

ATOLL RESEARCH BULLETIN

ATOLL NEWS AND COMMENT

No. 112

Atoll News and Comment

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It will be noticed that many of the items referred to in the sections below are in the form of duplicated reports of very limited distribution, either because they were prepared for special purposes, or because the sponsors had made no provision for adequate publication. This seems a great pity when serious work and professional time have been expended, and when interest in information about islands is strong. We would like to draw attention to the fact that the pages of the ARB are open to such material, regardless of its source, as long as the information seems sound and of scientific importance and the manuscripts are carefully written and typed. The ARB exists for the purpose of placing information on atolls and reefs in the hands of those who need it without delay.

Current Investigations

Central Pacific Ocean Area:

Under the auspices of the Pacific Ocean Biological Survey Program of the Division of Birds, Smithsonian Institution (see ARB 105) Dr. G. H. Lamoureux, of the University of Hawaii, and Mr. C. B. Long, of the Smithsonian, are assembling comprehensive collections of plants from the Line Islands, Phoenix Islands, Hawaiian Atolls, and to a lesser extent from the Gilberts, Marshalls, and Tokelau. Many of these have been collected by the above-mentioned investigators, others by the various ornithologists involved with the other aspects of the program. When this study is completed we should have an excellent knowledge of the flora of these atolls and the detailed distribution and occurrence of the species. Monographic reports are being prepared for various atolls, which should include information on the plants as well as the fauna and general ecology.

Issued by

THE PACIFIC SCIENCE BOARD

National Academy of Sciences-National Research Council

Washington, D.C.

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Research on the coral reefs of the Pacific Islands. Studies in the  
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Atoll Wave and Current. Jour. Sed. Pet., Vol. 31, 5, 451-466.

Wissenschaft. Jour. Sed. Pet., 33(6): 613-620.

Jour. Sed. Pet., Vol. 35(1)

Journal of Sedimentation and Petrology. Jour. Sed. Pet.

Jour. Sed. Pet., Vol. 34

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Eniwetok:

Mr. Ernst S. Reese writes (Nov. 22, 1964) that he visited the Eniwetok Laboratory last June where he studied the ecology and behavior of the coconut crab, Birgus latro. He says "perhaps the most fascinating thing was the successful rearing of the young from the eggs. Studying the phase where they emerge from the sea to take up their terrestrial life was most fascinating. The young very definitely live in shells, reflecting very nicely their hermit crab ancestry."

Tokelau Islands:

Dr. Marshall Laird, of the Institute of Parasitology, McGill University, has kindly sent us documentation to date, for an interesting and important experiment that he has started in the Tokelau Islands on behalf of the World Health Organization. In these islands, as well as many others in the Pacific, Aedes polynesiensis, a common day-mosquito, is the primary vector of Wuchereria bancrofti, causal agent of filariasis. The experiment attempts to compare the effectiveness of biological versus chemical control of this mosquito. Coelomomyces stegomyiae, a fungus parasite of Aedes, was introduced on Nukunono Atoll. Diel-drin-cement briquettes were placed in mosquito breeding places on Atafu Atoll, and the other of the Tokelau Group, Fakaofu Atoll, was left for a control. A first report, by Dr. Laird and Dr. D. H. Colless, of the University of Malaya, has been mimeographed as WHO document MHO/PA/93.59, and describes the experiment, and a popular article entitled The Tokelau Experiment, published in World Health 14: 12-15, 1961, mentions that a second visit has been made to the Tokelau Islands to check the results. The progress of the experiment is described as "encouraging". We are awaiting further reports with interest.

Maldives Islands:

Sizeable collections of marine algae, gathered by David Sigee on Addu Atoll (see ARB 108) are being identified by Roy Tsuda at the University of Hawaii. The vascular plants are being worked up by F. R. Fosberg. Lists should be ready for publication soon.

