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About the Institute
The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

(96791)

Jan. 5, 1965.

Dear Mr. Kolkebeck:

Now that 1964 has ended, my wife & I wish you & your family an interesting 1965. So that I can look forward to a year's pleasure, I am trying to get the NSF accounting out of the way. Dec. 31, you will agree, is a logical date to wind up matters.

The present letter applies only to Grant NSF-GB2956.

You have a copy of Mr. William M. Fee, Jr.'s Oct. 28, 1964 letter to me, from which I quote: "The grant requires a refund of all proceeds from sales of Volume VI during the first three years after publication. Our letter of June 24 to Mr. Kolkebeck specified May 1963, as you had said that the last pages were published in April 1963. In other words, we are interested in sales of the complete Volume VI."

I wish to correct the above statement. "Complete Volume VI" is not at all involved under Grant NSF-GB2956. Actually, barely one fourth is involved. Here are my estimated figures involving Grant 22956. Not being a businessman I am not good in laying it out properly, but I am sure you can understand the points I am making:

1. The grant amounted to $6,000.

2. Expenditures under the grant were:

   a. Collating & binding 2,500 copies of Book 6. (There were some incidental expenses such as shipping, etc., which I am ignoring.) - $2,906.02

   b. Printing fascicles 6/15/62, 7/16/62, 11/15/62, 1/18/63, 3/15/63 and 4/15/63. Then, I believe, we printed 8 more pages not in the body of the book itself, such as table of contents, etc. In other words, Grant 22956 paid for 150 pages of a 534 page book - - - - - - - - - - - - - - - $3,094.

   $6,000.

3. In round figures $3,094 of Grant 22956 paid for 150 pages or an average of $20.62 per page. That means that (534 less 150 or) 384 pages were printed OUTSIDE of Grant 22956. If we value these similarly at $20.62 each, it would come to $7,918.08.

4. As I mentioned to Mrs. Stewart in my May 24, 1965 letter, Mrs. Degener & I furnished 100 full-page drawings, starting as early as 1926 in making them! At a modest estimate these are worth $25 each or a total of $2,500.

5. Properly bound Book 6 of 534 pages cost ($~~subtracting~~ adding $8,000 of Grant 22956 from cash coming from other sources, namely $7,918 and $2,500) in excess of $16,418.

6. Not subtracting postage of about 25 cents per book, our income from sales up to Jan. 1, 1965 ($6.67 wholesale, $10.00 retail) is $1,046.71.

7. I, in error, returned $48.75 to you for NSF with my cheque dated Jan. 14, 1963 (a sum already added in the above $1,046.71 shown above).

8. The above figures do not at all include the major expense of field work on outside islands necessary to collect many of the plants treated.

As I see it, Mrs. Ileen R. Stewart, then Assistant Program Director of NSF, in her letter to me of Dec. 16, 1963 (of which she mailed Dr. Steere a copy) sized up the situation as follows: "With regard to the recovery clause for Grant G-22956 (Book 6, Flora Hawaiiensis), your suggestion of a peacemeal method of refunding to NSF seems complicated and confusing for both parties. Perhaps if I knew what sales you have had already from Book 5, and what you expect in the next two years, I could suggest a simpler method. In actuality, the recovery clause question for Book 6 is probably academic, since your own investment in Book 6 is considerable and must be recovered before NSF can begin to receive returns."

I hope everything is clear the way I explain it. For us to go through all our accounts is like pulling teeth, so for the time being we shall do a little printing on our own without outside help. Now we must tackle Federal & State tax returns, both terribly complicated because our income comes from rents and various small sources.

If you and Mrs. K., are freezing too much, hop a 'plane for Hawaii. Now, lunchtime, my thermometer registers 76° F. Tell the de la Montagnes.

Aloha,

NATIONAL SCIENCE FOUNDATION
WASHINGTON, D.C. 20550

JAN 18 1965

Dr. Otto Degener
68617 Crozier Drive
Waialua, Oahu, Hawaii

Re: Grant GB-879

Dear Dr. Degener:

Thank you for your letter of December 18 to Mr. R. A. Michelitch regarding the expenditure reporting for the above grant. This letter is to clarify the manner of reporting, and the use of the different report forms.

The letter to you from Mr. Michelitch requested a Grant Fiscal Report, NSF Form 6-1. The information you have entered on that form was previously sent, as you have indicated, on NSF Form 4-51. However, the latter form is used by our Finance Office in connection with the cash payment of the grant, and shows only total expenditures. Hence, we do not have in this office, details of how the cash was used. That detail must be provided by completing lines 1 through 11 of the Grant Fiscal Report Form 6-1. A supply of the form is again enclosed for your use.

