1929.

NEW ZEALAND.

MANDATED TERRITORY OF WESTERN SAMOA.

ANNUAL REPORT OF THE DEPARTMENT OF HEALTH FOR THE YEAR ENDED 31ST MARCH, 1929.

Presented to both Houses of the General Assembly by Command of His Excellency.

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REPORT.

THE CHIEF MEDICAL OFFICER TO THE ADMINISTRATOR.

I HAVE the honour to submit the annual report of the Department of Health for the year ended 31st March, 1929.

ERNEST HUNT, Chief Medical Officer.

ANNUAL REPORT.

During 1928 all visiting has been carried out from the hospital as a base, and this plan, which was quite satisfactory, will be continued next year. Both Tuasivi and Aleipata Hospitals will shortly be staffed by Native medical practitioners; indeed Aleipata has had one in charge for some months. Periodic visits will be paid to these hospitals by a European Medical Officer.

PUBLIC HEALTH.

With the exception of a small outbreak of enteric fever and a mild type of influenza, there has been no epidemic of any kind during the past year, and the health of the community has been excellent. In spite of these facts, however, the year under review has been a very disappointing one as far as natural increase of population is concerned, the actual number of registered births being just under half that of 1927. The figures indicate a very low death-rate as well, and taken in all it seems clear that the results shown are due to a failure to register. The matter will be dealt with at length under the heading "Vital Statistics."

It has not been possible to carry out any medical *malagas*, though most parts of both islands have been visited by Native medical practitioners during the past year. The Administrator made his *malaga* round each island, that in Upolu commencing on the 11th June and occupying ten days, including a visit to the Island of Manono. The Savai'i *malaga* commenced on the 9th July and occupied nine days. In both islands there was abundant evidence of lack of sanitary control, especially in the matter of drop latrines, very many of which were found to be greatly neglected and in bad repair, and also in that of general tidiness of villages, about which pigs were roaming at will. There was, however, a very marked difference in the cleanliness and general tidiness of those villages controlled by loyal Natives, where it was evident that constant efforts were made to preserve order.

The general health of the Natives encountered on *malaga* was excellent, very few cases of sickness being met with, and most noticeable of all was the complete absence of bad cases of yaws. Free treatment for the Samoans has been continued throughout the year, with the one exception of operations not considered absolutely essential, in which case a receipt for taxes has been insisted upon before operating. It is a curious fact that quite a number of prominent members of the Mau movement paid their taxes under these conditions. Treatment for hookworm and yaws has been carried on throughout the year, most parts of both islands having been visited for that purpose. Owing to a further shortage of trained Native nurses, due to defections from various causes, it has been found necessary to close several out-stations staffed previously by them. A Native medical practitioner was sent to Falelima, on the south-west coast of Savai'i, early in December, and is already doing good work, as he is able to cover all of the western side of the island, which is otherwise very inaccessible. In January of this year (1929) the first Native medical practitioner to obtain the three-years certificate granted by the Medical School at Suva, Fiji, returned to the Apia Hospital. His services will be utilized shortly in Safotu, Savai'i, and later he will be given charge of the Tuasivi Hospital. It would appear that the Native students at Suva are well taught, and they should prove capable practitioners. The Chief Medical Officer paid a flying visit to Suva in September last, where he inspected the new school buildings and was much impressed by what he saw. We have still four students studying at the school, two of whom should qualify in 1929.

There is a marked falling-off in the general attendance at the Apia Hospital as compared with the year 1927, though both the European and Samoan in-patients show a decided increase, which is also reflected in the Chinese department. In the case of the European wards the increase is undoubtedly due to the presence in Apia of the Royal Marines who remained behind after the departure of the warships in March, 1928, and also to the special Military Police who later on replaced them; whereas the added increment in the Samoan wards is largely accounted for by the increase in the number of major operations, and a decided rise in the number of women who were admitted for confinement.

The map accompanying this report shows the centres at which treatment for Natives can be obtained. It will be seen from the figures below that the population is unevenly distributed between the Islands of Upolu and Savai'i, Upolu carrying almost twice the number living in Savai'i, and that the Apia Hospital District area contains nearly two-thirds of the whole population of the Island of Upolu. In the account which follows the numbers refer to districts on the map.

	Area.	Population.	Districts included.
Upolu :—			
(*a*)	Apia Hospital area	17,261	1, 2, 3, 4, and western portion of 10.
(*b*)	Aleipata Hospital area	5,254	6, 7, 8.
(*c*)	Lefaga–Safata area	2,862	9 and eastern portion of 10.
(*d*)	Fagaloa Bay area	846	5.
Savai'i :—			
(*e*)	Tuasivi Hospital area	6,112	1, 2, 7A, 6B.
(*f*)	Safotu Hospital area	3,758	3A, 3B, 4.
(*g*)	Salailua–Asau area	3,785	5A, 5B, 5C, 6A, 7B.

(*a*) *Apia Hospital Area.*—This district, which contains about 66 per cent. of the total population of Upolu, is the easiest district for working in Upolu, as there are quite fair motor roads—very good in parts—including twenty-two miles westwards to Mulifanua, and a few miles less to Falefa, on the east coast of the island. It contains the main hospital at Apia, where there are four European Medical Officers stationed, including the Chief Medical Officer. There are nine European nurses, one Native medical practitioner, five cadets in training, and eighteen Samoan nurses, of whom thirteen are trainees. In addition, there are four cadets qualifying at the Medical School in Suva. The Apia Hospital is well equipped, being electrically lighted and having an X-ray plant and separate European and Samoan maternity departments. The laboratory, which is under the charge of a trained bacteriologist, is the largest and best equipped in the South Pacific. "Silverlite" gas is used for heating purposes, and also for sterilizing in the operating-theatre. There were originally four out-stations in this district, each with a trained Samoan nurse in charge, but owing to shortage of nursing staff it has been found necessary to close three of them, leaving only Mulifanua open at present.

(*b*) *Aleipata Hospital Area* has been under the charge of a Native medical practitioner for some months, who has an interpreter cadet and two trained Native nurses to assist him. He makes periodical *malagas* to his district for injecting for yaws and hookworm treatment.

(*c*) *Lefaga–Safata Area* has now three dispensaries, in charge of trained Native nurses, at Satalo, Lotofaga, and Matautu.

(*d*) *Fagaloa Bay*, the most isolated and inaccessible district of all, still has a trained nurse in charge of the dispensary.

(*e*) *Tuasivi Hospital Area* is still under the care of a European Medical Officer, with an interpreter cadet and two trained nurses to assist him.

(*f*) *Safotu Hospital*, on the north coast of Savai'i, is still doing good work under the care of a Native medical practitioner and a trained nurse.

(*g*) The dispensary at Gagaemalae will shortly be moved to Faia'ai, a few miles to the west, and the dispensary at Satupaitea—the Methodist Station—has been closed. There is still a trained nurse at Sataua, in the Asau district, who is now in touch with the Native medical practitioner at Falelima when required. This part of Savai'i is very hard to cater for, owing to coastal conditions.

Unfortunately, it has been found advisable to dispense with the services of the Child Welfare nurse at Fagamalo, Savai'i, and there is no nurse available with similar training just now.

INFECTIOUS DISEASES.

These returns do not include all cases reported in the Territory, but only those notified from the Apia Hospital: Dysentery (bacillary), 3; pneumonia (lobar), 45; pneumonia (bronchial), 11; enteric fever group, 22; leprosy, 3; pulmonary tuberculosis, 27; tubercular peritonitis, 2; meningitis (simple), 3; gonorrhœa, 3; beriberi, 4; tetanus, 3; puerperal septicæmia, 5; varicella, 2; influenza, 50; erysipelas, 1; measles, 1:—

(1) *Influenza.*—A mild catarrhal epidemic broke out in August and lasted into November; no deaths were reported.

(2) *Yaws.*—6,615 treatments were given throughout the Territory, *malagas* being made for the purpose where required.

(3) *Hookworm.*—564 cases were treated in all, no serious case being met with.

(4) *Leprosy.*—Two cases were sent to Makogai in May last, and two fresh cases were admitted to hospital in November and December. There are now twenty lepers at Makogai, as follows: Half-caste Europeans, 5; Samoans, 11; Chinese, 1; Solomon-Islanders, 2; Melanesian, 1. The two cases mentioned are awaiting transfer.

(5) *Enteric Fever Group.*—Twenty-two cases were admitted to the Apia Hospital, of which nine occurred at the Methodist Mission Girls' School at Faleula. This number about represents the average admissions for this disease, which is endemic in Western Samoa, and has a very small death-rate. The epidemic at Faleula began in September, and there was one death, due to an intercurrent broncho-pneumonia. Every effort was made to trace the origin of the outbreak, and for this purpose visits were made to the intake of the water-supply, about three miles inland from Afega. Samples were taken, as well as from the taps in various parts of the village supplied from the reservoir. The drains, privies, &c., were also inspected and found in good order. The analysis of the water-supply (quoted later in an appendix) shows a pure drinking-water. The outbreak was finally traced to a carrier whose home is in Savai'i, and she was isolated until all tests were negative. Only two cases occurred in the village from which the carrier came, and to date no further case has been reported.

QUARANTINE.

During the calendar year seventy-five vessels arrived from overseas, and pratique was granted to all but one, to which partial pratique was given. Two vessels were fumigated.

Quarantine Intelligence Service.—As before, this consists of weekly radios from New Zealand, giving information as to existent epidemic diseases prevalent in that country, and also any valuable information in respect to other parts of the Pacific. In addition, fortnightly messages from London to New Zealand are posted on here, all matters of importance being sent by radio. The Eastern Bureau of the League of Nations Health Organization in Singapore broadcasts returns of epidemic diseases weekly, which are picked up by the Apia Wireless Station, and they also post the weekly fasciculus regularly. In accordance with resolutions passed at the International Health Conference held in Melbourne, 1926, and agreed to by the New Zealand Government, epidemic diseases occurring in this Territory are promptly wirelessed to the Department of External Affairs in Wellington, and from there, through the New Zealand Health Department, to the Director of Public Health in Melbourne, thus keeping up a constant chain of communication. In addition, a wireless message is despatched to Wellington on the 1st of every month, and a quarterly and yearly report of the health of the islands are forwarded and sent on by them as before to Melbourne.