In my "Notes on Indian Ocean Atolls visited by the Yale Seychelles Expedition. I. The Maldives Islands, with special reference to the coral reefs," published in ARB 102, I neglected to cite a detailed discussion of Addu Atoll given by R.B.S. Sewell, "An account of Addu Atoll," John Murray Expedition, 1933-34, Scientific Reports, 1: 63-93, 1936.

Sewell also reported erosion on the west side of the atoll and attributed the fact that it was more pronounced than on the east side due to the greater strength of the southwest monsoon. Sewell's Plate VIII gives good photographs taken at a very low tide at or near YSE Sta. 25.

Alan J. Kohn

The research vessel, Te Vega, from Stanford University, California, cruised six weeks from March to May, 1964, throughout the Maldivé Islands. Eight atolls from Tiladummati to Addu were visited. H. E. Hackett, graduate student from the Department of Botany, Duke University, Durham, North Carolina, participated as phycologist. A paper is being prepared on the floristic and ecological aspects of the marine algae. Thirty field stations were made including seven dredge hauls.

This visit to the Maldivé Islands during the International Indian Ocean Expedition was made possible by the support of the National Science Foundation, as a part of the United States Program in Biology, and the courtesy of the government of His Highness Farid Didi, Sultan.

H. E. Hackett

(See below, Te Vega Cruises--Eds.)

#### Bahamas:

John Milliman will, this summer, continue his investigations in the southern Bahamas on Hogsty Reef and Inagua Island. This cruise, leaving on June 7, will include a stop on the eastern side of Inagua, where there is reported a "Lithothamnion-type ridge", an uncommon if not unique feature in West Indian coral reefs. We hope to have from him, in the not-too-distant future, a description of this reef.

#### Morant Cays, Jamaica:

Mr. R. W. Smith writes from Kingston, Jamaica, that he is organizing, on behalf of the Institute of Jamaica, a bird-banding program for Jamaica and the surrounding region. This program includes the banding of sooty and noddy terns on the Morant Cays, south of Jamaica. Smith made two visits to the Morant Cays in 1964, on the second of which he banded 2,000 terns. He expects to mark sooty terns with colored plastic leg-streamers, in the hope of getting some records of them at sea during the non-breeding season. Little is known of the

habits or even the whereabouts of these birds during the time when they are absent from the islands where they breed. He is also making observations on the plants and we hope that he will make collections of these. Transportation to the Cays is available through the courtesy of the Jamaica Fisheries Department.

#### British Honduras Cays:

David and June Stoddart have just returned to Cambridge, England, from a month of investigations in the Cays off British Honduras, with special attention to recovery from the devastation by Hurricane Hattie (see ARB 87, 95). They were able to find very significant relations between vegetation cover and the preservation of land surface features, as well as making observations on the rate of consolidation of calcareous rubble in the zone just above high tide. A collection of plants has been received from them for identification by F. R. Fosberg. We hope to publish another of Stoddart's comprehensive reports before too long.

#### Publications

##### Carnival Under the Sea:

Dr. Catala's volume was published shortly after we included an announcement of it in ARB 108, p. 4. Both the English and the French (Carnaval sous la Mer) editions are beautiful examples of book-making, with magnificent color plates, black-and-white photos, and drawings. The French edition (68 F postpaid) may be obtained from Editions Sicard, 30 Rue Joubert, Paris 9, France. It is also on sale at the Aquarium de Nouméa, as is the English edition. The latter can also be ordered from the publisher, and paid for through the New York (\$15.00 postpaid, registered) or London banks listed in the Subscription Announcement sent to all ARB readers last year. It is also available at the Steinhart Aquarium in San Francisco's Golden Gate Park, and at the B. P. Bishop Museum Bookshop in Honolulu for U.S. \$15.00.

The Library of Congress has received and catalogued the English version, and printed catalogue cards may be ordered from its Card Division. LC Catalogue Card no. 64-66447.

