

1948
NEW ZEALAND

TOKELAU ISLANDS

Presented to both Houses of the General Assembly by Command of his Excellency

MEMORANDUM

Wellington, 31st August, 1948.

I SUBMIT a report on the administration of the Tokelau Islands for the year ended 31st March, 1948, by the High Commissioner of Western Samoa, to whom the administration of these Islands has been delegated by the New Zealand Government.

The Tokelau Islands have a small Native community closely allied to the inhabitants of Western Samoa in language and culture. Their isolated position brings with it difficulties in communications and trade, but the Natives, having had little contact with the outside world, have maintained an economy sufficient for their needs and under which they are reasonably happy and contented.

Owing to difficulties of communication copra-production, which is the major source of income, has not been maintained at full capacity during the year. It is hoped, however, that increased shipping facilities will be arranged shortly.

P. FRASER,
Minister of Island Territories.

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I. GENERAL INFORMATION

1. GEOGRAPHICAL

THE Group consists of four atoll islands, one of which (Swain's Island or Olosega) was annexed to American Samoa in 1925.

The three islands--Fakaofu, Nukunono, and Atafu--governed by New Zealand are situated between latitude 8° and 10° south and longitude 171° to 173° west. The distance from Apia to Fakaofu is about 270 miles, that from Fakaofu to Nukunono about 40 miles, and from Nukunono to Atafu about 57 miles.

2. TOPOGRAPHICAL

Each atoll consists of a number of small coral islets round the lagoon, varying in length from 100 yards to 4 miles, but all are fairly uniform as to width--viz., 100 to 400 yards--and, with one or two exceptions, all are approximately from 8 ft. to 10 ft. high.

The size of each atoll is approximately as under :--

Island.	Land Area.	Length North to South.	Width East to West.	Circumference.	Number of Islets.
	Acres.	Miles.	Miles.	Miles.	
Fakaofu ..	650	6½	5	16	61
Nukunono ..	1,350	7	6½	24	22
Atafu ..	500	3	2½	8	19

The largest islet in the Group is on the east of the atoll of Nukunono ; it is four miles long and 300 yards wide.

The reef at each island extends only a short distance from the shore, and then descends steeply into very deep water, so that the few anchorages are not good. Vessels usually land or ship their stores and personnel in the local canoes or small boats. If vessels remain at night, a lamp is placed on the shore to assist the officer on watch to maintain his ship in position.

The landing-places on the reef on each living islet are difficult to negotiate, and great skill is required on the part of the people to shoot their canoes over the reef, except when the sea is very calm. All the inhabitants reside on one small coral islet on which the village is located, and which in each case is on the leeward side of the atoll--i.e., the north-west, west, or south-west. This is an advantage to vessels visiting these islands, as the prevailing trade-wind, which is from the south-east, as well as the drift of the current from the east, both tend under normal conditions to cause any vessel lying off the western shore to drift away from the reef. But from time to time heavy swells or winds from other directions make the reefs unworkable.

Coconut-palms are, of course, a characteristic feature of the landscape, but kanava or tauanave (*Cordia subcordata*) is the only timber tree of outstanding importance ; this is used for canoes, houses, or vessels for domestic use. It is a very durable wood, not attacked by rot or marine borer, and all canoes are made of this timber. These canoes are built up in sections laced with sennit made of coconut fibre, as many as twenty pieces of wood being used to make the complete hull. There are no kanava trees with trunks of sufficient length to make the hull from one complete piece of timber. They are short, stubby trees, and good specimens rarely exceed 2 ft. in diameter. Another useful tree is fala, the edible pandanus, the timber of which may also be used in the

construction of houses. One islet in each atoll is usually set aside for the growing of timber. The supply of good kanava trees on Fakaofu is inadequate, and when new canoes are required their supplies of timber have to be drawn from Nukunono.

The only exportable product grown is copra. The food of the people consists of coconut, fish, fowl, bananas, ta'amu, the fruit of the edible pandanus, and occasionally pork. Fish is plentiful and easily caught. Fowls, although plentiful, are used sparingly for food. A number of pigs are kept in each village, but not in sufficient numbers to provide meat even once a week; they are reserved for special feast days. Very few bananas are grown owing to the absence of humus, although in planting them humus is provided as far as possible from leaves, coconut-husks, and ashes. Bananas are therefore a luxury in these islands. Taro will not grow on any of the atolls, but ta'amu a larger relation of the taro family, is grown, particularly in Atafu, and there are smaller quantities in each of the other two islands. Pulaka, a very coarse tuber similar to the Samoan wild bush taro, is cultivated on each atoll, and a variety of kumara is grown on one islet of Fakaofu. The edible pandanus fruits twice a year in May and November.

The total amount of copra which can normally be produced for export has been estimated as amounting to something in the region of 300 tons per annum. This depends essentially, however, upon securing suitable and adequate shipping, and in the financial year ended 31st March, 1948, the copra exported was only approximately 120 tons, due to difficulties experienced in this connection.

