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Atoll News and Comments

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ATOLL NEWS AND COMMENT

Future of the Atoll Research Bulletin

For 15 years, with the support of the Geography Branch, Office of Naval Research, we have been able to distribute the Atoll Research Bulletin gratis to scientists and institutions interested in research on atolls and reefs, to agencies concerned with administration of coral islands, to schools on islands, and to a considerable number of libraries geographically situated so that the Bulletin would be reasonably accessible to most people who might be occasionally interested in consulting it. Unfortunately the ONR finds it no longer possible to continue this support, and we have not yet found another source of funds to carry it on. The National Academy of Sciences was approached with a proposal to continue publication of ARB on a subscription basis, but gave us no encouragement. Hence, this will be the last issue under the present auspices, and, unless we can find another sponsor and at least a certain amount of financial backing, it will be the last issue published. We are sorry, as the ARB seems to be useful and appreciated.

We are seeking other sponsorship and funds, and if successful, hope to resume publication in the not too distant future. However, there seems little hope that ARB could again be distributed gratis. We will have to aim to put it on an eventually self-supporting basis, which will mean subscriptions. If we succeed you will hear from us, and we will ask you to subscribe. Please wish us luck! Any expressions of interest or suggestions as to possible sources of support will be gratefully appreciated.

The editors have recently transferred their main activities from the U. S. Geological Survey to the Smithsonian Institution. However, all mail concerning the Atoll Research Bulletin and the Pacific Vegetation Project should continue to be addressed to them c/o National Academy of Science-National Research Council, 2101 Constitution Avenue, N.W., Washington, D.C. 20418, USA.

Demise of Unesco Humid Tropics Research Programme

It is distressing to have to announce the demise of what seemed to be a very promising scientific effort, the Unesco Humid Tropics Research Programme. This program was somewhat patterned on the Unesco Arid Zone Programme, which was, in general, a very successful effort. The chief tangible accomplishments of the Humid Tropics Programme were a number of very interesting symposia, nine of which have been published; two more were not, though it is still planned to publish one of them if possible. The Programme was plagued by administrative difficulties and lack of adequate funds to do anything very impressive. The most effective single activity, perhaps, was the Visiting Committee for Tropical Herbaria, set up to help and advise the herbaria located in the tropics. The Manual for Tropical Herbaria (see ARB 112, p. 11) was prepared under its auspices. This committee is theoretically still in existence, but the money intended for its activities during the current biennium was spent for other things. We hope it will be picked up again in 1967. One cannot

help having the feeling that a factor of critical importance in the failure of Unesco to continue support for the Humid Tropics Programme was the policy, adhered to by the International Advisory Committee on Humid Tropics Research, that the task of Unesco scientific programs should be fundamental or basic research, and that they should not encroach on the fields of the practical specialized agencies like FAO and WHO. The underdeveloped humid tropical countries, that should have rallied to the support of this program, were apparently not able to realize that the benefits of applied science mostly result from previous basic science.

Atolls for Science

A proposal, put forward by Gene Wallen, director of the Smithsonian's oceanography program, to acquire one or more atolls to be preserved as reserves for scientific study is under serious discussion. Coral atolls,as is of course obvious to ARB readers, are among the most remarkable natural phenomena. Most of them have already been seriously altered by man, but a few unspoiled ones remain, and others are not so far gone that they will not preserve or recover their essential character if they are protected from the more destructive sorts of human activities. It is hoped that the means may be found to set aside a small number of representative atolls, and that an effective way may be found to administer and protect them, both their land areas and their under-water features. This proposal is,as yet, in the dream stage, but worthwhile dreams may sometimes be the precursors of realities, and this one should certainly have the backing of all ARB readers.

Field Work

Caroline Atolls

Last summer, during July and August, F. R. Fosberg and Michael Evans were privileged to visit many of the atolls in the Yap District of the Trust Territory of the Pacific Islands, travelling on the last "field trip" of M.V.Roque. Ulithi, Lamotrek, Satawal, Woleai, Ifaluk, Eauripik, and Faraulap were visited, also the raised atoll, Fais. The visits were all too short for more than the hastiest work to be done, but extensive collections of vascular plants, with much ethnobotanical data, were gathered. Some of the specimens were, unfortunately damaged by mildew before they could be dried. The island of Satawal was the jewel of the lot. It has remained more isolated, because of difficult landing conditions, and as yet has no tin roofs and rather few of the other signs of western culture. The people are friendly, healthy, and alert, and have not yet forgotten their old ways in favor of foreign substitutes, as have so many others.

On Ulithi we visited Jim Boykin, principal of the high school on Falalop Islet, where students from all the atolls of the Yap District come for their secondary school training. The school occupies the abandoned U.S. Coast Guard Loran Station, and a substantial new building is under construction. Boykin is a biologist and is inculcating in his students an interest in and respect for their heritage of plants and animals. We certainly wish him every success in this effort.