##### Atoll bryoflora:

Much of the systematic work on the plants and animals of coral atolls has been of a rather preliminary nature, since both the taxonomy and the collecting have been in an active state, making publications of a definitive nature rather premature. However, the extensive

collections made in the Micronesian atolls by the Collegiate Rebel Expedition in 1960 provided sufficient material to encourage H. A. Miller, H. O. Whittier, and C. E. B. Bonner to write a truly notable manual entitled *Bryoflora of the Atolls of Micronesia* (Nova Hedwigia, Beihefte 11: 1-89, 1963). Part I is a brief geographical, ecological and historical introduction, Part II is a detailed taxonomic treatment with keys to the 37 species of mosses, and Part III a similar treatment of the 25 hepatics. Geographical and distribution maps, photos of typical atoll situations, and 19 plates of magnificent analytical drawings of the species are provided. The authors are to be congratulated.

### Clipperton Island

Quoted below is an extract from a letter from Rollo H. Beck, written at sea, enroute to the Galapagos, dated January 1, 1902, published in *The Condor*, 4: 50-51, 1902, that was not located prior to the publication of ARB 86. The quotation conveys some idea both of the atmosphere of the island and of the personality of this remarkable student and collector of Pacific Island birds.

"Around Clipperton Aestrelata phoepygia was frequently seen and the sooty terns wander hundred of miles from the island. The blue-faced boobies found at sea at this season are all young birds, that is, ten or eleven months old. Nearly all that we have seen at sea for the last three weeks have been in this plumage. Within 40 miles of Clipperton adult boobies were common, and of the thousands of blue-faced boobies seen on the island but one was seen in the spotted plumage.

"Clipperton Island! How I'd like to spend the month of January there with a good 8x10 camera. The family life of three or four species of birds could be pretty well photographed in that time. Of the blue-faced boobies (Sula cyanops) one can get a picture of one or a hundred or a thousand. Their tameness is occasionally decidedly annoying when one happens to be in a hurry and the nests are close together. It is advisable always to walk not closer than two feet from a sitting bird. With nests scattered around promiscuously it is a regular zigzag trail one makes. Sula nesiotes which is abundant also, does not nest till later though pairs of birds are holding down nesting sites and an occasional young bird unable to fly is noted.

"But the land crabs! Why, there are millions and millions of them and the astonishing effrontery of the intrepid thieves! I couldn't stand still two minutes before one would be clawing at my shoe, and from all directions the crabs would be edging toward me with a stealthy, sidelong, intermittent movement, and great, wide-open, bulging, staring

eyes. As an instance of their amazing impudence I laid down three or four birds in front of me in order to wrap up some eggs. After wrapping three or four I glanced at the birds and an insatiable glutton of a crab had chewed off an eyelid of one while two others were picking at the wings of another bird and yards away other crabs were hurrying forward to participate in the toothsome repast. I scared back the nearest and felt a nip at my foot. There was an old reprobate trying to crawl into a little crack in my shoe, while near at hand came others to reinforce him. I actually had to wrap the birds up before doing anything else.

"Now if I wanted to give you a distorted version or exaggerate this statement in the least I would elaborate in the manner in which they carried off eggs while I was wrapping birds, but I haven't given you any thing but an abridged condensation of the facts! I wrapped the birds and eggs in a hurry and left the spot. But it is laughable to see a crab seize an egg as they do with boobies' eggs when occasion offers. They grasp it tenderly in that long arm and sidle off in a fashion highly amusing. The men on the islands tell me the crabs often take the young boobies from under their parents, and I can easily believe it. They also say but one young bird is reared though two eggs are usually hatched. I cannot recall now having seen two fair-sized young of either the blue-faced or variegated species, though I have seen plenty of nests of both with one young bird and two eggs.

"The land crabs are one of the unpleasant features to a collector down here."

In several papers on Clipperton, especially in the Symposium on Modification of biotic balance of island faunas and floras (Pacific Basin Biogeography, J. L. Gressitt, ed., Bishop Museum Press, 1963), p. 530, it was suggested that crabs might eat birds' eggs or even young birds. Finding confirmation in Beck's letter offsets somewhat the vexation of having missed it while preparing an "exhaustive" bibliography of Clipperton.

