Legarangle), +25 NW coast

Languages: Two, one local and one from immigrants from island of Rowa who settled here in 1930's after cyclone destruction of Rowa. They settled at Lehalurup village in big bay (L )  
There are also some Rowa people on Vanua Lava.

School: Anglican at Lehali (moved from Lehalurup)  
Children: +30-40, classes 1-4 (boarding) + Torres children  
Head teacher: Fred Williams (from Ureparapara)

Dresser and Dispensary: Wardley Wilson at Lehali village

Anglican Priests: Barton Sale (from Maewo) at Lehalurup village  
Basil Jagar (from Ureparapara or Motalava) at  
Lehali, old and failing

## HIU (HIUO)

2 villages (50 people):

1. Gavigamana village Come in to N of Ile  
Lavagavavonoua  
(= Batsale Island)
2. Pivosava village, ? people (lay offshore?) Across island to N

Language: Same as that of Loh  
Toga has different language  
Tegua once had its own language

Anglican Deacon: Judah Morsoven (from Hiu) at Lolowai, but family on  
Hiu

Medical: Very much elephantiasis here, studies by Bruce Macgreath  
(now in Auckland) from Lolowai

## METOMA ISLAND

2 or 3 people on it

Field Notes on Islands, continued

## TEGUA (TUGUA)

3 or 4 people, live in Scarfe Bay (Baie Lataw)

Few people but "all deformed physically and mentally" according to Archdeacon

Off north of Tegua is the island of Metoma where one family has been living, that of a retired sea captain from Island in the Torres: Captain

## LOH

2 villages:

1. Lounaragi village (Log Bay = Baie Narain)

2. Vipaka village (deserted)

School: Anglican, near point Kwatmoua  
Children: 30, grades 1 and 2  
Head teacher: Britain (from Torres)

Dispensary: Richard Paley, Fanny S/N (his wife)

Anglican Priest: Harry Palmer Beliga (fr. Toga)

## TOGA

2 villages (70 people):

1. Letao village, badly damaged by hurricane At Baie Le'tao

2. Lekoual village, 3-4 houses  
Go round and anchor off Lekoual and walk across island, if rough. Track is wide and easy.

School: Anglican: small school, 1 class, 1 teacher  
Children go to Loh for Class 2.

Genetic: There was an old man (now dead?) who was a half-caste Frenchman.





APPENDIX III

Publications Resulting from the Alpha Helix Expedition



PUBLICATIONS RESULTING FROM THE R/V ALPHA HELIX EXPEDITION, 1972

1. Tesh, R.B., Gajdusek, D.C., Garruto, R.M., Cross, J.H., and Rosen, L. (1975) The distribution and prevalence of group A arbovirus neutralizing antibodies among human populations in Southeast Asia and the Pacific islands. *American Journal of Tropical Medicine and Hygiene*, 24:664-675.
2. Brown, P., Tsai, T., and Gajdusek, D.C. (1975) Seroepidemiology of human papovaviruses. Discovery of virgin populations and some unusual patterns of antibody prevalence among remote peoples of the world. *American Journal of Epidemiology*, 102:331-340.
3. Gajdusek, D.C. (1975) Medical and Population Genetic Survey of the Banks and Torres Islands of the New Hebrides, and the Southern Islands of the British Solomon Islands Protectorate. In: "R/V Alpha Helix Research Program, 1972-1974." Scripps Institution of Oceanography, University of California San Diego, pp 25-32.
4. Gajdusek, D.C. (1976) Journal of a return to the kuru region and the Anga peoples of New Guinea and Preliminary preparations for the Research Vessel Alpha Helix Expedition to the New Hebrides and the British Solomon Islands Protectorate. February 15, 1972 to July 12, 1972. Monograph, Limited edition. National Institutes of Health, Bethesda, Maryland.
5. Brown, P., Collins, W.E., Gajdusek, D.C., and Miller, L.H. (1976) An evaluation of malaria fluorescent antibody patterns in several remote island populations of the New Hebrides, Solomons, Western Carolines and New Guinea. *American Journal of Tropical Medicine and Hygiene*, 25:775-783.
6. Lang, D.J., Garruto, R.M., and Gajdusek, D.C. (1977) Early acquisition of cytomegalovirus and Epstein-Barr virus antibody in several isolated Melanesian populations. *American Journal of Epidemiology*, 105:480-487



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11. Brown, P., Cathala, F., and Gajdusek, D.C. (1981) Mycobacterial and fungal stain sensitivity patterns among remote populations in New Guinea, and in the New Hebrides, Solomon, and Caroline Islands. American Journal of Tropical Medicine and Hygiene, 30:1085-1093.