Evans spent December in the Truk District, Central Carolines, and was able to visit Namonuito, Nomwin, Murilo, Nama, and Losap Atolls, and make collections of plants and ethnobotanical data.

This year's work, sponsored by the National Institute of Neurological Diseases and Blindness, NIH, has thus filled in some of the most conspicuous gaps in our knowledge of the floras of the Carolines. This leaves only a few of this group from which we have practically no knowledge. An expedition that was not dependent on Trust Territory "field trips", made for other purposes, but which had its own boat, could round out this floristic knowledge, with luck, in one season.

Carolines, Woleai Atoll

Dr. William H. Alkire, ethnologist currently of the Bishop Museum Expedition to the Carolines, spent the past year on Woleai Atoll, a real tropical paradise, and was due to leave in January. He is studying the relations of the Woleai people with their atoll environment, living as one of them, and gathering further data bearing on his theory of inter-island socioeconomic ties. The editor had the pleasure of an all too brief visit with him last summer. He has kindly sent us a collection of specimens of the plants of Woleai, with invaluable ethnobotanic information on them. He previously spent a year on Lamotrek Atoll, also in the west central Carolines (see below).

Original Observations

Chaschus Island, Persian Gulf*

The tiny island Chaschus lies about 20 kilometers northeast of Dharan, Saudi Arabia. It was visited briefly on November 15, 1957, by courtesy of the Arabian American Oil Company.

It is a cay of coral sand with a central pond and resembles a miniature coral atoll. It lies in a complex of coral reefs which are mostly submerged 1-3 meters.

The island is elongate in a north-south direction, parallel to the coast, and has low beach ridges along both sides, the east one slightly higher than the west. They enclose small sand flats and the small, elongate pond. This pond is mainly shallow but has a deep pool at the north end. At the south end is a shallow channel with a tiny stream of water running out, going sinuously southward and finally cutting through the east beach ridge and emptying into the Gulf.

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*/ These observations are scarcely sufficient to justify a separate number of ARB, but seem worth placing on record.

In the pond were a few individuals of a curious scypho-medusan, Cassiopeia andromeda. This animal rests on the bottom, its mass of short, thick slightly branched tentacles directed upward, gray brown and well camouflaged against the sandy bottom of the pond. It appears more like a sea anemone than a medusa, but is not attached. It moves very slowly over the bottom, and when turned over in the water it pulsates like a medusa, then turns over and sinks to the bottom.

The greater part of the land area is bare of vegetation, but the inner slopes of the beach ridges and the enclosed sand flats have an irregular sparse stand of yellowish fleshy low shrub, Suaeda aegyptia (Hasselq.) Zohary and a few mats of terete blue-green Arthrocnemum glaucum (Delile) Ungern-Sternb.

Along part of the east shore of the cay is a discontinuous exposure of thin beds of very soft, friable beach rock. At the south end this is dark gray-brown, the grains covered by a slimy dark organic matter. The remnants of the top layer are pale. It becomes harder toward the north, and the beds curve outward and fork, away from the present beach, into shallow water.

South of this, along the channel leading out of the pond, are two tiny strips of very soft beach rock, only about 2 centimeters thick, and dipping very slightly toward the channel.

The presence of this poorly consolidated beachrock suggests that the island has more stability than would be expected of what is essentially a loose, double sand-bar, thrown up by currents and wind. The fact that it appears on charts and has a name also suggests some sort of permanency. It also hints that perhaps severe storms that might completely sweep away such an island are not a common occurrence in the Persian Gulf.

F. R. Fosberg

Publications

Hogsty Reef, Bahamas

In the Christmas, 1965, number of Sea Frontiers (vol. 11, pp. 342-353) John D. Milliman and William M. Stephens present, under the title, "Rare Atlantic Atoll", a brief popular account of theories about atoll formation and a short but very interesting account of their visit to Hogsty Reef, a true atoll in the Bahamas, aboard the Research Vessel Gerda, last June. This is a tiny, but practically undisturbed atoll. Their description gives just enough information to make us hope they will write a more extensive account, and we will try to talk them into this if ARB solves its current problems and stays alive. We must especially congratulate Mr. Stephens on his marvellous photos that illustrate the article.

New Caledonia

We understand, although we have not yet seen a copy, that the first volume of Memoirs on New Caledonia reefs published by the Fondation Singer-Polignac (see ARB 112, p. 10) has recently issued.