#### Central Pacific and Phoenix Atolls:

We have a Reconnaissance Survey Report on Howland, Baker and Canton Islands, made October 1963 by Holmes & Narver Inc. In addition to summarizing known information on these islands, especially Howland, this report presents considerable original data, mostly of interest to engineers, but some of it also of geological interest. Several shallow bore-holes were put down on Howland and Baker, and logs and descriptions of samples are included in the report. Shallow seismic



surveys, using a "boomer" as the source of sound waves, were made on Howland and Baker. Colored air photos and ground photos, as well as some black and white photos and maps in some detail, are included. The information on Canton Island is of much less interest than that on the other two. It is hoped that the interest of AEC in these atolls does not presage their total destruction. Although they cannot be regarded as undisturbed islands, even in their present rather modified condition they are of great ecological interest. It would be a great pity if all such islands were regarded as waste land, available for any and all activities, however destructive. It seems clear that a few of these simple ecosystems should be preserved for the purpose, in the near or distant future, of investigating how ecosystems really work. If they are all destroyed we may regret it.

#### Fanning Island:

To one especially interested in intertidal erosion on coral islands a paper just received from Gerald J. Bakus, on The Effects of Fish-Grazing on Invertebrate Evolution in Shallow Tropical Waters (Allan Hancock Found. Pub. Occ. Pap. 27: 1-29, 1964), is extremely valuable. The author brings together the available information on "fish-grazing" from a wide range of papers, and adds the results of his own experiments carried out in 1963 on Fanning Atoll. The discussion and conclusions of this work are mainly devoted to selective and evolutionary effects on the biota of reefs, but the information assembled is also of great interest in relation to ecological and geological effects of grazing and gnawing by reef fishes.

#### Johnston Island:

Johnston Island probably has the distinction of being, of all the coral atolls, the most thoroughly modified by man. It now may join Clipperton, Arno, Onotoa, Raroia, Kapingamarangi and Ifaluk as one of the most completely known atolls. We have two comprehensive ecological reports at hand, one on land aspects, principally birds, the other on underwater ecology, mostly with reference to ciguateric (poisonous) fishes.

The Preliminary Biological Survey of Sand Island-Johnston Atoll, 136 pp., 1964, "prepared by staff Pacific Ocean Biological Survey Program Division of Birds Smithsonian Institution" (an unfortunate type of authorship, normally reduced for bibliographic convenience to "Anon."), very adequately summarizes what has previously been known of the land ecology of Johnston Island, and adds a great amount of information collected by the Smithsonian staff. This, naturally, is largely related to birds, as they are the principal focus of the project. A number of plants, and

doubtless animals, new to the atoll are reported and lists of plants and animals known from the atoll are included as appendices. The plant list would have been improved a great deal if it had been submitted first to a botanist familiar with the plants of the area.

An Ecological Reconnaissance of Johnston Island and the Effects of Dredging, 90 pp., 1965, by V. E. Brock, R. S. Jones, and P. Helfrich, treats the marine environments in a similarly comprehensive manner, but with emphasis on fish. Very comprehensive lists of fishes, and brief ones of other invertebrates are provided, but algae, the presumed sources of the ciguatera toxin, are mentioned incidentally and not by name. Selected habitats are described and illustrated both by photos and by artists' sketches. Much attention is devoted to effects of dredging, and the Randall / Dawson / theory of the origin of ciguatera is further elaborated.

Both reports are abundantly illustrated with photos, maps, and graphs.

#### Intertidal erosion:

One of the most important questions in atoll geology and ecology is the nature and rate of intertidal erosion of limestone. A paper just received from E. P. Hodgkin, of the University of Western Australia (*Zeitschr. Geomorph. N.F.*, 8: 385-392, 1964), reports the results of observations and experiments that suggest an average rate of erosion at near mean low tide level of about 1 mm per year, the rate decreasing toward high tide level. He ascribes this erosion to chemical corrosion plus the rasping activities of marine mollusks. The differential rate of erosion at different levels accounts very nicely for the widely observed phenomenon of notch-formation on these tropical limestone coasts.