Please note that grant accounting records are subject to inspection and audit during the life of the grant and for three years thereafter. You should retain your records for at least that length of time.

Sincerely yours,

William E. Fee, Jr.

THE NEW YORK BOTANICAL GARDEN
BRONX PARK • BRONX 58 • NEW YORK

January 25, 1965

Mr. William E. Fee, Jr.
Head, Grants Office
National Science Foundation
Washington, D.C. 20550

Dear Mr. Fee: SUBJECT: NSF Grant G-22956

I enclose a copy of Dr.Degener's letter to me dated January 5, 1965 which explains why there will be no proceeds from sales for the National Science Foundation under this grant for book 6 of Dr. Degener's Flora Hawaiiensis.

I hope you will accept Dr. Degener's explanation.

Sincerely yours,

Robert F. Kolkebeck
Assistant Director

RFK:md
encl.

cc: Dr. Otto Degener
Waialua
Oahu, Hawaii

Waialua, Oahu, Hawaii.
Jan. 30, 1965.

Dear Mr. Fee:

Regarding GB-879 I have your Jan. 18 letter.

Because of Dr. Hodge's Feb. 26, 1964 letter, Mrs. Degener & I thought the Lanai accounting had come to a happy end, and so our chits & receipted bills were a bit scattered among other NSF papers. Now we have assorted the lot and come to the following conclusion. We are at a loss, however, how to squeeze them into the 11 categories in your NSF Form Dec. 1963 (6-1). Please, therefore, help us on this point. Ordinarily, I guess, most of our expenses would be lumped under "6. Other (Specify)."

Mrs. Degener, who is a botanist in her own right with a doctorate, and I spent a total exceeding five months on Lanai. The grant was $2,000, and we spent much more than that from our savings to insure the success of the project. We see nothing wrong in doing so in view of the fact that the NSF appropriation is given in "aid"; not necessarily to finance the project 100%. We are naturally extremely grateful to have had this help.

Regarding No. 1, we paid no salaries nor wages to ourselves, nor to any one else. Regarding No. 2, we had no permanent equipment. Regarding No. 3 we spent $580.83 expendable equipment such as kerosene, chemicals, lanterns and their parts, bags of assorted sizes, etc., for drying & processing material collected. No. 4 amounted to $130.22 to get ourselves and smaller luggage by 'plane mostly back and forth between the Islands of Oahu and Lanai; and I guess under No. 4 we should also classify the $342.59 spent in rental and gas. & oil for a jeep. Regarding No. 5 we are beginning to publish, but are not using NSF funds to do so. Enclosed is our first contribution. Regarding No.7 or allowance for indirect costs, we are ignoring this item altogether. In addition we spent $188.93 for postage, which involved mailing our dried and/or wet-preserved specimens to various specialists in America and elsewhere by ordinary mail; some live material for especial critical study to the Mainland and elsewhere by air. We likewise had a freight bill of $8.10 to ship other specimens and belongings between Oahu and Lanai.

During almost half a year on Lanai, we thought it reasonable that NSF pay $388.41 of our food bill, which is less than half of what we actually spent

I note the total figure I wrote you Dec. 18, 1964 came to $2,002.32. Somehow, now, the figure totals $2,002.51, a discrepancy of 19 cents.

If any ruling should apply to us for overstepping our $2,000 appropriation any additional funds NSF wishes to grant us will be used 100% for publishing results based on our plant exploration of little-known Lanai. The bottle-neck to get this knowledge, locked up in these collected plants before the scientific public, is our paucity of publication funds.

We are keeping all vouchers regarding Lanai together so that we can send them to you by return mail if you wish them.

Aloha,

Hdl J13015

Housing	503.43
Equipment	289.51
Misc.	342.59
Porters	130.22
Postage	188.93
Freight	68.10
Travel	91.32
Food	388.41
	2002.51 *

Equip	289.51
Travel	91.32
	380.83 *

NSF FORM 6-1
DEC 1963

Form Approved
Budget Bureau No. 99-R013.1

NATIONAL SCIENCE FOUNDATION

GRANT FISCAL REPORT

From: Dr. Otto Degener 021 IND
(Grantee)
Waialua, Oahu, Hawaii.
(Address)

To: Grants Office
NATIONAL SCIENCE FOUNDATION
Washington, D.C. 20550

Date: Jan. 30, 1965

Report of obligations from NSF funds for grant number: GB-879
(NSF No.)