PORT OF APIA.

RETURN OF SHIPPING FOR THE CALENDAR YEAR 1928.

Steam-vessels.

Nationality.	Inward.			Outward.		
	Number.	Tons.	Cargo.	Number.	Tons.	Cargo.
British	66	79,858	12,846	65	79,826	13,356
Foreign	9	28,760	1,066	9	28,760	6,393
Totals	75	108,618	13,912	74	108,586	19,749

Also 12 warships, 2 New Zealand Government vessels, 2 yachts, 1 Royal Danish research ship.

FOOD AND DRUGS.

The New Zealand Food and Drugs Act, 1908, with its regulations, is in force in Western Samoa. During the year the following foodstuffs were condemned and destroyed under the supervision of the Health Officer: Meat in kegs, 640 lb.; frozen meat, 1,011 lb.; canned meat, 790 lb.; fish, 20 lb.; fruit, 145 lb. During the year under review 2,606 lb. of foodstuffs were condemned and destroyed, as against 1,827 lb. in 1927. Seven samples of milk were taken for examination by the Government Analyst for comparison with standard formulation under the above Act. Three failed to pass the test.

There are twenty bakers, eight restaurant-keepers, and four butchers holding licenses to trade under the above Act. A large new building, 50 ft. by 70 ft., has recently been erected for the purpose of a public market, where foodstuffs are being sold. It is built of steel frame, iron roof, and concrete floor sloping to gully-traps and drained to sea, with high-pressure water installed for hosing the floor and other purposes. There are fifty stalls, and the whole building is electrically lighted. This building was erected by private enterprise, and complies with the Board of Health Regulations.

SANITATION.

(*a*) *European.*—105 permits were issued under the Board of Health Regulations; 18 drainage and plumbing plans examined, 5 being altered to comply with the above regulations; septic tanks constructed, 13; water-closets installed, 17; sinks installed, 30; cast-iron baths installed, 5; basins installed, 13; grease-traps installed, 1; drainage, 933 ft. Two drainage systems were drained direct into the sea. During the year under review 81 sanitary fittings were installed and 933 ft. of drainage, as against 76 sanitary fittings installed and 1,426 ft. of drainage in 1927. Number of loads of rubbish removed to the dump, 1,260.

(*b*) *Native Sanitation.*—Inspections for the year, 2,511; nuisances discovered and rectified, 701.

MOTION-PICTURE OUTFIT.

The Department has a portable motion-picture outfit that is used for propaganda purposes in connection with sanitation and tropical diseases. The films used are mostly educational, such as "Life-history of the Fly" (1,000 ft.), "Life-history of the Mosquito" (1,000 ft.), "Unhooking the Hookworm" (1,000 ft.), and several other films supplied by the Government Publicity Officer, Wellington, depicting New Zealand scenery and industries. They are very interesting and instructive. The Natives in the various villages visited turn up in large numbers to see the pictures, some of them having never seen a motion picture before. Owing to a defective engine the outfit at present in use is being replaced by a new one of English manufacture.

CHILD WELFARE.

During the Administrator's *malagas* it was found that three women's committees were still functioning to some extent in Upolu, and one in Savai'i. These three committees in Upolu are all working on the south side of the island, and are doing what they can to promote child welfare, but even then they are much hampered in their work by members of the Mau organization. It will be a long time before the child-welfare scheme can be properly set going again, as, like all matters concerning the health of Natives, it absolutely demands their co-operation.

VITAL STATISTICS (SAMOAN).

These are calculated for the calendar year 1928. The total Native population on the 1st January, 1928, was estimated to be 39,215. The reduction shown in the birth and death rates is believed to be due to non-registration, and the figures in both cases are far too low to be of any statistical value.

NATIVE POPULATION, WESTERN SAMOA.

	Males.	Females.	Total.
At 1st January, 1928	19,942	19,273	39,215
Live births during 1928..	453	410	863
Arrivals from overseas	706	544	1,250
Deaths during 1928	114	105	219
Departures for overseas..	685	546	1,231
Population at 31st December, 1928 (estimated) ..	20,302	19,576	39,878
Natural increase	339	305	644
Excess of arrivals over departures	21	—2	19
Total increase in population	360	303	663

The percentage increase in population during 1928 according to these figures was 1·67, as compared with 3·18 in 1927 and 3·58 in 1926.

The arrivals and departures will be found to balance each other over a period of years.

BIRTHS.

The births of 863 living children were registered during 1928, giving a birth-rate per 1,000 of mid-year population of 21·82. For 1927 and 1926 the figures were 1,636 and 1,965, the birth-rate being 42·37 and 52·62 respectively. The falling-off in the number of births this year is believed to be due to non-registration, as it is difficult to find any other cause. The year 1928 was a prosperous one, and the Native unrest obviously had no bearing on actual births and deaths. As will be seen from the above

figures, the number of births has fallen below half that of 1927—or perhaps it would be more correct to say that the number of registered births has fallen to that figure. It is quite inconceivable that such a diminution could take place in a community which has been the victim of no epidemic whatever, and which, moreover, shows only 219 registered deaths as having occurred during the year. Under the circumstances, it is felt very strongly that the reason advanced for the reduction in the expected increase during the year 1927 is again in evidence, and that there can be only one justifiable conclusion at which to arrive—namely, the non-registration of births and deaths. In the Apia Hospital alone 52 children were born, of which 50 were live births. It is a matter for grave regret that accurate information is not forthcoming in regard to the registration of births and deaths, but in view of the continued unsettled condition of the country, and the fact that the Native organization known as the Mau is still very much in evidence, it would appear as if one will be compelled to wait for the census returns which are due to be taken at the end of 1930 in order to arrive at anything like a satisfactory conclusion. Although those responsible for the registration of births and deaths are the only official source of information, there is nevertheless good ground for believing that true records are kept for each village, the difficulty being the obtaining of such information and its verification when obtained. There is no little consolation in the fact that the census returns of 1930 will in all probability reveal the true state of affairs, though the problem of sorting out results and allotting them to their particular years looks very much as if it might be of a grave nature. It may even be that, given the opportunity during 1929 of a further investigation, many more facts *re* non-registration may come to light, with the added possibility of largely increasing the figures shown by actual registration and of verifying them on the spot.

Births of Samoans, Western Samoa, 1928.

	Males.	Females.	Totals.
Upolu	326	289	615
Savai'i	127	121	248
Total for Western Samoa	453	410	863

Births by Months, 1928.

—	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
Males ..	86	37	29	27	40	35	38	42	32	38	34	15	453
Females	65	36	39	37	33	44	37	29	31	24	21	14	410
Total	151	73	68	64	73	79	75	71	63	62	55	29	863

There were 9 still-births recorded which are not included either as births or deaths in the various figures and rates given in this report. The still-birth rate per 100 live births for the last four years is as follows: 1925, 1·82; 1926, 2·44; 1927, 1·53; 1928, 1·04.

Deaths.

During the year 219 deaths were registered, giving a death-rate per 1,000 of mid-year population of 5·53, whereas during 1927 and 1926 the deaths numbered 495 and 723, with death-rates of 12·82 and 19·36 respectively. The falling-off in the number of deaths is believed to be due to non-registration. In view of the fact that no epidemic had prevailed during the year under review, it is surely a feasible argument that such a low death-rate should show a correspondingly increased birth-rate. In the Apia, Tuasivi, Safotu, and Aleipata Hospitals 44 deaths were recorded for the year 1928.

Deaths of Samoans, Western Samoa, 1928.

	Males.	Females.	Total.	Total estimated Population, 31st December, 1928.
Upolu	69	71	140	26,223
Savai'i	45	34	79	13,655
Total for Western Samoa ..	114	105	219	39,878

Deaths by Months, 1928.

—	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
Males ..	22	15	8	10	14	11	8	6	3	7	8	2	114
Females	22	6	6	12	10	6	6	13	7	5	7	5	105
Total	44	21	14	22	24	17	14	19	10	12	15	7	219

Ages at Death (Samoans), 1928.

—	0–1 Day.	1–2 Days.	2–3 Days.	3–4 Days.	4–5 Days.	5–6 Days.	6–7 Days.	Total 0–1 Week.	1–2 Weeks.	2–3 Weeks.	3–4 Weeks.	Total 0–1 Month.	1–3 Months.	3–6 Months.	6–12 Months.	Total under 1 Year.	1–2 Years.	2–3 Years.	3–4 Years.	4–5 Years.	5–10 Years.	Over 10 Years	Total.
UPOLU—																							
Males	..	1	..	1	..	..	..	2	3	2	..	7	..	4	10	21	6	1	1	2	2	36	69
Females	1	1	1	..	..	..	1	4	..	..	3	7	1	5	4	17	3	2	2	1	2	44	71
Total ..	1	2	1	1	..	..	1	6	3	2	3	14	1	9	14	38	9	3	3	3	4	80	140
SAVAI'I—																							
Males	2	..	..	..	..	..	..	2	1	1	..	4	1	1	3	9	1	1	1	..	2	31	45
Females	..	1	..	..	..	..	..	1	2	..	..	3	..	..	..	3	..	..	1	1	4	25	34
Totals ..	2	1	..	..	..	..	..	3	3	1	..	7	1	1	3	12	1	1	2	1	6	56	79
TOTALS, W. SAMOA—																							
Males	2	1	..	1	..	..	..	4	4	3	..	11	1	5	13	30	7	2	2	2	4	67	114
Females	1	2	1	..	..	..	1	5	2	..	3	10	1	5	4	20	3	2	3	2	6	69	105
Total ..	3	3	1	1	..	..	1	9	6	3	3	21	2	10	17	50	10	4	5	4	10	136	219

INFANT MORTALITY.