The recent project of building cement water-cisterns has resulted in less drinking-nuts being consumed, and consequently more copra becoming available for export. The present intention to hand over the purchase of copra and the trading to merchants in Apia will probably result in greater amounts of copra being exported in the future.

3. HISTORICAL

It would appear from traditions that have been collected in the Tokelau Islands that the Group has been inhabited by two separate and distinct migrations of people at different times. A record exists of the original inhabitants who were seen by Quiros when he first visited the Group in 1606. They are reported to have been fair in colouring with golden hair, and they were stated by Quiros to have used large double canoes some 60 ft. long. These earlier people appear to have lived only on Atafu, Nukunono, and Swain's Island. Abandoned taro-pits, thought to have been in use by them, may be seen even at the present day around the shore of the land-locked lagoon on Swain's Island.

Between the time of the discovery of Swain's Island by Quiros in 1606 and the next reported visit by Europeans in 1841 this population disappeared. Some survivors of the earlier group were apparently living for some time on Nukunono after others had been driven from their islands by a people who settled at Fakaofu. The new-comers conquered the entire Group over a long period of years and absorbed those remaining of the earlier people of Nukunono.

Traditions suggest that the second people came from Samoa. The Tokelau language, although possessing local peculiarities, is a dialect of the Polynesian group, and has a number of similarities to Samoan. Much of the culture of the Tokelau Islands is also closely related to that of Samoa.

It would seem that Swain's Island was the first atoll in the Tokelau Group to be seen by Europeans. Quiros, leading a Spanish Expedition across the Pacific in 1606, landed there in search of water, and for a time the atoll was known as Quiros' Island. A century and a half later, on 21st June, 1765, Commodore Byron, R.N., discovered Atafu and named it Duke of York Island. The next visit to Atafu was on 6th June, 1791, by Captain Edwards in command of H.M.S. "Pandora," at that time engaged upon a search for the mutineers of the "Bounty." Three days later Edwards discovered Nukunono, which he named Duke of Clarence Island.

In 1841 Captain Hudson, of the United States Exploring Expedition, visited Atafu, and, coming on Fakaofu, or Bowditch Island, a few days later, believed that the expedition was the first to visit it. It happened, however, that a short time previously during the same year Captain Morvan, in command of the French ship "Adolphe," had actually discovered it. Morvan found traces of a European vessel that had apparently been wrecked some years before, and Hale, a member of the United States Exploring Expedition, understood that two survivors of the wreck had lived for some time on Fakaofu before dying there.

In 1841 Captain Hudson, of the United States Exploring Expedition, sailed south from Fakaofu in search of *Quiros' Island*, and, on finding it, renamed it *Swain's Island*, after his informant in Samoa, by which name it is now generally known.

Soon after this visit by Hudson three Frenchmen settled on *Swain's Island*, as agents of a French company, to make coconut-oil. In 1856 an American, *Eli Jennings*, from New Bedford, who had lived and married in Samoa, came to the island. Jennings took over the island and the Native labourers who had come from Fakaofu from the Frenchmen, who thereupon left for Samoa. Jennings thus became the owner, and the island has remained in the hands of his family since his death. *Swain's Island* was annexed to American Samoa in 1925.

In 1877 the *Tokelau Islands* were included under the protection of Great Britain in terms of an Imperial Order in Council. In 1889 Commander Oldham, of H.M.S. "*Egeria*," landed at each of the three northern atolls and officially raised the Union Jack, declaring the group to be a protectorate of Great Britain.

At the request of the inhabitants, these islands, then known as the *Union Islands*, were formally annexed to Great Britain in terms of an Order in Council of 29th February, 1916, which also extended the boundaries of the *Gilbert and Ellice Islands Colony* so as to include the *Union Islands* and their dependencies. From this time up to the 1st October, 1925, they were governed by the High Commissioner for the Western Pacific, and administered by the District Officer at Funafuti in the *Ellice Group*.

In order to facilitate administration, and at the request of His Majesty's Government, the New Zealand Government agreed to govern these islands, which were disannexed from the *Gilbert and Ellice Islands Colony* in terms of the *Union Islands (No. 1) Order in Council, 1925*. Arrangements to govern and administer them were made by the *Union Islands (No. 2) Order in Council, 1925*, which empowered the Governor-General in Council of the Dominion of New Zealand to make laws for the peace, order, and good government of the Group, with authority to delegate so much of this power as might be considered desirable from time to time to the Administrator of Western Samoa, subject to the right of the Governor-General in Council to disallow any laws so passed, and to any other restriction which the Governor-General in Council might deem proper. The *Union Islands (No. 1 of New Zealand) Order, 1926*, published in the *New Zealand Gazette* of 18th March, 1926, delegated administrative authority to the Administrator of Western Samoa, now known in terms of the *Samoa Amendment Act, 1947*, as the High Commissioner.

Administration of these islands was formally taken over by the Administrator of Western Samoa as from the 1st October, 1925; but they are not, of course, a part of that Territory.

