The Biology and Geology of Tuvalu: an Annotated Bibliography

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The Biology and Geology of Tuvalu: an Annotated Bibliography

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ABSTRACT. Over one thousand references of published monographs, papers, letters, notes and reports concerned with the geology and biology of the nine islands of Tuvalu, the former Ellice Islands, are indexed and annotated. Excluded are meteorological, ethnological, human geographical, historical, administrative and sanitary publications. Medical references are included where these impinge on the zoological or botanical. Fifty papers come from Soviet sources and include results of recent expeditions from that nation in the archipelago.


Introduction

The central Pacific nation of Tuvalu (Ellice Islands) consists of nine small islands and atolls scattered along an approximate north-north-west to south-south-east bearing between 5° and 10°30'S latitude and 176° and 179°E longitude. Apart from the similar island chain of Kiribati to the north and east, the nearest land is Rotumah, 400 km to the south-west, with the main islands of Fiji a further 200 km south. The Phoenix and Tokelau groups lie about 700 km east while the Santa Cruz Islands are the first landfall 1500 km west. As a consequence of this isolation, the 36 square km area of the archipelago provides the sole land area due south of the equator and west of the 180° meridian in an expanse of 2,000,000 square km of the central Pacific.

From north to south the nine islands are Nanumea, Nitatou, Nanumaga, Nui, Vaitupu, Nukufetau, Funafuti, Nukulaelae, Niulakita (Fig.1).

Specimens of the animal and plant life of the islands start to appear in the collections and herbaria of Western Europe from about the mid nineteenth century on. The geology of Funafuti, including its lagoonal sediments, reefs, submarine topography, stratigraphy and deep structure and composition were described in some detail following three coral reef boring expeditions mounted by the Royal Society in 1896, 1897 and 1898, and a fourth visit by Professor Agassiz of Harvard in 1899. These descriptions, along with reports on collections of the flora and fauna, served to make the natural history of this atoll the best documented of any in the Pacific and Indian Oceans at the turn of the century (Rodgers, 1985).

Little, however, was known of the geology and biology of the other eight islands. Agassiz had made a survey of some of their reefs and collected a few specimens. Other information of scientific value, as well as a few collections which existed in herbaria and museums (e.g. Mueller, 1876; Butler, 1878; Sharpe, 1878) had come largely from missionary sources. Moreover, these collections were not systematic nor comprehensive. Neither were the majority of those from Funafuti. Few had been assembled by a specialist in a particular field while some of the identifications.
than a little flawed (e.g. see criticisms of North, 1898; Pocock, 1898; Bogert, 1937; Belkin, 1962; Pont, 1968). Few of these omissions were to be made good in the years succeeding Agassiz' visit. Following the intense activity of the last four years of the nineteenth century, much of the world's scientific community lost interest in this remote and tiny group and little in the way of new field data or specimens became available to build on what had gone before. There were exceptions:

Dr Sixten Bock from Sweden visited in mid 1917. He made small collections of a number of marine invertebrate groups from Nanumaga, Nui, Vaitupu, Nukulaelae, Nukufetau, Niutao and Nanumea, some of which have since been described (e.g. Odhner, 1925; Schellenberg, 1938; Adam, 1945; cf. Rodgers & Oleröd, 1988).

HMS Challenger completed a seismic survey of both Funafuti and Nukufetau in 1951 and established for the first time the thickness of the carbonates through which the Royal Society had hoped to drill at Funafuti as 550-760 m (Gaskell & Swallow, 1952, 1953). A collection of algae made by the Challenger from the Funafuti lagoon, was described by Chapman (1955) and sight records by the officers of birds observed in the group were documented by MacDonald & Crawford (1954).

The most diversified expedition to call in the twentieth century was made by the Soviet research vessel Dmitry Mendeleev in 1971 and 1973. Geological, oceanographic, biological, meteorological and anthropological field studies were undertaken on various islands over several weeks, as well as in the surrounding waters. Regrettably, while considerable new data were obtained, few publications concerned specifically with Tuvalu/Ellice biology and geology have appeared (e.g.
Vilenkin, 1977; Kalineko & Medvedev, 1980). Most published data have been presented as part of general syntheses of various aspects of natural science in the western Pacific (e.g. Petrov, 1980). The 1973 visit produced one of the first detailed accounts of the consequences of Hurricane Bebe (Askov, 1975).

The sole area where numerous, continuing, in-depth studies were conducted throughout the entire group was that of filarial infections and their arthropod vectors, the disease being a major threat not only to the communities' health but also the World War II effort. As a result, a wealth of research papers appeared from both British and American workers (e.g. Laird, 1956; Iyengar, 1959, 1960; Zahar et al., 1980).

These contributions apart, the total knowledge of the geology and of the majority of animal and plant groups of the archipelago as at 1970, was essentially that of 1899. This was in sharp contrast to the situation for other, comparable island groups. While topographic maps and charts had improved, the geology of Funafuti and the significance of the Royal Society's corings continued to be debated inconclusively, as the database, with the exception of the Challenger results, was still that of the nineteenth century (e.g. Chapman, 1941, 1944 vs Grimsdale, 1952). Although some systematic names of some organisms from the early collections had been reviewed, only a few hundred new specimens had been added to research collections, mainly by Bock and filarial researchers. The mosquitoes were the sole group which might be regarded as being comprehensively documented for all islands. Child's observation that no comprehensive survey of the Gilbert and Ellice Colony had been carried out by a competent ornithologist and, "thus there is a noticeable gap in the available literature of the Pacific birds" (1960, p.1) was valid for many groups of Ellice organisms. Indeed, it still holds for many in Tuvalu today (cf. Rodgers & Cantrell, 1986).

When Hurricane Bebe struck Funafuti in October 1971, it served to rudely alert a number of Pacific scientists to the group's existence. Several surveys of both the geomorphological and biological consequences of this major storm have now been reported (e.g. Baines et al., 1974; Askov, 1975; Baines & McLean, 1976; Mergner, 1983, 1985; Fitchett, 1987).

Fortunately the scientific impetus afforded by Bebe has been immediately followed by that resulting from the onset of independence. For the first time relatively large amounts of money have become available for research and while this has been primarily directed towards planning and economic survival, the natural science content of these areas has begun to be reported in depth. A spate of publications has emanated from organisations such as the South Pacific Commission, Food and Agricultural Organisation, United Nations Development Program and its agencies, as well as mimeographed reports from various British and Tuvaluan governmental departments. As a result, the pelagic fishes and their baits have joined the mosquitoes as a well studied group (e.g. Klawe, 1978; Crossland, 1979; Zann, 1980; Taumaia & Gentle, 1982; Ellway et al., 1983).

For the first time, the botany of one of the islands, Nui, has been documented (Woodroffe, 1985, 1986), while a smaller survey of that of Vaitupu has been informally published (Woodroffe, 1981). Some of the omissions of 1899 are being made good.

However, one consequence of the nature and history of scientific research in Tuvalu is that the literature is widely scattered both historically and geographically. While this is scarcely unique to either Tuvalu or its science, there is nevertheless a seeming predilection on the part of some researchers in the archipelago to rediscover facts and facets of both the geology and biology and to ignore that which has gone before.

Rodgers (1985) drew attention to Chapman's (1955, p.334) statement with which he prefixed his report on the Challenger's 1951 algal collections: "No algal collections appear to have been made on previous visits, not even during the celebrated visit to put a bore down through the reef." Chapman was seemingly unaware of the floral records of Barton (1900, 1901), Foslie (1900a,b, 1901, 1929) and Schmidt (1928).

When Kalineko & Medvedev (1980) published the findings of the Funafuti lagoon corings of the Dmitry Mendeleev they made no reference to earlier lagoon borings and dredgings of Halligan and Finckh (in Halligan, 1904a; David, Halligan and Finckh, 1904). One of the Soviet lines of coring stations in the lagoon approximated closely the dredge line of Halligan and Finckh.

Other examples exist. Few western students of Bebe seem aware of the study of Askov (1975). Woodroffe (1985, 1986) appeared unacquainted with Mueller's (1876) floral lists. Buckley (1985) reported Bufo marinus as accidentally introduced about three years ago but Pacific Islands Monthly (1942), Iremonger (1948) and Laird (1956) have recorded its deliberate earlier introduction. Gibbons & Clinie (1986) would have found the data of Schofield (1976a,b) and the interpretations of McLean (1980) informative in discussing the effect of sea level changes on Tuvalu's pre-history. In particular, the literature concerned with the islands' agriculture and that which documents pests and diseases is rich in rediscovery and scant in acknowledgement of earlier documentation e.g. cf. Food and Agricultural Organisation (1961), Lever (1969), Daft (1976), Dharamaraju (1980a,b), Small (1982) and Madison (1983).

No gratuitous criticism is implied by these observations. There are difficulties peculiar to Tuvalu/Ellice literature which are exemplified by the uncharacteristic lapse of Thompson (1983) whose bibliography of the
geology and geophysics of Tuvalu consists of a single page of 23 references.

Whatever the reasons for such oversights, it was to help obviate similar difficulties with ongoing research in Tuvalu that Rodgers (1985) compiled his bibliography. This work drew heavily on some previous compilations (e.g. Krauss, 1969) but remained deficient from several viewpoints. It was biased towards publications arising out of the Royal Society and Agassiz expeditions insofar as it had grown by happenstance (as well as haphazardly) out of a bibliography of the geology of Funafuti. In its turn it overlooked the wealth of information in Sachet & Fosberg (1955, 1971), Bernice P. Bishop Museum (1964) and Mitchell Library (1968). In particular it was restricted in respect of time and money.

However, its publication produced a wealth of material and much needed support from numerous individuals and organisations from throughout the world. This has enabled the present bibliography to be prepared. While no illusory claims for any particular degree of completeness are made, it represents significant progress in Tuvaluan bibliography. It is hoped it will materially assist research in, and an awareness of, these central Pacific islands. Several points should be noted by users.

This bibliography is confined mainly to published monographs, papers, letters and notes which make reference to the geology and biology of the nine islands, the two disciplines being inextricably intertwined at an atoll level. Meteorological references have been documented elsewhere (Rodgers & Cantrell, 1987). Medical, oceanographic and environmental matters are included where these concern the geology or biology. Demographic references have been included only where they refer to climate, agriculture, disease and similar natural science matters. Excluded are references concerned solely with ethnology, human geography, history, administration and general health and sanitation. Unlike Rodgers (1985), works related to European exploration are included where these contain documentation on the location and names which have been used for the various islands. However, separate maps and charts have generally been omitted.

The question of what is and what is not a published document has usually been resolved by the document's availability. Thus all the mimeographed material arising out of the period of colonial rule, from government departments, international organisations, pamphlets of the University of the South Pacific and items of restricted circulation, have been included where they are readily available from research libraries, particularly those in the south Pacific. Conversely, a number of titles which may have proved relevant, have been omitted when they did not prove to be available in Australia, New Zealand, Fiji, Tuvalu or Kiribati.

Much of Tuvalu's literature is in mimeographed or photocopied form. Several libraries and archival repositories were loath to release some items while normal interlibrary loan began to prove prohibitively expensive. This was one reason Rodgers (1985) added annotations to his citations to permit users to assess the relative merits of some of the references. This has been continued in the present compilation.

Some definite but arbitrary guidelines were developed concerning the relevance of a particular reference, the forms of the citation, and the extent and content of the accompanying annotation. Because of the paucity of literature in certain areas, references with even marginal Tuvalu/Ellice content have been included even if the author has done little more than repeat another's earlier record or observation, although in the biology field, a reference is usually cited only where a systematic name is employed unless the content appears to represent a new contribution.

Rodgers (1985) provided some, but not comprehensive, page referencing to systematic names in his annotations of biological items. This has been extended here and some earlier annotations revised as indicated by a double asterisk, **, after the entry. (A single asterisk, *, after an entry indicates the item appeared in, and the content is little changed from, Rodgers (1985).) While every effort has been made to include all such page references, inevitably a number will have been overlooked. Nor is it to be expected that all users will find the annotations as full as they might wish. However, the authors have tried to take cognisance of the observation of Luomala (1975) that our understanding of the islands' science is hindered by the poor geographic documentation of many research specimens as well as field observations, resulting in unwarranted generalisations being made about the group as a whole (cf. Buxton, 1928). Where provenance of specimens or data was indicated in a cited paper it is usually given in the annotation. Three major faunal lists have been deliberately excluded because of their size and ready availability: the foraminiferal records of Chapman (1902a, 1944) and the faunal summary of Hedley et al. (1899).

It was originally intended to include only references which had been seen and annotated by the compilers, particularly as several existing bibliographies contain items which appear to have no Tuvalu/Ellice relevance. However, in the long term this was not found to be feasible, particularly with some references provided by the Leningrad Public Library (see Appendix I). In the interest of completeness, some items are included which have not been viewed. These are indicated by ¶ after the entry.

It may be of interest to other Pacific bibliographic workers to note that less than four dozen of the references included here, were available from computer
searches conducted in Australia and New Zealand for Tuvalu/Ellice/botany/zoo­logy/geology/geophysics.

While such searches did produce the odd gem which had not emerged by other means, in geology for example, a far greater number of citations were obtained from conventional indices such as Zoological Record, Bibliography of Geology Exclusive of North America and its successor Bibliography of Geology, as well as from Science Citation Index. Shelf searches of journal runs by both content lists and indices proved of value for Tuvalu/Ellice mainly with some specific Food and Agricultural Organisation and South Pacific Commission publications, although among late nineteenth century runs both Nature and Natural Science, as well as publications of some geographical societies, produced results using "Funafuti" and "Royal Society" as key search words.

A considerable number of titles of both monographs and scientific papers in the present bibliography make no geographic reference to the group. Further, a number of publications possessed titles which suggested they might contain relevant material, but were found to be sadly wanting (e.g. Daft, 1976; Williams, 1980).