The infant-mortality rate for the year 1928 is 58 per 1,000 registered births, as against 101 for 1927, 106 for 1926, and 186 for 1925. It is not possible to credit these figures, as, if by any chance true, Western Samoa would be entitled to occupy a very high place among the nations of the world. As mentioned in last year's report, every effort has been made to obtain reliable information *re* registration, and there can be no doubt but that the figures quoted in the report are inaccurate, and it seems probable that more than 50 per cent. of births and deaths have been suppressed.

Percentage of Deaths at Different Ages to Total Deaths.

—	Number of Deaths.			Percentage of Total Deaths.		
	1926.	1927.	1928.	1926.	1927.	1928.
Under 1 week	31	16	9	4·29	3·23	4·11
From 1 week to 1 month	22	15	12	3·04	3·03	5·48
From 1 month to 3 months	14	16	2	1·94	3·23	0·91
From 3 months to 6 months	37	27	10	5·12	5·46	4·57
From 6 months to 12 months	104	91	17	14·39	18·38	7·77
From 1 year to 2 years	93	55	10	12·86	11·11	4·57
From 2 years to 3 years	32	10	4	4·43	2·02	1·82
From 3 years to 4 years	17	8	5	2·35	1·62	2·28
From 4 years to 5 years	16	4	4	2·21	0·81	1·82
From 5 years to 10 years	27	18	10	3·73	3·63	4·57
Over 10 years	330	235	136	45·64	47·48	62·1
	723	495	219	100·00	100·00	100·00

TOTAL POPULATION OF WESTERN SAMOA.

	31st December, 1927.	31st December, 1928.	Increase.
Europeans and half-castes	2,564	2,770	206
Samoans	39,215	39,878	663
Chinese labourers	939	967	28
Melanesian labourers	147	147	..
Totals	42,865	43,762	897

In the above table—

"European" means any person other than a Samoan, with the exception of the Chinese and Melanesian labourers employed in Western Samoa, who are here shown under separate headings. Thirteen free Chinese and their Chinese-Samoan descendants are included.

"Samoan" means a person belonging to the Polynesian race, whether by pure or mixed descent, but does not include (*a*) persons registered as Europeans in accordance with any regulations or Ordinances in force in Western Samoa, or (*b*) the legitimate children of a father who is a European either by birth or by registration as aforesaid.

"Chinese labourers" means Chinese under contract to work for a term of years in Western Samoa, and includes also twenty-seven labourers who, by reason of long service in Samoa, have been permitted to remain here. (This refers to Chinese who were in Samoa prior to the British military occupation.)

"Melanesian labourers" means Solomon Islanders who were brought to Samoa during the German occupation of the Territory for work on the plantations. The 147 shown are all those remaining, most of them having been repatriated.

HOSPITAL AND DISPENSARY STATISTICS FOR THE YEAR ENDING 31ST DECEMBER, 1928.

—	Hospitals. Apia.	Tuasivi.	Aleipata.	Safotu.	Totals, including Dispensaries and Travelling Units.
(*a*) In hospital, 1/1/28 ..	29	7	2	4	42
(*b*) Admitted during year	1,382	72	174	90	1,718
(*c*) Discharged during year	1,319	58	165	87	1,629
(*d*) Died during year ..	33	4	6	1	44
(*e*) Remaining, 31/12/28	59	17	5	6	87
Out-patients attendances, including dressings	36,340	2,655	3,536	2,103	69,591
Treatment for hookworm	43	10	450	61	564
Treatment for yaws (N.A.B.)	4,121	1,197	488	809	6,615
Operations—					
Major	256	8	52	37	353
Minor	656	22	167	28	873

Dispensaries. Stations.	Date Opened or Closed.	Number of Attendances.
Fagaloa ..	..	1,596
Fasitootai	Jan. 4*	1,401
Fagamalo†	..	1,605
Fusi ..	Oct. 31*	594
Gagaemalae	..	1,845
Lefaga ..	Nov. 30*	2,492
Lotofaga	..	828
Lufilufi ..	Mar. 31*	773
Malua ..	April 30*	1,300
Manono†	July 15‡	1,017
Mulifanua	Aug. 1‡	2,017
Satalo† ..	..	2,839
Satauа† ..	..	2,754
Samataitai	April 30*	990
Satupaitea	Dec. 28*	2,951

Nationality of In-patients. —	Europeans.	Samoans.	Chinese.
(*a*)	1	33	8
(*b*)	295	1,051	372
(*c*)	277	994	358
(*d*)	4	33	7
(*e*)	15	57	15

* Closed, due to shortage of trained Native nurses.
† Returns incomplete owing to isolation and and other difficulties.
‡ Opened.

The above figures do not include children seen in our child-welfare work, cases attended to at mission stations where no nurse is stationed, nor the numbers visited by members of the European staff.

REVENUE AND EXPENDITURE OF THE DEPARTMENT OF HEALTH FOR THE FIVE YEARS ENDED 31ST MARCH, 1929.

Financial Year (1st April to 31st March).	Total Expenditure of Department of Health.*	Percentage of Total Revenue of Territory.	Expenditure per Head of Population.	Gross Revenue (Cost of Collection not deducted). Proportion of Subsidy from New Zealand Government.	Native Medical Levy.	European Fees.	Chinese and Melanesian Fees.	Total Revenue of Department of Health.
	£		s. d.	£	£	£	£	£
1924–25	24,425	18·7	13 0·2	14,000	7,705	1,461	1,140	24,306
1925–26	25,761	17·2	12 11·1	14,000	9,186	1,705	1,603	26,494
1926–27	25,912	19·4	12 5·3	14,000	7,292	1,273	2,167	24,732
1927–28	25,597	20·3	11 11·3	14,000	962	1,375	2,002	18,339
1928–29	24,367	17·2	11 1·6	14,000	2,474	2,568	1,896	20,938

* Expenditure shown does not include interest and sinking fund on capital expenditure, cost of repairs to buildings, and miscellaneous expenditure under head Xv of general estimates, such as travelling-expenses of officers on leave, &c. Expenditure under these heads does not come under the control of the Department of Health.

APIA HOSPITAL.

There is nothing new to report in the way of structural alterations or additions, owing to the financial condition of the Territory. The European maternity wing has been kept busy, and has proved a great boon, as will be seen when the increase in the number of European in-patients—amounting to 118—is taken into consideration, and the two rooms in the main building formerly used as the maternity department have been kept well occupied. Just before the end of 1928 the new hydro-electric scheme came into working, and the hospital and residences attached to it were connected up. It goes without saying that this scheme is a very great improvement on the old system of lighting the hospital. The light is of excellent quality, and the current is available day and night. The Samoan maternity *fale* is still being well patronized, the admissions for the year 1928 amounting to 51, making a grand total of 115 since its opening. Of the cases admitted during the year 44 were normal births, which were usually conducted by the Samoan nurse in charge under the supervision of a European Medical Officer. Already reports are coming to hand from various villages expressing their appreciation of those nurses who have undergone a practical course of midwifery training in this *fale*. Every graduate nurse takes this course, of which the benefit is incalculable.

STATISTICS.

The analysis of hospital statistics follows the plan of last year—viz., for the calendar year 1928.

Treatment : Medical.

As already mentioned, the general attendance has fallen off, but there has been a substantial increase in admissions. The number of cases of lobar pneumonia admitted is slightly below that of last year, being 41 as against 46, though this year there is only 1 death to record from this cause as against 7 last year. Bronchitis shows an advance of 14 on last year's figures—50 against 36—with 1 death. The most marked feature, however, is the large increase in the number of cases of phthisis pulmonalis admitted, which total 27—just three times the number for last year. It is difficult to account for this, as the seasons were normal. The fact that there were no deaths in hospital from this disorder is easily explained, as Samoans naturally prefer to die in their own houses, and consequently when the relatives realize that the case is hopeless they immediately remove the patient, only to die outside. Enteric fever accounts for 22 cases, 9 of which occurred in a girl's high school, as has already been referred to. Six cases of poisoning by Samoan remedies were admitted, of whom 3 died shortly after admission. It is evident that the Samoans do not know of any safe dosage in administering their Native remedies.

Treatment : Surgical.

The work done in this Department has again been excellent. The number of major operations increased by 85 as compared with last year's figures (256–171). A very large proportion of the operations were performed under local anæsthesia, with results gratifying to both surgeon and patient. There is a noticeable increase in the number of hydroceles, no fewer than 61 having been operated upon. Abscesses again figure largely, and are one of the commonest ailments in these islands. It is here noted that they are not considered to be of filarial origin, but due to a staphylococcal infection, a fact which is corroborated by Dr. P. A. Buxton in his recently published second volume of "Researches in Melanesia and Polynesia." Six cases in all of malignant disease were met with, one death occurring.

Chinese Coolies.

There is a decided increase here in admissions to the wards, due to the arrival of a transport from Hong Kong in April last, the newly arrived coolies being very prone to sores which are invariably very septic on admission.

Apia Hospital : Attendance, Operations, etc., for Year 1928.

General attendances—			
Out-patient attendances—			
European and Samoan		16,691	
Chinese and Melanesian		173	
Out-patient dressings (European and Samoan)		15,289	
N.A.B. injections—			
First injections	1,488		
Second injections	1,401		
Third injections	1,232		
		4,121	
Injections for elephantoid fever		25	
X-rays		41	
			36,340
European in-patients			295
Samoan in-patients			715
Chinese and Melanesian in-patients			403
Treatments for hookworm			43
Operations—			
Major			256
Minor			656

Report of the Laboratory, Government Hospital, Apia, 1928.

The total of routine specimens recorded is 1,460. The specimens comprise the following :—

Fæces : Total specimens examined, 164.

Ova (each specimen examined by direct smear and Willis method) : Hookworm (positive), 31 ; ascaris ova (positive), 3 ; trichuris (positive), 11. Adult worms : In many cases 3 specimens obtained after treatment were examined. Hookworm (positive), 6 ; ascaris (positive), 4 ; trichuris (positive), 3.