The Group, known variously as the *Tokelau Islands* or *Union Islands*, was, by the *Tokelau Nomenclature Ordinance, 1946*, made by the Administrator of Western Samoa on 7th May, 1946, officially designated the *Tokelau Islands* or the *Tokelau Islands Dependency*. This Ordinance also settled the spelling of the name of the Island of Fakaofu.

4. POPULATION

The following are the figures from the last census taken in September, 1945 :—

—			Males.	Females.	Samoaans.	Total.
Fakaofu	..	..	268	297	5	570
Nukunono	..	..	195	169	3	367
Atafu	..	..	202	242	7	451
Total .. ..			..	..	..	1,388
Less Samoaans			..	..	..	15
Tokelau Islanders			..	..	..	1,373

The clerk on each island keeps a roll in which are included those absent on other islands, and as the last census figures show that 153 Tokelau Islanders were absent in Samoa, mostly to attend the London Missionary Society and Catholic schools and, to a lesser degree, to seek employment, the total number of this small branch of the Polynesian people in 1945 was 1,526. Births and deaths since the date of the census bring the total as at 31st March, 1948, to 1,594. A count of the Islanders in December, 1947, showed 1,416 living in the Group at that time.

Although it is not possible to prepare a full account of the raids of South Americans, principally from Peru, who, during a period of some twenty years, organized raids for labour purposes upon this small Group, it appears from the reports of early Missionaries that the population was much reduced by these depredations which took place apparently between about 1850 and 1870. Both Nukunono and Fakaofu suffered a great deal from the visits of these slavers, who enticed the natives aboard their vessels by a display of trinkets, beads, looking-glasses, and other things attractive to an unsophisticated people. The Rev. Newall, in a series of notes on the Tokelau, Ellice, and Gilbert Islanders, relates that some 247 people were taken from Fakaofu in 1863, and it was probably at about this time that Nukunono suffered its most severe raid, when only 80 of the inhabitants were left. Just before the arrival of a Mission ship in 1868 the Peruvians had taken 116 men from Fakaofu and 30 from Atafu.

As the population is now increasing steadily, and in view of the fact that because of the prevailing wind being from the south-east the people habitually live on the lee side of each atoll, leaving the remaining areas for plantation purposes, in at least one case, that of Fakaofu, the living islet is now becoming seriously overcrowded, and at some time in the not far distant future it may be necessary to settle some at least of the population of this atoll on other suitable islets. The people, however, cling tenaciously to their traditional mode of living together on one islet, which, it appears, was based originally upon the need to assemble all available forces closely together for the purposes of self-protection. There are many traditions and historical records which tell of attacks by one atoll of this Group upon another.

5. CHRISTIAN MISSIONS

There was no contact with the Group by missionaries until about the middle of the last century, many years after their first discovery. In their indigenous state the Islands were governed by a chief, who appeared to combine the offices both of king and high priest.

In 1846, after a hurricane that devastated Fakaofu, many of the Natives set out in canoes, presumably to go to Nukunono. Storms dispersed the canoes, and it seems that only two survived, landing eventually at Wallis Island, to the west of Savai'i in Samoa.

Here the survivors found Catholic Missionaries who had been working with the Wallis people since 1837. In 1852 another hurricane swept over Fakaofu, and the head of the Catholic Mission in Samoa, hearing of the catastrophe, sent a ship from Samoa to Wallis Island to load coconuts for the starving Tokelau people.

In 1861 the Catholic Mission was instrumental in returning to Tokelau a party of 16 men and women who in 1852 had gone to Wallis Island, where they had been converted to Christianity. The people, however, refused to accept Christianity, and the Missionaries in the circumstances were not prepared to allow the converts to land in Tokelau. On their declaring an intention to take these people back to Wallis, the Tokelau Islanders relented and granted the Missionaries permission to land and preach Christianity.

A priest from Samoa again visited Fakaofu in 1863, but found that paganism still reigned there. In 1868 two Catholic Samoan catechists were left at Fakaofu and Nukunono.

In 1858 the famous ship "John Williams" had visited Fakaofu with the Rev. Murray, but the people refused to accept his offer to leave with them two Christian Rarotongans to explain Christianity. The Missionaries did, however, succeed in leaving there two Tokelau Islanders who had learned Christianity in Samoa. The two Rarotongans were taken to Atafu, where the teaching was immediately successful, and the next year a Samoan teacher from Atafu set out in a canoe to carry Christianity to the other Islands. Nukunono had in the meantime been converted to Catholicism. Mission ships again visited the Group in 1865 and 1868.

The position at the present day is that on Atafu all the inhabitants belong to the London Missionary Society, and on Nukunono all are adherents of the Roman Catholic Mission. On Fakaofu the greater number belong to the London Missionary Society. At the date of the census taken in September, 1945, there were 97 Catholics on this atoll. Both Missions—the Roman Catholic and the London Missionary Society—have their headquarters in Samoa, from which the work in the Tokelau Islands is administered. The London Missionary Society's ship "John Williams" has now resumed annual visits to Atafu and Fakaofu, but since December, 1946, there have been two Catholic priests, one European and one Samoan, in residence at Nukunono. It is also the intention of this Mission to settle a number of sisters in Nukunono in the near future to establish a convent school. Buildings have been erected and are almost ready for occupation, and it is possible that the Mission in Nukunono may be fully established before the end of 1948.