Reporting period: _____ (Date) to _____ (Date) (inclusive)

Type report: Interim [ ], Number ____; final [X] (check one)

	Item	Amount Expended
1.	Salaries and wages	$ -
2.	Equipment (permanent)	-
3.	Supplies, materials, and expendable equipment	380.83
4.	Travel	130.22
5.	Publication costs (Total - page costs, reprints, direct labor, etc.)	-
	(a) Page costs only, if available	
	(b) Reprints, direct labor, and any other publication costs	1,491.46
6.	Other (Specify):	
7.	Total direct costs - Add lines 1 through 6	
8.	Allowance for indirect costs - ____ % of line 7	
9.	Total obligations for above period - Add lines 7 & 8	
10.	Total obligations for prior periods	
11.	Total obligations to date - Add lines 9 & 10	2,002.51

COMMENTS: (Continue on reverse side if necessary)

Housing 503.43, Jeep 342.59, Postage 186.93, Freight 68.10, Food 388.41

SIGNED: Dr. Otto Degener TITLE: Grantee

TYPE NAME: _____

Two copies of an interim fiscal report are due approximately six months from award date of a grant and at six-month intervals thereafter. Firm outstanding commitments should be considered as obligations for the purposes of interim reports. Two copies of a final fiscal report are due as soon as possible after all costs chargeable to the grant are known. The following certification, in the case of final reports, should be inserted above, immediately preceding the signature of the official authorized to sign for the grantee institution: "I certify that this final fiscal report is correct and that the expenditures included herein are deemed properly chargeable to the grant." Unused funds are to be returned by check payable to the National Science Foundation.

P.S. We actually mailed the final report Feb. 5, 1964, which was forwarded to the Grants Office by Dr. Hodge Feb. 26, 1964.

GPO 898800

NATIONAL SCIENCE FOUNDATION
WASHINGTON, D.C. 20550

FEB 24 1965

Dr. Otto Degener
68617 Crozier Drive
Waialua, Oahu, Hawaii

Re: Grant GB-879

Dear Dr. Degener:

Thank you very much for your letter and final fiscal report dated January 30, 1965. The report and the letter satisfactorily complete the reporting requirements for this grant.

It will not be necessary for you to send us your vouchers. As previously mentioned, these should be retained by you for at least three years.

Sincerely yours,

William E. Fee, Jr.
Head, Grants Officer

NATIONAL SCIENCE FOUNDATION
WASHINGTON, D.C. 20550

MAR 1 0 1965

Dr. Robert F. Kolkebeck
Assistant Director
The New York Botanical Garden
Bronx, New York 10458

Re: Grant NSF-G 22956

Dear Dr. Kolkebeck:

Thank you for your letter of January 25, enclosing a copy of Dr. Otto Degener's letter to you dated January 5, 1965. The information provided by Dr. Degener is deemed an acceptable explanation of the fiscal aspect of this grant.

It would be appreciated if you will continue to give the matter your attention, as we must have a report of any proceeds payable to National Science Foundation through April 1966.

Sincerely yours,

Robert A. Michelitch

Robert A. Michelitch
Acting Head, Grants Office

4/10/65

THE NEW YORK BOTANICAL GARDEN
BRONX PARK • BRONX 58 • NEW YORK

March 16, 1965
Air Mail

Dr. Otto Degener
Waialua
Oahu
Hawaii

Dear Dr. Degener:

I enclose a copy of a letter from the National Science Foundation dated March 10, 1965, which speaks for itself.

Having re-read your letter of January 25, I realize there may not be "any proceeds payable to the National Science Foundation through April 1966," but if there are, we shall certainly forward them to NSF.

Sincerely yours,

Robert F. Kolkebeck
Assistant Director

RFK:md

(Hale Pegeaer)

WAIALUA, OAHU, HAWAII

June 30, 1965.

Dear Walter:

Thanks to NSF we got some orchids on Lanai and wrote a brief article for a Honolulu journal. The four copies are for the NSF files.

Within this package are two additional items that we published

Also sent Occas. Pap. 23(7): 121–127. June 15, 1964.

June 30, 1965.

Dear Walter:

Thanks to NSF we got some orchids on Lanai, and wrote a brief article for a Honolulu journal. The four copies are for NSF files. Within this package are two additional items that we published independently of NSF aid. You may care to keep them for your own collection of "Hawaiiana."

