THE GEOGRAPHY OF POPULATION
IN WESTERN SAMOA

by

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A thesis submitted for the Degree of
Doctor of Philosophy
at the
Australian National University
The thesis is a contribution to the rather sparse field of population geography. The principal sources of material are, (a) the enumerators' schedules from the 1956 census of Western Samoa, and (b) a total of 22 months fieldwork in the Samoan group.

The island environment as it originally provided for the pre-contact population is discussed in ch. 2, together with those aspects of the physical geography which have some bearing on the nature of the Samoan population.

In chs. 3, 4 and 5 the effects on the Samoan population of contact first with European explorers, and later castaways, missionaries, consular representatives, traders, planters and other non-Samoan ethnic groups are traced.

The numerical aspects of the population of Western Samoa, as they can be derived from the data gathered since the beginnings of European administration in 1900, are analysed in ch. 6. The populations for the years 1961, 1966, 1971 and 1976 are projected.

These chapters form the background for the second part of the work in which the areal differentiation of the Western Samoan population, both from a systematic and a regional point of view, is described. The distribution of population, the economic and productivity characteristics, density, rates of growth, age and sex structures, occupation and employment, and urbanization are analysed in ch. 7.

Using these areal variants, a regional description of the population has been made the basis for ch. 8. The islands are divided into three major regions;

I. The Apia urban area.
II. The commercial holdings.
III. The rural village region.
This region is subdivided into three sub-regions;
A. Upolu: the northwest coast.
B. Upolu: the outer districts.
C. Savai'i.
These are further subdivided into a total of 11 sub-regions.

The final chapter discusses the findings made on the population of Western Samoa in the body of the thesis. It is concluded that although Western Samoa is backward in most respects in the economic sense, the population shows relatively advanced characteristics. Mortality is highly controlled, and the first signs are appearing, particularly in the urban area of some spontaneous limitation of fertility. The possibilities for further economic development, bearing in mind the population characteristics of the area are discussed. These include agricultural development, urbanization, the diversification of employment opportunities, particularly into secondary and tertiary employment, tourism and expanded emigration.

It is finally concluded that although the population characteristics of Western Samoa tend to be extreme, particularly in relation to replacement, the recent political history of the country, and the small size of the numerical base, allow the prospects for the eventual alleviation of the impending problems to be reasonably good.
Plate 1. An 18 year old Samoan girl rests after giving birth to her first baby.
This thesis has been prepared by me from my own original work, excepting only those parts which have been specifically acknowledged in the preface and the text.

[Signature]
PREFACE

It is as well that few know to what they are committing themselves when they undertake a thesis. When the time at last comes to write the preface, it seems also time to review the formative processes. But the spent years, the discarded concepts, the material collected, worked on and then not included - these now seem unimportant. Significant only is the consciousness that one has been altered and extended by the experience and that this change must constitute both the purpose and function of an advanced degree.

The most potent agents of this change are the people with whom one works and on whom one must depend during the preparation and writing. My topic was marginal between geography and demography, and I received valuable supervision in two departments. I am particularly grateful to Professor O.H.K. Spate, who supervised my writing of the final text. I benefited greatly from his interest and insights and I wish, for his sake, that I might have made my work better than it is. Dr H.C. Brookfield helped me during the preparatory, fieldwork, and final stages and the thesis owes much, including the fact that it was ever completed, to his effort and guidance. Dr Norma McArthur and Professor W.D. Borrie were both generous with invaluable advice on the demographic aspects of the study. Dr McArthur's own work on the population of Western Samoa and her wide knowledge of other Pacific island populations were of very great assistance to me. Miss Kathleen Jupp, on whose achievement in the 1956 census of Western Samoa this work depends, also merits my grateful thanks. I gained much from the staff and my fellow scholars in the Geography Department at the Australian National University and am particularly grateful to Dr G.J.R. Linge and also to Miss Joan Binns and Mrs Maureen Powell. There was in the School of Pacific Studies a group of 'old island hands' from whom I learnt many things I might not otherwise have known. Mr R.P. Gilson, for his exceptional generosity, deserves my particular thanks. This group also includes Professor J.W. Davidson, Mr H.E. Maude, Dr J.D. Freeman, Dr R.G. Crocombe, Mr I.J. Fairbairn and Mr Jack Golson.

On field work in 1955-6 I enjoyed the company, ideas and originality of Dr Ward Barrett, now of the University of Minnesota. Throughout my work in the villages, Asi Ulu Filiva'a acted as my tulafale. Without his help and interest my village fieldwork would have been not only much less enjoyable but even impossible. During the second field period my assistant Fereti worked hard and cheerfully and enabled me to do the same. Many other people in Western Samoa aided me in various ways. Some of these were in the Government of Western Samoa from which, throughout my work, I had co-operation and aid beyond reasonable expectation. I should like to thank Mr G.R. Powles (since become Sir Guy Powles for his outstanding services as the last executive High Commissioner of Western Samoa), Mr T.R. Smith, Mr H.A. Levestam, Mr E. Stehlin, Mr I.F. Stirling, Mr P.P. Heller, Mr A.E. Christian, Mr R.K. Lambie, Mr B.V. Parham
Mr L. Noble and Mr A. Pereira. The New Zealand Departments of Island Territories, External Affairs and Internal Affairs were always helpful and I am particularly grateful to Sir Leon Götz, Minister of Island Territories, Mr J.B. Wright and Mr H.C. Templeton.

Others in Samoa whose help and interest I should like to record are the Hon. Mata'afa F.M. II and the Masiofo Fetaui, Mr and Mrs Gordon Lorimer, Mr and Mrs V. Alai'lima, Mr C. Brew, Mr L. Reed, and Mr and Mrs Mila Maefau. The number of Samoans in the village communities who provided me with hospitality, kindness and aid in my work is too large to record here, but I remember it all with gratitude. The matai and people of the following villages deserve special thanks: Falevao, Satalo, Amaile, Uafato, Samatau, Safotulafai, Asaga, Sato'alepai, Matavai (Safune), Vaisala, Falealupo, Vaipu'a, Satufia, Taga, Poutasi, Lepa, Sauago, Saletele, Asau, Sala'ilua, Mulifanua, Faleu, Salimu (Fagaloa), Tufutafoe, Falelima, Apolima, Samala'eulu, A'opo, Salamumu, Leauva'a, Satapuala, Sa'taga, Vaie'e, Ti'avea, Lepea and Puipa'a.

I was consistently fortunate in the technical assistance I received in Canberra. No one could wish for a more competent, painstaking or discerning typist than Mrs Aino Guenot. Of the many others to whom I am grateful for assistance I should mention particularly Mr V. Paral and Mrs S.L. Sinisoff.

For the opportunity to make this study under a Research Scholarship at the Australian National University I shall always be grateful. This institution and the people who work therein are already more than worthy of the vision of the Australians who established and support it. In me, Australia has acquired a life-long friend and partisan.

The last words of thanks are reserved for my wife who, although she enjoyed our work in Samoa as much as I did, has had to endure the consequences ever since.

P.N.D.P.

Honolulu
May 1963
GLOSSARY

SAMOAN WORDS AND PHRASES, USED IN THE TEXT, FOR WHICH THERE IS NO EXACT EQUIVALENT IN ENGLISH

aiga — A relative, or relatives; a family, either a residential unit in one village or a wider group including the most distant relatives

ali'iu — A chief, one type of matai

aualuma — The association of unmarried girls in a village

'aumaga — The association of young untitled adult males (the male village work-force)

fa'alupega — The ceremonial listing of village titles and origins

fa'a Samoa — In the Samoan manner; according to Samoan custom

fale — A Samoan house

fale afolau — An elongated type of house

fale o'o — The small dwelling house

fale tele — A meeting house, usually circular in plan

failauga — Orator (an alternative word for tulafale, one type of matai)

fautasi — A clinker-built long-boat used for short sea voyages

fono — A council of matai

'tie sina — A traditional Samoan textile with a shaggy, hair-like appearance

'tie toga — The fine mat (a traditional form of currency)

ifoga — Ceremonial abasement

malae — The central place in a village used for social and ceremonial functions

malaga — A journey

matai — A titleholder, either an ali'i or a tulafale, usually the head of an aiga

Mau — The organization which opposed the New Zealand administration between 1927-36 (lit. to be firm, or unwavering)
mavaega - The oral designation of a successor by a matai at the time of death
nu'u tele - The large or parent village (as distinct from the pitonu'u)
u nu'u ma fa'atoaga - The village and its plantations
olo - A defensible place, a fort
patu - A war club
pitonu'u - A sub-village, part of a larger settlement group
pule - (of land) A form of trust ownership vested in a titleholder
pulenu'u - An appointee, by the government, from among the matai of a village, to perform local administrative duties
ta'amu - The giant taro (alocasia spp.)
tai - Towards the sea
Tafa'ifa - The possessor of several high or kingly titles
taloloa - The area used for subsistence root crops (formerly the communal taro plantations)
taule'ale'a (pl. taule'ale'a) - An untitled male
taupou - The virgin of Samoan ceremonial custom
ti - A long-leafed plant which the Samoans use in several ways (formerly for clothing)
tuai - The former, or the old (e.g., Apolima-tuai refers to the old village on the island)
tufuga - A traditional craftsman, particularly associated with house building and tattooing
tulafale - An orator, one of the types of matai
Tupu - A king (or kingly)
umu - The ground oven
umukuka - A recent modification of the umu shelter to provide facilities for food preparation and cooking by alternative methods such as the pressure stove
uta - Inland (as opposed to tai)
vaota - The area cleared for crops but subsequently overgrown during the fallow period
# CONTENTS

## PART I

<table>
<thead>
<tr>
<th>Chapter</th>
<th>INTRODUCTION</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 INTRODUCTION</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2 THE ISLAND SETTING</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>3 PRIMARY SETTLEMENT AND EUROPEAN CONTACT</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>4 SAMOAHS AND EUROPEANS; THE FIRST PERIOD OF CONTINUOUS CONTACT</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>5 SAMOAHS AND EUROPEANS; THE SECOND PERIOD OF CONTINUOUS CONTACT</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>6 THE COMPOSITION AND RECENT DEVELOPMENT OF THE POPULATION OF WESTERN SAMOA</td>
<td>65</td>
<td></td>
</tr>
</tbody>
</table>

**PART I**

1. **INTRODUCTION**

2. **THE ISLAND SETTING**
   - Rock, 6; Climate, 7; Soils, 8; Vegetation, 10; The prehistoric ecosystem, 10

3. **PRIMARY SETTLEMENT AND EUROPEAN CONTACT**
   - The Processes of Primary Settlement
     - Early European Contact
       - European discovery, 15; The visit of La Perouse, 15; Later encounters, 22
   - The Development of the Samoan Population
     - The pre-contact period, 23; The early effects of European contact, 26

4. **SAMOAHS AND EUROPEANS; THE FIRST PERIOD OF CONTINUOUS CONTACT**
   - Traditional Samoan Society
   - The Samoan Population in the First Period of Continuous Contact
     - Population and settlement, 37; Demographic changes, 42

5. **SAMOAHS AND EUROPEANS; THE SECOND PERIOD OF CONTINUOUS CONTACT**
   - The Immigrants
     - The consuls, 45; The traders, 46; The planters, 48; The islanders, 52; The Chinese, 54
   - Europeans and the Growth of a Part-Samoan Component
   - Changes in the Samoan Population

6. **THE COMPOSITION AND RECENT DEVELOPMENT OF THE POPULATION OF WESTERN SAMOA**
   - The Collection of Population Data
     - The German régime, 65; The early censuses of the New Zealand administration, 66; The first comprehensive census: 1951, 67; The recent collections, 68
## Component Populations: Recent Development

- The influx of foreigners, 69; Miscegenation, 72

## Component Populations: Composition by Age and Sex

- The indigenous groups, 73; The minor components, 74

## The Moulding of the Present Structure

- The Samoan component, 76; The partly-Samoan component, 83; The effect of emigration on the Western Samoan population, 84; Conclusions, 86

## Fertility and Population Replacement

- The measurement of fertility, 86; The mother and her family, 88; The trend of fertility, 90

## Health and Mortality

- The lowered death-rate, 92; Expectation of life, 94

## Population Growth: Past and Future

- Estimating the rate of population growth, 95; Population projections, 97

### PART II

### AREAL VARIATION: SYSTEMATIC

## The Distribution and Grouping of the Population

- The distribution of village-dwellers, 99; The form of the Samoan village, 101; Recent inland settlement, 102; Exotic groupings, 103; Ethnic groupings, 104; Conclusions on the patterns of distribution, 106

## Soils, Land Use and Agricultural Productivity

- Soils, 106; Land use, 110; Agricultural productivity, 111

## The Variation in Density

- The nature of the density relationship, 113; 'Crude', 'agricultural' and 'habitation' densities, 114; Pre-contact population density, 115; The effect of commercialized village agriculture on 'habitation' densities, 116; The range of habitation densities, 118; Physical limitations, 119; Density, cultural change and population growth, 119
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Differential Rates of Growth</td>
<td>121</td>
</tr>
<tr>
<td>The 1900-26 period, 122; The 1926-45 period, 123; The 1945-51 period, 124; Population change between 1951 and 1956, 125</td>
<td></td>
</tr>
<tr>
<td>Variations in Age and Sex Structures</td>
<td>130</td>
</tr>
<tr>
<td>The analysis procedure, 130; The rural villages, 131; The urban area, 132; The commercial estates and holdings, 133; The lone villages, 134; The age and sex structure as a regional variant, 135</td>
<td></td>
</tr>
<tr>
<td>Occupation and Employment</td>
<td>136</td>
</tr>
<tr>
<td>Employment in customary agriculture, 136; Paid employment, 138; Urban unemployment, 142; Attendance at school, 142</td>
<td></td>
</tr>
<tr>
<td>Urbanization and the External Influence of Apia</td>
<td>143</td>
</tr>
<tr>
<td>The source of the urban population, 144; The flow of commuters, 145</td>
<td></td>
</tr>
<tr>
<td>AREAL VARIATION: REGIONAL</td>
<td>147</td>
</tr>
<tr>
<td>Region I – The Apia Urban Area</td>
<td>148</td>
</tr>
<tr>
<td>The establishment of Apia, 148; The development of the town, 149; The growth of the urban population, 150; Ethnic composition, 151; The age and sex structure, 152; Urban fertility, 153; Urban occupation and employment, 154; Social conditions in Apia, 156</td>
<td></td>
</tr>
<tr>
<td>Region II – The Commercial Holdings</td>
<td>157</td>
</tr>
<tr>
<td>Ethnic composition, 158; Age and sex structure, 158; Fertility and population change, 159; Employment and social conditions, 159</td>
<td></td>
</tr>
<tr>
<td>Region III – The Rural Village Region</td>
<td>160</td>
</tr>
<tr>
<td>Ethnic structure, 161; Occupation and employment, 161; Social and economic conditions, 163; The age and sex structure, 163; Fertility and population growth, 164; Sub-regional divisions, 165</td>
<td></td>
</tr>
<tr>
<td>Region III A. Upolu: The Northwest Coast</td>
<td>166</td>
</tr>
<tr>
<td>(i) The peri-urban villages, 166; (ii) The Sagaga–Alofi villages, 168; (iii) Aiga-i-le-tai, 170</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 9

Region III B. Upolu: The Outer Districts

(i) The southwest coast villages, 173;
(ii) The southeast coast villages, 175;
(iii) Aleipata, 176; (iv) The northeast bay villages, 177; (v) The central northeast coast villages, 178

Region III C. Savai'i

(i) The southeastern villages, 181;
(ii) The northern villages, 182; (iii) The western villages, 184

CONCLUSIONS

BIBLIOGRAPHY
TABLES

1. Showing the population of the Samoan group under broad age ranges for 1853 and 1956 63
2. Estimates of the Samoan population in the western group between 1846 and 1900 63
3. Numbers and proportions per cent of persons in component populations: 1956 69
4. Component populations between 1900 and 1956 71
5. Samoans and part-Samoans classified according to 5 year age groups: 1956 73
6. The effects of the 1918 influenza epidemic 78
7. Indices of mortality, 1923-7 (Samoan status only) 81
8. Estimated age-specific fertility rates per thousand women in each 5 year age group in Western Samoa and the average numbers of children born to women as estimated from the fertility rates as recorded in the 1956 census 87
9. Fertility rates, 1956 89
10. Average number of children born to women of recently completed fertility (45-49 years) in selected populations 90
11. Child-woman ratios 91
12. Expectation of life at birth 95
13. Land utilization by soil classes 109
14. Agricultural densities of districts in western and southern Upolu 117
15. Persons in paid employment, by ethnic origin: 1956 138
16. Samoans in paid employment: 1936-56 139
17. Region I - The Apia urban area: ethnic structure 151
18. Western Samoa and Apia: total number of children born to women in each age group, 15-59 years, 1956 153
19. Region I - Apia urban area: employment structure 155
20. Region II - The commercial holdings: ethnic composition 158
21. Region II - Commercial holdings: employment structure 159
22. Region III - The rural villages: ethnic structure  
23. Region III - The rural villages: employment structure  
24. Region III - The rural villages: paid employment, occupation classes
PLATES

1. An 18 year old girl and her new baby

2. Three tulafale on the malae at Fuifatu. Safotulafai, Savai'i

3. Plaifying the traditional fine mat (tie toga)

4. The village of Taga, Savai'i

5. An unattractive residential area in the centre of Apia. Tausee, Upolu

6. Photomosaic of part Region I, the Apia urban area

7. Commercial coconut plantation, Faleata (WSTEC), Upolu

8. The traditional village remains the major settlement form


10. Photomosaic of part Region III A (iii) (Aiga-i-le-tai), Mulifanua, Upolu

11. One form of economic investment which has the full support of the traditionalist matai group. Church at Safotu, Savai'i
FIGURES (Volume II)

Figure

1  Location
2  Geology
3a & b  Upolu and Savai'i: place names
4  The distribution of population about 1840-50 (and reliability diagram)
5  Density of population change between 1840 and 1956
6  The number of Europeans in Samoa: 1780-1956
7  The Samoan population: 1780-1956
8  Age and sex structure 1956: Samoans
9  Age and sex structure 1956: part-Samoans
10  Age and sex structure 1956: Europeans
11  Age and sex structure 1956: other Pacific islanders
12  Age and sex structure 1956: others (mainly Chinese)
13  Unit digit preferences, Samoans: 1956
14  Statement of age, Samoans: 1956
15  The trend of infant mortality in Western Samoa between 1924 and 1945
16  Unit digit preferences, part-Samoans: 1956
17  Statement of age, part-Samoans: 1956
18  Samoans and part-Samoans in New Zealand, age composition: 1956
19  Samoan-born persons in New Zealand, age composition: 1956
20  Age-specific mortality: males, Western Samoa, etc.
21  Age-specific mortality: females, Western Samoa, etc.
22  Age-specific mortality: Upolu and Savai'i
23  Population projections: 1956-76
24  The size of rural villages in Western Samoa
25  Upolu: distribution of population, 1956

xii
Figure

26 Savai'i: distribution of population, 1956
27 Village populations: 1956
28 Asaga village
29 Falevao village
30 Taga village
31 Faleata plantation
32 Apia urban area
33 The distribution of ethnic minorities: 1956
34 Soil capability classes
35 Land use: Upolu
36 Land use: Savai'i
37 Estimated income to village growers from export crops: 1956
38 Estimated income to village growers from banana exports: 1956
39 The density of population: 1956
40 Habitation density and rates of population growth
41 Population change: 1900-26
42 Population change: 1926-45
43 Population change: 1945-51
44 Population change: 1951-6
45 The age and sex structure: rural villages
46 The age and sex structure: the urban area
47 The age and sex structure: the commercial estates and holdings
48 The age and sex structure: the lone villages
49 Customary agriculture, proportion of total population engaged full time: 1956
50 Paid employment, number of persons in paid employment per thousand total population: 1956
51 Persons dependent upon paid employment: 1956
52 Wage earners in agriculture: 1956
53 Children of school age not attending: 1956
54 Upolu: number of persons commuting to Apia
Figure

55 Regional subdivision
56 Apia: the trend of population growth, 1900–56
57 Age and sex structure: Apia, the central core
58 Age and sex structure: III A (i) The peri-urban villages
59 Age and sex structure: III A (ii) The Sagaga–Alofi villages
60 Age and sex structure: III A (iii) Aiga-i-le-tai
61 Age and sex structure: III B (i) The southwest coast villages
62 Age and sex structure: III B (ii) The southeast coast villages
63 Age and sex structure: III B (iii) Aleipata
64 Age and sex structure: III B (iv) The northeast bay villages
65 Age and sex structure: III B (v) The central north-east coast villages
66 Age and sex structure: III C (i) The southeast villages
67 Age and sex structure: III C (ii) The northern villages
68 Age and sex structure: III C (iii) The western villages
INTRODUCTION

As long ago as 1953 Glenn Trewartha in his presidential address to the Association of American Geographers complained of the neglect which population as a systematic field had suffered at the hands of geographers (Trewartha 1953, 71). The idea of this research project was formed when his words were fresh; but even now, nearly a decade later, one wonders whether his strictures do not still apply. While more work has been done in this field in recent years the urgency of the problems which population maldistribution and uncontrolled fertility are already presenting in some areas has not been matched by an urgent interest in the topic amongst geographers.

The Western Samoan population, although miniscule in size, was one of the first to demonstrate the potential effect of energetically controlled mortality on a population in which fertility was virtually unimpeded. Since 1948, when a United Nations report (U.N.P.D. 1948) failed to uncover an example of more rapid population growth and the Samoans were gratified to learn of their performance as 'the fastest growing population in the world', Western Samoa has maintained its place among the leaders in this trend.

Preston James has said that 'The fundamental problem of population geography is the search for a systematic method of outlining enumeration areas that are meaningful in terms of the question being investigated' (James 1954, 107). Western Samoa is a very small country and it is administered in a somewhat empirical way; it seemed likely that into an occasional event such as a population census even an itinerant population geographer might be able to insinuate some of his own orchestration. And so it proved; after less than one year's fieldwork in the territory I was able to join the census team and one of my principal assignments was to divide the country up into enumeration areas. Believing the needs of government, demography and geography in this instance to be identical I was able to isolate those areas which had seemed during the course of my fieldwork to provide some particular interest, thus ensuring that complete information would be collected for them during the enumeration. The opportunity was also taken to see that the size of the enumeration areas was kept small and the boundaries of each were as meaningful as possible, and that they were precisely defined.

Being attached to the census organization had a further advantage in that when the counting stopped I was able to request further access to the enumerators' schedules without outraging the conventions of census taking too much. This permitted the complete abstraction of all data for any required area, ranging in size from the smallest localities to the largest geographically defined region. A file containing all available demographic data was prepared for
each village and locality — no small task under the most favourable conditions. Few geographers working in an under-developed country can have been presented with such an opportunity, nor with a body of such complete and accurate population data.

In 1956 Western Samoa was entering the final stages of preparation for the transfer from the New Zealand Trusteeship Administration to full independence. Consequently, from a geographer's point of view, everything appeared to be happening at once. The territory had been completely covered by an aerial survey in 1954 — this would seem to be a prerequisite to the geographic study of population. The photographs became available during my first fieldwork period. An economic survey was made in 1954 (Stace 1955). The government, under an economic development plan, was conducting a land use survey and economic inventory. A geological survey was made during 1956 (Kear and Wood 1959) and the fieldwork for a soil survey was completed in the same year (Wright 1956). The first reliable topographic maps and photomosaics also became available during this time.

Other university research workers meanwhile were probing further material on Western Samoa. Curry (1955), Farrell (1958), Mercer and Scott (1958), Barrett (1959) and Ward (1959) produced work in other branches of geography. McArthur's work (1956 and 1962) on the demography of the Pacific islands' populations contained most valuable sections on Samoa. Davidson (1961a and b) continued to trace the political development of the country and its transition to self-government, while in 1958 an economist (Fairbairn 1962) began a survey of the national income of Western Samoa. The Report on the Population Census became available in 1958 (Jupp 1958). Such a concatenation of research activity, mutually beneficial to the government and the workers concerned, must be almost unique. Bearing in mind the fragility and poor-keeping qualities of population data, some preliminary results of my own work were also published (Pirie 1959 and 1960, and Pirie and Barrett 1962). Another population census, similar in organization to that of 1956, was taken in 1961. The results have not been available in time for incorporation into this study.

Research in Western Samoa presents certain problems. It is almost impossible to work in the rural villages without the co-operation and sponsorship of the government. In the past this has been extended to bona fide research workers in a very liberal and enlightened manner; but the fact that a research malaga must be organized on quite such an official basis limits to some extent the questions one is able to investigate and the answers one is liable to receive. A long field period in the territory does overcome this disadvantage to some extent. The reception that research workers receive from the Samoans is normally warm-hearted, provided the researchers observe certain conventions and show deference to the customs of their hosts.

My own research programme covered all four inhabited islands, and all except five villages were visited. In the first fieldwork period, 15 months in 1955-6, a survey was made of 17 villages along with work on the official land use survey and the census. These villages were originally chosen by a group of geographers from the University of Auckland to study land use and it seemed convenient to make the two surveys in concert. The settlements were not selected by a
truly random process. The setting up of a sample of villages, random in the statistical sense, would have been a hazardous method containing the possibility of political, social and economic complications which can be avoided if discretion rather than statistical orthodoxy is employed. There is little reason to suppose that there would be a significant difference between the results derived in the two ways. This sample covered 8 per cent of persons living in village communities. Fieldwork included a de jure census, containing some questions such as 'village of birth' and 'present whereabouts which were not subsequently asked in the official census and were not included in other geographical information, the collection of which I was usually concerned, became available at the same time. To some extent the degree to which access to census material was later obtained caused the data obtained from this series of sample censuses to be superseded, but the additional information remained useful. The experience gained in the field while taking these sample censuses proved to be of great value in the organization of the official census and in the interpretation of the results.

In the second fieldwork period, six months in 1961, the choice of villages was more purposive. In the 1956 census some villages had shown unusual or extreme characteristics which seemed worthy of being followed up. It also seemed to be a good idea to revisit some of the villages done in the first fieldwork period, to trace the changes which had occurred in the preceding five years. A few villages, mainly on the northwest coast of Upolu and in the urban area, were also included, as these areas seemed to have been neglected in the first survey. The method of work again centred about a series of de jure censuses. No land use work was attempted in the second visit, although obvious developments were noted. More attention was paid to the historical development of the selected villages. The success of the questioning on this topic was very variable, but in some cases the response was so good that it was felt that here was a largely untouched field, which at the time could be no more than scratched, awaiting urgent work before the best informants die off. The survey covered an additional 6.7 per cent of the total population, exclusive of those villages covered for the second time.

The structure of the thesis reflects to some extent the marginal position which population geography enjoys between demography and the more central interests of geography. The first part of the thesis, except for the chapter on 'the island setting' in which the material is of a type commonly labelled 'geographic', is concerned mainly with demographic history, leading up to a concluding chapter on contemporary demography. Most studies of the Samoan people have stressed their cultural retentiveness, but in these chapters the characteristics of the population are examined particularly for the evidence they contain of the changes induced by the Samoans' contact with Europeans. The sources for the historical chapters include the published accounts of nineteenth century Samoa, several of which were written by missionaries and other resident Europeans; but often more revealing than these were the routine reports and letters sent to the headquarters by the missionaries and diplomatic representatives. Those of the London missionaries, the Methodists and the British and American consulates are on microfilm in the National Library in Canberra. Much of the drudgery of wading through such a vast quantity of material (sufficient to provide the bases for several full studies) was spared me by very generously given access to the research
notes of Mr R. F. Gilson. One of the more valuable parts of this section is the attempted reconstruction of the pre-contact (or at least the pre-census, if the two are significantly different) distribution of the Samoan population of the western islands.

Part Two is more specifically geographical. Here the form in which the material from the 1956 census was available proved to be of great advantage. The small enumeration areas, for each of which full demographic data were available, could be assembled (and indefinitely reassembled) at will into areas or regions directly relevant to the aspect under study.

The principal aim of this section is to isolate and describe the most significant or useful areal divisions of Western Samoa, such divisions being made on the basis of the occurrence of variation within the local populations. The first chapter in Part Two deals with the several major characteristics which have created the present regional diversity to be observed in the population. The areas delimited on this basis are described, and their populations analyzed, in the second chapter of this part. Finally, in the last chapter, the social and economic implications for Western Samoa of the form taken by its population are discussed and final conclusions made.

The opportunity to study the population of Western Samoa was taken as much for its promise in the exercise of theory as for its more obvious utilitarian value. It was felt that in an area so tiny (but with a central and responsible administration) and with a small but not politically insignificant population (less than 100,000 in 1956) the problems which await population geographers might perhaps be met, and some of them despatched more readily than in similar but larger areas. The ready way in which the data available could be manipulated, areas of particular relevance delimited, and complete rather than sample data utilized might also provide the opportunity to penetrate a little further the frontier areas of population study. In this project many of the disadvantages which may combine to defeat the aims and needs of geographers seeking to understand the areal dynamics of population were easily neutralized or entirely removed. The way in which this was accomplished - by returning to population data in their rawest form - may be useful by way of example. This study could perhaps be used as evidence in persuading other governments to allow such access. But even without such bonuses, it is my hope that this work may contribute to an amelioration of the problems, already looming, of a charming if unusually fecund body of people.
THE ISLAND SETTING

Rock

The large islands in the leeward Samoan group had their beginning in two great volcanic piles built up from the ocean floor; the eruptions are derived from a fissure with an approximate east-south-east trend. The bases of these two piles, which form Upolu and Savai'i, are merged beneath the sea. The first land is believed to have appeared in late Tertiary times, and these rocks, mainly primitive olivine basalts, are represented in the present geology as the Fagaloa volcanics (fig. 2). These appear at the surface in the northeast segment of Upolu and in another smaller occurrence on the southwest coast; elsewhere they have been submerged by more recent flows. The Fagaloa volcanoes probably built up cones and lava plains to 6,000 feet above the sea before they ceased erupting in the late Pliocene or early to middle Pleistocene. This broad, elongate, dome-shaped structure was dissected under heavy tropical rainfall to a system of steep amphitheatre-headed canyons, merging later into the razor-backed ridges and horn-like peaks now typical of the Fagaloa landscapes. Only a few small remnants of the lava slopes have survived.

The relative quiet of this erosion period was interrupted by a series of littoral and marine eruptions which threw up several tuff cones now represented by Apolima and the islands off eastern Upolu. Contemporaneous with these were the Salani flows which welled up out of a rift zone, probably identical with that from which the Fagaloa lavas originated. These lava flows built up to 3,000 feet above sea level in Upolu and 4,000 feet in Savai'i, where they buried the crests of the existing mountains. Generally these flows inundated the existing coral reefs and built wide lava cones which increased the width of the two islands to an outline similar to their present shape. The usual processes of shoreline coral formation and surface erosion ensued. As the warm climates of the last interglacial period faded and the sea levels fell, these Salani lavas became fairly strongly eroded and the amphitheatre-headed canyons of southern Upolu and Savai'i were developed. During the last glaciation, less than 64,000 years before the present, the next cycle of lava eruptions, termed Mulifanua, covered large areas of western Upolu, formed what is now the island of Manono, and built up the Savai'i uplands by several hundred feet, spreading out to build what is now western Savai'i. When sea levels were at their lowest during the last glacial period, it is believed that a consequent instability in the structure permitted the development of several large faults. The most definite of these, extending in a 15 mile line, is

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1 This account, including fig. 2, is derived from Kear and Wood, 1959.
in northern Savai'i, and there are two others, possibly occurring at the same time, which form the clifled coastlines of southwest Savai'i and southeast Upolu.

The ensuing post-glacial rise in sea level was so rapid that only on the gently sloping lavas of the Mulifanua flows could the coral reefs keep pace with it. These formed the wide off-shore reef and barrier reefs of western Upolu and eastern Savai'i. Elsewhere the reefs were drowned. In this period there occurred a small set of a'a-rich basalt flows in western Upolu - the Lefaga volcanics.

When the seas had risen to their present levels, there occurred further lava flows of the Pu'apu'a group, covering large areas both inland and over the coral shelves between Falealili and Safata, and also over a great part of Savai'i. Sea levels rose several feet above their present levels, and toward the end of this phase, paused at a height of five to six feet above present mean seal level to form the beaches (Tafagamanu sand) on which most Samoan coastal villages have been built. This is believed to have occurred about 2,300 years ago. These Pu'apu'a phase eruptions probably continued until, or even after, the sea returned again to its present level. Some of the eruptions appear to be very recent and there are oral traditions (the factual content of which has not been substantiated) that some occurred after the occupation of the islands by their present peoples. In the Taga area, for instance, the original village, sited on a sandy beach, is said to have been destroyed by a lava flow which left the villagers to rebuild on their present somewhat unin­

tivating site of tumbled rock and black sand beach.

Later eruptions are confined to northern Savai'i where the A'opop eruption is dated at about 1760 A.D. and a series of flows originating from Matavanu crater was observed between 1902 and 1911. There is no reason to suppose that this long process is now at an end, or to believe that the outpourings of lava have been less frequent in their occurrence within the historical period than they have been in the past. Volcanic cones in both islands are exception­
ally densely distributed, up to one per five square miles in Savai'i, and it has been estimated that in the past 10,000 years (the post-glacial period) more than 30 eruptions have occurred, an average of one about every 300 years.

This sequence of lava flows has built up a surface pattern which has several consequences, both direct and indirect, upon the geography of the islands' population. The varying age of the surface lavas has a profound effect on their habitability. At one extreme, rugged erosion forms, the prevalence of steep slopes, and the very limited areas of land suitable for settlement on the Fagaloa volcanics tend to restrict the necessarily small population to several isolated pockets. At the other the very recent A'opo age lava flows which, because the weathering process has scarcely begun, are still completely unsuited to any form of agriculture, have remained uninhabited. This also applies to the Pu'apu'a volcanics, particularly near the coasts. Population tends to be concentrated on areas underlain by the Mulifanua basalts which have the advantage of moderate weathering and the consequent formation of a type of soil most suitable for agriculture under Samoan conditions. The surface of these areas is usually smooth; a further advantage is the development of wide coral shelves off-shore which the Samoans found of great advantage for fishing and, before the present road system was developed, intervillage communication.
The settlements of south and east Upolu, the Apia area, and several inland settlements on Savai'i are situated on rocks of Salani formation. These areas have a more deeply eroded surface, valleys and gorges are frequent surface forms and they may carry permanent surface water. The rocks tend to be more deeply weathered than those of the Mulifanua group, and the soils older and consequently less fertile. There is only a relatively small development of off-shore coral shelf. The Lefaga volcanics, of areal importance only in western Upolu, are also utilized for settlement. They are more recent than the other two types and consequently less eroded and weathered. Surface water is entirely lacking and the rocky scoriaceous surface characteristic of this area (a'ata) inhibits agriculture to some extent, although the recency of the soils tends to promote their natural fertility.

Alluvium is rare in Western Samoa, occurring in significant areas only in the vicinity of Apia, in pockets along the coasts, and in two infilled side valleys of the palefa river system, the mouths of which were blocked by lava which flowed down the course of the main valley. Both areas are utilized for settlement. Raised coastal beaches are the Samoans' favourite sites for their villages and these are widely distributed, although their total area is small.

Only in the extremely dissected Fagaloa areas do surface landforms offer major barriers to settlement, agriculture or communication. Elsewhere slopes are mainly gentle, exceeding 10° only in the interior associated with the volcanic cones. Detail differences in the texture of these slopes, such as the gorges of the Salani rocks, may prove to be obstacles, but in few instances would they be of major economic importance.

Climate

The magnitude of the Samoan lava flows has had an extremely important effect on the climate in that they have been piled sufficiently high to constitute a major barrier to surface winds; they are thus indirectly responsible for the characteristically high rainfalls. The volcanic cones of Upolu are distributed along a single east-south-east alignment and form a district crest, a barrier of 2,000 feet for much of its length, rising at one point to 3,600 feet. With these heights are associated rainfalls exceeding 200 inches; only in one small area in the northwest does the mean annual figure fall below 100 inches. The uplands of Savai'i are higher and more extensive than those of Upolu, and their trend is less distinct. They rise to over 6,000 feet and a considerable tract in the interior has an altitude of over 3,000 feet. The rainfall associated with this area exceeds 250 inches annually, and only on the northeast and northwest coasts do mean annual falls of less than 100 inches occur. Southerly, southeasterly and easterly winds predominate throughout most of the year, although in the months of January, February and March winds are more variable as east-moving low pressure systems interrupt the normal trade wind flows. The northerly and westerly components in the winds so induced are important for the extra rain they bring to the 'rain-shadow' areas of the north and west coasts. Hurricanes occur infrequently and are less violent than those which affect the islands to the south.

Altitude also has its effect upon temperatures, although there are few data from which this may be quantitatively
measured. Curry extrapolates temperatures from those taken at the observatory at Apia, the only station available, and also calculates estimates of the rates of potential evapotranspiration for Western Samoa. His conclusions are that there is a high probability of drought occurring during the May to October season in the northwest sectors of both islands, but that this possibility declines rapidly toward the south and east coasts. (Curry 1955, 34). The mean annual temperature at Apia is 79°F, with little variation either seasonally or diurnally, and it may be assumed that this applies to all the coastal areas. Although on the whole Samoa has a pleasant climate, particularly if judged from locations exposed to the light breezes usually blowing on the coasts, it is a little hotter and a little wetter than any other major group in the Polynesian area.

Soils

The most widespread type of soil occurring in Samoa has been formed on the basalt flows, by latosolic processes, under tropical rainforest and in extreme conditions of heat and rainfall. The variation range is small and depends mainly upon differences in the parent material and on the conditions of temperature and rainfall.

The first necessary division for present purposes is between the lowland soils with which as yet settlement is almost entirely concerned, and the upland soils of the island interiors. Because the potential of upland soils for Samoan type agriculture is so limited they are not further discussed.

The lowland soils occur over a very large proportion of the total area and over a wide climatic range. At one extreme are the soils of the western end of Savai'i, where there is a mean rainfall of less than 90 inches annually with frequent dry season droughts. At the other are the higher foothill areas of both islands where the mean annual rainfall exceeds 200 inches and there is little or no variation in seasonal distribution. These soils are differentiated mainly on the basis of the age of the lavas from which they are formed. Other differences are due to their altitude and the associated climate which affect the rate at which weathering occurs. Occurring in small pockets within the lowland soils are others formed from alluvium and from colluvial materials (principally those washed from the steep slopes of the Fagaloa system); widely distributed but very small in total area are soils formed from the coastal sands and the poorly drained gley, organic and marine marsh soils.

The soils of Western Samoa have been mapped and described, but it seems unnecessary to analyze their qualities and distribution further for the present purpose. The soil types have been shown and briefly described in a reclassified

A.C.S. Wright has made a survey of Samoan soils, but the report has not yet (1962) been published, although the fieldwork was completed in 1956 and the report available in draft form soon after. I am indebted to Mr Wright for much information given to me personally during my fieldwork in Samoa, which was contemporaneous with his own, and to the government of Western Samoa and to the New Zealand Soil Bureau for access to the report in typescript form.
form, according to their economic capabilities, in Part Two (ch. 7).

As a group the soils of Western Samoa are somewhat more fertile than would be expected in the humid tropics, considering the high rainfall, the high mean temperatures and the consequent leaching - particularly on flat or gently sloping areas - to which they are exposed. The main reason for this is the recency of the soil formation. The rocks themselves are base-rich volcanics which have never been through a previous process of weathering and they have an abundant mineral range and content. Distributed throughout most soils in the islands are partially weathered rock fragments which are a source of enrichment as they progressively decompose. Volcanic ash in unknown quantity could also have contributed to the parent material. It is generally true in Samoa that the more stone and fragmented rock in the soil (up to the point where the proportion is so high that root development is inhibited, and water retention is below that necessary to maintain growth) the higher is the productivity of the soils. Slope also has a beneficial effect on soil productivity, to the stage where it becomes so extreme that the soils are unstable and soil wash becomes excessive. Moderate erosion, having the effect of constantly bringing into root range new parent material, is a beneficial characteristic in Samoan soils, and conversely some of the least productive lowland soils occur on areas which are nearly flat. Signs of obvious accelerated erosion in the form of surface scars are very rare, even on steep country; there is no erosion problem over most of Western Samoa, and in the level or gently sloping areas insufficient soil movement is actually a greater disadvantage.

Samoan villagers have tended to avoid areas of shallow rocky soils (particularly on the pahoehoe flow areas) partly because they will support only a narrow range of crops, but more important because they are usually deficient in permanent water and are difficult to clear and arduous to cultivate. Given suitable climatic conditions, the yields on such soils are usually good.

In the area where the soils are derived from the older volcanic rocks, such as Fagaloa lavas, the soils are deeply weathered and in stable situations tend to be acidic and of low plant-nutrient status. Where the soils are formed from alluvial or colluvial material, derived from the older lavas, however, they are often very fertile, particularly under conditions of continuing occasional deposition, and include the only soils found in Samoa which under a bush-fallow system do not require some rest periods to maintain their productivity. On the more recent flows the soils formed on the stable slopes are usually more productive and areas of gently sloping flow profiles support a very large proportion of Samoan agricultural activity. While the natural fertility of many such soils is among the highest found in Samoa, there is some evidence that where soils are adjacent to the coastal settlements they have suffered from over-use and that yields are progressively declining. Some villages on the northwest coast of Upolu, with no further reserves of forest land, are forced to re-use land already virtually exhausted from constant use, particularly for subsistence crops. Tests on such soils have shown them to be almost devoid of plant nutrients.

In the main the soils best suited to agriculture lie in a zone between sea level and an altitude of between 750 and
1,400 feet. Few soils above this altitude can be classed as reserve areas suitable for growing the present major economic crops. On the inland margins of cleared village lands, particularly on Upolu, recent agricultural development, notably the banana export trade, has stimulated the extension of agriculture on to lands of marginal suitability for present agricultural practices.

Vegetation

In all but a few restricted places the original vegetation of the islands was tropical rainforest. Although some zonal differences do occur within this forest, the type was distributed at all levels and in almost all situations from the coastal zone to the highest elevations on Savai'i (6,000 feet). Other types of vegetation were limited to the strand associations of the coastal and beach sand areas, mangrove forests in sheltered coastal inlets (where there is a supply of fresh water from nearby streams) and associations of the hardy heat-resisting plants which are the first types to colonize recent lava flows.

Zonation of the rainforest is largely altitudinal and is due principally to climatic variation. On soils of high natural fertility (provided they are not in drought-prone areas such as the northwest coasts of both islands) forest trees tend to be somewhat taller and of superior development to those growing at higher altitudes on more vigorously leached soils. In the lowland and foothill areas, with copious and reliable rainfalls, the principal forest trees will grow up to 100 feet, usually spacing themselves at approximately 60 feet intervals. As rainfall increases the occurrence of ferns, epiphytes and lianas become more frequent, litter depth increases and, as the higher altitudes are attained, mosses become more and more noticeable. Fungoid growths and moss coating, characteristic of the Mossy forest, occurs at about 1,300 feet on the south- and east-facing slopes and at about 2,500 feet on the drier northeastern slopes (Curry 1955, 44). The first characteristics of Elfin forest begin to appear at about 2,100 feet in the southeastern segments of both islands, but it is doubtful if any true Elfin forest exists on Upolu, although the texture of the vegetation observed on the aerial photographs becomes very fine and tree crowns cannot be distinguished in some areas above 3,000 feet in the vicinity of Mt Fito. On Savai'i, a similar transition occurs at about 3,500 feet in the vicinity of the central cones.

The pre-historic ecosystem

Human interference has profoundly modified the present natural vegetation in Western Samoa. In the past the inland areas have apparently been occupied, at least temporarily, to a much greater extent than they are at present. Characteristic of many areas are peculiar patterns of local dominants, changes in forest composition (inexplicable in terms of changes in the environment in which the trees are now growing) and a persistence of species characteristic of second-growth seral communities. Burning is believed to have occurred in some areas during extreme droughts. Williams to F.O. B.C.S. series 3, vol.3, 'Trade Report for 1864', 21 Jan. 1865. "...this has been the driest year [I]
forest clearing by burning is not usually practised, although
fire may be used to help dispose of the debris of forest
felling. A minor association of semi-xerophytic plants,
mainly hard ferns believed to have been induced by constant
burning, now occurs on the tops of some ridges in the area
of the Fagaloa volcanics. This vegetation is said to have
been initiated during the times when such sites were used
for defensive positions, but it occurs on the only soils
possibly formed from the original Fagaloa lava surface, so
that extreme infertility could be a contributory cause.

It is assumed that in the preliminary phase of Samoan
settlement, the population which was the cause of past inter-
ference with the rainforest lived principally by growing
subsistence crops of the Araceae and Dioscoreaceae groups,
supplemented by pandanus fruit, nuts, starches from ferns
and ti roots, possibly palm piths, and fruits (mainly morinda).

On the whole the Samoan forests were poorly provided
with native edibles. Additional foods would have been fresh-
water fish, wild pig, dog and various birds, particularly
pigeon. Again the faunal resources of the Samoan forest
were fairly meagre. Presumably also the opportunity would
be taken, if it arose, to gather fish and other sea-foods
and coconut from the coast.

The human effort involved in such an existence must have
been considerable as, over much of the interior, soils would
scarcey have supported subsistence crops for more than a
year or two before having to be left for many years to re-
cover under regenerating forest. This could account for the
very large area supposed to have been affected in this way

The development of the 'classic' Samoan culture, based
on settled coastal village communities, probably lessened
the human effect on the forest interiors. Increasing use
would, however, have been made of the lagoon fishing grounds
of which there are 67 square miles fringing the coasts of
Upolu and 27 square miles of Savai'i. Much of this lagoon
area has been trampled over and hacked about in the process
of under-water fishing, and its large floors covered with
fragments of broken and dead coral now present a desolate
appearance. As fishing ground, much of this submarine area
has been seriously impaired, although it remains the prin-
cipal source of sea-food.