The Catholic Mission has trained Tokelau Catechists to work with their own people, and the London Missionary Society from time to time sends Samoan Pastors for tours of duty in Fakaofu and Atafu.

The education work of the Missions is discussed in a later stage of this report.

The London Missionary Society church building in Atafu is a substantial cement building, and the church in Nukunono is of an even more elaborate character. The London Missionary Society Church in Fakaofu is also substantial, but a small wooden structure suffices at present for the needs of the Catholics on that atoll.

6. ADMINISTRATION

There are no local European officials, nor is it considered that any are necessary. If a resident District Officer were appointed he would not be able to fill in his time with administrative duties, and could only properly supervise the island in which he resided. The Group is administered through the Department of Samoan Affairs in Samoa, and is visited once a year by the High Commissioner. Units of the Royal New Zealand Navy also make annual visits.

The following is the staff establishment of officials for each of the three atolls :—

Faipule and Magistrate (Fa'amasino).
 Pulenu'u (Mayor of village).
 Failautusi (clerk and postal officer).
 Wireless operator.
 Chief of Police.
 Police.
 Wardress.
 Native medical practitioner.
 Native nurse.
 Dresser.
 Weather reporter.

There is one Tokelau medical practitioner in residence at Atafu, and a Samoan medical practitioner divides his time between Fakaofu and Nukunono.

Apart from the Chiefs of Police, there are three police at Atafu, two at Nukunono, and three at Fakaofu.

The wireless operators from Atafu and Fakaofu are at present in Apia for training purposes.

A Samoan trained nurse has been added to the staff at Fakaofu to take charge of infant-welfare work.

At Atafu and Nukunono the wireless operators perform the weather-reporting duties, but at Fakaofu this work is done by an additional member of the staff.

7. CRIMINAL CODE

The existing laws provide for punishments as under :—

Offences.	Maximum Punishment.
1. Murder	Death. Sentence carried out only on the authority of the Governor-General of New Zealand.
2. Attempted suicide	Twelve months' imprisonment.
3. Procuring abortion	One to five years' imprisonment.
4. Theft	Twelve months' imprisonment.
5. Assault	Six months' imprisonment or fine of £5. Where a knife or other weapon has been used, six months to two years' imprisonment.
6. Adultery	Three to twelve months' imprisonment.
7. Incest	Two to five years' imprisonment.
8. Tinaba (adultery with a daughter-in-law) ..	One to two years' imprisonment.
9. Rape	One to five years' imprisonment.
10. Fires—	
(a) Carrying naked lights	Fine of 10s. or two weeks' imprisonment.
(b) Causing fire to homes and plantations	Three to twelve months' imprisonment.
11. Threatening or abusive language	Fine of £1 or one month's imprisonment.
12. Libel and slander	One to six months' imprisonment.
13. Drunkenness	One to six months' imprisonment.
14. Procuration	Six months' imprisonment.
15. Malicious damage to cultivation	Three to twelve months' imprisonment, and to make good loss.
16. Marriage laws (age-limit—men eighteen, women sixteen)	Fine of £5 or three months' imprisonment.
17. Registration of births and deaths (time-limit—twenty-one days)	Fine of 5s. or two weeks' imprisonment.
18. Sorcery	Six months to two years' imprisonment.
19. Gambling	Fine of £2 or two months' imprisonment.
20. Contempt of Court	Fine of £5 or two months' imprisonment.
21. Aiding and abetting	Punishments the same as if the crime was committed by offender.
22. Attempted crime	Punishable as if crime committed, except in case of murder (fifteen years' imprisonment).
23. Repeated offences	Second offence, penalty half as great again as for first offence; third offence or subsequent offences, double punishment.
24. Refusing to assist the police	Six months' imprisonment.

II. SOCIAL CONDITIONS

8. HEALTH AND SANITATION

Health services in the Tokelau Islands are organized and supervised from Apia, from where also the supplies are drawn. The basic staff on each of the three islands consists of one local dresser (male), and one local nurse (female). Two Native medical practitioners are resident in the islands. At Atafu, the northern atoll, there is a Native medical practitioner in full-time residence. The other two islands share a Native medical practitioner, who resides in each for approximately six months per year. At Fakaofu, where there is the largest population, there is, in addition, a Samoan trained nurse. A European qualified Medical Officer visits the islands at approximately six-monthly intervals.

In each island the dressers and local nurses serve in the hospital, doing mainly out-patient dressings, and nursing such in-patients as may be admitted. The Native medical practitioner performs the full functions, both preventive and therapeutic, of a doctor, holding his more difficult cases for consultation with the European Medical Officer when he comes. The addition of a Samoan trained nurse to the staff at Fakaofu was for the purpose of separating health maintenance, and particularly infant-welfare work, from the general function of the hospital there. Her duties are mainly concerned with health education and supervision in these fields through the women's committees.