Is it really so wise that when some applicant applies for a grant that individuals in his own narrow discipline or narrow geographic area should be allowed to judge whether the project has sufficient merit to receive NSF help? Such examiners, unconsciously or consciously, might be prejudiced against aiding a project in which they themselves are personally interested due to a conflict of interests.

Isa & I were horrified in Edinburgh when a man, who had lived on Guam and worked on its flora, stated that his application had been denied because one of the examiners was interested in the project personally. As this was but hearsay without any proof, we wisely dismissed this complaint from our mind. But recently a man whom we consider a rather keen ecologist, a former student of Walter in Germany, was denied funds to study plant succession on lava flows on the Island of Hawaii because, he maintains, one of the examiners had worked on a similar problem locally. This applicant has a wife and five small children and is really in need of cash for such a worthy project. There is of course danger that his study might take the "bloom" off the examiner's early paper.

Isa & I feel that we should expend some sums we received from my brother and sister, both of whom died during the past few years practically of old age, before we bother NSF for further aid. Anyway, this hurdle would be difficult to overcome if we are to change from our New York sponsor to some Hawaiian one. These latter were so overburdened with Oahu politics that in 1929 I escaped them to take refuge with the Federal position of Naturalist at Haw. Nat. Park. I am too old to change horses in mid stream. Until we are again squeezed financially, there is no reason why Isa & I should not paddle our own canoe in publishing Book 7. We can do most if not all of it, I am confident, with economizing. We have therefore changed the edition from the usual 3,000 to 1,000 copies.

The influence of NSF will be felt for all time because of the vast number of endemics we can now distribute to leading bot. institutions. Even so, as far as field work is concerned, botanist have merely scratched the surface.

Aloha,

July 27, 1965

Dear Dr. Degener:

We wish to acknowledge receipt of the reprints referenced below which have resulted from research conducted with assistance from grant NSF- GB-879.

"Some Recently Collected Dicotyledonous Plants from the Hawaiian Islands and Mexico"

W.H. Hodge
Program Director for
Systematic Biology

F.L. 9A-10H (9/64)

July 30, 1965

Dear Dr. Degener:

We wish to acknowledge receipt of the reprints referenced below which have resulted from research conducted with assistance from grant NSF- GB879.

"Beitrag zu den Cinclidotus-Arten"

W.H. Hodge
Program Director for
Systematic Biology

F.L. 9A-10H (9/64)

n136165

NATIONAL SCIENCE FOUNDATION
WASHINGTON, D.C. 20550

July 13, 1965

Dr. Otto Degener
68617 Crozier Drive
Waialus, Oahu, Hawaii

Dear Otto:

We appreciate the copies of articles referring to materials collected under NSF sponsorship (GB-879). Thank you also for the extra items for my own file. These I am pleased to have.

The proposal review questions that you raised are really not the problems that they appear to be to one on the outside. National Science Foundation proposals are judged by reviewers who are very broadly based and who represent in total a wide spectrum of Systematic Biology (in the case of this particular program). Among these are certainly individuals with specialized training and interest in the specific area of any given proposal. This needs to be, else how could one judge the validity of a given proposal or whether duplication may exist? The point is that no single reviewer is in a position to have his personal interest prevail in the event that a biased or prejudiced examiner unhappily happens to be called on for an opinion. This type of reviewer we try to stay clear of. And, in the final analysis, the Foundation is the one which decides as to whether a proposal will be supported or rejected. The examiners merely give advice but the final decision is our own.

We are happy to hear that your research activities continue.

With kind regards,

Yours sincerely,

W. H. Hodge
Program Director
Systematic Biology

Aug. 26, 1965.

Dr. W.H. Hodge,
Program Director,
NSF, Washington, D.C.

Dear Walter:

We have your July 13 letter, and the buzzing here in Honolulu has ended with Dr. Müller-Dombois on the Island of Hawaii where presumably he is investigating lava flow vegetation. We can see that a man must be judged by his peers in his chosen field and that NSF can prevent conflicts of interest.

We again burst into print, this time with our village printer who quoted us a much more reasonable price. The disadvantages were that he lacks italics and his South Sea Island slowness. We gave him the ms., in Jan. We got 50 - 100 copies in the mails on Aug. 14 and 16 (Aug. 15 was a Sunday) to effect publication. The Gahnia sheet we owe to the help of NSF. The remaining sheets are pretty much ancient history. It is nice to get the genus Platydesma out of the way.