The most fruitful source of references proved to be a working backwards and forwards through the literature following specific themes and authors within those themes. Foslie's many algal publications were obtained by this technique as were those concerned with false scorpions and the mineralogical papers arising from the Royal Society corings. While this approach produced numerous items not occurring in earlier bibliographies, a limitation on the practice was found in the unavailability of complete journal runs, as well as restrictions imposed by time and cost. In the end, many subjective judgments had to be made as to the probable value of following up particular lines. As a result, it is inevitable that items have been missed. In particular, it is suspected that numbers of the biological compendia and catalogues of certain groups of organisms have been overlooked.

"Perhaps, through the relatively intense studies of last century, Tuvalu is uniquely placed for some accurate assessment to be made of the impact of one hundred years of European culture on the ecology of a group of Pacific islands (cf. Wiens, 1962, chap. 19)...[It is hoped] the present bibliography may provide encouragement and a contribution to such an end" (Rodgers, 1985, p.103).

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1. Adam, W., 1945. Cephalopoda from Dr Sixten Bok's expedition to the South Pacific islands. Arkiv för Zoologi 37A(5): 1-25, 2 plates. [Descriptions of Loligo eggs from Nanomea (sic) and Octopus (Octopus) globosus from "Ellice Islands, Nine [sic], leeward reef" p.2.]*


5. Agassiz, A., 1900. Explorations of the Albatross in the Pacific. American Journal of Science ser.4, 9: 369-374. [Preliminary report concerning expedition which included visit to Ellice Islands and to the Royal Society's borings (see 1903, below). Soundings made by USS Albatross off Funafuti confirm HMS Penguin's results.]*


9. Agassiz, G.R., 1913. Letters and recollections of Alexander Agassiz with a sketch of his life and work. Houghton Mifflin, Boston and New York, 454 pp. [Extensive commentary on Agassiz' anti-Darwinian views and attitudes to Royal Society Funafuti boring e.g. letter to Murray declaring of Darwinians and the bore: 'I shall give them a dose they do not expect, and the theory of subsidence will, I think, be dead as a doornail and subside forever and hereafter' p.330 and cf. p.333; interpretations of Funafuti bore results by Agassiz and Murray contrasted ending..."The boring should be done in a region where the volcanic beds are underlying the coral reefs" pp.342-344; letter commenting on structure of Funafuti based on visit there pp.367-369, 371-378 and cf. pp.408-409.]


11. [Aksenov, A.A.], 1972. [See Appendix I.]

12. [Aksenov, A.A.], 1975. [See Appendix I.]

13. [Aksenov, A.A. & I.M. Belousov], 1975. [See Appendix I.]

distribution in Pacific (map) pp.7, 8, effect of hurricanes p.14, isolation from volcanic neighbours p.20.]


19. Annexation of the Gilbert and Ellice Islands. 1916. Geographical Review 1(2): 145. ['The largest island of the Ellice group is Funafuti, where, some eighteen years ago, a boring was carried down to a depth of 11,014 [sic] feet, proving the existence of a mass of pure limestone to that depth without a trace of any other rock.”]


22. The Arthropods of Funafuti. 1897. Natural Science 11(65): 5-6. [Damning review of Rainbow's (1897a,b) Australian Memoir work, cf. Pocock (1898), Sachet (1953), Belkin (1962), Pont (1968).] 


34. Balgooy, M.M.J. van, 1966. "Ellice Inseln, Niue") p.24, Niue, Nukufetau" (Funafuti) p.33, p.34, "Percevia hexagona" (Ellice Islands with measurements p.166. Lack of knowledge of range of sub-species of Gygis alba in Gilbert and Ellice Islands fig.12, p.177 and cf. p.179.]


42. [Basilov, V.N. & N.A. Marova], 1972. [See Appendix I.]


51. Belkin, J.N., 1962. The mosquitoes of the south Pacific (Diptera:Culicidae). University of California Press, Berkley and Los Angeles, 2 vols, 608 & 412pp. [Ellice Islands fauna briefly surveyed (1:40) where Rainbow's (1897a) reports of Toxorhynchites inornatus and Aedes (Musidus) alternans from Funafuti are described as "highly imaginative". Elsewhere the islands are included in a Fiji-Samoa-Tonga group e.g. 2: fig. 19.]


American Geographical Society Publication 38: 256-291. [Wilke’s visit to Ellice Islands mentioned briefly p.269.]


61. Bettany, G.T., [18--]. The world’s inhabitants; or mankind, animals and plants. An entirely new work devoted to a popular description of the races and peoples now inhabiting the globe, together with accounts of the principal animals and plants of the great continents and islands; exhibiting the workings of intelligence and knowledge in contact with barbarism and ignorance of savage life; the spread of colonisation, civilisation, and empire; the widening of the world’s limits by human energy, enterprise, and intelligence; and the discrimination of culture, commerce, and the blessings of social life over the face of the habitable globe. Ward Lock, London, 949pp. [Notes that the Ellice Islanders are of Samoan stock and all Christians but fails to shed light on the animals and plants of these islands p.920.]

62. [Bezrukov, P.L.], 1969. [See Appendix I.]


72. [Bogorov, V.G.], 1967. [See Appendix I.]


David's (1899) book]*

76. Bonney, T.G. (ed), 1904. The atoll of Funafuti. Borings into a coral reef and the results. Report, Coral Reef Committee, The Royal Society of London. Harrison & Sons, London, 428pp., 1 plate, maps. [Cf. 1904, Creak; Cullis; David; David & Sweet; David; Halligan & Finch; Finch; Halligan; Halligan; Hinde; Judd; Judd; Russell; Sollas; and Sorby.]*

77. Borelli, A., 1928. Dermaptera. In 'Insects of Samoa'

78. The Borings at Funafuti, 1898. Natural Science 12: 362-364. [Reports on the success of the Royal Society expedition as described in Recent Boring Operations at Funafuti (1898)].**


86. Boulenger, G.A., 1897. A list of the fishes obtained by Mr J. Standley Gardiner at Rotuma, South Pacific Ocean. Annals and Magazine of Natural History ser.6, 10: 371-4. [Cited by Rodgers (1985) as a postscript to Royal Society Funafuti expeditions but has no Ellice/Tuvalu content].**

Tutanga] **


92. Breuning, S., 1939. Novae species Cerambycidarum VII. Festschrift zum 60 Geburtsstage von Professor Dr Embrik Strand 5: 144-290. [Oopsis albolineta from Ellice Islands, type in British Museum, p.283.]


94. Brigham, W.T., 1900. An index to the islands of the Pacific Ocean. Bernice P. Bishop Museum Memoir 1(2): 87-256. [No more than the title says.]*


100. Brodie, J.E., G.W. Lee & R.A. Prasad, 1983. Well water quality in the south Pacific island states. South Pacific Journal of Natural Science 4: 14-33. [Vaitupu resources described pp.15, 18 with analysis of 15 wells Table 1, p.17 which show most are contaminated with sea water.]


103. [Brujewicz, S.W.], 1966. [See Appendix I.]


107. Bryggo, E.R, 1953. Epidemiology of filariasis in the vicinity of Funafuti and Nukufetau using both mollies and S. delicatula. Best results were obtained at sundown.]


111. Buckley, R., 1985b. Sedimentation rate of lagoon sands, Funafuti atoll. Australian Marine Science Bulletin 89: 43. [Radiocarbon ages for 1) HalimeCia/ Marginopora/Calcarina sand 2) fine lime sand taken from basal 10cm of vibrocores in 13 and 22m of water off Fongafale, are 2170±90 and 2510±90a B.P., indicating sedimentation rates of 0.7 and 1.2mm/a for the past 2000 years.]


116. [Butinov, N.A.], 1982. [See Appendix I.]

117. [Butinov, N.A.], 1975. [See Appendix I.]


121. Buxton, P.A., 1928. Researches in Polynesian and Melanesia: an account of investigations in Samoa, Tonga, the Ellice Group, and the New Hebrides in 1924, 1925. Parts V-VII (Relating to human diseases and welfare.) Memoir Series, London School of Hygiene and Tropical Medicine 2: 1-139. ["Several authors have confused the Gilbert and Ellice groups, because they are one unit for administrative purpose" p.68. Numerous references to Ellice are primarily concerned with arthropod borne diseases in group p.12 et seq and include absence of myositis p.43, 78; hydroceles p.44; elephantiasis pp.50, 58, 60 et seq; filariasis pp.68, 72-74, 120, 122; details of how Ellice census figures are obtained and comments on population trends pp.72-73; Aedes variegatus var. pseudoculicidalis given as vector on Ellice p.74; table of indigenous mosquitoes gives A. v. var. p. A. vexans and Culex annulirostris from Ellice Islands p.76; summary discussion of filariasis pp.77-82; intestinal helmintiasis p.93.]


123. Byrd, E.E. & L.S. St Amant, 1959. Studies of the epidemiology of filariasis on central and south Pacific islands. South Pacific Commission Technical Paper 125: i-v, 1-90. [Ellice Islands was not one of
the study areas but is referred to in discussion of mosquito habits p.68 and filariasis control pp.84-85. Repeating details of O'Connor's (1923) ecology wrecking experiment on Funafalla. Also available in extended mimeographed form ex-Department of Navy, Washington (1950), 220pp.


130. Carvalho, J.C.M., 1956. Heteroptera: Miridae. Insects of Micronesia 7(1): 1-100. [Sachet & Fosberg (1971, p.292) index this reference as being relevant to Funafuti although their annotation does not refer to the group and it does not include Ellice material.]


oceanicum (type locality) p.5, Geogarypus (Geogarypus) longidigitatus p.6, Haplochernes funafuitiensis p.9 (see also p.12) from Funafuti. Includes bibliography.

139. Chamberlain, R.V., 1919. The Annelida
Polychaeta: Being part XXXVIII of Reports on an exploration...by the USS Albatross during 1891 and part XX of Reports on the scientific results of the expedition...of USS Albatross from August 1899 to March 1900 and part XXXI of Reports on the scientific results of the expedition...by USS Albatross from October 1904 to March 1905. Memoirs, Museum of Comparative Zoology 48: 1-514. [Platyneris polyscalma n.sp. from Funafuti pp.219-226.]*


145. Chapman, F., 1901b. On the identity of *Polytrema planum* of Carter with *P. miniaceum* var. *involva*. Annals and Magazine of Natural History ser.7, 7: 82-83. [Latter name used in earlier descriptions of specimens from Funafuti, is withdrawn through priority of former.]*

146. Chapman, F., 1902a. On some Foraminifera collected round the Funafuti Atoll from shallow and moderately deep water. Linnean Society of London Journal, Zoology 28: 379-417, 2 plates. [Samples from shore sands to 240 fathoms include 97 species from ocean beaches ex Sollas 1896, 34 species from lagoon-beaches ex Sollas 1896 and Halligan and Finckh 1898, 11 reef forming adherent and encrusting species, 273 species occurring at depths from 16-200 fathoms around Funafuti ex Halligan and Finckh; includes notes on distribution of species on reef slope. Note the informal geographic terminology p.380.]**


Society of London Journal, Zoology 30: 388-464. [23 dry samples of Globigerina oozes or "coral sands" and 37 grease samples contained 231 foram and 52 ostracod species. New species or varieties Biloculina lucemula var. striata, Cassidulina bradii var. attenuata, Lagena juddiana, Pontycypris davidiana, Argillacea gracilior, Bythocypris sollassi, B. heterodoxa, Cythere curvicostata var. funafuensis, C. sweeti, Cytherura teniscoasta, Cytheropteron assimilae var. funafuensis, Bythocythe retiolata, B. tuberculata, Pseudocythere funafuensis. Fossil species noted as recent for the first time are Virgulina pertusa, Lagena ventricosa (cf. L. apiculata), L. latissima.]

149. Chapman, F., 1944. The Foraminifera of the Pacific. Society of London Journal, Zoology 30: 388-464. [23 dry samples of Globigerina oozes or "coral sands" and 37 grease samples contained 231 foram and 52 ostracod species. New species or varieties Biloculina lucemula var. striata, Cassidulina bradii var. attenuata, Lagena juddiana, Pontycypris davidiana, Argillacea gracilior, Bythocypris sollassi, B. heterodoxa, Cythere curvicostata var. funafuensis, C. sweeti, Cytherura teniscoasta, Cytheropteron assimilae var. funafuensis, Bythocythe retiolata, B. tuberculata, Pseudocythere funafuensis. Fossil species noted as recent for the first time are Virgulina pertusa, Lagena ventricosa (cf. L. apiculata), L. latissima.]

150. Chapman, F., 1941. On the sequence of age of the rocks in borings, in the atoll of Funafuti. Geological Society of London Abstract 1375: 16-19. [Reef-forming rocks drilled at Funafuti are not talus; Darwin's subsidence theory supported. Intercalations of foraminiferal sand are an important part of the rock, and age of lowest core is post-Tertiary.]

151. Chapman, F., 1944. The Foraminifera of the Funafuti boring. Annals and Magazine of Natural History ser.11, 11: 98-110. [Apart from a comprehensive list of species with notes of their abundance and the depths at which they are found, gives geological and bathymetrical deductions from organisms occurring in boring.]


platyrhynchos, Spatula clypeata p.34. Includes list of protected birds and of common trees associated with birds using both vernacular and systematic names p.33. Excellent bibliography, some titles not included here. Points out "no comprehensive survey of whole colony has been carried out by a competent ornithologist" p.1.]


158. Child, P., 1982. Additions to the avifauna of Kiribati and Tuvalu. Notornis 29: 31-36. [Records from eight week visit in 1981 includes Puffinus nativas from Funafuti, P. thernermieri from Funafuti, Nanumea and between Vaitupu and Nukufetau, Sula from Nukulauae including a roosting/nesting area, Fregata spp. from Niuku, Sterna sumatrana from Funafuti and Nui, Arenaria interpres from Nui, Nukufetau, Vaitupu, Funafuti and Nukulauaeae, Numenius phaeopus variegatus from Nui, bristle-thighed curlews from Nui, Claduris alba from Funafuti and Nui, Tringa brevipes from Nui, Charadrius hiaticula from Nui pp.35-36. Believes drastic fall in sea bird numbers in last 25 years.]