The women's committees are voluntary organizations to which most of the women in each island belong and through whom health education and propaganda may be disseminated. They perform a useful function by mutual assistance in such matters as home nursing, and maternal and infant-welfare work. In addition, they perform a useful social function by keeping alive the Native arts and crafts and assuring that the home conditions of each family are at least up to a minimum standard laid down by the Committees.

The incidence of disease in the islands is slight. There have been no cases of smallpox, leprosy, plague, or cholera, and yellow fever is unknown. The only mosquito identified in the islands is the *Aedes pseudoscutellaris*, and *Filaria* is present, carried by this mosquito. There is no malaria. Recent surveys reveal a micro-filarial rate of about 10 per cent., most of the carriers having resided, either in Samoa or some other endemic zone, for at least some months. No cases of syphilis have been reported, although yaws is common among the children, but is quickly reduced by appropriate therapy. Rats constitute an economic problem of some magnitude, but examinations of rats caught have failed to reveal any fleas or other diseases of rats.

The health of these small communities is satisfactory. Their villages are clean, and the general sanitary conditions are good. Latrines present only a small problem as they can be erected over deep water on all living islets, but care must be exercised to ensure that this is always done.

Several visits have been made and extractions and treatment given by Samoan dental officers, and on a recent visit a European Medical Officer examined eye conditions and prescribed 179 pairs of spectacles. These will be delivered on the next visit.

The diet of the people which consists mainly of fish and coconuts appears superficially to be deficient in many necessary ingredients.

9. WATER-SUPPLIES

Under primitive conditions life in coral atolls is complicated by the necessity for storing every available drop of water. The indigenous method was to cut grooves and hollows on the under-side of the trunks of coconut-palms and so lead the water into numerous small reservoirs. Now, however, tanks have been established on each of the living islets. At Fakaofu there are three tanks with a total capacity of 43,800 gallons and a catchment area of 2,646 square feet. At Nukunono there are three tanks with

a total capacity of 35,500 gallons and a catchment area of 2,700 square feet. At Atafu the two tanks have a total capacity of 42,500 gallons with a catchment area of 2,700 square feet. On Fakaofu there are two wells, and on Atafu one of a less satisfactory nature, all of which are available for use for washing purposes. Three of the tanks, one in each atoll, have been completed within the last few years.

The provision of additional storage-capacity has reduced the number of drinking-nuts previously consumed, and this should increase the amount of copra available for export. According to normal public-health standards, however, the available supply of fresh water on each atoll is still inadequate, and attention will be given in future to the examination of such local conditions as may make it possible to increase the fresh-water supply. The large meeting-houses in each village, for instance, might be suitably roofed so as to provide additional catchment areas, and extra tanks could then be erected alongside. Forty-four-gallon drums are, in some cases, used as reservoirs alongside trees, but the danger associated with this method is that diseases borne by mosquitoes might thereby be encouraged, as it is difficult to induce the people to keep the drums covered. In 1925 it was reported that there was no mosquitoes, but recent inspections have shown that a few mosquitoes are present in each atoll.

The increase in the available water-supply might make it easier to combat the present prevalence of skin-diseases, but it would be necessary to educate the Islanders to make proper and regular use of the additional water-supply if extra tanks were installed.

III. EDUCATIONAL CONDITIONS

10. EDUCATION

Village schools under Mission pastors or catechists are maintained on each island, education being limited for the most part to elementary arithmetic, reading and writing the Samoan language, and scriptural literature. It has not been possible up to the present to establish there Samoan teachers, as the Islanders themselves prefer the present arrangement owing to the difficulty of maintaining suitably in the atolls strangers from other Groups who are accustomed to a different mode of life. Some assistance has, however, been afforded the Mission schools. The Superintendent of Schools from Samoa paid a visit to all atolls in 1945. Stationery, materials, and other equipment have been supplied from time to time, and it is intended to send also *School Journals* in Samoan, and, as they become available in the future, elementary text-books in the Samoan and English languages. Additional listening sets are on order for distribution to institutions and villages in Samoa, and when these arrive it is proposed to make one available to each of the Tokelau atolls; this will ensure that children in the Tokelau schools have an opportunity of listening to regular education transmissions from Samoa.

Certain of the brighter Tokelau children are sent from time to time to attend London Missionary Society or Catholic Schools in Samoa. Likely lads have also been chosen to receive training in Government schools with a view to appointing them later as clerks, radio operators, or, as the Tokelau people have themselves requested, possibly as medical cadets with a view to later training as medical practitioners if they prove suitable.

IV. ECONOMIC CONDITIONS

11. SOIL ANALYSIS

Samples of the soil or coral rubble from each of the three atolls sent to New Zealand for analysis by the Cawthron Institute in 1945 showed a large percentage of coarse particles which failed to pass the 2-millimeter-mesh sieve. This coarse fraction contained approximately 90 per cent. of calcium carbonate, leaving only 10 per cent. for the soil, stones, and organic matter contained in the coarse fraction.