We are still labeling our Lanai collections, and getting remarkably good sets of plants from this isolated island into Museums of the World including, of course, the Univ. of Mass.

When "pickings" for ferns & flowering plants were slim on Lanai, we did not return emptyhanded home but with mosses and lichens. We expect shortly a paper by Dr. Oscar Klement of Lichens of Lanai, based largely on this catch. Isa & I recently checked the ms. Some months before that, we checked the ms., of the late Dr. Skottsberg on Wikstroemia for Bo Peterson who is whipping it into shape. The influence of NSF help is very evident in both papers.

Making determinations and writing labels, grinding out plant descriptions and keys, working on a "dictionary" of Haw. plant names & their scientific & English equivalents, and taking care of out four rental units to keep the wolf from the doorare keeping us happily occupied. If we do not see you in Haw., before, we are looking forward to seeing you at the Eleventh Pac. Sc. Congress in Tokio.

Lang $5,-
Tompkins 21.50

Walter Lang
c/o Dr. E.A. Tompkins
Kula Sanatorium
Kula, Maui, Hawaii

26 July 1965

Dear Dr. Degener,

Thank you again for the books and especially for the "goodies" you wrapped around the first package. The classified section in HORTICULTURE, April 1965, one of the wrappings, included a section on herbs---something I have been trying to locate without success for some time.

We have made a one day trip to Polipoli Springs and beyond. The road has now been extended past Polipoli to the summit of Haleakala. We traveled three miles past the springs to a wash-out in a Falcon pick-up truck. The wash could have been negotiated easily by Jeep. Next time we will have shovel and pick for road rebuilding purposes where necessary. We plan to spend most of next week working in the area of the springs. There is a cabin available, at $3 per person per night, at the springs---I think we will sleep on the ground. A roll of film per person per night is too much to spend on lodging.

Mrs. Tompkins would like to make a donation to the Botany Department at Texas A & M. If available, perhaps "Hawaiian Herbarium Specimens" would be appropriate or would you be kind enough to make a suggestion? Of course, Dr. McLain is being consulted.

I shall be passing thru Honolulu during the last of next month. If possible I would like to call on you at that time.

Sincerely,

Walter Lang

Td

PLANTS OF HAWAII

EX HERBARIUM OTTO DEGENER

No.

10/5/65

COLLECTED BY OTTO DEGENER
AND ISA DEGENER

"PLANTS HAW. NAT. PARK" & NEW ILLUSTRATED "FLORA HAWAIIENSIS" AVAILABLE FROM DRS. DEGENER, WAIALUA, OAHU, HAWAII.

(From The Hawaiian Shell News, vol.3, no.12, October 5, 1955.)

MARINE SHELLS COLLECTED BY OTTO DEGENER ON CANTON ISLAND

Specimens collected by Otto Degener on Canton Island in 1951 were submitted to Bishop Museum for identification; the marine shells were turned over to the late Gray Harris. He sorted them into groups, but did not have the opportunity to put names on all the specimens before his death, December 17, 1953. Some identifications were made by Mrs. Anna Harris and by Karl Greene. In April 1955, E.H.Bryan, Jr., Curator of Collections of the Museum, took the entire collection to the home of Ditlov Thaanum, in Honolulu, and helped Mr. Thaanum compare the specimens with his very extensive series of shells from Central Pacific islands. The list which follows is the result of this work, and an attempt to put the species into families in a systematic order. Some of the names listed may be synonyms of more recently accepted names, but the identifications are believed to be essentially correct. [E. H. Bryan, Jr.]

PELECYPODA (Bivalves)

ARCIDAE
Arca sp. — 1 1/2 pairs of Ark shells

ISOGNOMONIDAE
Isognomon costellatum (Conrad) [Pedalion perna] — 1 pair of Toothed Pearl shells

PTERIIDAE
Pinctada margaritifera Linné — 4 (possibly 6) juvenile valves of Pearl Shells.