(type) and Falefatu p. 32; H. distorta n. comb. from Funafuti, p.33.]*


178. Cooksey, T., 1896. Rock specimens [from Funafuti]. In: Etheridge (1896-1900), Australian Museum Memoir 3(1): 73-78. [Describes coarse sand with forams (Orbitolites complanata, Tinoporous baculatus, Polytrema muriaceum, Amphistegina lessonii), a calcareous conglomerate, conglomerate, coral rock with partial analysis, soil from taro plantation with full analysis, pumice pebbles with analysis.]


Connecticut, 392pp. [Tuvalu entry pp.299-305 includes succinct, up-to-date description with reference to Calophyllum inophyllum and Hernandia peltata as major trees p.299-300. Short bibliography p.305.]


187. Crossland, J., 1979. The Crustaceans and Echinoderms of Funafuti. [Concerns the total Royal Society of London publication.]

188. Cullen, D.J., 1899. The chemical and mineralogical changes which take place in coral rocks as illustrated from the boring at Funafuti. John Bellows, Gloucester, 46pp. [Concerns the Royal Society main core to 698ft.]*

189. Cullen, C.G., 1899. The chemical and mineralogical changes which take place in coral rocks as illustrated from the boring at Funafuti. John Bellows, Gloucester, 46pp. [Concerns the total Royal Society cores.]*

190. Cullis, C.G., 1904. Mineralogical changes observed in cores of Funafuti borings. In Bonney (1904) 'The atoll of Funafuti' Section XIV: 392-420. [Concerns the total Royal Society cores.]*


202. Daly, R.A., 1915. The glacial control theory of coral reefs. Proceedings, American Academy of Arts and Science 51: 155-251. [Funafuti lagoon soundings briefly noted, pp.188, 193 (Fig. 12); borings interpreted as only 46m of reef proper with remainder passing through "talus material all the way to the bottom" p.218; "actual site of the borings was unwisely chosen" p.247.]*


205. Daly, R.A., 1919. The coral reef zone during and after the glacial period. American Journal of Science ser.4, 48: 136-159. [Discounts Funafuti Royal Society results by showing adherents of the subsidence theory of coral reefs each interpret the results differently pp.156-157.]*


208. Daly, R.A., 1929. Swinging sea level of the ice age. Bulletin, Geological Society of America 40: 721-734. ["bore-hole at Funafuti was wrongly placed and therefore affords no clear test of the rival theories of coral reefs" p.732.]*


215. David, E. Mrs [Caroline M. David], 1899. Funafuti, or three months on a coral island, an unscientific account of a scientific expedition. John Murray, London. 318pp. [Popular, readable account of 1897 Royal Society expedition containing much


218. David, T.W.E., 1900. Letter. In E.C. Andrews (1900) Notes on the limestones and general geology of the Fiji Islands, with special reference to the Lau Group. Based upon surveys made for Alexander Agassiz.' Bulletin, Museum of Comparative Zoology 5: 5-10. [In the course of general comments on Andrew's findings, compares the raised reefs of Lau with those drilled at Funafuti.]*


220. David T.W.E. & G. Sweet, 1904. The geology of Funafuti. In Bonney (1904) 'The atoll of Funafuti' Section V: 61-124. [Describes mapping techniques, structure and composition of atoll including details of bioclastic content and mode of formation of most rock types, geological history of the atoll, and individual descriptions of Puagea, Tefala, Te Falaingo, Tutanga, Tengasu and Teafofou, Avalau, Motungie, Nukusavalivali, Motoula, Motusanapa, Telele, Tefota, Funafara, Mafola, Luamotu, Mateika, Falefatu, Funamanu, Funangonga, Fatoto islets.]*


225. Davis, W.M., 1916. Problems associated with the study of coral reefs. The Scientific Monthly 2: 313-333, 479-501, 557-572. "[The deep boring on the atoll of Funafuti in the Ellice Group has led different students to different conclusions, though it seems to me the evidence for subsidence is strong: unhappily the boring reached no volcanic rock" p.496.]

226. Davis, W.M., 1919. This significant features of reef bordered coasts. Transactions, New Zealand Institute 51: 6-30. [Brief references to Funafuti p.6, 26, et seq.]*

227. Davis, W.M., 1928. The coral reef problem. American Geographical Society Special Publication 9: 1-596. [Judd (1904a) quoted regarding lagoon floor p.17; relevance of Funafuti boring to the coral reef problem succinctly assessed p.514, including diagram illustrating unfortunate choice of site, but cf. Ritchie (1957), Gaskell et al. (1958). Stresses that Royal Society experts (= Bonney, 1904) were only allowed to report the facts, not to comment on their relevance to any theories p.533.]*


role played by calcareous algae in growth of atolls p.13.]*


232. Demond, J., 1957. Micronesian reef associated gastropods. Pacific Science 11: 275-336. [Ellice Islands included in range of Trochus histrio only p.285, although other species have generalised ranges which include Ellice e.g. 'throughout the Pacific.'][**


236. Dickerson, M., 1835. [See Reynolds (1835).]


246. Doty, M.S., 1954. Distribution of the algal genera *Rhaphia* and *Sargassum* in the central Pacific. Pacific Science 8: 367-368. [*...there is an area in the Central Pacific...between about 141°W and 165°E and between about 16°N and 16°S...[that]...may prove to be an important biotic province.?]*


Proceedings, 7th Pacific Science Congress 7: 357-370. [Mentions filariasis vectors in Ellice briefly p.367.]


260. Duperry, L.I., [1827]. Memoire: sur les operations geographiques faites dans la campagne de la corvette de S.M. la Coquille pendant les annees 1822, 1823, 1824 et 1825. Huzard-Courcier, Paris, 104pp. [Location and brief description of St. Augustin (=Taswell = Nanumaga) and identity of Cocal (=Sherson = Nanumaga) given p.45 and cf. p.100. Maude (1961, p.75) points out that Duperry must have also visited Nanumaga.]

261. Duperry, L.I., 1829. Voyage autour du monde...sur la corvette de sa Majesté, La Coquille, pendant les annees 1822, 1823, 1824 et 1825...Hydrographie et physique. Arthus Bertrand, Paris, 133pp., map. [Includes observations on weather, barometric and temperature readings in and around "iles Cocal" and "St-Augustin" plus records of "Petrels bruns, hirondelles blanches, et plusieurs dorades ... Exocets volants. Phaétons. Un noddi" pp.90-91 and see map.]

262. Eastman, G.H. 1944. Front line islands; the Gilbert and Ellice Islands in wartime. Livingstone Press, London, 16pp. (Edited by J. Reason from reports of two journeys.) [Cited by, but unseen by Sachet and Fosberg (1971); of historical interest, with no natural history content.]


269. Edwards, F.W., 1928. Diptera: Nematocera. In 'Insects of Samoa and other Samoan terrestrial Arthropoda' Part VI(2); 23-102. British Museum (Natural History), London. [Culex annulirostris (ex Buxton and Hopkins, 1927) from Ellice islands p.46.]*


274. Etheridge, R. (ed), 1896-1900. The atoll of Funafuti, Ellice Group: Its zoology, botany, ethnology and general structure based on collections made by Mr. Charles Hedley, of the Australian Museum. Australian Museum Memoir 3: 1-609. [Cf. Cooksey (1896), Hedley (1896,1897,1899a,b,c), Hedley et al. (1899), Hill (1897a,b), North (1896), Rainbow (1897a,b), Waite (1897, 1899), Whitelegge (1897a,b,c,d,e, 1898), Whitelegg & Hill (1899). Part X contains the title page, contents and comprehensive index.]*

275. Etheridge, R. (ed), 1899-1914. Scientific results of the trawling expedition of HMCS Thetis off the coast of New South Wales in February and March 1898. Australian Museum Memoir 4: 1-929. 2 vols. [Krauss (1969) cites this as having Ellice content. However, the references are few and far between and largely incidental e.g., pp.330, 344.]*

276. Evans, H., 1949. Men in the tropics. Edinburgh, Glasgow, 380pp. [A book of quotations from other authors which claims to include Ellice Islands and...
does so by way of a single paragraph quote from Mrs David (1899).]

277. Examples of Coral Rock Cores from the Borings at Funafuti, 1904. American Journal of Science ser.4, 18: 239-242.**


279. Exon, N.F., 1982. Manganese nodules in the Kiribati region equatorial western Pacific. South Pacific Marine Geological Notes 2(6): 77-102. [Tuvalu included in area studied (maps pp.80-81) although not a CCOP/SOPAC member at time. The Ellice Sub-basin within the Southern Melanesian Basin to the west of Tuvalu is recommended as an area for high priority study p.96.]


289. Festetics de Tolna, R., 1903. Chez les cannibales. Huit ans de croisère dans l'Océan Pacifique a bord du yacht 'Le Tolna.' Librairie Plon, Paris, iv, 407pp., 2 maps. [Describes visit to Founafouti (sic), including a severe storm, c.30 October 1894, p.147; "un atoll formé d'ilots madréporiques, qui s'égrenent autour, joints entre eux par des hauts fonds et des bancs de sablé de vase et de corail" p.152.]

290. Finekh, A.E., 1904. Biology of the reef-forming organisms at Funafuti atoll. In Bonney (1904) 'The atoll of Funafuti' Section VI: 125-150. [A general description of the marine biology including a traverse from windward ocean reef, across lagoon to leeward ocean reef, description of processes involved in formation of reef-rock, experiments on
coral and algal growth rates and determination of carbon dioxide content of lagoon and ocean water. Genera and species mentioned throughout the text include: Lithothamnion, Halimeda, Carpenteria, Polytrema, Madrepora loriipes, Porites sp., P. limosa, Heliopora caenula, pocillopora spp., P. verrucosa, P. paucistellata, P. clavaria, P. caespitosa, P. grandis, Montipora incognita, Neohelia, Balanophyllia, Distichopora sp., D. rosea, Hydrophora microcona, Astraecopia ocellata, Millepora spp., M. alcicornis, M. complanata, Aspidosiphon.]


296. Firman, I.D., 1982. Bibliography of plant protection in the area of the South Pacific Commission. University of the South Pacific Library and IRETA, Suva, v, 8pp. (Pacific Information Centre Bibliography no. 2.) [Author gives 'Ellice' and 'Tuvalu' as search headings but lists no citations for these islands.]


305. Food and Agricultural Organisation: Plant Protection Committee for the South East Asia and Pacific Region, 1963. 1. Host list of Fungi etc. recorded in the South East Asia and Pacific Region: Musa spp. - Banana, Musa textilis - Abaca. 2. Host list of Insects recorded in the South East Asia and Pacific Region: Musa spp. - Banana, Musa textilis - Abaca. Technical Document (FAO Regional Office, Bangkok) 26: 1-3. [Banana bunchy top virus recorded from Ellice Islands p.2.]


309. Food and Agricultural Organisation: Plant Protection Committee for the South East Asia and Pacific Region, 1972b. Outbreaks of pests and diseases: Gilbert and Ellice Islands Colony, Quarterly Newsletter (FAO Regional Office, Bangkok) 25(3): 4. [Fluted scale Icerya aegyptica and Chrysopus basalis reported as present but it is not clear in which parts of the Colony they occur.]


319. Foslie, M., 1928. The fishes of Polynesia. Bernice P. Bishop Museum Occasional Papers 10: 1-540. [Specimens from Funafuti include Goniolithon frutescens f. flabeliformis p.30 and plate XLVIII, fig. 5; G. f. f. typica p.30 and plate XLVIII, fgs. 1-3; Lithophyllum craspedium f. compressa p.33 and plate LXIX, fig. 7; L. onocodes f. typica p.33 and plate LXVII, fgs. 6,7; Lithothamnion funafutiense f. typica, p.41 and plate XII, fig. 3.]


323. Fraser, J., 1897a. Notes on Polynesia. American Antiquarian and Oriental Journal 19: 45-48. [Review of Hedley (1896, 1897) with some general comments. Includes some systematic plant names as given by Hedley.]


332. Gadow, H., 1898. A list of birds of the island of Rotumah. Ibis 7th January 1898: 42-46. [Anous leucocapillus pp.44-45 and A. stolidus p.45 described from Funafuti; Totanus incanus, Numerius talitensis, Charadrius fulvus, Srepsialis interpres, Limosa uropygialis, Gryps candida, Demigretta sacra, Carphophaga pistirinaia noted from Funafuti p.45, either from Gardiner's collections or observations, but see comments of North (1898) and Hedley (1899)].

333. [Galerkin, L.I.], 1968. [See Appendix I.].


348. Gaskell, T.F. & J.C. Swallow, 1953. Seismic experiments on two Pacific atolls. Occasional Papers, Challenger Society 3: 1-8, 6 figs. [Geophysical results indicate 1800ft of carbonate at Funafuti and 2500ft at Nukufetau over basic volcanic material. Dolomitization of carbonates at c.400ft may be indicated. Detailed results and summary figures included.][**


357. Gilbert and Ellice Islands Colony: Department of Agriculture, 196-197-. Annual report for the year ended 19-.-. Tarawa. Mimeoographed. [Includes summaries of weather for year, notes on livestock,
crops, fisheries, pests and diseases, rainfall statistics for each atoll, deliberate or accidental introduction of various species. Heavily biased to Gilberts. 1968 and 1969 only dates seen during present compilation.]  