The islands of Western Samoa under pre-contact conditions
would have allowed the development of a relatively large
population relying on subsistence agriculture. This matter
has been investigated for the 'high islands' of Polynesia
by Lay (1959). 3

3 (continued)

have ever known in Samoa; Samoans do not remember a drier one.
The bush was parched, plantations of taro and yams dried up,
and there were many large "bush fires". R.P. Sage to M. Faure,
A.S.M., Samoa, vol.II, 15 Oct. 1964 reported that there had
been a big bushfire around A'opo, which burned up the planta-
tions, bush, and even the village itself was threatened.

In an unpublished thesis, 'A study of certain aspects of
human ecology in the Polynesian high islands during the
pre-contact period', U.C.L.A., 1959. Lay did fieldwork only
in Tutuila and this was cut short by illness.
He investigates the likely size of the pre-contact populations of Hawai'i, Tubuai, Nukuhiva, Mangareva, Tahiti, Tutuila and Rarotonga. His method of estimating the possible limits to the size of the pre-contact populations (using a 33 per cent utilization factor and a requirement of 0.5 acres per head in use) has been adopted here as a method for arriving at an estimate of the maximum population likely in the western islands of Samoa. While this concept is interesting and is probably capable of being refined to an extent whereby it could be exceptionally useful in the investigation of such problems, some of the premises which Lay adopts have little to recommend them. The most startling of these is his notion that

There is no reason to suppose that human communities in Polynesia did not respond to the generally accepted biological theory that a population will tend to breed up to a point of balance or equilibrium with the available energy resources of its environment (p.166)

and his assumption that this had occurred in Polynesia before European contact. Human populations under pre-contact conditions in Polynesia, or indeed anywhere at any time before the present century, could not have increased naturally at anything approaching the speed (doubling the population every 25 years) that Lay suggests. It is extremely unlikely that the period of settlement in Western Samoa had been sufficiently long, although it is believed to have been one of the longest in Polynesia, to allow the population to approach the calculated estimate. His methods are more likely to apply to the smaller islands in Polynesia, and may have applied to Tutuila where the calculated possible population was much lower (6,200, using a 33 per cent utilization factor).

Certainly the islands of Western Samoa are well adapted, by comparison with other groups in Polynesia, to some form of agriculture over an exceptionally high proportion of their areas. Upolu is outstanding in this respect with a suitability of almost 50 per cent, while Savai'i is only slightly behind with a suitability of about 45 per cent. Over such areas, even allowing a 'casual' degree of utilization (33 per cent), a pre-contact population of between 200,000 and 250,000 could have been supported without resource strain. Such a population could have accumulated, other conditions being favourable, if the time-span for the development of such a population growing at pre-contact rates had been sufficient. There is little evidence from Western Samoa to suggest that, in fact, the pre-contact population had reached even half this figure before European contact.
Chapter 3

PRIMARY SETTLEMENT AND EUROPEAN CONTACT

The Processes of Primary Settlement

The Samoans are unique in Polynesia in having no tradition of a former homeland, and in assigning their beginnings solely to an introgenic act of creation, associated with the god Tagaloa which, according to the legend, took place within Samoa itself. They have no traditions such as those accounts of the origins of the populations in the various islands of central and peripheral Polynesia, which trace their genealogies back to a primal couple whose previous origin is usually not explained. Traditions of this type may be associated with later dispersal further into Polynesia, while the Samoan explanation seems to be of greater antiquity. In a decremental process, the Samoans appear to have lost the legends of origin and of the lore of their immediate source area. The Samoans did share with other Polynesians the concept of a return at the end of life to a spirit home behind the setting sun and at Falealupo there is a spot from which the spirits depart.\(^1\)

This legend underlines a growing body of factual evidence supporting the theory, now becoming generally accepted, of a dispersal area west of Polynesia, in South-east Asia or its associated archipelagos (Golson 1958, 29). It is not yet clear by which of the three commonly discussed routes the first migrants arrived in Samoa - through Melanesia (perhaps the most likely), through Micronesia, or via the corridor between, clear of islands except for a few Polynesian outliers. However, Samoa lies terminal to all three routes and is thought to have been one of the first groups in Polynesia to be settled.

A radio-carbon date measured from material taken at Vailele, near Apia, indicates that Samoa was settled prior to the first century A.D.\(^2\) There is nothing to suggest that this site was the earliest settlement in Samoa, and by tradition Upolu was not the first island to be inhabited, but the date is considerably earlier than had been anticipated.

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\(^1\) This is associated with the Pulotu legend which the Samoans share with other west Polynesian groups rather than the Hawaiki legends of the central and peripheral groups. The name 'Hawaiki' is preserved as 'Savai'i in the Samoan island names. See Burrows 1938, 73-6.

\(^2\) Carbon samples associated in three settlement layers together with pottery from Vailele, Upolu, taken by Golson in 1957, gave

\[
\begin{align*}
1880 \pm 60 & \text{ before 1957} \\
1850 \pm 50 & \text{ " "} \\
1950 \pm 120 & \text{ " " (for the lowest layer).}
\end{align*}
\]
on the basis of the cultural evidence previously available. As more archaeological work is done in the Pacific islands and more radio-carbon dates become available, the dispersal sequence by which the various island groups became populated should become clear. The dates so far support the theory that the island groups were colonized gradually from a western dispersal area and that the subsequent diffusion reached Polynesia some centuries before the birth of Christ.3

The current controversies over the methods and circumstances of the initial colonizations and subsequent intercommunication between the Pacific islands are scarcely pertinent to this study;4 it could be noted, however, that the Samoan group is part of the dispersed archipelago which includes Fiji, Tonga, Uvea and Futuna, Rotuma, Tokelau, Niue and Ellice and in which journeys between one island and any other need not involve open sea voyages longer than 300 miles. There are traditions of much longer journeys having been made.

It is extremely unlikely that within this archipelago an island group as environmentally hospitable as Samoa, when once settled, would ever again become uninhabited. In the subsequent argument it is assumed to have been continuously inhabited for at least 2,000 years. Certainly, occupation was contested and the western islands have been partly occupied in the past by forces from other groups, notably Tonga.

Before the Tongan wars in the tenth, eleventh and twelfth centuries A.D., the history of the Samoans is obscure, but it is believed that the population of the islands had grown to be relatively large and that some of the cultural forms which subsequently became characteristic of the classic Samoan society were in process of emerging. These wars figure largely in Samoan tradition and the years in which the Samoans finally combined to oust the Tongans came to be regarded and recorded as an heroic age. From this time our knowledge of Samoan political history becomes more precise. The establishment of the principal nu'u (villages), the dispersal of their populations, and their multiplication into groups of allied villages (the nu'u tele and its subsidiary pitonu'u), the establishment of the three principal and the several minor political districts, all indicate a numerous and growing population. Further indication of demographic and cultural development is the evolution of a storied, numerous (and ever changing) hierarchy of titled family heads (matai) and the institutionalizing of the luxuries of politics and the game-war. The Samoan polity reached its height in the sixteenth century when a woman of exceptional birth-connection and outstanding qualities, Salamasina, acquired all four Tupu titles and became paramount. A factional struggle to achieve

3 Dates derived from carbon samples associated with settlement layers relating to this diffusion are
1. 1527 B.C. ± 200 Saipan Marianas
2. 481 B.C. ± 400 New Caledonia
3. 46 B.C. ± 500 Fiji
4. 130 B.C. ± 150 Marquesas
5. 957 A.D. ± 200 Hawaii
6. 1015 A.D. ± 110 South Island, New Zealand
See A. Spoehr 1957, 66; Gifford 1955, 240; Gifford and Shutler 1956, 89; Golson and Green 1959, 3-12.

4 See Sharp 1957, and the subsequent controversy in J.P.S.
the same pinnacle, in which none of the parties was really successful, marked the later centuries which were thus a period of some disintegration; this process was to be aggravated by the coming of the Europeans.

**Early European Contact**

**European discovery**

Although Europeans had penetrated the Pacific early in the sixteenth century, it was not until 1722 that Jacob Roggeveen came upon Samoa. He discovered Rose Island, the three Manu' a islands, Tutuila, and at a distance briefly through a dusk haze, Upolu (Roggeveen 1538, 156-93; Sharp 1960, 95-100). His contact with the Samoans was only brief, at Ta'u and Ofu islands in Manu'a. It is unlikely that any of his party landed, but they did approach the shore in a small boat. They observed a chief and his taupou, the latter wearing a blue 'coral' necklace. As blue coral is unknown in Samoa and the chief indicated that he would like another from the ship, this could be interpreted as an indication that indirect, if not direct, contact with Europeans had already taken place, and that these were in fact blue beads. As Tasman had been in Tonga (with which the Samoans were in frequent contact) in 1642, this is very likely. The Samoans also showed their appreciation of nails.

In 1768 Bougainville, following a similar course, sighted the three Manu' a islands. He observed habitations and later in the day made sufficient contact with some sailing canoes to carry out exchanges. He found these Samoans to be unaware of the possibilities of nails, knives and other hardware, but they showed some enthusiasm for red cloth. The contact was brief and restricted and is not likely to have consequences of demographic significance, although the transmission of some types of disease could have occurred. Bougainville saw only one female, whom he describes as 'old and ill-favoured'. His descriptions of the islands are brief and, while accurate as far as they go, do not advance our knowledge of Samoa at this time to any useful extent. He observed thatched, peaked-roof houses, coconuts, sailing canoes with outriggers, men covered with tattoo between their chests and thighs, yams, tapa cloth (painted in 'nasty' [vilaines] colours of red, brown and black), poorly made barbed composite fish-hooks with sinnet lashing, and a certain amount of dishonesty. Not all these could be observed by a contemporary visitor but they are known to have been at some time characteristic of Samoa. Bougainville sailed on to Tutuila, where he observed many more sailing canoes, and the Leone plain covered with coconuts and many other types of trees. He missed the harbour at Pago Pago, although he was looking for an anchorage, and it is likely that had one been found the party would have landed. Instead they proceeded west, observing only the Lepa and Aleipata coasts of Upolu, marking Nufutulete and Nu'ulua islets on their charts. Their distant view was soon obscured by fog and no contact was made (Bougainville 1771, 236-40; chart facing p.235).

**The visit of La Pérouse**

A more significant visit followed in 1787 when La Pérouse in command of two vessels, the Astrolabe and the Boussole, made the first known landing by Europeans in Samoa (La Pérouse 1798, II, 58-130). After observing and mapping Manu' a and making contact with the inhabitants, La Pérouse sailed on to
Tutuila, where M. de Langle made the first landing at Fagasa on the north coast. His party was greeted with friendliness and La Pérouse was encouraged to land next day with a large party to trade for fruit, pigs and coconut, and particularly to replenish the water supplies. Unlike Roggeveen, who records the Samoans' appreciation of nails, and Bougainville, who found cloth preferred, La Pérouse could not interest the Samoans in either of these and had most success with glass beads.

La Pérouse's descriptions of the people and their villages are much fuller than those two previous explorers had been able to make. The principal impression they leave is of the small degree of difference between the Samoans La Pérouse describes and that which was more fully documented in the first decades of the nineteenth century and even of present day village life in its traditional aspects out in the more remote rural districts.

He describes Fagasa:

...a charming village situated in the midst of a wood, or rather of an orchard, all of the trees of which are loaded with fruit. The houses were placed on the circumference of a circle, of about a hundred and fifty toises [300 yards] in diameter, the interior forming a vast open space, covered with the most beautiful verdure, and shaded by trees, which kept the air delightfully cool. Women, children, and old men, accompanied me, and invited me into their houses. They spread the finest and freshest mats upon a floor formed of little chosen pebbles, and raised about two feet above the ground, in order to guard against the humidity.... The best architect could not have given a more elegant curve to the extremities of the ellipsis that terminated the building; while a row of pillars at five feet distance from each other formed a complete colonnade around the whole. The pillars were made of tree trunks very neatly wrought, and between them were fine mats laid over one another with great art, like the scales of a fish, and drawing up and down with cords like our Venetian blinds. The rest of the house was covered with the leaves of the coco-palm.

... The trees that produce the breadfruit, the cocoa-nut [sic], the banana, the guava, and the orange, hold out to these fortunate people an abundance of wholesome food; while fowls, hogs, and dogs, which live upon the surplus of these fruits, afford an agreeable variety of viands.

... These islanders are the tallest and best made that we have yet met with. Their usual height is five feet nine, ten, or eleven inches; but their stature is less astonishing than the colossal proportions of the different parts of their bodies.

... The men have the body painted or tattooed [sic] so that anyone would suppose them clad, although they go almost naked. They have only a girdle of sea-weeds encircling their loins, which comes down to their knees, and gives them the appearance of river gods of fabulous history....
These people cultivate certain arts with success. I have already spoken of the very elegant form which they give to their huts. It is not without reason that they disdain our instruments of iron; for they finish their work very neatly with tools made of the very fine and compact species of basaltes [sic] in the form of an adze. For a few glass beads they sold us large three legged dishes, of a single piece of wood, and so well polished, that they seemed to have been laid over with a coat of the finest varnish.... They manufacture very fine mats, and some paper-stuffs. I remarked two or three of them whom I took for chiefs, with a piece of cloth tied round their waist like a petticoat, instead of a girdle of weeds. It is composed of real thread, prepared no doubt, from some filamentous plant like the nettle or flax; and is manufactured without a shuttle, the threads being absolutely laid over one another like those of their mats. This cloth, which has all the suppleness and solidity of ours, is very fit for the sails of their canoes; and appeared to us far superior to the paper stuff of the Society and Friendly Islands which they manufactured also. They sold us several pieces; but they hold it very cheap, and make very little use of it, the women preferring the fine mats which I have spoken of above. (Pp.72-113.)

La Pérouse noted that the Samoan language was a dialect within the Polynesian group, similar to that spoken in Tahiti, and further that a Filipino whom he had on board could understand many of the words. He was also struck by the 'two very distinct races in the islands of the Navigators' - shown by one group of 'very black men whose colour is still several shades deeper than that of certain families in the country' (p.115). He ascribed this to the subjugation of Melanesians by a later wave of Polynesians in these islands and a subsequent but selective mingling of the two bloods. Whether this is based on fact more obvious than it is now or whether he was observing a difference between those who worked outdoors for those with status enough to be served in the shade of their houses is doubtful. Their government he described as feudal, although he noted that 'never were sovereigns (i.e., the Samoan chiefs) worse obeyed; never were more frequent disorders occasioned by anarchy and a want of subordination' (p.117).

Their villages are all situated in creeks by the sea-side, and have no paths except to penetrate into the interior of the country.

... Their canoes have outriggers, are very small, and generally contain only five or six persons: some few, however, may contain as many as fourteen.

... Their only modes of fishing are with the hook and line, and sweep-net. They sold us some of the nets and baits of mother of pearl, and white shells skilfully wrought. These instruments are in the shape of a flying fish, and have a hook attached to them made of tortoise-shell, and strong enough to hold a tunny, boneta, or dorado. They exchanged their largest fish for a few glass beads, and it was easy to see by their eagerness, that they were in no fear of wanting food.
The islanders sleep upon very fine and clean mats, perfectly out of the way of all humidity. We perceived no morai [marae, Sam. marae]; neither can we say anything of their religious rites.

...we had perceived no other arms but clubs or patow-patows [patu]. (Pp.117-19.)

Lances were also observed but La Pérouse believed that these were likely to be used for fishing because 'their effect in battle would be far less murderous than that of stones of two or three pounds in weight, which they threw with inconceivable vigour and address' (p.121).

...the bodies of the [Samoan men] are covered with scars, proving that they were often at war, or else quarrelling among themselves; while their features announced a ferocity, that was not perceptible in the countenances of the women. (P.73.)

Many of the observations made by La Pérouse are applicable to the more remote villages even today, and his observations, although occasionally contradictory in minor ways (and sometimes perhaps exaggerated) are for the most part accurate and valuable in their assurance that pre-contact Samoa differed only little in its traditional culture forms from the Samoa exactly described later by more scientific observers.

La Pérouse observed an estimated 1,500 to 1,800 Samoans, including at least 30 with the appearance of chiefs. The numbers found at Fagasa village on Tutuila appear to have been between 200 and 300 persons, and the crews of about 'two hundred canoes'. The frigates had been offshore for no more than six hours of daylight when these numbers were observed in one isolated bay. The 'two hundred canoes' is either a gross exaggeration or else those belonging to Fagasa had been augmented by others from neighbouring villages, of which there were no more than four within five miles sailing distance at this time. All the villages on this north coast would have been quite small compared with those of greater political importance elsewhere in Tutuila. 'Two hundred' is also applied to the Samoans who were left on the beach, including 'a great many women and children' who, together with the 'old men', accompanied La Pérouse on his exploration of the village, while the able-bodied men and the 'fairer' women plied their trade on the beach, and out in the canoes at the ships' sides.

On the following day M. de Langle found another (or perhaps the same) 'two hundred natives including women and children' at Asu village, about three miles away. Within an hour and a half of his arrival there the crowd increased to 'a thousand to twelve hundred'. During this time the number of canoes at the Astrolabe was still so great that La Pérouse was giving himself credit for keeping large numbers of the local Samoans occupied so that the work of water collecting would be done without undue interruption. He makes no mention of observing numbers of canoes coming from east and west, although they must have been visible at all times during the day from the ships. It is more difficult to explain how these large numbers arrived at the area unnoted than to accept the fact that both villages must at this time have had a considerably larger population than later when, for instance, Rev. Powell recorded only 125 persons at Fagasa in 1853 (Powell 1853). It is said that at this time
there was a visiting mala'ga from Upolu and that these men were responsible for the subsequent massacre (below, p.23), but such parties are not likely to be very numerous, particularly if visiting small, relatively unimportant villages. Certainly the Samoans are agile travellers and to see such a novelty many would have travelled by canoe from the villages within easy distance of these bays, and from those on Pagopago harbour over the divide, but the impression given that both villages had populations between 200 and 300 persons, with Fagasa the larger of the two, is difficult to gainsay.

There is an unconfirmed story of a French youth surviving the massacre at Asu and living on in Tutuila (Gray 1960, 8), but in La Pérouse's account he stated that M. Vaujuas, who commanded the retreat, "did not leave the bay, till he was well assured that not a single Frenchman remained alive in the hands of the natives" (La Pérouse 1798, 91) and also that "The savage [Samoans], after having killed them, continued to wreak their fury upon the inanimate bodies with their clubs" (p.91) so that this story seems unlikely. One of those killed was a Chinese whom we may suppose to be the first of his race to land in Samoa.

Of some demographic interest is La Pérouse's somewhat coy account of the sexual experiences of some of his men with Samoan women. While some of these were apparently casual, some others, from La Pérouse's description, appear to have been much more formal, resembling in some respects the semi-public consummations which were part of the marriage ceremonies of the taupou5 (pp.111-12). There is no evidence of any mixed blood issue from these unions, but the Tuta'ilans accuse this expedition of leaving the first infections of gonorrhoea behind them (Gray 1960, 8).

La Pérouse observed extreme cases of yaws and filariasis among those who came aboard his ship:

The younger [girl], who might have been about eighteen years of age, had a dreadful and disgusting ulcer upon her leg. Several of the men also had large sores about their persons, possibly the beginning of leprosy; for I remarked two among them whose legs were covered with ulcers, and swelled to the size of their bodies. (P.62.)

His comments on the general appearance of the Samoans indicates that most appeared to be in rude health, that they were of such physique that the Frenchmen felt puny beside them - and that the Samoans realized this.

These observations made in Tutuila will have applied in their principal features to all of Samoa at this time. Later La Pérouse describes a part of Upolu specifically. After clearing Tutuila, leaving twelve of their number massacred behind them, the animosity of the ships' crews was such that La Pérouse hesitated to explore the islands further, although he observed Upolu and (for the first time by a European) Manono, Apolima and Savai'i. La Pérouse drew up a map of the western group (facing p.126) which shows the north coasts of both Upolu and Savai'i in reasonably recognizable form.

5 In typical Samoan style lewd and aged crones played Nurse to these Samoan Julietts.
and a series of profile cross-sections sketched from various
dots which are considerably more accurate. Two islands
are marked on the chart between Upolu and Savai‘i.⁶

La Pérouse's description of Upolu begins by comparing it to Tahiti to which he thought it at least equal "in beauty, in extent, fertility and population" (p.102).

When at a distance of three leagues [7½ miles] from its north-east point, we were surrounded by innumerable canoes laden with breadfruit, cocoa-nuts, bananas, sugar-canes, pigeons, and gallinules, with a very few hogs. The inhabitants of this island very much resemble those of [Tutuila]...

At four o'clock in the afternoon we brought to abreast of perhaps the largest village that exists in the South Seas, or rather opposite a very extensive inclined plain, covered with houses from the summit of the mountains to the water-side. These mountains are nearly in the middle of the island, whence the ground descends with a gentle declivity, and presents to ships an amphitheatre covered with trees, huts and verdure. We saw the smoke rise from the interior of the village as from the midst of a great city [a simile this rather than a statement of fact]; while the sea was covered with canoes, all of which endeavoured to approach our vessels, several of them being paddled along by idle gazers, who, having nothing to sell, went round and round our frigates, and appeared to have no object in view, but to enjoy the spectacle we afforded them.

The presence of women and children, who were among them, might have led us to presume, that they had no bad intention; but we had great reason to trust no longer to such appearances.... I am a good deal inclined to believe, that we are the first to have traded with these people. They were perfectly unacquainted with iron, constantly refusing what we offered them, and preferring a bead to an axe, or a nail six inches long.... Among a substantial number of women, I remarked two or three of agreeable countenance.... their shape was most elegant; their arms were well turned and admirably proportioned; and their eyes, and their countenances and their gestures, bespoke great sweetness of temper.

(PP.102-5.)

This description of the large village has, because of its ready availability in Stair, been widely quoted (Stair 1897, 56-7). It has been assumed by the gullible to be a proof of vast population on Upolu at the time of first

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⁶ There is some doubt that one of these is really Manono. The larger island shown on the chart has been assumed to represent Manono, but from the map looks strangely like the Tafua peninsula on Savai‘i and is moreover shown to be west of the other island which is on the profile drawing recognizably Apolima. It is possible that Manono was not observed as separate by La Pérouse, who must have been nearly 20 miles away at the time of these observations, and that its European discoverer was actually Edwards of the Pandora in 1791.
contact with Europeans and by the skeptical as a gross exaggeration. Mainly because of an implication in Stair it has been assumed to apply to Aleipata. The complete account, within its context, gives a more credible impression. It is certain that La Pérouse was describing the Falefa plain, both from his references to the north coast (pp.105 and 121) and from his course shown on the accompanying chart. His description fits the physical form of this part of Upolu and his remarks on the very populous settlements apply, allowing for a little exaggeration, to this area without the necessity of inventing extensive and hitherto unknown inland villages. There are four contiguous, large, and politically important villages on this section of the coast, including Lufilufi, the capital and royal village of Atua district, together with Saluafata, Faleapuna, Falefa and possibly another not now in existence opposite Falefa on the estuary (Krämer 1902, Bunde 1, Karte 2, at end). Inland were several other villages allied to these - Falevao (possibly divided into uta and tai), Lalomanu, Manunu, possibly Solaua, and a defensible settlement belonging to Solosolo village. This plain with its adjacent slopes and permanent rivers is exceptionally favourable for inland settlement and it is possible that there were other villages for which there is no surviving evidence.

The first population counts for all these villages by missionaries indicate no more than 1,750 persons.7 La Pérouse's descriptions indicate a considerably larger population than this, and these are sufficiently accurate in other respects relating to Samoa that he need not be accused of wilful exaggeration in his account of this always populous part of Upolu - at most only a little human magnification.8

The description of Savai'i is extremely brief: La Pérouse describes it incorrectly as smaller than Upolu, although, as he saw only a very small section of the south coast, he cannot have had a very precise idea of how large it was. He believed that the inhabitants must have heard about the massacre at Tutuila and mentions that not a single canoe came out to meet them. As from his profile drawing the ship was standing off the lava-bound coast between Amoa and Lealatele, which was virtually uninhabited, this is perhaps not surprising.

7 e.g., district from Falefa to Solosolo had 2,215 Samoans in 1858 and Solosolo (which probably should be deducted) had approximately 500 persons (Murray 1858).
8 Dumont d'Urville recorded that he did not see a village such as La Pérouse had described, but he may not have been looking in the right place (Dumont d'Urville 1842, 96). Buzacott (1836) records in his 'Journal' that he passed through an extensive valley between Fagaloa and Falefa, where there had been several settlements, but which was then depopulated after a war, and that the survivors had gone to live in the coastal villages with their kinsmen. Depopulation of this type was not permanent in most cases and the inhabitants were permitted to return after a decent interval. The estimation of village populations from a vessel offshore would not be easy. A line of dense settlement along the beach, a view of the inland settlements in clearings on the upper slopes, and a few clearing-off fires beneath the intervening coconut palms and forest could easily give the impression of continuous settlement over the whole area.
Later encounters

Four years later, in 1791, Edwards in the Pandora, searching for the Bounty mutineers, called at the group. 9 Savai'i was the first island sighted and Edwards, believing himself to be its discoverer, named it Chatham's Island. Few discoverers can have described their find more perfunctorily. Although his brief descriptions are not easy to follow, he appears to have used Matautu, where he observed an 'Indian town' on the beach, and then to have explored the south coast as its first European visitor and to have spent a day trading there with the inhabitants of a coastal village in a bay which cannot be identified. Upolu and the other islands of the western group are noted, but Edwards makes no reference to settlement or population.

Hamilton, his surgeon, is not so discreet, and gives an account of their contact with the local women:

One woman amongst many others came on board. She was six feet high, of exquisite beauty, and exact symmetry, being naked, and unconscious of her being so, added lustre to her charms.... Many mouths were watering for her; but Captain Edwards with great humanity and prudence, had given previous orders, that no woman should be permitted to go below, as our health had not quite recovered from the shock it received at Otaheite. (Edwards and Hamilton 1915, 129.)

That night the Pandora lost her tender, which was subsequently attacked by Samoans, probably from Aleipata, who were unacquainted with the dangers of facing firearms. Many were killed before the attack was beaten off.

The accounts of the Pandora expedition's contact with the Samoans are not sufficient to be able to draw any conclusions from them. They spent at least two days trading with the Samoans, but it is not certain whether a landing was made, nor is it certain whether, in spite of their captain's prohibition, any of the crew could have had the opportunity to propagate mixed-blood children or to pass on any of 'the warm tokens of their affection' recently given them by the ladies of Tahiti.

The next European to arrive in Samoa is believed to have been an unnamed Englishman, who had originally been left off an American vessel, 10 at his own request, in Tonga. He was later blown in a canoe with three Tongans to the Samoan

9 In Basil Thomspson's edition of Edwards and Hamilton's journals (1915, 49), there is a footnote which states that Freycinet preceded Edwards in the Samoan group, that is between 1787 and 1791. This seems extremely unlikely as on his voyage in the Pacific in 1800 he was not in command of the expedition, and is not known to have been in command of a ship in Samoan waters until 1819, when he visited Rose Island, which was then inhabited.

10 This vessel is believed to have been the Otter, out of Boston, which was in Tongan waters in 1796 and from which one of the men is known to have deserted to one of the Tongan canoes (Maude 1962).
island of 'Molna', presumably Tutuila. He stayed in Samoa, living happily with one woman who bore him several children, the first of mixed-blood definitely recorded. He was found when George Bass in the brig Venus out of Port Jackson called at Samoa in 1802.11 What contact the Venus men had with the Samoans is not known. They were told that they were the first ship to visit since the massacre of La Perouse's men, although the Pandora in her second visit, looking for her tender, had made contact with canoes out of both Manu'a and the northern coast of Tutuila.

After 1800, contacts are likely to have become increasingly frequent. The reputation of the Samoans as the murderers of de Langle may have been the cause of relatively fewer ships calling than to other island groups, notably Tonga. This massacre was provoked by the crew of one of the ships, a Samoan who was on board having been insulted and wounded, and even on this occasion, until the events which incited the massacre, the reception of the French had been friendly. On the whole the treatment accorded to visiting explorers and later to the whalers and traders was as good as they could expect, and even better than in places more frequented, such as Tonga.12

Of the more respectable visitors between 1800 and the arrival of the first missionaries only Kotzebue's expedition in 1824 (Kotzebue 1830, 253-87), the whalers Maro in 1823 (Stackpole 1953, 279) and the Clay in 1827 (Driver 1827-9, entry 2-4 Sept.) have been recorded. It is extremely unlikely that in fact the Samoans were so neglected. The two most likely classes of visitors, whalers and convicts escaped from the penal settlements in Australia and Norfolk, both had very good reasons for keeping their movements secret. One of the principal routes taken by the whalers went by the Samoas (Stackpole 1953, 267), and the combination of ample provisions, available women and complaisant men which La Pérouse found would scarcely have been so overlooked.

By 1830 several 'runaway sailors' were living in the group and 'Europeans of wild character had attached themselves to various Samoan communities who valued their fighting qualities and their dexterity with firearms. They lived and died violently' (Williams 1837, 463-6; McKay 1937, entry for 1800, 1).

The Development of the Samoan Population

The pre-contact period

The pre-Christian era in the history of the Samoan population may be divided into two periods: the first, from the beginning of continuous settlement until the first contact,

11 This account appears in a letter signed 'Oceanus', dated 14 March 1814, to the Editor, Naval Chronicle, 1814, 350-2.
12 See Edwards and Hamilton 1915, p.132, where Hamilton states that 'the name of the Friendly Islands is a perfect misnomer', and p.13, where they are described as 'a nation of wreckers'.


direct or indirect, of consequential importance to the Samoan population; the second period between this latter date and about 1830.

The dates limiting the first period are unknown but it is assumed to have begun some centuries before the birth of Christ and to have terminated some time between the entry of the first European ship into South Seas waters and, the latest limit, the well-documented contact between La Pérouse's expedition and the Samoans. Even if there was no direct contact of demographic consequence (i.e., mixed-blood offspring) from this visit, it seems likely that consequences such as the accidental introduction of diseases unknown previously to the Samoans could have occurred.

During this time, a span of at least sixteen centuries, the initial settlement group is likely to have had unusually good opportunities to multiply into a population of a size consistent with the descriptions of La Pérouse and other early observers. They indicate a relatively dense coastal population, denser, that is, than it became later when Europeans became interested in recording data on the size of the Samoan population.

Once cut off from the pestilence centres of their Asian source continent, the Samoans' expectation of life need not have been cut short by the eruptions of disease which periodically overran Asia, Europe and Africa. Their endemic diseases, yaws, filariasis, intestinal parasitism and fungus diseases of the skin are debilitating rather than deadly.

The characteristics of Samoan culture combine, on the whole, to promote rapid population growth. Their social customs and traditional attitudes tend to favour an unusually high birth-rate; even under pre-contact conditions the crude rate is likely to have been at least 35 per thousand persons (McArthur 1962). Institutions which tend to limit population growth were of minor importance. Samoan religion does not appear to have required human sacrifice. Deliberate infanticide, prevalent in Tahiti, would be against all Samoan convictions - there is no evidence of its having been customary. A chief's wife was not subjected to ceremonial murder at the time of her husband's death as occurred in Fiji. Cannibalism was known but appears to have been of occasional ceremonial rather than nutritional importance; abortion was also known but does not seem to have been frequent. Poor techniques of infant care are believed to have been the cause of very high infant mortality under pre-contact conditions, but there is little evidence that it was higher in Samoa than in other areas of approximately similar environments. The first descriptions of the Samoans are unanimous in stressing their superior physical development and their generally robust, healthy appearance.

Turner (1861, 219) states that 'probably not less than two thirds of the Samoan race died in infancy and early childhood', which he attributes to 'stuffing them with improper food'. As it was customary for Samoan mothers to breast-feed for up to two years after the birth, this is not as likely a cause as Turner appears to think. He admits that 'even now (1858), perhaps, one half of them die before they reach their second year' and implies that the reduction was largely due to advice and practical help from the missionaries.
Famines have been recorded from time to time, and food shortages are known to have occurred in the nineteenth century in association with the wars. However, it is difficult to visualize starvation as a recurrent or frequent cause of death while the food resources of the forest and the reef were available. Samoan root-crops, once planted, would be very difficult to destroy completely, and although this was frequently attempted in time of war, they would normally survive hurricanes and other forms of natural disaster, little damaged. Tree crops are more vulnerable. Accounts of death from starvation are only plausible under conditions of very high population density and complete social disruption, when the more vulnerable groups within the population, the old and the very young, may have been affected.

Voluntary and forced migrations and losses during open sea voyages may have been a frequent but scarcely major cause of population loss. The major factor seems to have been war. Combat between families, villages, districts and sometimes against other island people was an habitual diversion for the Samoans. The early missionaries were kept in a constant state of perplexity by the Samoans' propensity to go to war over small provocations. But when the early missionaries' efforts at peacemaking failed, the consequences were almost never disastrous. Although regard for human life was perfunctory in some ways, in their recurrent efforts to revenge slights and impositions the Samoans usually took care to keep out of death-dealing situations. While the first observers commented upon their savage appearance, their dexterity with weapons - particularly stones - and their great strength, later observers appeared to think that their battles were seldom more than tentative skirmishes. Erskine (commanding H.M.S. Havannah), who attempted to mediate between two warring factions in 1849, offered the professional opinion that

The art of war seems that in which they are most deficient, being incapable of forming or comprehending strategical combinations even of the simplest kind. (Erskine 1853, 92.)

Williams stated that while frequent, 'it does not appear that their wars are bloody, five or six killed on each side would be reckoned a great number'.

In general the Samoans do not seem to have been afflicted by either natural or cultural causes of population loss to the extent found in other parts of the world, or even in other island groups in the Pacific. The levels to which the Samoan population rose prior to its first contact with Europeans cannot now be known. The estimate made by La Pérouse (if in fact he did make an estimate) can have

14 Williams 1830, entry for 24 July 1830. This does not seem to have applied to the war in progress when Williams arrived, when 400 persons were burnt to death in a revenge bonfire at Pasito'otai, A'ana. This was regarded as a particularly ghastly conflict by the Samoans (Stair 1897, 255-5; Krum 1902, 25).

15 La Pérouse made no estimate of total population for Samoa in either his Journals or his Letters, but an estimate of 80,000 persons for the whole group is attributed to him by Deschanel 1884, 232-5. See also p.29.
been little more than a guess as he saw something less than half the inhabited coastline and much of this was from a distance of several miles.

The impression left by his detailed observations is of coastal village populations of considerable size and certainly of larger populations than were recorded in the villages he describes when the first counts of populations were made after 1830. Other explorers and the first missionaries confirm this impression. In the absence of systematic inventories of population these guesses can never be confirmed - but nor can they be entirely discounted.

The early effects of European contact

Assuming 1,750 years as a likely span between first settlement and initial European contact, it is very possible that during this period the Samoan population could have risen to exceed 70,000 persons. This example (based on the somewhat conservative premises of an initial base of 10 settlers, a mean annual increase of 0.5 per cent,16 and allowing nothing for subsequent migration, inward or outward) raises several questions.

- Did the Samoan population before contact with Europeans in fact reach a level which it has only regained in recent years?

- If levels of this magnitude were not reached, what factors, not obvious now, were operating from the time of initial settlement to prevent such growth?

- If the population did rise to the levels suggested, what agencies brought about its reduction to the numbers recorded in the first reliable population counts after 1840?

- If this reduction did occur, why is it not better documented, particularly in its later stages between 1800 and 1850?

- If there was no large change in population numbers between the arrival of the first European navigators and the years in which the first reliable counts of the Samoan population were made, what is the explanation of the acceleration in the rate of population growth achieved between about 1860 and the influenza pandemic in 1918? (See p.63.)

For the Samoan population to have reached only about 40,000 at the time of contact, the first reliable population estimate which can be assumed from the documentation discovered so far, its rate of growth over the 1,750 year settlement period assumed must have been very low, a 0.2 per

16 United Nations Population Studies, no.17, 1953, 12. This is believed to be the rate of mean annual increase between 1650 and 1950 for the total world population. It could be argued that it is unduly optimistic to apply this relatively modern rate to the 1,750 year Samoan span, but it is used here, as it is believed that the environmental conditions in Samoa for population growth are above world average. This is less than one-sixth its present rate.
percent mean annual increase, or about half the rate achieved by the total world population under conditions which, on the whole, would have been inferior.

Evidence, even of an unsubstantial kind, is strangely lacking on all these questions and as a consequence our understanding of the trend and nature of the Samoan population in the second period, between the first significant contact between Samoans and Europeans and the arrival of European Christian missionaries in 1830, must be unsure.

The major factor upon which our knowledge is lacking is the extent to which diseases, strange to the Samoans, were introduced by the first European contacts and the effect these had upon the population in the islands at the time.

Although it is believed that Samoa was not visited until 1722, the wider archipelago of eastern Polynesia was in contact with Europeans as early as 1642, when Tasman entered Tongan waters. It is possible that, since contact between the Tongans and Samoans was frequent, infectious or contagious diseases could have been introduced into Samoa long before there was any direct contact with Europeans. The crews of exploring vessels coming to the Pacific islands left countries in which epidemics of bubonic plague, smallpox, cholera and venereal disease were commonplace. Any ship at that period is likely to have carried smallpox with the clothing and cloth gifts so frequently made to the islanders, bubonic plague with its rats and gonorrhea with its libidinous sailors. Among the explorers carriers of the dysenteries, including cholera and typhoid, as long as they had the opportunity to infect by accident local water supplies by fecal contamination, would have been a source of constant risk. Tetanus could come ashore with infected animals. The pneumonias, whooping cough, influenza, the common cold and diphtheria, spread from the nasal pharynx by coughing and by spittle, persist in human cairiers, although they have no sign of infection themselves and would have been among the earliest introductions to the unaccustomed Samoans. Tuberculosis, of which there were bound to be several cases in most ships' crews at this time, is also easily transmitted by sputum and droplet infection. Other epidemic diseases such as mumps, chickenpox and measles, because they are transmitted by direct contact with a person with the disease at an infectious stage, are unlikely to have survived in virulent form a journey as long as that from Europe and are likely to have reached Samoa later by stages.

In spite of the very great risk of epidemic there is little certain evidence in Samoa of contagions of the type which swept other island groups in the Pacific, nor very reliable evidence of catastrophic population decline. No evidence has persisted in Samoa of an epidemic corresponding to the 'Great Lila' tradition of Fiji in 1791, or the 'ngangau' of Tonga in 1776, or the 'malignant fevers' which were recorded in the Society, Gambier, Marquesas and Cook Islands. Venereal diseases do not appear to have had the effect in Samoa which many early observers noted so ruefully in Tahiti. Williams declared that it was not present in Samoa in 1832 but does not record the means by which he became certain of this (Williams 1832). Smallpox, so disastrous in the Marquesas, has not been recorded as a major epidemic in Samoa and the missionaries were known to
have been inoculating at their stations in the 1550s. Dysentery, which cut the populations of Fiji, Rarotonga and Tahiti, was a frequent and sometimes epidemic disease in Samoa, but is not recorded as having reached disastrous levels. Tuberculosis also became widespread in Samoa and has been a major cause of death, but does not seem to have been the scourge that it was to the Tahitians or to the Maori.  

This resistance to the new diseases could in part be due to the exceptional physical development of the Samoans and to their mode of living which observes, probably unwittingly, most of the laws of health precaution and good sanitation. The ability of the Samoans to throw off an epidemic without great mortality (which is implied by contemporary accounts) would also be due in part to earlier first contacts that have been recorded and to a more rapid acquisition of European levels of immunity than in other island groups.  

During the second period very few Europeans were living with, or had much contact with the Samoans, and those who had this contact do not seem to have been the type to leave records of their impressions or activities. They were on the other hand more likely to carry a wide range of diseases than were the more sheltered middle-class missionaries who came later. Whatever the fact of the population trend during this period, little indication of it has percolated into the writings of Europeans, and apparently its manifestations were not sufficiently spectacular to survive as part of the Samoan folk-history later recorded.  

There are minor indications. Turner recorded that 'they have a tradition of an epidemic answering to the description of cholera which raged with fearful violence many years ago' (Turner 1661, 222). He also records the Samoan word for tuberculosis and mentions that they had special Samoan doctors adept at exorcizing it, which implies that it had become a naturalized disease with its own lore long before the 1840s. Turner also mentions that 'the universal opinion of the natives is that the mortality is now greater among young and middle-aged people than it was formerly' (p.220).  

The first estimates of total population based on information more reliable than casual assessment came in the 1830s, when the missionaries began to take an interest in the actual and potential number of their flocks. There seems to be general agreement that the population of the two large islands, Upolu and Savai'i, was about 20,000 each,  

17 The fact that few of these epidemics have survived as tradition or as recorded observation does not rule out the possibility of their having occurred, particularly prior to 1830. A possible but largely unexplored source remains in the vernacular histories kept by the prominent families in Samoa. These are carefully guarded and have never been systematically investigated by Samoan-speaking professional scholars. As they came into being only after the art of writing became known to the Samoans through the missionaries, the form in which they were remembered would depend upon the importance which Samoans place on events of this type.
with that of Upolu probably a little greater. Manono was believed to have a population of at least 1,000, and Apolima no more than 200 persons.

Williams estimated that the group which he calls the Leeward group must have had a population of at least 40,000 or 50,000. Savai'i, he estimated, could not have less than 20,000 or 30,000 inhabitants. Williams on his first voyage saw about half the inhabited coast of Savai'i and was particularly impressed with Sapapali'i village, where he spent some time, noting its populous appearance and extent. Manono had 2,000 people on the island but had other subdivisions. Apolima had 100 persons resident. He did not state his opinion of the population numbers on Upolu, but assuming that he would have had it as great or greater than that of Savai'i, his first statement of the total as 40,000 to 50,000 must be a little conservative (Williams 1830 and 1832).

Quotation of an estimate by Frazier, a resident of Upolu for seven years prior to 1830, is given by Dumont d'Urville. His total for the whole group was 80,000. It is possible that this could be Deschanel's source attributed in error to La Pérouse (Deschanel 1884, 232-5).

<table>
<thead>
<tr>
<th>Island</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Savai'i</td>
<td>25,000</td>
</tr>
<tr>
<td>Upolu</td>
<td>25,000</td>
</tr>
<tr>
<td>Manono</td>
<td>7,000</td>
</tr>
<tr>
<td>Apolima</td>
<td>3,000</td>
</tr>
<tr>
<td></td>
<td>60,000</td>
</tr>
</tbody>
</table>

(Dumont d'Urville 1842, 104.)

The impossibility of the totals suggested for Manono and Apolima being accurate inevitably reduces the credibility of the others.

Buzacott, the LMS missionary, also made an estimate of the population of the western islands. "As near as we could guess we thought the population of each of the large islands is about 20,000. It may be more but we could not think it less." Buzacott toured Savai'i, visiting most of the accessible villages in a three-week malaga, and he also travelled on Upolu (LMS, S.S.L., Buzacott 1837).1

18

In this and following chapters reference is frequently made to the letters, journals and occasional writings of European missionaries, particularly of the London Society. Those whose writings have been consulted are listed below in order of their joining the Society, with their stations and the years in which they began residence:

BARFF, Charles: accompanied Williams to Samoa in 1830, returned in 1834 and 1836 (with first appointed missionaries);

PLATT, George: visited Samoa in 1835-6;

WILLIAMS, John: visited Samoa in 1830 (Messenger of Peace), settled 8 teachers in Samoa, returned in 1832 and in 1838 (Camden), stationed at Pasite'outa, Upolu, in 1839;

BUZACOTT, Aaron: visited Samoa in 1834 (with Barff), accompanied first appointed missionaries to Samoa in 1836;

STALLWORTHY, George: Falealili 1844, Malua 1859;

WILSON, Samuel: visited Samoa in 1835-6 (with Platt);

BARNDEN, George: Leone 1836, Upolu 1838;

(continued)
Wilkes, commanding the U.S. Exploring Expedition, also includes a population estimate in his account of his Samoan visit in 1839. These estimates would have been derived mainly from the LMS missionaries, of whom there were 10 resident in different parts of the group. The estimate for Apolima would appear to be an error, as the population of this island was well known to the missionaries and did not exceed 200 persons at this time.

<table>
<thead>
<tr>
<th>Island</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Savai'i</td>
<td>20,000</td>
</tr>
<tr>
<td>Upolu</td>
<td>25,000</td>
</tr>
<tr>
<td>Manono</td>
<td>1,100</td>
</tr>
<tr>
<td>Apolima</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td>46,600</td>
</tr>
</tbody>
</table>

(Wilkes 1852, 190.)

Which of these first estimates merely repeat previous guesses and which include information based on later observations is not known. However, a total population in the western group of between 40,000 and 50,000 is consistently indicated for the period 1830-40.