MYTILIDAE
[Unidentified mussel] — 1 pair of mussel shells

VENERIDAE
Antigona reticulata Linné [Meriglypta edmondsoni Dall, Bartsch & Rehder, at least for Hawaiian shells] — 2 1/2 pairs of these Venus Clams

ASAPHIDAE (Gariidae or Psammobiidae)
Asaphis deflorata Linné — 2 pairs of Rayed Cockles

GASTROPODA

ELOBIIDAE (Auriculidae) [Pulmonates]
Melamphus sp. — 9 Ear Sanils [these live above high tide]

TURBINIDAE
Turbo intercostalis Menke — 1 Ribbed Turbino shell

NERITIDAE
Nerita plicata Linné — numerous Pleated Sea Snails

LITTORINIDAE
Littorina coccinea Martyn — 4 periwinkles

PLANAXIDAE
Planaxis sulcatus (Born) — Numerous of these small shells, called Ribbed Clusterwink in Australia

CERITHIIDAE
Cerithium breve Quoy — 2 Short Horn shells
Cerithium echinatum Lamarck [or Sowerby?] — 30 Prickly Horn shells [not postively this sp., but Mr. Thaanum has this species from Canton I.]
Cerithium tuberosa Lamarck — 5 Tuberose Horn shells
Cerithium spp. — Several specimens of about 3 species (rubbed).

CYPRAEIDAE	
Cypraea (Ravitrona) caputserpentis Linné	1 Snake Head Cowry
Cypraea (Monetaria) moneta Linné	Numerous Money Cowries
Cypraea (Bistolida) intermedia Gray	3 Intermedia Cowries
Cypraea sp. near annulata Gray [now called Epona mariae (Schilder)]	1 small Ring (?) Cowry
Cypraea sp.	1 small, abraded juvenile Cowry
CYMATIIDAE	
Cymatium nicobaricum (Röding)	2 Green Mouth Tritons
MURICIDAE	
Morula nodus St.Vincent [perhaps should be in genus Drupa]	4 Knobbed Morulas
Drupa granulata (Duclos) [Morula tuberculata (Blainville)]	7 Tubercled Morulas
Drupa ricina (Linné)	6 Castor Bean Drupes
Pupura hippocastaneum (Lamarck) [Thais ?]	Numerous specimens
Maculotriton pusillus Pease	2 specimens
BUCCINIDAE	
Nagina lineata (Reeve)	15 Long Whelks
Nagina mendicaria (Linné)	Numerous small Begger Whelks
FASCIOLARIIDAE	
Latirus prismaticus Martyn	2 Spindle shells
MITRIDAE	
Mitra (Strigatella) litterata Lamarck	25 of these Miters
Mitra cucumerina Lamarck	2 Cucumber Miter shells
VASIDAE	
Vasum [Cynodonta] ceramicum (Linné)	2 Ceram Heavy Whelks
CONIDAE	
Conus ebraeus Linné	12 Hebrew Cones
Conus lividus Bruguiere	3 Bluish Cones [one is close to Conus sanguinolentus Quoy & Gaimard]
Conus sponsilis Bruguiere	20 of these cones [some on the border of C. nanus Broderip]

* *
* PHILADELPHIA SHELL CLUB ORGANIZED *
* *

According to word received here, the Philadelphia Shell Club was organized in that cityon Thursday, September 22, this year. The club will meet on the third Thursday of each month at 8 p.m., at the Academy of Natural Sciences, 19th and Parkway. The preliminary notices said it would be the youngest shell club in the oldest malacological center in America. Apparently this is an additional activity of Dr. R. Tucker Abbott, recently appointed to the Pilsbry Chair of Malacology at the Academy, for the proposed slate of officers contained his name as president. Other officers: Charles B. Wurtz, vice president; John D. Parker, historian; Virginia Orr, secretary-tresaurer, and Anne Harbison, councilor-at-large.

10/5/62

=62 atoll Res. Bull. 64. 1959.

CANTON ISLAND, SOUTH PACIFIC
1958

Otto Degener[1]/ & Isa Degener[2]/

INTRODUCTION

The present paper is a survey based on observations made on Canton Island in February 1958, and resulting recommendations. As it chiefly supplements observations made by Degener & Gillaspy about this atoll in 1950-51, to get a better perspective of the situation the reader is advised first to study Bulletins 41 to 43* if he has not already done so. The present survey was made under the able guidance of Mr. John M. Beardslee, Civil Aeronautics Administration Director, stationed in Hawaii, aided by Canton residents Dr. Owen King and Mr. Earl King.

Besides other phases of the survey the writers assiduously ~~collected~~ collected molluska during their stay to augment the brief list published in 1955**. Discovering that Mr. and Mrs. Albert Lincoln had studied the ocean and lagoon species as an avocation since January 1957 so industriously as to be considered "shell shocked" by [illegible] interested residents, the writers prevailed upon the Lincolns to publish their findings as a special bulletin*** of their own. The Degener collection of shells, cowardly gathered in shark-free waters, is being deposited as a gift from the C/A/A/ at the B.P. Bishop Museum and at Harvard. The superior Lincoln collection, often gathered by skin-diving at some risk to life and limb, is being deposited at the B.P. Bishop Museum and at the U.S. National Museum.