British Honduras

A preliminary account of the results of the re-survey of hurricane effects on the British Honduras reefs and cays has been published by David Stoddart (Nature 207: 589-592, 1965)(see ARB 112, p. 4). This deals with changes in geomorphology and vegetation that have taken place since the survey made in 1962 (ARB 95), and resulting economic adjustments. Bird populations are said to have returned to normal. It is estimated that recovery in areas of major reef damage may take 25-30 years. Effects of differences in vegetation are indicated.

In another paper, "British Honduras cays and the low wooded island problem" (Inst. Brit. Geogr., Trans. and Pap. 36: 131-147, 1965), Stoddart has discussed the morphology of reef islets, using the British Honduras Cays as examples, in terms of their exposure to different wave-intensities and hence to different energy environments. He compares them with the similar cays on the Great Barrier Reef. The conclusion is that "As long as fundamental requirements of size, shape and depth are satisfied, the island type depends solely on available wave energy."

Beach rock

That the beach rock problems are not all solved, despite opinions expressed in some marine geological circles, is suggested by the appearance of a paper on Nature and origin of beach rock, by D. R. Stoddart and J. R. Cann (Jour. Sedim. Petrol. 35: 243-247, 1965), and of an Essai d'explication de l'origine des grès de plage. Cas des grès de plage coralliens, by J. Trichet (C. R. Acad. Sc. Paris 261: 3176-3178, 4469, 1965). R. F. McLean has also gone into some detail in an unpublished thesis on Mechanical and Biological erosion of beachrock in Barbados, West Indies, submitted to McGill University in 1964. Very probably pertinent to this subject, also, is a paper on Organic matter in recent and ancient limestones and its role in their diagenesis, by D. J. Shearman and P. A. d'E. Skipwith (Nature 208: 1310-1311, 1965), though in this paper there is no mention of the beach rock problem as such. The ideas expressed in these papers, and in the recent ones by R. J. Russell, are by no means all in complete agreement. In reading them one gets the feeling that either there are several distinct phenomena lumped together as beach rock because of similar end products of different processes, or that there is a principle involved in all that has not yet been isolated and understood and that the explanations so far advanced are all only partial, or even erroneous, solutions to the problem.

Pacific Bird Observer

We take this opportunity to welcome the newest addition to the list of serial publications carrying information on the natural history of the Pacific Islands, the Pacific Bird Observer. This is a bimonthly "Newsletter of the Pacific Ocean Biological Survey Program, Smithsonian Institution, Washington, D.C." (see ARB 112, p. 14). It is distributed to collaborators of the program "in order to promote the understanding of birds and their relation to man in the Pacific". The first three numbers have appeared and are attractively printed by offset, with drawings

and excellent photos. There are many short articles of all sorts, mostly on aspects of the program, personalities, accounts of returns from banding, and in number 3, a description of Enderbury Island, Phoenix Is. We wish the newcomer a long and vigorous life.

Wake Island birds

We are happy to call attention to a very creditable short account of the birds of Wake Island, by Erin Casey (Elepaio 26: 63-64, 1966). 23 species of birds are listed, with some notes on their occurrence and abundance. It is of especial interest to note that the author is in the seventh grade at Punahou School, Honolulu. We hope that she continues and develops her interest in coral atolls and their birds.

Pendulum Gravity Measurements at Sea 1936-1959

This book by J. Lamar Worzel (John Wiley and Sons, 1965, $28.00) is essentially a compendium of basic data and as such is an important publication. It includes principal facts for the nearly 3000 pendulum gravity observations made by the Lamont Geological Observatory during the period between 1936 and 1959. All the information is provided about data reduction, base ties, etc. that anyone will need who wishes to make use of the data in the future. A good summary interpretation of the data is also provided along with a complete set of anomaly charts. The work reported here has made a major contribution to our understanding of the oceans and especially the zones of transition between continent and ocean.

The first chapter gives descriptions of the principal base stations, information on the methods of correction for temperature and air density, information on data reduction and a discussion of the accuracy of the observations. The second chapter consists of a brief description of each cruise including instrumentation changes, data reduction constants, the results of pendulum standardization at principal bases, and ties to secondary bases. The third chapter is a table giving the principal facts for all of the stations.

The fourth chapter is devoted to interpretation and gives a general discussion of the significance of the results and brief discussions of particular traverses, supplemented by cross sections. Much of this material has been published elsewhere, but it is valuable to have it collected in one place (especially the cross sections) with a summary of the conclusions. Most of this discussion is devoted to continental margins, oceanic trenches, and mid-oceanic ridges. Islands and sea mounts are allotted only three pages. The book will still be of interest to those concerned with coral reefs and islands, however, because of the general information it gives on the ocean basins as a whole and perhaps also because of the data given on the accompanying charts.