370. Glude, J.B., 1972. Report on the potential for shellfish aquaculture in Palau Islands, Yap Islands, Guan, Truk Ponape, Ellice Islands, America Samoa, Cook Islands, Fiji Islands, New Caledonia and French Polynesia. Food and Agricultural Organisation, Rome, F1:SF/SOP REG 102/8, 13 March 1972. [A provisional report indicating a revised illustrated version was to be produced. Ellice Islands pp. 25-27: geography and oceanography reviewed p.26. No oysters (Ostrea or Crassostrea) were found with bivalves reported as extremely scarce; dead shells, of Vasticardium and
Codakia occurred plus occasional live specimens of Tridacna squamosa, T. corocea, Pinctada margitifera and an unidentified succulent clam similar to Hinnites p.26. Potential for aquaculture limited.


376. [Golikov, A.N., E.V. Krosnov, L.I. Moskalev & D.V. Naumov], 1973. [See Appendix I.]


378. Gomez, E.D. & H.T. Yap, 1985. Coral reefs in the Pacific - their potentials and their limitations. In 'Environment and resources in the Pacific' (eds A.L. Dahl & J. Carew-Reid). United Nations Regional Seas Reports and Studies 69: 87-106. [Data from Tuvalu is included in Table 2, p.92, concerning occurrence of reef types, ex Dahl (1980), and Table 4, p.23, concerning population trends vs. land areas, but group does not figure in discussion nor in table showing traditional conservation measures p.98.]

379. [Govorov, K.A.], 1971. [See Appendix I.]


381. Graeffe, E., 1867. Reisen nach verschiedenen Inseln der Südssee. Das Ausland dem Gebeite der Natur-, Erd- und Völkerkunde 40: 1139-1144, 1159-1164, 1184-1191. [The first part gives no specific Ellice Islands material, the second and third present comprehensive descriptions of the islands' geography, flora, fauna, and population with sketch maps as follows: Nukulaelae as "Mitchells Inselgruppe" and "Nukulai" pp.1159-1162; Funafuti as "Ellis Inseln" and "Funafute" pp.1162-1164; Vaitupu pp.1184-1185; Nukufetau pp.1185-1186; Niutao pp.1187-1188; Nanumea as "St Augustine" or "Nanomea" pp.1188-1189, Nui pp.1190-1191. Numerous plant and animal species noted for the first time. The additional two references cited by Kraus (1969), Das Ausland dem Gebeite 41:529-553, 559-563 (1898), have no specific Ellice content and concern Uvea and Niufo'ou.]*


Bibliographies at end of each chapter little used in present compilation.**


387. Great Britain: Colonial Office, 1910-1962/63. Colonial report on Gilbert and Ellice Islands Protectorate/Colony. Various publishers, London. [Comments on aspects of the natural history, particularly the weather, soils, and filariasis, are scattered through these reports e.g., 1910, p.5, drought in northern Ellice islands; 1911, p.7, breaking of drought; 1916/17, pp.5-6, drought, soil analysis; 1916/17, p.10, visit of professor from Swedish University of Uppsala (= Dr. Sixten Bock); 1919/20, p.2, visit of O'Connor (q.v.); 1931/32, p.32, monthly rainfall figures; 1935, p.37, bibliography; 1949, pp.38-40, geography and climate.]*


394. Great Britain: High Commission, Western Pacific, 1919-a. Gilbert and Ellice Islands Colony Blue Book for the year from July 193-to 30th June 193-. High Commission for the Western Pacific, Suva. [Title varies with coverage. 1931-1932 edition includes population and areal statistics, meteorological data and comment. 1933-1934, 1934-35 and 1936 editions repeat some of these data or show "no return". Last edition "for years 1940 and 1941 incorporating figures for...years 1939-40 and 1940-41".]

395. Great Britain: High Commission, Western Pacific, 1919-b. Report on the medical service of the Gilbert and Ellice Islands Colony for the year 1919--19--. His Britannic Majesty's High Commission for the Western Pacific, Suva, c.11pp. [Includes reports and statistics on various diseases and ailments e.g. 1916-1917 report (1918): fish poisoning 13 cases, elephatisis 3 cases pp. 8-9; 1922-1923 report (1924): Stegomyia pseudocutellaris host in filariasis p.3. Some repetition from year to year. Title varies: becomes 'Gilbert and Ellice Islands Colony Medical and Sanitary Report for 19--' c.1926. Monthly rainfall figures for various islands from 1946 on. Postwar title becomes 'The Gilbert and Ellice Islands Colony Medical Department Annual Report for the year ending 31 December 19--' and, later, 'Annual Report of the Medical Department, Gilbert and Ellice Islands Colony'; report now mimeographed with reports and statistics as earlier but meteorological data discontinued.]

38 Technical Reports of the Australian Museum

differently e.g. Admiralty: Hydrographic Office.]


400. Grimsdale, T.F., 1952. CyC/oclypeus (Foraminifera) in the Funafuti boring and its geological significance. Occasional Papers, Challenger Society 2: 1-11. [Gives evidence that the rocks in the Royal Society boring were deposited on seaward flanks of reef under open sea conditions and suggests part of boring between 560 and 770 ft is talus.]

401. The Growth of Coral Islands, 1898. Natural Science 12: 223-224. [Comments on an address by Murray (Miscellaneous, 1898) to the Edinburgh Geological Society which postulated that the latest (= ?second expedition) boring has been sunk through talus, and also on Agassiz' (1900) Fijian observations.]


431. [Hedley, C., et al.] 1899. Summary of the fauna of Funafuti. In Etheridge (1896-1900), Australian Museum Memoir 3(8): 511-535. [This manuscript was prepared by Hedley as a preamble to his commentary (1899d), both intended to conclude the Memoir. Etheridge declined to let him publish the faunal list under his own name and returned 1899d for him to submit elsewhere. The summary includes fauna published in the preceding parts of the Memoir as well as those documented by workers using the collections of Sollas and Gardiner and earlier collectors. Taxonomic comment occurs throughout. The summary will not be repeated here.]*


438. Hickson, S., 1898b. Notes on collections of specimens of the genus Millepora obtained by Mr. Stanley Gardiner at Funafuti and Rotuma.


318. [Chelisoches morio from Ellice Islands p.313 ex-Borelli (1928). Includes bibliography.]

448. Holden, J.C., 1976. Late Cenozoic plant pp.37-38; Catochrysops lithargyrea pepe possibly on Nukufetau p.56.**


449. Holthuis, L.B., 1955. Recent genera of the pholidota rarik Liqur uveae acidula minuteus Poulton 1924, p.647; p.34; Precis villida villida from Nui, Nanumea, Nukufetau and on Funafuti ex Rainbow (1897a) pp.35-36, with Scaevola as food plant.]


452. Hopkins, G.H.E., 1927a. Butterflies of Samoa and some neighbouring island groups. In 'Insects of Samoa and other Samoan terrestrial Arthropoda' Part III(1): 1-64. British Museum (Natural History), London. [Danaida archippus feeding on Pemphis acidula on Nui and Vaitupu ("no previous records from Ellice Islands") p.7; Euploea eleutho not found in Ellice Islands in "typical form" p.11; E. e. distincta on Nui, Nanumaga, Niutao, Nukulaelae but not on Funafuti although suggests that possibly Whiteme's specimens are from there (an argument thought unlikely by compilers) pp.14-15; Hypolinnae bolina rarik dominant form in Nanumea, Nui, Nukulaelae, Nukufetau, Niutao and, possibly, Funafuti (ex Poulton 1924, p.647) p.34; Precis villida villida from Nui, Nanumea, Nukufetau and on Funafuti ex Rainbow (1897a) pp.35-36, with Scaevola as food plant pp.37-38; Catochrysops lithargyrea pepe possibly on Nukufetau p.56.]


460. Hoyle, W.E., 1904. Reports on the Cephalopoda: Being Part XXIX, Reports on the dredging operations off the West Coast of Central America to the Galapagos...1891 and Part V, Reports on the


462. Hull, A.F., 1909. The birds of Lord Howe and Norfolk Islands. Proceedings, Linnean Society of New South Wales 34: 636-693, 5 plates. [Cited by Bogert (1937) as 1910, p.34, it simply notes Ellice Islands lie in habitat range of *Eudynalis taiwensis*.]


467. [Ignatiev, G.M.], 1983. [See Appendix I.]

468. [Ignatiev, G.M.], 1979. [See Appendix I.]

469. [Ignatiev, G.M.], 1983. [See Appendix I.]


471. Im Thurn, E.F. (Sir), 1909. The western Pacific: Its history and present condition. Geographical Journal 34: 271-290. [Former Governor of Fiji and High Commissioner of the Western Pacific reviews exploration and exploitation of various island groups including observations on geography and natural history. Ellice Islands pp.282-284 et seq.]

472. [Ionin, A.C.], 1981. [See Appendix I.]

473. Iremonger, L., 1948. It's a bigger life. Hutchinson, London, 191pp. [Popular account of everyday life in Funafuti including visits to other atolls. Refers to Royal Society bore as "Hedley's bore". Scattered references to plants and animals particularly mosquitoes and other insect pests, including introduction of toads in attempt to control these pp.78-82, cf. Anonymous (1942).]

474. Island disintegrated by H-bomb blast. 1952. Pacific Island's Monthly 23(4) [=November]: 15. [Somewhat fanciful account of both the blast and the results of David's boring at Funafuti to a depth of 3000 (sic) feet in 1899 (sic) which failed "to reach the basic rock". Expresses concern that "these coral structures...probably could be shattered easily by an atomic blast." ]


listed from Ellice Islands, and see p.46 where A. (S.) aegypti and C. (C.) fatigans are listed as cosmopolitan Pacific species.]


479. Iyengar, M.O.T., 1959. A review of the literature on the distribution and epidemiology of filariasis in the south Pacific region. South Pacific Commission Technical Paper 126: 1-172. [Thoroughly annotated bibliography which updates South Pacific Commission (1954). Used in present compilation. Those items which Iyengar annotates as containing Ellice information and which the present compilers have not checked, are included separately herein.**


496. Johnston, P., 1984. Energy use and resources in the Pacific. Ambio 13(5-6): 322-326. [Electricity connected to 15% of households in Tuvalu in 1982; table showing electricity consumption and costs; zero hydropower resources; table showing forest cover 0%, coconut cover 84%; severe shortage of wood fuel, particularly on Funafuti; use of coconut waste as fuel.]


498. Jordan, K., 1928. Anthribidae. In 'Insects of South East Asia and the Pacific Region Information Letter no. 4: (unnumbered).]


501. Judd, J.W., 1904a. General report on the materials sent from Funafuti and the methods of dealing with them. In Bonney (1904a) 'The atoll of Funafuti' Section X: 167-185. [In the course of a general description of the main, 1114/ft boring, the following genera and species are noted throughout the text: Halimeda, H. opuntia, Lithothamnion, Heliopora, Madrepora, M. contecta, Montipora, Porites, Pocillopora, Aste ropeora, Lobophytum, Coeloria, Fungia, Cyphastraea, Seriatopora, Polytrema, P. planum, Sagenina, Amphestiegina, Calcarina, Tinoponus, Mililotina, Orbitolites, Globigerina, Sagenina, Spiroboris, Serpulae. Includes bibliography of publications resulting from expedition to date.]


503. Kackley, [-], 1943. Sanitary survey of Funafuti Atoll, Jan 20, 1943. [Summarised by Iyengar (1959, p.58) with extended abstract. Reports a microfilarial index of 10% among adult "natives".]

504. Kalinenko, V.V. & V.S. Medvedev, 1980. [See Appendix I.]

505. Kalinenko, V.V., V.S. Medvedev & I-U. A. Pavlidis, 1981. [See Appendix I.]


lineolata in and around Funafuti, Nukufetua and Niutao. 2739 skipjack and yellow fin tagged plus 708 buckets of bait in ten days "represent the only real source of data" for Tuvalu p.8.]


527. Kennedy, D.G., 1931. Field notes on the culture of Vaitupu, Ellice Islands. Memoirs, Polynesian Society 9: 1-326. [Incidental notes on animals and plants used in cultural activities throughout. A sea bird shown in a photograph (Fig. 71, plate 16), te kena, is claimed to be extremely rare.]


533. Kirkpatrick, R., 1900. Description of sponges from Funafuti. Annals and Magazine of Natural History ser.7, 6: 345-362, 3 plates. [Species include Astrosclera willeyana, Electroninia hindei n.sp., Clathrina depressa, Chondrilia mixta, Corticum candelabrum, Placinoophora spinosa n.sp., Placinastrella clathrata n.sp., Erylus monticularis n.sp., Cliona Schmidtii, Dysclonia n.gen., D. Davidi n.sp., Latrunculia clavigera n.sp., Tedania levis n.sp., Chondropsis ceratous n.sp., Pachychalina fibrosa, Luffariella variabilis, L. geometrica n.sp., Psammopentema purpureum, Stetrospongia cavernosus var. pyriformis, Polyfibrспongia Sweeti n.sp.]


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557. [Kondratov, A.M.], 1974a. [See Appendix I.]


563. Kruzenshtern, I.F. [Krusenstern, A.I. von], 1824-1835. Recueil de mémoires hydrographiques pour servir d'analyse et d'explication à l'atlas de l'Océan Pacifique. Department of Public Instruction, St. Petersbourg.[Resolves position of Nanumaga and Nanumea 1: 23-24, cf. La Perouse (1798), Purdy (1814), Duperry (1827, 1829), and see 1:11 for De Peyster's location of Funafuti and Nukufetau.]


572. Ladd, H.S., 1982. Cenozoic fossil mollusks from the western Pacific islands: gastropods (Eulimidae and Volutidae through Terebridae). U.S. Geological Survey Professional Paper 1171: 1-100. [Funafuti stratigraphic correlation within the Pacific shown p.5 Table 1. Marginella cf. M. (Granula) iota sole listing for Funafuti out of 261 species pp.9, 14, with four specimens recovered from drill cutting at 65 feet p.58, one from Harvard Museum of Comparative Zoology collection figured plate 37, fig. 26.]