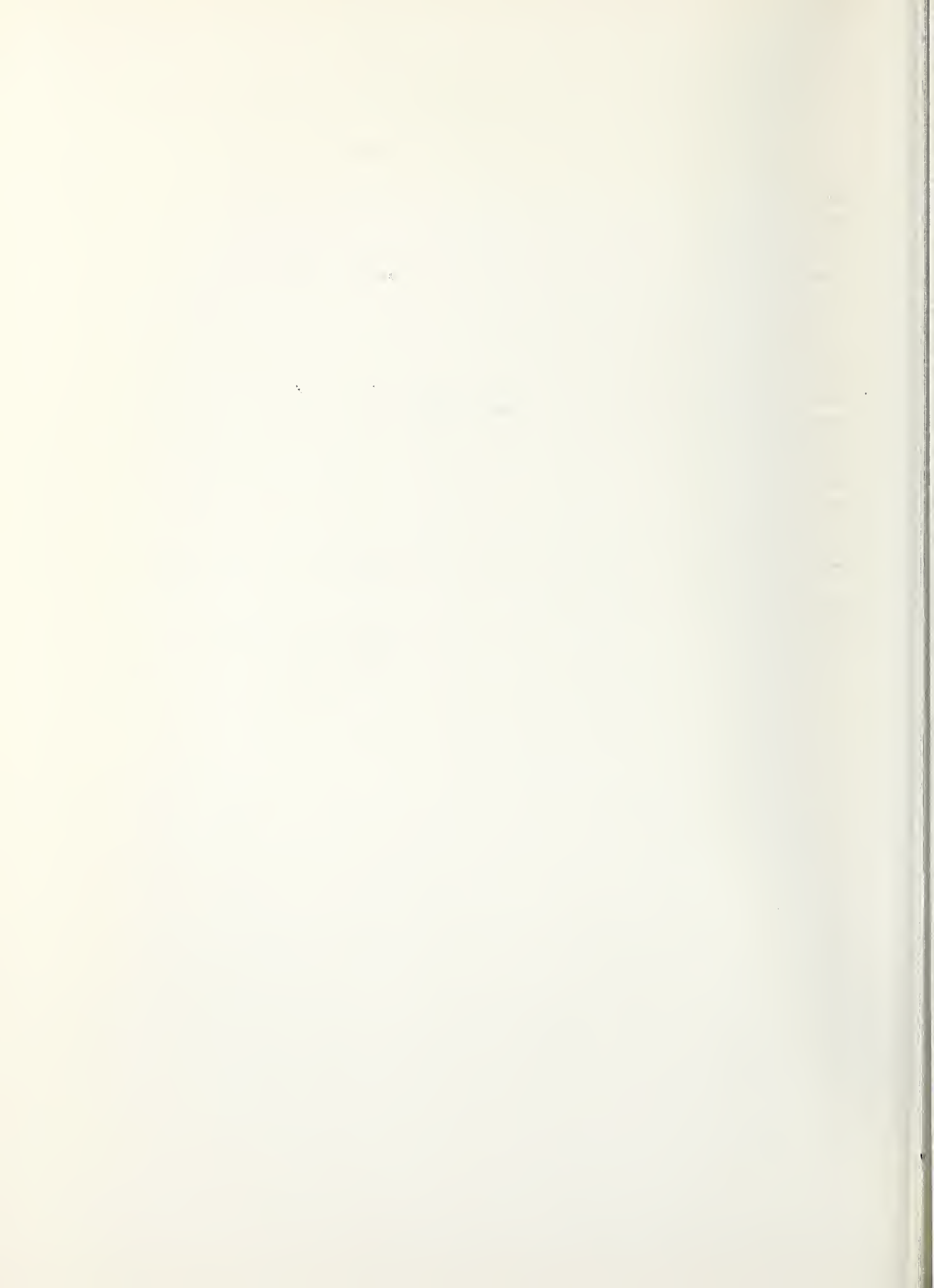
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12. Guiart, J. (1982) Regarde sur Tikopia. Objets et Monde: Revue du Musée de l'Homme, 22:1 (Printemps), 25-34.
  