#### Deposition and destruction of reef limestone:

The work of Tom Goreau on the fundamental processes of deposition of the calcareous skeletons of reef-forming animals and plants has, since we first became familiar with it, impressed us as about the best that is being done in the field. More unusual is Tom's ability to apply his microscopic-scale observations to the problems of formation of massive reefs and to relate these to environmental complexes and geographic situations. Now we are pleased to be able to call attention to two papers reporting aspects of this work. One is entitled Calcium carbonate deposition by coralline algae and corals in relation to their roles as reef-builders (*Ann. N.Y. Acad. Sci.* 109: 127-167, 1963). This goes into some detail concerning the environmental relations of the calcification processes, as well as their relation to photosynthesis, with rather little emphasis on the reef-building aspect. It will long

remain a basic paper, essential to an understanding of reef ecology. The other paper is Control of coral reefs by boring sponges, in Mechanisms of hard tissue destruction, AAAS pub. 75: 25-54, 1963. This summarizes what is known of the mechanism employed in limestone destruction by clionid sponges, and examines in detail the great role these organisms play in the morphology and ecology of Jamaican reefs. We now must learn if these sponges have a similar influence on the reefs of the Pacific and Indian Ocean areas.

#### Reef island formation:

David Stoddart has sent a reprint of a paper on Storm conditions and vegetation in equilibrium of reef islands, published in the Proceedings of the Ninth Conference on Coastal Engineering, pp. 893-906, 1964. He discusses his investigations of the British Honduras Cays and the effects on them of Hurricane Hattie (see ARB 95, 104), and formulates a model of reef island formation. In this, in addition to the various physical conditions necessary for the accumulation of sediments to form bars, the establishment of vegetation is seen as the critical factor that enables such bars to grow further and become stabilized islets that accumulate additional sediments and may reach 10 feet or more in height, rather than the 3-5 feet possible without this assistance.

#### Alacran sediments:

We are delighted to be able to mention a fine addition to the knowledge of Alacran Reef (see ARB 93), a paper on Recent carbonate sedimentation on Alacran Reef, Yucatan, Mexico, by C. M. Hoskin, Publication 1089 of the National Academy of Sciences--National Research Council, 1963. The paper summarizes previous work and work in progress, but mainly reports the author's results during his investigations during the summers of 1959-1961. This comprehensive report is thorough, well-documented, and beautifully illustrated. It would be impossible to summarize it here, even its conclusions. Suffice it to say that many of the processes, both inorganic and organic, at work on coral reefs in the Yucatan area are discussed, and that this paper will be indispensable to any future workers interested in these problems and this area.

#### Maldivé Atolls:

Eibl-Eibesfeldt, I., Im Reich der tausend Atolle, R. Piper & Co Verlag, München, 1964.

The Xarifa Expedition to the Maldivé and Nicobar Islands (1957-1958), under the leadership of Dr. Hans Hass, has been mentioned in several Bulletins, especially ARB 91 and 94, p. 15 (review of Expedition ins Unbekannte). We now have another beautiful book on these and other islands. About half of it concerns the Maldivés, and, like Dr. Eibl-Eibesfeldt's volume on the Galapagos Islands (1960), it combines narrative,

background information on the islands, and many of the author's observations on reef animals, especially fish, in his role as "animal psychologist." This is the type of book of value to the scientist, with index and bibliography, and also of interest to the layman willing to take a little trouble and follow Dr. Eibl under the sea.

Diving now permits all sorts of scientific work among the coral biota and the author is an able guide. His most interesting studies of animal behavior are illustrated by many drawings and beautifully reproduced photographs in black and white and in color.