578. Lagenbeck, R. 1897. Das Atoll Funafuti in der Ellice-Gruppe. Petermanns Mitteilungen 43: 190-192. [Review and summary of Etheridge (1896-1897, Parts I-V) and Sollas (1897b).]*


Tungavala 2(4): 3-4. [First of a series of four nature notes published in successive numbers and adapted from earlier series in *Atoll Pioneer* published October 1973 to January 1974. Mainly concerned with Gilbert observations but some comments appear to apply to entire Gilbert and Ellice Colony e.g. fairy tern nesting in *Pisonia grandis* 2(5): 3; neither greater frigate birds nor white-throated storm petrels observed nesting in Gilbert or Ellice Islands 2(7): 3.]

590. La Pérouse, J.F.G. de, 1798. A voyage around the world in the years 1785, 1786, 1787, and 1788, edited by M.L.A. Milet-Mureau. Translated from the French. J. Johnson, London, 3 vols: 532; 498; 446, 60pp. [Volume 1 reproduces the Spanish narrative of Don Francisco Maurelle's voyage of 1781 which includes his discovery of the location and description of Isla del Cocal (=Nanumaga) on 5 May and San Augustin (=Nanumea) on 6 May pp.408-410. Nanumaga is termed "Cocos I." on accompanying map facing p.352. Note "Maurelle" should be spelt "Moureille" (Chambers and Munro, 1980).]


Tuvalu but these are not indexed or referenced amongst insular phosphate occurrences pp.140-142.


596. Lee, G.W. & J.E. Brodie, [1981]. Drinking water quality in a number of South Pacific countries. [Institute of Natural Resources, University of the South Pacific, Suva.] 10pp. [Includes monitoring of drinking water quality on Vaitupu with 1 map and analyses for pH, Cl⁻, F⁻, NO₃⁻, Ca²⁺, Na⁺, total coliform, faecel coliform, Table 1 pp.2-5.]

597. Leeson, I., 1954. A bibliography of bibliographies of the South Pacific. Oxford University Press, London, 61 pp. [Published under the auspices of the South Pacific Commission, it contains various possible sources of material concerned with the Ellice Islands. The more obvious ones have been used here.]*

598. [Leontiev, O.K. & V.S. Medvedev], 1972. [See Appendix I.]


600. Letters. 1896. Nature 54: 517. [Brief note of failure of first boring at 65ft and second at 72ft (sic) but reports successes in other areas.]**


604. Lewis, N.D., 1983. Ciguatera - implication for nutrition and marine resource development in the Pacific islands. Journal, Societe des Oceànistes 39(77): 89-104. [Tuvalu statistics summarised Table 1, p.92, Table 5, p.98, and see discussion of high incidence pp.91-92.]


609. Lipman, C.B. & P.E. Shelley, 1924. The chemical composition of Lithothamnium from various sources. Carnegie Institution Papers, Department of Marine Biology 19: 195-199. [Comments on p.199 refer to data of "Hedley (1904)". This is presumably a misreference and could refer to Judd (1904b, pp.376-378).]**
610. [Lisitzin, A.P. & V.P. Petelin], 1970. [See Appendix I.]


615. [Lobovenko, N.V.], 1976. [See Appendix I.]

616. [Lobovenko, N.V.], 1980. [See Appendix I.]


and historical coverage of the Ellice Islands pp.36-41 and see table p.70, cf. Luke (1943a).]


623. Luomala, K., 1951. Logbook of a voyage to the middle of the earth. Pacific Discovery 4(2): 4-13. [Popular account of ethnological expedition to Tabiteuea including stops at Nukulaeae p.7 and Funafuti which she found dismal, repelling and depressing pp.7-8. Natural historical content is limited to the implication of a wrecked ecology at Funafuti post World War II.]

624. Luomala, K., 1953. Ethnobotany of the Gilbert Islands. Bernice P. Bishop Museum Bulletin 213: 1-129. [Average rainfall for each Ellice island in period 1924-30 p.8, otherwise notes on Ellicean fauna are mainly taken from earlier workers such as Maiden (1904).]


627. Ma, T.Y.H., 1957. The effect of warm and cold currents in the southwestern Pacific on the growth rate of reef corals. Oceanographia Sinica 5: 1-34. [Ma (1956,1957) are cited here by way of example of numerous papers by the same author on oceanography, corals, and reefs which make brief reference to the Funafuti corings. Further examples may be found in the bibliographies given at the back of Ma's papers.]*

628. Macdonald, B., 1982. Cinderallas of the Empire. Towards a history of Kiribati and Tuvalu. Australian National University Press, Canberra, 335pp. [While providing a comprehensive historical background on Tuvalu and its relationship with Kiribati, the book contains no natural historical content, but does have an excellent bibliography used in present compilation.]


643. McNaughton, J.G., 1919. Notes on filarial infection in the Gilbert and Ellice Islands. Journal of Tropical Medicine and Hygiene 22: 1-2. [A detailed census of infection in Ellice Islands with results from examining all 217 inhabitants of Funafuti (both Polynesians and Europeans); notes apparently infected hen, pigs and dog but see comments of O'Connor (1922, 1923) and Buxton (1928) on these results.]


645. McQuarrie, P., 1981b. Tuvalu - nine small islands in a big ocean. Hawaiian Shell News 29(12): 9. [Very brief general account mentioning Tridacna and Lambris as food. List Hedley's (1899) cowrie species: Cypraea arabica, argus, becki, caputserpentis, carneola, childrenei, cicerula, clandestina, cribraria, erosa, frimbriata, goodalli, isabella, lynx, macula (= gracilis), mappa, mauritiana, moneta, nucleus, obvelata, ovula, poraria, reticulata (= maculifera), scurra, talpa, testudinaria, tigris, vitellus. Seven additional species include: Cypraea aurantium, bistrinotata, depressa, eglantina, staphylaea, teres, ventriculus.]


647. Maddison, P.A., 197-a. Isoptera from Tuvalu. [Listed in Appendix 3 of UNDP/FAO (1979) 'Survey of agricultural pests and diseases. South Pacific: Cook Islands, Fiji, Gilbert Islands, Niue, Samoa, Tonga, and Tuvalu' (q.v.), as one of 100 documents prepared during the project but of limited distribution (60 copies). Not available to present compilers.]


pp.15-16, Admiral Wharton's coral reef theory p.16.]*


665. Marden, J.H., 1904. [Reference cited by Douglas (1969) as one of two giving the state of scientific knowledge of Ellice Islands. Should be Maiden (1904).]


678. Matthews, L.S., 1971. Heavy swell observed in the south Pacific in December 1969. New Zealand Meteorological Service Technical Note 196: 1-10. [Records from Funafuti, Niulakita and Nanumeta included with big swell on Niulakita reef (13-20ft) and in Funafuti lagoon noted pp.5-6.]

679. Matsumoto, W.M., 1966. Distribution and abundance of tuna larvae in the Pacific Ocean. Proceedings, Governor's Conference on Central Pacific Fisheries Resources, Honolulu, November 1966: 221-230. [Data for Ellice Islands' area included on map of Pacific showing totals of all types of plankton tows taken by Bureau of Commercial Fisheries Biological Laboratory Honolulu, 1950-64, pp.222, Fig. 1; similarly on map of locations of capture of skipjack tuna larvae 1949-64, pp.223, fig.2; yellow-fin tuna larvae 1949-64, pp.224, fig.3.]


681. Maude, H.E., 1953. The British Central Pacific


683. Maude, H.E., 1961. Post-Spanish discoveries in the central Pacific. Journal, Polynesian Society 70: 67-111. [Includes Ellice Islands pp.74-75, 92-93, 99-101; revised and enlarged in Maude (1968); confusion over Grand Cocal detailed pp.74-75. Several references cited were not available to present compilers for annotation.]


685. Maurelle, F.A. [=MourelIe], 1798. Narrative of an interesting voyage in the frigate La Princesa, from Manilla to San Blaz, in 1780 and 1781. [In La Perouse (1798,1799).]


690. May, J.M., 1953a. Study in human starvation: sources of selected foods. Atlas of distribution of diseases, American Geographical Society, New York, plate 8. [Ellice Islands shown on map 3 "Sources of carbohydrates" along with India, China, Japan and USA under broad heading "cotton seed, peanuts, soya, rape seed, sunflowers, olives, palm and copra."]


Atlas, plate 14
Spirochetal, relapsing, tick-and louse-borne: Atlas, plate 16


[Specimens from Ellice Islands include species of Camponotus Novae-Hollandiae p.66, Prenolepis vividula, Plagiolepis gracilipes p.78, Pheidole sexpinosa p.103, P. oceania p.105.]


709. Mergner, H., 1983. Initial recolonization of


715. Merrill, E.D., 1957. A botanical bibliography of the islands of the Pacific. In 'Studies of Pacific Islands Plants', Contributions from the United States National Herbarium 30: 1-322. [An enlargement of the two bibliographies above, it is easily accessed by use of the separate index (Walker, 1957) and has been used in present compilation.]*


722. Miscellaneous, 1898. Scottish Geographical Magazine 14: 100. [Report of lecture by Dr Murray to Edinburgh Geological Society on 19/11/98 expressing opinion that Royal Society boring confirms his theory and was sunk through talus. Photographic evidence was shown in support but not published, cf. The Growth of Coral Islands (1898).]

724. Molengraaff, G.A.F., 1917. The coral reef problem and isostasy. Koninklijke Akademie van Wetenschappen te Amsterdam. Proceedings 19: 610-627. ["Translated from the Dutch, somewhat revised and augmented". Funaftu atoll briefly discussed in an appendix which considers Daly's (1916b) paper, and see also p.613 where Funaftu boring is cited as indicating subsidence of "±3.40m" (sic).] *


731. Moresby, J., 1876. Discoveries and surveys in New Guinea and D'Entrecasteaux Islands: a cruise in Polynesia and visits to the pearl-shelling stations in Torres Straits of HMS Basilisk. Murray, London, 327pp. [Visit to Ellice Islands with notes on geography, coconuts, taro, etc pp.71-80. Failed to find Gran Cocal between Nanumea and Nanumaga due to confusion over location although extensive shoal reported between islands.]


recorded or described from a collection of "M. le docteur Graeffe" q.v.**


740. Munro, D., 1982. The lagoon islands: a history of Tuvalu, 1820-1908. Unpublished Ph.D. thesis manuscript, University of Macquarie Library, N.S.W., 323pp. [Includes bibliography containing an extensive list of primary unpublished sources such as official manuscripts, personal papers, ships' logs and journals not cited here. Secondary sources used in present compilation.]


743. Murray, J. & G.V. Lae, 1909. The depth and marine deposits of the Pacific: being part XII of Reports on the scientific results of the expedition...of the USS Albatross from August 1899 to March 1900 and part XVII of Reports on the scientific results of the expedition...of the USS Albatross from October 1904 to March 1905. Memoirs, Museum of Comparative Zoology 38: 1-170. [Observations on sea floor near Ellice Islands p.13; bottom sample from latitude 12° 43'S, longitude 179° 50'W (No. 53, Station 194) described p.101.]*

744. [Mutshoni, V.M.J.], 1974. [See Appendix I.]

745. [Naumov, D.V.], 1972a. [See Appendix I.]

746. [Naumov, D.V.], 1972b. [See Appendix I.]

747. [Naumov, D.V.], 1975. [See Appendix I.]


750. [Nekotorye], 1972. [See Appendix I.]


752. [New Zealand: Meteorological Service. For relevant Tuvalu/Ellice publications 1947-1985 see Rodgers and Cantrell (1987).]**

753. [Nikiforov, L.G.], 1975. [See Appendix I.]

from Nukufetau pp.20-22.]**


756. North, A.J., 1896b. Aves from Funafuti. [Includes notes on behaviour of Icerya aegyptiaca octasema (Egyptian fluted scale), recorded from Ellice islands in Australian Museum 3(4): 85-87. [Reviews literature, Society of Tropical Medicine and Hygiene 16: 28-51, particularly with respect to filarial problems.]

757. North, A.J., 1898. [Numerous references to Ellice Group pp.28-37, incallus 'Aspidiotus' (coconut scale insect), caerulea 'Agonoxena' (coconut leaf miners), absence of 'Promecotheca' (banana scab moth), 'Globicera' (coconut flat moth), absence of control of mealybug diseases. South Pacific.]


776. Patterson, [ - ], (Capt.) 1810. Naval Chronicle, 24(1810): 313. [Reports sighting of Nanumea, naming north-west islet Taswell’s Isle and southeast islet Sherson’s Isle.]


781. [Petelim, V.P.], 1960. [See Appendix I.]


784. [Petrov, Iu.E.], 1980. [See Appendix I.]

785. Pfeffer, G., 1884. Die Cephalopoden des Hamburger Naturhistorischen Museums. Abhandlungen, Gebiete der Naturwissenschaften, Naturwissenschaftlichen Verein in Hamburg 8(2): 63-90, 3 plates. [Loligo brevipinnis n.sp. from Ellice group p.65, fig.4 Plate 1, fig 4a Plate II. Note: double pagination system is used in this periodical. Those cited here are for total volume.]


792. Pocock, R.I., 1898. List of the Arachnida and "Myriopoda" obtained in Funafuti by Prof. W.J. Sollas and Mr Stanley Gardiner, and in Rotuma by Mr Stanley Gardiner. Annals and Magazine of Natural History ser.7, 1: 321-329. [Severely criticises Rainbow's (1897b) Buthus brevicaudatus (but see Sachet, 1953) and reports of the faunal results from the Sydney Museum being "issued with startling, if injudicious, rapidity" p.321. Other species noted from Funafuti include: Hormurus australasiae (= B. brevicaudatus), Ganypus longidigitatus (= Chelifer longidigitatus of Rainbow, 1897b), Otipium longiventris (= ?Obisium antipodum of Rainbow, 1897b, but see With, 1905) p.323, Araneus theis including several synonyms of Rainbow's spp., pp.323-4, Tetrabothrus popapea, Uloborus geniculatus, Heteropoda venatoria, Ascyclus pterygodes p.324, Scolopendra morsicans, Otostigmus astenon, Mecistocephalus punctifrons, Orphaneus phosphorus p.325, Tricocambela Sollasii n.so. pp.325-6]**


795. [Ponomareva, L.A. ed], 1980. [See Appendix I.]