Occult blood (positive), 10.

Bacteriological examinations : Positive T.B., 1 ; *B. dysenteriæ*, "shiga" (positive), 2 (in both specimens the organism was confirmed by fermentation reactions and agglutination tests) ; *E. hystolytica* (positive), 1 ; *B. typhosus* (positive), 11. A total of 63 specimens of fæces were examined for *typhosus*, the positives being confirmed by agglutination tests.

Chemical examination, 1.

Examination for fat, tissue, and cells, 3.

Urines : Total specimens examined, 783, containing—albumen, 615 ; sugar, 14 ; blood, 64 ; bile, 11 ; acetone, 2. Centrifuged deposits were examined in all but 43 of the specimens. Those containing pus cells, 410 ; casts, 66. Bacteriological reports were made from smears in non-catheter specimens, and cultures in the case of catheter specimens. Organisms present : *B. coli*, 78 ; streptococci, 26 ; staphylococci, 44 ; gonococci, 11 ; T.B., 1.

Sputa : Number examined, 136. Gram and Ziehl Neelson smears were prepared from each specimen, while cultures were prepared from 16. Number positive for T.B., 22.

Blood specimens: Total number of bloods examined, 117. Widals: Number done, 59. Positive *B. typhosus*, 22; positive *paratyphosus* "A," 1; positive *paratyphosus* "B," 0.

Blood Cultures: Staphylococcal, 1; streptococcal, 1; no growth, 8.

Filarial examinations: Bloods examined were 17. Positive, 8.

Total Cell-counts: Red and white cells, 30; hæmoglobin estimations, 30; differential counts, 28; Van den Burgh's test for bile pigments, 5; iodophilia, 2; malaria, 2.

Kahn Test, 1.

Miscellaneous swabs, including specimens of pus: Total examined, 60. Reports issued from smears and cultural findings: Streptococcal, 16; staphylococcal, 26; *B. coli*, 2; *B. Welchii*, 1; tubercle bacilli, 1.

Venereal examinations: Total examinations, 60. Urethral (positive), 16; cervical (positive), 2; vaginal (positive), 6; urines (positive), 11. Cultural examinations were made in 8 examinations with 2 positive results.

Puncture fluids: Total examined, 49.

Leprosy: Number examined, 18. Nasal smears, 8; throat smears, 5; blister-fluid, 3; nodular scrapings, 2 (both positive).

Animal inoculations: Number done, 2. Food-poisoning, 1; puncture-fluid, 1.

Vaccines prepared: Autogenous, 6; stock, 6.

Tissue for sections: Number forwarded, 2.

Stomach-contents for examination: Number examined, 2.

Number of samples of beer, &c., for estimation of alcohol totalled 33.

Number of times summoned to High Court as witness in proceedings, 5.

Copra analysis: Total number of tests for oil content, moisture, free fatty acids, &c., were 7.

Glands from theatre for filarial worms, 5.

Ringworm, 3.

Analysis of milk for fat, solids, water, ash, 7. Water-analysis, 3.

APIA HOSPITAL: CLASSIFIED ADMISSIONS TO EUROPEAN WARDS.

——	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Remaining in Hospital.	Totals.	Deaths.
Alimentary System.															
Appendicitis	..	..	..	..	1	..	..	..	..	..	1	1	..	3	..
Colic	..	1	..	..	1	..	..	..	1	..	..	..	..	3	..
Constipation	..	..	..	..	..	2	..	1	..	2	..	..	..	5	..
Convulsions	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..
Diarrhœa	..	..	..	..	1	..	3	..	..	..	..	..	..	4	..
Dental extractions	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..
Gastritis	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..
Gastro-enteritis	..	..	..	1	..	..	..	..	1	..	1	..	..	3	..
Indigestion	..	..	..	2	..	..	1	..	..	..	2	..	..	5	..
Intestinal obstruction	..	1	..	..	..	..	..	..	..	..	..	..	..	1	1*
Jaundice	..	..	..	..	1	1	..	..	1	..	..	..	1	4	..
Malnutrition	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..
Circulatory System.															
Adenitis	..	1	..	..	..	..	..	..	..	..	1	1	..	3	..
Anæmia	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..
Cardiac	1	..	1	..	1	..	..	1	..	..	1	..	..	5	2
Hæmorrhoids	..	..	..	1	1	..	2	..	..	..	..	..	1	5	..
Varicose veins	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..
Genito-Urinary System.															
Abortion	..	..	..	..	..	1	..	..	..	..	..	2	..	3	..
Calculus, renal	..	..	1	..	..	1	..	..	..	..	..	1	..	3	..
Confinements	1	5	..	2	..	1	2	6	1	1	1	1	1	22	..
Cystitis	..	..	..	..	..	..	2	..	..	..	..	..	..	2	..
Elephantiasis—															
(*a*) Leg	..	..	1	..	..	..	..	..	1	..	..	..	..	2	..
(*b*) Scrotum	..	1	1	..	..	..	..	..	..	..	..	..	..	2	..
Gonorrhœa	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..
Glycosuria	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..
Hernia	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..
Hydrocele	..	..	..	..	..	..	1	2	..	..	..	..	..	3	..
Nephritis	..	..	..	1	..	..	..	1	..	..	..	1	..	3	..
Orchitis	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..
Parametritis	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..
Peritonitis	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..
Peritoneal adhesions	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..
Puerperal fever	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..
Pyelitis	..	..	..	..	..	..	..	..	1	..	2	..	..	3	..
Renal colic	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..
Rectocele and cystocele	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..
Retention of urine	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..
Syphilis	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..
Toxæmia of pregnancy	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Urethritis	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..
Uterine displacements	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..
Uterine hæmorrhage	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..
Vomiting of pregnancy	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..

* Volvulus.

APIA HOSPITAL: CLASSIFIED ADMISSIONS TO EUROPEAN WARDS—*continued.*

—	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Remaining in Hospital.	Totals.	Deaths.
Nervous System.															
Debility	..	..	..	..	..	..	2	1	..	..	1	..	..	4	..
Neurasthenia	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Sciatica	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..
Neuralgia	..	..	..	..	..	1	..	..	1	..	..	..	..	2	..
Respiratory System.															
Asthma	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..
Bronchitis	..	..	2	..	..	..	..	1	..	..	1	..	..	4	..
Catarrh	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..
Pharyngitis	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..
Phthisis pulmonalis	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..
Pleurisy	..	..	1	..	1	..	..	1	..	..	..	1	1	5	..
Pneumonia, bronchial	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..
Pneumonia, lobar	..	..	1	1	..	..	1	..	..	..	..	..	1	4*	..
Tonsillitis	..	..	..	..	..	2	..	..	2	1	1	..	..	6	..
Skin and Subcutaneous Tissues.															
Burns and scalds	..	..	..	..	2	..	..	..	..	..	..	..	..	2	..
Carbuncle	2	..	..	..	..	2	..	1	..	..	..	..	..	5	1
Dermatitis	..	..	..	..	..	3	..	..	1	..	1	2	..	7	..
Furunculosis	..	..	..	..	..	2	..	4	1	..	2	2	2	13	..
Herpes zoster	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..
Mumu	1	..	1	..	..	..	1	..	..	..	..	..	1	4	..
Myositis tropica	..	..	..	..	..	1	..	..	..	..	1	..	..	2	..
Ulcer	..	..	..	..	..	..	1	..	..	..	1	..	..	2	..
Urticaria	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..
Supporting Structures.															
Abscess	2	1	1	1	1	1	1	3	1	1	2	2	2	19	..
Bursitis	..	..	1	..	..	..	1	..	..	..	..	..	..	2	..
Fracture	..	..	..	1	..	..	..	..	..	..	..	..	1	2	..
Ganglion	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..
Injuries	..	1	1	1	6	2	..	2	..	1	..	2	1	17	1
Osteomyelitis	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Periostitis	..	..	2	..	..	..	..	..	..	..	..	..	..	2†	..
Septic wounds	1	..	1	1	..	..	1	..	..	2	1	..	..	7	..
Sinus	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..
Synovitis	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Nail, ingrowing	..	..	..	..	..	..	..	1	1	..	1	..	..	3	..
Special-sense Organs.															
Conjunctivitis	..	..	1	2	..	..	1	..	..	..	..	..	..	4	..
Corneal ulcers	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..
Otitis—															
(*a*) Externa	..	..	..	..	..	..	..	..	3	..	..	..	..	3	..
(*b*) Media	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..
Infectious Diseases.															
Enteric fever	..	..	..	..	..	..	1	1	..	..	..	..	..	2	..
Influenza	..	1	..	..	2	2	19	5	..	..	..	..	2	31	..
Malaria	..	..	..	..	..	..	..	..	..	..	..	1	..	1‡	..
Parasites.															
Hookworm	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..
General.															
Fibrositis	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Poisoning—															
(*a*) Food	..	..	..	..	..	..	..	2	..	..	..	..	..	2§	..
(*b*) Insects	..	..	..	..	..	..	2	..	..	..	..	..	..	2	..
P.U.O.	2	..	1	..	3	1	..	1	..	..	1	..	..	9	..
Rheumatism	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..
Mental	..	..	..	..	..	..	..	..	..	..	1	..	..	1†	..
Needle in foot	..	..	..	..	..	..	..	..	..	..	1	1	..	2	..
Sunstroke	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..
Totals	13	15	18	17	22	25	44	40	21	12	27	25	16	295	5

* Pneumococcus. † Readmissions. ‡ No amœbæ. § Fish.

NOTE.—Monthly columns in these tables show only cases admitted which were discharged before end of year.

APIA HOSPITAL: CLASSIFIED ADMISSIONS TO SAMOAN WARDS.