French Polynesia:

No. 6 of Cahiers du Pacifique appeared in June 1964 and, among many items of interest, includes several articles on corals and on the great reef of New Caledonia. The Fondation Singer-Polignac, which organized the New Caledonia 3-year survey and sponsors the Cahiers, will publish a series of technical reports on the New Caledonia and other studies. A "preliminary volume" in this series was issued in 1961 (Forest, J. and Guinot, D., Crustacés décapodes brachyours de Tahiti et des Tuamotu, Expédition française sur les récifs coralliens de la Nouvelle-Calédonie...1960-1962, Vol. préliminaire, 1-195, Fondation Singer-Polignac, Paris, 1961, 18 plates).

Also more and more active is the French overseas research organization ORSTOM (Office de la Recherche Scientifique et Technique Outre-Mer), and especially its Noumea research station, the Institut français d'Océanie. Its 1963 Annual Report, just received, cites many research programmes and notes improvements in available facilities and increase in staff. In 1963, M. Blanchon (Botany) visited the coral islets Surprise and Huon, and M. Huguenin (Phytopathology) also visited Surprise.

In its series of "Mémoires", the ORSTOM has just published an extensive report based on a 1959 survey:

Guilcher, A., Berthois, L., Le Calvez, Y., Battistini, R., and Crosnier, A., Les récifs coralliens et le lagon de l'Ile Mayotte (Archipel des Comores, Océan Indien) Mém. Orstom 11: 1-210, Paris 1965, 16 plates, 24 tables.

It is lavishly illustrated with charts, maps, tables and plates of photographs, and very detailed. Mayotte is a volcanic island with a barrier reef, and there is also a map and a brief description of the low coral Glorioso Islands. There is a comprehensive 4-page English summary. One might express mild criticism of the typography, the lines of text being too long for the size of the type; otherwise this is a splendid publication.

Some of the least well-known islands of the Pacific, Wallis and Futuna, are the subject of a monographic treatment in vol. 19 of the Journal de la Société des Océanistes. Unfortunately there is no map of these volcanic islands with barrier and/or fringing reefs. Vol. 20 of the same series has also just been received. In both volumes the extensive bibliography of Oceania initiated by Father P. O'Reilly is continued.

#### Micronesica:

The first volume, nos. 1 and 2, of this new Pacific journal (see ARB 100) is now at hand. It contains, among others, two papers on atolls: The social effects of Typhoon Ophelia (1960) on Ulithi, by W. A. Lessa, and The Crustacea Decapoda (Brachyura and Anomura) of Eniwetok, by J. S. Garth. The editor, B. C. Stone, has now left Guam for the University of Malaya, Kuala Lumpur, but still continues as editor of Micronesica. This issue is a highly creditable publication and gets the journal off to an excellent start.

#### Pacific Naturalist:

We are sorry to report that the attractive journal, Pacific Naturalist, has suspended publication. The last number, Vol. 4, no. 3, was issued February 20, 1964.

#### Manual for Tropical Herbaria:

The International Bureau for Plant Taxonomy and Nomenclature, with the financial assistance of UNESCO, has just published vol. 39 of Regnum Vegetabile, by F. R. Fosberg and M.-H. Sachet, with the above title (132 pp., 16 figs.). The Manual includes extensive instructions on plant collecting which will be of use on coral atolls as well as in all other types of tropical vegetation.

#### Personalia

H. A. Miller, authority on bryology of atolls, has spent the second semester of this academic year as visiting professor in the College of Guam.

Henry O. Whittier, bryologist, is now located at the New York Botanical Garden, after a moss-collecting trip to Tahiti.

Ernani Meñez, who collected algae in the atolls of the Carolines on the Collegiate Rebel Expedition in 1960, is now working at the Smithsonian Dept. of Oceanography Sorting Center, Washington, D. C.

Yale Dawson, former editor of *Pacific Naturalist* (see above), is spending the summer at Humboldt State College, Arcata, California, and will join the Smithsonian staff in Washington at the end of the summer. We can expect a great revival of interest in marine Algae at the National Museum beginning at that time.