### (continued)

MURRAY, Archibald: Pagopago and Leone 1836, Manono 1841, Apia and Malua 1853;
McDONALD, Alexander: Safune 1837, Palauli 1839, Sapapali'i 1844;
HEATH, Thomas: Manono 1836;
MILLS, William: Apia 1836;
HARDIE, Charles: Sapapali'i 1836, Malua 1844;
STAIR, John (printer): Faleletai 1838, Leulumoega ?;
BUCHANAN, Ebenezer (schoolmaster): Falealili 1838-42, Saluafata 1844;
PRATT, George: Mataatu 1839;
DRUMMOND, George: Falealupo 1841, Fa'asaleleaga 1844, Saluafata 1846, Balealili 1860;
SLAYTER, Thomas: Leone 1849, Saluafata 1843;
HARBUTT, William: Lepa 1840, Lalomanu 1853;
TURNER, George: Vaie'e 1843, Malua 1844;
NISBET, Henry: Fasito’outa 1843, Vaie'e 1844, Sapapali'i 1850, Malua 1859;
CHISHOLM, Alexander: Sala'ilua 1843, Sapapali'i 1845;
SUDBERLAND, James: Manono 1845, Solosolo 1845, Leulumoega (the Press) 1845, Manono 1848, Leone 1851;
POWELL, Thomas: Pagopago 1845, Samata 1845, Pagopago and Leone 1849;
SCHMIDT, Carl: Samata 1848, Sala'ilua 1848;
ELLA, Samuel: Leulumoega 1848, Fasito'outa 1852;
GEE, Henry: Savai'i 1860, Apia and Saluafata 1861;
WHITMEE, Samuel: Leone 1863, Leulumoega 1864;
TURNER, George Jr. (Medical missionary): Malua 1868, Apia 1870.
Chapter 4

SAMOAHS AND EUROPEANS: THE FIRST PERIOD OF CONTINUOUS CONTACT

From the first, visiting Europeans found the Samoans and their islands unusually enticing. The first suggestion, a dubious one, of continuous contact between Samoans and a European has been placed as early as 1787 (ch. 3 above). In spite of the notoriety of the group with sailing men after the de Langle massacre, we know that at least one European had established himself within a Samoan aiga before 1800. He was followed shortly by others, so that by 1830 there were several Europeans living with the Samoans in their villages.

The Samoans welcomed these first European residents and, if they did not behave in ways which their hosts found offensive, they were readily accepted into the aiga of eminent chiefs; they were provided with housing, food, wives, and some acquired Samoan titles. Their arrival was opportune. After a long and apparently peaceful reign, the Tupu I'ama'afana died in about 1802; his mavaega (the oral designation of a successor), in passing over his son to choose a member of the 'opposition' Malietoa line, was the cause of thirty years sporadic war. In return for hospitality, these foreigners acquainted their patrons with the European methods of war, particularly the use of firearms.

To the consternation of the earliest ordained missionaries who came later, some of these 'debased Europeans' added Christianity to their 'pleasing arts' and for some years several 'sailor sects' competed with those of the professionals. While some of these castaways were desperate, brutal men with whom the Samoans soon became disenchanted, others seem to have been basically decent and responsible, and to have established a rapport with their Samoan aiga based on mutual regard. The early missionaries frequently utilized the influence of such people with the Samoans and their knowledge of the Samoan language and political alignments; but they regarded sternly those who adopted local customs such as scanty clothing, the tattoo, making war, and a frequent change of wife.

Even those Europeans who did not linger were on the whole appreciative of the Samoans and their way of life: the reasons are not far to seek. The Samoans had solved the problems of day-to-day living in their environment quite as ingeniously as the visiting Europeans of the time had solved theirs. To many the Samoans' solutions must have seemed considerably more graceful than those customary in the lower classes of Europe from which they had sprung. On the whole the problems of living were much less. Few physical environments offer a smaller challenge to human survival than those of the 'high' islands of tropical Polynesia - and few seem able to capture the European imagination more easily.
Traditional Samoan Society

The society penetrated by these first Europeans in the early years of contact is not satisfyingly described from early sources. All the observers whose writings have survived were Europeans ready to apply their own criteria and judgments to what they saw. None were trained observers and most—particularly the missionaries—regarded the system as one to be changed as quickly as possible. But some of the principal features of Samoan culture, as it was in the days of early contact, recur in the writings of the more perceptive observers. The Samoan solutions to the problems of living tended to be practical but also elegant; dominated by common sense rather than ritualism, lenient rather than harsh, and facile rather than compulsive.

Their society was neither rigidly stratified nor chaotically open. The fundamental unit was the extended family (aiga), which sponsored a head (matai) who undertook the responsibility of organizing and co-ordinating the family activities. These aiga were grouped into villages (nu'ufu) usually on the basis of close relationship. Originally the nu'ufu was the principal producing and consuming unit, the several aiga combining for mutual assistance in most economic activities.

Village affairs were deliberated over by the assembly of village matai (fono). The election to a title, the life's aim of most Samoan males, was a matter for the bestowing group to decide. This group was normally the family, but for higher titles a wider group would be consulted. For the highest titles, the decision to elect was the prerogative of a group of tulafale. Such titleholders, usually known as orators (or speechmakers from their alternative name failauga), are one of the two types of Samoan title. The other group are the chiefs (ali'ii). The ceremonial functions of the two divisions were complementary and they were in most cases paired into a legislative-executive association. Each title had its own predetermined degree of political influence and it was only an exceptional incumbent who could raise its prestige. The relative importance of the two classes of title and the pattern of political groupings varied with the district.

While the birth and also the rank and descent of the father and of the mother were significant, they did not ensure inheritance to a title if personal qualities such as leadership, intelligence or a knowledge of custom were lacking. Verbal facility and a quick arm with a club were useful and admired qualities. A candidate was expected to have shown respect for those already in authority and for the traditions and customs of the culture. Prior to his election he was to have been conspicuous devoted to the service of the electing group. There was no bar to the elevation of adopted children to the titles of their group, nor in some circumstances to the election of 'low-born' children who showed outstanding talents in those arts which the Samoans valued. On his death-bed a titleholder had the right to suggest his successor. This 'will' or mavaega was listened to with great respect, but was not always put into effect if those who had to suffer the authority of the named candidate did not agree with the choice.

In spite of the element of flexibility in the Samoan power structure, some families tended to accumulate
Plate 2. Three hulafa on the malae at Fuifatu. Safotulafai, Savai'i.
exceptional privilege and prestige and from their members were drawn most of the holders of the higher titles. And yet again, this tendency was tempered by the obligations due to a vast web of related persons composed of both affinal and consanguineous kin.

With Samoan titles went the powers and obligations of ordering one's family or dependent group, the pule over the land attached to the title and, depending on the rank and history of the name, a variety of prerogatives, duties and precedents. Whatever the rank of a titled man, he lived with his less privileged family within the village community; he was to some extent subject to, or was at least aware of, the criticism, praise or blame of those below him. Consultation within the aiga was a characteristic habit.

It was natural, given the flexibility of such a system, that when an individual European arrived in a Samoan village (deserted off a whaler or escaped from the penal settlements to the South), his novel techniques and knowledge would commend him to the most powerful matai. He might be adopted by the aiga and in some cases even given a subsidiary title. He was thus able to share immediately in the economic and social advantages of Samoan communal living while, being usually somewhat privileged, he was spared the labours of food producing and village maintenance that fell to the people of low status in the village.

Work under the pre-commercial system of Samoan agriculture was organized mainly on a village basis, so that the bulk of the labour fell to the untitled men of the village, an association known as the 'aumaga. This group planted the shifting subsistence gardens producing taro, yam, ta'amu and banana, using clearing in the forest, inland from the village. They maintained the stone walls enclosing the pig run and gathered coconuts and breadfruit from the plantation immediately adjacent to the village houses. They also provided the village with part of its fish supplies and attended to the heavier tasks of village maintenance. Cooking, which was done for the whole village in one oven (umu), was another task in which they had the largest share. When there was fighting to be done, again it was the 'aumaga which was called. Little wonder they were known as 'the strength of the village'.

The direct role of the matai in economic matters seems to have been minor. Some classes of matai specialized in economic tasks such as building (the guild of tufuga), making certain types of artifacts, particularly canoes, and in certain types of fishing or hunting, notably of pigeons and bonito (Hiroa 1930, 84-6). They also exercised general supervision over the activities of the 'aumaga, although for day-to-day organization this body had its own leader.

The unmarried women - the aualuma - and the wives of untitled men constituted another group which performed a number of economic tasks of a lighter kind. They assisted with agriculture, combed the reef for marine creatures, helped with the cooking and with various manufacturing and maintenance tasks around the village. Their ceremonial responsibilities, however, were centred on the protection and service of the taupou or the ceremonial virgin of the village, and on the entertainment of visitors.
The wives of titleholders, usually the older women, had their own appointed tasks, particularly the manufacture of artifacts requiring great skill and experience, such as the fine mat (Tie toga).

The Samoan village was thus to a large extent self-sufficient. The population was stratified according to sex, age and status into groups each of whose activities provided for specific needs of the community. All members of the group of whatever sex, age or ability, as long as they behaved in the ways expected of persons of their standing and performed their tasks as well as they were able, were secure and well provided for. Only from the youthful was hard work required, and leisure was a habit rather than a luxury. It is scarcely surprising that many European men found such a society an attractive alternative to the insecurities and economic deprivations which they left behind in Europe, on their ships, or in the penal settlements of Australia.

The role of the first Europeans in Samoa was primarily political and military. They became involved almost immediately in the village, district and interdistrict rivalries which were a normal feature of Samoan ceremonial affairs. The extreme intricacy of these frequently shifting alignments defies brief description and would be scarcely pertinent to this study. But it may be noted that in general the political manoeuvrings and shifts of power appear more important in the telling than in the consequence.

Samoan village life usually remained well organized and self-stabilizing even while intrigue and dissension raged in the fono houses. Only in the last extremity of war was the village affected greatly; in this situation houses and artifacts might be burned or damaged, crops uprooted and trees ring-barked or cut down. Some lives - a young chief or two and some warriors - might be sacrificed. The village community did stand together and an insult or provocation offered to one member was felt by all and would be collectively avenged; but there were mechanisms, including ceremonial abasement (ifoga), submission to personal punishments and the transfer of property, for averting armed hostilities. Even during the fighting there were conventions which served to mitigate its severity. Recourse to speech rather than physical opposition is said to have saved many situations which seemed to be deteriorating. The Samoans were realists and were usually quick to see the futility of fighting against superior odds - and they were apt to fight their battles with due regard for their relatives among the enemy.

The adoption of European advisers skilled in the use of firearms and their experience of the larger and more ruthless wars of Europe gradually changed the nature of Samoan fighting; it became more deadly and apparently somewhat more frequent, as with the ability to take more lives and to do greater damage there was a commensurate increase in the need for revenge. As is common in periods of change and shifting balances, fear and uncertainty bred savagery and malevolence.

The earlier accounts of the Samoans indicate that rather than warlike, they were fractious and quarrelsome (Williams 1830). Traditionally, wars were fought principally for ceremonial recognition rather than political or
economic power as such. Later, as an awareness grew of the possibilities of political and economic control in the way that Europeans understood it, Samoan wars lost their character as an occasional diversion within an otherwise fairly placid way of life. With the example of the political organization of Tonga before them, the Samoans' attitude to war became more purposive.

The importance of war in pre-contact Samoa can easily be exaggerated. The most respected Tafa'ifa are those whose reigns, like that of Salamasina, were long and peaceful. The Samoans were apparently content to remain materially ill-equipped for fighting; their villages, with a few exceptions such as Apolima, were indefensible and rarely were attempts made to protect them by erecting walls or stockades. When attacks were made the Samoans were apt to flee their villages - the fighting force perhaps to battle elsewhere and the others to olo or defended places, usually inland (sometimes little more than caves), or to relatives or allies elsewhere in the islands.

The Samoan talent lay in discussion rather than in war, in the recognition of pre-ordained rank with its appropriate rights and privileges, in compromise and in the contrivance of unanimity. Their degree of political sophistication was considerable; verbal facility was universally admired and many tulafale showed exceptional oral powers.

Aesthetically, Samoan culture reached its highest points in those arts which were associated with rank. In its other forms Hiroa found it 'uninspired' compared with that of other Polynesian peoples (Hiroa 1930, 679). In the 'guild-built' house, in the professionally built canoes, in the male body tattoo, in their fine mats (tie toga) and their shaggy garments (tie sina), however, there is refined technique and considerable elegance. Of these only the tattoo could perhaps be classified as non-utilitarian, although it appears to have been a convention serving modesty and may have been a deterrent to premature mating. The fine mat was, in addition to its normal textile utility, also well toward fulfilling a currency function. Hiroa also noted a development of a business-like commercial attitude, unique in Polynesia, and the antithetic development of a form of trade unionism in the relationship between the 'guild' house-builders and their chiefly clients (Hiroa 1930, 679). Accompanying their preoccupation with rank and ceremonial recognition (which amounted to a cultural extravagance) was an excessive verbal tendency, probably serving a cathartic function, and an ostentatious fondness for the display and consumption of large quantities of food. With these characteristics went a very low degree of religiosity. That the first explorers seem vague in their accounts of Samoan religion is not surprising - there was little to see. To the considerable annoyance of the first missionaries, Christianity preceded their own arrival in the group, and the Samoans succumbed with surprising alacrity, not only to missionary teaching but also to that proffered by any stray European or christianized Polynesian. A recurring characteristic of the first Samoan conversions, including those made by John Williams, was their blatantly materialistic motivation. This early became a source of distress and embarrassment to the Christian missions.

Few Samoan practices repelled the first European settlers. Cannibalism, infanticide and the other 'disgusting'
Plate 3. Plaiting the traditional fine-mat (ʻie toga)
customs found in other Pacific islands were rare or absent in Samoa. Their sex customs were mostly straightforward, and while they shocked the missionaries, other Europeans seem to have enjoyed them. Health characteristics were considerably better than those found with most other Polynesians and cleanliness was a major Samoan virtue.

In general the culture of the Samoans derived relatively little benefit from its contact with Europeans. Once the initial novelty of Christianity wore off and Samoans found that it was not the first step to the accumulation of wealth on the European scale it was absorbed rather than adopted. Few of the material features of European civilization were accepted immediately and enthusiastically by the Samoans. Of these perhaps only the arts of reading and writing brought them unmixed blessings. Some, fortunately including alcoholic liquor, they actively disdained.

Their culture combined common sense and moderation in most things, and was bound together by an exceptionally strong ceremonial and political structure. Its conservatism, being soundly based, enabled it to enjoy a vigorous survival long after the cultures of other Pacific islands were far into a process of disintegration.

The Samoan Population in the First Period of Continuous Contact

Because the evidence in the period of sporadic contact is so dubious, a study of population size, distribution and other characteristics is now impossible. The earliest period for which anything of this kind can be attempted begins after about 1830 when missionaries (who in the period of their establishment normally take some interest in examining the demographic character of their areas) began recording their observations on Samoa. From the journals, letters and reports of the first missionaries, the London Society, the Wesleyan and the Roman Catholic, may be pieced together sufficient data to give some description of the population distribution, and less accurately or by inference, a few indications of its course of change and some other characteristics. This material is supplemented to a minor extent by the reports of the first consuls in Apia and those of the naval units which called at Samoa on behalf of their governments.

Of the three types, the missionaries' observations are the most reliable. As a rule, these men lived in Samoa for several years at mission stations well distributed throughout the group. They came to speak the language fluently and were in constant contact with their local village and also, to a slightly less extent, with their district. The mission teachers, mainly local Samoans or Polynesians from other islands, were in a position to keep their masters constantly supplied with the most detailed information concerning their outside villages. The European missionaries made frequent malaga around the group and the records of many of these have survived.

Although their observations were usually casual and naturally subject to a large degree of error, some, such as George Pratt at Matautu, took detailed censuses of their districts, noting the totals under the headings of men,
women and children for each village (LMS S.S.L., Pratt 1852). Their writings show that considerable care was taken to ensure correct counts. There are some instances of earlier estimates being revised when there was an opportunity to take a more exact count. Thomas Heath, writing in 1837, noted

Mr Mills has informed you [Ellis, Foreign Secretary of the LMS in London] that on that visit we counted houses and by taking what we thought was a fair average, made 14,000 [persons adhering to the LMS] on Upolu and Manono. Since then I have in my district counted heads by which I find that our average was too high. In my district I have made nearly 5,800 but 600 or 700 of them...were previously counted in Mr Mills', His is the most populous, but he has not yet counted heads - on Savai'i they have counted about 5,000 - say 15,000 on the leeward group. (LMS S.S.L., Heath 1837.)

One may be grateful from this distance in time that even such general estimates of the Samoan population at this time (the method of counting houses may still yield useful results for some purposes). For some districts in Samoa information on village populations is in much greater detail than for others and this has been indicated on the reliability diagram with figure 4.

Population and settlement

It can be definitely established that the pattern of village settlement which the first explorers sporadically and the later residents continuously observed differed only in minor ways from that which has, for the most part, persisted to the present day. This pattern was characteristically one of individual villages spaced along the coastline, usually grouped into associations or districts, although lone villages remote from others were not uncommon; inland villages, again not uncommon, were a minor form in terms both of number and of population. There is some evidence that this had been so for at least 300 years. At the time of early continuous contact it appears that virtually all the suitable coastal sites were already occupied and that in addition settlement had been extended on to some sites of marginal suitability. Inland villages were more numerous than they became later, but it cannot be ascertained that they numbered more than 24 on Upolu and 15 on Savai'i. Stair, presumably writing of his years resident in Samoa (1838-45) stated

The inland districts and settlements of which La Pérouse speaks had disappeared. [This statement

Drummond estimated a population of 600 to 700 persons for Falealupo village, 'one of the largest in Samoa' (LMS S.S.L., Drummond 1842). He subsequently revised his estimate of this village population to a figure lower than previous estimate: 'having numbered the people, I find that they do not amount to 500' (LMS S.S.L, Drummond 1845). In 1846 Powell gave a population of 468 persons for Falealupo (LMS S.S.L., Powell 1846).
is based on Stair's interpretation of La Pérouse's observation of an area in eastern Upolu which he believed to be Aleipata. This is the case generally throughout the islands; but few inland villages remain in any island, with the exception of Upolu, where some fifty-four are found; whilst on Savai'i there are only thirty-eight. (Stair 1897, 57.)

One must be reluctant to contradict an authority then resident in the islands, particularly one whose observations are normally as useful as those of the Rev. John B. Stair. But it could be stated that if there were this number of inland villages inhabited in Stair's time, neither he nor his missionary colleagues saw fit to visit them, record their names or bring the Word to their inhabitants. The number Stair records, a total of 92 inland villages, seems excessive on any reckoning, bearing in mind that even at present there are only 153 settlements which can be defined by Samoan assessment as a 'village', that is one possessing a fa'alupega or genealogical charter. Even at present the number of areally discrete settlements does not exceed 240. Most inland villages were (and are) sub-jurisdictions of the Samoan village proper, and few have been known to have either a large population or any considerable political status. Only A'opo, Afolau, Uliamo'a, Sili, Va'iga'fa and the prehistoric settlement of Tilo inland of Ta'avea are known to have had any political importance. Of these only A'opo and Sili are still inhabited, and only A'opo is, as a remnant of a larger district, independent of other villages.

The criteria and the facts that Stair had in mind when making this statement can now never be known. Two possibilities are that the statement was published in error, perhaps not his own, or that his definition of the words 'inland' and 'village' do not coincide with normal usage. The criteria adopted here for the 'inland village' is that the settlement must be at least half a mile from the sea and form a discernibly separate unit of settlement.

There are only a few instances of villages moving to new sites during this period. One of these was A'opo, of which the Rev. Peter Turner in 1837 observed that since his first visit he had been 'surprised to find that the A'opo people had moved their village nearer the sea' (Turner, P. 1836-9). Vaie'e is known to have moved from its site on the inland side of the lagoon to another on the seaward side of the opposite peninsula. There is also some suggestion that Sagone village, on the southwest coast of Savai'i, moved from an inland site to one near the coast some time before 1858 (Dyson 1858-65).

The organization of the village groups distributed around the coasts of Samoa was politically so complex that it must have been the product of several centuries of development. Krümmer comments

...that the body politic, that is the constitution of Samoa in its present shape, is a comparatively recent one, i.e. about 500 years old. Certainly its beginnings...go further back, but since it is known with certainty that the oral historical tradition is not more than
600 or 700 years old, only conjecture can be advanced concerning them. (Krümmer 1902, I, 17.)

A 'body politic' of the type developed by the Samoans presupposes some cultural stability and a social organization of considerable development and maturity. It could scarcely develop without an environment of well established populous and permanent settlement over a long period. It is probably safe to assume that there was a strong similarity between the settlement pattern as observed during the period of early continuous contact and that which is, by implication, described in the early orally transmitted histories traditional in Samoan folklore. There is some indication that the outline had been established prior to the Tongan occupation, but it is more likely that the settlement pattern assumed its classic form after the Tongans were expelled. It is virtually certain that by the time of Salamasina the pattern approximated that described by the earlier observers. 3

The nature of the original processes of settlement dispersal in Samoa is not particularly clear. The most usual method, if Samoan legends are reliable in their descriptions, was for the subdivision of a jurisdiction into 'brothers' portions' either by inheritance on the death of an outstandingly powerful or kingly titleholder, or by the emergence in battle of a pre-eminent family whose parts were then likely to be allotted their own domains. The legend of the subdivision of Upolu into its four main districts (the Pili legend assigned to approximately 900 A.D.) follows this line and, on a lesser scale, the establishment of Faleata and Safata at the time of the Malietoa emergence at the end of the Tongan occupation. Whether these areas were colonized by a group at the time of their ceremonial 'incorporation' or whether the creation of the new title and its bestowal on the first holder was designed to achieve the political organization of a well-established population already in the district is not known, but the latter seems to be the more likely.

Many villages in the less desirable sites, on difficult sections of coast or inland, were established by fugitive groups from other districts. The earliest post-contact example was the re-establishment of settlement by the A'opo group after the 1760 eruption. This example is probably instructive of the Samoan method of locating a settlement in an area whose settlement potential is not assessed. After the eruption destroyed the district of Faleselau, many groups fled to other parts of Samoa, but some persisted in their newly desolate district and re-formed into the A'opo community. They wandered over the lava, searching the enclaves that had not been engulfed for a suitable place in which to re-establish their settlement. They are believed to have attempted settlement in no less than five

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2 Krümmer's estimate of the antiquity of Samoan oral traditions is somewhat less than that of Bro. Fred Henry (1935, 2-20).

3 There are several accounts of the oral traditions of the Samoans, e.g. Krümmer 1902 and 1923; Bro. Fred Henry 1935; G. Turner 1884; Schultz 1906, translated and republished in 1953.
different places within the next eight generations. They finally accepted their present site as the best available to them. Prior to the eruption, as in most other districts, the main settlement had been along the coast, which was sandy with a narrow lagoon, and it is significant that when the A'opo people first attempted to build a new village it should have been on the shore. The shortage of land which could be persuaded to grow foodstuffs finally forced them to seek alternative sites inland.  

Another example of a settlement by fugitives is said to be Patamea, an inland village in northeast Savai'i. These people were driven from the northern A'ana coast in the wars preceding 1830.

Settlement processes of this type, the establishment of subsidiary fortress or olo settlements, and the temporary dispersals of population which would occur after the destruction of villages during wartime, can account for the frequent evidence of abandoned settlements occurring inland on both Upolu and Savai'i. Some of these abandoned sites may predate the beginnings of Samoan political organization and be evidence of an earlier 'pre-classical' settlement type. This topic awaits archaeological investigation.

Living inland has serious disadvantages for the present way of Samoan living and this must also have applied in the past. Lack of access to fishing grounds and a severe lack of fresh water in most locations would have been the main drawbacks, but the difficulties of communication and the presence of filaria-bearing mosquitoes from the surrounding forests make living inland unattractive to most Samoans. Except for the few sites in which altitude makes a significant difference, most inland settlements are sheltered from the trade winds by tall vegetation, so that they seem to be hotter and more humid than those on the coast. The inhabitants of inland villages also suffer a social and political disadvantage, and this attitude seems to have been one of long standing. They are regarded as coarse and unpolished by the more sophisticated villagers of the coast; the term 'from the bush' is applied derisively not only to persons from inland villages, but also inaccurately to those whom one may wish to insult. The greater number of inland settlements during the eighteenth century may be regarded as one of the more definite signs of some population pressure on the coast at this time.

A tendency to leave the more inaccessible village sites began early in the first period of continuous contact. The first inland village known to have been abandoned during this period was Afolau, a comparatively populous and politically significant village in A'ana. This settlement was sacked during the Tamafaiga war about 1829 (Stair 1897, 57). Normally these people would have returned to their village

The principal informant for this account of the A'opo settlement was Pao Saua of A'opo. He was an exceptionally good informant, but I was unable to substantiate his account. Several items were generally known throughout Samoa and many of the connections with other districts made during the process of dispersal were known to my taulafale (who had not previously been to A'opo and was not acquainted with its chiefs and orators).
when the fighting ceased, or when the victors permitted their return. In this war, the two southern districts, Faleleitai and Lefaga, were allowed by the victors to reoccupy their lands soon after the end of hostilities, but the cluster of principal villages on the north coast were treated more harshly and were not allowed to re-form for about five years (LMS S.S.L., Heath 1838). The Afolau people never returned, presumably by their own choice. It is likely that the ready contact they had with missionaries and teachers on the coastal villages to which they fled made them disinclined to suffer again the disadvantages of an inland site. As this trend grew, nearly 20 indentified and located settlements which were mentioned in the first missionary accounts, disappeared during the subsequent 50 years. There are some settlement names mentioned in the earliest journals, which have not been located or identified, so that the number is probably higher than this. Virtually all these settlements were small, inaccessible or in locations which did not permit an adequate extension of their cultivated lands. Several were inland villages. There is some evidence that the smaller and more remote villages succumbed first, and that their populations were absorbed into those of adjacent coastal villages.

These moves were apparently voluntary as no evidence was found that persuasion or even suggestion was used by either the missionaries or the traders to cause villages to be shifted or abandoned. They seem to have fallen quietly and unnoticed by the missionaries, whose writings by this time, when the basic facts were known and the spheres of influence defined, had ceased to record their observations on the distribution of village settlements and were concerned more with mission administration, Samoan politics and personalities, and their own health, domestic troubles and enmities.

The distribution of population shown in figure 4 suggests that in the 1840s it was strikingly similar to the present pattern. The northwest coast of Upolu was the most densely settled area in the leeward group and within this area the Apia district probably had the most concentrated population, for not only were the villages of Apia, Matafagatole, Vaiala and, after about 1835, Mulinu'u situated on the coast, but there was an exceptional development of inland village settlement. At the period of which most of the available data applies, the western district, A'ana, was still suffering from its series of defeats in the 1820s and 1840s, and its population appears to have been depleted. For instance, Leulumoeaga, the capital, contained only about 260 persons during this time (LMS S.S.L., Whitmee 1867), while its political obligations and the economic support that these would require could scarcely have been sustained by a village of less than 600 persons in normal times.

Only slightly less densely populated than the northwest Upolu coast was Fa'asaleleaga on the east coast of Savai'i, with over 350 persons per mile of coastline. Other densely

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5 Without data on the area of occupied land, density ratios are impossible to calculate. Instead, for the early period linear miles of occupied coastline are used to indicate the relative concentration of population. This method, although crude, has been adopted so that some comparisons can be made with the present densities of district population (fig. 5).
settled areas were Aleipata, with over 300, Lefaga, and Faleletai. Aiga-i-le-tai was also a densely populated area. Southeast Upolu had about 240 persons per coastal mile. On Savai'i, following Fa'asaleleaga, were the Palauli area (270 p.c.m.) and northern Savai'i (255 p.c.m.). The least densely populated were, predictably, the south coast of Savai'i, centred on Taga, and on Upolu the northeast coast—Va'a-o-Fonoti area. The relative increases of population between the period of early continuous contact and 1956 are shown in figure 5. In the reappraisal of the agricultural resource base of each district caused by the new demand for commercial production, some districts emerged much better than others. The principal effect, however, was for the pre-contact pattern to be accentuated and for the extremes in the range to be widened. The northwest coast of Upolu has since more than trebled in population.

Those areas with poor reserves of unused but cultivable land, Aiga-i-le-tai, Va'a-o-Fonoti, and the lone villages of southern Savai'i, principally Taga and Tafua, suffered most during the agricultural transition and their populations have increased by less than 50 per cent over a period of more than a century. In other districts the soils and climatic conditions and the suitability of their inland areas for commercial crops have strongly influenced subsequent population growth, although rates have been modified in some areas, notably western Savai'i and the south coast of Upolu, by inaccessibility and distance from the centre of commerce.

Demographic changes

Few demographic characteristics can be inferred from the observations of the first missionaries and explorers. From the frequent references to runaway Europeans living in Samoan villages made by the earliest missionaries (beginning with John Williams in 1830) it may be assumed that a part-Samoan component was well established and growing but still dispersed. The first evidence noted of second generation part-Samoans date from 1656, when Dyson recorded his meeting with 'Laulu', a European living at Gataivai who had 'many grandchildren' (Dyson 1565-65). The Europeans were distributed throughout the islands and only after the 1840s did Apia emerge as a centre for European settlement. The precise distribution of foreigners about 1840 is not known, but they are said to have numbered about 150 (F.O. 58, Pritchard 1839). The introduction of Polynesians from other island groups was accelerated by their increased opportunities to sail with European ships. Apart from the missionary teachers mainly from Tonga, the Society and the Cook Islands, there were others in Samoa who had come from as far away as Hawaii (LMS Journals, Buzacott 1836-7). A negro, presumably off an American whaler, was also recorded

6 'A great number of natives came off in their canoes as we drew near the island of Aburima [sic] at the East end of Savai [sic] and in one of them a European called John Wright. John had resided several years on the Island and had obtained a good knowledge of the Samoan language and came to offer himself as our interpreter in which capacity we were glad to accept him.... Spent most of the day in beating up to Manono to put John Wright on shore.... [He] received a small Present for acting as our Interpreter.' (Williams 1830.)
having lived on Manono for eight years previous to 1841. He is believed to have lived with a Samoan woman and to have fathered children there (Wilkes Expedition 1836-42, V, Emmons).

Data on the age and sex structure is almost non-existant, but in 1832 John Williams noted that "the children did not appear to me to be proportionately numerous to the population" (Williams 1832), an observation which could scarcely be made now.

During this first period of continuous contact it is safe to assume that every Samoan village was visited by responsible Europeans, mainly missionaries, who were interested in observing their populations.

In 1844, Sir Everard Home, commanding H.B.M.S. North Star, visited Apia and recorded a population estimate derived for Upolu, at least, from the LMS missionary Mills, stationed there (Adm. 1/5548, Home 1844). The estimates are:

<table>
<thead>
<tr>
<th>Island</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upolu</td>
<td>25,000 (with 5,000 'heathens')</td>
</tr>
<tr>
<td>Savai'i</td>
<td>16,000 (with 600 'heathens')</td>
</tr>
<tr>
<td>Manono</td>
<td>1,400 (all Christians; presumably including Apolima, for which no separate figure is given)</td>
</tr>
<tr>
<td>Total</td>
<td>42,400</td>
</tr>
</tbody>
</table>

Home believed (on what grounds is difficult to imagine) that Mills' estimate, made on the basis of eight years' experience in the islands, was an exaggeration. Fortitously, Home was probably right, at least by 1844. There is no indication of the type of information on which Mills based his estimate, nor how old this may have been; but the number of 'heathen' estimated is probably a useful index of the reliability of each figure. The next year, the LMS took its first recorded census of the Samoan population. Only the total figure - and this expressed very generally - of 40,000 persons has survived (Stair 1847, 58). It appears either that the estimates for the Samoan population had been consistently overstated or, more likely, considering the population histories of other Polynesian groups, that a significant decline in population had occurred over the previous decade. Allowing approximately 5,250 persons for the eastern group, it appears from this census that the western islands contained only about 34,750 persons. Stair describes the census as 'successful although even then through native prejudices it was difficult to obtain correct returns from some of the districts'.

Pritchard also refers to this census in one of his first consular despatches from Samoa: "It has been stated that the whole group contains 60,000 but from a census lately taken by the missionaries it is evident that they do not exceed 40,000" (F.O. 58, Pritchard 1845). The attitudes of Pritchard and Stair to this census contrast. Stair, who is likely to have been best informed about the methods used in taking this census, and who probably had some hand in its organization, thought it was an undercount.

7 '...the population at that time [1845] was about 40,000; an underestimate probably, but it certainly did not exceed 45,000.'
Pritchard, who in spite of his adopted profession as a consular representative appeared never to feel secure outside the British Empire, was describing the suitability of the Samoan islands for European settlement (and British annexation), pointing out that 'the natives had ten times more land than they would or could cultivate'.

Any discussion of the size of the population at this time becomes embarrassed by the number of random speculations recorded by visitors and the inhabitants of Apia rather than by a lack of documentary material. The guesses range as high as 60,000 persons ('formerly supposed to be 100,000') (Jenkins 1855, 198). Only the London Mission had the organization and areal coverage necessary for taking any type of census, and several of its missionaries were painstaking observers of the populations within their districts. Their census of 1845 gives the most reliable total available for the 1840s. The occasional observations made by these same 'enumerators' have been collated and are incorporated in figure 4. These observations together indicate that in the 1840s Upolu, including Manono and Apolima, had a population of between 20,000 and 21,000 persons and that Savai'i had between 14,000 and 15,000, giving a total estimated population of between 35,000 and 36,000 for the western group.

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8 An indication of Pritchard's sense of responsibility in this matter is shown by his statement, which he attributes to the missionaries, that Upolu could support 5 million persons (F.O. 58, Pritchard 1845).
Chapter 5

SAMOAANS AND EUROPEANS: THE SECOND PERIOD OF CONTINUOUS CONTACT

The Immigrants

Until 1839, although contact between Europeans and Samoans had been continuous for over 40 years, it had been on an individual and unofficial basis. During the visit of the United States Exploring Expedition in this year, Commodore Wilkes appointed J.C. Williams, son of the missionary John Williams, as acting U.S. Consul in Samoa.

In the same year William Cunningham was recommended by George Pritchard, Her Britannic Majesty's Consul in Tahiti, to be Vice-consul in Samoa. Cunningham does appear to have been acknowledged in Apia as British representative from this time, although he lacked formal appointment. When he left Samoa in 1843, an LMS missionary complained that 'run-away sailors and whaling captains were taking advantage of Cunningham's absence to commit many irregularities' (F.O. 58, Heath 1843).

In 1844, however, the Foreign Office in a desire to give the London Mission 'favour and countenance', to protect the more respectable British nationals who came into contact with the Samoans, and to provide some basis for control over the less worthy, moved to establish a formal base in Samoa. The Secretary directed Pritchard to transfer to 'the Navigators'. Pritchard received instructions that he was to use great caution, temper and forbearance in his dealings with the Samoans, and explicit word that 'Her Majesty anxiously desires to see the authority of the Native Rulers strengthened, and would rather aid them in maintaining a sense of their own independence, by leaving the Administration of the Country in their own hands' (F.O. 58, Aberdeen 1845).

Pritchard did not at first fare very well in Samoa, and later in 1845 he wrote

I have been here more than five months, and have not been able either to rent or purchase an inch of ground on which to build a Residence. There is no boarding or lodging house, or hotel. I am entirely indebted to the hospitality of Mr Williams, the only merchant on the whole group of islands [and acting U.S. Consul, although one assumes from the omission that this role was not his major activity] who has kindly permitted me to reside with his family.... The reason they [the Samoans] are so tenacious about their land is that if they allow foreigners to reside on shore they will soon be in the same difficulties as the Tahitians. They believe that
the first step is to send missionaries, then a consul, and next to take possession. (P.O. 58, Pritchard 1845.)

The establishment of the two diplomatic posts at Apia, combined with the beginnings of commercial organization in Williams' store (to be followed in 1849 by another run by Pritchard's son) firmly established Apia as the point from which the European penetration of Samoa was to take place.

It also committed both Great Britain and the United States to an interest in the internal affairs of Samoa. On the whole the record of the early European consuls is not impressive; few seem to have been qualified for their position. Involvement in commerce and local politics frequently caused the interests, both the consuls' own and those of the governments each represented to conflict. Some consular representatives did not scruple at supplying liquor and firearms to the Samoans. Their bickering, their involvements and the frequently repeated threat of punishment by warships tended to lower their authority and good standing with the Samoans.

The consuls served to secure the work of the missionaries and they themselves led the way in the development of commerce; their presence also encouraged the establishment of other trading concerns in the islands and the growth of Apia as a port and a haven for whalers. The influx of Europeans inevitably promoted the development of a part-Samoan component in the population and here again the consuls appear to have set an example. Trood, discussing the consuls, remarks:

None of the foregoing [consuls] encouraged bacheloristic views, and those who favoured a cross with the Samoan strain were in the majority. I can hardly remember a single instance of any European here at the time being without a wife. Pritchard's [W.T., son of George] first wife was a Samoan lady. (Trood 1912, 35.)

Apart from the short-lived appointment of a Hawaiian consul, the only other consul was for Hamburg, which appointed Theodore Weber in 1861. Competition and suspicion among the Powers over Samoa caused the consuls appointed in the latter decades of the nineteenth century to be chosen more carefully. As their positions increased in responsibility and local importance (and when they were able to live without engaging also in trade) their place within the Apia community became established and respected.

On the whole their influence on the Samoans, once their necessity is admitted, was benign. They were almost entirely unsuccessful in their principal activity - that of trying to organize the Samoans into forming a stable government. But the dispersal of power, both European and Samoan, which they induced, was the indirect cause of Samoan independence persisting to the very end of the nineteenth century. The Samoans were thus able to escape the worst effects of European colonialism and to receive many of the benefits of the best.

The traders

The transition from runaway or beachcomber to trader was easily made in Samoa and in the early days the line
between them would have been hard to draw. The first permanent stores were established by the consuls in a transition apparently no less easy. The missionaries had originally interested the Samoans in the production of coconut oil. At first their production was devoted principally to church donation, but the desire for European manufactures promoted its increased output. Some of these purchases the missionaries approved in the interests of modesty and basic civilization, but others, such as firearms, they condemned roundly.

The existing coastal stands of coconut were used initially and it is assumed that the availability of coconut was far in excess of the subsistence needs of the population at the time for there is no suggestion that this area was being extended. Although the Samoans were making oil 'in great abundance' by 1854 (B.C.S., Pritchard 1854), after the beginning of commercial shipments in 1841 (18 tons by Williams) it was considered locally that 'coconut oil production could be greatly increased, but the Samoans are lazy' (B.C.S., Williams 1859). In a report on local trade the amount of coconut oil exported was said to be 576 tons, worth nearly £15,000. Although some of this could have been trans-shipped from neighbouring islands, it is probable that most was of Samoan production.

At the time of the visit of H.B.M.S. Juno in 1847 Captain Blake wrote:

Mr Pritchard and Mr Williams are the only individuals that can be said to carry on trade. They have each a small shop with sorts and sundries and their transactions are apparently very limited.... Excepting the missionaries, there appear to be no Europeans of any fixed habits, residence, or mode of life. In the villages around the coast there are here and there English and Americans, formerly sea-faring men, some wrecked, some run from whalers and traders; most of them driving some little trade, or collecting coconut oil; but as far as I can see there is no English individual resident of known station or acknowledged respectability. (F.O. 58, Blake 1847.)

By 1850 there were at least three additional stores, including two owned by Americans who dealt mainly 'in wines and spirits' and another with branches in Upolu, Savai'i and Tutuila (F.O. 58, Pritchard 1850).

Twenty years later there were six British merchants and traders in Apia besides small agencies, one German-owned firm, Godeffroy's, with several outstations and agencies, and three American-owned houses with three agencies (B.C.S., Williams 1871). During this period, European traders also became well distributed in the villages around the coasts of both Upolu and Savai'i. The inducement of the goods they offered caused the Samoans to extend their coconut plantings, so that by the 1860s the quantities of coconut oil (and after about 1868, of copra) were increasing rapidly. To this income was added that from cotton. The price of cotton rose after the U.S. industry was disrupted by the Civil War. Trading opportunities increased rapidly from this time and the commercial organization of the territory entered a new and more complex phase. Trading ships began to call at Samoa more frequently; there was a constant movement of traders' schooners and Samoans' fautosi or canoes along the coasts bearing produce to the port.
The Hamburg firm of Godeffroys was first established in Samoa in 1855, and due to two shrewd managers, Unshelm (1855-61) and Weber (1861-87) became the largest trading organization in the South Seas. It was based on Apia and a network of outstations was established throughout the Samoan islands and also in other groups. Other foreign capital was invested in local concerns and branches of overseas companies were also set up in Apia.

Many Europeans who came to trade stayed to found a dynasty. Well-known names among the 'local Europeans' were first introduced in this way. The 'Savaii Squires' such as Stowers of Lano, Nelson and Godinet of Safune, Crichton of Sataua and Burgess of Falelima all began in this manner. On Upolu the development is less noticeable because more trade was done with Apia traders directly, but names such as Brown of Ti'avea and perhaps the largest of the independent traders, Cornwall at Fasito'otai, are of similar origin.

By promoting the opportunities for trade, stimulating the wants of the Samoans, introducing a consciousness of money and by providing an alternative example of European culture the traders changed the Samoan pattern of living as fundamentally as did the missionaries. By the frequent addition of their strains to those of the Samoans to produce another major component in the population, the traders (all other European groups having a much smaller effect in this way) also changed forever the content of the Samoan population.

The planters

As the beachcombers and the consuls found themselves in positions from which they were able to begin trading, so did the traders tend to become planters. Messrs Pritchard and Williams contrived to make both transitions; Pritchard acquired some land on which he ran cattle as early as 1849 (Erskine 1853, 71) while William was a pioneer in the planting of cotton, beginning on his own land in 1863. Until the 1860s the alienation of Samoan land had taken place only on a very small scale. There was small demand from Europeans and even less inclination to sell on the part of the Samoans. In this decade a combination of several circumstances combined to bring about a change in the Samoan attitude. By this time they had become more aware of the utility and desirability of certain items of European manufacture. This coincided with an increased desire on the part of Europeans to acquire land in Samoa, spurred by the prospect of high profits from cotton growing - the prices they were prepared to pay increased and so did the temptation to the Samoans to sell. Williams planted his cotton in 1863 'as an example to the natives' and others such as Thomas Dickson at Faleasiu, no doubt for more mundane reasons, did so too. By 1867 there were estimated to be 2,500 acres planted in cotton (Trood 1912, 52).

1 In 1879 Godeffroys went into liquidation but their holdings in the South Seas were reorganized into the Deutsche Handels und Plantagen Gesellschaft, more commonly known as the D.H.P.G.
Coe, the U.S. Commercial Agent, reported in 1865 that
the Samoans are anxious to sell land now - some is
sold nearly every day. It is difficult on account
of the divisions of the lands among the natives to
purchase more than about 3 or 4 acres at one time;
this size seems generally the allotment of one
person. Sometimes however a whole family will
combine and sell all the land belonging to them in
a certain vicinity, and then remove to some of
their relatives.

The price of land varies according to its distance
from the harbour; immediately back of the town
situated on this harbour it is an average of 10
dollars per acre; four to five miles from Apia
from five to ten dollars per acre. This is
generally in trade and cash, and again these
prices vary according as the land abounds with
coconut and breadfruit trees, the land without
any of the above mentioned trees being according
to the native ideas considered useless. (U.S.C.D.,
Coe 1865.)

It is clear from this account that the Samoans had
sufficiently overcome their suspicion of European designs
(familiarity breeding a certain contempt perhaps) to have
begun selling some of their holdings. Most of these first
sales appear to have been in the vicinity of Apia and would
seem to have included land the Samoans were already using.
Coe suggests that there was some consequent 'depopulation'.

The beginnings of Godeffroy's land purchases also
belong to this decade, land at Vailele being acquired in
1864. Large-scale purchases did not really begin until
1869, when war broke out between two contenders for the
kingly Malietoa title.

For nearly two years previously several thousand
men, through living under arms, had been prevented
from working on their food plots or otherwise doing
anything to support their families, and so the sale
of land...became absolutely necessary. (Trood 1912,
61.)

During the period in which Apia was occupied large debts were
built up at European stores as the war-party obtained most
of its food by purchase. Williams wrote

This war has been ruinous to the islanders for many
a chief and landed proprietor have sold their lands
for firearms and ammunition, and now a very large
proportion of the islands is owned by the foreign
residents, over 300,000 acres, and some of those
landed proprietors have not a foot they can now
call their own. (B.C.S., Williams 1873.)

In the unsettled years which followed this war both parties
were ready to sell land, their own, or in the case of the
victorious party, the land of the defeated. Unsettled con-
ditions were the cause of many Samoans mortgaging their
land, principally to Godeffroy (later the D.H.P.G.). During
this period the Central Polynesian Land and Commercial
Company (C.P.L.C.C.), F. Cornwall and a few others on a
lesser scale were able to acquire vast tracts of land with
little difficulty or expense.
Several villages on the north coast and adjacent to Apia disposed or were deprived of a substantial proportion of their land. The plantations established by Godeffroy were particularly bad in this respect. The plantation at Vailele incorporated land which had been part of Matafagatele - Moata'a, Pagali'i, Vailele and Letogo village holdings. Vailele (later Faleata) plantation took over land belonging to Toamua, Saina, Safune, Puipa'a, and in a particularly deplorable case, the lands and house sites of Vailele village itself (this was sold without its inhabitants’ knowledge while it was evacuated during the 1869 war). At Mulifanua the villages affected were Satapuala, Faleolo, Tifiti, Toloa, Sagafili, Samae, Fuailolo'o and Lalovi. All these villages suffered constriction in the area left to them as forest reserve, and in some cases they were left only with the land they already used. Other buyers being perhaps less influential (and less efficient in their capacity) had to be content with inland sites.