—	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Remaining in Hospital.	Total.	Deaths.
Alimentary System.															
Ascites	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..
Cholecystitis	..	2	..	..	..	..	..	..	..	..	..	..	..	2	..
Colic	..	1	1	..	..	..	..	..	1	..	..	..	..	3	..
Constipation	..	..	..	..	2	..	..	1	..	..	1	..	..	4	..
Convulsions	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..
Diarrhœa	..	..	2	3	2	1	..	..	1	..	..	..	..	9	..
Gastric catarrh	2	2	..	..	1	..	..	2	1	..	1	2	..	11	..
Gastro-enteritis	1	3	2	7	4	1	..	1	..	..	..	..	..	19	3
Hare-lip	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Intestinal obstruction	..	..	1	1	..	..	..	..	1	..	..	..	..	3	1
Jaundice	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..
Malnutrition	..	..	..	..	3	1	..	1	1	1	..	..	1	8	1
Peritonitis	2	..	1	1	..	..	1	..	..	..	..	1	1	7	1
Pyorrhœa	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..
Stomatitis	1	..	1	..	..	..	..	..	..	..	..	..	..	2	..
Circulatory System.															
Adenitis	..	..	..	..	1	..	..	3	..	2	..	1	..	7	..
Cardiac	..	..	..	2	..	..	..	..	..	..	1	..	..	3	..
Epistaxis	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..
Goitre	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..
Hæmorrhoids	..	..	1	..	1	..	..	..	..	..	..	..	..	2	..
Hæmorrhage	..	..	..	1	..	..	..	1	..	..	..	2	..	4	1*
Mumu	2	1	1	2	..	..	1	..	..	2	..	..	..	9	..
Genito-urinary System.															
Abortion	..	1	..	..	1	..	..	2	..	1	1	..	..	6	..
Confinements	5	4	4	3	7	7	4	4	3	3	2	5	..	51	..
Cystitis	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..
Endometritis	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..
Elephantiasis of scrotum, &c.	2	3	..	2	1	3	..	2	1	..	..	..	..	14	..
Elephantiasis of arm	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..
Glycosuria	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..
Hernia	3	2	1	1	1	1	..	1	..	1	..	..	..	11	1†
Hydrocele	10	3	9	12	10	4	2	2	..	2	2	1	..	57	..
Nephritis	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..
Orchitis	..	..	..	..	..	..	..	1	1	..	..	..	..	2‡	..
Oophoritis	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..
Ovarian cyst	1	..	..	..	..	..	..	1	..	..	..	..	..	2	..
Parametritis	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..
Puerperal fever	2	..	1	..	2	..	1	1	2	..	..	..	..	9	2§
Sapræmia	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..
Pyelitis	1	..	..	..	..	1	..	..	..	..	..	..	..	2	..
Retention of urine	..	..	..	..	..	..	..	..	..	..	2	..	..	2	..
Sterility	..	1	1	..	..	..	..	..	..	..	..	..	..	2	..
Toxæmia of pregnancy	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Urethral fistula	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..
Uterine displacements	1	..	..	..	1	..	..	..	..	..	..	..	..	2	..
Uterine hæmorrhage	1	..	..	..	1	..	..	1	1	..	..	..	..	4	..
Vomiting of pregnancy	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..
Nervous System.															
Debility	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..
Hysteria	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..
Meningitis	..	..	1	..	..	..	..	..	1	1	..	..	..	3	..
Spastic paraplegia	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..
Respiratory System.															
Bronchitis and asthma	3	3	6	2	1	1	5	7	8	3	6	4	1	50	1
Catarrh	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Hæmoptysis	..	..	..	1	..	..	1	2	..	..	..	..	..	4	..
Laryngitis	..	1	1	..	..	..	1	..	..	..	..	..	..	3	1
Nasal polypus	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..
Phthisis pulmonalis	..	..	3	3	2	4	..	1	..	2	..	1	1	17	..
Pleurisy	2	2	1	1	1	1	..	1	..	1	1	1	2	14	..
Pneumonia, broncho	..	..	..	1	..	2	2	1	3	1	..	..	..	10	..
Pneumonia, lobar	4	..	2	1	2	4	14	4	3	1	3	..	3	41	1
Tonsillitis	..	..	..	..	..	..	..	..	..	1	..	1	..	2	..
Skin and Subcutaneous Tissues.															
Burns and scalds	2	1	..	..	..	1	..	1	3	..	..	..	..	8	..
Cellulitis	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..
Myositis tropica	..	1	..	2	1	2	1	2	..	2	..	..	..	11	..
Purpura hæmorrhagica	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..
Ulcer	..	1	..	1	1	..	1	1	1	..	1	..	..	7	..
Urticaria	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..

* Cephal hæmatoma. † Strangulated. ‡ Gonorrhœal. § Confined outside.

APIA HOSPITAL: CLASSIFIED ADMISSIONS TO SAMOAN WARDS—*continued.*

—	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Remaining in Hospital.	Totals.	Deaths.
Supporting Structures.															
Abscess	1	7	4	4	9	1	6	2	2	10	7	5	1	59	1*
Arthritis	..	5	1	1	..	1	1	..	..	..	..	..	..	9	1†
Bursitis	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..
Fractures	..	1	2	..	2	1	1	1	1	1	..	..	..	10	..
Injury	..	..	..	..	..	1	..	..	1	2	..	..	..	4	..
Osteomyelitis	2	1	..	..	1	3	..	..	..	1	..	..	2	10	..
Wounds, &c.	2	8	2	6	5	3	2	7	2	5	2	3	2	49	..
Synovitis	2	..	..	..	..	1	1	..	..	..	1	..	..	5	..
Special-sense Organs.															
Conjunctivitis	1	1	..	2	..	..	..	..	..	..	..	3	..	7	..
Corneal ulcer	..	..	..	..	..	..	..	..	..	1	1	..	..	2	..
Injury to eye	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..
Iritis	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..
Otitis media	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..
Parasites.															
Ascariasis	2	..	..	..	..	..	..	..	..	..	..	..	..	2	..
Hookworm	..	..	2	..	..	..	..	..	..	..	..	..	..	2	..
Filariasis	..	1	..	1	..	..	..	..	..	..	..	..	1	3	..
Infectious Diseases.															
Bacillary dysentery	..	..	..	1	..	1	..	..	..	..	..	..	..	2	..
Enteric fever	..	1	2	2	2	..	..	..	1	8	2	..	..	18	1‡
Leprosy	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..
Measles	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..
Tetanus	..	1	1	..	..	1	..	..	..	..	..	..	..	3	2
Varicella	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Yaws	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..
Influenza	1	..	..	..	..	..	8	4	..	..	..	..	..	13	..
General.															
Fibrositis	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..
Malingering	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..
Poisoning—															
(*a*) Food	..	..	..	..	1	..	..	..	2	..	..	..	..	3	..
(*b*) Gas-benzine	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..
(*c*) Samoan remedies	..	1	1	1	1	1	..	1	..	..	..	..	..	6	3
(*d*) Fish-spine	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..
P.U.O.	1	..	2	1	2	3	2	1	..	2	..	2	..	16	..
Tuberculosis	..	..	..	..	..	..	..	..	1	2	..	..	1	4	..
Tumors.															
(*a*) Benign	1	3	1	1	1	..	3	..	..	1	..	..	1	12	..
(*b*) Malignant	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sarcoma	..	1	..	..	..	1	..	..	..	..	..	..	..	2	1
Carcinoma	1	..	1	1	..	..	..	..	..	..	..	..	..	3	..
Chorion epithelioma	..	..	..	..	..	..	..	..	1	..	..	..	..	1	1
Abnormalities.															
Congenital	..	..	..	1	..	..	..	..	..	..	..	..	..	1§	..
Talipes	..	..	..	1	1	1	..	..	..	..	..	..	..	3	..
Totals	61	66	61	73	73	55	61	64	44	60	39	37	21	715	23

* Double abscess. † Parotitis. ‡ Broncho-pneumonia. § Ilium.

APIA HOSPITAL: CLASSIFIED ADMISSIONS TO THE CHINESE WARD.

—	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Remaining in Hospital.	Totals.	Deaths.
Alimentary System.															
Appendicitis	..	..	1	..	..	..	..	..	..	..	1	..	..	2	..
Colic	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..
Constipation	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..
Diarrhœa	3	2	2	1	1	1	1	..	..	2	3	1	..	17	..
Gastric catarrh	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..
Jaundice	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..
Oral sepsis	..	..	..	..	..	..	..	..	1	1	..	..	..	2	..
Circulatory System.															
Adenitis	..	..	1	..	..	..	..	2	..	1	..	..	..	4	..
Cardiac	..	..	..	1	..	..	..	1	..	..	..	..	..	2	1
Hæmorrhage	..	..	..	..	..	..	..	..	..	..	1	..	..	1*	..
Muscular rheumatism	..	..	1	..	..	..	..	..	..	..	..	2	..	3	..

* Tooth.