13. Blake, N.M., Hawkins, B.R., Kirk, R.L., Bhatia, K., Brown, P., Garruto, R.M., and Gajdusek, D.C. (1983) A population genetic study of the Banks and Torres Islands (Vanuatu) and of the Santa Cruz Islands and Polynesian Outliers (Solomon Islands). American Journal of Physical Anthropology, 62:343-361.





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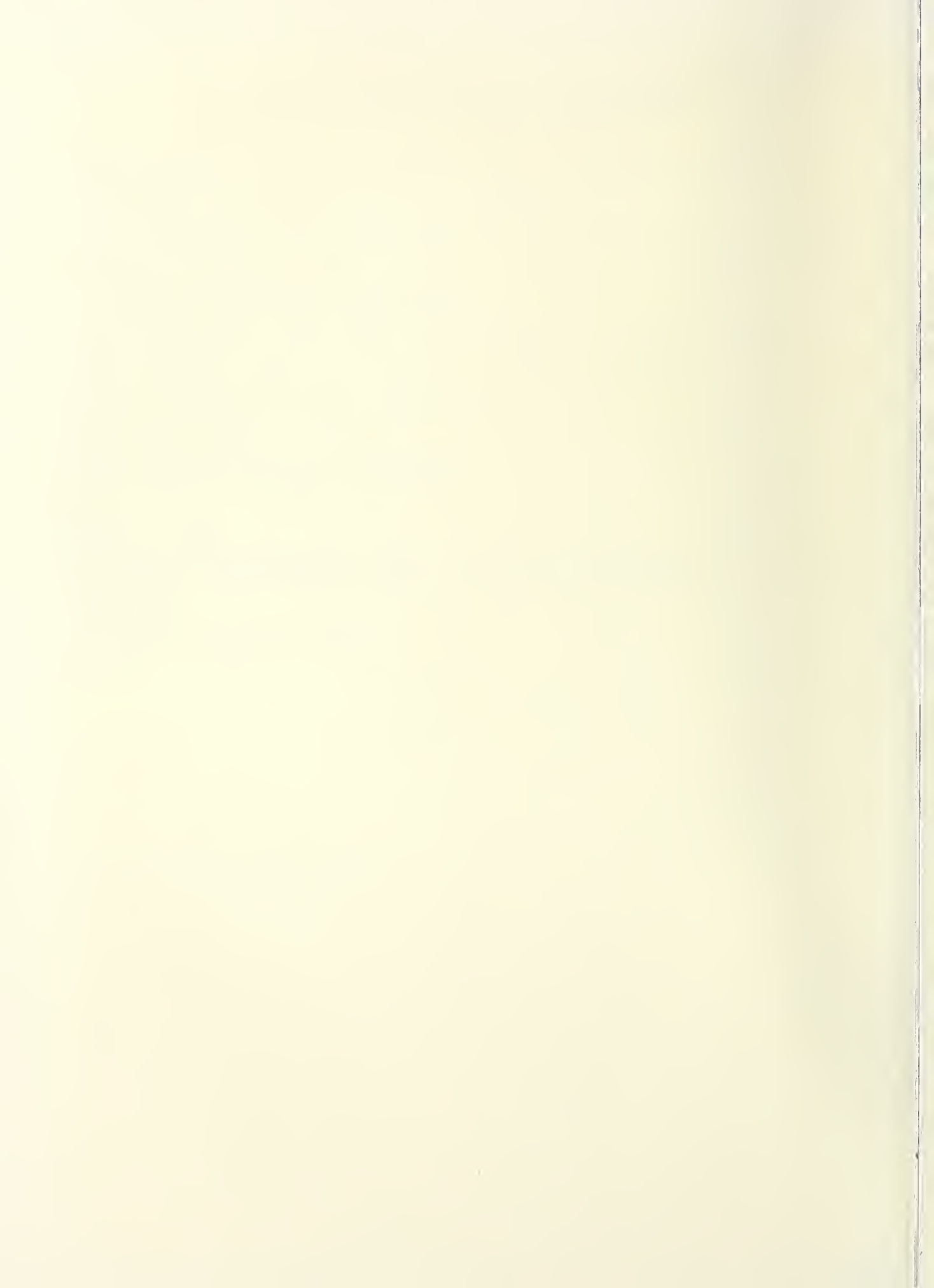
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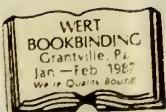
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