The tracts bought in this way were usually so vaguely defined and subject to overlapping claims, options, multiple selling, reselling, and mortgaging that the total area claimed by 1889 was said to be 1,691,893 acres, over twice the total area of the Samoan group. Ownership of thousands of acres was utterly confused while the Samoans began loud recriminations and there were outrages from disinterested Europeans, principally the missionaries. German nationals claimed 135,000 acres, mostly D.H.P.G. land; American claims consisted mainly of the C.P.L.C.C. lands (302,000 acres), little of which was defined, and none at any stage of development; the largest area was claimed by British nationals (1,250,270 acres), over half of which was claimed by F. Cornwall, who considered that he owned nearly all Savai'i and had large additional areas on Upolu. He had developed a little over 500 acres in cotton and coconut plantation at Magia and at Lata on Savai'i.

Each of these groups of claimants, particularly the German and the American, were anxious that either the Samoan islands come directly under the control of their country's government, or that stable local governments favourable to their claims (and unfavourable to those of other nations) should be established. Much of the turbulent internal history of Samoa in the last few decades of the nineteenth century, and the international rivalry which the islands provoked, can be traced back to these conflicting interests.

Finally, the Berlin Conference of 1889 attempted to stabilize conditions in Samoa. The administration of the Municipality of Apia (first set up in 1879) was reorganized, a Supreme Court was proposed, and a Land Commission, consisting of three commissioners, one from each of the interested powers, was instituted. The sale of further Samoan land outside the Municipality was prohibited. Between 1892 and 1894 the Land Commission investigated all existing land titles and their legality was established or rejected. Lands acquired before 25 August 1889 were to be held as validly owned if purchased from the Samoans in good faith, for a fair payment and in a regular and customary manner.

The Land Commission's work appears to have been performed on the whole with good judgement and fairness, although inevitably in such a case some Samoans were deprived of land, in apparently legal circumstances, which they were ill- advised to have sold in the first place. Several cases
of victimization by conquerors (and some by friends with superior title) were confirmed. In general the Commission preserved for the Samoan people approximately 82 per cent of their lands (and in fact much of the area alienated has never been used by its European owners) while allowing some land to be developed under European methods of management. These plantations in the event have been a resource which has been of great, if indirect, benefit to all Samoans.

German nationals were allowed approximately 75,000 acres, or 56 per cent of the area claimed. This high proportion was due principally to Weber, the Godefroy-D.H.P.G. manager, whose transactions were carefully and shrewdly executed and whose policy it had been to begin developing the land as soon and as vigorously as possible. English nationals, principally Cornwall, received only 3 per cent of the area claimed (36,000 acres) and the Americans, mainly the C.P.L.C.C., 7 per cent or 21,000 acres. Other claims amounted to less than 4,500 acres, principally mission, commercial or residential sites, concentrated in Apia and, being better documented, approximately 3,300 acres were allowed. The total area alienated was 135,000 acres, or 8 per cent of that claimed (U.S.C.P., Chambers 1895).

Chambers in this report expressed the conviction that

...for agricultural purposes Samoan lands have no value whatever. The soil, if it can be called soil at all, is substantially volcanic rock, varying in size from pebbles to great boulders [sic].... Upon and between these rocks the vegetable matter of centuries has fallen, and the result has been an exceedingly rich substance, which, however, is quickly exhausted when tropical growth is cleared away and any attempt at cultivation is made.

The D.H.P.G. obviously did not subscribe to such a view and proceeded to develop their major coconut plantations, creating at Mulifanua the largest European plantation in the South Seas. Before the end of the century, cacao had been established on the European lands inland and west of Apia, the first crop being gathered on the lands of Hetherington Carruthers in 1898, with H.J. Moors following a little later (Trood 1912, 87).

Savai'i was largely left out of this European plantation development, although approximately 45,000 acres on that island had been alienated and only Cornwall's plantation at Lata (of 313 acres) was developed during this period. Upolu saw a rapid increase in its economic development. Apia as a port and service town grew to meet the new demand, and roads to serve the plantations, particularly those inaccessible by sea, became an urgent requirement.

The sale of land to Europeans and its subsequent development as commercial plantation created a group of enclaves within which the lives of those Samoans who lived there were separated, sometimes even isolated, from the village-dwelling Samoans. Instead they were exposed to the control and demonstration effect of Europeans. The dispersal of Europeans out of the town of Apia on to agricultural properties in northern Upolu had begun during the cotton boom of the sixties, but the opening up of new lands in the last two decades of the nineteenth century greatly accelerated this trend.
The plantations also acted as centres of miscegenation and came to be, apart from the town, the principal areas of part-Samoan concentration.

The islanders

The second period of Samoan-European contact is characterized not only by greatly increased numbers of Europeans living in Samoa but also by groups, often numerous, of other races which they brought in their train. The crews of European ships, even of the earliest calling at Samoa, contained a great variety of nationalities and persons of other race. We may assume that the Chinese massacred at Asu in 1787, and the American negro who raised a family on Manono in the 1830s were the more spectacular representatives of a greater number not recorded.

Islanders from neighbouring groups, particularly the Tongans, Tokelauans and the Uveans, had been accustomed traditionally to visiting Samoa, but the establishment of missionaries in the southwest Pacific opened up a new avenue for travel between the islands of which the Polynesians were not slow to take advantage. The first LMS missionaries left in Samoa by John Williams off the Messenger of Peace were six Society islanders and two from Aitutaki. Teachers from Rarotonga and other islands came later. The Methodist Mission made extensive use of Tongan teachers in Samoa. Whalers and traders often used Pacific islanders as occasional members of their crews, and these persons frequently deserted or were dumped off on islands not their own. In 1865 Murray noted that in Apia the islanders from other parts of the Pacific formed 'a very interesting class... a large number of whom have of late been reclaimed from vicious courses.... They are composed of Tahitians, Rarotongans, Sandwich Islanders, Tongans etc.' (LMS S.S.L., Murray 1865). These men were mostly married to Samoan women, forming a congregation of 26 men, 26 women (presumably mostly Samoans) and 36 children.

These islanders apparently arrived in a random manner; but about this time European plantation owners were in need of labour for their newly established cotton plantations, and believing the Samoans would not prove a satisfactory source, were planning to import labourers from elsewhere. In 1864 some of the planters sent to Rarotonga for men to work their cotton. The numbers imported are not known but the small size of the industry makes it unlikely that more than 50 would have been needed. Most seem to have been repatriated after one year. There was some division of opinion at the time over the merits of imported labour compared with the local Samoans willing to work for wages. Coe declared in his 1865 report that

Native labour is readily obtained; at present the difficulty is, when a person required labourers is [sic] to be able to keep only the labourers he requires, so great is the anxiety to obtain work.... Some of the merchants last year fearing that native labour here would not be obtained sent to Rarotonga for men. Those who agreed with such for one year anticipate with pleasure the termination of such engagements as home labour can be used so much more advantageously. (U.S.C.B., Coe 1865.)
Williams appears not to have agreed; writing of his 25 acres under cotton

The greatest hindrance is the want of labour, the natives being so lazy. I have imported labourers from Rarotonga and Savage [Niue] Island. The rate of wages is about 10 dollars per month but this is too high. (B.C.S., Williams 1864.)

Apparently the Samoan labour did not live up to Coe's expectations as islanders from other groups continued to be imported although, possibly after experience with the Rarotongans, care was taken to procure labour from the more poverty-stricken groups. The chief controlling Samoan labour were apt to fix the wages they required arbitrarily and without reference to the market conditions for cotton, and would refuse to let their people work for less. They regarded the Europeans' explanation of fluctuations in the price of cotton with scepticism and remained fixed in their conviction that they were the victims of a greedy trick. The outcome was that fewer and fewer Samoans were employed and islanders from elsewhere were induced - and sometimes forced - to come to Samoa to work. Williams reported in 1868 that the workers on the plantations were principally Niueans and that they were glad to come for five dollars a month plus rations. Workers were also brought from the Line Islands. Williams was 'informed' that they came willingly, but they received only one dollar a month plus rations and worked 12 hours a day under conditions close to slavery. This was not supposed to occur on British plantations (although Cornwall used Line islanders) and the implication was that the German employers were responsible for such conditions. Williams also reported that kidnapping went on in the 'Micronesian area'. It is not clear here whether he was still referring to the Line islands, but if not, he probably had the Gilberts in mind. The natives concerned did not know the names of the ships involved so 'nothing could be proved'. Williams had heard of some atrocities such as sailors driving nails through the hands of a native as soon as he put his hand on the rail, to prevent his getting away. Some captains were known to have forcibly detained natives on board ships (Williams 1868). Later Williams records that 'an armed ship left Apia 3 days ago for the Line Islands to get labourers!' (B.C.S., Williams 1870). By 1874 there were 475 'male heads of families' recorded as 'imported labourers' in a census of the foreign population of Samoa. It is not known whether any women were imported from Micronesia or Polynesia, but if there were the number must have been small (B.C.S., Williams, S.F. 1875).

The recruiting of island labour continued on an increasing scale through the seventies. Goward, the U.S. Commercial Agent in Pago-Pago wrote in 1878:

The principal disadvantage to be encountered in cultivating a plantation is the difficulty of obtaining labor. The native Samoans are disinclined to engage themselves as laborers; when they do work they count their services high, rarely performing a day's labor at a recompense of less than 1 dollar. ... The feeling of superiority of caste in this respect runs high. Plantation labor, said to be getting scarcer every day, is entirely imported, in the greater number from the Gilbert or Kingsmill Group, although many other islands,
such as Savage and Marshall, have furnished a supply. They are engaged under contract for three to five years, at wages from 1 to 3 dollars per month with food and extras.

... ... ...

This amount is paid to them in trade, another source of profit. At the expiration of their terms of service they are returned to their homes or re-enlist at their option.

... ... ...

Notwithstanding the appearance of coolyism about these transactions, their primitive condition appears to be materially improved, and they may be pronounced as contented and happy. Necessity requires their employment. The total number of laborers is 1,200. (Goward 1878.)

Dawson, the U.S. Consular representative in Apia, was not so easily satisfied, describing the traffic in which labour was paid for at $35-50 per head landed in Samoa, as 'unjust in many respects' (U.S.C.D., Dawson 1878). The supply of labourers from the small atolls was becoming depleted at this time, one of the causes being excessive mortality during the contract period, allegedly up to 20 per cent (Daily Telegraph 1885), and Dawson went on to record that 'a week ago 85 New Hebrides people were brought here'. The terms called for $2-4 per month for each member of the family over 10 years of age, and for each member of the family to have garden land. Most of the 'recruits' were young men, however, and all declared that they had not come voluntarily. This is the first record of Melanesian labourers being brought to Samoa. As a source of labour the islands of Melanesia proved more satisfactory than the atolls of the central Pacific, and a large traffic was built up in the following years. In 1879 the U.S. Consul recorded the arrival of two vessels with 200 labourers from the New Hebrides and New Britain, which brought the number of labourers on the German plantations to 1,400 (U.S.C.D., Dawson 1879). At this time these would have been mostly Gilbertese. Over the next few years the arrival of labour ships from Melanesia became so frequent that they passed unnoticed in consular despatches. In 1881, however, 1,847 labourers are recorded as working for the D.H.P.G., of whom 1,291 were males. Of these, 492 had arrived in 1881 while 221 were repatriated in this year (U.S.C.D., Dawson 1881). It is assumed that the new arrivals were all from Melanesia, mainly 'German New Guinea', which includes some of the Solomon islands, and that the Micronesians who survived their indentures were repatriated as their times fell due. While the numbers of Melanesians kept on German plantations in the eighties and nineties was large, their contact with the Samoans was relatively slight, the Samoans being repelled by (and afraid of) their dark colour and their relative primitiveness. Their permanent demographic effects were consequently small.

The Chinese

The arrival of the first Chinese settlers is less well documented, as they came originally as private settlers. Trood records that Chinese first began to settle in Samoa in the 1870s, establishing themselves as storekeepers or in other businesses or as servants (Trood 1912, 70). Their arrivals came to the attention of the Samoan authorities in 1880, when regulations governing (and restricting) their
entry were issued. There was some prejudice against them both from Samoans and from Europeans. Their numbers remained very small, rising from four persons in 1874 to only twelve persons in 1885 (B.C.S., Williams S.F. 1875)." Not until 1903, when coolie immigration began under the direction of the German administration, did the Chinese component become significant within the population.

**Europeans and the Growth of a Part-Samoan Component**

The beginnings and rate of growth of the non-European racial components within the population in western Samoa were due principally to the needs of the European residents. Consequently these groups were greatly affected by the growth in numbers of Europeans, by the changing demands of European residents, and by the progress they achieved in developing the islands commercially and – in the case of the missionaries – spiritually.

From the days when the beachcombers and the missionaries first viewed each other with mutual apprehension, the numbers of Europeans living in the Samoan group climbed fairly steadily throughout the century (fig. 6). There were fluctuations in the rate of growth, depending mainly on the available economic opportunities.

From about 150 Europeans in 1839 there were over 100 Europeans living in the Apia area by 1855, 'subject to no law whatever. They are mostly English and Americans, and a more unruly, disreputable community cannot be conceived' (Adm. 1/5672, Fremantle 1855). During the 1830s and 1840s an influx seems to have occurred, as both missionaries and seafarers found new worlds to conquer. The LMS mission became well established during the 1840s, the Roman Catholics after 1845, and the Wesleyans after 1858 following temporary abandonment of the field in 1839. In the 1840s there were at least 15 missionaries, together with wives and several children, living in the leeward group. The influx of seafaring men and escaped convicts must have been considerably larger, and arrivals seem to have been particularly numerous in the 1830s. As a result of their good reception, others were subsequently encouraged to come and to stay. Few of these first immigrants thought of themselves as permanent settlers. Although many did, in the event, stay for the rest of their lives, this population must be considered largely floating and to have been subject to unpredictable and unrecorded fluctuation in its numbers. The increasingly frequent arrival of European trading vessels and whalers meant that usually there was a considerable group of visiting Europeans in port. It is assumed that the numbers given in the first estimates are of Europeans who appeared to be permanent residents, but the distinction must have been difficult to draw. The estimates of the European population must therefore be regarded as only very general.

2 These were 'male heads of families' but it is assumed that no Chinese women were in Samoa at this time. The figures apply to all Samoa but it is believed that all lived in the leeward group.
In later years a further complication occurs in the classifying of the legal dependents of Europeans. An estimate of 250 "British subjects", given by Williams in 1871 (B.C.S., Williams 1871) is so obvious in excess of other estimates given both before and after this date that it seems that the legal wives and legitimate part-Samoan issue of Englishmen are included.

The governments of the other nationals do not appear to have been so liberal, for the numbers given are more in line with the numbers of Europeans estimated both before and after. Churchward noted that in the case of legal marriages by the consulate (or, one would expect, by a missionary) children take the nationality of their father (Churchward 1887, 29-30). In 1879, however, Dawson found it necessary to appeal to the State Department for the sons of American fathers to be considered American citizens, "such people should not be treated as simple Samoans", but the Department seems not to have agreed (U.S.C.D., Dawson 1879).

Another nice legal point was the control extended over American negroes, of whom there were several in Samoa, by the U.S. consular representative prior to the freeing of the slaves. Swanston recorded in 1857 that there were many half-castes by American citizens and American Negroes by Samoan women. Many of them are Samoan in education and habits, but others are comparatively civilized,... American negroes keep all the boarding houses and at all times there are (more or less) many American seamen lodging with them,... who are sufferers [sic] by any lawless act of the [Samoans] against any of these houses, as well as the Negro proprietor who at the same time although not a citizen, I think I am right in overshadowing with the protection of the laws of the United States. (U.S.C.D., Swanston 1857.)

Occasionally more than mere 'overshadowing' was needed. In 1860 the master of an American whaler set down on Savaii a negro believed to have gone insane. The problem came to Williams, the U.S. Consul, who recorded 'that [the negro] was wandering from place to place, out of his mind, threatening to burn down houses etc....' Williams took charge of him and sent him to Apolima island, 'from whence he cannot escape - the man is not hostile to Samoans, only to Europeans, so the chiefs will look after him' (U.S.C.D., Williams 1864). He was subsequently sent back to the United States on a warship.

As the number of Europeans and the miscellaneous racial elements which accompanied them rose, so did the number of 'half-castes'. The early missionaries frequently employed 'half-castes' as house servants, along with Samoan hunchbacks and the otherwise deformed. This suggests that persons of mixed blood may not at first have been readily accepted by the Samoans, although possibly the distinction was made by the missionaries themselves. Certainly in later years the position of part-Samoans within the village society was accepted by the Samoans as normal and even desirable. If the European father continued to live with his family they retained some of his status, but otherwise they were absorbed, normally into the aiga of the mother, and reared in ways differing little if at all from those of Samoan children. Their marriages tended to be with other part-Samoans, but very frequently too with full Samoans.
By 1858 Murray could count 125 'half-caste' children in Apia and estimated that on Upolu alone the total number exceeded 300 persons (LMS S.S.L., Murray 1856 and 1858).

Estimates made of the number of part-Samoans are immediately beset by difficulties of definition and of the necessary reliance upon the statements of persons who may not have known, or perhaps wished to conceal their origins. This vagueness applies particularly when the original miscegenation occurred more than two generations back. In any count of part-Samoans those included will fall into several categories: the major one is of those who bear a European name, which implies that they are, or are descended from, the legitimate offspring of a European. These persons were under the European administrations classified as 'Europeans' for various legal and political purposes, and the group is generally referred to as 'the local Europeans'. Other part-Samoans likely to be enumerated are those whose European or non-Samoan forbear was recent or particularly well remembered. Others who for one reason or another are known to have had European or foreign ancestors will also be included, but the line between the two classes here becomes somewhat blurred. Even a closed group numbering 300 persons in 1856 could have reached 2,000 persons within the following century at the rates of natural increase likely to apply to such a group over this period. The total effect of these persons, in their matings with full Samoans, and the constant addition of part-Samoans, the issue of Samoans and persons of other race, cannot be calculated. It would, however, be reasonable to ask whether there are in fact any 'pure Samoans' remaining. For these reasons estimates of 'part-Samoans' are likely to refer to cultural or mental rather than to physiological separateness, and this characteristic would probably increase with time. This is a likely reason for estimates and counts of part-Samoans being attempted so infrequently prior to the institution of regular territorial censuses. The 1901 census did not list part-Samoans separately, but from figures derived from the Annual Report an estimated minimum figure of 475 legitimate or legitimized part-Samoan descendants of Europeans is indicated (G.S.A., Annual Report 1900-01). The part-Samoan group was concentrated in Apia, where they early acquired a reputation for 'rowdiness'. Outside the town their distribution tended to follow that of Europeans on the commercial plantations when these were established and in the larger or strategically placed villages where stores had been set up.

The establishment of commercial plantations and the increasing quantities of produce coming forward from village-Samoans in the 1870s and 1880s was the main cause of a steady increase in the number of Europeans settling in Upolu and Savai'i in this period. After a pause due to the outbreak of war in 1869 the land which came into the hands of Europeans as an indirect consequence provided cause for a sharp increase in the number of Europeans coming into the territory in the years following. From 204 Europeans recorded in 1874 (Whitme, ref. in U.S.C.D., Foster 1875) their number rose to an estimated 300 persons in 1885 (U.S.C.D., Greenebaum 1885) and at the time of the German annexation appear to have been approaching 500 persons (G.S.A., Annual Report 1900-01).

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3 This contains figures for the Apia Municipality and an estimated total for all Western Samoa of all 'foreigners',
Changes in the Samoan Population

The idea that the Samoans would not survive their contact with Europeans persisted with many observers even until the 1920s, when evidence for population expansion became unmistakable (Trood 1912, 103-04). Signs had begun to accumulate even before 1860 that the Samoans were in no danger of dying out, and given respite from epidemic and war their numbers were apt to show a significant increase. Even prior to this some observers had expressed doubts about the magnitude of the population decline supposed to have taken place (F.O. 58, Maxwell 1849). Erskine who visited Samoa in 1849 believed that the population was diminishing. He ascribed this to deprivation caused by the war (although he recognized that not many were actually killed in battle) and to whooping cough which had been introduced into Samoa from Tahiti late in 1848. Erskine estimates an exceptional drop of 5 per cent over the 16 months preceding his visit (F.O. 58, Erskine 1849). As he was in close touch with both the London Mission and the consuls, we may assume that this was the prevailing opinion in Samoa at the time. Van Camp, the U.S. Commercial Agent, also described the population as 'decreasing rapidly' in 1855 (Van Camp 1855). Because the earliest estimates must be classed as unreliable, the extent of this population decline cannot be measured quantitatively; it is shown in figure 7 as a fall of approximately 15,000 persons in 25 years, between about 1830 and 1854, a mean rate of decline of 1.3 per cent annually. The decline is likely to have been extremely erratic, but there is little evidence from which to surmise its actual course. It has been suggested previously (ch. 3) that a population decline induced by exposure to unaccustomed diseases transported by Europeans could have begun long before the landing of the first missionaries. After 1830

3 (continued)

including Chinese and Japanese. The number given applies only to adults, but given also is the number of European children attending school, i.e. 375 voters or taxpayers and 19 school children. Allowing a deduction of 20 persons to exclude the Chinese and Japanese residents, and an addition of 10 for pre-school children, a European population of between 380 and 390 persons is assumed for the Apia Municipality. Unless the numbers living in Apia greatly exceed the proportions of the total noted both before and after this date, the total number of Europeans in Samoa cannot have been much below 500 persons in 1900. This conflicts to some extent with the number enumerated in 1903, 381 persons classed as Europeans, indicating that either there was a small exodus of Europeans following the German annexation or that the 1900 figures, which are not logically presented and do contain a wide area for possible error, are not reliable.

4 Trood believed, after 50 years in Samoa, from 1857, that the Samoans 'were dying out', citing neglect of children as the main cause. That such a view was held as late as this is possibly a demonstration of how little the European residents of Apia really knew about the Samoans amongst whom they lived (although such a remark made after the influenza epidemic in 1918 would have had more justification).

5 'The population of the Samoan group has been much overrated.'
the introduction and occurrence of these diseases is better documented, but on many points remains surprisingly vague.

For instance, on board John Williams' ship the Messenger of Peace, which came to Savai'i in 1830, an epidemic, assumed to be influenza, was raging during the voyage to Samoa. It appears to have been confined to the Polynesians - mainly Tahitians and Rarotongans, both of whose peoples had been repeatedly exposed to influenza long since. Temporary shelter from rough seas and some respite for the sick were attained at a harbour, probably Matautu, where several stricken persons were landed temporarily. The voyage was soon resumed to Sapapali'i where Williams landed. His crew were so weak from their illness that they found it difficult to row ashore, but again most of the sick were landed so that they could be better looked after. During the stay at Sapapali'i one member of Williams' party died from 'the severe cough which has raged on board, together with the shortness of breath Peculiar to Persons of his description' - i.e., hunchback (Williams 1830). The epidemic spread to the Samoans. However, this occurrence is described by the Rev. George Turner, who arrived in Samoa first in 1840: 'They say the first attack of [influenza] ever known in Samoa was during the A'ana war, in 1830, just as the missionaries Williams and Barff, with Tahitian teachers first reached their shores' (Turner 1861, 222) - a somewhat passive interpretation of the facts. Turner goes on

The natives at once traced the disease to the foreigners and the new religion; the same opinion, spread through these seas, and, especially among the islands of the New Hebrides, proved a serious hindrance to the labours of missionaries and native teachers. Ever since then there have been returns of the disease almost annually,... In many cases it is fatal to old people and those who have been previously weakened by pulmonary diseases. There was an attack in May 1837 [probably 1839, see Heath below], and another in November, 1846, both of which were unusually severe and fatal.

An influenza epidemic is noted by Heath in 1839. 'Few escaped the attack but deaths were not great in proportion', mortality on Manono, for instance, was 1 per cent (LMS S.S.L., Heath 1839). Mills refers to the same epidemic in Apia, 'the 'flue [sic] epidemic was not bad at first, but left pulmonary complications... vast numbers... were taken off months after the disease itself was removed. Many of my steadiest people were taken away' (LMS S.S.L., Mills 1839).

Another epidemic listed by Turner was whooping cough in 1849, which occurred 'among adults and children, [and] a good many children died....' (p.222). Pratt at Matautu recorded that 'in the course of a few months 150 persons, mostly the infirm and sickly children were cut off by this scourge [whooping cough] in this district' (LMS S.S.L., Pratt 1849). 'In 1851, another new disease surprised the natives, viz., the mumps.... Scurvey a native escaped. It answered the usual description of the attack given in medical works, and passed off in ten days or a fortnight.' (Turner 1861, 222-3.) Even such a mild disease as mumps, under the circumstances, would be expected to produce complications leading to mortality in a small proportion of cases, and who knows the damage possibly done to the males of reproductive age stricken with this scourge? Dysentery
was a major cause of death; it was described in 1839 as "a chronic inflammation of the stomach and bowels which is slow but certain death. They [the patients] have an uneasy feeling in the parts affected scarcely amounting to pain, frightful emasion [sic] and a sharp miserable cast of countenance" (Wilkes Expedition 1836-42, I, Whittle). Williams refers to a "low and intermittent fever" and syphilis (said to have been introduced in 1847). Phtisis was said to be common among the Samoans, but measles, smallpox and cholera were believed to be unknown at that time in the group. Williams also refers to a case of a vessel with smallpox on board being quarantined by the British consul with apparent success, but under no set of regulations, in 1859 (B.C.S., Williams 1859b).

Another disease not mentioned in connection with the Samoans, but from which four persons of the mission families are said to have suffered, three fatally, in 1864-5, is typhus. Whether the disease was correctly diagnosed, or whether Samoans, too, were affected is not known, but the cases referred to were dispersed - in Apia, at Malua and in Tutuila (LMS S.S.L., Nisbet 1864; Whitmee 1864; and Powell 1865).

It is certain that tuberculosis was soon a common and deadly disease with the Samoans. Several members of the mission families died of it and several European beach-combers are said to have been infected (ch. 4).

From this discussion it is apparent that morbidity and mortality are not as well reported as might have been expected in Samoa at this time; and that the missionaries were perhaps embarrassed at the connection made between their arrival and continued presence and that of increased sickness and death. Although no disastrous epidemics are known to have occurred, population loss, steady and persistent, with some peaks in epidemic years, was characteristic of the first few decades following 1830. Pratt, writing of the whooping cough epidemic, sums up this view in his remark:

...there has been a great deal of sickness and a large number of deaths; in fact the people are visibly melting away and they acknowledge it themselves; whole families die off, their houses fall into decay, and their lands are overgrown with bush. (LMS S.S.L., Pratt 1849.)

Wars, both that concluding in 1830 and the later outbreaks between 1848 and 1854, must have been a minor but significant cause of population loss. The Tamafaiga war, of which Williams arrived to see the climax, is said to have been the most ferocious war known in Samoa before and since, but the numbers killed are not known - except that the total must have exceeded considerably the 400 persons said to have been burnt in a revenge bonfire at Fasito'otai (Stair 1597, 225-8; Krümer 1902, 28). The later wars can scarcely have been the direct cause of more than 400 deaths (McArthur 1962), although the deaths indirectly attributable and the effects of the removal of such a number of males, most of whom would have been at the height of their reproductive powers, cannot be gauged. Other possible causes of population loss, such as famines, crop failure and drought, have only very limited possibilities in Samoa, and although said to have occurred, are not believed to have been of any demographic importance.
The capacity of the Samoan population for natural increase during this period in those years not marked by epidemic or war is not known with any precision, but there are a few indications. Both Tutuila and Manu’a are said to have increased their populations between 1853 and 1862 by 344 persons in the case of Tutuila (1.1 per cent mean annual increase) and 193 in Manu’a (1.5 per cent annually). In the year 1854-5, 26 deaths and 55 births were reported from Manu’a, which had a population of 1,311 persons, giving a remarkable crude birth-rate of 42 per thousand, and a crude death-rate of 20 per thousand, a natural increase of 2.2 per cent in that year (LMS S.S.L., Powell 1854, 1856 and 1858). Such figures, applying to small sections of the total Samoan population should not have too much importance attached to them. The fact that the missionaries were able to gather such detailed information is an index of the different conditions applying in the smaller islands. There are several factors, apart from random chance, which would have influenced the particular rate: for instance, the numbers of deaths in any year could easily be reduced by excessive epidemic mortality in the preceding year. Nevertheless, the figures do imply the possibility of quite rapid population increases under favourable conditions in Samoa at this time. Samoan families were said to contain between four and five children on the average, and large families were reported to be rare (Samoan Reporter, Mar. 1849).

The missionaries did a considerable amount of medical work and in many cases ran dispensaries at their stations. In 1856 Dr G.A. Turner (son of Rev. George Turner) was appointed a medical missionary by the LMS (Samoan Reporter, Feb. 1870). Inoculation against smallpox was a frequently performed service. Several medical practitioners (and a few who said they were) are known to have practised in Apia at various times during the nineteenth century, but their residence was not continuous and their services would have been principally devoted to Europeans.

Although knowledge of tropical medicine was somewhat primitive at this time, the efforts of Europeans among the Samoans would have effected some improvement in mortality. Infant deaths particularly could have been reduced by the advice and intervention of the missionaries. Turner states that

Before the introduction of Christianity, probably not less than two-thirds of the Samoan race died in infancy and childhood. This mortality arose principally from carelessness and mismanagement in nursing [infant feeding]: evils which still prevail to a great extent. Even now, perhaps one half of them die before they reach their second year.... The Samoans were always fond of their children, and would have done anything for them when ill; but, they had no remedies for the numerous disorders of children. Now they are highly favoured with useful medicines at every mission station. (Turner 1861, 219.)

Accurate demographic information was almost entirely lacking, particularly for the western islands. Dawson, the U.S. Consul, in a somewhat plaintive despatch reported in 1881, apparently in a reply to a State Department query, that he was unable to supply data on mortality in Samoa. There was no census, no records of death and not much
demonstration at funerals' (U.S.C.D., Dawson 1881). In 1875 the foreign consuls and the Samoan authorities formed a quarantine commission for the port of Apia (U.S.C.D., Foster 1875). This followed a scare in Samoa over the Fiji measles epidemic and in the next year a vessel, U.S.S. Tuscarora with measles on board was successfully quarantined.

In the final years of the nineteenth century, times of unsettled political conditions, war and epidemic returned. Leprosy observed in several Hawaiians living in Samoa caused a wave of concern in 1891, when the disease was noticed in a number of Samoans and part-Samoans. In this year, too, 'a memorable visitation of influenza' occurred and 'large numbers of people died in the more populous islands of the group' (M.M.S.P., Collier 1893). In 1893 measles appeared, said to be the first epidemic in Samoa (although this does seem a remarkably late introduction for such a common disease). Its occurrence appears to have been sporadic. It was described as

...an epidemic of measles which...prostrated the whole group...the mortality has not been excessive; although in some villages [on Upolu] the deaths have possibly reached 10 per cent of the population, this is by no means general, in some towns no deaths having occurred. (M.M.S.P., Carne 1893.)

The Methodist missionaries on Savai'i also refer to this epidemic:

This is the first experience of measles the Samoans have had and it is an exceedingly bitter one. All are being, or have been attacked, and many have been carried off. The deathrate is very high not withstanding all the precautions which have been taken to keep it down.... They have heard so much respecting the malignant nature of the epidemic which a few years ago visited Fiji, and also about the great mortality in Tonga during the present year, that they have obeyed the instructions of the doctors and missionaries with unusual promptitude. (M.M.S.P., Collier 1893.)

This epidemic appears to have affected the more accessible areas, Apia and the northwest coast of Upolu, to a lesser extent (Samoa Times, 1893). The after-effects of the epidemic, dysentery, pulmonary diseases and general debility were said to be far more serious than the disease itself, and deaths 'during the epidemic, or subsequently as a result of it' are said to have amounted to 1,600 persons (M.M.S.P., Bleazard 1893).6

Data on the age and sex structure of the Samoan population are not available, except in one year for the whole group - 1853, when an LMS census listed the population into sub-totals for men, women, boys and girls.

It is plain that there has been a very great change in the age proportions in the Samoan population, which was much

6 This figure is, however, exactly 5 per cent of the 33,000 persons believed then to be the number of the total population, and may therefore be pure surmise.
Table 1. SHOWING THE POPULATION OF THE SAMOAN GROUP UNDER BROAD AGE RANGES FOR 1853 AND 1956

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>Boys (0-14)</th>
<th>Girls (0-14)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1853</td>
<td>11,736</td>
<td>9,844</td>
<td>6,456</td>
<td>5,865</td>
<td>33,901</td>
</tr>
<tr>
<td>1956</td>
<td>26,611</td>
<td>27,320</td>
<td>27,172</td>
<td>24,894</td>
<td>105,997</td>
</tr>
</tbody>
</table>

Proportions (per cent)

<table>
<thead>
<tr>
<th></th>
<th>1853</th>
<th>1956</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>34.6</td>
<td>25.1</td>
</tr>
<tr>
<td>Women</td>
<td>29.0</td>
<td>25.8</td>
</tr>
<tr>
<td>Boys</td>
<td>19.0</td>
<td>25.6</td>
</tr>
<tr>
<td>Girls</td>
<td>17.3</td>
<td>23.5</td>
</tr>
</tbody>
</table>

* * Samoan Reporter, no.15, Jan. 1854.

'older' in 1853 than it is now. The masculinity ratio for the 0-14 age group was 110, very close to that for all Samoa in 1956 (109). The family structure also appears to have changed. Mean aiga size is inferred to have been between eight and nine persons during most of the nineteenth century (Adm. 1/5672, Fremantle 1855), compared with 12 per family in 1921 and 18 in 1956.

Table 2. ESTIMATES OF THE SAMOAN POPULATION IN THE WESTERN GROUP BETWEEN 1846 AND 1900

<table>
<thead>
<tr>
<th>Year</th>
<th>Source</th>
<th>Savai'i</th>
<th>Upolu</th>
<th>Manono</th>
<th>Apolima</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1848</td>
<td>Capt. Maxwell&lt;sup&gt;a&lt;/sup&gt;</td>
<td>15,000</td>
<td>18,000</td>
<td>incl. Upolu</td>
<td>33,000</td>
<td></td>
</tr>
<tr>
<td>1853</td>
<td>LMS Census&lt;sup&gt;b&lt;/sup&gt;</td>
<td>12,444</td>
<td>15,587</td>
<td>1015</td>
<td>191</td>
<td>29,237</td>
</tr>
<tr>
<td>1863</td>
<td>LMS Census&lt;sup&gt;c&lt;/sup&gt;</td>
<td>12,470</td>
<td>17,506</td>
<td>incl. Upolu</td>
<td>29,226</td>
<td></td>
</tr>
<tr>
<td>1869</td>
<td>LMS Census&lt;sup&gt;d&lt;/sup&gt;</td>
<td>12,670</td>
<td>16,610</td>
<td>946</td>
<td>29,925</td>
<td></td>
</tr>
<tr>
<td>1874</td>
<td>LMS Census&lt;sup&gt;e&lt;/sup&gt;</td>
<td>12,530</td>
<td>16,568</td>
<td>incl. Upolu</td>
<td>29,098</td>
<td></td>
</tr>
<tr>
<td>1879</td>
<td>Swanston&lt;sup&gt;f&lt;/sup&gt;</td>
<td>12,500</td>
<td>15,000</td>
<td>1,500</td>
<td>29,000</td>
<td></td>
</tr>
<tr>
<td>1887</td>
<td>Plesson&lt;sup&gt;g&lt;/sup&gt;</td>
<td>13,000</td>
<td>15,750</td>
<td>1,200</td>
<td>29,950</td>
<td></td>
</tr>
<tr>
<td>1900</td>
<td>G.S.A.Census&lt;sup&gt;h&lt;/sup&gt;</td>
<td>14,022</td>
<td>17,755</td>
<td>1,038</td>
<td>32,815</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Maxwell, F.O., 58/63, no.4, 18 Mar. 1848
<sup>b</sup> Samoan Reporter, no.15, Jan. 1854.
<sup>d</sup> Steinberger, U.S. Congressional Papers, no.161, p.32, 1876.
<sup>e</sup> As for 'c'.
<sup>f</sup> Swanston, B.C.S. Misc., 4 June 1879.
<sup>g</sup> Plesson, Memorandum, 3 Mar. 1887. Part I (new series), 'Correspondence respecting the Navigators' Islands, January to June 1887' (no.5532).
<sup>h</sup> G.S.A. IV 5a, Annual Report, 1900-01.

Estimates of the Samoan population were frequently made during this period; these are shown diagrammatically in figure 7 and in table 2. The qualifications of those making the estimates, the facilities and information at their disposal and the purpose for which they were intended vary greatly. Throughout this period only the LMS missionaries had the facilities for taking censuses or for making realistic estimates of population. They were usually able to enlist the aid of the Methodist Mission and they made it their business to keep close watch on the numbers of Roman Catholic Samoans. They would normally have received the full cooperation of the consuls, particularly the British Consul, and those (such as the Pritchards and the Williams's) who
had LMS connections. Only estimates made by the LMS Mission, or given by visitors or consuls known to have been in close association with them, have been accepted and of these only estimates which detail the population by islands as a minimum requirement have been used. Even under these conditions some are much more reliable than others, and under the conditions in Samoa at the time all must be considered to have only general accuracy.

The most notable characteristic of this series of population estimates is the consistency of the results; between 1853 and 1874 - the first detailed LMS census and the last - there was virtually no change in the numbers of Samoans in the western group. The Samoans by this time had obviously built up some immunity to the introduced diseases principally responsible for previous fall in population. In some years a tendency to increase was discernible, the census immediately preceding the 1869 war showing such an increase. After 1874 a climb in numbers, erratic but distinct, begins. This continued with only relatively minor falls, for instance in 1892-4, until the 1918 influenza pandemic arrived in Samoa. Between 1853, the earliest of the seemingly reliable counts, and 1918, before the pandemic, the mean annual increase in the population was 0.4 per cent. A rate similar to this is likely to have operated in Samoa before contact. During this second period of association with Europeans, then, the equilibrium of the Samoan population was restored.
Chapter 6

THE COMPOSITION AND RECENT DEVELOPMENT OF THE POPULATION OF WESTERN SAMOA

The Collection of Population Data

The German régime

Early in the first year of the German administration Governor Solf ordered the taking of a census of Samoans. This count in 1900 covered Samoans and other Pacific islanders (except the Melanesian indentured labourers) and also the part-Samoans who were not the legitimate descendants of a European. Totals for each village, subdivided by sex, were compiled, but no other demographic information was gathered (G.S.A. Annual Report, 1900-01, series IV, 5a).

As the first census of Western Samoa organized by a central authority it appears to have been successful within its narrow range, except in the district of Atua. In this district some of the instructions were ignored and for the divisions of Falealili, Lotofaga, Lepa and Aleipata only district rather than village totals are given. It is also obvious that the totals relating to sex have been faked - the total figures have been equally divided between the two and when this total was an odd figure the female total appears as one higher than the male. This method of determining the numbers of each sex does not appear to have been perpetrated in the other parts of Western Samoa, but it does invalidate the numbers given for total males and females in the census. It is possible, by applying the masculinity ratio derived from the other districts, to derive a reasonable estimate of the numbers of each sex, so that the usefulness of the census is not completely destroyed. The totals for this census appear in table 2 (ch. 5) and the village totals appear in appendix I.

A similar count was made in 1902, and in 1906 a third census was taken under a different method of organization. This system, including a specially printed form, was used again in 1911. The village pulenu'u was made responsible for listing the permanent residents of his village by their names, sex, age status (adults or children) and religion. A second list was prepared of those visiting the village at the time of the enumeration. After 1905 the administration began keeping records of births and deaths, immigration and emigration, and a statistical inventory was made each year of the foreign population.

Throughout the period of German administration, efforts, limited in their scope but increasingly successful, were made to accumulate reliable data on the population of the territory. The task of gathering such information has never been easy in Samoa, and in 1911 the German authorities were sufficiently dissatisfied with their first attempts to
reorganize the whole process (O le Sava, no.10, 10 Nov. 1911, 1). Heavy fines were prescribed for neglect or disobedience.

The early censuses of the New Zealand administration

Doubts about the reliability of previous censuses appear to have been shared by the New Zealand military administration after Western Samoa was taken in 1914. The military authorities organized a census of the native Samoan population in 1917. The result, a total of 35,404, was about 1,000 persons more than were expected on the basis of the 1911 total and the subsequently registered births and deaths. When one reads the complaint of the German authorities that 'it is not satisfactory for the judge's clerk to make a few entries every three months' (O le Sava, no.10, 1911, 1), it seems reasonable to suppose that the reconciliation of registered vital statistics and census results is not likely to be profitable. Under such circumstances the census will probably be the more correct.

When censuses are taken by local untrained village officials in Samoa, there is a tendency for them to assume that a de jure census is required; persons are listed where they should be at the time specified rather than where they are. In their effect upon the total figure such duplications and omissions will to some extent cancel each other out. But in areas such as Apia and the commercial plantations, and in villages possessing a particularly attentive or sophisticated pulenu'u the instructions specifying a de facto census are more likely to be observed. In the first decades of this century this inherent tendency toward duplication had much less effect than it acquired later. The proportion of likely omissions from any census is not really known; in small village settlements the possibilities would seem to be slight. In general, however, it seems both reasonable and safe to accept the census results presented as very good estimates of the population for that year.

The censuses of 1921 and 1926. The first complete census by the New Zealand authorities was taken on 17 April 1921 (N.Z.P.P. A-4a 1924, 4-7). Surprisingly little data have survived from this count and, since much greater pains were taken in 1926, the implication is that it was not very successful. The second census, taken at the height of the New Zealand administration's reforming enthusiasm, was most elaborate. It was the first to describe the Samoans under the usual demographic headings of race, sex, age (using 'a crude classification adopted by the Natives themselves'), religion and the numbers attending school. The population totals and several demographic characteristics were classified by villages and although this material was not published in the report (N.Z.P.P. A-4a 1926, app.D., 22-8) it was kept on file for the use of the administration (Island Territories, I.T. 38/1). Only district population totals were published. Special provision was made for the enumeration of persons of European status, better suited to their varied condition within the territory. The report observed that

A native census is easier to take in Western Samoa at the present time than a European one. Many of the Europeans cannot read, write, or speak any language but Samoan, or can do so very imperfectly. (N.Z.P.P. A-4a 1926, 23.)
Nevertheless, data became available on this group in greater detail than ever before. Special provision was also made for the enumeration of the Chinese component.

The censuses of 1936 and 1945. The next census - in 1936 - was elaborately planned, but its execution appears to have foundered somewhat on the rocks of over-regulation; the administration was not on good terms with the Samoans at this time. The people were told to 'refrain from making journeys (malaga) on the 4th day of November, 1936', and that it was 'the duty of every Samoan to report to the Enumerator, or Enumerators if appointed, of the village or area or place in which he is at or before 8 o'clock on the night of the 4th day of November, 1936, for the purpose of having his name and other necessary particulars entered in the Census form'. The particulars required were name, age in years, whether a matai, tauleale'a, small boy or infant, or the female equivalents, village of birth, race, religion, occupation if any, whether at school, whether a permanent resident or a visitor to the village (and if a visitor, village of permanent residence), and a statement of 'exactly what village sleeping on the night of the census' and 'remarks'. Although in this form the list appears formidable, the only innovation of any importance is the question on occupation.

'Every precaution was taken during the census to obtain an accurate record of the population, and it can safely be said that...the figures are substantially correct.' No specific reference is made in the report to the training of enumerators. A special point of enquiry was the degree of 'infiltration of Chinese blood into the Native race'. An index of the recognition of the social change occurring at the time is the inclusion of data not only on the number of Samoans in paid employment but also those 'not taking part in village affairs' and living on European-owned land (N.Z.P.P. A-4 1937, 27-8).

The census of 1945 followed this pattern closely, the major improvement being that a list of village populations was also published (N.Z.P.P. A-4 1946, 20-25).

The first comprehensive census: 1951

In 1951 the schedule for the Samoan census was expanded to include questions on marital status, number of children born alive to married women, and literacy, but otherwise the organization was much the same as before. The innovations were suggested by a report compiled by the United Nations, which concluded

An important step...is to obtain a more complete and more accurate statistical picture of the demographic situation of the territory. Information is needed on fertility and mortality, and their differences among various racial, economic and social groups an in different geographical sections of the islands. (U.N.P.D. 1948, 42.)

1 O le Savali, vol.42, no.5, 1 May 1946, 2-4. The report for 1936 stated that data on the populations of individual villages were available, but no trace of these data could be found on the files either in Apia or in the National Archives in Wellington.
This report implied that the population of Western Samoa was increasing at a rate as high as any in the world. The effect of this monograph was to greatly increase the interest of both government and public in the demographic problems of the territory. The 1951 census, originally intended to supply much of the information which the report suggested was missing, was dogged by misfortune. The official in charge became ill and makeshift arrangements had to be made at a very late stage. Consequently the enumeration was done in rather a haphazard manner and the analysis of the results was not completed until 1954. The census report was the first to be published as a separate volume, to present data on fertility and composition of the population by age, and to give a comprehensive picture of the employment structure (G.W.S. 1954).

The recent collections

Further demographic work, using the data available up to 1952, was undertaken by Dr Norma McArthur, whose preliminary report, 'The Population of the Pacific Islands, Part IV: Western Samoa and the Tokelau Islands' (McArthur 1956) stimulated further interest in the Western Samoan population. In her report Dr McArthur commented upon the organization of the 1951 census and made suggestions on possible improvements for 1956. The government of Western Samoa was determined that the 1956 census should be the most comprehensive and accurate ever taken in the territory. Acting on Dr McArthur's advice they appointed a demographer, Miss Kathleen Jupp, as Commissioner for Census.