APIA HOSPITAL: CLASSIFIED ADMISSIONS TO THE CHINESE WARD—*continued.*

—	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Remaining in Hospital.	Total.	Deaths.
Genito-urinary System.															
Cystitis	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..
Epididymitis	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..
Hydrocele	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..
Phimosis	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..
Respiratory System.															
Asthma	..	..	..	..	..	..	..	..	1	..	..	..	1	2	..
Bronchitis	..	2	1	..	..	..	..	1	1	3	..	..	..	8	..
Phthisis pulmonalis	..	1	..	1	..	..	..	..	..	..	..	..	2	4	1
Pneumonia, lobar	..	..	..	..	1	..	..	..	..	..	..	..	1	2	..
Tonsillitis	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..
Skin and Subcutaneous Tissues.															
Boils	..	1	1	..	..	2	..	2	..	..	2	..	..	..	8	..
Carbuncle	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..
Burns and scalds	..	..	..	2	..	..	1	..	..	..	..	..	..	..	3	..
Cuts, wounds, &c.	..	3	2	1	..	3	5	3	1	3	1	5	3	3	33	..
Dermatitis	..	1	3	1	..	2	3	..	..	2	3	1	1	..	17	..
Herpes zoster	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..
Septic sores	..	..	4	5	12	2	10	6	8	3	1	1	3	2	2	59	..
Scabies	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..
Ulcer	..	..	2	..	5	1	6	29	15	10	1	4	9	4	5	91	1*
Supporting Structures.															
Abscess	..	..	2	1	5	2	8	4	..	2	2	2	3	3	..	34	..
Bone necrosis	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..
Fracture	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..
Injury	..	..	..	3	..	1	..	1	..	..	1	1	2	1	..	10	1†
Synovitis	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..
Infectious Diseases.															
Beriberi	..	..	..	..	..	1	..	..	1	..	..	2	..	..	2	6	..
Enteric fever	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	2	..
Influenza	..	..	..	..	..	..	..	..	1	3	..	..	1	1	..	6	..
Leprosy	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1‡	..
Special-sense Organs.															
Conjunctivitis	..	..	2	1	2	3	1	..	2	..	1	..	1	1	..	14	..
Corneal ulcer	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..
Stye	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Parasites.															
Hookworm	..	..	..	..	1	..	..	..	..	1	1	..	1	..	..	4	..
General.															
Fibrositis	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..
Malingering	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..
Mumu	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..
P.U.O.	..	..	2	3	1	..	..	1	1	1	2	3	1	..	..	15	..
Paresis	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1§	..
Tumors.															
Carcinoma	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	1‖
Totals	..	24	27	37	17	36	51	38	26	17	29	35	19	16	372	5	

* Cardiac failure. † Pyæmia. ‡ To Makogai. § Repatriated. ‖ P.M. liver.

APIA HOSPITAL: CLASSIFIED ADMISSION OF MELANESIAN LABOURERS.

—	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Remaining in Hospital.	Totals.	Deaths.
Abscess	..	3	1	..	2	..	..	..	..	..	1	1	..	..	8	..
Anæmia, pernicious	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..
Boils	..	1	1	..	..	..	..	..	..	..	..	..	1	..	3	..
Conjunctivitis	..	1	..	1	..	..	..	1	..	..	..	..	1	..	4	..
Chancroid	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Corneal ulcer	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..
Dermatitis	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..
Hydrocele	..	..	1	..	..	..	..	..	..	..	..	..	..	1	2	..
Injury	..	..	1	..	..	..	..	..	..	1	..	..	..	1	3	..
Synovitis	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Tinea imbricata	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Ulcer	..	1	..	..	1	..	..	..	..	..	..	..	..	1	3	..
Whitlow	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..
Lumbago	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..
Totals	..	9	5	1	4	..	1	2	..	1	1	2	2	3	31	..

APIA HOSPITAL: MAJOR SURGICAL OPERATIONS, 1928.

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Totals.
On skin and cellular tissue—													
Angioma of face	..	1	..	..	..	..	..	..	..	..	..	..	1
Abscess	..	1	..	3	7	1	4	1	..	3	6	4	30
Carbuncle	..	..	..	..	..	1	..	..	..	..	..	..	1
Cyst of face	..	..	..	..	..	..	..	..	..	..	..	1	1
Glands	..	..	1	..	..	..	..	1	..	..	..	..	2
Lipoma	1	..	..	2	..	1	..	..	..	..	..	2	6
Papilloma	..	..	..	..	..	1	..	..	..	..	..	..	1
Repair of wounds	3	1	..	1	1	..	..	..	..	2	..	..	8
Repair of tendons	..	..	..	..	..	..	..	1	..	1	1	..	3
On bones—													
Amputations	1	..	1	..	1	1	..	..	2	2	..	..	8
Necrosis	..	..	..	..	..	1	..	..	..	..	..	..	1
Osteomyelitis	1	2	..	..	1	2	..	1	1	2	2	..	12
On joints—													
Knee	..	2	..	..	..	..	..	..	..	..	..	..	2
On eye—													
Ectropion	..	..	..	..	..	..	..	..	1	..	..	..	1
Evisceration	..	..	..	..	..	1	..	..	..	1	1	..	3
Pterygium	..	..	3	1	..	..	1	..	..	..	..	..	5
On ear, nose, and throat—													
Nasal cyst	..	..	..	..	..	..	..	..	..	..	..	1	1
Nasal polypus	..	..	..	..	..	1	..	..	..	..	..	1	2
Tonsillectomy	..	..	1	..	..	..	..	..	..	1	..	1	3
Thyroid adenoma	..	1	..	..	..	..	..	..	..	..	..	..	1
On abdomen—													
Appendicetomy	..	..	..	..	1	..	..	..	..	..	1	1	3
Hernia	4	1	1	1	..	2	..	1	..	1	..	..	11
Laparotomy	3	2	2	1	1	..	..	..	..	1	..	2	12
Nephrectomy	..	..	..	..	..	..	..	..	..	..	..	..	..
On male organs—													
Elephantoid penis and scrotum	1	5	2	4	3	2	..	1	2	..	..	..	20
Elephantiasis of arm and leg	..	..	..	1	1	..	..	..	..	1	..	..	3
Cystoscopy	..	..	..	..	..	..	1	..	..	..	..	..	1
Urethral injury	..	..	..	..	..	..	..	1	..	..	..	..	1
Hydrocele	8	7	8	10	10	4	5	6	..	1	..	2	61
On female organs—													
Cervix uteri	..	..	..	..	2	..	..	..	..	..	..	..	2
Curettage	..	1	2	..	..	..	1	..	..	..	..	2	6
Dermoid cyst of ovary	1	..	..	..	..	..	..	..	..	..	..	..	1
Hysterectomy	..	1	..	..	..	..	..	..	..	..	..	..	1
Ovarian cyst	..	..	1	..	..	..	..	1	..	1	..	..	3
Parametritis	..	..	..	..	..	..	..	..	..	..	1	..	1
Perineorrhaphy	..	..	..	..	..	..	..	1	..	..	..	..	1
Uterine exploration	..	..	..	..	..	..	..	..	1	..	..	..	1
Vaginal cyst	..	..	1	..	..	..	..	..	..	..	..	..	1
Retroversion	1	..	..	..	..	..	..	..	1	..	..	..	2
Vaginal examination	1	..	..	..	1	..	..	..	..	..	1	..	3
General—													
Extraction of teeth	..	..	..	..	..	..	..	..	..	..	..	1	1
Fistula in ano	..	..	2	..	..	..	..	..	..	..	..	..	2
Hæmorrhoids	..	..	1	1	..	..	1	..	..	..	..	1	4
Sinus	1	..	..	1	..	1	1	..	..	..	..	1	5
Fracture, reduction of	..	..	..	..	1	..	..	..	..	..	..	..	1
Induction of labour	..	..	..	..	..	..	..	..	2	..	..	..	2
Needle in foot	..	..	..	..	..	..	..	..	..	..	1	..	1
Ganglion of wrist	..	1	..	..	..	..	..	..	..	..	1	..	2
Ulcer, excision of	..	1	..	..	..	..	..	..	..	..	..	..	1
Ingrowing toe-nail	..	..	..	1	..	..	..	1	1	..	..	..	3
Skin-grafting	..	..	..	..	1	..	..	..	..	..	..	..	1
Talipes	..	..	..	..	2	3	..	..	..	..	..	..	5
Bursa, excision of	..	..	..	..	1	..	1	..	..	..	..	..	2
Totals	22	30	27	24	36	22	15	17	11	17	15	20	256

APPENDIX A.

APIA OBSERVATORY: METEOROLOGICAL OBSERVATIONS, 1928.

1928.	Pressure.		Temperature.				Relative Humidity.	Rainfall.		Sunshine.	Number of Deaths per Month.
	Mean.	Variation from Normal.	Mean.	Variation from Normal.	Absolute Maximum.	Absolute Minimum.	Mean.	Total.	Variation from Normal.	Total.	
	Inches.		°F.				%	Inches.		Hours.	
January ..	29·724	— ·040	80·50	+ 1·49	88·9	74·1	84·3	21·32	+ 4·51	155·5	44
February ..	29·833	+ ·055	80·97	+ 1·97	88·7	74·5	84·6	21·70	+ 5·99	206·5	21
March ..	29·800	+ ·015	81·13	+ 1·79	88·7	74·7	86·1	15·78	+ 2·24	187·1	14
April ..	29·622	+ ·017	80·53	+ 1·62	88·2	71·8	85·9	11·29	+ 1·05	176·9	22
May ..	29·862	+ ·004	79·54	+ 1·17	86·7	70·9	86·8	6·51	+ 1·00	243·7	24
June ..	29·874	0	78·28	+ 0·48	86·8	67·8	81·5	1·24	— 3·92	213·8	17
July ..	29·881	— ·021	77·58	+ 0·38	86·4	67·8	85·1	8·76	+ 6·12	200·0	14
August ..	29·890	+ ·034	79·01	+ 1·21	87·4	70·3	85·1	6·02	+ 2·87	258·4	19
September ..	29·901	+ ·013	79·31	+ 1·10	86·2	71·2	86·0	8·03	+ 2·91	214·7	10
October ..	29·856	— ·012	79·57	+ 1·15	87·4	70·3	84·9	7·62	+ 1·56	257·3	12
November ..	29·824	+ ·014	79·52	+ 0·83	89·6	70·5	86·8	14·31	+ 5·02	160·8	15
December ..	29·807	+ ·030	80·80	+ 1·55	88·7	72·1	84·6	10·69	— 2·93	227·5	7
	29·839	+ ·017	79·73	+ 1·23	..	..	85·1	133·27	26·42	2,502·2	219

APPENDIX B.

TOKELAU ISLANDS.

VITAL STATISTICS.