F. R. Fosberg and Michael Evans, of the Pacific Vegetation Project, will go to Guam in June and will visit as many of the islands in Micronesia as feasible during the next two months. Mr. Evans will remain in Guam to continue collecting plants with as much information as possible on the medical and dietary uses by the local people.

#### Items of General Interest

##### Research Station in West Java:

We have heard, indirectly, that the Indonesian Institute of Biological Science is establishing a small research station on Poeloe Poetjang, a small coral island just off the coast of the Ujong Kulon Reserve, near the western tip of Java. This small island, a flat patch of coral sand with a low limestone ridge near one end, has one of the few remaining bits of native lowland forest in Java. This forest has been the subject of study by the botanists from the Bogor Herbarium, especially Dr. A. Kostermans and his students, for a number of years. It has yielded several new trees and specimens of others that have not been seen for a hundred years. The new station should provide facilities for scientists who wish to continue these studies, as well as for those studying the coral reefs and the fine nature preserve on the nearby Java mainland. We wish the Institute well in this new enterprise.

##### South Pacific solar eclipse stations:

Dr. Gerald Mulders, of the Astronomy section of NSF informs us that two atoll stations are being set up for investigation of the total solar eclipse on May 30-31 in the South Pacific. One of these is on Manuae in the Cook Islands, the other on Bellingshausen, in French Polynesia. Parties of astronomers from several nations will share these facilities. Perhaps bits of information of other than an astronomical character may result, in addition to their main objectives.

##### Te Vega Cruises:

Thanks to Don Abbott we have received copies of the first 18 (minus one not yet duplicated) installments of Dr. Rolf L. Bolin's very entertaining and informative General Narrative of the first seven cruises of the Hopkins Marine Laboratory's research vessel, Te Vega; also Abbott's account of the scientific aspects of Cruise 5. These seven cruises were

actually segments of a single complicated trip across the Pacific to the Solomon Islands, New Britain, Singapore, the Philippines, Indonesia, Thailand, the Indian Ocean, Ceylon, Madagascar, the Comoro Islands, the Maldives, back to Singapore, Philippines, Rabaul, and the Solomons, including the fascinating elevated coral islands, Rennell and Bellona. Cruise 8 will bring them back across the Pacific to Monterey, with visits to various of the central Pacific atolls. The different cruises were marked by the presence of different guest investigators and different groups of students. Primary attention seemed to be on hydrographic stations with plankton tows, deep-water trawling and dredging, and ichthyological collecting. However, many islands were visited, a few of them atolls, and much collecting was done on coral reefs, especially of fish, mollusks, and algae of the genus Halimeda (by Dr. Llewellyn Hillis Colinvaux). The combination of serious research by advanced investigators and work on graduate problems by students, lectures on problems and fields of interest in marine biology and biological oceanography by staff and visiting scientists and guest lecturers, and continuous exposure to the ecosystems under study would seem to provide an ideal system of training for students and stimulus to mature scientists. Perhaps even a few future Darwins might result. It is hoped that investigations of land aspects of coral islands may be included as a part of future cruises, and that papers suitable for ARB may result.

#### Smithsonian Institution:

From the Smithsonian Institution come several items of interest. One is the establishment of a Sorting Center for specimens of marine organisms collected in the various oceanographic programs now under way, such as the International Indian Ocean Expedition. The U. S. National Herbarium is moving from the old castle across the Mall into new and more spacious and convenient quarters on floors 4 and 5 of the new west wing of the Natural History Museum. An expanded interest in ecology and tropical biology is being developed in the Smithsonian. We hope that this will extend to the ecology of coral atolls and islands.

#### Gilbert Islands Study:

We have just had the visit of M. Jean Paul Latouche of the French CNRS (Centre National de la Recherche Scientifique), who is on his way to the Gilbert Islands for a two-year stay. He plans to study social anthropology, land tenure and ethnobotany on Abemama, Kuria and Aranuka. Mme Nicole Latouche will be preparing a monograph on the Gilbertese system of Cooperatives.