The 1956 census. This census was organized on completely different lines from those previously taken in the territory. The schedules were redesigned on a household basis, to be simple but still to yield a wide range of demographic data, particularly on fertility and employment. The enumerators were selected from the only well-educated group distributed pro rata throughout the territory - the school-teachers. These, augmented where necessary by Training College students and others of a similar calibre, were carefully trained for several weeks before the census date. The territory was divided up into small enumeration areas, particular care being taken over the Apia urban area and the commercial plantations. The households within each such area were surveyed and listed and the enumerators were made fully acquainted with the households within their allotted area. The enumeration, although centred on the hour of midnight, 25 September 1956, was spread over a period of several days both before and after. The results were transferred from the enumerators' schedules to punch-cards for analysis. The report was published soon after (Jupp 1958) and fulfilled the expectation of the Western Samoan government as the most accurate, detailed and comprehensive analysis of the population made to that date.

The 1956 census report contained the first apparently reliable data on the composition of the population by age and information on fertility was presented in a suitable form for comparison with neighbouring islands censused at the same time. The employment structure was analyzed and the results were published in a rational form never previously achieved. Data on the distribution of population were presented in a way which allowed the drawing of detailed distribution maps, including for the first time the commercial plantations and the other non-traditional
settlements. The census organization was on the whole very successful and while experience in 1956 did point to some possible improvements for later censuses, this was the first to provide a base, comprehensive and internally consistent, against which all future censuses could be measured.

**Component Populations: Recent Development**

In chapter 3 the establishment of European settlement, the introduction of alien groups and the beginnings of a part-Samoan component were traced to 1900, the year in which Germany assumed control of Western Samoa. Since this time the series of censuses which have been organized have all included questions on the composition by component populations. Unfortunately there has been little consistency in the definitions adopted.

A very complex situation has developed in Samoa, where the mingling of races has been unusually free. With approaching nationhood, the government of Western Samoa has attempted to minimize the distinctions, both legal and racial, between the groups and the question is now of diminishing political and social importance. In the past, however, the fluctuating numbers within the several ethnic components have been of great demographic significance. The present population has been profoundly modified by racial admixture and the presence in the territory of different cultural groups. The numbers and proportions within the component populations in 1956 are shown in Table 3.

**Table 3. NUMBERS AND PROPORTIONS PER CENT OF PERSONS IN COMPONENT POPULATIONS: 1956**

<table>
<thead>
<tr>
<th>Component</th>
<th>Upolu</th>
<th>Savai'i</th>
<th>Western Samoa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samoans</td>
<td>62,035</td>
<td>26,001</td>
<td>88,036</td>
</tr>
<tr>
<td>Part-Samoans</td>
<td>7,110</td>
<td>790</td>
<td>7,900</td>
</tr>
<tr>
<td>Europeans</td>
<td>605</td>
<td>57</td>
<td>662</td>
</tr>
<tr>
<td>Other Pacific</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Islanders</td>
<td>510</td>
<td>21</td>
<td>531</td>
</tr>
<tr>
<td>Others</td>
<td>137</td>
<td>12</td>
<td>149</td>
</tr>
<tr>
<td>Not stated</td>
<td>32</td>
<td>17</td>
<td>49</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>70,429</td>
<td>26,895</td>
<td>97,327</td>
</tr>
</tbody>
</table>

Source: Jupp 1958, table 2, 63-8.

Those enumerated as full Samoans are numerically and proportionately by far the largest sector, particularly in Savai'i. The part-Samoans form the next most numerous group, and together with the Samoans comprise 98.5 per cent of the total population. The part-Samoan group is not homogeneous, but consists of the issue, and their descendants, of Samoan matings with Europeans, Chinese, Melanesians, other Polynesians, Micronesians, and to a very slight extent with American Negroes, Japanese and possibly others unknown.

The influx of foreigners

Islanders from other groups in the Pacific have always been attracted to the Samoas and there were 531 of these persons enumerated there in 1956. This group, except during the years in which island labourers were brought to Samoa, has never been large and in recent years the numbers have
been almost static. Its composition, however, is changing (table 4). The largest group, and the only one which has been increasing consistently is the Tokelauan which contained 225 persons in 1956. Other Polynesian groups were, in order of size, Ellice islanders, Niueans, Tongans, Cook islanders, Uveans and Rotumans. There was also a small Gilbertese group and a few Fijians. For these people Samoa has acted as a 'metropolitan' centre, providing opportunities for urban living, for paid employment and some independence analogous to that provided for the Samoans by New Zealand and Hawaii. The largest groups have come from islands noticeably more overcrowded and austere than Samoa. Advantage has been taken of contacts or relationships established traditionally or during the period when the indentured islanders were living in Samoa, or under the auspices of the missions. In this connection the LMS has acted for the Ellice islanders, the Tokelauans and the Niueans, the Methodist for the Tongans, and the Roman Catholic for the Uveans and Futunan.

The Solomon islanders, down to 37 persons in 1956, are the remnant of the indentured labourers originally transported to work on the German-owned plantations. Most are now aged males and have been married or adopted into Samoan aiga.

Another immigrant group, the Chinese, numbered 143 persons, virtually all of whom were males. Indentures for Chinese continued until 1935 and the group tends to be younger than the Solomon islanders. Many are still in paid employment on the commercial plantations. This component owed its size in the past to the German administration which decided to introduce Chinese to replace some of the Melanesians on the commercial plantations. The first shipment arrived in 1903 and within three years their numbers exceeded 1,000; by 1914, 2,184 were under contract. The New Zealand authorities disapproved of the system and began a programme of repatriation. There was an immediate outcry from the European planters; they maintained that only the Chinese were capable of the painstaking work needed on the cacao plantations. The administration was persuaded to retain the system of indenture, but the traffic was strictly controlled and the numbers permitted were reduced. In 1948 all Chinese without connections among the Samoans were finally repatriated; their number by this time did not exceed 300. The descendants of those who acquired Samoan wives and aiga - the basis for their permission to stay - are numbered among the part-Samoans. The number of this group is not known for 1956, but the 1936 census showed a minimum of 898 persons of part-Samoan/Chinese descent and the group is now likely to exceed 2,000.

The number of Europeans is small, only 662 in 1956, and their number is not now likely to increase. Few full Europeans reside permanently in Samoa; most are temporary residents brought to the territory for some specific purpose.

2 This information was derived from an independent analysis of information taken from the original census schedules. The figures are therefore unofficial and subject to a wider degree of error than are those published in the official census report.
<table>
<thead>
<tr>
<th></th>
<th>1900</th>
<th>1906</th>
<th>1911</th>
<th>1921</th>
<th>1926</th>
<th>1936</th>
<th>1945</th>
<th>1951</th>
<th>1956</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samoans</td>
<td>32,620</td>
<td>33,529</td>
<td>33,639</td>
<td>32,330</td>
<td>36,308</td>
<td>50,878</td>
<td>61,867</td>
<td>61,867</td>
<td>88,036</td>
</tr>
<tr>
<td>Part-Samoans</td>
<td>475</td>
<td>885</td>
<td>996</td>
<td>1,200</td>
<td>c.1,992*</td>
<td>3,486**</td>
<td>5,040f</td>
<td>4,142</td>
<td>7,900</td>
</tr>
<tr>
<td>Europeans</td>
<td>c. 460</td>
<td>455</td>
<td>c. 450</td>
<td>835</td>
<td>446</td>
<td>367</td>
<td>359</td>
<td>450</td>
<td>662</td>
</tr>
<tr>
<td>Chinese</td>
<td>c. 20</td>
<td>1,104</td>
<td>c.1,627f</td>
<td>1,321</td>
<td>903</td>
<td>522</td>
<td>101</td>
<td>164</td>
<td>143</td>
</tr>
<tr>
<td>Solomon Islanders</td>
<td>787</td>
<td>695</td>
<td>742</td>
<td>665</td>
<td>171</td>
<td>832</td>
<td>75</td>
<td>43</td>
<td>37</td>
</tr>
<tr>
<td>Fijians</td>
<td>48</td>
<td>c.30</td>
<td>c. 30</td>
<td>20</td>
<td>25</td>
<td>32</td>
<td>9</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Total Melanesians</td>
<td>c. 835</td>
<td>725</td>
<td>c. 772</td>
<td>c. 480</td>
<td>234</td>
<td>136</td>
<td>107</td>
<td>52</td>
<td>44</td>
</tr>
<tr>
<td>Tokelauans</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>63</td>
<td>122</td>
<td>153</td>
<td>183</td>
<td>228</td>
<td></td>
</tr>
<tr>
<td>Niueans</td>
<td>99</td>
<td>7</td>
<td>?</td>
<td>124</td>
<td>210</td>
<td>151</td>
<td>124</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Tongans</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>69</td>
<td>72</td>
<td>69</td>
<td>41</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>Ellice Islanders</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>25</td>
<td>87</td>
<td>72</td>
<td>c.88</td>
<td>86</td>
<td></td>
</tr>
<tr>
<td>Cook Islanders</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>c.4</td>
<td>c.4</td>
<td>c.10</td>
<td>c.6</td>
<td>9</td>
</tr>
<tr>
<td>Other Polynesians</td>
<td>48f</td>
<td>7</td>
<td>7</td>
<td>56f</td>
<td>45</td>
<td>c.25</td>
<td>c.6</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Total Polynesians (other than Samoans)</td>
<td>c. 165</td>
<td>c. 622</td>
<td>c. 560</td>
<td>c. 251</td>
<td>341</td>
<td>540</td>
<td>c. 480</td>
<td>c. 448</td>
<td>475</td>
</tr>
<tr>
<td>Gilbert Islanders</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>13</td>
<td>6</td>
<td>10</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Other Micronesians</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>c.1</td>
<td>c.8</td>
<td>c.4</td>
<td>c.9</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Total Micronesians</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>c. 5</td>
<td>c. 7</td>
<td>17</td>
<td>15</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>Other Asians</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>Other, or not stated</td>
<td>c.34,575</td>
<td>37,320</td>
<td>38,084</td>
<td>36,422</td>
<td>40,231</td>
<td>55,946</td>
<td>68,107</td>
<td>84,904</td>
<td>97,327</td>
</tr>
</tbody>
</table>

* Includes 1,705 Samoan/European and 123 Samoan/Chinese, the rest are Samoan/other race.
** Includes 2,708 persons of 'European status of 'Samoan' status.
Includes 806 Samoan/Chinese of 'European' status. No figure available for those of 'Samoan' status.
Includes 1,613 indentured.
† Includes 20 Uveans.
†† Includes 9 Uveans.
Includes 20 Rotumans.
Includes 39 Rotumans.
Includes 8 Futumans.

Sources:
There are a number of positions normally held by overseas Europeans in government administration and technical services, in the Trust Estates Corporation, in commerce and in the missions. Most are held on short-term secondments and their family groups comprise the bulk of the European residents at any one time. A few Europeans own or lease plantation land and their residence is more permanent. There are also some retired Europeans living in Samoa. Tourists, mainly from New Zealand, Australia and the United States, form a small floating population for most of the year, and there are also cargo and cruise vessels in port for an aggregate of several months each year (although during the census in 1956 the port was empty of overseas vessels).

**Miscenegenation**

From all these groups of Europeans a proportion continues to marry, or to form less permanent relationships, with Samoans and part-Samoans which are demographically significant. As a consequence, new European strains are constantly being added and a proportion of 'half-castes' is maintained within the part-Samoan component.

In the past there have been occasional and temporary influxes of European males during which the process of miscegenation has been greatly accelerated. The numbers of administrators and colonists increased rapidly during the 14 years of German administration, and several of the local Samoan-European families are derived from this source. A New Zealand occupation force landed in 1914 and remained until 1921, while in 1929 a force of policemen recruited to control the Mau landed in Apia. By far the most spectacular occupation was that of the Americans. In March 1942, 100 Marines arrived in Western Samoa. These were soon reinforced, and by May their numbers had increased to 4,900 (A.W.S. 27/1C, 1). The maximum number is not recorded, but is said by local people to have risen above 12,000 for short periods. As the Pacific war moved away, the number of U.S. servicemen in Western Samoa declined, and by the end of 1943 was down to 2,950, and the defence of Samoa was assumed by a local force. This is by far the largest group of Europeans to have visited Western Samoa at any one time. Although they were concentrated in large camps, the servicemen individually or in groups penetrated most areas of Western Samoa. Posts were distributed throughout both islands, mainly as coast-watching and radar installations. The demographic effect of this occupation was marked.

The Administrator, Mr A.C. Turnbull forecast, correctly, that 'the presence of healthy [European] males will lead to an unavoidable increase in our "local" population' (A.W.S. 27/1C, 1942). The number of part-Samoan children sired by American servicemen is believed to exceed 500.

During the period 1900-56 the principal changes in racial composition were the numerical decline in the Chinese and Melanesian components, the persistence of small, relatively static numbers of Europeans and Polynesians other than Samoans, and the spectacular rise in the numbers of part-Samoans. This component is increasing at a rate which is still accelerating because of the high rates of natural increase within the component and the constant addition of the issue of Samoan matings with persons of other race.
The predominance of the Samoan element both numerically and culturally in the Samoan and part-Samoan components is confirmation that they have successfully withstood as an individual people their contact with non-Polynesians. It is now impossible to differentiate accurately between full Samoans and those of mixed blood; within the two components common variation in social status, material wealth and education are now more significant than are the differences between those with foreign blood and those who (often with dubious accuracy) declare themselves to be 'full Samoan'.

Component Populations: Composition by Age and Sex

The age and sex structure of the total Western Samoan population shows often in an exaggerated form all the characteristics of a type of population which has developed only in recent years. These are well controlled mortality, almost completely uncontrolled fertility, both characteristics existing within a population which generates a very low level of economic activity.

The indigenous groups

The structures of the two principal components, the Samoan and the part-Samoan are shown in figures 8 and 9.

These pyramid diagrams were constructed using proportions per cent rather than the absolute totals in each age group because of the great difference in the size of the two populations here compared. Presented in this way, since each series must add to 100, there is a disadvantage in that any inflation in a particular age group must appear to deflate the other groups in the series. The two components are not exclusive, as offspring from one Samoan parent may be classified as a part-Samoan - a factor which contributes to the higher proportions observed in the younger age groups of the part-Samoan component. The numbers enumerated and the proportions per cent in each 5 year age group for Samoans and part-Samoans are shown in table 5.

Table 5. SAMOANS AND PART-SAMOANS CLASSIFIED ACCORDING TO 5 YEAR AGE GROUPS: 1956

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Samoan Males</th>
<th>Samoan Females</th>
<th>Samoan Persons</th>
<th>Part-Samoan Males</th>
<th>Part-Samoan Females</th>
<th>Part-Samoan Persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>8,911</td>
<td>8,136</td>
<td>17,047</td>
<td>827</td>
<td>822</td>
<td>1,649</td>
</tr>
<tr>
<td>5-9</td>
<td>7,291</td>
<td>6,650</td>
<td>13,941</td>
<td>725</td>
<td>701</td>
<td>1,426</td>
</tr>
<tr>
<td>10-14</td>
<td>5,927</td>
<td>5,389</td>
<td>11,316</td>
<td>624</td>
<td>593</td>
<td>1,217</td>
</tr>
<tr>
<td>15-19</td>
<td>4,689</td>
<td>4,403</td>
<td>9,092</td>
<td>452</td>
<td>417</td>
<td>869</td>
</tr>
<tr>
<td>20-24</td>
<td>3,259</td>
<td>3,550</td>
<td>6,809</td>
<td>280</td>
<td>277</td>
<td>557</td>
</tr>
<tr>
<td>25-29</td>
<td>3,192</td>
<td>3,672</td>
<td>6,864</td>
<td>252</td>
<td>234</td>
<td>516</td>
</tr>
<tr>
<td>30-34</td>
<td>2,560</td>
<td>2,405</td>
<td>4,965</td>
<td>229</td>
<td>190</td>
<td>419</td>
</tr>
<tr>
<td>35-39</td>
<td>2,392</td>
<td>2,189</td>
<td>4,581</td>
<td>173</td>
<td>155</td>
<td>328</td>
</tr>
<tr>
<td>40-44</td>
<td>1,601</td>
<td>1,508</td>
<td>3,109</td>
<td>149</td>
<td>114</td>
<td>263</td>
</tr>
<tr>
<td>45-49</td>
<td>1,500</td>
<td>1,357</td>
<td>2,857</td>
<td>105</td>
<td>77</td>
<td>182</td>
</tr>
<tr>
<td>50-54</td>
<td>1,054</td>
<td>1,094</td>
<td>2,148</td>
<td>81</td>
<td>72</td>
<td>153</td>
</tr>
<tr>
<td>55-59</td>
<td>764</td>
<td>791</td>
<td>1,555</td>
<td>61</td>
<td>47</td>
<td>108</td>
</tr>
<tr>
<td>60-64</td>
<td>584</td>
<td>653</td>
<td>1,237</td>
<td>38</td>
<td>27</td>
<td>65</td>
</tr>
<tr>
<td>65-69</td>
<td>483</td>
<td>505</td>
<td>988</td>
<td>29</td>
<td>34</td>
<td>63</td>
</tr>
<tr>
<td>70-74</td>
<td>262</td>
<td>343</td>
<td>605</td>
<td>21</td>
<td>10</td>
<td>31</td>
</tr>
<tr>
<td>75 and over</td>
<td>391</td>
<td>469</td>
<td>860</td>
<td>20</td>
<td>23</td>
<td>43</td>
</tr>
<tr>
<td>N.S.</td>
<td>45</td>
<td>23</td>
<td>68</td>
<td>11</td>
<td>-</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>44,905</td>
<td>43,131</td>
<td>88,036</td>
<td>4,077</td>
<td>3,823</td>
<td>7,900</td>
</tr>
</tbody>
</table>

The Samoan component. This population is dominated numerically by persons under 16 years of age, the median age being 15.96 years. Because of the large proportions found in the young age groups the pyramid diagram is very broad-based, while the apex is narrow and spire-shaped. The age and sex structure of the New Zealand population (including Maoris) is shown with that of the Samoan component to provide a basis for comparison with a fully-controlled 'Western' type. The extremely high proportions in the lower age groups of the Samoan population are pointed out by this comparison. The proportions of all groups to age 20 years are higher than in the New Zealand population, while those between the ages of 20-34 are of similar proportions. At the older ages the proportions in the Samoan component are exceeded by those in the New Zealand populations until the age group 85-89 when both become negligible.

The part-Samoan component. For this group the processes of population replacement are more complicated and it is affected by external influences, including political, economic and social changes to a much greater degree than is the Samoan. The step sequence of the age groups is less regular and the proportions in the younger age groups, particularly below 14 years, are even higher than in the Samoan component. The median age for part-Samoans is extraordinarily low at 12.34 years.

The sex ratios. For both these component populations there is a consistent preponderance in the number of males over females in the age groups below 20 years. This may be adequately explained by the imbalance usual in all populations between male and female births. In Samoa this appears for reasons unknown to be particularly high. The ratio of male live births to female live births was 111.3:100.0 between 1951 and 1956. The settled conditions and the modern health services to which the Western Samoans now have access have caused much of this initial masculinity to be retained, so that the ratio of males to females in the 0-14 age range was 109:100 in 1956. It is interesting to note, however, that a similar ratio applied to this range, probably for different reasons, in the first count in which such differentiation was made (Samoan Reporter, no.15, Jan. 1854; see ch.5).

In the aged groups females have a slightly greater proportion than males. In the age range 65 and over females form 1.5 per cent of the total population, while males constitute only 1.3 per cent. Again this is normal and consistent with the longer expectation of life usually found with females.

The minor components

While the Samoan and part-Samoan are the only components which reflect the normal processes of survival and replacement, the three other component populations for which data are available from the 1956 census show distinctive characteristics of their own. These are small immigrant groups - Europeans, Other Pacific Islanders and 'Others', most of whom are Chinese. Although random variations can unduly affect the observed proportions in populations as small as these, the structures do show some revealing contrasts.

Europeans. The age and sex structure of the European component (fig. 10) shows several of the characteristics
usually associated with 'immigrant' populations; a preponderance of males (masculinity ratio 146-100) and unbalanced age distribution heavily weighed on the most economically useful groups (20-55 years), and a low proportion of children to adults. The median age is higher than for the total population at 30.1 years. The preponderance of males is most marked in the older age groups reflecting a tendency for European males to marry local Samoan or part-Samoan females and to remain in the territory. In the younger adult age groups the sex ratios are much closer; both single males and females are included in this range while married European males will normally be accompanied by their families. There is a marked dearth of Europeans aged 13-19 years as it is customary for children in this group to be sent abroad for post-primary school study. These features are characteristic of migration by an economically privileged group and the Europeans living in Samoa may be so described.

Other Pacific islanders. The numbers from other groups in the Pacific are slightly smaller. Their age and sex structure is also characteristic of immigrant populations but is somewhat different from that observed for the Europeans (fig. 11). The preponderance of males is higher (masculinity ratio 153:100) and is general throughout the age range above 15 years. The median age (26.9 years) is considerably higher than for the total population but lower than for the European component. The distribution of males throughout the age range is bi-modal with concentrations in the 15-35 and 45-59 age ranges. These males are not matched in their age groups by equivalent proportions of females and it seems probable that most of these males are either single or are married to Samoan or part-Samoan women. Most of the older men are remnants of a larger group which was brought to Samoa during the German regime and in the first years of the New Zealand administration.

The males in the younger adult age groups are principally recent arrivals who have been attracted to Samoa during the recent prosperous years. Many are Tokelauans who have moved from their own isolated and increasingly overcrowded atolls. The Niuean group, formerly the most numerous, has declined as these people now prefer to emigrate to New Zealand. Females in the age range 15-29 are nearly 40 per cent of total females and their age distribution bears little relation to the equivalent male groups; there seems to be some independent migration of single females within this group. There is no indication that the children in this component are sent abroad for advanced education but rather, from the sharp increase in the 15-19 age group, that educational facilities in Western Samoa have attracted children from neighbouring islands.

Others. The third immigrant group, 'Others' in the 1956 census, mainly Chinese, is the most abnormal (fig. 12). More than 80 per cent are males over 40 years and the median age is 52.8 years. Only negligible numbers of Chinese women have come to Samoa, and as a separate component the Chinese seem doomed as the ageing males die off. Their very small numbers of full Chinese offspring are likely to marry females of Samoan descent, but the mixture of Chinese blood with the Samoans will continue to provide a diverse element in the population for many generations to come.
The Moulding of the Present Structure

The Samoan component

Before 1951 no census taken in Western Samoa included a question on age in years or year of birth; the results in this first attempt were not encouraging. Among educated Samoans and officials who had worked in the villages the idea that Samoans did not know their age was widely held in 1956. However, in the training of census enumerators special attention was given to methods of dealing with the two age questions. While the results more than justified the effort, they were not perfect. Mis-statement of age is known to have been frequent and before an analysis of the age and sex structure is attempted some account must be taken of patterns of age preference.

Statement of age. The unit digit preferences were analyzed in the report (Jupp 1958, 24, table D) and these figures for the Samoan component are presented diagrammatically in figure 13. The Samoan pattern suggests that in the age groups covered by the analysis there has been an avoidance by both males and females of the unit digits 0-4 and a preference for the unit digits 5-9. Consequently the age groups 15-19, 25-29, 35-39, 45-49 and 55-59 are likely to be inflated slightly (a mean of 1 to 2 per cent) and the corresponding age groups between 20-24 and 50-54 years have been deflated by a similar proportion.

The preference for certain ages was complicated to a further extent by a technique used in the census organization - the use of certain events or memorable periods as aids in the determination of age by the enumerators. The most successful of these aides-mémoire were those which had had special significance for the village-dwelling Samoans. Examples of these are the beginning of the German administration in 1900; the lava flows in Savai'i in 1903-11; the New Zealand military occupation in 1914; the influenza epidemic in 1918; 'General Richardson's time' 1924-7; the Mau disturbances referring particularly to 1928-9 but also generally to 1927-33; the end of the Mau in 1936; and the arrival of the American servicemen in 1942. Several of these events had in themselves very significant effects upon the population of the time and sometimes on the numbers of subsequent births. The use of these dates probably accounts for the unexpectedly large numbers enumerated as having been born in some years, particularly 1900, 1918 and 1928. More recently the expansion and increased effectiveness of the Education Department which insists upon the children entering its schools showing birth certificates has combined with a shorter forgetting.

3 The methods employed are those of R.J. Myers in 'Age errors in census data' (Transactions of the Actuarial Society of America, vol.XLI, part 2, 1940) and slightly modified by R. Bachi in 'Measurement of the tendency to round off age returns' (Bulletin of the 28th session of the International Statistical Institute, Rome, 1954). This method is applied only to the 'blended' populations of persons aged 13 to 52 years and those aged 23 to 62 years. Outside this age range, only the ages 0-1 show marked deviation and this case is treated separately on p.88.
time to make the recall of ages below 20 years considerably more accurate than at older ages. Except for ages 0 and 1 year, those observed for ages under 20 years do not depart far from the expected levels. The rounding off of ages with unit digit 0 has obviously occurred and becomes increasingly prevalent at older ages. Rounding off at unit digit 0 has not been inflated by additional extraneous circumstances as have the other two major unit digit preferences, 6 and 8. The 6 preference coincides with the decade years and, for instance, there is a suspiciously large number of persons born in '1900'. The preference for unit digit 8 has been inflated also by the large number who claim to have been born at the time of the epidemic in 1918, and thus to be 38 years.

The statements of age made by Samoans in 1956 are shown graphically on figure 14. The fluctuation of numbers from high to low points at alternate ages is remarkably consistent. If points are placed midway between those plotted from the age statement (i.e., at the half year) they may be joined to produce a line which smooths out the random variations and the mis-statements of age to some extent. The general trend of differences in the level at each age is shown more clearly. The fluctuations shown by this method are only partially attributable to unit digit preference or the heaping of age statements about certain dates or ages.

While the trend lines applying to ages below 20 years and above 65 years are reasonably even, the ages between these extremes show distinct fluctuations: there are four periods in which the numbers observed in 1956 appear to be deflated. These are between the years 1931-5, 1919-25, 1909-15 and 1901-5. Although there has been a strong tendency throughout the lifetimes of those Samoans living at present to increase their chances of survival, this has been a gradual process and has not affected one cohort at the expense of any other. It follows then that the years in which the largest proportions of the original cohort have survived to 1956 are the 'normal' years. Where obvious deflation in the numbers recorded has occurred the cause must lie with some exceptional condition which has increased mortality in certain age groups or has limited the number of births during a particular time.

The 'normal' periods appear to have been 1906-9, 1916-18 and between 1926 and 1930. A return to 'normal' conditions appears to have occurred about 1937 and from the evidence of the subsequent plateau, this has persisted through to the 1956 census.

The historical factors responsible for these fluctuations in the age statements of the Samoan component have now to be investigated.

The effect of the 1918 influenza epidemic. By far the most important event to mould the present structure of the Samoan component was the incidence in Western Samoa of the influenza pandemic of 1918. This epidemic in Western Samoa has been described as 'one of the most disastrous epidemics recorded anywhere in the world during the present century, so far as proportion of deaths to the population is concerned' (U.N.P.D. 1948, 8). This epidemic caused the loss of nearly one-fifth of the total population. Deaths during the seven week epidemic period were given as 7,542, with a
total of 8,500 being assigned to the epidemic and its after-effects (N.Z.P.P., Paper H-31c, 1919, 4). The first estimate was reduced later to 6,250, but the actual number is not accurately known (N.Z.P.P. A-4, 1924, 43).

This epidemic arrived by the S.S. Talune which, owing to laxity and blunder in New Zealand, on the ship and at the port of Apia, was permitted to land influenza-stricken passengers in the town. The disease spread quickly all over Upolu and was soon taken to Savai'i. A Royal Commission was appointed in 1919 to investigate the causes and effects of the disaster. The following table was included in their report.

Table 6. THE EFFECTS OF THE 1918 INFLUENZA EPIDEMIC*

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>Children</th>
<th>Persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>As at 30th Sept. 1918</td>
<td>Upolu: 6,828</td>
<td>7,814</td>
<td>9,313</td>
<td>23,955</td>
</tr>
<tr>
<td></td>
<td>Savai'i: 4,160</td>
<td>4,513</td>
<td>5,550</td>
<td>14,223</td>
</tr>
<tr>
<td>As at 31st Dec. 1918</td>
<td>Upolu: 4,749</td>
<td>6,094</td>
<td>8,286</td>
<td>19,129</td>
</tr>
<tr>
<td></td>
<td>Savai'i: 2,974</td>
<td>3,529</td>
<td>5,004</td>
<td>11,507</td>
</tr>
<tr>
<td>Deaths from influenza</td>
<td>Upolu: 2,079</td>
<td>1,720</td>
<td>1,027</td>
<td>4,826</td>
</tr>
<tr>
<td></td>
<td>Savai'i: 1,186</td>
<td>984</td>
<td>546</td>
<td>2,716</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deaths as a percentage of total in each group</td>
<td>Upolu: 30.4</td>
<td>22.0</td>
<td>11.0</td>
<td>21.2</td>
</tr>
<tr>
<td></td>
<td>Savai'i: 28.5</td>
<td>21.8</td>
<td>9.5</td>
<td>20.0</td>
</tr>
</tbody>
</table>


The actual totals shown in this table may be inflated but the proportions given are probably true. The epidemic mortality was curiously selective with regard to age and in some degree to sex. Males suffered a higher mortality than females and adults, particularly those of reproductive age, suffered more than children. Mortality was higher on Upolu than on Savai'i. It is not known whether there was a greater risk 'in the puerperal state' as noted in Fiji at the time (Montague 1919, 4), but there was a marked drop in the number of births in 1919 which did not persist into the years immediately thereafter. It was observed at the time that adult males with a tendency toward obesity were particularly vulnerable. The mortality among Samoan matai was estimated at 45 per cent (McArthur 1956, 171) and among Samoan pastors was even higher. Old people do not appear to have been much afflicted. The exact mortality of the disease in relation to age is not known, but for males it seems likely to have followed a curve rising to a maximum at approximately ages 45-50, at which the mortality was 40 to 45 per cent. The 15-45 age range appears to have suffered a mortality rising with age but with a mean of between 25 and 30 per cent. Children, 0-14 years, suffered less and it is assumed that very young children escaped lightly but that the 10 per cent mortality which applied

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4 Goodall 1954, 36. 'Out of 220 pastors in active service, 103 died [47 per cent]. Twenty-nine out of thirty members of the Au Toeaina or Council of Elders...were amongst the casualties.' Darnand (1945) records a loss of 65 per cent of the Roman Catholic catechists, cf. 11 per cent loss of 'pupils', presumably children at the mission schools.
to the whole group was actually higher in the upper part of the range. The immediate effect on the number of subsequent births was their reduction by approximately 20 per cent, assuming that they were fully registered in 1919 (U.N.P.D. 1948, table 8, 51). Taking into account the disruption of matings in the months immediately following the introduction of influenza, the number of births registered in 1919 is not as low as might have been expected. In 1923 the system of birth registration was reorganized, creating a series not exactly comparable with the registrations which went before, but numbers registered soon resumed and even exceeded the previous levels prior to the epidemic. The registration of births has never been reliable in Western Samoa, depending less on the numbers of births occurring than on the quality of the central administration. The numbers of persons born in the years subsequent to the epidemic who survived to 1956 probably remain a better indication of the relative numbers of births which occurred than are the official registration records.

The effect of the epidemic on the numbers of births in the years immediately following is strongly marked upon the cohort 1919-25, which has apparently been depleted of about 1,000 persons who could, had they been born, have been expected to survive to 1956. This depletion reaches a maximum of about 35-40 per cent about 1922, the result of the disruption of matings caused by influenza mortality.

As females in the pre-reproductive age range - who were not much depleted by the epidemic - attained maturity, the numbers enumerated as having been born between 1924 and 1927 increased noticeably. The growing effectiveness of the Health Department's public health measures during these years preserved most of the effect of this change.

If the impress of the 1918 epidemic remains so obvious in the age composition of the population, its effect at the time must have been grievous. In some villages the greater part of the population was wiped out. In some localities the corpses were collected in army trucks and buried in trench graves as the sick and the survivors looked on numbly.

For Samoa it was this epidemic, not the Great War which was 'the watershed between two eras'. The survivors were bereft not only of relatives, friends and leaders; they were bereft of confidence and, in many instances, of a faith equal to such a strain. In this situation there came to the surface again deep-seated, pre-Christian fears and patterns of behaviour. (Goodall 1954, 362.)

The effect on the numbers of those born before 1918 remains obvious on the cohort 1908-18 which includes most of those classed as 'children' in table 6. Although this group escaped relatively lightly, over 1,000 deaths were recorded. At older ages than this, the normal increase in mortality applying to advancing ages has now blurred the evidence of the original pattern of mortality. These persons were also exposed to additional but erratic levels of mortality preceding the influenza epidemic, so that the distribution of ages in this range was probably very irregular even before the catastrophe. Infant mortality was normally very high before 1918 but in some epidemic years rose to extreme levels. An additional complicating factor is the greater degree of mis-statement of age at older ages.
The cohort 1902-5 shows evidence of some deflation and a minor recovery is observable in those born between 1906 and 1909, but the precise cause of each is now uncertain.

One of the major demographic effects of the influenza epidemic was the subsequent occurrence of very rapid rates of population growth. As young females who survived the epidemic passed their pubescent years the composition of the 'women of reproductive age' group was weighed by a disproportionately large number of younger more fertile women; the crude birth-rate rose sharply, although there was probably little or no change in fertility. A second consequence was that the age-selective mortality during 1918 had anticipated many of the deaths which would subsequently have occurred as the persons concerned reached the ages associated with high risk of mortality. While the rates of mortality and fertility specific to age remained constant the margin between the crude rates widened to produce natural rates of population growth possibly unique to that time.

Public health and the Mau. The influenza epidemic was a sad beginning to the New Zealand Mandate administration. The local authorities in Pago Pago successfully quarantined American Samoa, and the Samoans sorrowfully noted the contrast; New Zealand's prestige suffered a blow the effects of which were slow to disperse.

Under such circumstances it is not surprising that the new administration paid great attention to public health in Western Samoa. After 1921 much effort was put into the reorganization of the Health Department. The name best known in Samoa for pioneer work in this line is that of Dr T. Russell Ritchie, Chief Medical Officer. His four years in Western Samoa are said to have laid the foundation for a public health and preventative medicine system which was in its time 'unexcelled in the tropics' (Lambert 1941, 216). The central hospital, first built by the Germans in 1902, was enlarged and its functions were widened. The training of Samoan nurses and medical practitioners was greatly extended. Outstations were established, first at Tuasivi on Savai'i, and at Aleipata which provided for the most remote areas. Additional hospitals were placed in strategically located villages as soon as they could be built and organized. The mission dispensaries which until this time had carried most of the health services available to the Samoans were subsidized and assisted. Yaws, intestinal parasites and skin diseases were treated systematically in every village. A fight against the environmental infectious diseases began, and sanitation, water supply and village hygiene became matters of concern to the Health Department. Regulations and inspections were instituted and the incidence of dysentery, gastro-enteritis, typhoid fever, phthisis and tuberculosis fell with gratifying speed. The principles of isolation and quarantine were propagated with marked limiting effect upon the spread of such diseases as measles, influenza, mumps and whooping cough. Infant mortality rates fell to the lowest at that time seen in the Pacific islands.

The system of registering births and deaths was overhauled and carefully maintained. In four successive years, 1924-7, the rate of population increase exceeded 3 per cent. Although such rates were partly due to the particular composition of the age structure at this time, they were a remarkable achievement considering the current effectiveness of tropical medicine (see table 7).
Successful as the health campaign obviously was, the Samoans still resented a tax imposed on them by the administration to help pay for it. This was one of several grievances and together they provoked the outbreak of the Mau movement which demonstrated how impermanent such improvement could be.

Table 7. INDICES OF MORTALITY 1923-7 (SAMOAN STATUS ONLY)

<table>
<thead>
<tr>
<th></th>
<th>1923*</th>
<th>1924</th>
<th>1925**</th>
<th>1926</th>
<th>1927***</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of reg. deaths</td>
<td>1,398</td>
<td>766</td>
<td>857</td>
<td>723</td>
<td>495</td>
</tr>
<tr>
<td>Crude death rate (per cent of total popul.)</td>
<td>4.15</td>
<td>2.25</td>
<td>2.38</td>
<td>1.94***</td>
<td>1.28</td>
</tr>
<tr>
<td>Deaths at over 10 years (proportion per cent of total deaths)</td>
<td>28.7</td>
<td>37.5</td>
<td>34.2</td>
<td>45.6</td>
<td>47.5</td>
</tr>
<tr>
<td>Deaths at 1-10 years (proportion per cent of total deaths)</td>
<td>19.9</td>
<td>11.1</td>
<td>10.3</td>
<td>12.7</td>
<td>8.1</td>
</tr>
<tr>
<td>Deaths at under 2 years (proportion per cent of total deaths)</td>
<td>51.4</td>
<td>51.4</td>
<td>55.6</td>
<td>41.6</td>
<td>44.4</td>
</tr>
<tr>
<td>Infant mortality (per cent of live births)</td>
<td>c.22.5</td>
<td>15.5</td>
<td>18.6</td>
<td>10.6***</td>
<td>10.1</td>
</tr>
<tr>
<td>Annual increase per cent</td>
<td>0.90</td>
<td>3.35</td>
<td>3.26</td>
<td>3.58</td>
<td>3.18</td>
</tr>
</tbody>
</table>

*This is the first year for which adequate mortality data are available. Unfortunately it was also an epidemic year, an outbreak of dysentery accounting for approximately 400-500 deaths. This raised the crude death-rate above those recorded previously; for 1922 the rate was 2.69 per cent, while the rates for the years 1906-17 ran at an average of 3.5 per cent.

**A minor epidemic of whooping cough occurred in this year.

***A report on 'Medical work in the Apia-Falefa district' by Regina Flood Keys, M.D., N.Z.P.P. A-4a, 1927, app.B, 15-21, give the results during this year of the special attention devoted to public health in one area of Samoa. Three years' special effort by Dr Keys succeeded in reducing the crude death-rate in the Apia-Falefa area to 9.1 per cent of registered live births.

****In this year the Mau movement became active and the statistics are likely to be affected by greater under-registration. Infant mortality was singled out in the 1927 report as being particularly affected. Because this is a ratio between two separate registrations, it need not be affected to the extent suggested in the report. It merely becomes more of a 'sample' than it was previously.


One of the first effects of the Mau was that registration of births and deaths fell away to useless levels. Later, probably by a process of 'backsliding' rather than of malicious disobedience, the health precautions advocated by the Health Department were also discarded. The good work done in the preceding five years was largely undone in the five years which followed. The rates of mortality certainly rose but lack of registration makes the estimate of the increase
impossible. One index does remain of some value in such cases — that of infant mortality — which, being a ratio between two separate registrations (assuming one is as likely to be registered as the other), will continue to give an indication of the trend even when based on figures which are themselves far from complete (fig. 15). The spectacular fall in infant mortality during the early years of the New Zealand administration persisted, by inertia, until about 1930, but then the level rose abruptly until 1933 when co-operation with the Health Department was partially restored. While the trend is unmistakable the levels of infant mortality would have been much higher than the graph suggests, particularly in districts in which the Mau was strong. The result was that children born between 1931 and 1935 were subject to a risk of infant mortality substantially higher than was the 1926-30 cohort, and this is reflected in reduced numbers of survivors to 1956. From a mean rate of 79 deaths per thousand between 1926-30, the infant mortality rate rose to 140 per thousand in 1931-6. This rate was raised by a series of epidemics, measles and whooping cough in 1936, but there is little doubt that the effect of these was aggravated by the persistent suspicion with which the Health Department was regarded in the areas where the Mau had been strong.

A further reduction in the number of survivors born during the Mau period could have been due to lowered birth rates. Males were absent from their villages for months at a time. After the intervention of a New Zealand military police force, there was a dispersal into the bush of between 1,200 and 1,500 males, including both matai and taule'le'a (N.Z.P.P. A-4, 1930, 4). Several hundred males were arrested and confined for offences connected with the Mau. Life in the prison compound was apparently not rigorous and supervision does not appear to have been all-seeing; the increased population observed at meal times (Keesing 1934, 254) suggests the possibility of a two-way traffic of those whose interests were not confined to food. 'Bands of dissolute women' are also reported at Mau gatherings (N.Z.P.P. A-4, 1930, 5). These exceptions notwithstanding, the Mau seems to have been a predominantly male affair and many families must have been temporarily disrupted by it.

The effect of the Mau on the general health of village-dwelling Samoans is said to have been quite serious (Lambert 1941, 226). The sanitary arrangements advocated by the health authorities (together with some which had been a part of ancient custom) were wilfully ignored. Yaws, intestinal parasitism, typhoid fever, skin diseases, and mortality during pregnancy, childbirth and early life all increased.

The latrines [a major addition to the assemblage of buildings in Samoan villages in the early years of the New Zealand administration] rotted or were torn down by the indignant. Water supplies festered... Fields and villages stank with a foulness which defied the administration while it killed the Samoans. (Lambert 1941, 226.)

Recovery. The noticeable increase in numbers born after 1936 surviving to 1956 suggests that medical conditions improved after the relations between the Mau and the New Zealand administration were repaired, but the attitude of the central government remained somewhat tentative in its dealings with the village Samoans for many years afterwards.
The revival was assisted by the increased number of children born at this time, a ripple effect of the selective mortality occurring in the 1918 epidemic. By 1956 this effect was not well demonstrated in the age structure, where the parents of most of those born in the 1930s appear as a depleted group. In fact, these parents, most of whom would have been born in the decade prior to 1918, were much less depleted by the epidemic than persons who were then older. By 1956, however, they had not been subjected, as had the older survivors, to increased mortality consequent upon advancing age with its tendency to smooth out initial differences in survival patterns.

Since 1936 the numbers enumerated at each age have increased steadily in a relatively uninterrupted curve. The control of mortality at young ages has been progressively improved during this period, internal conditions for the Samoan component have been unusually settled, and fertility has waxed untrammeled.

The part-Samoan component

Although it is subject to similar conditions, the part-Samoan component differs in several ways from the Samoan and is subject to some additional influences. The numbers of Europeans present in the territory and the opportunities they have of mating with the local population have a marked effect on part-Samoan numbers. There is also some evidence that the part-Samoans, unlike the Samoans, are demographically sensitive to economic change.

The pattern of unit digit preference in the statements of age for part-Samoans is similar to that of the Samoans in general outline, particularly for males, but their preferences are less erratic (fig. 16). A major difference is a slight avoidance of the unit digit 0. Preferences are shown for all unit digits in the 5-9 unit age groups at the expense of those in the 0-4 group. Ages ending in 1 and 2 are especially avoided. While some allowance must be made for these preferences, particularly those of the females, there are, as with the Samoans, fluctuations which cannot be adequately explained in terms of unit digit preference or the heaping of ages at particular points.

The 1918 influenza epidemic affected the part-Samoans but not to the extent suffered by the full Samoans (fig. 17). No separate mortality figures are available for the part-Samoans, but from the evidence of their present age structure their mortality could scarcely have exceeded half that applying to the Samoans. Those aged 1-5 at the time of the epidemic seem to have been affected to a discernible extent, but at ages above these the numbers enumerated do not show a pattern of depletion sufficiently definite to give much indication of the pattern of selectivity which applied. Lower mortality appears to have applied to those born about 1906 (but perhaps their numbers were initially higher) and between 1910 and 1914. After a fall in the number of births following 1918 there is a recovery in the numbers born between 1925 and 1931, due probably to the entry into the reproductive group of young females spared during the epidemic. Part-Samoans have benefited particularly from the improvement in health services provided by the administration, and the increase in the number of their births would have been largely preserved.
The effect of the Mau on the part-Samoan population is difficult to assess. Several prominent part-Samoans took part in leading the Mau and part-Samoans who were integrated into village life would have been affected in the same way as the Samoans. A large proportion, however, lived in Apia or in areas with good access thereto, and these persons would have had access to the medical services as before. In general the period of disorganization occasioned by the Mau is not likely to have affected the part-Samoan component to any marked extent.

The pattern of age statement. The numbers recorded as having been born between 1933 and 1936 are noticeably smaller than might be expected. The explanation could lie in a ripple effect derived from the influenza epidemic, but this explanation is here not as convincing as it was for the Samoans. The depletion in numbers born in the years most likely to account for this, 1909-13, is not obvious. A possible explanation is that the years were times of great economic hardship in Western Samoa and this bore more heavily on the part-Samoans, dependent as they are on commerce and paid employment, than on the Samoans. Whether the part-Samoans consciously limited their families at this time or whether their rates of infant mortality rose under the stress of poverty is not known.

After about 1937 a rapid recovery in the numbers of part-Samoans born occurs. Contributing to this are the offspring born to persons who as children successfully survived the influenza epidemic. The increased rate continued until 1940 and was just beginning to show the first signs of slackening, as the lowered numbers surviving from the aftermath of the epidemic began their reproductive life, when the first of the American marines arrived. In the years 1943-5 the number of part-Samoans born climbs spectacularly. The part-Samoans are liable to sudden augmentation from such causes, but the numbers (and the willingness) of these potential European fathers far exceeded any previously experienced in the territory. The demographic result of this particular influx is the only one of its type now discernible.

The effect of emigration on the Western Samoan population

The Western Samoan population as a whole is significantly depleted by outward migration. This applies to both the Samoan and the part-Samoan components, and some age groups are particularly affected. The movement continues to gain momentum. New Zealand is the principal magnet, but there is also a movement through Pago Pago to Hawai'i and mainland United States. Other persons of Samoan origin are known to live in several Pacific islands, including Fiji, Tokelau, Tonga and Papua-New Guinea; there are also a few in Australia.