Island.	Males.	Females.	Total.
Atafu	196	202	398
Nukunono	103	104	207
Fakaofo	200	201	401
	499	507	1,006

The above table shows the estimated population as at 31st December, 1928. Three visits were paid to the islands during 1928—one in June by the Collector of Customs on behalf of the Administrator, the second a meteorological survey in August by Professor Andrew Thomson, Head of the Observatory in Apia, and the third a visit made in September by Captain Butterfield, A.D.C. to the Administrator. The June trip was made in H.M.S. "Laburnum," and some time was spent off the Island of Nukunono taking bearings and records of the position of the island, which was found to be incorrectly charted, the results being forwarded to the authorities concerned. The health of the islands of the Group was found to be good, and the Natives were unanimous in expressing their appreciation of the manner in which the islands are being administered, and seemed happy and contented. The records of births, deaths, and marriages were inspected and found to be well kept. The total population of the islands at the time of inspection was 1,024, which compared with the figures given in the table above shows a decrease of eighteen during the latter six months of the year.

SANITATION.

The surgeon of H.M.S. "Laburnum" made a health survey of the islands during the trip, and reports that conditions were entirely satisfactory, and that each place bore out its previous reputation for cleanliness.

HEALTH.

This trip was the second made to the islands by the "Laburnum's" surgeon, he having visited them in 1926, so it is fortunate that he was able to make a comparison between the two trips in regard to the health of the Natives. He considered that the people have wonderfully improved in health since 1926, a noticeable example being that of *Tinea imbricata*, which has diminished very much under treatment. He also records a practical disappearance of eye-diseases. The Native medical practitioner divides his time equally between the islands as far as is practicable, his headquarters being at Fakaofo.

APPENDIX C.

A CASE OF CHORION EPITHELIOMA.

By L. Carrington Mail, M.B., Ch.B.

The patient was a Samoan female, aged twenty-five years. Admitted to hospital on 5/9/28.

History.—She was an in-patient one month previously for a threatened miscarriage. After a few days she left hospital apparently well. On readmission she stated that she had been losing a lot of blood for a week. She said she was six months pregnant, but that movements of the child had ceased a week before. She was having pains in the lower abdomen and back. She has had one healthy child four years ago.

On examination: Temp. 102·4 F.; pulse 98; rep. 20. The fundus of the uterus was a little below the level of the umbilicus. There was tenderness all over the lower abdomen.

Vaginal examination: The cervix was very much elongated and the os uteri was closed. No blood on examining fingers.

Progress of the case: On 10/9/28 patient was transferred to the maternity ward under my care. She was bleeding from the uterus and losing a moderate amount of red blood. She had intermittent pains in the left side and back.

P.V.: The cervix is flabby and soft and the os uteri admits the tip of the index finger. Nothing could be felt through the os. The fœtal heart was not heard. Uterus enlarged to size of four months pregnancy. Breasts enlarged with pigmentation of the areolæ.

Diagnosis.—Intrauterine death of fœtus at the fourth month.

Treatment.—Medicinal induction of labour by quinine and castor-oil with tight vaginal plugging was carried out on 10/9/28. This failed, and was repeated on 11/9/28 with injections of pituitrin. This second attempt failed also, and on 13/9/28 induction by bougies was carried out, a No. 13 rubber catheter being inserted into the uterus for 6 in. and the vagina packed tightly with gauze. On 14/9/28 patient had pains in the back and lower abdomen. Vaginal plugging removed and vagina repacked. On 15/9/28 pains had ceased, and the plugging and catheter were removed, and glycerine (½ oz.) injected into the cavity of the uterus. This had no result. On 18/9/28 a small Champetiere de Ribes bag inserted into the uterus. Good pains supervened, and the os slowly dilated, aided by the pull of a 2 lb. weight on the bag. On 20/9/28 labour had not occurred, and there was no further dilatation of the os uteri: it was therefore decided to explore the uterus. Under general anæsthesia the cervix was dilated manually and a hand passed into the uterus. No fœtal parts could be felt, nor could the uterine wall be definitely defined in the region of the fundus. During the examination a piece of small intestine was grasped by the fingers, though there was no sensation that the uterine wall had ruptured. The uterus and vagina were rapidly plugged with gauze and the patient transferred back to the ward, where she died two hours later after regaining consciousness.

Post-mortem Examination.—On opening the abdomen the uterus was found enlarged to the size of a four-months pregnancy. The uterus and intestines were matted together and adherent extensively to the abdominal wall. There was pus in the pelvic cavity, which was completely shut off by adhesions from the general abdominal cavity. The uterine wall was invaded by a soft, extremely friable, cancerous growth, which in the region of the fundus had completely destroyed and replaced the uterine muscle. In the middle of the growth was a large irregular tear. The growth was the size of a large orange, and had invaded a large area of the uterine wall. No fœtal parts were discovered either in the uterus or in the abdominal cavity. The nature of the growth was a chorion epithelioma.

Comment.—This is a case in which the diagnosis was not correctly established till the uterus was manually explored. The history and all the symptoms pointed to an ordinary miscarriage occurring at the fourth or fifth month.

A CASE OF PERNICIOUS ANÆMIA TREATED BY LIVER DIET.

By L. Carrington Mail, M.B., Ch.B.

The patient, an Indian named Secduck Allee, aged twenty years, was admitted to the Apia Hospital on 26/4/28.

History.—The duration of the illness was three months at the date of admission. He had been treated for hookworm disease in Suva a month previously. He complained of great weakness, shortness of breath on exertion, and progressive loss of weight.

Condition on examination: He was a miserable-looking specimen, anæmic, weak, and emaciated. The teeth were good, and there was no evidence of glossitis. The tongue was clean. Examination of chest negative. Heart not enlarged; pulse slow and weak. There was a faint blowing systolic murmur in the mitral area. Abdomen: The liver and spleen were not enlarged. His weight on 26/4/28 was 82½ lb. Fæces: The Willis method was positive for ova of *Nocator Americanus*. Urine acid, S.G. 1007. Albumin positive. Sugar nil. Centrifuged deposit nil.

Blood Examination on 26/4/28: Red cells, 2,500,000 per cubic millimetre; white cells, 5,400 per cubic millimetre; hæomoglobin, 50 per cent.; colour index, 1. Differential count: Polymorph loucocytes, 42 per cent.; small lymphocytes, 36 per cent.; large lymphocytes, 6 per cent.; eosenophile, 12 per cent.; large mononuclears, 4 per cent. The red-blood cells show marked poikilocytosis, anicocytosis, and polychromatophilia.

Diagnosis.—The blood picture was typical of pernicious anæmia.

Treatment.—The usual treatment for hookworm was first given but no worms were obtained. The patient was then treated by giving a diet of milk, rice, and vegetables to which was added liver to the amount of ½ lb. daily. The liver was partly cooked, and eaten three times a day.

Progress: Improvement began immediately the liver diet was begun. On 26/4/28 the weight was 82½ lb.; on 9/5/28, 88 lb.; on 16/5/28, 85½ lb.; on 23/5/28, 87 lb.; on 1/6/28, 99½ lb.; on 15/6/28, 105 lb.; on 22/6/28, 109 lb.; on 30/6/28, 113 lb.

Blood counts were as follows: On 12/5/28 the red count was 2,510,000 per cubic millimetre; hæmoglobin, 50 per cent.; colour index, 1. On 5/6/28 the red count was 4,960,000; hæmoglobin, 80 per cent.; colour index, 0·8. On 13/6/28 the red count was 4,980,000; hæmoglobin, 90 per cent.; colour index, 0·9. On 30/6/28 the red count was 5,100,000; hæmoglobin, 90 per cent.; colour index, 0·9.

The patient was discharged from hospital on 2/7/28, having gained 30½ lb. He looked fit and well. He had received no drug treatment during his stay in hospital.

APPENDIX D.

DISEASE AMONGST COCONUT-PALMS IN PLANTATIONS IN UPOLU, WESTERN SAMOA.

At the end of the year 1928 the Health Department was requested to obtain the co-operation of the Bacteriologist to the Apia Hospital with a view to investigating a disease amongst coconut-palms on Vaitele Plantation. This plantation is the property of the New Zealand Reparation Estates, and is situated about three miles west of Apia, on the main road to Mulifanua. The disease to the naked eye affects the leaves, which turn yellow, wither, and drop off, together with the fruit and fruit-stalks, whilst the tree itself carries a dead appearance, more marked in the later stages. On the 31st December, 1928, the Chief Medical Officer and the bacteriologist visited the plantation and saw a diseased tree grubbed up by the roots with a "Forest-Devil," which has the advantage of bodily tearing up the roots without cutting them. The Bacteriologist reports as follows:—

"On inspection the tree suggested lack of nourishment, and gave one the idea of a plam just about to die. The cabbage generally had a very unhealthy appearance, with leaves of a yellowish tint, and entirely devoid of fruit and flowers. No evidence of bud-rot or like disease was found. Starting from the top of the tree and working towards the root, the trunk appeared outwardly quite normal, but on sectioning with an axe it was observed to be very dry, especially at the top. The roots proved interesting, for they were decidedly unhealthy in appearance and condition. On close examination nearly all were found to be useless in so far as supplying nourishment for the palm was concerned, many being dry, crumbling at a touch, and consisting of merely an outer shell, whilst others were in a semi-rotten condition, containing a slimy jelly-like substance, causing decay of the inner root.

"An examination of the soil for rock and lava-bed yielded no result: a very few small stones with no evidence of lava-bed were found. The soil, of the brown volcanic type, appeared quite good, some being forwarded to the laboratory for chemical analysis.

"A microscopic examination of slides prepared from scrapings from the inner roots demonstrated the presence of numerous types of soil bacteria with several moulds. Cultures prepared from both dry and wet roots grew a profuse mixed growth of organisms, including a slimy fungoid growth not unlike that found in the roots when first examined. This fungus is in the process of isolation, and when grown in pure culture will form the medium for infecting healthy palms. This will demonstrate whether or not this particular fungus reproduces the disease in a healthy tree, as well as proving its power of infection. Prevention and cure experimentation can then be undertaken under ideal conditions.

"Sections of the trunk failed to show any abnormality beyond some slight shrinkage when compared with that of a healthy tree. This shrinkage may, however, have been caused during the time between cutting the tree and making sections in the laboratory."