796. Pont, A.C., 1968. The Diptera described by W.J. Rainbow from Funafuti Atoll, Ellice Islands. Proceedings, Royal Entomological Society of London (B)37: 89-90. [Establishes three synonyms and one new combination for Rainbow's four new types.]*


799. Powell, T., 1878. South seas - Tokelau, Ellice and Gilbert Groups. Chronicle of the London Missionary Society 1878: 197-202. [Records visit to Nanumea including use of limestone conglomerate as gods and "extraordinary supply of rain which has been granted to these sun stricken islands" p.202.]


glossary, bibliography, index.]


803. Prof Sollas FRS. 1896. Nature 53: 225. [Note on decision of The Royal Society to dispatch Sollas with £800 and a gunboat to make deep borings at Funafuti.]*


813. [Radzhkovskaya, M.A. & V.V. Leonteva], 1968. [See Appendix I.]


817. [Rass, T.C.], 1971. [See Appendix I.]


826. Rehder, H.A., 1982. Marine mollusks of some island of Polynesia. National Geographic Society Research Reports 14: 541-548. [Fieldwork in French Polynesia, Tubaui, Tokelau Islands and 4 days on Funafuti where some collecting was done on the lagoon shore near the hotel.]
827. Reid, R.K., 1986. Desperate Tuvalu selling trust to keep afloat. The Bulletin 108 (5514, April 15): 123. [Discusses plans to build sea walls to protect critical food garden areas to solve flooding threat consequent upon impending sea-level rise.]


834. Richardson, J., 1986a. The dawning of the Pacific. Islands Business 12(7): 10-16. [Amongst new evidence concerning prehistoric settlement of Pacific islands, mention is made of an underwater cave in Tuvalu which shows evidence of human habitation and would have been emergent 5000 B.P. p.11; ex Gibbons and Clunie (1986).]}


838. Ritchie, G.S., 1967. The Admiralty Chart: British naval hydrography in the nineteenth century. Hollis & Carter, London, 388pp. [Chapter 22 gives a sketch of Admiral Wharton, Hydrographer to the Royal Navy, 1884-1904, and a member of the Royal Society Coral Reef Boring Committee. Of HMS Penguin which carried the expedition and surveyed Funafuti atoll (cf. Creak, 1904; Edgell, 1951) it is noted that "of all the clumbungies with which the Survey Section has been saddled, the Penguin would be hard to beat for clumbunginess. She was everything she should not have been for special work..." pp.365-366.]


841. Roberts, R.W., 1941. A wander in the central Pacific. Pacific Islands Monthly 12(5 = December): 28-36. [Records visit to David's borehole site noting that, although "one of the most interesting spots in the world...There is nothing now to mark the site...except some coal-dust, and a bit of rusty iron...[and that]...some institution should put a stone tablet on the spot - in another 50 years it will be lost


849. Rooke, E., 1886. Reports of Commander Eustace Rooke, HMS Miranda of proceedings when visiting islands of the Union Group, the Phoenix Group, Sophia and Rotumah Islands, the Ellice Group and the Gilbert Group, April to July 1886. H.M. Government Printer, Sydney. [Includes reports on then condition of Niulakita p.9, Nukulaalai (sic) including note on fresh water and effect of March hurricane of 1886, Funafuti noting "at the back of the village there is a lagoon, in which at low tide plover and sandspine may be shot"..."Physique of natives below average; a good deal of 'ringworm' and 'elephantiasis'" p.10, Nukufetau noting "most species of fish are poisonous"..."very little 'ringworm' and no other diseases or deformities"..."At back of the village in the lagoon, the officers shot plover and curlew' pp.10-11, Vaitupu with 'No cases of 'ringworm' or 'elephantiasis' p.11, Nui noting 'some of the fish are poisonous'..."Very little 'ringworm', but a terrible amount of elephantiasis in all its forms' pp.11-12, Nanomanga (sic), Nanomea (sic) with none of the fish being poisonous here..."No ringworm, and only one or two cases of elephantiasis" p.12.]


854. Sachet, M-H., 1953. Scorpions on coral atolls. Atoll Research Bulletin 26: 1-10. [Includes Funafuti records of Pocock (1898), Rainbow (1898b), Buxton (1927), and Kopstein (1921). Discusses validity of Bathus brevicaudatus Rainbow and criticism of such by Pocock (1898).]*


858. [Samoilenko, V.S.], 1966. [See Appendix I.]


862. Schellenberg, A., 1938. Litorale Amphipoden des Tropischen Pazifiks. Kunglica Svenska Vetenskapsakademiens Handlingar. Tredje Serien, 16(6): 1-105. [Includes collections of Bock (Stockholm), Dahl (Berlin) and Pietschmann (Vienna). Ellice Islands specimens include Parannamixis bocki n.sp. from Nukufetau pp.29-30, Maera insignis from Niutao pp.50-52, Elasmopus gracilis n.sp. from Niue (sic) and Niutao pp.59-61, Eurytheus pacificus n.sp. from Nukufetau pp.80-82, E. digitatus n.sp. from Niue (sic) and Nukufetau pp.84-86, Grubia brevidactyla from Niutao and Niue (sic) p.86. Table of species described pp.96-98 combines Ellice and Gilbert fauna.]

863. Schilder, F.A. & M. Schilder, 1944. Westpazifische Cypracea von den Forchungs reisen des Prof. Dr. Sixten Bock. Arkiv for Zoologi 36A(2): 1-32. [Ellice records summarised by atoll p.3 and by species pp.5-7, include Mauritia (Arabica) depressa depressa (Nukufetau lagoon), Lyncina lynx caledonica (Nanumea), L. vitellus polyneiae (Niue (sic) lee coast), Monetaria (Ornamentaria) annulus neneensis (Nukulailai lagoon, Nukufetau lagoon), M. (Monetaria) moneta bntethelemyi (Nukulailai lagoon, Nukufetau lagoon, Niue (sic) windward and leeward coasts, Niutao outer reef and see pp.19-22, Naria irrorata (Niue (sic) windward coast = sole Pacific record), Erosaria (Ravitora) helvola calisita (Nukufetau lagoon), E. (R.) caputerpentis argentata (Nukufetau lagoon), Palmadusta (P.) clandestina candida (Vaitapu lagoon).]


871. Schmaltz, J.D.G., 1869-1877. Catalog Museum Godeffroy 4-6. [Topographic and biological notes on "Ellice Gruppe order Funafute" (Spatangus identical to that found in Fiji, Amphioxus, Millepora, Fortes, "Pelagische seethiere"), "Vai-tupu oder Oaitapu, auch Tracy-Island" (pulmonates, Echinometra oblonga, Birgus latro), "Naukia", "Nana-mea oder St. Augustin", "Nuie oder Egg Island, auch


874. Schofield, J.C. 1973. Postglacial sea levels: evidence from the Gilbert and Ellice Islands, west central Pacific Ocean. 9th Congress of International Union for Quaternary Research, Christchurch 1973, Abstracts: 314. [Three transgressions are recognised: +1m 1190 B.P., +0.7m 1540 B.P., +2.25m 2880 B.P.]


876. Schofield, J.C., 1977b. Effect of late Holocene sea-level fall on atoll development. New Zealand Journal of Geology and Geophysics 20: 531-536. [Cites recent evidence supporting David and Sweet (1904) and Gardiner (various dates) concerning atoll development.]


878. Scientific News, 1898. American Naturalist 32: 64. [8 line account of Royal Society drilling to 557ft. Results regarded as inconclusive.]

881. Semeniuk, V., 1971. Subaerial leaching in the limestones of the Bowan Park Group (Ordovician) of central western New South Wales. Journal of Sedimentary Petrology 41: 939-950. [Illustrates how textures obtained by subaerial leaching are similar to some of those described by Cullis (1899,1904).]*

882. [Semenov, G.A. & A.G. Gainanov], 1974. [See Appendix I.]


884. Setchell, W.A., 1926b. A botanical view of coral reefs, especially those of the Indo-Pacific region. Proceedings, 3rd Pan-Pacific Science Congress, Tokyo, II: 1837-1843. [Details the main findings of the Royal Society expeditions to Funafuti concerning the importance of nullipores as reef formers pp. 1839-1840. Concludes "that the Funafuti reef has not suffered subsidence" p.1841].*

885. Setchell, W.A., 1928. Coral reefs as zonal plant formations. Science 68: 119-121. [Reinforces view that "so called 'coral' reef is a biological formation controlled and moulded into zonal form by its plant symbionts." Details evidence from Royal Society findings at Funafuti].*


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917. Sollas, W.J., 1905. The age of the earth. Fisher Unwin, London, 328pp. 2nd impression, 1908. [Funafuti discussed in depth although much is from his earlier accounts, especially (1899) and (1904) pp.82-132. Includes recent elevation, ocean beach, submarine slopes, theories, background to expedition logistics, topography of islets and reef, the people, the core itself, discussion of Agassiz' (1903) suggestions on Funafuti, especially the talus hypothesis and comparisons with Tyrolean dolomites (Skeats, 1905).]*

918. Sorby, H.C., 1904. Note on the coral rock of
Funafuti. In Bonney (1904) 'The atoll of Funafuti' Section XIII: 390-391.*


923. South Pacific Commission, 1975-. Select list of publications of the South Pacific Commission 1975-. South Pacific Commission, Noumea. [Unannotated, unindexed. Used in present compilation.]

924. South Pacific Commission, 1980. Joint SPC/NMFS Workshop on marine turtles in the tropical Pacific islands, Noumea, New Caledonia, 11-14 December 1979. South Pacific Commission, Noumea, 16pp. [Green turtle (Chelonia mydas) and hawksbill (Eretmochelys imbricata) noted from Tuvalu waters. 'Numbers are declining and some protection is thought necessary' p.9.]


932. Southard, S.L., 1835. [Secretary of the Navy. See Reynolds (1835).]


935. Spengel, J.W., 1904. Neue Beiträge zur Kenntniss der Enteropneusten. II. Psychodura flavus von Funafuti (Ellice-Gruppe). Zööologische Jahrbuch Abteilung Systematik 20: 1-18, 13 figs. [P. f. funafutica is described in detail from specimen collected by Hedley and contrasted with P. f. caledoniensis and P. f. laysonica (Hill, 1897a,b).]**


939. Steers, J.A., 1932. The unstable earth: some recent views in geomorphology. Methuen, London, 341pp. [In chapter VI, "Coral reefs and coral islands", the Funafuti boring is summarised and commented on in some detail including a commentary on other commenters such as Agassiz, Daly, Skeats, pp.287-291, 309 (footnote). The island and its reefs are described pp.311-316.]


943. Stevenson, R.L. (Mrs), 1914. The cruise of the Janet Nichol among the south sea islands. A diary of Mrs Robert Louis Stevenson. Charles Scribner's Sons, New York, 189pp. [Includes visit to Funafuti but offers little of natural historical content.]

944. Stewart, J.Q., 1945. Coasts, waves and weather. Ginn & Coy, Boston. 348pp. [A book for navigators indexed by Sachet and Fosberg (1955) as containing Ellice material who note that most of the information has been extracted from the Pacific Islands Pilot. However, it has no Ellicean content.]


946. St John, H., 1952. The distribution of <Pisonia grandis> (Nyctaginaceae). Webbia 8: 225-228. [Ellice Islands included in range on Fig. 1 p.227 and


950. Stuart, T.P.A., 1984. Expedition to bore an atoll in order to determine the formation of coral. Journal and Proceedings, Royal Society of New South Wales 28: 2-5. [A member of the Coral Reef Boring Committee of the Royal Society, Stuart gives background on the aims and objects, the people involved, and how the choice of island to be bored had been narrowed to Funafuti or one of the Northern Maldives.]

951. Successful Boring at Funafuti, 1897. Geographical Journal 10: 640. [Reports that a depth of 643ft has been reached giving "a striking confirmation of Darwin's theory."

952. Swezey, E.D., 1897-1918. La face de la terre. 3 vols. Armand Colin, Paris. [Apart from a footnote, II: 539, the dolomitization of the Funafuti rocks is discussed in reference to the Alps, III: 820-823.]*


964. Thompson, J.A. (Sir), & M.I. Dean, 1931. The Aleuonacea of the Siboga Expedition with an addendum to the Gorgonacea. Siboga-Expeditie Uitkomsten op Zoologisch, Botanisch, Oceanographisch en Geologisch Gedied...Nederlandsch Oost-Indie, 1899-1900, 8(13d): 1-327. [Lobophytum crassum and Lobophytum hedleyi (cf. Whitelegge, 1897c) accepted as distinct species pp.65-69.]*


966. Todd, R., 1960. Some observations on the distribution of Calcarea and Baculogypsina in the Pacific. Science Reports of Tohoku University, ser.2 (Geology), special volume (4): 100-107. [Data of Chapman (various dates) used to establish vertical and horizontal limits of spp.]*


970. Tropicalities. 1933. Pacific Islands Monthly 5(5) [=December]: 8. [Notes blasting of boat passages through reefs of Vaitupu and Nui.]


973. Tsuda, R.T., 1976. Occurrence of the genus Sargassum (Phaeophyta) on two Pacific atolls. Micronesica 12: 279-282. [...after 22 years no species of Sargassum has been found in...the Marshall, Gilbert, Elllice, Line, Phoenix and
Tokelau Islands... This central region may prove to be an important biotic province p.281.]*

974. Tsuda, R.T., & F.O. Wray, 1977. Bibliography of marine benthic Algae in Micronesia. Micronesica 13(1): 85-120. [Includes Ellice Islands. The bibliography lists: I. Classification of Micronesian Algae; II. Alphabetized checklist of all reported species; III. Listing of all atolls from which Algae have been reported; IV. References. II and III are keyed to IV. Does not incorporate all algal references used in this compilation.]*


976. Tudor, J., 1966. Many a green isle. Pacific Publications/ Minerva, Auckland, 256pp. [Comments on post-war malaise of Funafuti pp.219-225 are relevant to those of Luomala (1951).]