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*Degener, O. & Gillaspy, E. Canton Island, South Pacific. Atoll Res. Bull. 41 : 1 - 50. 1955.
Van Zwaluwenburg, R.H. The Insects and Certain other Arthropods of Canton Island. Atoll Res. Bull. 42 : 1 - 11. 1955.
Hatheway, W.H. The natural vegetation of Canton Island, an equatorial Pacific atoll. Atoll Res. Bull. 43 : 1 - 9. 1955.

** Bryan Jr., E.H. Marine Shells Collected by Otto Degener on Canton Island. Haw. Shell News, 3 (12) : 126 - 127. 1955.

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Deg. & Deg. 2

CLIMATE, GUANO AND TOPOGRAPHY

The following chart and that given in the first paper were kindly supplied by the U.S. Weather Bureau. They dispel the universally accepted idea that Canton is truly an arid atoll. Whether its climate has materially changed from the past or whether the island is passing through a normal cyclic change not observed before is not known.

We know that Canton was once so covered with guano that its harvest was long a lucrative export during the latter half of the Nineteenth Century. Even though most of the island has been disturbed by bulldozers, certainly some few areas must have escaped their turmoil as well as that made by the earlier shovels of the guano diggers. Yet, in company of the soil expert Dr. Lyle T. Alexander of the Soil Conservation Service, U.S. D.A., the writers could not find a speck of guano in February 1958. Has wet weather leached guano out of the soil? Or has the coming of man so decimated the bird population that bird droppings now wash away faster by rain than they can accumulate on the ground?

A few small groves of trees, growing in a 2 to 4 inch thick loam, occur on Canton. Their probable origin began with a moderate guano deposit stimulating herbaceous plant growth. This resulted in the formation and accumulation of decomposing organic matter. As the soluble material washed out, a blackish, phosphatic rich soil remained. This was suitable for the survival of trees.

Borrowing Dr. Alexander's soil augur, we entered one Messerschmidia grove near the old guano wharf to take soil samples. This was near the lagoon. Here the humus layer was four inches deep, an estimated accumulation of 1,000 years. The second place for samples was a Kou grove near the British Settlement. This was near the ocean. The humus was shallower; the age, less. The samples, mailed to Dr. F.R. Fosberg, were assayed by the - - - -

Washington, D.C. The results are as follows:

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In this Condominium* of the United States and Great Britain pandemonium has been raging in the international bird sanctuary due to lax enforcement of the law regarding Gilbert and Ellice Islanders introduced as a source of cheap labor. These poverty stricken wretches of the Crown, so often hungry, hardly can be blamed for visiting the tern rookeries on little Spam Island for a feast of eggs. Nor can we blame these men, women and children, in their wanderings along the beaches to appease their hunger with cast up coconuts, from creeping among the scaevola bushes at night. Here they strike down with clubs roosting or nesting frigate birds and their young. In many spots we find the remains of their rancid-tasting repast, the black feathers and white skeletons of dozens or scores of birds, next to a thick piece of drift wood showing the knife scars of an improvised chopping block. Whether guano is no longer being formed because of a change in weather or man's attack on the rookeries is still a mystery.

Canton has improved since 1950-51 in respect to housing for CAA personnel. Many more attractive, modern homes have been built south of the Terminal Building. Some of these are surrounded by well kept gardens; a few by native vegetation and naturalized weeds.

The SS "President Taylor," a prominent, rusting hulk near Musick Light, still dominates the wreckage-strewn British Settlement. Why the attempt to remove it for scrap failed is an interesting tale we owe Mr. William H. Jervey: " - - - -

To get from W.H.J.

* A dominion, according to a standard dictionary, is a territory under a government; region; country; district governed, or within the limits of the authority of a prince or state. But when a region is a joint or current dominion of two Governments, like the United States and Great Britain, the dictionary terms it a condominium. Why the words "dominion" and "condominium" end in different syllables is a philological mystery to us.

The old Pan-American World Airways hotel, a model where the senior writer spent a few days in 1950, had been abandoned. It had become a shambles by 1958.

A few additional observations regarding Canton soil are here appropriate. The Foraminifera identified to only the genus in the former report are now found to be Baculogypsina and Heterostegina. In addition, a strikingly star-shaped species about 2 mm. across was found along the ocean reef in 1958. This is .