The matter is being further investigated, sections of diseased trees being frequently examined, whilst the minor bases of the affected leaves are being examined for fungi, as in the disease report by A. Sharples in the *Malayan Agricultural Journal* of September–October, 1928.

APPENDIX E.

FATAL EPIDEMIC AMONG PIGS IN WESTERN SAMOA.

On the 20th November the Health Department was notified of an outbreak of a very fatal epidemic among pigs, which was very widespread. A visit was paid the same day by the Chief Medical Officer, Health Inspector, and Bacteriologist to the Village of Laulii, some five miles east of Apia, from which place the notification had come. Information was forthcoming that the epidemic was very widespread and very contagious, many hundreds of pigs being reported as having died in Apia and the surrounding districts. This was the first notification received as to the existence of such an epidemic. On arrival at the village the party was shown a pig which had quite recently died, and another which had symptoms of fever, cough, and shortness of breath, whilst there was oozing of froth from the nose. A post-mortem was immediately performed, which showed consolidation at the bases of both lungs, with apical patches of inflammation and extensive pleural adhesions, there being also a considerable amount of fluid in the pleural cavity. To the naked eye the appearance was that of a broncho-pneumonia. Swabs and sections were taken away, as well as portions of

ntestine. The latter portions showed no signs of ulceration. From cultures a mixed infection was grown which included a bacillus culturally resembling *B. avisepticus* (Park and Williams), a suggested partial cause of pneumonia in pigs. It appears that the epidemic had been in existence for at least two months before notification, and there can be little doubt as to the extensive morality. From the post-mortem appearances, and the absence of any intestinal ulceration or of severe diarrhœa, it would appear as if this disease was septic pneumonia, and not hog cholera or swine fever. The coastal portions of Upolu and Savai'i were mostly affected, many inland places escaping altogether. The epidemic subsided about the end of January, and at the time of writing—early in April—has apparently ceased, though by its ravages it has literally decimated the porcine population.

The symptoms described were a gradual onset in most cases, the affected animal losing weight rapidly and tending to lie about a lot, whilst accompanying this were cough, shortness of breath, some diarrhœa, and in some instances a blood-stained froth oozing from the nostrils. Some cases were of a fulminating type, with death occurring in two or three days. Very few young pigs were affected compared with older animals. Various treatments were tried—expectorants, stimulants, &c.—but nothing seemed to in any way effect a cure.

APPENDIX F.

AFEGA WATER-SUPPLY.

A sample of water taken in a sterile container from the sub-surface water at the dam was received at the laboratory within two hours of collection, and immediately placed on ice.

To the naked eye the specimen was sparkling clear. A microscopic examination of the centrifuged deposit demonstrated the presence of a little gritty material, green algæ matter, and a few motile bacteria.

Cultural examinations were as follows: No *B. coli* grew in quantities up to 50 c.c. No evidence of *B. typhosus*. Number of colonies per cubic centimetre of water, 162, included among which were two colonies of mould. Organisms present were *B. subtilis* and aerobic saprophytes, probably normal water inhabitants.

Summary: From the bacteriological findings this sample suggests an excellent reservoir.

Approximate Cost of Paper.—Preparation, not given; printing (500 copies, including map), £27 10s.

By Authority: W. A. G. SKINNER, Government Printer, Wellington.—1929.

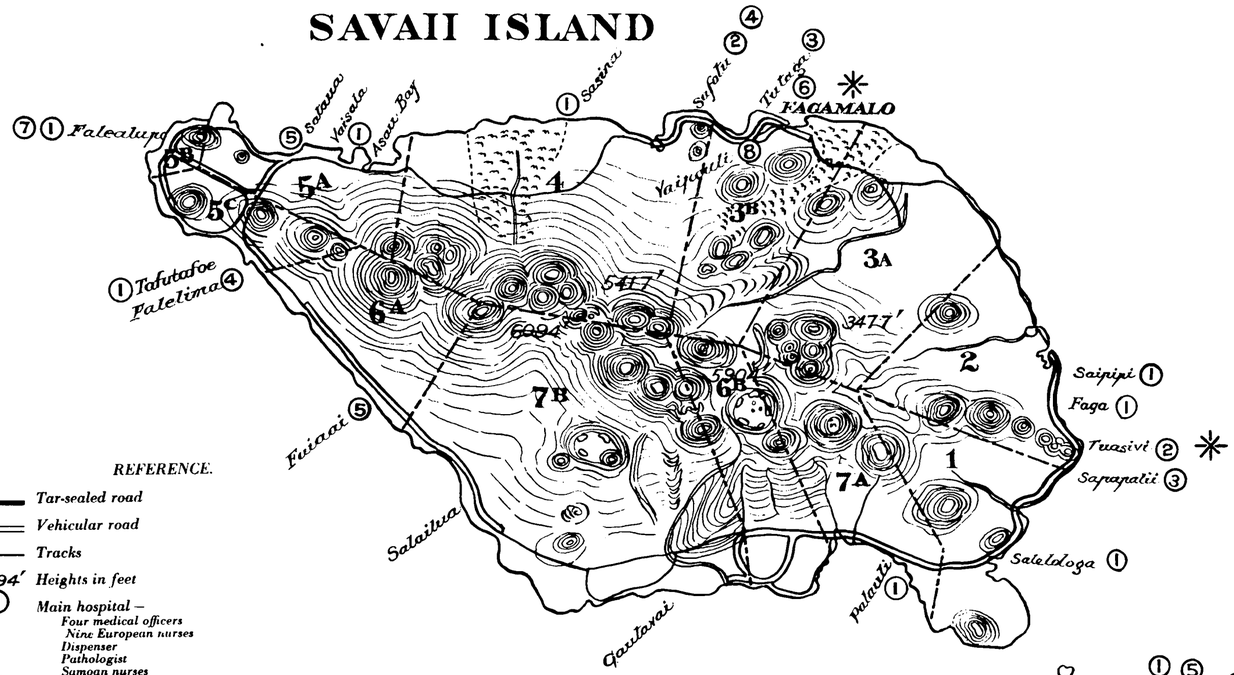
Price, 9d.]

WESTERN SAMOA

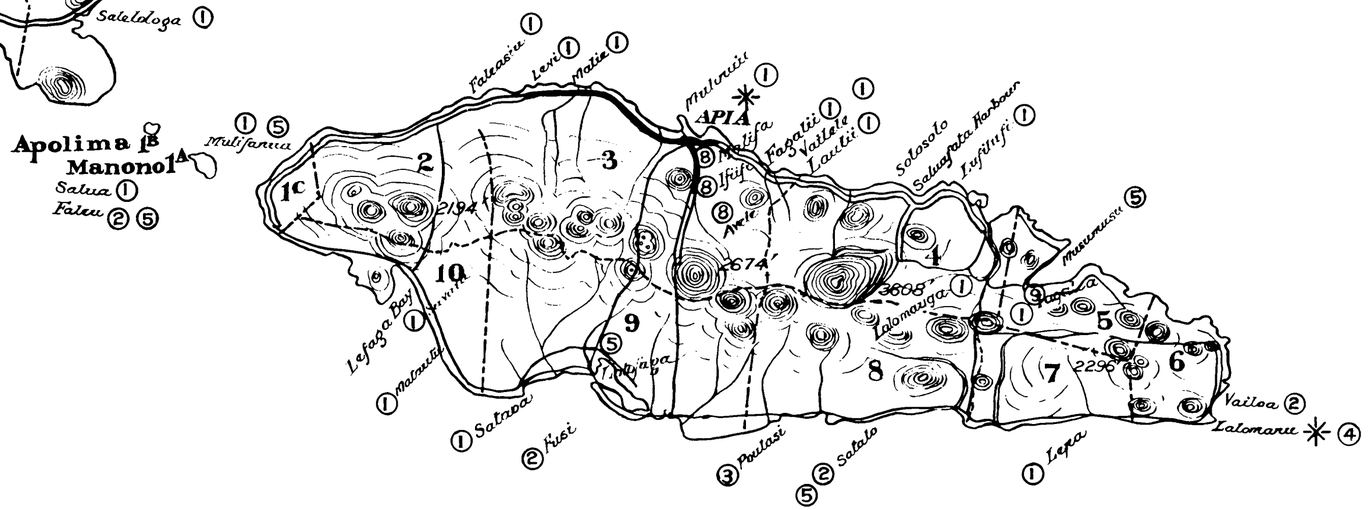
Scale

0 2 4 6 8 10 MILES

SAVAII ISLAND



UPOLU ISLAND



REFERENCE.

- Tar-sealed road
- Vehicular road
- Tracks
- 6094′ Heights in feet
- ① Main hospital — Four medical officers, Nine European nurses, Dispenser, Pathologist, Samoan nurses
- ② District hospital — One medical officer, Two Samoan nurses, One interpreter
- ③ European nurse and dispensary
- ④ Native medical practitioner — Native nurse and dispensary
- ⑤ Dispensary—One Samoan nurse
- ⑥ Child welfare nurse
- ⑦ Mission station dispensary
- ⑧ Government schools, European teachers
- ⑨ Government schools, Native teachers

SECOND-GRADE NATIVE SCHOOLS.

- ① London Missionary Society
- ② Methodist ,,
- ③ L.M.S. training-school
- ✳ Wireless stations

AGRICULTURAL DISTRICTS.

UPOLU.	SAVAII.
1. Aiga-i-le-tai.	1. Fausaleleaga South.
1A. Manono.	2. Fausaleleaga North.
1B. Apolima.	3A. Lealatele.
1C. Mulifanua.	3B. Saleaula.
2. Aana North.	4. Gagaifomauga.
3. Tuamasaga North.	5A. Vaisigano.
4. Itu-Anoamaa.	5B. Falealupo.
5. Vaa-o-Fonoti.	5C. Alataua.
6. Aleipata.	6A. Salega.
7. Lepa ma Lotofaga.	6B. Satupaileo.
8. Falealili.	7A. Palauli East.
9. Tuamasaga South.	7B. Palauli.
10. Aana South.	