Samoans in New Zealand. The census of population taken in New Zealand in 1956 differentiated Samoans and part-Samoans by race and gave a table showing their composition by age. The age groups used are irregular and the ages of those under 16 are not differentiated. Figure 18 shows the probable age distribution of Samoans and part-Samoans both male and female. The Samoan component has been contributing emigrants to New Zealand in significant numbers only since World War II. In 1945 there were only 60 full Samoans in New Zealand (N.Z.P.C., 1945, VIII, 1). Of the 1,436 Samoans enumerated in the 1956 census, 67 per cent had been in New
Zealand less than five years. The ease of getting work in New Zealand and the increasing possibilities of acquiring the fare-money in Samoa in the recent years of high export prices are principally responsible for this recent outflow of Samoan migrants. As in most migrant populations, males outnumber females by a substantial margin. The masculinity ratio for full Samoans is 155:100; the proportion of males is higher than this in the young adult age groups, a ratio of 204:100 for those aged 21-29 years. For other ages the differences are slight. The 21-29 age group contains 43 per cent of the total full Samoans in New Zealand. There are no data on the pattern of Samoan fertility in New Zealand, but allowance has been made in figure 15 for the children likely to be born in the resident Samoan families. The only direct evidence of the possible number of these is that only 11 per cent of full Samoans were New Zealand born. There are very few persons over 50 years in the Samoan group in New Zealand.

The part-Samoan component shows a different age composition. Emigration by mixed-blood persons is a much older movement than that of the full Samoans, and a higher proportion of part-Samoans were born in New Zealand (44 per cent) and only 22 per cent had been in New Zealand less than five years. Consequently the composition of this component is more 'normal' and there is a much higher proportion of young persons, many of whom have been born in New Zealand. Two age groups have been inflated by additional migration - the children of post-primary school age who are sent by their families in Western Samoa for advanced education in New Zealand, and young adults principally drawn from the 20-29 age range who leave Samoa for similar reasons as full Samoans of the same age. Both these additional movements apply more to males than to females. The masculinity ratio is 110:100 for the part-Samoans in New Zealand, which is little, if at all, different from that for all part-Samoans (107:100). The ratio for the 21-29 age group is 119:100, which is significantly higher than for the total component. A factor which complicates the study of the part-Samoans in New Zealand is that in addition to natural increase and to additional migration from Samoa, they are also augmented from within New Zealand by the offspring of full Samoans and of part-Samoans with New Zealand Europeans.

The pattern of migration is probably better represented by those persons enumerated in New Zealand as having been born in Western Samoa, as their distribution by age is not complicated by those born subsequently in New Zealand (fig.19).

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5 In the New Zealand census Report the term 'Samoan-European' is used rather than 'part-Samoan'. It is possible that additional persons of 'part-Samoan' but non-European ancestry are also present in New Zealand. Such persons may be Samoan-Chinese and Samoan-Other Pacific Islander, but their number must be small.

6 The groupings used in the New Zealand census Report to describe the age composition of the non-European racial components are not exactly comparable with those regular 5 year age groupings used in the Western Samoa census. The groups used are 0-15, 16-20, 21-24, 25-29 and 5 year age groups thereafter (N.Z.P.C. 1956, VIII, 34).
The composition by age of this population shows a much greater aggregation about the 20-29 age group than does the total Samoan and part-Samoan population in New Zealand. The masculinity ratio for the 20-29 age range, which contains 42 per cent of the total number within the migrant group is 153:100 and for the Samoan born as a whole it is 122:100.

Effect on the Western Samoan structure. Emigration from Western Samoa has affected the structure of the source population, and the two Samoan populations in New Zealand and in Samoa are complementary. The departure of migrants aged 20-29 and their male predominance explains to some extent the tendency in this group to contain fewer persons than would otherwise be expected and for females to outnumber males.

Conclusions

The age and sex structure of the Western Samoan population is virtually that of the combined Samoan and part-Samoan components. The differences between these two are of detail only. The other components are small in size and, although in age and sex composition they differ from the other two components, they do not affect the structure of the total population to a significant degree.

The composition of the total population by age and sex is now influenced to the greatest extent by the formidable fertility characteristic of the Samoan and the part-Samoan female. The population is now well controlled with regard to death. It is exposed only rarely and slightly to mortality exceeding that normally consequent upon the risk which increases with advancing age. Famine, war and economic fluctuation have affected the Samoan component scarcely at all, so that their effect upon the total population has been very small. Disease, since the 1918 epidemic, has also played a minor part in limiting its growth. The ripple effects of the 1918 epidemic are still plainly seen in the middle ranges of the age series, but are gradually lessening, a consequence both of time and the exceptional span covered by the active reproductive lives of most Western Samoan women. Recently the principal feature of the total population - its exceptionally large proportion of young people - has been permitted by a newly-won freedom from epidemic disease.

Fertility and Population Replacement

The changing balance between fertility and mortality in Western Samoa makes the analysis of fertility data a particularly important part of any study of its population. It is doubly unfortunate that such studies must be hampered by faulty recording of vital statistics and restricted by a dearth of reliable data available for the years preceding 1956.

The measurement of fertility

Neither the age of the mother nor the rank of the birth are yet recorded when birth registrations are made in Western Samoa. Consequently age-specific fertility rates cannot be derived from birth registrations. In the 1956 census all women over 14 years were asked the number of children born
to them, both dead and surviving. Using these figures in conjunction with the age distributions procured at the same time, some measure of fertility can be calculated. Of additional assistance is the availability of more complete data on the fertility of women in American Samoa. Age-specific fertility rates have been calculated for Western Samoa on the basis of the age- and parity-specific fertility rates for American Samoa (McArthur 1962). If these fertility rates are applied to the numbers of females at risk enumerated in 1956 for Western Samoa, the number of births expected in Western Samoa can be estimated. An allowance of 5 per cent for under-registration of births in American Samoa was added to this estimate. The numbers obtained in this way were applied to the numbers of females of each age group at risk to estimate the age-specific fertility rates. These may be compared with the numbers 'ever born' and 'surviving', derived from the 1956 census. Such rates estimate 4,277 births for 1956. This is the highest of four estimates of births made for this time; the three others have been derived in different ways (table 9). The first is based on the mean registered annual births for 1955-7, uncorrected for under-registration. This rate is obviously too low. The second estimate is based on the age- and parity-specific fertility rates for American Samoa, which it is reasonable to assume will have equivalent or very similar characteristics to those of Western Samoa. In the second case these are applied without adjustment to the numbers in each female age group at risk enumerated in 1956. Registration of births is known to be more complete in American Samoa than in Western Samoa and the number of births expected on this basis is a little higher than the number actually registered in Western Samoa. In the third case some allowance (5 per cent) is made for under-registration and the estimate is derived from age- and parity-specific rates for American Samoa (McArthur 1962).

Table 8. ESTIMATED AGE-SPECIFIC FERTILITY RATES PER THOUSAND WOMEN IN EACH 5 YEAR AGE GROUP IN WESTERN SAMOA AND THE AVERAGE NUMBERS OF CHILDREN BORN TO WOMEN AS ESTIMATED FROM THE FERTILITY RATES AS RECORDED IN THE 1956 CENSUS

<table>
<thead>
<tr>
<th>Age group</th>
<th>Age-specific fertility rates</th>
<th>Est. av. no. children per woman</th>
<th>Average number of children born per woman (1956 census)</th>
<th>Born</th>
<th>Surviving</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-19</td>
<td>47.4</td>
<td>0.12</td>
<td>0.14</td>
<td>0.12</td>
<td></td>
</tr>
<tr>
<td>20-24</td>
<td>315.6</td>
<td>1.03</td>
<td>1.33</td>
<td>1.18</td>
<td></td>
</tr>
<tr>
<td>25-29</td>
<td>385.7</td>
<td>2.78</td>
<td>2.96</td>
<td>2.56</td>
<td></td>
</tr>
<tr>
<td>30-34</td>
<td>242.3</td>
<td>4.35</td>
<td>4.60</td>
<td>3.88</td>
<td></td>
</tr>
<tr>
<td>35-39</td>
<td>207.6</td>
<td>5.47</td>
<td>6.06</td>
<td>5.01</td>
<td></td>
</tr>
<tr>
<td>40-44</td>
<td>65.5</td>
<td>6.16</td>
<td>6.76</td>
<td>5.37</td>
<td></td>
</tr>
<tr>
<td>45-49</td>
<td>19.8</td>
<td>6.37</td>
<td>7.24</td>
<td>5.56</td>
<td></td>
</tr>
<tr>
<td>45-59</td>
<td></td>
<td>6.42</td>
<td>7.27</td>
<td>5.41</td>
<td></td>
</tr>
<tr>
<td>60 and over</td>
<td></td>
<td>6.42</td>
<td>6.93</td>
<td>4.21</td>
<td></td>
</tr>
</tbody>
</table>


A fourth method, which relies on the data available directly from the census data, but which is a measurement of fertility only by implication, has also been used. The specific fertility as aged 0 years should correspond closely to the number of births registered in the preceding twelve months less at least half of the infant deaths. Unfortunately the discrepancy between the numbers expected on this basis and the number enumerated
was quite large (4,486 enumerated cf. 4,019 registered, less the number of infant deaths of those born in the preceding twelve months estimated at 82). The numbers enumerated in the 1956 census aged 0 years and 1 year appear to be of dubious accuracy (see fig. 14). Those aged 0 years appear to be several hundreds more than expected, while those aged 1 year are about 500 fewer. It is likely that there was some confusion on the part of both parents and enumerators over the ages of the youngest children. This characteristic has applied to several censuses in the Pacific islands, occurring both in 1951 and 1956 in Western Samoa where it was also apparent in the part-Samoan component; it also applied to Fiji for both Indians and Fijians and in American Samoa.

Under these circumstances it seems worthwhile attempting an estimate of the likely numbers aged 0 at the time of the census, and from this estimate deriving the expected number of births. It is assumed that the numbers enumerated at each age 0-9 years form a time series to which a regression line could be fitted. Provided the coefficient of correlation is highly significant (1 per cent), and the recent history of the population has been normal so that no unusual conditions apply, this line may be used to derive the estimated number of persons aged 0 years based on the experience of the preceding 9 years.

This method, although somewhat crude, has other advantages under the conditions which prevail in regard to Pacific island populations. It is independent of the registration of vital statistics and it avoids the use of data from foreign, if similar, populations. Comparisons with other populations are facilitated because, as the estimates are obtained in identical ways, the results are exactly comparable. This is a considerable virtue when dealing with populations for which registration is deficient in varying but unknown proportions. Estimates made in this way will usually be a little conservative as no allowance has been made for the slight curvature of the line which should be the result of the increasing number of survivors expected at each age.

The method has been applied to the population of Western Samoa, Upolu, Savai'i, Fiji Indian and American Samoa. The results together with the other estimates are shown in table 9.

It will be evident from this table that the fertility of Samoan women is extremely high by any standard. On the basis of the estimates of the fourth type, Western Samoan women are shown to have a slightly higher fertility than those of American Samoa. The Indian women of Fiji have a slightly higher fertility than Western Samoan women, although their level and that of the Savai'ian women is very similar.

The mother and her family

Samoan women begin bearing children at a comparatively early age, the median age for women at the birth of their first child being 21.15 years. Low though this is, it does not compare with that of the Fiji Indian women whose equivalent age was 16.63 years (McArthur 1958, 30). The median age for the women of Savai'i at the birth of their first child was slightly lower than for the total population at 21.07 years.
<table>
<thead>
<tr>
<th>Western Samoa</th>
<th>(a) Estimated no. aged 0 years</th>
<th>(b) Estimated infant deaths</th>
<th>(c) Estimated births (a+b)</th>
<th>(d) Women 15-44</th>
<th>(e) Fertility rate (per 1000)</th>
<th>(f) Standard error</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Based on mean reg. births 1955-7</td>
<td>3,740</td>
<td>82</td>
<td>3,822*</td>
<td>19,417</td>
<td>196.8</td>
<td>2.9</td>
</tr>
<tr>
<td>2. 1st estimate - based on American Samoa fertility rates</td>
<td>3,947</td>
<td>82</td>
<td>4,029</td>
<td>19,417</td>
<td>207.5</td>
<td>2.9</td>
</tr>
<tr>
<td>3. 2nd estimate - based on adjusted fertility rates for American Samoa</td>
<td>4,195</td>
<td>82</td>
<td>4,277</td>
<td>19,417</td>
<td>220.3</td>
<td>2.9</td>
</tr>
<tr>
<td>4. 3rd estimate - based on regression method</td>
<td>4,041</td>
<td>82</td>
<td>4,123</td>
<td>19,417</td>
<td>212.3</td>
<td>2.9</td>
</tr>
<tr>
<td>Upolu</td>
<td>2,980</td>
<td>55</td>
<td>2,945</td>
<td>14,283</td>
<td>206.2</td>
<td>3.4</td>
</tr>
<tr>
<td>Savai’i</td>
<td>1,151</td>
<td>27</td>
<td>1,178</td>
<td>5,134</td>
<td>229.5**</td>
<td>5.9</td>
</tr>
<tr>
<td>Fiji Indian only with (no.4 above)</td>
<td>6,979</td>
<td>307*</td>
<td>7,286</td>
<td>32,517</td>
<td>224.1**</td>
<td>2.3</td>
</tr>
<tr>
<td>American Samoa</td>
<td>739</td>
<td>27</td>
<td>811</td>
<td>4,108</td>
<td>197.4***</td>
<td>6.2</td>
</tr>
</tbody>
</table>

*Known rather than estimated.
**Difference from rate for Western Samoa (4) statistically significant (at 1 per cent probability level).
***Difference from rate for Western Samoa (4) statistically significant (at 5 per cent probability level).
Although the Western Samoan women have a shorter childbearing span, the average number of children born to women of recently completed fertility is higher than for the Fiji Indians. Excluding those women who bore no children, Samoan women in Western Samoa had an average of 7.79 children by the end of their reproductive period, which is a rate of approximately one child every three years throughout their span.

Table 10. AVERAGE NUMBER OF CHILDREN BORN TO WOMEN OF RECENTLY COMPLETED FERTILITY (45-49 YEARS) IN SELECTED POPULATIONS

<table>
<thead>
<tr>
<th>Population</th>
<th>Total</th>
<th>Samoans</th>
<th>Part-Samoans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Samoa</td>
<td>7.24</td>
<td>7.35</td>
<td>6.43</td>
</tr>
<tr>
<td>Upolu</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Samoans</td>
<td>7.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part-Samoans</td>
<td>6.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Savai'i</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Samoans</td>
<td>7.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part-Samoans</td>
<td>6.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiji</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indians</td>
<td>6.94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fijians</td>
<td>5.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Samoa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>7.08</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sources: Jupp 1958, 91 (table 15)  
McArthur 1962  
MrArthur 1958, 27

About one-third of all Western Samoan women bore 10 or more children. The number of women of 45–49 years who had never born children was only 69 per thousand which is extremely low by the standards of European countries. It was suggested in the census Report that 'almost every woman in Western Samoa at ages 45 to 59 years who [was or had ever been] capable of bearing a child had done so' (Jupp 1958, 38).

Mortality will deplete the size of the 'completed' families shown in table 10 to some extent, but the chances of surviving for each child born have been reasonably high for some time. For instance, Western Samoan women aged 45–59, who bore an average of 7.24 children, had an average of 5.56 of these surviving at the time of the 1956 census.

The average number of children born per female 45–49 years is highest for the Samoan component on Savai'i. Their figure exceeds that for both American Samoa and the two Fiji components. The figure for Western Samoa is higher than that for American Samoa, but this is due mainly to the higher proportion of women there who declared themselves childless. The performance of those who did bear children is almost identical to that of the women of Western Samoa.

The trend of fertility

It is difficult to draw conclusions upon the changes which may have occurred recently in the level of fertility in Western Samoa. The mean number of registered births for
the years 1950-2 and for 1955-7 give fertility rates of 189 per thousand (women 15-44) for 1951, compared with 196 per thousand in 1956. As each of these rates has a standard error of 3, it is not shown that there was an increase between the two dates. Both rates are subject not only to changes in the age composition of the reproductive age range, but also to variation in the completeness of birth registration. Some evidence that the fertility of Western Samoan women, if not static, is still rising is possibly contained in the child-women ratios calculated for 1951 and 1956. This ratio, the number of children enumerated at 0-4 to the number of women of reproductive age, 15-44 years, is shown for several populations in the following table. It is a useful index, but being influenced to some extent by differential mortality at ages 0-4 and the age composition of the adult female group, it is an index of replacement potential rather than of fertility as such.

Table 11. CHILD-WOMEN RATIOS

<table>
<thead>
<tr>
<th>Population</th>
<th>Ratio per thousand</th>
<th>Standard error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Samoa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1956</td>
<td>968.7</td>
<td>4.6</td>
</tr>
<tr>
<td>1951</td>
<td>852.2*</td>
<td>5.2</td>
</tr>
<tr>
<td>Upolu</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1956</td>
<td>939.9*</td>
<td>5.9</td>
</tr>
<tr>
<td>1951</td>
<td>837.2*</td>
<td>6.0</td>
</tr>
<tr>
<td>Savai'i</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1956</td>
<td>1,048.7*</td>
<td>9.9</td>
</tr>
<tr>
<td>1951</td>
<td>892.4*</td>
<td>10.2</td>
</tr>
<tr>
<td>American Samoa</td>
<td>909.0*</td>
<td>10.9</td>
</tr>
<tr>
<td>Fiji Indian</td>
<td>1,024.0*</td>
<td>3.9</td>
</tr>
<tr>
<td>Fijian</td>
<td>770.6*</td>
<td>3.8</td>
</tr>
<tr>
<td>Tokelau islands</td>
<td>919.6</td>
<td>41.7</td>
</tr>
<tr>
<td>Tonga</td>
<td>843.3*</td>
<td>6.4</td>
</tr>
<tr>
<td>Cook Islands</td>
<td>939.7*</td>
<td>12.5</td>
</tr>
<tr>
<td>New Zealand Maori</td>
<td>927.0*</td>
<td>4.2</td>
</tr>
<tr>
<td>New Zealand total</td>
<td>590.3*</td>
<td>1.0</td>
</tr>
</tbody>
</table>

*Difference from ratio for Western Samoa 1956, statistically significant at 5 per cent probability level.

Other populations with high rates of natural population growth 1955-7

<table>
<thead>
<tr>
<th>Population</th>
<th>1957</th>
<th>1956</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singapore</td>
<td>930</td>
<td></td>
</tr>
<tr>
<td>Taiwan</td>
<td>926</td>
<td></td>
</tr>
<tr>
<td>Philippines</td>
<td>882</td>
<td></td>
</tr>
<tr>
<td>Mauritius</td>
<td>845</td>
<td></td>
</tr>
<tr>
<td>Costa Rica</td>
<td>816</td>
<td></td>
</tr>
<tr>
<td>Trinidad</td>
<td>805</td>
<td></td>
</tr>
<tr>
<td>Geylon</td>
<td>761</td>
<td></td>
</tr>
</tbody>
</table>

The ratio for Western Samoa, compared with that for other Pacific territories listed, is extremely high. It is not exceeded by any total population known in the South Pacific, but the ratio for the Indians in Fiji was significantly higher. Other ratios drawn from populations in other tropical countries in which growth is known to be rapid and for which data is available for the period 1955-7 are also shown. No ratio was found to exceed that of Western Samoa, but it is possible that areas for which data was not available
might have shown a higher index (U.N.S.O. 1960, table 5, 152-261).

The increase in the ratio for Western Samoa between 1951 and 1956 is statistically significant. Decreasing infant mortality and a change in the age composition of the adult female group could have been wholly responsible for such an increase. However, the possibility of increased fertility, a consequence of settled conditions and better health should not be ruled out. The increase, 14 per cent, indicates the continuation of very high rates of population replacement.

Health and Mortality

The lowered death-rate

The potential demographic effect of the fertility levels in Western Samoa has only in recent decades been realized. After a century in which the measures introduced by Europeans against the diseases which afflicted the Samoans were applied at a steadily increasing but still slow rate, the effectiveness of the mortality control has in the last two decades been raised to exceptionally high levels for a tropical area.

The most notable achievement has been the prevention of raging epidemics of influenza, dysentery, measles and other infectious diseases which were responsible for the extremely high death rate of 187 per thousand in 1918 and for rates of 48, 54, and 42 per thousand in the lesser epidemic years of 1907, 1911, and 1923. The measures which have been taken to improve general conditions of health include periodic inspections of village sanitation, notification of communicable diseases, food and drug inspection, purification of water supplies, examination and quarantine of incoming vessels, instruction in hygiene for school children, organizing of women's health committees in the village and the extensive treatment of endemic diseases especially filariasis, hookworm and yaws. (U.N.P.D. 1948, 22.)

Epidemic diseases and those due to deficiencies of sanitation or to the neglect of simple health precautions are still important; but supervision by the Health Department is sufficiently effective to prevent insanitary practices from becoming general or epidemics from becoming rampant. Dysentery, infantile diarrhoea, gastro-enteritis, poliomyelitis, infectious hepatitis, typhoid fever, meningitis, influenza, measles, mumps, diphtheria, intestinal parasites (now mainly the round worm) are all present and vary in their incidence from year to year. Skin diseases and eye troubles are still very prevalent. Teeth have continued to give little trouble to the Samoans, but for urban dwellers and those who can afford a large proportion of store-bought food in their diet, this is ceasing to apply. Venereal disease is a minor problem and syphilis continues to be very rare due to the immunity conferred by the hitherto ubiquitous yaws.

Sanitation is reasonably good, and the 'little houses' built out over the lagoon remain characteristic of coastal
villages. Opinion on their effectiveness and aesthetic appeal continues to be divided, but it seems that modern technology should allow something better to be devised. Apia, with its dense population living in an area of low-lying land, presents greater sanitation problems but the health authorities are able to maintain close inspection and control.

Infancy is still a time of considerable mortality risk. Although the infant mortality rate has been brought down to a level seldom seen in tropical areas, there remains some scope for further improvement. The mean rate for the three years centred on 1956 was 46.0 per thousand for males and 42.1 per thousand for females, an overall rate of 44.3. This rate compares with 51.0 per thousand over the 1950-2 period. Quite as praiseworthy has been the reduction in mortality at ages 1-4 years. A crisis in many Samoan children's lives comes at the transition from breast-feeding to solid food. Lacking a source of substitute milk, the Samoans have always had trouble providing first foods for their children. Only patient demonstration and propaganda by the medical authorities through the district nurses and the village women's committees have been able to change the habit of many Samoan mothers of abruptly substituting a lump of taro (such as they might eat themselves) for the breast. Symptoms of malnutrition are still found occasionally in children, and the young are apt to get a poor share of the available protein foods.

Accurate and complete records of causes of death are not kept in Western Samoa, but a major departure from those prevalent in other Pacific island groups under New Zealand's control which have similarly organized Health Departments is not likely. Heart diseases, broncho-pneumonia, gastro-enteritis, tuberculosis, cancer, cerebrovascular accident, senility, and causes associated with pregnancy, child-birth and early childhood will be the most frequent. Causes of death such as heart disease, cancer and cerebrovascular accident are likely to be increasing their proportion of total deaths, although their age-specific rates may not be changing.

Campaigns against specific diseases have been a feature of the Western Samoan health programme. Yaws and tuberculosis have received particular attention in recent years, and their incidence has been very greatly reduced. Inoculation and vaccination for certain diseases have been given on a wide scale at various times; these include tuberculosis, smallpox, typhoid, tetanus, whooping-cough, diphtheria and poliomyelitis. Accident, criminal assault and uncompleted criminal abortion cause a noticeable proportion of total deaths each year. The only endemic disease which has so far eluded complete means of control is filariasis. The ultimate outward signs, grossly distended parts of the body (particularly the extremities) remain common among the men of middle age and beyond. The recurrent fevers preceding this stage are still experienced by very many Samoans, although the disease can now be controlled at this stage. Filariasis is particularly feared by the Samoans as being unsightly and inconvenient rather than fatal. Leprosy is present in Samoa but the number of cases is small and care and control seem to be adequate.

For a very modest expenditure (£2.7.3 per head in 1956) the Health Department in Western Samoa has been able to
reduce the mean crude death-rate (based on registered deaths) from 50 per thousand between 1906-11 to 21 in 1936-45, and further to 6.7 in 1955-7. Although crude death-rates are greatly affected by changes in the age structure, a reduction of such magnitude is obviously related to a genuine reduction in mortality rates specific to all but the upper age groups. Modest as the expenditure on health is, the burden of supporting the Health Department is a considerable drain on the finances of the government of Western Samoa which is also pressed by the needs of education, public works and the promotion of economic development. These are generally at a lower level than in countries at a comparable stage of development, while the provisions made for public health usually compare very favourably.

Age-specific mortality rates. Vital statistics obtained in all South Pacific territories are subject to faulty recording, but the degree varies from place to place. Of the Polynesian populations American Samoa and the New Zealand Maori are likely to have the most complete registration. On figures 21 and 22 the age-specific mortality rates for Western Samoa are plotted together with these two for comparison. The rates for the non-Maori population of New Zealand are also plotted to provide a basis for comparison with the rates of a very highly controlled population. The rates applying to Western Samoa and American Samoa are very similar. Differences occur noticeably only at the extremes, for infants and aged persons where registration in Western Samoa is likely to be most deficient. In both cases the rates for American Samoa are slightly higher. The rates for Western Samoan women fluctuate at ages over 55 years in a most unlikely way, while those for American Samoa increase to form a smooth curve at a slightly higher level and would seem to be the more reliable. Except for infant mortality which, because of the particular attention paid to the problem in Western Samoa, could be lower there, it is unlikely that the two rates differ in fact sufficiently to invalidate the use of the more reliable American Samoan rates for both Samoas. The rates for the New Zealand Maori are clearly higher than for the Samoan territories, particularly for infants and those over 40 years. The Western Samoan administration appears to have been more successful in reducing mortality among the Samoans than has the New Zealand government with the Maori component; for the Western Samoan government this must be a very gratifying result of their efforts in this sphere. The rates for non-Maori New Zealanders, however, indicate that there is yet scope for improvement in the Western Samoan rates.

There is a slight difference between Upolu and Savai'i in age-specific mortality rates. These are plotted on figure 22. The higher rates on Savai'i, although the disparity never reaches the level of statistical significance, is consistent with the poorer health facilities available on this island than on Upolu, particularly in Apia.

Expectation of life

Mortality was reduced between 1951 and 1956 on the evidence of the age-specific mortality rates estimated for 1951 (McArthur 1956, W.S.6, 193). These were used to estimate the mean expectation of life at birth for the populations of Western Samoa, Upolu and Savai'i.

Even allowing for the possible inaccuracies in the data upon which the Western Samoan figures were based, these
Table 12. EXPECTATION OF LIFE AT BIRTH

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th></th>
<th>F</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Samoa</td>
<td>1956</td>
<td>62.3</td>
<td></td>
<td>65.5</td>
</tr>
<tr>
<td></td>
<td>1951 (est.)*</td>
<td>59.2</td>
<td></td>
<td>62.3</td>
</tr>
<tr>
<td>New Zealand Maori</td>
<td>(1955-7)**</td>
<td>57.2</td>
<td></td>
<td>58.7</td>
</tr>
</tbody>
</table>

Some populations with which the levels of expectation of life in Western Samoa may be compared: ***

- Non-white population of the United States: 61.1
- Japan: 63.2
- Portugal: 58.8


estimates of expectation of life, as convenient indices of mortality, indicate a position which is very satisfactory. The prospects of most Samoan completing the biblical life-span are becoming genuinely good. While the figures do not compare with those characteristic of the advanced Western nations, they exceed those of most other peoples in other under-developed countries in the humid tropics, and in some cases those of countries at a much more advanced level of economic development.

These mortality characteristics combine in Western Samoa with exceptional levels of fertility to produce a very high rate of population increment.

Population Growth: Past and Future

That population increase in Western Samoa is extremely rapid is known to the lowliest matai in the most remote villages in the group: but unfortunately no one knows the rate exactly. The registration of vital statistics from which crude birth and death rates could be calculated, and the annual increase per cent derived from the difference between the two, is deficient and virtually useless for this purpose. For various reasons, too, the series of census totals obtained for the territory so far does not adequately describe the course of population growth. In this section this problem will be examined and an indication sought of the trend of population growth in the immediate past and its likely course within the foreseeable future.

Estimating the rate of population growth

In 1956 the crude birth-rate, based on 4,019 registered births (during the 12 months preceding the census), was 41.3 per thousand. For those born in the five years preceding the census, registration was between 85 and 88 per cent complete; but for 1956, probably due to the publicity given to the census in that year, this average was exceeded and registration was between 94 and 97 per cent complete. The
true crude birth-rate is estimated to lie in the range 42.4 to 43.9 per thousand (based on estimates 3 and 4 in table 9).

The crude death-rates are a greater problem as the degree of under-registration is only vaguely known. The official rate for Western Samoa based on registered deaths was 6.9 (s.e. 0.3) in 1956. An alternative estimate derived from the application of the age-specific mortality rates for American Samoa to the Western Samoan population gives a crude death-rate of 8.3 per thousand. If the Western Samoan rates for infant mortality are substituted for those of American Samoa, this rate is reduced to 7.6 per thousand. It seems unlikely, given the present efficiency of the village health services, that in fact the registration of infant deaths occurs in only 70 per cent of the cases; but there is undoubtedly some under-registration and the true crude death-rate probably lies somewhere between the two at approximately 8.0 per thousand.

Implied by these crude rates is an annual average increase close to 3.5 per cent for the population of Western Samoa during 1956; a rate very similar to this is likely to have applied over five years immediately preceding. Recorded in the 1951-5 intercensal period, however, was a mean annual rate of only 2.8 per cent. In this case the reason for such a discrepancy probably lies with faulty census enumeration rather than with an error in the estimates of the natural increase rate. The circumstances under which the 1951 census was conducted do not inspire confidence. The subsequent addition of 1,513 Samoans to the provisional total seems to be a rather large adjustment to be found necessary in the process of routine checking (N.Z.P.P. A-4, 1953, 161). When fiddling with the total population figure has been thought necessary in the past the direction of the adjustment has been downward as duplications were removed. There is a strong possibility, then, that the provisional total, 78,340 persons of Samoan status, is nearer the truth than the later amended figure, 80,153, published in the official Report. The number of persons of European status enumerated was not changed after the preliminary totals were published (although 57 persons who were enumerated as 'part-Samoans' were subsequently switched to the full European category). The provisional total for the whole population was 83,096 persons, and this gives a mean annual rate of increase of 3.3 per cent for 1945-51, and for 1951-6 implies an increase of 3.2 per cent per year. This is in closer accord with the official rates of natural increase recorded for the two periods (3.4 per cent for 1945-51 and 3.1 per cent for 1951-6) than were the official rates of intercensal increase, 3.7 per cent and 2.8 per cent respectively. There is evidence that the slight drop in the annual average rate of growth in the 1951-6 period could be actual. The ripple effect from the depleted numbers in the 1932-5 cohort (fig. 14) could have caused fewer children to be born in 1951-6.

The mean annual rate of increase between 1936 and 1945 should also have been high, while the rate between 1926 and 1936 should on the evidence of the present age structure have been lower. That they appear in the opposite order, 3.1 per cent between 1926 and 1936 and 2.3 per cent between 1936 and 1945 leads to the suspicion that the 1936 census, too, is suspect and could have been an overcount. The difficulty of conducting a census in the territory still smouldering from the Mau at this time could be the principal cause.
Population projections

For the first time the 1956 census provided sufficiently reliable data on the age and sex composition of the population to permit the calculation of a life-table. The only projection made previously was based on the mean annual rate between the two censuses, 1945 and 1951 (Stace 1956, 67). Using the life-table computed from the 1956 census data, a population projection has been attempted for males and females at each proposed census date to 1976. Beyond this year the females in the reproductive age group become dominated numerically by persons as yet unborn and the method consequently becomes unreliable. The results are incorporated in figure 23.

A life-table, and the population numbers projected from it are inevitably affected by the assumptions concerning the data used in its construction. For the projection adopted here the age-specific mortality rates for Western Samoa were adopted without adjustment and the official infant mortality rate was used to estimate the numbers surviving to age 1 year. These mortality rates are subject to under-registration and would be lower than the actual rate, were this precisely known.

An alternative life-table based on the same 1956 data, but using some different assumptions, has also been constructed (McArthur 1961b, 395-6, and Jupp 1961, 403-5). This projection incorporates the age-specific mortality rates for American Samoa; mortality is assumed to be very similar in both Samoan territories, but those calculated for American Samoa are subject to less under-registration. They are slightly higher than those applying to Western Samoa. As the trend of mortality has been steadily downward and it is assumed that this will continue during the projection period, the adoption of the American Samoa rates for the Western Samoan table results in a more conservative estimate of natural increase than the future is in fact likely to show. The estimates of future numbers within some groups within the age and sex structure may be more reliable in the projection based on American Samoan mortality characteristics. The mean annual rates suggested by this alternative projection for the five year periods between 1961 and 1976 are 3.2, 3.3, 3.4 and 3.6 per cent.

For the projection adopted here it was necessary, in the absence of age- and parity-specific rates for Western Samoa, to use those for American Samoa in the construction of the life-table. As these rates appear to be lower than those for Western Samoa would have been the numbers estimated for the younger age groups in the projection should be regarded as conservative.

The projection makes no formal allowance for emigration. Past migration has affected the numbers enumerated in each age group from which the projection was constructed, but so far to only a minor degree. The projected populations, then, are those possible without depletion by outward migration or, less likely, net inward migration.

The population growth possible as indicated by the projected rates of natural increase match and eventually surpass any made so far. An average annual rate of growth of a little less than 3.5 per cent is indicated for the
period 1956-61, increasing slightly in each five year period thereafter to 3.6 per cent in 1971-6.\footnote{The preliminary results of the 1961 census, unpublished at the time of writing, show a population of 114,427 persons, a mean annual increase of 3.3 per cent during the intercensal period. This is a lower figure (by approximately 900 persons) than the projected population. However, if the estimated 4,000 persons who were lost to the territory by emigration during this period are included, the mean rate of natural increase is a startling 4.0 per cent annually. The projection is thus conservative in its estimate of total numbers. The number of persons who migrated is higher than was anticipated on the basis of 1951-6 experience. If this higher rate of emigration continues the rates of actual increase applying to the population of Western Samoa will be significantly reduced. It should be remembered, however, that the years 1956-61 were exceptional; apprehension about impending political changes certainly accelerated the emigration of some European-Samoans, while economic prosperity within Samoa made the accumulation of the necessary fare-money more than usually easy. In both 1958 and 1960 the loss by emigration from Western Samoa approached 1,000 persons.}
PART TWO

Chapter 7

AREAL VARIATION: SYSTEMATIC

In the previous section the more important processes responsible for the present spread and structure of the population of Western Samoa were examined. Such processes were seen to have worked at intensities which differed greatly both in time and in space. Variation of this type has caused the population, although small in total, to become sectioned by discontinuities. The groups so produced may be used to study the whole through the medium of its component parts. Most commonly in population studies ethnic and cultural variation have been utilized for this purpose, and where further subdivision has been necessary this has usually been based on national or at least political areas. Analyses along such lines tend to be assisted by the national censuses which usually utilize a similar organization in presenting their information.

An alternative method (but one frequently hampered by lack of detailed regional population data) is the use of groupings derived from local variation contained in a population or in its components. The patterns thus analyzed will be the product largely of environmental diversity within the total inhabited area; they may therefore be expected to indicate much about the character, wants and adaptive powers of the people concerned. Such an approach may be superior, for some purposes, to one concerned with the contrasts to be observed between intrinsically dissimilar component groups, or at best of peoples living in arbitrarily defined political divisions.

In this section (chapters 7 and 8) it is proposed to seek out the major areal discontinuities in the population, to examine the processes by which they have been developed, and to define their areal occurrence. The regional populations so contained will then be analyzed and described. Preliminary to a regional division and description, some of the characteristics of the Western Samoan population which show significant areal variation must be examined systematically.

The Distribution and Grouping of the Population

The distribution of village-dwellers

The traditional distribution pattern of the Samoan population was one of small nucleated groupings concentrated along the coastline. This pattern was varied only by small clusters at particularly well favoured inland locations. Provision was made, in the maintenance of olo or defended places (usually inland), for temporary or occasional refuge.
Except that the Samoans no longer have need of refuges and have abandoned these places, the pattern still applies; 75 per cent of the Western Samoan population has remained living in traditionally organized rural villages. As a unit the village is difficult to define in geographical terms. A division of the population into village groups must be rather arbitrary. The definition adopted here is of an areally discrete, nucleated rural settlement organized on customary lines. There are 227 settlements which conform to this description. The village as known to the Samoans is somewhat different; there are only 153 villages with a recognized fa'alupega (LMS Mission 1946). However, many of the pitonumu (sub-villages or jurisdictions) within the larger politically defined groups are areally separate and have their own economic organization, so that they are geographically, if not politically, separate villages.

Although there has been some increase in the number of Samoan villages, this trend is not as important as that of their increasing size. In 1956 they varied in population between fewer than 50 persons to over 1,700, about a mean of 356 persons. Within the preceding 30 years the mean size of Samoan villages increased over 85 per cent from approximately 190 persons. The modal type remains in the 101-200 range (fig. 24). There are nine Samoan villages with populations exceeding 1,000 persons; the four largest of these are on Upolu, where two have populations of more than 1,500. In general Savai'i villages tend to be smaller than those on Upolu, although three exceed 1,000 persons. The median size for Savai'i villages was 334 persons in 1956 compared with 368 on Upolu.

The groups of Samoan villages occur typically as elongate clusters along the coastline (figures 25, 26 and 27). The causes of the separation of such groups are usually physical - steeply sloping mountainous areas unsuitable for settlement or agriculture, as at Fagaloa, or expanses of surface rock from the more recent lava flows as between Safata and Falealili on Upolu. This latter type is particularly characteristic of Savai'i, where villages have been divided into three main groups by such flows. In the past political divisions had some influence on settlement, the creation of 'marchlands' occurring between the major districts. Since the islands have come under European administration, inter-district wars have been prevented and the previously deserted or tentatively occupied areas have become permanently re-inhabited. Commercial estates now divide some groups of rural villages - as at Mulifanua.

Within these clusters, which usually contain a group of politically allied villages, the settlements remain areally separate from each other. With the growth of population villages originally closely spaced have been limited in their spread and in some areas, as on the northwest coast of Upolu, it is now difficult to tell where one village ends and the other begins. There is always a commonly recognized boundary even between closely adjacent villages and this is usually marked by an area, however narrow, left in coconut palms or scrubby vegetation. Traditionally the Samoans have preferred to retain an area of uninhabited coastline separating them from their neighbours. The coast was a valuable area, with its coconut groves and its lagoon for fishing, so that a village crowded by others was at a disadvantage. The areas in which this pattern remains best preserved are those in which Samoan customary practices and
traditions are still most completely retained. Over all of western Savai'i and on the south and northeast Upolu coasts this separate nuclear pattern remains the rule. Elsewhere, on the northwest coast of Upolu, Aleipata, and in the eastern districts of Savai'i, congestion has caused settlement to become almost continuous in appearance, extending in a few cases along several miles of coast.

At the other extreme are the lone villages which suffer from their distance from other settlements and usually also from their inaccessibility. There are 10 such villages, including Taga, Uafato, A'opo and the village on Apolima island. As a group they tend to be smaller than average, with a mean population of 209 persons in 1956. Inland villages persisting from pre-contact times — the other variation — are now reduced to 13. Several are included also in the group of lone villages, suffering from inaccessibility and remoteness, but others have a close relationship with adjacent villages on the coast. They also tend to be smaller than average, with a mean of only 193 persons in 1956. No village is more than three miles in a direct line from the sea, although A'opo, the extreme case, is seven miles inland along the main access route. On Upolu, the Falevao plain and the gentle slopes inland of both Apia and Falealili provide particularly suitable sites for inland villages, and in all three some villages remain from once larger groups. On Savai'i the distribution of inland villages was more dispersed, possibly because slopes were often gentler or smoother, and the coastal lands with their limited areas of lagoon were relatively less attractive.

The form of the Samoan village

Three different types of Samoan village are shown in figures 28, 29 and 30. The most common type is exemplified by Asaga village on Savai'i. Here settlement (and therefore the population) is distributed along the shoreline, on a sandy raised beach in the vicinity of a source of fresh water. Each aiga owns several houses, usually in one group, but occasionally divided. Ideally the assemblage will consist of a round guest or meeting house (fale tele), a large elegantly built elongate house (fale aloalau) occupied by the matai and his immediate family, and a few other dwelling houses (fale o'fo) for lesser groups within the aiga. In addition there will be a cooking house or often two — one for preparing food (umukuka) and one for the ground oven (umu). Usually, too, there is a latrine and a chicken house. Probably the variations on this theme now outnumber the ideal. Some types, notably the fale tele, are becoming less frequent, while the multiplication of cooking houses is actually a fairly recent innovation, induced by the lapsing of the custom of group cooking and the coming of the kerosene pressure stove.

The matai with the oldest or most important titles tend to occupy the best or most central sites within the village, while newcomers or those with recently created titles occupy peripheral sites. At least one church, occupying an important site, often on the malae, is found in all villages. Sometimes, of recent years, this has been joined by a school. On the edges of the village will be the less prestigious innovations — trading stores, copra sheds, other commercial or government buildings such as hospitals or dispensaries, and pastor's houses, if these are not adjacent to the church. Minority churches may also be relegated to peripheral sites.
Plate 4. The village of Taga, Savai'i.
In most cases the coming of the road, where it has been made to pass along the coast through the existing village, does not change the plan very much, although it may fix the directions of subsequent spread.

The example of an inland village, Falevao on Upolu, shows a different arrangement, although here too a natural feature has been of major influence in the distribution of the buildings. The houses are arranged in a V-shape, following the sharp bend in the river on two sides. They enclose a malae which is occupied only by the houses of the two highest chiefs. The road now forms a third side. It has been only recently constructed and promises to disrupt the old village pattern. Already some dispersal has occurred as parts of families have moved off into their plantation lands where these have been traversed by the road. The assemblages are similar to those observed in Asaga. The only trading store in the village has been built away from the main site, on the road toward the coast. Recent additions to the range of buildings have been the banana packing sheds, of which there are now several, also built along the road, a Women's Committee fale, and a store used by the Public Works Department.

The third example, Taga, is a remote and isolated village, without road access in 1956, and situated on a constricting site. The buildings are not arranged in any obvious order, but assemblage of houses in aiga groups is repeated. A school, built recently but of traditional materials, is situated on the malae. There are two trading stores; the owner of one of these, a matai of high title, has sufficient prestige to have built his in a central position. The only other additions apart from the church are a dispensary, built in European style, a fale-type hospital ward, a nurse's fale, two copra sheds and a shelter built by the Women's Committee, so that one of their members could keep watch on and regulate the taking of water from the spring nearby.

Recent inland settlement

Outside this traditional village pattern there has been a recent development of miscellaneous inland settlement. This is of two types - nucleated settlements established for some specific purpose, and dispersed settlement, originating from the traditionally organized villages. Examples of recently established nucleated settlements are at Aleisa and Tanumalala. These are both government-sponsored agricultural settlements, based on small holdings of 20 to 50 acres. In both settlements the blocks tend to be deep, with a narrow frontage to the road, and although not as compact as the usual village, retain the impression of nucleated settlement. Other non-traditional settlements inland include Solomona-fou, a 'village' originally arranged by the LMS mission for Solomon islanders, but now largely Samoan or part-Samoan, mission settlements such as Sauniatu and Vaiola, Tafaigata prison settlement and Vaipouli school.

The second type of non-traditional inland settlement has been the formation of subsidiary groups physically separated from the main village. The construction of roads, which have frequently been made to by-pass the main settlements, has caused the agricultural areas through which they pass to become attractive for settlement of this type, at least for a section of the village population. An extreme
example of this movement is Sa'aga village, which has moved completely since 1951 from its original somewhat remote site onto the road which traversed its plantations about two miles inland. Several other villages have been affected in a similar way, but not to the same degree. Sa'anapu and Sataoa are examples of such villages, now divided between the original coastal location and an inland site on a road. Other areas in which settlement is dispersing to reform into subsidiary nucleated settlements are along the Amaile-Samusu-Ti'avea road on Upolu and at Tafa'ata and Mosua on Savai'i.

These movements are often difficult to differentiate from another, perhaps equally important — that of a haphazard dispersal of individual families away from the male site. The Samoans have long built 'bush houses' for occasional use, but this recent movement into the village plantation areas is of a permanent nature. The trend is evidence of a crumbling of the custom of village living. The numbers involved so far in these dispersals are small, but as indices of social change such moves have a disproportionately great importance. Except where this form of settlement is the result of banishment, contact with the parent village will be maintained and a house will usually be retained there for occasional or weekend use. Often the 'bush-dwellers' may be only a part of a larger aiga remaining in the village.

Exotic groupings

These variations upon traditional Samoan village distributions have been largely induced by the diffusion of European commercial and social precepts. Two other forms of population distribution have been initiated directly by Europeans themselves — the agglomerated urban type and the dispersed 'rural holding' type.

Commercial holdings. Although the pattern of distribution on the commercial holdings remains of a type alien to the territory, their populations are now principally of Samoans. The numbers living on the plantations are a small proportion of the whole population — less than 3,600 persons. The estates are thinly inhabited and the distribution is in a scattered pattern quite unlike that characteristic of the villages. On the larger estates concentrations of population may be placed strategically over the planted area, often in the original 'labour lines' built to house the indentured Melanesians and Chinese. This 'estate' pattern is confined almost entirely to Upolu where there is a distinct concentration of commercial coconut and cacao plantations and small-holdings in a belt in the northwest segment of the island. Although there are some commercial estates on Savai'i, they are small and not contiguous, so that the type of population distribution associated with them on Upolu does not develop. Figure 31 shows Faleata plantation, an estate of approximately 1,200 acres over which 72 persons are distributed in four concentrations.