977. "Tui Navosa", 1946. Foretellers of ships. Pacific Islands Monthly 14(7) [February]: 42. [Gives resumé of Ellice Islands, their love affair with visiting ships and the taming of frigate birds - using them for message carrying.]


979. Turbott, I.G., 1949. Dicts, Gilbert and Ellice Islands Colony. Journal, Polynesian Society 58: 36-56. [Includes a brief introduction to the botany and soils of the Ellice Group with notes on plants and animals used for food including Polynesian and some systematic names of these. Average weekly quantities used on Nukufetau are listed.]


990. [Udintsev, G.B.], 1960. [See Appendix I.]

991. [Udintsev, G.B.], 1972. [See Appendix I.]


996. U.S. Board on Geographic Names, 1956. Southwest Pacific: Official standard names approved by the U.S. Board on Geographic Names. Gazetteer (Office of Geography, Department of Interior) 29: 1-368. [Latitude, longitude and place names including many former names given for all Eilice atolls pp.299-302.]


Printing Office, Washington, 58pp, 4 maps. [Six mined entrances and 3 safe entrances to Funafuti atoll noted, p.10. Area 2, 2-8 and chart H.O.110. Information identical to United Kingdom, Ministry of Defence, Hydrographic Department (1968).]

999. University of the South Pacific Library, Pacific Information Centre and South Pacific Environmental Programme, 1983. Environmental issues in the South Pacific: a preliminary bibliography. Suva. [Cites 7 entries with Tuvaluan content used in present compilation.]


1006. [Vilenkin, B.Ya.], 1977. [See Appendix I.]


1011. Waite, E.R., 1897. The mammals, reptiles and

1012. Waite, E.R., 1899. The fishes of Funafuti: Supplement. In Etheridge (1896-1900), Australian Museum Memoir 3(9): 539-546. [Detailed description of 'Palu', Ruvetus pretiosus obtained by ALfred Finckh during the 1898 expedition pp.539-544; also recorded Epinephelus fascioguttatus, Grammistes sexlineatus, Zanclus comutus, Salaria periophthalmus, Platypops pontherillus, Tetrodon margaritatus, pp.545-546.]**


1015. Ward, R.G., 1967a. American activities in the central Pacific 1790-1870. Vol.2. Gregg Press, Ridgewood, N.J., 596pp. [Includes transcripts of logs and newspaper reports concerned with Ellice Islands (pp.269-271) and Funafuti (pp.564-566). Extracts: Nantucket Inquirer 25 Nov. 1826 (identical report New Bedford Mercury 1 Dec. 1826; similar reports Salem Gazette 30 Nov.1826 and Boston Courier 2 Dec. 1826 but with variation in longitude of some readings) giving memo of office of whaling ship Loper concerning 'Loper's Island' (=Niutao) and 'Tracey's Island' (= Vaitupu); Independent Chronicle and Boston Patriot 9 Feb. 1820 (identical report in Boston Commercial Gazette 10 Feb. 1820; similar report in Repertory 8 Feb. 1820) giving letter of De Peyster with position of "Ellice's Group" (=Funafuti) and 'De Peyster's Islands' (=Nukufetau) and reason for names.]


1017. Ward, R.G., 1983. Agriculture, size and distance in south Pacific island futures. Formal Proceedings, 15th Pacific Science Congress, Dunedin, 1983: 103-109. [‘The atolls of Tuvalu ...lack surface water, have little soil, and lie exposed to the risk of tsunami or hurricane. Their range of crops is inevitably narrow’ p.104;... ’Tuvalu [has] a very impoverished land resource. On the other hand, extensive lagoons and the reefs are productive’ p.105 and cf. p.109.]


1021. Watts, A.B., J.H. Bodine & N.M. Ribe, 1980. Observations of flexure and the geological evolution of the Pacific Ocean basin. Nature 283: 532-537. [Tuvalu lies in area of inferred Pacific plate volcanism occurring 90-120M yr B.P. (Fig. 5) but archipelago is not specifically discussed.]


1028. Wetmore, A., 1919. A new cuckoo from New Zealand. Proceedings, Biological Society of Washington 30: 1-2. [Attempts to separate off New Zealand specimens as being a distinct subspecies from Urodynamis taitensis taitensis for which a specimen from Funafuti is taken as one of representative threesome.]

1029. Wharton, W.J.L., 1897. Foundations of coral
atolls. Nature 55: 390-393. [Regrets lack of success in boring (first Royal Society expedition), but comments on successful soundings by HMS Penguin around various banks and atolls.]*


1032. White, W.C. & O.N. Warin, 1964. A survey of phosphate deposits in the south-west Pacific and Australian waters. Bulletin, Bureau of Mineral Resources, Geology and Geophysics 69: 1-173. [Includes description of deposits on Nui (3000 tonnes @ 10-15% P₂O₅), Nukafetau (5,000 tonnes @ 15% P₂O₅) and Vaitupu (10,000 tonnes @ 10-15% P₂O₅), as well as minor deposits found at Nukulaelae, Nitao and Nanumanga pp.86-95. Origins of deposits discussed pp.96-97, 156-158, and cf. pp.16-21 for general background.]


1042. Whitnell, S.J., 1872. Notes on atolls or lagoon-islands. Quarterly Journal, Geological Society of London 28: 381-382. [Evidence for “upward movement” cited from Funafuti. Note date: Darwin was still alive and expressed interest in these findings; see discussion after paper.]*


1052. With, C.J., 1905. On Chelonethi, chiefly from the Australian region in the collection of the British Museum, with observations on the "coxal sac" and


1056. Woodford, C.M., 1895. The Gilbert Islands. Geographical Journal 6: 325-350. [Questions reported population of islands by United States Exploring Expedition, giving Nukufetau as example p.344. Quotes Turner (1844) concerning tame frigate birds as letter and fish hook carriers, footnote p.347. Enumerates species of moths taken in Gilbert group and Nukufetau as described by Butler (1885) and, in recording Renigia translata and Chioanges suralis from Ellice Group p.350, notes that they probably travelled to Gibbets via Marshalls and hence "on to the Ellice Group" pp.348, 350.**


1060. Woodroffe, C.D., 1985. Vegetation and flora of Nui Atoll, Tuvalu. Atoll Research Bulletin 283: 1-18, 6 figs, 8 plates. [Most detailed survey of botany from any Tuvaluan atoll published to date, includes vegetation maps of each islet. Species recorded include Asplenium nidus, Artocarpus altilis, Pipturus argenteus, Laportea nuderalis, Pteris tripartita, Psilotum nudum, Acranthys, Acalypha grandis, Taec leontopetaloides, Cyrtosperma chamissonis, Colocasia esculenta, Alocasia macrorrhiza, Xanthosoma saggitifolium, Jussiaea suffruticosa, Elcocharis gemiculata, Cyperus javanicus, Crinum asiaticum, Plumeria sp., Hibiscus sp., Stenotaphrum micranthum. Association of woodlands of Pisonia grandis and Hernandia peltata with areas containing large concentrations of phosphate noted p.11; Asplenium nidus also often present; similar association observed in Tokelau, Onotoa and Kiribati p.13.]


1063. Woodward, M.F., 1900. [Exhibit]. Proceedings, Malacological Society 4(2): 102. [Specimen of Onchidium from Funafuti shown at meeting of 09/03/00. Referred to by Bretsnall (1919).]


lists, especially, p.509.]*


1068. Yonge, C.M. 1951. The formation of coral reefs. Endeavour 10: 136-144. [Reference to several examples, including Funafuti.]*


1076. Zann, L.P., 1980c. Tuvalu's subsistence fisheries. Institute of Marine Resources, University of the South Pacific, Suva, 16pp, 6pp. app. (Effects of energy crisis on small craft and fisheries in the South Pacific: Report 4.) ["The reef platforms examined on Funafuti, Nui and Nanumea were impoverished in coral and other invertebrates. On Nanumea all the micro-atolls of Porties on the reef top were dead, indicating a recent elevation of the land by about 0.5m." Lists fish preferences, dangerous and venomous fish, fishing techniques, etc. Fish genera and species include: Ruvettus, Pritipomoides, Elegatia, Lutjanus bohar, Acanthocybium, Epinephelus spp.; molluscs: Spondylus, Tridacna, Strombus luhanus, Donax, Atactodea, Periglypa, Nerita, Planaxis, Pinctada, Cypraea tigris; crustacea: Geocarcinus. Appendix gives comprehensive list of Tuvaluan animals with both systematic and vernacular (English and Tuvaluan) names as follows: fish: Sphyra, Alopia, Galeocarda, Caracharinus, Melanopterus, C. ssp., Taenodon, Issus, Gingy mastoma, Manta, Dasyatidas, Aetobatus, Himantura, Dasyatis, Albula, Chanson chansen, clupids, Chirocenturs dorab, Saurida, Plotosus anguillaris, Gymnotharax, Echidna nebulosa, Exocoetus, Fistularia, Hemirampaidae, Tylorus, Pleuronectiformes, Aulostomus, Myripistes, Holocentrus, Adiorx, Vanola louti, Epinephelus hexagonatus, E. merra, E. melanostigma, E. tauvina, Plectropomus lanceolatus, P. leopardus, Cephalopholis urodclus, C. argus, Grammistes soxlineatus, Kuhlia, Sphyrena forsteri, Makaira, Xispia, Isthionoph, Prometheus, Neothunnus macroplerus, Gymnosarda urobula, Euynhichus alletteratus, Katsuwonous pelamis, Acanthocybium, Rastrelliger, Scomberomorus, Trachinotus bailloni, Coryphaena hippurus, Gnathodon speciosus, Carynx ignobilis, Carangoides ferdus, Caranx elacate, C. lugubris, C. melanopteris, C. sexfasciatus, Chorinemus tol, Decapterus]


1078. Zann, L.P., [1983]. Traditional management and conservation of fisheries in Kiribati and Tuvalu atolls. Institute of Marine Resources, University of the South Pacific, Suva, 42pp. [Discusses social factors promoting conservation, traditional fishing knowledge and sea lore, famine foods, status foods, taboos on marine animals, which in Tuvalu include rays, sharks, octopus (for those of Samoan descent), dolphins.]

1079. Zann, L.P., 1983. Man and atolls: Traditional utilization and conservation of marine resources and recent changes in Tuvalu and Kiribati. Programme Abstracts, Pacific Science Association 19th Congress, Dunedin 2: 262. [Discusses new and intense pressures on fragile atoll ecosystems and reasons for this. A typescript of this paper dated 3 Feb 1983 is held in Library, University South Pacific. It refers to numerous species but gives systematic names and provenance in only a few cases.]


1081. Zann, L.P. & L. Bolton, [1984]. The distribution, abundance and ecology of the blue coral Heliopora coenulea (Pallas) in the Pacific. Institute of Marine Resources, University of the South Pacific, Atoll Research Unit, Tarawa Atoll, Republic of Kiribati, 25pp. [Includes studies in Funafuti, Vaitupu, Nui and Nanumea where the coral is particularly abundant as a component of beach gravel.]


1083. [Zdororemin, V.V. & G.B. Udintsev], 1970. [See Appendix I.]


1085. [Zenkevich, L.A.], 1969. [See Appendix I.]

1086. [Zenkevich, V.P.], 1967. [See Appendix I.]

apparently consist chiefly of palms p.954.


Appendix 1
Recent Soviet Literature in Russian

11. [Aksenov, A.A.]

12. [Aksenov, A.A.]
Aksenov, A.A., 1975. Последствия тайфуна на атолле Funafuti. [Consequences of a hurricane on the atoll of Funafuti.] Островные шельфы тропической зоны океана. Новые экспедицион. исслед. сообщ., материалы. Инт. океанологии им. П.П. Ширшова АН СССР. [In 'Island platforms in the oceanic tropic isles.'] Expedition research reports, Akademia Nauk S.S.S.R., Institut Oceanologii imeni P.P. Shirshov] 1: 166-186, bibl: 3 refs. [Includes observations on the structure of the atoll and a study of reef biocenoses.]

13. [Aksenov, A.A. & I.M. Belousov]

42. [Basilov, V.N. & N.A. Marova]
Basilov, V.N. and N.A. Marova, 1972. Экспедиция в Океан [Expedition to Oceania]. Земля и Вселенная [Zemlia i Vselennaya = Earth and the Universe] 6: 61-67. [Includes comments on biology of Ellice Islands.]

62. Bczruckov, P.L.
Bebrukov, P.L., 1969. Микрофлора и микрофауна в современных осадках Тихого Океана. [Microflora and microfauna in the recent sediments of Pacific Ocean.] Тихий Океан (В.Г. Корт, гл. ред.) 8: 1-203. Наука, Москва. [Pacific Ocean (ed V.G. Kort) 8: 1-203. Nauka Publishing House, Moscow.] [Samples collected from Tuvalu region discussed in text along with earlier work e.g. Chapman (various dates) pp. 11, 18, 26, 80, etc.]

72. [Bogorov, V.G.]
Bogorov, V.G., 1967. Биологическая исследования Тихого океана. Книга 1: Планктона. [Geology of the Pacific Ocean. 1: Plankton.] Тихий Океан (В.Г. Корт, гл. ред.) 7(1): 1-268. Наука, Москва. [Pacific Ocean (ed V.G. Kort) 7(1): 1-268. Nauka Publishing House, Moscow.] [Data from plankton samples collected in Tuvalu region (fig. 1, p. 52) appear to have been used in preparing some figures illustrating the general synthesis e.g. phytoplankton figs. 10, 11, pp. 72-73; primary production fig. 13, facing p. 86; biogeographical distribution figs. 32-40, pp. 132, 133, 135, 136, 144, 148, 157, 158; deep scattering layers fig. 51, p. 218.]