The material passing the 2-millimeter-mesh sieve contained from 78 to 85 per cent. of calcium carbonate. This left from 15 to 22 per cent. of actual soil, including organic matter, combined water and possible stone particles. The analysis thus showed a very high percentage of calcium carbonate, or coral, and a relatively small percentage of true soil. It was suggested that crops might be grown if the coral were broken up and mixed with as much vegetable refuse as possible. The use of a supplement of blood and bone and muriate of potash was also recommended, but it was considered by the Cawthron Institute that a successful result was not very likely.

The experiment suggested was carried out. Experimental plots were established in Fakaofu, and control or checking plots were also prepared in Samoa in large samples of coral from each of the atolls. Taro, ta'amua, and kumaras were planted and at first showed rapid progress, but as subsequent showers of rain leached out the chemical additions to the coral soil growth slowed and, later on, ceased altogether. It does not appear, therefore, that the addition of chemical supplements represents a good approach to the problem of the infertility of Tokelau soil. Heavy mulching and composting seems to be the only solution, but it is difficult to persuade the Tokelau people to do this consistently in order to raise small crops. They recognize the value of the use of vegetable refuse, however, and they are accustomed to lay down coconut-husks round the bases of their few banana-plants.

12. TRADE AND COMMUNICATIONS

For the past ten years the principal communications with the Group have been maintained by means of Government-chartered shipping or aircraft. There have also been occasional calls of Mission ships, and units of the Royal New Zealand Navy have now resumed annual visits, although these were restricted during the war years. On naval visits the High Commissioner takes the opportunity offered to inspect the Group. Up till two years ago wireless sets were maintained on every atoll. One now functions on Nukunono, but the operators in Atafu and Fakaofu have been withdrawn temporarily to be trained on new and better sets.

Until the war years made it dangerous or inadvisable to do so the Islanders were accustomed on occasion to make visits between the atolls in their own canoes. The distance between Fakaofu and Nukunono is approximately 40 miles and that between Nukunono and Atafu approximately 57 miles. Contact between atolls by Tokelau canoes is at present forbidden except in cases of real emergency. When all wireless sets are again functioning such trips will be permitted subject to certain conditions, including the reporting by wireless both of the departure and the arrival.

Communication by speech is per medium of the Samoan language. The Tokelau people have their own dialect which is not immediately understood by Samoans, but it happens that the Bible they use is the Samoan version, and most of their pastors are Samoans who are accustomed to preaching in Samoan. The official language is therefore Samoan, and all Tokelau Islanders are bilingual. It is a fact, that the old Tokelau language is gradually dying out, and most people under fifty are unreliable informants in relation to research on the Tokelau language itself.

Up till a year or so before the war copra was purchased and goods sold in the Tokelau Islands by an Apia firm operating with its own schooner. Just prior to the outbreak of war it became impossible to maintain these communications, and the Department of Samoan Affairs in Apia, which administers the Group, undertook to visit the Tokelau Islands in small launches for the purpose of taking food and other necessities. This method was developed later with the charter of larger schooners, and the service both in relation to the purchase of copra and the provision of all necessary trade goods has been maintained since that time by the Department of Samoan Affairs. Proposals are now in train to hand back arrangements for the purchase of copra and all trading into

the hands of private merchants operating in Apia, and it is anticipated that the new scheme will be operating before the end of 1948. Tenders will be invited for the purchase of copra, and a licence will be granted for trading purposes, prices for goods in Tokelau to be fixed in consultation with the Administration.

13. FINANCE

No formal budget is drawn up for the financial administration of the Group. The Administration of Western Samoa, in its capacity of representative of the New Zealand Government, keeps a separate account in the Samoan Treasury of receipts and payments in respect of the Tokelau Islands. All revenue is paid to this account and all expenditure met from it. Where definite proposals are in train for construction or other projects that require a substantial sum of money the New Zealand Government is asked to provide the subsidy required for this purpose, the amount in due course appearing on the annual estimates of the Island Territories Department. Apart from subsidies required for special purposes, if the account at any time shows a deficit which cannot within a reasonable period be reimbursed from ordinary revenue or profit on the sale of copra or trading, the New Zealand Government is requested to provide a sum to balance the account.

The Islanders themselves contribute to revenue by means of a tax paid in copra. The amount of the tax is eighteen tons from the whole Group, nine from Fakaofu, seven from Nukunono, and two from Atafu.

Considerable revenue is expected to accrue from the new issue of Tokelau Islands stamps which will be placed on sale within a few months. Substantial orders for first-day covers have already been received, and it is expected that even after the first day of issue a regular income will accrue from purchases by dealers and philatelists. At present, and ever since the Administration of Western Samoa assumed responsibility for the government of the Group, the stamps employed for postage purposes have been those of the current issue for Western Samoa.

The currency employed in the Tokelau Group is the same as that in use in Western Samoa: New Zealand or Australian silver and Samoan Treasury notes. American currency is not legal tender, but is accepted.