Urban agglomeration. Apia is the only example of the urban agglomerated distribution in Western Samoa (fig. 32). The boundaries of the town are defined as the districts of Faleata East and Vaimauga West, an area of nearly 11 square miles. This is a convenient division for statistical purposes but it does not fit the spread of urban settlement at all exactly. Within this area, population is distributed very unevenly, and a pattern which could be described as typically urban occupies no more than four square miles.
Plate 5. An unattractive residential area in the centre of Apia. Tauese, Upolu.
concentrated near the coast. Over the rest of the Apia area the distribution is virtually of a dispersed rural type made up principally of small-holdings.

Within the town area there are village settlements, often associated with tracts of food garden, which differ surprisingly little from the similar form typical of the rural areas. Other urban village-type settlements have grown up haphazardly in a gradual process of land sales and leases for residential and commercial buildings. Housing in such settlements is mostly of fale type (or hybrid versions thereof) and superficially such settlements resemble the usual Samoan village, if rather close packed and untidy. In fact the households are linked by little more than their proximity and there is no organization behind their arrangement; the distribution pattern is disordered and close.

At the other end of the scale some of Apia's more European suburbs are dominated by quarter-acre sections and bungalow houses. Population distribution is here noticeably thin by comparison with the areas of fale type housing. To some extent this type of settlement is characteristic of the lower eastern slopes of Vaea mountain with a mixture of large residential sections and agricultural small-holdings. On the western slopes, larger agricultural small-holdings are the most common form of settlement and localities such as Alafua and Lotopa are almost entirely planted in cacao trees; here, too, the distribution pattern is dispersed and sparse. Within the urban area, institutions such as the hospital, the several residential schools and the missions are responsible for clusters of population, sometimes in areas otherwise very thinly populated. Within the urban area there are also some tracts virtually uninhabited, either because of their distance from the town or their physical form, particularly steep slopes or swampy flats, which make them unsuitable for settlement.

**Ethnic groupings**

Apart from these settlement groupings the occurrence of certain ethnic components within the population has also contributed to some diversity within the pattern of distribution. The part-Samoans and Europeans tend to be associated particularly with certain distribution patterns, particularly those of the commercial holdings and the urban agglomeration. The distribution of part-Samoans, now the largest of the minor components, the Europeans and the Chinese, is shown in figure 33.

The past location of some alien groups, particularly the Europeans and the Chinese, has been the principal cause of the present distribution of part-Samoans. Some districts – Manono, Asau and Falelima, for instance – which now show very low proportions of part-Samoans are known to have had prolonged contact with Europeans from the early stages of alien contact. Whatever contribution these settlers or itinerants made to the local populations has now been merged (but not, in some areas, as forgotten as the low figures quoted in the census would indicate) with the local Samoan component. There has been a tendency for part-Samoans born in the outer villages to migrate to seek employment in Apia or in the commercial estates. This has been particularly true of persons of legitimate European status. By this they are barred access, at least on a legal basis, to Samoan customary land. Unless they can maintain
themselves as traders or in the very limited number of other paid positions within the villages, they are usually obliged to seek employment opportunities elsewhere. The number now living in the urban area is 49 per cent (3,837 persons) of the total component. A further 1,052 persons (13 per cent) live on non-customary agricultural land outside the urban area. Of these the largest single group (305 persons) were enumerated on the settlement at Aleisa which was planned especially for landless persons of European status.1

The diversity of the northwest sector of Upolu is again apparent in the distribution of part-Samoans. All village groups between Luatuanu'u and Mulifanua show rates exceeding those of all other districts of Upolu and all but one of the districts of Savai'i. Except for this concentration in or near the urban area and the commercial estates, the occurrence of part-Samoans in the outer villages is mainly the result of chance, except that the isolated or more inaccessible areas tend to have lower proportions.

The Europeans living in Western Samoa now have an even more concentratedly urban distribution than have the part-Samoans, 70 per cent (462 persons) residing in the town (where they comprise less than 3 per cent of the urban population). The number of Europeans living on the commercial estates is now small, only 6 per cent of the total number within the component. They comprise less than 2 per cent of the total population living on the commercial plantations. They are mainly the owners and lessees of smaller estates; few European managers are now employed. Outside the urban area and the commercial plantations the number of Europeans is now very small. Except for such minor concentrations as at Faleolo airport, Europeans living in the rural areas are principally missionaries. Full Europeans who live with Samoans in their rural villages - the first type of continuous contact to occur in Western Samoa - are now extremely rare.

The Chinese, originally introduced for (and usually confined to) the commercial estates, have in recent years dispersed more readily into the countryside, and although their numbers are now very small, their distribution is more associated with the Samoan villages than is the European. The urban area includes 37 per cent (53 persons) of their number, the commercial plantations and the rural villages each 31 per cent (45 persons). There are small groups in the planned settlement of Tanumalala and in

1 The misfortune of being a 'European' rather than a 'Samoan' under the system of legal status devised for the territory is shown by the following estimate of the 'Europeans' economic conditions as late as 1946: 'My own estimate in regard to this subject is that there are about 50 per cent of the local born Europeans (presumably 50 per cent of the potential work-force) who have permanent work. They have casual employment now and then, and I put it down that their total income for the year is only about £50.... 30 per cent of the local born have steady employment but they have a starvation wage; 15 per cent of the local born population, I believe, receive a living wage.' From a speech by the Hon. Amando Stowers, a European member of the Samoan Legislature. Western Samoa Legislative Council Debates, 4th session, 1946, 26.
Tanumapua, but elsewhere they occur mainly in ones and twos. Several live on commercial plantations, where they are employed as skilled plantation hands. Others live in the villages where, although they may have some form of paid employment rather than depend on customary agriculture, their lives are closely bound to their Samoan and part-Samoan aiga.

Conclusions on the patterns of distribution

The Western Samoan population, like all others, has been distributed in its particular pattern by a great variety of processes. Usually such a pattern of distribution in itself can provide little indication of what these processes have been; until these have been investigated and analyzed it will present somewhat baffling problems of interpretation. In the case of Western Samoa only the major variations, such as the obvious contrast between the traditional Samoan and the exotic European patterns can be immediately differentiated. But other less obvious variations are the outward signs of the working of other processes, often of considerable significance. The map of population distribution, then, is a tool to be used for the further study of the areal interactions and historical processes which have shaped the patterns which it shows. It is, together with its verbal description, the beginning rather than the end of the geographical analysis of population.

Soils, Land Use and Agricultural Productivity

Among the more important processes which have shaped the present distribution of population in Western Samoa are those associated with agriculture. In its two major forms, customary village agriculture and the commercial plantation type, it has been the direct cause of the development of two major types of population, distinct both areally and demographically. Also of significance to local population structures and characteristics is the variation within the village type induced by differences in agricultural practices, development and returns; with these the following discussion is mainly concerned.

Soils

While a general description of the more important soil characteristics was included in chapter 2, the areal variation which contributes to the different levels of agricultural development has still to be examined. The soil types suggested in the preliminary report of the soil survey (Wright 1956) have been reclassified into groups based on their suitability for the types of agriculture already practised in the territory. To some extent the probable developments in soil utilization have been allowed for (without considering those possible under different social or economic conditions). It seems unlikely that there will be any major changes in the forms of Samoan agriculture within the foreseeable future. More probable are shifts in the relative importance of some crops, particularly in favour of cacao and banana, and the more widespread inclusion of coffee, tropical fruits and cattle grazing in the village system.

The soil capability classes (shown in figure 34 and table 13) are:
1. Soils of high natural fertility without major problems of utilization

These are mainly alluvial soils which usually occur in small pockets and are of limited extent on both major islands. The only extensive area in which these soils could be described as the major type is the Falevao plain. Such soils are particularly suited to banana and food crops, but their use is virtually unlimited except that they do not provide very good conditions for coconut palm which, unfortunately, now occupies a considerable proportion of the area utilized. These are the only soils in Western Samoa which do not require periodic bush-fallowing when used for subsistence crops, but they may have problems of poor drainage and of periodic flooding.

2. Soils of moderate to high natural fertility well suited to the currently grown crops without major problems of utilization

Soils in this group are more regional in their distribution than those of class 1. Almost all the lowland area of western Upolu is included, together with the island of Manono and considerable areas in the west, north and east of Savai'i. Also in this class, because of their particular suitability for coconut and some subsistence crops, are the soils of the sandy beach strips which are widely distributed in small areas around the coasts. In general this soil class is particularly suited to cacao and to banana, although in Upolu much of the area is now planted in coconut palm. Such soils were the basis of the traditional reputation of A'ana district as 'the garden of Samoa'. In more recent times the northwest coast of Upolu, including the commercial estates (virtually all of which are located on such soils), the giant villages and the town of Apia, has become, on the resource of this soil class, economically the most developed and complex area in Samoa. Substantial areas in the class are not yet utilized, principally in northwest Savai'i, but some still remain uncleared in Upolu. The main disadvantages of these soils are rockiness and scarcity of surface water. Their potential productivity should in most cases make worthwhile the expenditure of capital and labour in solving such problems.

3. Soils of moderate to low natural fertility suitable for most of the currently grown crops, but with frequent problems of efficient utilization

This class includes a greater variety of soils than either classes 1 or 2, but all are useful for at least one phase of Samoan agriculture as it is already practised. The problems associated with these soils are also various — rockiness and extreme water shortage in the drought-prone areas of northwest Savai'i, poor drainage in the coastal swampy areas, and extreme slopes on those of the more fertile steepland soils which fall into this class. On most of these soils, however, the problems of utilization are not insoluble, although natural fertility is at best only moderate; fallow periods for subsistence crops must normally exceed five years. This soil class tends to be associated with high rainfall and occurs particularly on the windward south coastal slopes of the major islands and in association with the mountainous areas of northeastern Upolu. Nearly half the area of these soils is already utilized.
4. Soils of low natural fertility but suitable for one or more of the major currently grown crops

Most of these soils occur along the inland foothill areas of both islands or where soils are at an early stage of development on fairly recent (usually Pu'tapu'a age) lava flows. All these soils have problems of utilization. Their main faults are poor natural fertility, rockiness on lava-flow soils and poor drainage and periodic flooding on the swampy soils of the highlands. The soils of these upland marshes are included in this class because they could be used for the growing of subsistence root crops.

Although the soils in this class are not yet extensively used, they are amenable to development, using methods already practised in some areas within Samoa. The principal requirement is fertilizer, and when this is applied most of the more popular crops may be grown - cacao, banana, the subsistence root crops and, on the coastal lava-flow soils, coconut. Many of these soils are likely to require more disciplined agricultural techniques than those which the Samoan growers using superior soils now practise; but their profitable utilization is quite feasible and has already been demonstrated by their present usage. Access to the inland areas is often difficult. Savai'i particularly has large areas in this class, and the opportunities for their development, possibly by large-scale methods (including mechanization), could well be investigated.

Together these four classes total approximately 350,000 acres, which may be considered the present estimate of the cultivable soil resources of Western Samoa. Within this area, only 1.8 per cent is of first quality, but 37.1 per cent is of second quality, and on this class of soil the most advanced and productive agriculture known so far in Western Samoa has been developed. The other two classes, containing less productive and therefore less profitable soils, comprise 23.1 per cent and 38 per cent respectively.

The land use survey of 1956 showed that only 130,000 acres are at present in agricultural use - 37 per cent of the area estimated as cultivable.

No class, not even the most productive, is fully utilized. The proportion of class 1 soils in use is difficult to estimate; the areas are very fragmented and they were often too small to be shown individually on the original soil distribution maps. Consequently utilization may be rather more intensive than is indicated in table 13. Although in all classes Upolu shows higher intensities of utilization than Savai'i, they are still not particularly high. Nor are the superior soil types particularly favoured - more than one-third of class 2 soils on Upolu have still to be cleared and more than half of those on Savai'i, while on the other hand class 3 soils have actually been used in greater proportion than those of class 2, a further sign that discrimination based on an appreciation of soil quality has not so far been well developed by Samoan cultivators. Of the 'problem' soils in class 4, some 13 per cent are already in use. In some places customary Samoan subsistence gardens and banana growing for export have moved on to soils which were not recommended for use. Some independent smallholders are also using soils of this meagre quality. As these plots seem to be moderately successful so far,
<table>
<thead>
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<th>Soil class</th>
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<th>Savai'i</th>
<th>Western Samoa</th>
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<td></td>
<td>Total (acres)</td>
<td>In use (acres)</td>
<td>% utilized</td>
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<tr>
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<tr>
<td>Total cultivable</td>
<td>153,040</td>
<td>81,400</td>
<td>53%</td>
</tr>
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<td>5 and 6 (not recommended for cultivation)</td>
<td>131,855</td>
<td>2,000</td>
<td>2%</td>
</tr>
<tr>
<td>Total area</td>
<td>284,895</td>
<td>83,400</td>
<td>29%</td>
</tr>
</tbody>
</table>
particularly where fertilizer has been used, the soil resources of Western Samoa may possibly have been somewhat understated in this discussion.

Land use

The present pattern of village land use (shown in figures 35 and 36) is due more to a process of sequential development, centrifugal about the central cores of village settlement, than to an adjustment to the experienced differences in soil quality. In the siting of the commercial estates soil conditions appear to have been more carefully assessed; but the land use associated with estate agriculture is now virtually static. By contrast the patterns of land use found with village agriculture are changing rapidly, although with considerable areal variation both in rate and in direction.

The oldest type of village land use are the coconut stands, distributed principally in coastal sites adjacent to the village settlements. In areas of high population density, more particularly where this dates from the pre-contact period, such tracts of coconut palm may be extensive, in some cases penetrating more than one and a half miles inland. Beneath the more ancient stands little interplanting is now attempted; the floor receives little sunlight and the soils are usually of depleted fertility, a consequence of their constant use over a very long period. The only other products from such land are breadfruit, pandanus and other plants which the Samoans use for fibre, dyes, medicaments, and minor edibles. Livestock, usually cattle or horses, are occasionally grazed on the understory vegetation. In more recently developed areas, cacao and banana may be interplanted with the coconut palms; this may occur on soils which because of a shorter period of exploitation retain more of their original fertility or alternatively in places which are unusually accessible. The 'old coconut land', including the tracts which have been subsequently interplanted with cacao or banana, must coincide approximately with that area used for agriculture at the time of annexation in 1900.

Beyond the area in tall coconut, cacao becomes the main crop in most districts. Where cacao plantings date from the pre-war years they may now be interplanted with young coconut palms, while banana is frequently included in the more recently established plots. Banana stools predominate on land cleared of forest within the last decade or two, particularly on Upolu and those areas of Savai'i contributing to the banana export scheme. The areas most recently brought into production are distributed on the inland agricultural fringe and near tracts of yet uncleared forest. They are devoted principally to the two main subsistence root-crops, taro and ta'amu, grown under a bush-fallow system. This area, known as the vaota or the taloloa, is usually a tangle of grasses and creepers which overgrow the abandoned taro clearings until they come to be used again after their fallow interval. Stands of banana, often past fruiting, are also common on such land.

The system of land tenure is largely responsible for the fragmented crop distributions which occur within this larger pattern. Each aiga normally has several plots, at least one in every land-use class. These seldom exceed three or four acres, although the sum of the fragments will
usually lie between 20 and 40 acres, depending on the size, standing and enterprise of the individual family group. The plots have poorly defined boundaries, are usually of irregular shape and often lie at considerable distances from each other and from the village residential sites. The needs and preferences of each aiga determine to a large extent what crops are planted in each lot. The recent trend towards dividing aiga land between the adult male planters, who then tend to work semi-independently, has also been a cause of increased land-use diversity. For these reasons, although a generalized map may be compiled of the dominant crops or crop combinations, the pattern in detail is apt to be one of baffling confusion.

**Agricultural productivity**

Not unexpectedly, the efficiency of this form of agriculture is generally low. The estimated export production from village agriculture in 1956 was worth approximately £14 per head of total population. The return per capita to village dwelling Samoans from their three major commercial crops was £10.17.0 for the year. Annual production varies over a considerable range, and the year 1956 was a little below average. There is considerable price fluctuation, particularly for cacao, but to some extent also for copra, and in 1956 these were lower than they had been in the years immediately preceding. Nevertheless, returns from village agriculture of less than £15.0.0 per head annually are the rule.

A recent study of work habits in two sample villages indicates that the proportion of the working day devoted to agriculture by the members of the male village workforce is low - an average in this case of less than 3.5 hours daily, or between 40 and 45 per cent of the hours usually included in a working week (Fairbairn 1962). Even at this the return was very unrewarding at approximately 1/3 per hour - a rate which can scarcely be conducive to greater effort.

But there are many indications that the Samoans are coming to rely on their money incomes for an ever widening range of everyday wants. The rapid changes in their land use practices, the enthusiastic adoption of banana as an export crop and the widespread planting of cacao are all evidence that Samoan villagers are becoming increasingly conscious of the relative levels of money income within the islands.

There is now considerable variation from district to district in their agricultural characteristics. Some areas, particularly those which have for some time enjoyed good road access and proximity to the commercial and port facilities of Apia, have adopted cacao and banana as their principal crops. In others agricultural development has lagged and a copra-based economy of the type originally developed in Samoa late in the nineteenth century has persisted to the present day. Because such differences may in part be a reflection of the demographic conditions of the districts in which they occur and are themselves most likely to have discernible effects on the local populations they require some investigation.

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2 In Samoan currency, which is equivalent to sterling.
Unfortunately data on district incomes are seriously lacking. Only in the case of banana production is it possible to assign the amounts produced to the district or village of origin. In the course of field research it was found that the production of copra was reasonably consistent with the area of palm from which it was produced, so that production could be estimated with a reasonable degree of accuracy if the areas were known (Pirie and Barrett 1962, 85). Cacao yields were more erratic and, although estimates have been calculated, based on the assignment of the total village production on basis of proportional acreages in each district, the degree of error could be wide.

The total estimated income from export crops to village growers is shown in figure 37 and that for banana separately in figure 38. The latter map has been included as the banana export scheme, at least at its present scale, is of recent development. It has been extended progressively from district to district, a process still far from complete in 1956, and is therefore likely to have had a special effect upon the relative economic prospects of some districts.

Village-dwelling Samoans received only £1.11.9 per capita from banana returns in 1956. The range lay between nil in the districts of western Savai'i to over £6.10.0 in western Falealili. The low mean figure served to make the districts which were producing banana in relatively large quantities seem disproportionately prosperous. The south coast of Upolu had by far the highest per capita returns for banana of any part of Western Samoa. Only eastern Falealili and Aleipata were excluded from this affluence as, in 1956, they had been served by road transport for less than a year, so that their banana industry had not had time to become well established. The bay settlements of northeast Upolu also had high per capita returns, in spite of their problems of road access. In their case proximity to Apia made the transport of banana cases by motor launch economic. On Savai'i, transport difficulties have limited production, but it is significant that the districts in which these could have been most easily overcome are not the major producers. Only the inland villages of the northeast and the Palauli-Gatei areas in the south supplied significant quantities. The villages of the northwest coast, the 'traditional' banana suppliers, now provide only a small quantity per capita, although the district as a whole continues to supply over one quarter of the total export. Some villages, notably Leauva'a, still derive the major proportion of their income from banana. Most other northwest coast villages are limited by their rapidly dwindling reserves of uncleared forest land, their high population densities and the necessity of providing subsistence food for their populations which continue to grow at very rapid rates of natural increase. Affected to an even more extreme extent by such trends are the Aiga-i-le-tai villages and those immediately adjacent to the urban area; the amount of surplus banana available for export in these areas has become negligible.

The estimated total income from export crops for persons living in Samoa villages varied in 1956 between less than £2 per capita for the villages immediately adjacent to Apia to nearly £16 in the case of western Falealili on the south coast of Upolu. Areas far below the mean for the country occurred only on the northwest coast of Upolu, where the Aiga-i-le-tai villages have obviously suffered from their
very restricted areas of agricultural land. The villages of
the northwest coast have a similar but less extreme problem.
All other districts of Upolu, except Aleipata, exceed the
mean income levels for the country. The incomes on Savai'i
fall into a smaller range than on Upolu; incomes in the
Palauli district were scarcely less than those in the most
prosperous districts in Upolu, and although several dis-
tricts showed incomes below the mean, nowhere did these
fall below £10.0.0 per head in 1956.

There is little correspondence between the distribution
of the soil capability classes and the array of estimated
returns from village agriculture. The most extensive area
of soils of good natural fertility - on the northwest coast
of Upolu - now shows per capita returns well below average.
Districts showing high monetary returns may occur, as on
the south coast of both Upolu and Savai'i, on soils in the
third and even fourth class. Such low degree of adjustment
suggests that population is at present poorly distributed
in relation to the actual and potential resources of
Western Samoa. A further conclusion could be that while
yields are extremely low, they could be substantially im-
proved by even a minimal adoption of modern or improved
methods, particularly the use of fertilizer and, in some
areas, irrigation. It would also appear that the Samoan
cultivator urgently needs a much greater appreciation of
the potentialities and limitations of the soils in which
he works.

The Variation in Density

The nature of the density relationship

In recent years the concept of a critical relationship
between numbers of people and the area and quality of the
land available to them for agriculture has been forced into
the thinking of increasing numbers of Samoans; those most
affected are the matai in villages which have already
developed all their available customary land.

The desire for more land has long been recognized as
a recurring theme in matai thinking. Loss of land by con-
fiscation was the usual consequence of defeat in war; since
pacification, intrigue and dispute over land have continued
to absorb a considerable part of the mental energy of most
titled Samoans. The immediate aim, however, has been
prestige rather than subsistence.

But in the last decade some villages have grown into
a situation in which not only is their income from the sale
of export crops diminished but there is growing difficulty
in providing sufficient subsistence foodstuffs for their
populations. In many others such a situation is imminent.
The examination of population density is then an extremely
important part of a total study of this population.

Attempts made to establish a theoretical basis for the
study of population density have been hampered by several
inherent difficulties. The first of these is in the nature
of the two elements in the density relationship - people
and area. A population consists of persons who, as statis-
tical units, are discrete but mobile entities: area is
continuous. The difficulties associated with area lie
mainly in the selection and definition of its divisions. The expression of a valid and authentic relationship between population and the area inhabited is not easy to make. Different components within a population depend in very different degrees on the area they inhabit, while variations in land types and the degrees of utilization are further extremely important variables. The assessment of quality, in both population and area, sets immense difficulties of measurement and must necessarily include an element of subjective judgment.

'Crude', 'agricultural' and 'habitation' densities

The most frequent expression of density, justly termed 'crude', is the relationship between total population and total area. For Western Samoa this type of density remains low by world standards at 162 per square mile for Upolu and 41 per square mile for Savai'i, giving a mean for the territory of 89 per square mile. The crude density, because it ignores both habitability and productivity, is of only very limited usefulness and in some contexts can be gravely misleading. When applied to similar environments it can point up broad comparisons - it may be useful to say, for instance, that the crude density for Western Samoa approaches twice that for Fiji, is much lower than in Tonga or the Cook Islands, and is only one-third of that in American Samoa. The 'high' islands of the South Pacific, with similar soils and climates, and other areas dependent upon a 'coconut and subsistence' economy are probably sufficiently similar for the expression and comparison of crude densities to have some validity.

Of far greater usefulness in situations where the relationship between population and land is very close and uncomplicated is the 'agricultural' density (Trewartha 1953, 95). As usually understood this is the ratio of agriculturally engaged population to agriculturally used land, so that it is only useful as a measure of total population density in areas where the agricultural population forms a very large proportion of the while. Where this is true, and where that section of the population who, although not engaged in agriculture, is nevertheless indirectly dependent upon it, there seems to be little point in excluding them from the calculation. This applies to Western Samoa, where the proportion of the population directly dependent upon agriculture is 75 per cent, but virtually all the others are engaged in, or are dependent upon, tertiary occupations. Apart from these the economy of the country is limited to subsistence agriculture, a minor amount of commercial food production for local consumption and the growing of crops for export. Another way of regarding this type of density is as one describing the occupation of land, for which the term 'habitation density' is suggested. The boundaries which limit the occupation of a living area are the most important in the experience of the inhabitant and this applies no less to collective groups. It is this type which has been used for figure 39. Lands in forest and other types of natural vegetation are classified as 'uninhabited', while those which have been cleared, originally for agricultural purposes or settlement, are used as one element in the ratio, the total population living in the area so defined the other. As the Western Samoan economy has diversified, commercial, transport and even recreational areas have come to be included.
Ideally this density should be calculated for every village. But Samoan village boundaries are often in dispute and are always a contentious topic, so that they have not usually been surveyed and are as a rule known only to the members of the villages concerned. It has consequently been necessary to assemble the villages into groups, the boundaries of which are known or are discernible. Villages tend to group themselves according to political allegiance so that the boundaries available in this way do tend to have some special significance.

Western Samoa as a whole has a habitation density of 434 per square mile. The more immediately intelligible expression of habitation density is in the form of a ratio of acres per capita. For all of Western Samoa there is a ratio of 1.4 acres per capita of agriculturally used land. If the urban area and lands used for other forms of agriculture than cropping are excluded, this falls to 1.7 acres per capita—the figure used as the mean area per head in figure 39.

This map shows the considerable range of habitation density occurring within the territory. The widening of the range to the extremes is of recent origin, coinciding with the change from a purely subsistence economy to one in which the money element has become of great significance.

Pre-contact population density

The techniques of subsistence agriculture have changed very little since contact with Europeans, and although the nutritional density (the agricultural density in a completely subsistence economy) within the pre-historic ecosystem cannot now be known, the lands devoted to approximately the same types of land use are now about 0.5 acres per head. By a separate reasoning process this area was also accepted as the basis for the calculation of the estimated maximum size of the Samoan pre-contact population (Lay 1959, and ch. 2). The consumption of imported foods including rice, flour and sugar now substitute for subsistence crop foods to some extent, while the growing of yams has fallen out of favour. But the consumption of European food in the Samoan villages has largely been a compensation for the foods which used to be gathered in the forest and from the reef but which are now either scarce or unduly difficult or time-consuming to obtain. The growing of some crops such as sugar-cane, pandanus, kava, ti, and paper mulberry, the functions of which have been partially taken over by imported goods, may also have been more extensive, although the area devoted to such crops must have been very small at any time. It is difficult to see that the land requirement per head for subsistence can have changed very much since European contact. It is therefore probable that in about 1840 between 20,000 and 25,000 acres, no more, would have been needed to support the traditional subsistence economy.3

Evidence derived from examination of soils and the forest composition indicates that at some time clearings have been made over a very much larger area than this, and that virtually all the forest in the lowlands and foothills

3 Based on a population of between 40,000 and 50,000 persons; see ch. 3.
is secondary (Wright 1956). Stone walls enclosing plots which were probably the communal taro gardens worked by the village 'auamaga are to be found in areas now remote from the present gardens and there are also derelict clearings for which the villagers have explanations which are only vague, although consistently remote in time. It is probable that at any one time in the days of early contact the Western Samoan population was able to live off less than 5 per cent of the total area of the group; that is about 40 square miles or only one-fifth of the area now used for agriculture.

The effect of commercialized village agriculture on 'habitation' densities

From this time both crude and habitation density fell as, while coconut plantings were extended, stimulated by the possibility of trade, the population in most districts remained static or even declined. Meanwhile, throughout the late nineteenth century and into the early decades of the twentieth, a relatively rapid increase in the area used for cultivation took place. Customary land in use was estimated in 1926 to have reached 50,400 acres (N.Z.P.P. 1926, A.4, 8-9). Most of this increase was in the extension of coconut groves. Habitation densities fell from between 1,000 and 1,200 per square mile under purely subsistence conditions to 465 per square mile in 1926. Since this time the amount of land cleared by Samoan villagers has become areally much greater, rising to 115,800 acres in 1956, but the area per capita has risen only slightly from 1.4 acres to 1.6 acres per person. Habitation density is now 403 per square mile. The relatively small extension in recent decades has been due to a combination of circumstances. These include economic depression, political resentment during the Mau period and its aftermath, World War II, and most important, the very high prices paid for Samoan products after the war years. These inflated prices have given the appearance of progress without the requirement of increasing output or extending the area cultivated.

Felling trees on the margins of the forest - the usual prelude to extending the area of village plantations - is difficult work and, being restricted to manual methods, the Samoans achieve it only slowly. The establishment and maturation period for the tree crops, coconut and cocoa is also several years, so that when population growth is accelerated for some reason, densities will rise and it is frequently several years before this extra pressure is reflected in an expansion in the area of cleared land. Localities from which there is a large outflow of population may show decreasing densities, but because of the high rates of natural increase prevailing in Western Samoa, such areas are now very uncommon. Usually in districts where development is retarded, densities remain virtually static over long periods.

There are three major ways in which the clearing of land may be initiated on a village rather than on the casual but more normal aiga basis. A fono decision may be made to increase the area of village or district plantation lands. These decisions are more often made than put into effect, but there have been instances where a programme of expansion

4 Asau on Savai'i has the largest and best example.
has been carried through for this reason. Competition for land from neighbouring villages will sometimes stimulate forest felling. The most important way has been the construction of roads, for along many of the routes access has been given to land which was previously regarded as not sufficiently accessible to be worked. The clearance of this newly available land has provided the occasion for taulele'a to request from their matai the use of a plot of land on which to grow their own crops. The land laid open in this way is favoured for banana growing as the produce can be directly loaded onto trucks for transport to the town for inspection and export. A further incentive to development has been the obligation, for each aiga with the right, to claim their share of the new lands by making at least the first gestures toward developing it before others step in.

The news of the proposed road building will be greeted with enthusiasm by those people who will benefit from it, and this may be sufficient to stimulate them to begin felling bush in the areas adjacent to the proposed route. It may cause an initial drop in habitation density. Two extreme cases where this has occurred are the villages of Lotofaga and Amaile where the road traverses the villages' lands longitudinally from the village settlements through their furthest taro patches and on into their uncleared forest. The effects of such good fortune on their habitation density are obvious in figure 39. Where the road provides a major improvement in access to areas previously poorly served, it initiates a period of rapid development characterized by high rates of population increase and expanding production. Over a long period this will lead to the building up of high agricultural densities. The best example of this is on the northwest coast of Upolu where the villages have been served by road from Apia for over 60 years and within this time have built up densities much higher than average. Further along this main road to the west and south coasts, densities decrease in a regular sequence with increasing distance from Apia and the diminishing periods in which the districts have been served by road.

Table 14. AGRICULTURAL DENSITIES OF DISTRICTS IN WESTERN AND SOUTHERN UPOLU

<table>
<thead>
<tr>
<th>District</th>
<th>Distance from Apia (miles)</th>
<th>Years in which the roads were constructed</th>
<th>Density (Acres per capita)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Puip'a-Toamua</td>
<td>3-4</td>
<td>pre-1910</td>
<td>0.6</td>
</tr>
<tr>
<td>N.W. coast (eastern)</td>
<td>4-9</td>
<td>pre-1910</td>
<td>1.0</td>
</tr>
<tr>
<td>N.W. coast (western)</td>
<td>9-16</td>
<td>pre-1910</td>
<td>1.1</td>
</tr>
<tr>
<td>Faleletai</td>
<td>25-28</td>
<td>1925-35</td>
<td>1.3</td>
</tr>
<tr>
<td>Lefaga</td>
<td>21-24</td>
<td>1943-44</td>
<td>1.6</td>
</tr>
<tr>
<td>Safata</td>
<td>29-35</td>
<td>1944-50</td>
<td>1.7</td>
</tr>
<tr>
<td>Falealili (western)</td>
<td>37-41</td>
<td>1952-53</td>
<td>1.8</td>
</tr>
<tr>
<td>Falealili (eastern)</td>
<td>41-45</td>
<td>1953-55</td>
<td>3.1</td>
</tr>
</tbody>
</table>

A similar sequence appears on the main road east, but because of the fragmentation of areas suitable for agriculture it is obscured to some extent. On Savai'i the importance of road connection has until recently been of smaller importance than the service by sea, and the differences in density, which span a much narrower range, have been affected much less by accessibility than by the other factors in the complex array which contribute to differential prosperity.
The range of habitation densities

Habitation densities at the extremes of the range are in all cases associated with areas that have been generally known in the past as 'European' land. These now include privately owned freehold land, government land and the areas owned by WSTEC. Where these lands have been developed and occupied they are associated with abnormal densities - extremely high in the urban areas and extremely low in the commercial estates.

The sole example of urban development, Apia, has built up an overall density far beyond any found on Samoan customary land. Within the urban area local densities rise to 0.04 acres per person in a few component settlements, the highest yet found in Western Samoa. At the other extreme the European commercial plantations are confined in figure 39 to the two lowest classes, exceeding 3.5 acres per inhabitant in all cases. Cacao plantations have higher densities than other types, with a mean of 4.6 acres per person. Coconut plantations have a population density in the range between 8 and 15 acres per person, while the estates grazing cattle have the lowest densities, Fiaga (WSTEC) - the largest - having over 60 acres per person.

In the rural areas on Samoan customary land, that is land permanently reserved for the support of Samoan communities under the usages of Samoan custom, densities vary between 0.9 acres per capita on the lands of the Aiga-i-le-tai villages to just over 3.0 acres per head in the Amoa and Salani areas. In the 'normal' village, little affected by the factors which make for extreme densities, there seems to be a requirement of between 1.3 and 2.1 acres per capita. The position within this range is largely the sum of the choices made by the local populations, as within all the 'normal' districts there is still access to cultivable but uncleared land and lack of inclination or motivation is the major barrier to further development.

Within the normal range minor conditions do influence agricultural densities. Soil productivity and land utilization problems have a discernible effect, but nowhere within the utilized area have differences in soil quality caused the development of densities at either extreme. Rainfall inhibits agriculture by its excess in some areas and by seasonal deficiency in others, but this does not appear to have affected population densities to any marked extent. The varying emphases placed on the three major crops have affected the areas utilized in some districts. Where a large proportion of the land is used for banana it is usual for densities to be lowered, while in areas which have specialized in cacao growing densities tend to be higher, as this crop gives a relatively high return per acre, but requires more attention than either the coconut palm or the banana. The major determinant of densities within the 'normal' range remains the amount of perseverance, labour and leadership available within the individual village populations.

Rural village areas which have population densities outside the range of normal requirement have usually been affected by some extraneous condition. Those with abnormally high densities, including the Aiga-i-le-tai area and the villages adjacent to Apia have suffered constriction in the areas available to them for village agriculture.
Natural increase, to which has been added in most cases some increment from migration, has raised the habitation densities of these areas above that level at which the population can maintain itself adequately, by comparison with other districts, on customary agriculture alone.

For some areas low densities rather than high are a problem. These are villages which, by comparison with others, have not been able to take a full share in the commercial opportunities now available within the territory. Poor access in the past to the districts of Falealili, Lotofaga and Lepa on the southeast coast of Upolu has put these districts at a great economic disadvantage. To some extent they have tried to compensate for this by utilizing larger areas, but the principal causes of their low population densities is outward migration into districts better served. The necessity of providing new land for the growing of root crops is some incentive to keep clearing forest land, even in areas of static or slow growing populations, and here this effect has been exaggerated by a more than normally enthusiastic preparation for the road connection which was finally made in 1955. Apo on Savai'i, still not served by road in 1956, is an even more extreme case of low density associated with isolation.

Physical limitations

It has become plain in this discussion that nearly all the reasons for variations in density within the occupied area of Western Samoa are cultural. The original decisions made on whether or not to settle a specific area may have been conditioned by its physical limitations. Very recent lava flows which remain in the first stage of weathering, on which agriculture may be difficult or impossible, have naturally been avoided, although there are cases of plantings being attempted on land where the only soil is in the fissures in the basalt opened up as the rock cooled. Various qualities of soil and climate are responsible for conditions in the interiors of both islands, which cause the Samoans to regard them as virtually uninhabitable. Extreme local ruggedness has discouraged settlement in some areas, but slope alone appears to have had very slight effect. Very steep slopes occupy only a small proportion of the total area, and some Samoan cultivators do utilize slopes exceeding 30° for root crops and banana. Within the inhabited area, physical characteristics have had only a minor effect upon habitation densities and only soil qualities and availability of water appear to have exercised any discernible control.

Density, cultural change and population growth

Variation in density and the widening of its range are more positively linked to social and economic conditions, and like them, have changed fundamentally over the last century. Three major classes of district populations have developed, depending upon the degree to which each has been affected by the two most important trends initiated by the economic organization of the territory by Europeans — urbanization and the diversification of village agriculture toward the production of export crops.

The first of these classes is composed of populations who live in villages which have acquired suburban functions. Formerly urbanization was restricted to the town of Apia.
Recently, however, villages adjacent to the town or with very good access to it and unusually restricted economic opportunities in their own areas have begun to depend upon the urban economy to provide additional employment opportunities, and in some cases for market facilities to supply additional subsistence food. The populations so affected are largely dependent upon paid employment and show high densities. The other two classes have become differentiated by the degree to which they have been able to participate in the commercial life of the territory. Those areas with direct road access to Apia and the opportunity of producing banana for export show different characteristics from those which lack these advantages. In 1956 these two groups were discernibly different, although the situation was changing rapidly at this time as access to several districts was being improved. The first group included all Savai'i and eastern and south-eastern districts of Upolu. These districts were hampered (or had been until just before the census in 1956) by poor access and expensive and difficult transportation, and this disadvantage was reflected in several aspects of their populations. The other districts, including all the non-urban Samoan districts between Faleafa and western Falealili, were fortunate in having had, for at least three years before the 1956 census, direct and regular connection by road to Apia. For most of these districts the relationship between distance from Apia, length of the period in which road access has been provided, and habitation density has been discussed previously (table 14). There is also some correlation between density and rates of population growth in districts of this class (fig. 40).

This graph suggests that between 1.3 and 1.4 acres per capita (of good to medium fertility) is a habitation density which Samoan villagers feel is as high as is desirable under present conditions of customary agriculture. Once this density is exceeded, whatever advantages - except opportunities for paid employment - the districts may have are negated, and there develops a tendency for more persons to leave the population than will be compensated for by natural increase. When such a density rises to between 0.8 and 0.9 acres per capita it appears that a critical limit is reached and migration out of the affected area is likely to exceed the increment from natural increase, unless alternative sources of income can be found. Populations in such areas will remain static or may suffer a net decline.

Only one district, Mulifanua, has reached this critical habitation density. The people of this district have a definite feeling of economic deprivation and have appealed, so far without success, to the government for a grant of more land. The population between 1951 and 1956 suffered a slight net decline. Manono and the northwest coast villages seem the most likely to be next affected.

The present pattern of densities has been shown to be of a complex kind, but to be explicable in terms of the major economic and social trends at present working in Western Samoa. The concept of a critical density is an important one and the occurrence within the islands of an area, however small, in which this appears to have been reached carries with it a sign of danger for the future. The relative densities observed will clearly form an exceptionally useful guide for the delimitation of regional population types. But apart from this, local densities, their trend, and the rates of population growth associated
with them should be closely watched for they will provide the first and most reliable indication of the development of problem areas in Western Samoa.

**Differential Rates of Growth**

The ancient custom of *malaga*—travelling from place to place to maintain the ties of kinship—is one which the Samoans still resolutely maintain. Such a custom, modified to provide for permanent relocation, has meant that they have an inbuilt means of painless habitation mobility. From the earliest years of European contact they have utilized this facility to adjust the distribution of their population to the changing economic and social structure of the country. An analysis of the differential rates of local population change shows this plainly.

The population, as it was first described by Europeans, was more evenly distributed over the more hospitable lengths of coast and on the gentle, well-watered slopes inland than it subsequently became (ch. 3, fig. 4). Because the wars in which the Samoans frequently embroiled themselves usually caused the temporary abandonment of some villages or districts, the pre-contact distribution was not static; but with gradual pacification (virtually complete after 1900, when the Germans assumed control) the pattern tended to become stabilized. At the same time, the growth of commerce, the building of roads and the establishment of Apia as the urban centre for the territory introduced incentives for population movement, of an orderly and gradual kind, which early began to affect local rates of population change.

The analysis of these changes presents some problems. The censuses before 1956 were organized virtually in two separate parts, the 'Samoan' or 'Native' census (which included islanders from other groups in the Pacific) and the 'European' category, in which were included the Chinese and also the part-Samoans who are legitimately descended from a European. While village totals for some of the censuses are available for 'Samoans' before 1956, these have never included persons of 'European' status.

In the three censuses before 1956 a rapidly increasing number of Samoans described as 'living on European land and not taking part in the affairs of any village' are excluded from the 'Samoan' village totals. This classification reached such a degree of complexity in 1951 that in addition to the 4,756 persons of 'European status' there were also 6,918 'Samoans' classified under 'extra-village domicile' to be distributed. Had this classification been rigidly adhered to, some prospect of disentangling local population totals, to make them comparable with those available for previous censuses, might have been attempted. But Apia and its environs appear to have been treated on a different basis and population totals of Samoans are given for unorganized settlements on alienated land. There is no explanation of this discrepancy nor any indication of whether or not these Samoans are included in the 'extra-village domicile' total. The rate of population growth for both the Apia urban area and of the commercial holdings can only be generally estimated from the series of censuses taken prior to 1956.
The censuses prior to 1956 for which data on distribution have been found are those of 1900 (the first under central government direction), 1926, 1945 and 1951. The rates of population change for the three intercensal periods are shown in figures 41, 42 and 43. All three intercensal periods require some examination for, as earlier examples, they show population changes which are frequently of assistance in the interpretation of the later 1951–6 pattern, and the recent history of numerical change in population distribution frequently has some bearing on its present internal structure.

The 1900–26 period

The earliest trend noted is a drift to Apia, which between 1900 and 1926 more than doubled its number of resident Samoans. This increase was specifically referred to in the 1926 census report.

The large increase shown... is due to the gravitation of Natives from distant villages to the chief and only town, Apia.... This tide setting towards Apia is the chief if not the only reason for the small increase or actual decrease in population [from 1921] in some of the other districts. The problem of the drift of population from country to city [sic] is not a monopoly of civilized countries. This aspect of the problem involved in guiding the Native in his onward progress is receiving attention by the Administration, and steps are being taken to counteract the tendency. (N.Z.P.P. A-4α, 25.)

These steps – whatever they were – must have been notably unsuccessful: Apia has maintained a rate of population growth consistently among the highest in the islands. The decreases in the rural districts referred to in the census Report occurred during the 1900–26 period in the Falealili and Lepa districts, among the most remote on Upolu; on Manono and Apolima, although in this case there was a compensating increase in the population of the allied Mulifanua villages so that this movement would seem to be merely a shift to live with aiga on the mainland; and in virtually all districts in northeastern and in western Savai'i. During this period the eruption on Savai'i had caused the shift to Upolu of population from the villages of the Lealatele and Saleaula districts, which were inundated by the lava. It is symptomatic of the attitude of the Samoans living in remote areas – even as early as 1911 – that given a choice of a site on Savai'i or on Upolu, they opted firmly for the latter. The eruption appears to have caused some understandable nervousness in adjacent districts as the entire area between A'opo and Amoa showed a decline in population numbers.

The influenza epidemic also occurred during this period. Although its effects may have been more lethal in some areas than in others, no information on the possible variation is available. The mortality rates for Savai'i were similar to, but slightly lower than, those for Upolu and differential mortality could possibly account for the population decline in some areas. It is also probable that the provision of health services would have been unevenly distributed during this period. Savai'i and the more remote areas of Upolu may have retained mortality rates significantly higher than those of the more accessible areas, particularly Apia.
Some rural districts increased their populations at a rate faster than could reasonably be accounted for by differential mortality or fertility. These were the northwest coast villages (which were obviously benefiting from their association with Apia and the commercial estates) and also Lefaga, Safata and Palauli. The precise reason for the rapid increase in these districts during this period is not known, but as they have since continued to expand their populations at high rates, the cause probably lies with their suitability for agricultural development. During this period, more than any other, the Samoans were obliged to reassess their land resources, and in their determination of the relative suitability of different areas for further agricultural development these three districts would emerge well. Between 1900 and 1926 Upolu increased its population by 5,259 'Samoans' at a mean annual rate of 1.0 per cent, while Savai'i showed a net decrease of 1,386 'Samoans', a negative rate of 0.4 per cent annually.

The 1926-45 period

During these years the northwest segment of Upolu maintained its fast pace of population increment. But some complexities were beginning to appear; while Apia continued to grow very rapidly, the coastal villages of the northwest grew at an even faster rate (at approximately 3.6 per cent annually). At this time they were rapidly diversifying their agriculture by the large-scale planting of both cacao and export bananas. Excluded from this progress were the two small areas centred on Vaisusu and Toamua villages, both hemmed in by commercial estates and by this time obviously beginning to feel the effects of land shortage. The fastest growing district was Lefaga. The reasons for this were almost certainly the inclusion, after 1930, of this district in the banana export scheme and the provision of road access to Apia in 1942. A rate of nearly 4.0 per cent as a mean annual increase in a rural area was unprecedented in Samoa up to this time.

Unfortunately the administration do not appear to have had a very clear appreciation of the decisive role which road extension could have in economic development. When the Administrator was asking the New Zealand government for a grant to help complete the Cross-island road, initially begun by the American forces for military purposes, he wrote

While I cannot put forward any very strong grounds from an economic point of view why this work should be done, I am quite satisfied that the road would be useful in opening up the Territory and providing communications from the south to the north coast of Upolu, and ultimately I hope affording some means of distributing the native population, which at the present time is unfortunately over-concentrated around Apia and on the north coast of Upolu. (A.W.S. 27/1c, 2 Aug. 1943.)