FLOWERING PLANTS

Bulletin 41 describes fully the native plants, and lists the plant introductions made in 1950-51. Here we shall note pertinent observations about both categories, arranging the species in taxonomic order. When a species has not materially changed its status as mentioned in the earlier bulletin, it will be ignored here. Because the botanical authorities for most of the following plants have been cited in several previous bulletins of this series, we omit them here.

As instructed by CAA officials in 1950, most of the early introductions were made about the CAA housing area and Terminal Building. Though we were dismayed to see most of these plants with bare, dead stems in February 1958, we were gratified to notice some of them putting forth healthy shoots from the base. The reason was not clear to us until a resident explained that precisely this area had been thoroughly sprayed. Instead of using the insecticide desired, the workmen in error had used a weed killer!

PANDANACEAE

Pandanus tectorius, the hala, is now represented by quite a number of specimens. All are limited to gardens, and most of these probably stem from the 1950-51 introductions.

GRAMINEAE

Cenchrus echinatus, the sandbur, a terrible nuisance, is ubiquitous as before in areas where man is active. We mention it here because of the strange fact that this prickly grass has hardly if at all increased its range since 1950-51. Near the plant nursery, now demolished, west of the Terminal Building (Bull. 41, p. 38), two plants kill and displace this painful weed. The pennisetum, because of its perennial habit, preempts areas where the annual burgrass dies of age, and takes over the ground before the germinated, bur-enclosed seeds can establish themselves. The other beneficial plant is the teaseleguard (Cucumis dipsaceus), this vine simply growing over the burgrass and smothering it to death.

Chloris inflata, a fingergrass, conspicuously extends over neighboring vegetation. It is common about the old plant nursery, north of the "native"village, inhabited by Gilbert and Ellice Islanders, and about the Brittish Settlement near Musick Light. That Gilbert and Ellice Islanders are dubbed "natives" by other emigrants of various racial ancestry to Canton is farfetched. We have no proof that Micronesians ever made this atoll their home before being introduced as laborers by the white man.

Cynodon dactylon, the Bermuda grass, thrives in several patches near the Terminal Building. The beautiful, green lawn existing about the home of a Hawaiian family in 1950 is gone as is its careful tender. He watered it from a brackish well he had sunk in his own garden.

Digitaria henryi, a 1950-51 introduction, is established and forms small mats in the shade of the coconut trees about the guest house near the lagoon, British Settlement (Deg. & Deg. 24,647).

Digitaria pacifica, the native bunch-grass, is variable, as mentioned in the previous bulletin. Along the lagoon, north of the native village, is a form (Deg. & Deg. 24,638) that extensively creeps to build up a huge, loose clump about 50 feet across. At the east end of the north Landing Strip, on the other hand, grows a very compact, dwarf specimen. Residents should keep such plants under observation to determine whether they are merely ecological forms or, instead, genetic ones worth describing.

Digitaria sanguinalis, if this adult grass is correctly identified, grows here and there about the nursery area. It is reseeding itself.

Digitaria timorensis is still growing in the same areas as in 1950-51. Now, however, it (Deg. & Deg. 24,645) is likewise naturalized in dense but localized patches in the plant nursery area. Because of its perennial nature, it appears to be crowding out burgrass.

Eragrostis amabilis, the feather lovegrass, is a delicate annual thriving here and there about the British Settlement. In the garden of the Terminal Building it forms a dense, tangled lawn, tending to crowd out all other herbs. Just before our departure from Canton in late February 1958, we were amazed to see all this grass being uprooted and hauled away to leave a glaring white surface of coral shingle! Thus the area was being ideally prepared for a stand of prickly burgrass. This little garden spot, seen by every voyager, needs a two to three inch covering of screened soil, now still quite plentiful near the old guano wharf. Then the area should be mowed regularly every month by a light hand lawn mower, whether it appears to need it or not, the gardener being careful not to let the wheels of the machine cut into the soil. Taller herbs will thus be discouraged from growth and, if the original workmen in February 1958 were not too efficient in eradicating every trace of it, perhaps the lovegrass will establish itself again from random seeds left in the neighborhood.

Eragrostis whitneyi, the lovegrass named for my young friend, the late Leo Whitney, has perfected a means of racial survival by speeding up its life cycle to a scant three or even two weeks. February 1 we discovered a single tiny plant beginning to flower at the swimming hole near the lagoon, northwest side. By February 16 the species was very common locally, also actually on the Fighter Strip where no other flowering plants could gain a roothold, and here and there on the road at the southeast side. In