14. METEOROLOGICAL

Meteorological observations were commenced at Atafu Village on the north-western side of the atoll in 1925, and synoptic reports have been forwarded since 1931. These reports at all three atolls are now taken by the radio operators. The observations at Nukunono and Fakaofu are made at the villages of Nukunono and Fakaofu, which are on the western sides of the respective atolls.

The time used is Samoan time, which is that of longitude 165° W.—i.e., 11 hours slow on G.M.T.

The climatic table and most of the data included in this note refer to Atafu, where conditions may be considered as representative of the whole Group.

Surface Wind.—Easterlies predominate during the day all the year round, attaining the highest frequency (over 60 per cent.) in June, July, and August, the lowest (24 per cent to 29 per cent.) in December and February. North-easterlies and northerlies are the next most common from October to April, south-easterlies in the remaining months. In the summer months most of the fresh or strong winds are from the west. The average estimated wind-speed is about 5 knots, varying from 4 knots to 6 knots in the morning and from 5 knots to 6 knots in the afternoon. March and April show the lowest wind velocities, July and August the highest. The percentage of fresh to strong easterlies is greater in the afternoon than in the morning in summer and autumn.

The only gale recorded at Atafu in the last twelve years was from the west, occurring in February, 1941. Fakaofu has two gales on record: north-east force 8 on the 14th January, 1936, and west force 9 on the following day. In about three years Nukunono has reported two brief gales: north-north-east in December, 1939, and west in February, 1942. The latter was associated with a twenty-four-hour rainfall of 6·20 in.

Rain.—At Nukunono the mean annual rainfall from three years' observations was 119 in.

The annual rainfall at Atafu is also rather high, with a mean of 123·31 in., but the variations from year to year are considerable. There are on an average 169 wet days (0·10 in. or more) a year. Daily falls of 3 in. or more are likely to occur in all months. Extreme maximum and minimum monthly and annual totals recorded are:—

Atafu: Maximum and Minimum Monthly and Annual Rainfalls, in Inches, 1929–46

					Maximum.	Minimum.
January	..	..	..	..	.. 24·76	3·37
February	..	..	..	..	.. 33·18	4·16
March	..	..	..	..	.. 16·04	6·25
April	..	..	..	..	.. 18·05	3·53
May	..	..	..	..	.. 12·68	2·68
June	..	..	..	..	.. 13·45	3·58
July	..	..	..	..	.. 21·99	2·88
August	..	..	..	..	.. 13·98	0·84
September	..	..	..	..	.. 15·46	1·47
October	..	..	..	..	.. 17·02	4·44
November	..	..	..	..	.. 19·20	2·31
December	..	..	..	..	.. 28·13	5·29
Year .. .. .					.. 177·40	87·43

No hail has been reported from Atafu.

Air Temperatures.—The mean temperature is 82·5° F., with little variation from month to month. July is the coolest with 82·1° F., May the warmest with 83·2° F.

Sea Temperatures.—The temperature of the ocean around Tokalau varies from 81·5° F. to 83° F.

Humidity.—The relative humidity at the morning observation averages 84 per cent., with very little variation throughout the year. The afternoon humidity averages 76 per cent., varying from 72 per cent. in September to 81 per cent. in February.

Climatic tables are appended.

Atafu
Wind

Month.	Morning Observations (0800 Hours).										Afternoon Observations (1400 Hours).									
	Percentage from—										Percentage from—									
	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.	Mean Speed, in Knots.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.	Mean Speed, in Knots.
January	22	17	33	3	2	2	10	5	6	5	24	19	31	3	2	2	8	8	6	5
February	23	21	29	1	1	1	10	10	4	5	23	20	26	2	1	1	12	11	4	6
March	14	22	40	5	5	6	6	5	5	4	13	18	42	3	4	4	5	3	6	5
April	5	8	56	7	3	3	4	3	4	4	12	10	46	8	7	2	5	7	7	5
May	5	8	60	10	2	2	3	0	9	4	3	8	58	10	7	2	4	1	4	5
June	13	9	66	13	5	0	2	1	1	5	3	6	53	15	5	1	1	1	3	6
July	3	8	68	14	2	0	1	1	1	6	3	7	62	19	5	2	0	1	3	6
August	4	6	68	15	2	0	1	0	5	5	2	9	59	17	6	1	3	0	5	6
September	11	12	64	10	2	0	1	1	5	5	9	15	48	11	4	3	4	1	5	5
October	18	19	52	7	2	2	1	4	7	5	16	19	32	7	5	2	9	3	7	5
November	14	22	33	6	5	1	4	6	5	6	18	17	25	4	4	4	12	9	7	5
December	19	23	24	3	5	3	12	4	5	6	18	17	25	7	4	4	12	9	7	5
Means	11	15	49	8	3	1	5	3	5	5	10	13	46	9	5	2	6	4	5	5
Number of years observation	..	..	..	..	13-14	..	..	13-14	..	..	..	..	..	..	13-14	..	..	..	..	..

Atafu

Lat., 8° 32' S.; Long., 172° 31' W. Altitude: 10 ft. above M.S.L. (barometer cistern). Period: 1929/1946.