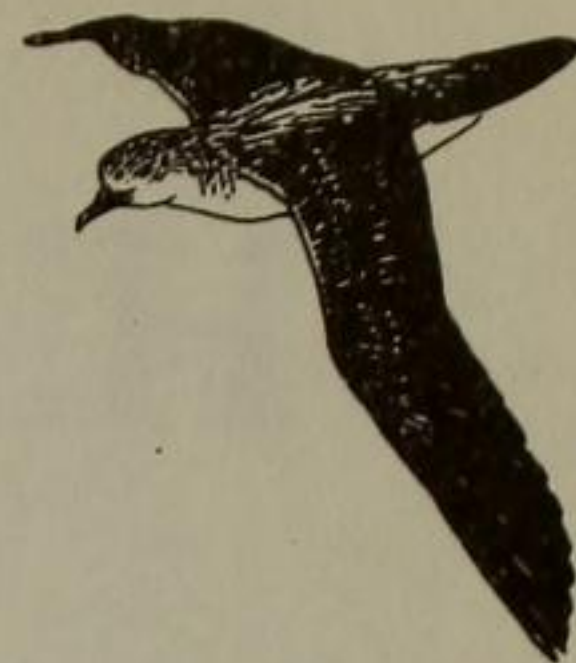
Erratum:

Our attention is called, by Mrs. Jane Cooper, to the fact that in ARB 105, pp. 2 and 11, her affiliation is given as "Department of Cooperative Societies, Suva, Fiji", while, in fact, she is a research associate of the University of Hawaii. The Suva address is merely her mailing address, as it is her husband's place of employment. We are glad to make this correction.

Smithsonian Bird Banding Program:

Results from the bird banding and marking activities of the Smithsonian Pacific Ocean Biological Survey Program (see ARB 108) are already beginning to come in. Large numbers of sea-birds are being marked with bands and with colored plastic leg streamers and released on various islands of the central Pacific. On March 1 we received a letter from Dr. Philip S. Humphrey, head of this program, indicating that cooperation in reporting marked birds and returning bands is enthusiastic in all parts of the Pacific. Excerpts from many letters are quoted. As a consequence of this the Smithsonian has decided to send out an occasional newsletter to such cooperators to keep them informed as to the results. Identification material and colored slides on the Pacific sea-birds are being prepared and made available to schools to encourage people to interest themselves in these birds and to report sightings back to the Smithsonian. We are reproducing here the notice that has been circulated announcing the marking program and requesting cooperation, in case any of our readers have not seen it.





ATTENTION!

Hundreds of thousands of far-traveling ocean birds of many kinds are being captured, marked, and released on mid-Pacific islands in a widespread study of sea-bird migration by the Smithsonian Institution, Washington, D.C. Although it is known that some kinds of birds perform remarkable annual migrations of 10,000 miles or more over the North and South Pacific Oceans, the regular travels of most species are unknown or poorly understood.

To learn more about the migrations of seabirds, Smithsonian ornithologists have captured and marked over 300,000 birds of 28 different kinds in the Central Pacific with standard, numbered, United States Fish and Wildlife Service aluminum legbands. Of these, over 60,000 have been marked with 4 inch colored plastic leg-streamers.

Anyone coming into the possession of a banded dead bird in the Pacific Ocean Area is asked to cooperate by returning the band, together with time and place of recovery, as instructed on the band. For live birds, only the band number together with time and place of capture need be sent to the directed address, after which the bird should be liberated so that its further travel may be traced.

Anyone sighting a bird with a colored leg-streamer anywhere in the Pacific Ocean Area is asked to cooperate by recording the name or description of the kind of bird wearing the streamer, the color of the streamer, the date seen, and the latitude and longitude or approximate location of sighting. All information on birds with colored leg-streamers should be sent as soon as possible to:

Division of Birds  
Smithsonian Institution  
Washington, D. C. 20560

EACH COOPERATOR WILL BE ADVISED WHERE THE BANDED OR COLOR-MARKED BIRD WAS TAGGED.

--YOUR HELP IS NEEDED--