103. [Brujewicz, S.W.]
Brujevich, S.W., 1966. Химия Тихого океана. [Chemistry of the Pacific Ocean.] Тихий Океан (В.Г. Корт, гл. ред.) 3: 1-360. Наука, Москва. [Pacific Ocean (ed V.G. Kort) 3: 1-360. Nauka Publishing House, Moscow.] [Chemical data from Tuvalu region included in various figures and tables e.g. pp. 50, 52, 54, 64, et seq., 266 et seq.]

116. [Butinov, N.A.]

117. [Butinov, N.A.]

333. [Galerkin, L.I.]
Galerkin, L.I., 1968. Сезонные колебания уровня. [Seasonal sea level oscillations.] Тихий Океан (В.Г. Корт, гл. ред.) 2: 290-356. Наука, Москва. [In 'Hydrology of the Pacific Ocean' (ed A.D. Dobrovolsky), being 'Pacific Ocean' (chief ed V.G. Kort) 2: 290-356. Nauka Publishing House, Moscow.] [Hydrographic data from Ellice/Tuvalu region included in several figures e.g. fig. 149, p. 292.]

376. [Golikov, A.N., E.V. Kroson, L.I. Moskalev and D.V. Naumov]
[Comparative ecological analysis of some biocenoses of the upper parts of island shelves in tropical waters of the western Pacific.]

Океанология [Oceanology (transl. American Geophysical Union)] 1: 158-172. [The average reef biomass of corals reaches 4.7 kg/m2 (67%), other animals amount to 3% and plants 30% of total benthos biomass per m2 at Funafuti pp. 124-5, fig. 2 and cf. fig. 7, p. 130, figs. 8 & 9, p. 131, fig. 10, p. 132.]


Голиков, А. Н., Д. В. Наумов, С. В. Краснов, и Л. И. Москапев, 1972. Некоторые закономерности распределения и структуры биоценозов верхних отделов островных шельфов тропических широт западной части Тихого океана [Some regularities in the distribution and structure of biocenosis of the island shelves in the higher tropical latitudes of the western Pacific.]

Отчет. Науч. сессия по итогам работ за 1971 год Экол. инт. АН СССР. Тез. докл. Л., [Академия Наук СССР. Зоологический институт Тезисы докладов, Ленинград (Report of scientific proceedings of results for the year 1971): 10-11. [Includes research in Ellice Islands by Dimitry Mendeleev.] ¶

379. [Govorov, K.A.]

Говоров, К.А., 1971. Океания: физико-географическая характеристика. [Oceania: physical geography characteristics.] М., Мысль. 197 pp., illus., bibl.[Geology and geography of the Ellice Islands summarised pp. 17, 152-153.] ¶


Гусев, А.М., Л.К. Мoiseев, и А.И. Немытов, 1980. Прибрежная ветровая циркуляция вокруг островов и атоллов. [The coastal wind circulation around islands and atolls.] Биологические и геологические исследования в островных регионах западной части Тихого океана. Тр. Ин-т Океанологии АН СССР [Biological and geological research in the island regions of the western Pacific; (ed L.A. Ponomareva), Akademia Nauk S.S.S.R. Institut Okeanologii, Trudy] 90: 198-218. [Leningrad Public Library provided this reference as containing Ellice content but the present compilers failed to find any relevant material.]

467. [Ignatiev, G.M.]


468. [Ignatiev, G.M.]

Игнатьев, Г.М., 1979. Тропические острова Тихого океана [Tropical islands of the Pacific.] М., Мысль. [Мысль, Moscow] 270 pp., illus., bibl. [Includes description of geology of Tuvalu.] ¶

469. [Ignatiev, G.M.]


472. [Ionin, A.C.]

Ионин, А.С., 1981. Роль хемогенных процессов в рельефообразовании прибрежно-шельфовой зоны тропиков. [The role of chemogenic processes in the formation of coastal shelf relief in the tropical zone.] Континентальные и островные шельфы: Рельеф и осадки. М. [In 'Continental and island shelves: relief and sediments', Moscow] pp. 216-251. 9 refs.[Includes account of geological research in Funafuti.] ¶

504. [Kalinenko, V.V. & V.S. Medvedev]

Калиненко, В.В. и В.С. Медведев, 1980. Литолого-фациональные особенности карбонатных отложений тропических островов Тихого океана. [Lithologic facies characteristics of the carbonate deposits on tropical islands in the Pacific Ocean.] Биологические и геологические исследования в островных районах западной части Тихого океана. Тр. Ин-т Океанологии АН СССР. [In 'Biological and geological investigations of the island regions of the west Pacific' (ed L.A. Ponomareva), Akademia Nauk S.S.S.R. Institut Okeanologii, Trudy] 90: 117-140. [Detailed description of Funafuti atoll and lagoon based on researches of Dimitry Mendeleev, 1971, pp. 124-126. Fig. 2 shows cores collected along a line of section across the lagoon close to that sampled by Finck and Halligan (in David, Halligan and Finckh, 1904) although no reference is made to this earlier work. Dissolved oxygen in Funafuti lagoon = 2.0 - 4.5 ml/l vs. ocean = 5.0 - 5.5 ml/l and phosphorus in lagoon = 0.25 - 0.94 mkg vs. ocean 0.42 - 3.10 mkg p. 136.]

Tuvalu, bibliography 97
505. [Kalineko, V.V., V.S. Medvedev & I.U.A. Pavlidiis]
Каллине́ко, В.В., В.С. Медведев и Ю.А. Павли́дис, 1981. Карбонатные отложения пляжей тропических островов и особенности их формирования. [Carbonate deposits of the tropical island beaches and specific characteristics of their formation.]
Континентальные и островные шельфы: Геофа и осадки. М. [In 'Continental and island shelves: relief and sediments'. Moscow.] pp. 187-216, 11 refs. [Includes lithological and geomorphological research in Tuvalu.]

506. [Kaplin, P.A.]
Капли́н, П.А., 1975. Террасы океанических островов тропической зоны. [Terraces of oceanic islands in the tropical zone.]
Островные шельфы тропической зоны океана. М. [In 'Oceanic platforms in the oceanic tropical zone.' Expedition reports, Akademia Nauk S.S.S.R., Institut Oceanologii imeni P.P. Shirshov] 1: 134-148. [Includes observations on Funafuti's geology.]

507. [Kaplin, P.A. & V.S. Medvedev, eds.]
Каплик, П.А. и В.С. Медведев (отвред. ), 1973. География атоллов юго-восточной части Тихого Океана. [The geography of atolls in the South Pacific.]
АН СССР Океаногр. комис. М., Нauка [Oceanographic Commission, Academy of Science, U.S.S.R. Moscow, Nauka.] 142pp., illus., bibl: 80 ref. [Biological and geology of the Ellice archipelago is described.]

557. [Kondratov, A.M.]
Кондратов, А.М., 1974а. Загадки Великого Океана. [Mysteries of the Pacific Ocean.]
L., Гидрометеоиздат. [Hydrometeorizdat, Leningrad.] 223 pp., illus. [Geophysics of the Ellice Islands pp. 103, 107, 112, 122-3.]

560. [Kort, V.G. (ed.)]
Корт, В.Г. (главред.), 1966-1974. Тихий Океан [Pacific Ocean], М., Наука [9 vols. Nauka Publishing House, Moscow.] [Contains reviews as well as new data concerned with meteorology (vol. 1), hydrology (vol. 2), ocean chemistry (vol. 3), shores (vol. 4), sea floor and tectonics (vol. 5), sediments and sedimentation (vol. 6), biology (vol. 7), microflora and microfauna (vol. 8), geophysics (vol. 9); cf. Bezrukov, Bogorov, Bruevich, Galerkin, Lisitzin and Peterlin, Radzikovskaya and Leonteva, Samoilenko, Udintsev, Zenkevich (1969), Zenkovich (1967).]

561. [Kort, V.G. & S.S. Sal'mikov (eds.)]
[In 'Island platforms in the oceanic tropical zone.]
[Includes observations on Funafuti's geology.]

598. [Leontiev, O.K. & V.S. Medvedev]
Леонтьев, О.К. и В.С. Медведев, 1972. Эволюция атоллов Тихого океана.
[Evolution of Pacific atolls.]
Природа [Priroda] 9: 80-87. [General description of geomorphology and evolution of Funafuti pp. 82-84, map 85, including mention of Royal Society boring.]

610. [Lisitzin, A.P. & V.P. Petelin]
Лиситцин, А.П. и В.П. Петелин, 1970. Коралловые рифы и связанные с ними осадки.
[Coral reefs and related sediments.]
Тихий Океан [В.Г. Корт, гл.ред.] [In 'Sedimentation in the Pacific Ocean' (ed P.L. Bezrukov), being 'Pacific Ocean' (chief ed V.G. Kort)]: 69-106. Nauka Publishing House, Moscow. [Hinde's (1904) descriptions of Funafuti cores mentioned briefly p. 72, 75 and see fig. 37, p. 79. Borings discussed in a little more detail p. 92 and see fig. 44, p. 93.]

615. [Logvinenko, N.V.]
Логвиненко, Н.В., 1976. Бич-рок некоторых островов Тихого Океана. [Beach rock of some islands in the Pacific.]
Литология и палеография [Litologia i paleografia] 2: 133-147, 11 refs. [Includes descriptions from Funafuti.]
746. [Naumov, D.V.]

747. [Naumov, D.V.]

748. [Naumov, D.V., M.V. Propp, and S.N. Rybakov]

750. [Nekotorye . . .]

753. [Nikiforov, L.G.]

751. [Petchlim, V.P.]
Petchlim, V.P., 1960. O donnykh osadakh zapadnoi chastii Tykhoi Okeana. [On bottom sediments of the western Pacific Ocean.] Okeanologi, issled. [Oceanologicheskie issledovanii] 2: 45-60. [Studies made during the 25th, 26th, 27th voyages of the Vityaz and which include Ellice area.]

784. [Petrov, Iu.E.]

795. [Ponomareva, L.A., ed]

813. [Radzikhovskaya, M.A. & V.V. Leonteva]
Radzikhovskaya, M.A. & V.V. Leonteva, 1968. Struktura vod i vodnye massy. [Water structure and water masses.] Tykhiy Okean (V.G. Kort, gl. red.) 2: 20-68. Nauka, Moscow. [In 'Hydrology of the Pacific Ocean' (ed A.D. Dobrovolsky), being 'Pacific Ocean' (chief ed V.G. Kort) 2: 20-68. Nauka Publishing House, Moscow., Il] [Hydrographic data from Ellice/Tuvalu region included e.g. fig. 16, facing p. 60.]

817. [Rass, T.S.]
888. [Samoilenko, V.S.]
Самойленко, В.С., 1966. Метеорологические условия над Тихим Океаном. [ Meteorological conditions over the Pacific Ocean]. Тихий Океан (В.Г. Корот, гл.ред.): 1:3-97. Наукa, Москва. [‘Pacific Ocean’ (ed V.G. Kort): 1-397. Nauka Publishing House, Moscow]. [Data from Ellice/Tuvalu stations appear to be included in numerous figures e.g. pp. 72, 76, although text is largely preoccupied with the north Pacific. See also maps in appendix pp. 319-394.]

889. [Semenov, G.A., & A.G. Gainanov]

990. [Udintsev, G.B.]

991. [Udintsev, G.B.]


993. [Udintsev, G.B. & V.F. Kanaev (eds)]

1006. [Vilenkin, B.Ya.]

1083. [Z dorovenin, V.V. & G.B. Udintsev]
Здоровенин, В.В. и Г.Б. Удинцев, 1970. Структура осадочного покрова центральной части Тихого Океана по данным 34-го рейса Витязя.[Structure of the sedimentary cover of the central part of the Pacific according to data of the 34th voyage of the Vitiaz.] Сейсмические исследования строения дна морей и океанов. Тр. Инт. Океанологии АН СССР. [Seismic study of the sea and ocean bottom structure. Akademia Nauk S.S.R. Institut Okeanologii, Trudy] 87: 126-144, bibl: 37 refs. [Includes geological research in Ellice Islands region.]

1085. [Zenkevich, L.A.]
Зенкевич, Л.А., 1969. Биология Тихого Океана. Кн. 2: Глубоководная донная фауна плеистоцена. [Biological of the Pacific Ocean. II: The deep-sea bottom fauna. Pleistocene.] Тихий Океан (В.Г. Корот, гл.ред.): 7(2): 1:356. Наукa, Москва. [‘Pacific Ocean’ (ed V.G. Kort): 7(2): 1-356. Nauka Publishing House, Moscow]. [No original samples appear to be reported from Ellice/Tuvalu waters but data from atolls seem to be included in several diagrams showing biotic zones and species distribution e.g. fig. 41, p. 209, figs. 72-73, pp. 337-345.]

1086. [Zenkovich, V.P.]
With a few exceptions, only broad headings are provided for the bulk of topics indexed here. About half the annotated references fall into clear-cut specific fields of study. Others are multidisciplinary and have been multi-indexed. However, not all publications are easily categorized and the index must not be regarded as comprehensive. Review-type surveys of Tuvalu frequently make fleeting reference to matters such as the Royal Society boring or the status of agriculture in the group. Not all such references are indexed here. Those given under such headings are either those considered as significant by the compilers or are cited by way of example only. Similarly, not all vernacular references to organisms are necessarily listed. Further, changes in biological nomenclature over the years has made it difficult for some genera to be assigned to their correct modern grouping. Some systematic usages in Schmeltz (1869-1877) proved particularly troublesome in this respect.

It must be re-emphasised that not all Soviet references were available for detailed annotation. As such some two dozen of these have not been indexed other than in the broadest terms. A specific category "Biology, unspecified Soviet studies" has been used for many of these items.

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