Month.	Pressure at Mean Sea-level.		Air Temperature.						Relative Humidity.		Cloud : Amount, 0-10.		Rain.			Days of Gale.	Days of Fog.†	Days of Thunder.
	For Month.	Mean.	Mean (of)		Extreme.		Morning Observa- tion, 9 a.m.	Afternoon Obser- vation, 2 p.m.	Total Cloud.	Low Cloud.	Average Fall.	Number of Days.†	Maximum Fall in Twenty-four hours.‡					
			Daily Maximum.	Daily Minimum.	Highest in Month.	Lowest in Month.								Highest Recorded.	Lowest Recorded.			
mb.	°F.	°F.	°F.	°F.	°F.	°F.	%	%	6-1	4-8	11-99	14	5-40	0	0	0		
January	1008	82	87	79	91	74	94	70	84	76	6-1	4-8	11-99	14 <td>5-40<td>0<td>0<td>0</td></td></td></td>	5-40 <td>0<td>0<td>0</td></td></td>	0 <td>0<td>0</td></td>	0 <td>0</td>	0
February	1009	82	87	78	90	74	94	72	84	81	6-7	4-7	14-74	15 <td>5-68<td>0<td>0<td>0</td></td></td></td>	5-68 <td>0<td>0<td>0</td></td></td>	0 <td>0<td>0</td></td>	0 <td>0</td>	0
March	1010	83	88	79	91	74	93	70	85	78	6-1	4-9	11-85	15 <td>5-81<td>0<td>0<td>0</td></td></td></td>	5-81 <td>0<td>0<td>0</td></td></td>	0 <td>0<td>0</td></td>	0 <td>0</td>	0
April	1010	83	88	79	91	75	96	72	85	76	5-6	4-4	8-75	14 <td>5-18<td>0<td>0<td>0</td></td></td></td>	5-18 <td>0<td>0<td>0</td></td></td>	0 <td>0<td>0</td></td>	0 <td>0</td>	0
May	1010	83	88	80	90	76	93	75	86	77	5-4	4-3	7-15	14 <td>4-13<td>0<td>0<td>0</td></td></td></td>	4-13 <td>0<td>0<td>0</td></td></td>	0 <td>0<td>0</td></td>	0 <td>0</td>	0
June	1011	83	87	79	90	75	93	70	85	77	5-8	4-9	9-02	13 <td>3-54<td>0<td>0<td>0</td></td></td></td>	3-54 <td>0<td>0<td>0</td></td></td>	0 <td>0<td>0</td></td>	0 <td>0</td>	0
July	1011	82	86	79	89	75	91	73	85	77	5-4	4-6	9-20	13 <td>3-33<td>0<td>0<td>0</td></td></td></td>	3-33 <td>0<td>0<td>0</td></td></td>	0 <td>0<td>0</td></td>	0 <td>0</td>	0
August	1011	82	86	79	90	75	94	72	83	75	5-4	4-8	8-01	12 <td>4-80<td>0<td>0<td>0</td></td></td></td>	4-80 <td>0<td>0<td>0</td></td></td>	0 <td>0<td>0</td></td>	0 <td>0</td>	0
September	1011	83	87	79	90	75	93	72	82	72	5-1	4-1	17-88	14 <td>3-02<td>0<td>0<td>0</td></td></td></td>	3-02 <td>0<td>0<td>0</td></td></td>	0 <td>0<td>0</td></td>	0 <td>0</td>	0
October	1011	82	87	79	90	74	95	71	83	74	5-3	4-3	10-56	15 <td>3-36<td>0<td>0<td>0</td></td></td></td>	3-36 <td>0<td>0<td>0</td></td></td>	0 <td>0<td>0</td></td>	0 <td>0</td>	0
November	1010	82	87	78	91	75	94	66	83	74	6-2	4-3	10-56	15 <td>3-36<td>0<td>0<td>0</td></td></td></td>	3-36 <td>0<td>0<td>0</td></td></td>	0 <td>0<td>0</td></td>	0 <td>0</td>	0
December	1009	82	87	79	90	75	95	65	84	77	6-4	4-9	15-12	17 <td>4-63<td>0<td>0<td>0</td></td></td></td>	4-63 <td>0<td>0<td>0</td></td></td>	0 <td>0<td>0</td></td>	0 <td>0</td>	0
Means	1010	83	87	79	93§	72	84	76	5-9	4-6	123-31	169	36
Totals	96
Extreme values	18	18	18	18	18	18	9	9	13	6	18	18	18	18	18	12
Number of years

* $\frac{1}{2}$ (max. + min.) of lowest in each year. † Days with 0-10 in. or more rain. ‡ Maximum fall during the twenty-four hours from one morning observation to the next. § Mean of highest in each year. ¶ Visibility less than 2 miles at morning observation. || Mean

Approximate Cost of Printing.—Preparation, not given; printing (1008 copies), £37.

By Authority: **EL. V. PAUL**, Government Printer, Wellington.—1948.

Price 6d.