A series of appendixes gives track charts for the cruises, charts of the secondary base stations and summaries of the observations at such stations. There is also a list of references to other sources of sea pendulum data. Finally, two sets of charts are given, one for Bouguer anomalies and one for free air anomalies. All the available pendulum data

from the literature is included along with the Lamont results. The charts show the anomaly values superimposed on bathymetric contours. The Bouguer charts also show generalized anomaly contours.

As pointed out by the authors, submarine pendulum gravity measurements will probably be supplanted in the future by surface-ship gravimeter measurements. The pendulum data will be useful, however, as a control network for the surface observations, and this volume provides the information necessary for that purpose.

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Scientific and technical personnel in oceanography

ICO Pamphlet 21: 1-49, 1965, compiled by the Interagency Committee on Oceanography, of the Federal Council for Science and Technology, U.S.A.

This is a curious document. At first glance one would assume that it was a directory of people engaged in or concerned with oceanography. The foreword states that a survey of oceanographic personnel was undertaken and completed in 1964, reporting 2,649 individuals engaged in this work in the U.S. On page 6 is a definition of oceanography: "Oceanography is considered to be the scientific investigation of the world ocean, its living and non-living contents, boundaries, properties and processes." Following this, the 2,649 oceanographers are classified, described, discussed, and analyzed in about every way possible. But nowhere is there a list of who these people are or where they may be addressed. So the publication is, for most interested people, chiefly of academic importance.

Undersea vehicles for oceanography

ICO Pamphlet 18: 1-81, 1965, Interagency Committee on Oceanography of the Federal Council for Science and Technology, U.S.A.

This well illustrated and lucidly written paper may be of interest to students of the deeper water aspects of coral reefs. While SCUBA diving is clearly the most flexible method of studying these formerly inaccessible levels, more extended observations may be possible from some of the new submarines developed for undersea research. The current status of development of such craft is very well presented here. To childhood readers of Jules Verne, the absence of any mention of the Nautilus, prototype of these vehicles will be a wee bit disappointing.

Lamotrek, Caroline Islands

"Lamotrek Atoll and inter-island socioeconomic ties", by William H. Alkire (Illinois Studies in Anthropology 5: 1-180, 1965) has just come to our attention. This is a handsome little volume and, although primarily a work of social anthropology, is also an important contribution to atoll ecology and geography. In the anthropological field, in addition to placing

on record a substantial amount of information on the day-by-day activities, environmental relations, and social structure of the Lamotrek, Elato, and Satawal societies, Alkire brings out, clarifies, and formulates a theory on the inter-island relationships in the atolls and islands in the Yap sphere of influence in the central Western Carolines. This is related to the size of the resource base and the vulnerability of the atolls to environmental vicissitudes, especially typhoons. This theoretical framework undoubtedly represents a major contribution to our understanding of the history and human geography of these islands, as well as to the strictly socioeconomic relationships.

Of perhaps greater interest to the readers of ARB is the information on Lamotrek and its satellite atolls contained in the chapter on the Setting, and that on Economic Activities. These atolls have been relatively little studied and this work will certainly be consulted as the basic source of information for some time to come. Since the author's main interests were in the social anthropological field, readers interested in ecology, geography, and even material culture are likely to be rather disappointed that data on the physical and biological environment and on actual products and methods used in material culture were not more systematically collected, or at least more adequately presented, if more information was gathered. Especially unfortunate is the author's dependence on previously published works, almost entirely applying to other atolls, for most of his basic environmental data. It would seem that, in 15 months spent on an atoll with less than half a square mile of land area, time might have been available to amass original information on the substratum, fauna and flora, rather than relying on accounts of other atolls and assuming that Lamotrek would be similar. There is, of course, considerable information from the author's own observations, but this must be carefully sorted out from the rest, in order to be sure that what is said actually applies to Lamotrek. The book is abundantly illustrated with photos, maps, and diagrams. An index would have been welcome, as would, even more, a vocabulary of the local terms used rather abundantly and explained only the first time (though the author says "The use of native terms in this work is kept to a minimum"). The lack of a list where such terms could be looked up readily seriously lessens the clarity and usability of the work as a whole.

In spite of these shortcomings, the appearance of a comprehensive work on Lamotrek is of great interest to all people interested in Micronesia and in atolls generally.

The Shape of Atolls

David Stoddart (Marine Geol. 3: 369-383, 1965) attempts to demonstrate, by statistical methods, some sort of consistency or homogeneity in the shape of atolls, an aim that would seem foredoomed to failure at first glance. He samples 99 out of 425 known atolls, and tries out a number of methods. We understand neither his basis for selection of the sample nor the significance of the methods chosen. Nor do we see how the study has "demonstrated the fundamental homogeneity of atoll shapes"; in fact, we cannot see that there is any such homogeneity. This is probably due to our lack of appreciation for the subtleties of the statistical approach, certainly not to any lack of diligence in applying it.