The more remote districts, in the absence of any connection with Apia but the occasional copra-launch, continued to increase at rates well below the mean, and in the case of the more spectacularly isolated such as Uafato, to decline in population. On Savai'i, although higher rates of natural increase had halted the decline in population (and a few districts slightly exceeded the mean rate for the
territory) most districts grew at below average rates and a drift continued to the progressive districts of western and northern Upolu. During this period Upolu increased at a mean rate of 3.0 per cent annually, while Savai'i lagged behind with an equivalent rate of only 2.0 per cent.

The 1945-51 period

The population changes between 1945 and 1951 continued to show an increasingly complex response to the local variations in social and economic opportunities. While past development and to some extent the immediate opportunities for future agricultural expansion continued to be reflected in differential rates of population growth, for the first time the immediate history of population growth also appears to have had some bearing on its subsequent course.

This characteristic of boom followed by pause first appears clearly in the case of Lefaga, which had grown so rapidly in the 1936-45 period; between 1945 and 1951 this district showed a population increase well below the mean for the territory. The aiga is a flexible unit and can readily absorb additional relatives from other districts. Such influxes may occur spontaneously in response to an increase in economic or social opportunity or kin may be called in specifically to assist with some village or aiga project. But there seems to be an upper limit beyond which the process becomes self-defeating and the additional population an embarrassment. As yet very few cases have occurred, even under the most stimulating conditions, of population increase in rural village areas above a mean annual rate of 5.5 per cent (30 per cent over a five year period). The permanent absorption of this proportion of additional population requires the building of new houses in the village, usually the allocation of new land to the incoming taule'ale'a and, if a matai is included in the immigrant population, some reorganization of the village political structure. Such innovations must be deliberated over and the effects digested for a period of some years; this would seem to be the main reason for the spasmodic tempo of rural economic development and population growth so far.

The Cross-island road was extended during this period from Lotofaga along the south coast through Safata. The effect on population growth was less marked here than had been observed in similar cases in other districts. Between 1945 and 1951 the population of Safata increased by 29 per cent, or at a mean rate of 4.3 per cent annually, so that some inward movement of population did occur during this period. But the effect was spread over a span longer than the six-year intercensal period; the road was built to three villages of western Safata before 1945, while those in eastern Safata had scarcely had time to benefit from their improved access by the time of the 1951 census. Probably as important, between 1949 and 1954, was the low level of banana exports, so that the economic incentives which normally accompanied the road-building were less effective than usual.

Other rural districts in the eastern half of the island, with only one exception, increased at average rates or below. The reason for the above-average increase of the Lotofaga villages is not known, but some diminution in outward
movement, or an increase in the number of newcomers may have occurred in anticipation of the road over the Mafa pass to the south coast on which construction was beginning at this time.

Only one area of Upolu, the two isolated villages of Sauago and Saletele, actually suffered a loss in population. Apolima island also showed a slight decline. Manono increased its population at a rate slightly above the mean (27 per cent) for the first time since 1900, the reason probably lying with the acquisition by the Manono people of a small additional area on Upolu in 1950. They were also negotiating during this time to purchase additional areas from the Reparation Estates (later WSTEC).  

The northwest coast villages and Faleleitai continued to expand their populations during this period, but at a rate (4.7 per cent annually) which, although higher than in the previous period, owed less to inward movement of population and considerably more to natural increase.

By 1951 the first signs were appearing of some overcrowding in Apia. This is indicated on figure 43 (1945-51) by an exceptionally high rate of increase in the Vaiusu group of villages immediately adjacent to Apia. This area, with entirely inadequate land resources, was becoming noticeably dependent upon income from salaries and wages and therefore assuming suburban functions. The rate of growth exceeded that of Apia itself. Further out, the group of villages centred on Toamua continued to grow only slowly, hampered by extreme land shortage; the alternative of paid employment in the adjacent plantations and in Apia was not yet fully compensating for the deprivation this group of villages suffered from the loss of their agricultural land reserves.

The pattern of population change in Savai'i, being less definite, is more difficult to interpret. Several areas grew at very slow rates, well below that anticipated from natural increase alone, and were obviously contributing to the high rates of increase observed in the northern districts of Upolu. Those areas of Savai'i showing population increases above the mean, including the inexplicably extreme cases of Taga and Tafua, are probably connected with the incomes derived from cacao, which began to increase markedly during this period, and with continued planting and development of this crop. Although the rates of growth can only be estimated owing to the confusion over the floating population of Samoans classified under 'extra village domicile', Savai'i during this period increased its Samoan population at a rate (23.7 per cent) scarcely less than that of Upolu (25.9 per cent).

Population change between 1951 and 1956

The census Report of 1956 was the first to include a comprehensive list of population totals by all inhabited

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5 These estates were originally German-owned properties in Western Samoa, seized in 1914 by New Zealand and retained as a commercial enterprise by that country. In 1959 they were transferred to the Samoan people as the Western Samoan Trust Estates Corporation.
localities in Western Samoa. The total populations of each village or settlement were given irrespective of the legal or ethnic status of the inhabitants. Consequently, the totals cannot be compared directly with the village numbers of 'Samoans' by legal status, which appear in the 1951 Report. Although this provides a major problem when the 1951 and the 1956 censuses come to be compared, such a reform was urgently needed and it is anticipated that future censuses of Western Samoa will adopt the new practice as standard. The comparison from census to census of population changes for any inhabited area of the country will then be possible on a sound geographical basis.

The compilation of figure 44 (1951-6) was necessarily somewhat difficult and complicated, and the result is subject to some degree of error. In a re-examination of the 1956 census schedules the numbers of persons of 'Samoan' status and those classed as 'European' were separated for each village and locality, and the 'Samoan' total was used as the basis for comparison with the equivalent totals of 1951. To these figures, however, it was necessary to add the Samoans classed as 'living on European' land and not taking part in village affairs' (6,918 persons). This figure was presented in the report as though all lived on Upolu, no separate total being given for Savai'i. This seems the result of confusion on the part of those compiling the Report rather than any reflection of an actual condition, so this total was accepted as if it applied to all Western Samoa. As these Samoans are in most cases tied to persons of 'European' status either by family relationship or by their employment, it was assumed that their distribution would be similar. The total number of 'Samoans' was divided proportionately on this basis and added to the 1951 totals for each district. In some districts this made little or no difference to the totals used, but in others, such as the villages of the northwest coast of Upolu, over 600 persons were added to the 'Samoan' total.

The pattern of population change in the 1951-6 period differs markedly from that of the previous intercensal period, although several of the major trends were to be observed in embryonic form in the 1946-51 period. The most important of these is the shift in the impetus of population growth away from the northwest coast into the newly accessible districts of the south coast. During this five year period, as a result of an ambitious programme, road access was provided to nearly all districts on Upolu. The Cross-island road was continued along the south coast into Falealili, while the road over the Mafa Pass was completed, and continued through Aleipata to Ti'avea. A road was also begun into the Fagaloa bays area. On Savai'i, too, although the road system remained in three separated sections, virtually every village was given road access and facilities for the transport of produce and passengers to the port villages.

The result of this revolution in the communication system of the territory and of a rapid expansion in banana production after 1954 is shown plainly in a changed pattern of population growth. The populations of all the districts of the Upolu south coast grew at rates in excess of the mean for all of Western Samoa, the highest being in the western Falealili district. All the villages of this district were made accessible by road during the first half of this period. Lefaga also resumed a very high rate of increase, while Safata and eastern Falealili grew at healthy but more modest rates.
Extreme rates of growth occurred in three small areas of Upolu for special reasons; these were the Toamua group, the two villages Amaile and Samusu in Aleipata, and Apolima which during this period bought two small pieces of land on Upolu and established a new village, Apolima-fou. This settlement was constructed on a coastal site, on an area of land which had belonged to the New Zealand Reparation Estates, and as a consequence the number of persons counted in both Apolima settlements rose to 253, an increase of 40 per cent on the 1951 figure (which applied only to the island). A survey made by the Department of Agriculture in 1951 to determine the needs of the Apolima community found 619 persons claiming to belong to the village (A.W.S. 5/9/5/5B, 21 Nov. 1951). It is apparent that a proportion of these persons (actually less than 12 per cent) returned to the village when the new village was being built in 1953-4, so boosting the Apolima population with this exceptionally high rate of increase.

The Toamua group of villages during this period obviously caught the wave of the suburban functions spreading outwards from Apia. From being a group of underprivileged rural villages they became a source area for a growing proportion of the Apia work-force, and consequently an attractive place in which to live. By contrast the population of the Vaiusu group of villages, which had shown this characteristic in the previous intercensal period, declined slightly.

In Amaile and Samusu a spectacular rate of growth was directly induced by the road which was built (in 1952) through the lands of the two villages. The route taken traversed their plantations from the malaes to the furthest taro plots. The provision of such good access to the village land (many Amaile and Samusu people wishing to go up to the plantation to work now take the bus) and the amount of high quality uncleared land thus made available provided an incentive to persons with aiga connections to move to the two villages. A similar trend is discernible in the villages of Lotafaga and Falevao, where the road performs a similar function.

Extremely high rates also occurred in two districts of Savai'i. In the inland villages of northeast Savai'i this was largely due to the growth of an export banana industry. This somewhat surprising development (the villages are by no means the most accessible in Savai'i) was largely due to the connection this district has with Leauvafa'a village on Upolu. The inhabitants of this village, established after the Matavanu lava flow devastated the coastal villages of Lealatele, encouraged their aiga in Samalaeulu to apply for an allocation to supply export banana and so share in their prosperity. In 1954 the Savai'i

Apolima had previous to this, in 1926, been granted (on a rental basis) 17 acres for a new village in Upolu and 100 acres of land for plantations were also reserved for their subsequent use. This land was never actually developed by the Apolima people and their rights were withdrawn in 1931 because of their persistent adherence to the Mau. It subsequently became part of the Satuimalufilufi land when this village was shifted from its original site when the Faleolo airstrip was built in 1942 (A.W.S. 5/9/5/5B 1924-51).
village requested and was granted an allocation of cases to be shipped through Fagamalo. The experiment proved successful and for the next four years this district (Patamea and Mauga coming in subsequently) was the largest supplier of banana in Savai'i. It was only to be expected that the provision of such an inducement in a district long handicapped by lack of opportunity for agricultural expansion should lead to a rapid increase in population.

The Sala'ilua area also showed a rapid advance during this period, its prosperity based on cacao rather than banana. The proceeds were channelled to unusually concrete forms, electricity and piped water schemes, both of which appear to have been an attraction to persons living outside the area. Sala'ilua village has also benefited from its administrative functions, being a port, school and hospital centre. Palauli district also showed a healthy rate of increase, induced principally by its high income per head from agriculture, including a small proportion from export banana. The villages are also supplied with electricity and piped water.

Several areas on both Upolu and Savai'i grew at rates well below those to be expected from natural increase, and in some cases even recorded a net decline during the 1951-6 period. These are Ti'avea, Uafato, the Vaiusu group, Mulifanua, Taga, Tafua and A'opo. It is also believed that the population of the commercial plantations remained virtually static, although no accurate or complete population data was available from these areas in 1951.

The villages of Ti'avea, Uafato, Taga, Tafua and A'opo fall into one group as lone villages isolated from other settlements and suffering from inaccessibility and remoteness. Most of these secluded villages retain the traditional Samoan organizations and attitudes to a greater degree than most other parts of the group, and this is an obvious source of pride to the older inhabitants. The young, however, whose work is often unduly burdensome in such places, are easily lured away by the softer living in areas with a better natural endowment. The building of roads into villages of this type, as occurred at the end of the intercensal period in Ti'avea, may greatly change their demographic character in the future. By 1956, however, the difficulties and burdens of road construction along the steeply-sloping route appeared to have brought more dissension than benefit to this village. The potential effect on its population was not discernible - Ti'avea showed the highest rate of population decline between 1951 and 1956 in Western Samoa (7 per cent).

The commercial estates and small-holdings are assumed to have a population which increases little if at all from census to census. If management is efficient and improved methods are being introduced, the demand for permanent labour should be progressively reduced on such estates. The areas of new development are small and will absorb few additional hands. Although there is likely to be considerable

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During the census, a team of 35 road workers was stationed at Samalaeulu so that the true rate of population growth would be 27 per cent rather than the 33 per cent which was used for fig. 44.
movement of population, the numbers of persons allowed to live on such areas will normally be strictly controlled. In 1956 these areas had a population of 935 persons of 'European' status and 2,642 'Samoans' who, under the system used in 1951, have been classed as 'Samoans living on "European" land and not taking part in the affairs of any village' and consequently omitted from the list of village and locality totals. No data is available on the distribution of these people, although it is not likely to have altered greatly between 1951 and 1956, and knowledge of the demographic trends working in these areas between 1951 and 1956 would now seem to be permanently lost.

The cases of the Mulifanua and the Vaiusu villages have been referred to previously. In both areas the possibilities for further agricultural development are minimal, although the use of fertilizer and an improvement in agricultural methods could reduce their present dependence upon outside sources of foodstuffs. In Mulifanua over a fifth of the village population is now dependent upon wage-earning; most work on the adjacent commercial estates, but a few persons commute the 25 miles each day to Apia. An increasing dependence upon paid employment would seem to be the only means by which this community could continue to support a growing population. Mulifanua was the only rural district, having a considerable population and good access to Apia, to show a population decline between 1951 and 1956. The decline in the Vaiusu area is not of such significance and is probably in part merely the result of an excessive rate in the previous period, which could not be sustained in the five years following.

Apia continued to grow at a rate well above the mean for all Western Samoa during this period. As the town contains a high proportion of persons with European status and Samoans 'not taking part in village affairs' it is extremely difficult to estimate a reliable rate of growth for the urban area. For 1951 an estimate of 14,100 persons was adopted for the urban area (as defined in 1956). This gives an intercensal increase rate of approximately 29 per cent, which appears to be a reduction on the rate applying in the previous intercensal period. While it has been usual in Western Samoa to deplore the expansion of Apia, and the administration has sometimes expressed its intention to discourage 'urban drift', there are some grounds for regarding urban development as healthy evidence of a diversifying economy. The proportion of the population engaged in secondary and tertiary occupations, most of whom will live in the town, remains very low in Western Samoa. A falling rate of urban population growth can be taken as an indication that insufficient new employment opportunities are being created to maintain a healthy rate of economic growth in addition to that normally induced by natural population increase. The continuation of a decline in this rate should be a cause for some apprehension as Apia is situated in the midst of an area in which opportunities for further agricultural development are gradually closing up.

The estimate had to be made using graphical methods as the totals within the categories and localities are too confused in the 1951 census Report to provide a reliable basis for estimating the urban population. The estimate given in the Report - 16,000 persons, including 4,000 'Europeans' - is certainly incorrect.
A definite trend in the flow of both internal and external migration (which tend to be selective both of age and sex) will have the effect over a long period of producing locally distinct population structures. Differential fertility and mortality where this exists will have a similar effect. The patterns of differential rates of population change observed in the preceding chapter suggest that considerable variation in local age and sex structures may be found. In this section the age and sex structures of the three major population types are examined – those of the urban area, the commercial holdings, and the rural Samoan villages. Considerable demographic variation has already been shown to occur in the rural villages, and a further group of these, chosen for their isolation, is also examined as a fourth example.

The analysis procedure

The method employed here to analyze the differential age and sex structures estimates the actual deviations in numerical terms, so avoiding the comparisons of percentages. For this, it is necessary to adopt the total population of Western Samoa as the 'normal', against which the variations shown by its smaller parts may be compared. It has been demonstrated that the total population is itself affected to a discernible extent by population movement, lately in the form of age selective emigration (ch. 6). Lack of data on the Samoan components within the populations of the host countries and the problem of excluding American Samoans whose pattern of migration is believed to be different prevent a reliable adjustment being made at this time, although such correction would have been desirable. However, the age-sex pattern given for the Samoan components in New Zealand, as the largest and probably most representative group, could be born in mind when the different age and sex structures are examined.

To the extent that each constituent population conformed to the structure shown by the total population it was assumed to be 'normal'. Significant differences were ascribed to past population transfer, the type depending upon which age or sex group was affected and to what extent. A likely objection to such an assumption could be based on the possibility of variation in the levels of fertility and mortality specific to certain age and sex groups in certain localities. With the possible exception of the urban area (a case discussed in detail in a subsequent section) such variations are not believed to be of critical significance in themselves; but they could conceivably be of some importance in providing added or decreased significance to the differential levels due in greater measure to migration. In the rural village areas the aiga system, the demands of village living and customary agriculture promote the development of population structures approaching 'normal' proportions even in small groups. This is a phenomenon noted repeatedly in the analysis of village populations, particularly in areas in which it could be anticipated that conditions would not be liable to induce unusually high net inward or outward migration. This tendency toward the 'normal' structure in Samoa must reduce the possibility of the observed deviations being due to chance.
In each population persons aged 0-4 years and 50 years or over were adopted as control groups, as they are least subject to population transfer and are therefore the most stable. The use of these two groups, each having characteristics complementary to the other, allows the central area of the age and sex structure to be examined from two different points of reference. The 0-4 age group is normally the most numerous and therefore least subject to random variation, but is apt to be influenced, sometimes to the extent of seriously impairing its usefulness, by variation in the female groups within the reproductive age range.

The observed proportion in each of these two groups in the constituent population is taken to correspond to that of the same group in the total population. To eliminate some of the chance variation in sex ratios likely to occur in these small populations, the total number in each control age group was divided between the sexes, using the ratios established for the total population.

Using each of the 'control' age groups separately as a standard proportion, a total for the 'expected' population was calculated and this was then divided between the other age and sex groups according to their established proportion in the total population. The result is two 'expected' populations having the structural proportions of the total population, but of a numerical order directly comparable with the populations observed in the selected areas. The differences between the actual and the expected populations are then tested for statistical significance and are plotted diagrammatically (figures 45-8).

The populations of the four groups have been analyzed to demonstrate the feasibility of including variations in the local age and sex structures in the criteria on which an areal division may be based; they represent the extremes in their proneness to population transfer and in their illustration of the contrasting results.

The rural villages

The population living in the rural village areas is 75,499 persons, or 77.5 per cent of the total population. Although the village population represents a high proportion of the whole, it shows marked deviations from the 'expected' population; these are shown in figure 45. The two diagrams show the differences derived from the 0-4 group and the '50 and over' range. The patterns shown in each are similar, except in the 0-9 year range. The major characteristic is a pattern of statistically significant deficiencies in the numbers of both males and females in the adolescent and young adult age groups. For males this deficiency occurs first in the 10-14 age group, where the estimate indicates a proportion of 5 per cent absent from the villages. In the older age groups the proportions absent rise; of the 15-19 age group (whose members may be assumed to be away at school) the proportion absent is approximately 13 per cent (estimated at 525 persons) and from the 20-24 age group

This includes such institutions as hospitals, residential schools and missions where these are located in rural districts. The total number of persons living in the village communities is therefore smaller than the number given here.
(whose reasons for absence are more varied but usually hinge on a distaste for village life) approximately 11 per cent have left.

The pattern for females is strikingly similar, although both the numbers and the proportions involved tend to be a little lower. The deficiency of females 10-14 years may not be statistically significant, although that such a deviation could occur by chance has a probability of less than 10 per cent. Both the 15-19 and the 20-24 age groups show highly significant deficiencies in the numbers of females, approximately 10 per cent and 8 per cent respectively.

At higher ages the pattern is not so clear-cut, but the evidence of some past net outward migration persists into the 'middle-age' groups. For males the numbers in the 25-29 group are significantly deficient to the extent of approximately 6 per cent. The deficiency of females is significant only in terms of the first 'expected' population and does not exceed 3 per cent. Except for the dubious possibility of deviations in the 50-89 range, which are of little interest, no other age group shows significant deviations from the expected numbers. As a group, males between 30 and 49 years are significantly depleted, although the deviation in any one five-year group within this range could have been due to chance, the consistent deficiency throughout the range is unlikely to have arisen in this way.

The major difference between the estimates derived from the two 'expected' populations lies in their estimates of the numbers of children 0-9 years. While in no one group is the implied surplus statistically significant, that applying to the two male groups combined does exceed this level. Such a surplus is of particular importance in that it occurs in a population in which the numbers of females in the reproductive age range are depleted to a very marked degree. The implication is that the fertility of the females living in the rural village areas is higher than the mean fertility levels established for the population as a whole. Of the other differences only the variation in the size of the estimated deviations is important. Because of the likelihood of the numbers in the 0-4 control group being affected, firstly by depleted numbers of females in the reproductive age range, and secondly by the possibility of higher fertility levels, the numbers estimated by the expected population derived from the 50+ age range are probably the more reliable.

The urban area

The same technique applied to the urban area gives results which, in most important respects, are exactly opposite to those obtained for the rural villages. The population of the urban area is 15,153 persons, or 18.7 per cent of the total; while this is a much smaller proportion of the total population, the deviations closely match in size (although in the opposite direction) those obtained from the rural village population. Not unexpectedly,

10 It is highly significant (less than 1 per cent) in terms of the first (0-4 years) expected population but it lacks statistical significance in terms of the second (50+ years) expected population.
it becomes obvious that the source of the surplus numbers noted in the urban population has been in the rural village areas.

For both males and females there are surpluses exceeding the level of statistical significance in both groups in the 10-19 age range. The superior educational facilities of the urban area provide a strong incentive for children of school age to be moved into the town and this is shown by a surplus of approximately 650 boys (10-19 years) and over 500 girls. These additional numbers represent an increase of approximately 20 per cent of males aged 10-14 years, and 48 per cent of males aged 15-19 years; for girls the equivalent proportions added are 12 per cent and 47 per cent.

The numbers aged 20-29 years attracted to the town by the prospect of paid employment (or perhaps merely a desire to escape from the customary obligations in their villages) are between 500 and 600 persons. This represents an increase in the proportion of both males and females of 28 per cent in the 20-24 age group and 10 per cent in the numbers aged 25-29 years. The numbers of males in the 30-34 age group may be an actual surplus, but this is not substantiated by the deviation indicated by the second (50+ years) expected population.

At older ages there are no deviations of certain significance which are interesting or for which causes can be confidently adduced. The only possible exception is the deficiency of males aged 35-39 years, but it is difficult to imagine why such a group should be depleted within the urban area; there is no compensating surplus within the rural villages.

The significant deficiency of children 0-9 years within the urban area, associated with excess numbers of females in the reproductive age range, is a complementary phenomenon to that observed in the rural village population. Again the implication is that the fertility of this group of women is different from that of the population as a whole.

In view of the discrepancy between the numbers expected (on the basis of the second expected population) and the numbers observed in the 0-4 age group, the estimates derived from this second set (50+ years) of expected numbers are probably the more reliable. The estimates derived from the first set give larger surpluses for those groups in which there are significant deviations, and although these estimates have not been incorporated in this discussion, the actual figures could well be higher than those suggested.

The commercial estates and holdings

While the deficiencies observed in the numbers of persons in the rural village population are compensated for to a large degree by surpluses in the urban area, this compensation is not complete. In some age groups, particularly males aged 15 and 49 and females between 35 and 44 years, part of the deficiency characteristic of the rural village population is compensated for by significantly pronounced surpluses within the population of the commercial estates and private rural holdings. These deviations are shown in figures 47a and b. This pattern of deviations is the most striking of the three. Males aged between 15 and 59 - that
is, the working years - are in excess, usually to a very significant degree in all the five-year age groups within this range. In the case of the 20-24 year group the surplus rises to 98 per cent. The pattern of deviation for females is much less marked, with only two groups showing surpluses of any interest - those in the 35-44 age range. Female groups at lower ages show a persistent indication of surplus above the age of 20 years, and while individually they do not achieve statistical significance, as a group they exceed this level. It may be assumed from this pattern that paid employment on commercial plantations tends to attract single men, or that many younger workers do not find it worthwhile maintaining their families in plantation quarters. When a worker achieves a senior position, however, he is more likely to be accompanied by his wife and children. The deficiency of children, particularly boys in the 5-9 age group (the only one which achieves statistical significance) is probably related to the poor schooling facilities available to the plantation-dwelling population. In most areas it would be necessary to send the children away even for primary education.

There are only 3,577 persons (3.7 per cent of the total population) within this group. Most have been drawn from the rural villages and, like the population of the urban area, that of the commercial plantation and private rural holdings should be considered as complementary to the rural villages. Together the three divisions comprise the total population of Western Samoa.

The lone villages

This last population has been analyzed to demonstrate as an extreme example the local variation possible in constituent groups within the larger rural village population. It is assumed that the structural proportions of this total population are an average of the individual village populations. The structures are varied by several conditions; some are strongly influenced by urbanization (and share many of the characteristics found in the urban population), others have major disadvantages (in the light of the Samoans' changing expectations), so that certain sections of their populations are increasingly loth to endure them. The 'lone villages' of this latter type have been assembled here for special consideration (fig. 48).

The age and sex groups most likely to be affected by the remoteness, social and economic limitations and conservatism of such villages are males and females in the 10-29 age range. There are significant deviations in the number of males in all groups between 10 and 29 years. The highest proportion of absentees occurs in the 10-14 year old group, approximately 24 per cent, most of whom will be away at school. Similar but slightly lower proportions also apply to the three older age groups, but after the age of 30 years proportions living within the village revert to the expected levels. The pattern of deviations for females is not so defined. Only at ages 15-19 does the

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11 This group of 13 villages comprises Uafato, Ti'avea, Sauago, Saletele, Salamumu, Apolima (tuai), Tafua (tai), Taga, Tufutafoe, Vaotupua, Avata, A'opo and Letui. All have isolated situations.
absence of females lower the numbers in a group to a significant extent, and here approximately 33 per cent are shown to be absent. The equivalent proportion for boys is only 19 per cent. Such a discrepancy may appear surprising, bearing in mind the present social and economic trends now working in Western Samoa. The reason probably lies in the advantages which these villages as a group still retain by contrast with many of those more accessible; land is usually freely available at little distance from the village, and they also conserve, in the purest form now remaining, the traditional modes and standards of Samoan culture. For Samoan men, particularly as they mature, such a life retains a strong appeal. For this reason, although there is a high proportion of absentees from these villages in the school-age and young adult groups, there is a discernible drift back to normal proportions with advancing age. For women these incentives do not apply to the same extent. The very high proportion of girls away from the 15-19 age group is further evidence of the conservative attitudes prevalent in these villages. A family can well dispense with some of its young girls, if they wish to leave to go to school or find a husband in some more diverse area, but a boy's place is in the aiga serving his matai. The continued deficiencies in the numbers of females persist to the age of 40 years, and while no one group is depleted to a statistically significant extent, the consistent deficiency in numbers of the group as a whole does exceed this level. It implies a tendency to marry outside the village. There seem to be no obvious reasons for the surplus of females in the 45-49 and 80-84 age groups.

The pattern of deficiencies in this population on the whole resembles that found for total rural village population, but the proportions absent in those groups showing significant deficiencies are invariably much larger.

The age and sex structure as a regional variant

The contrasts shown by the four age and sex structures analyzed are extremely revealing of important attitudes and inducements now working in each of their areas. Such many of these result of modern trends; local age and sex structures are not believed to have shown significant aberration before the Samoans' contact with Europeans. Although the immediate result of a local war may have been to affect temporarily the structure of the population concerned, and mortality may have been affected by the location of settlements to some extent, there appears to be no reason why significant and consistently recurring alteration of the age and sex structure should have been characteristic of the pre-contact population. But variables such as accessibility, the opportunity for paid employment, agricultural productivity, proximity to the urban area and even such intangibles as economic, social or political leadership, or the local opportunities for education, now combine to affect the areal distribution of the numbers and proportions occurring in certain age or sex groups.

The worth of analyses of local age and sex structures extends further than their intrinsic interest. It also goes beyond their utility as evidence in the study of rates of population growth, for instance, or in the judging of administrative requirements in certain areas. They may also be used to gain insights into the emerging wants and ambitions in the various sex and age groups. Such trends, for
the most part, do not allow direct quantitative measurement in Western Samoa at this time, but they reveal themselves indirectly in altered age and sex structures and their effects may be gauged in a general and relative way by the judicious use of such data.

Differences in the structure of local populations will be among the more important measures of areal dissimilarity and, in the regional descriptions, the analysis of the age and sex structure will form an important part.

**Occupation and Employment**

The proportion of the total Western Samoan population within the economically active age range has decreased in the last few decades, as a consequence of the changing balance between fertility and mortality. There has been a complementary rise in the proportions within the pre-employment age range. Before their contact with Europeans the proportion of Samoans actively engaged in agriculture must have been considerably greater, although the group was required to provide only the needs of subsistence. The crops and the methods used in their tilling have altered curiously little since those times; but since the commercialization of Samoan village agriculture subsistence plots absorb only a small proportion of the time devoted to the village plantations. Although agriculture has been shown to consume a relatively small proportion of the working week (p.111), the conclusion must be that, in contrast to the customary work habits of pre-contact times, the Samoan cultivator must now work considerably harder, as the numbers of persons dependent upon him and the individual demands of each are significantly increased.

**Employment in customary agriculture**

The proportion of the total population in each rural village district now engaged full time in customary agriculture shows a relatively small variation about a median on 13.4 per cent. The number of persons in this group is estimated to be 9,800, on whom a further 56,000 are believed to be dependent.\(^\text{12}\) This group is composed of males between the ages of approximately 15 and 45 years. Below this range most Samoan boys still attend school and those who do not are assumed to be less effective workers than their adult colleagues. Although some males above the age of 45 continue to be regular and effective agricultural workers, most, particularly the more competent, will by this age have acquired a ceremonial title. While this does not necessarily preclude useful work in the village lands (many matai effectively direct the agricultural activities of their aiga), relatively few could be classed as full-time members of the work-force - and some never do a day's turn.

\(^\text{12}\) The number given in the Report (Jupp 1958, 118) for persons occupied in village agriculture was 15,190, all of whom were males. This should be taken as all the males, including titled persons, available for customary agriculture. The number estimated here is the minimum actual full-time village work-force, as far as these can be judged from the family structures shown in the census schedules.
Females usually assume a considerable amount of agricultural work, particularly weeding, carrying the produce back to the village and processing it, but again few could be described as full-time. Those who could perhaps be so classed cannot be distinguished in the census from those whose interests are exclusively domestic. Although the contribution of all these part-time workers - matai, women and children - will in sum be considerable, this discussion is necessarily limited to the male full-time workers.

Variation in their proportion within the total population is shown in figure 49. The range within the villages lies between 18.0 per cent in A'opo to only 6.7 per cent in the Vaiusu group adjacent to Apia. The urban area itself contains some villages which work their lands in the traditional way, but the number of persons who declared themselves to be engaged full-time in customary agriculture was only 1.6 per cent of the urban population. The commercial estates and individual small-holdings, being privately owned, cannot support customarv agriculture, although in some areas the methods employed and the products differ little from those usual on village land. The other differences (apart from those which may probably be ascribed to chance) tend to be due to variations in income or prosperity, in the degree of local conservatism and alternative opportunities for employment. Those areas with the highest proportion include remote or retarded areas such as A'opo, Ti'avea, Manono and Tafua and the Salega district. But the scale of returns from customary agriculture seems also to have had some effect. In the areas with relatively high proportions engaged are included those with a high income per head where this is combined with limited opportunities for alternative employment. In this category are western Falealili (14.2 per cent), Palauli (14.7 per cent) and Sala'ilua (16.2 per cent).

At the opposite end of the scale are areas which have had, because of their location, unusual opportunities to diversify their range of employment and those which, because of extremely limited agricultural opportunities, have been forced to do so. The extreme case here is Apia, but nearby villages, such as those in the Vaiusu and Toamua groups, show a similar trend. The area offering the greatest scope for alternative employment on Savai'i, Safotulafai (which includes the centre of government administration) is another example. The district nearby, Amoa, is not a genuine case of this trend, as at the time of the census a considerable proportion of its male workforce was away. Other examples include the villages of the Vaisala-Asau group, where alternative employment opportunities, both local and elsewhere, have been taken. Similar cases are Mulifanua and Uafatofa, where limited opportunities for further agricultural development have induced a tendency to search for other ways of earning a living.

13 A large party of males was absent in temporary paid employment at a commercial estate on Upolu, the occasion being a special effort to raise funds to pay a debt incurred by the district in building a new school. A correction of the number of males working full-time in this district shows that it would have a proportion of 14.4 per cent, which is comparatively high.
The number of persons per worker engaged full-time in customary agriculture within the village groups varies over only a small range, with a median of 6.36 persons and extremes of 5.15 in the case of A'opou and 7.97 in the case of Safotulafai.

Paid employment

The growth of a group of persons who depend for their living upon money incomes, wages or salaries has been a development of only slightly less importance than the conversion of Samoan village agriculture to commercial production. In 1956 this group contained 8,636 persons, on whom a further 22,300 persons are estimated to be dependent.14 These persons are spread throughout the islands and although their distribution is very unequal, no village was found without someone in paid employment. Combined, the employed and their dependants comprise nearly one-third (32 per cent) of the total population. Of the persons in paid employment 6,472 are full Samoans. While they now comprise three-quarters of those in paid employment, the Samoans are shown in Table 15 to have by far the lowest proportion of the total population so engaged.

Table 15. PERSONS IN PAID EMPLOYMENT, BY ETHNIC ORIGIN: 1956

<table>
<thead>
<tr>
<th>Ethnic Origin</th>
<th>Number Employed</th>
<th>Proportion of the Total in Paid Employment</th>
<th>Proportion of Total in Ethnic Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samoans</td>
<td>6,472</td>
<td>75%</td>
<td>7%</td>
</tr>
<tr>
<td>Part-Samoans</td>
<td>1,480</td>
<td>17%</td>
<td>19%</td>
</tr>
<tr>
<td>Europeans</td>
<td>404</td>
<td>5%</td>
<td>61%</td>
</tr>
<tr>
<td>All Others</td>
<td>280</td>
<td>3%</td>
<td>38%</td>
</tr>
</tbody>
</table>

The part-Samoans are much more dependent upon paid employment but not to the extent shown by the full Europeans. This group, while very small numerically, shows an exceptionally large proportion of the total population to be working. Their proportion is so high that most Europeans in paid employment in Western Samoa will have fewer than one other European dependant. The 'all others' category, including mainly islanders from other groups in the Pacific and the Chinese, while numerically insignificant in the total workforce, also show a high proportion of their total numbers in active employment. They are not, however, as highly selected as is the European group.

That full Samoans have come to dominate numerically the group in paid employment is a recent phenomenon. In a

The schedules for the 1956 census were not designed to show the numbers dependent upon persons in paid employment. The figure given is an estimate based upon the number of persons living in households which include at least one person in paid employment. The figure is unofficial and was derived from a re-examination of the census schedules. The degree of dependence must vary, but there is no way of measuring this. In the town and on the commercial estates such dependence is likely to be virtually complete, whereas in the villages the income from wages or salaries will usually be additional to the subsistence and money income derived from the working of customary land.
previous chapter employers in the early days were noted to have had a low opinion of the Samoans as useful workers on commercial plantations; this was the principal reason why islanders from elsewhere in the Pacific, and later the Chinese were introduced (ch.5). However, it can be assumed that almost since the first Europeans arrived, there have been some Samoans who received regular money payments in return for their services. The first types of employees would have been principally servants, mission workers and interpreters. Later, although other ethnic groups were mainly employed, there were always some Samoans employed in the commercial estates. An embryonic public service also came into existence well before the establishment of European control. Later, one of the principal devices of the German administration was the employment of many eminent Samoans in capacities similar to those they held before 1900 under their own system. Together with such other Samoan officials as they might need, these chiefs did the main work of local government. This policy was later continued by the New Zealand administration. Unfortunately it was not until 1936 that data on the numbers in paid employment was included in a census report. In subsequent censuses the data gathered are not always strictly comparable, but they do illustrate the trend (table 16). The principal feature has been the pronounced growth in the numbers in paid employment after 1936, more particularly in the years immediately following World War II. Less satisfactory is the virtually static situation which existed between 1951.

Table 16. SAMOANS* IN PAID EMPLOYMENT: 1936-56

<table>
<thead>
<tr>
<th></th>
<th>1936</th>
<th>1945</th>
<th>1951</th>
<th>1956</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number in paid employment (excl. pulenu'us and pastors)</td>
<td>1,021</td>
<td>1,877</td>
<td>5,170</td>
<td>5,673</td>
</tr>
<tr>
<td>Number in primary occupations</td>
<td>447</td>
<td>348</td>
<td>2,279</td>
<td>1,655</td>
</tr>
<tr>
<td>Number in secondary and tertiary occupations</td>
<td>574</td>
<td>1,529</td>
<td>2,901</td>
<td>4,018</td>
</tr>
<tr>
<td>Proportion of the Samoan population in paid employment</td>
<td>1.9%</td>
<td>3.0%</td>
<td>6.5%</td>
<td>6.4%</td>
</tr>
<tr>
<td>Proportion of the Samoan population in secondary and tertiary occupations</td>
<td>1.1%</td>
<td>2.4%</td>
<td>3.6%</td>
<td>4.6%</td>
</tr>
<tr>
<td>Numerical increase during intercensal period of Samoans in secondary and tertiary occupations</td>
<td>955</td>
<td>1,372</td>
<td>1,117</td>
<td></td>
</tr>
<tr>
<td>Increase during intercensal period</td>
<td>16.6%</td>
<td>90.0%</td>
<td>22.0%</td>
<td></td>
</tr>
<tr>
<td>Mean annual increase</td>
<td>11.5%</td>
<td>11.3%</td>
<td>4.1%</td>
<td></td>
</tr>
</tbody>
</table>

* 'Samoans' are defined in terms of their legal status in the censuses of 1936, 1945 and 1951, and by ethnic origin in 1956, so that the numbers and proportions given for 1956 are slightly lower than would have been the case had the available data included those part-Samoans of 'Samoan' legal status. This group does not exceed 2,500 persons, or an additional 3 per cent to the number of 'Samoans' ethnically defined.
and 1956; although the numbers employed in secondary and tertiary occupations increased (at a mean annual rate of 4.1 per cent) during this period, the total proportion of Samoans in paid employment decreased slightly because of a reduction in the labour needs of the commercial estates.

The numbers in the non-Samoan groups were not collected in either the 1936 census or in 1945 and the data given for persons other than Samoans in the 1951 and the 1956 censuses are not comparable. In 1951 the data were based on persons of 'European' legal status of whom 1,463 were said to be in paid employment, a proportion of 31 per cent. The 1956 census differentiated those in paid employment only on the basis of their ethnic origin and for these small groups no comparisons are possible with the previous censuses.

The persons in paid employment in 1956 were very unequally distributed throughout the islands. The number of persons per thousand total population for each division of the territory is shown in figure 50. The commercial estates and small-holding areas show the highest proportion (389 per thousand), with over one-third of all persons living on plantations actually receiving wages. The urban area shows the next highest concentration with a rate of 207 per thousand. Obviously influenced by their proximity to the commercial estates and the urban area are the village districts on the northwest coast of Upolu, which tend to show rates which are high by the standards of rural districts in other parts of Western Samoa. A decrease with increasing distance from the urban area is evident - 139, 70, 58 and 49 per thousand for the four village groups lying between Vailoa and Satapuala. Against this trend is Mulifanua which has come to depend on paid employment for additional income; the rate for this area was 52 per thousand. On Savai'i the only area apart from the commercial plantations to show a rate exceeding 50 per thousand was the Safotulafai group which includes the local centre of government administration at Tuasivi.

In the villages of the other rural districts the numbers employed were lower, but even between these some significant variations occurred. Several districts showed rates above 45 per thousand: the area east of Apia obviously benefited from its accessibility to the town. Two areas, Lotofaga and the Sataua-Vaisala group, were affected by the atypical development of commercial agriculture by local entrepreneurs. Here, although in both cases the land was held under the pule of a Samoan title, paid employees (rather than taule'lea under the tautua system) did most of the work. The Fagamalo area benefited to some extent as the secondary centre of government administration on Savai'i.

Some districts showed very low ratios of paid employees to total population. These tended to fall into two groups. First, the isolated lone villages such as Uafato, Taga and Tafua; the island of Manono also came into this category, while the island of Apolima, being harder pressed, took advantage of its Upolu foothold and raised its rate of persons in paid employment. The second class was of districts often populous themselves which, because of their location adjacent to areas in which amenities are concentrated, have less than the usual opportunity for their inhabitants to benefit from paid employment within their own district. Palauli is a case in point; although benefiting from the hospital and educational facilities in nearby Satupa'itea, the district itself
shows an abnormally low ratio of paid employees. Other examples of the same situation are the inland villages in northeast Savai'i, Amoa, Neiafu-Falelima and eastern Falealili.

A similar pattern, but again with some significant departures, is shown by the variation in the proportion of the total population dependent, directly or indirectly, upon the proceeds of paid employment (fig. 51). The pattern shown on this map of proportion of the total population dependent upon incomes from paid employment should be studied in conjunction with that showing total returns from customary agriculture (fig. 37). It is apparent that in the rural village districts, with only a few exceptions, incomes from paid employment support less than a fifth of the total population. A characteristic of households supported by persons in paid employment, however, is that they tend to contain smaller numbers than do households supported by persons in customary agriculture; the median value for all areas was 4.0 persons. There was no discernible trend in the distribution of the dependency values, except that village areas particularly dependent upon paid employment tended to show rates above the median, as did the areas in which the proportion of paid employees to total population was particularly low.

As would be expected there was variation in the distribution of certain types of employment. Several forms, such as the village traders and pastors, were distributed approximately pro rata and were consequently lacking in interest. Employees of the government tended to be concentrated in certain centres, particularly in the capital, Apia. Less expected was the degree of centralization evident on Upolu. Outside the northwest coast, no district showed a rate of more than 15 per thousand government employees to total population. On Savai'i this centralization is not so pronounced and four areas exceeded 25 per thousand.

The distribution of wage-earners in agriculture is also very localized on Upolu, but is more dispersed on Savai'i (fig. 52). In this category, as would be expected, the commercial estates and small-holding settlements contain by far the highest proportion of paid workers in agriculture (334 per thousand). Other areas adjacent to the commercial plantations also contribute some additional workers and in the case of the Vaiusu (26 per thousand), Toamua (17 per thousand) and Mulifanua (24 per thousand) these agricultural workers must make a significant contribution to the economies of their hard-pressed villages. Only two other areas show rates above 10 per thousand, the villages of the northwest coast between Salepo'ae and Satapuala, which contribute a few workers to adjacent plantations, and Lotofaga, where a local Samoan entrepreneur has established a cattle run which hires some local labourers. Similar developments have occurred at Vaisala and Samata on Savai'i, where cacao plantations run by Samoan matai on a commercial basis employ some local workers. The small commercial plantations on Savai'i also employ a few labourers from adjacent villages, but the number is ordinarily almost negligible. Seasonal employment is characteristic of plantation work, but the census does not indicate this.
Urban unemployment

Unemployment is a phenomenon which does not occur in the rural village districts of Western Samoa nor (for a different reason) on the commercial estates. In Apia, however, there is a class of persons without paid employment, living in areas in which there is little or no opportunity for alternative ways of making a living. This group was not classed as 'unemployed' in the 1956 census and consequently cannot now be precisely defined. Males aged between 15 and 45, living in villages lacking a tract of customary land, who had neither paid employment nor were at school numbered 417 persons or 12 per cent of the male work-force of the town.

The disguised unemployment additional to this (the amount of cultivated customary land within the Apia urban area can scarcely absorb the energies of the 284 persons said to be so engaged) cannot be estimated. Nor can the amount of unutilized female labour be determined, although 24 per cent of the females aged between 15 and 44 are employed - a reasonably high proportion. However, since under the aiga system, even in an urban household, the domestic demands on an individual woman fortunate enough to have paid employment may be easily shifted to other members, the proportion could be raised considerably.

The other phenomenon, found only in Apia, was the occurrence of households apparently without means of support. Such households were quite numerous and contained 1,049 persons, or 6 per cent of the urban population. The number of cases can only be roughly estimated from the census schedules. The practice of part-time employment, particularly on the wharf and for the Public Works Department, is prevalent in Apia, and some of the group may have been supported on this basis; others may have been unwilling to specify their type of employment. There can be little doubt that a proportion of the urban population lives very precarious and contributes little to the economy of the town. It is the nucleus of a social problem which is growing rapidly within the urban area.

Attendance at School

A further cause for some apprehension is contained in the numbers of children attending school. Although primary schools, both government and mission, are now well distributed throughout Western Samoa, education has not yet been made compulsory. Of the 33,390 children who are or should be attending school the 1956 census showed that 9.9 per cent did not actually do so. (The fact that most enumerations were made by local teachers should give the count a high degree of accuracy.) The number estimated as 'not attending', aged between 5½ and 14 years, was 3,307 children. It is not safe to assume that this deprived tenth are those to whom education would do least good. Evidence derived from the examination of the age and sex structure in the rural village areas has indicated that in many cases the more useful members of the aiga, those who are most likely to benefit from a formal education, are those whose services the matai is least willing to forego. There is considerable variation in the proportion attending school in some areas. The Apia area, which is the educational centre of the country, showed 9.2 per cent of the children not attending school. The commercial holdings show the highest proportion of non-attendance, 32.0 per cent, a function of the dispersed
settlement characteristic of these areas and their poor transport facilities (fig. 53).

In the rural areas there was considerable variation in the proportions not attending, and although attendance at school is subject to a variety of local conditions, some significant trends were apparent. Poverty appears to have a limiting effect on the attendance of children at school in some areas. The high proportions not attending in the Mulifanua and other northwest coast villages (particularly the Faleula-Salepoua'e area) would seem to be attributable to this; in general, the whole of the northwest sector of Upolu shows lower attendance rates than the rest of Upolu or of Savai'i. Conversely, areas of known prosperity—such as western Falealili, Palauli and Sala'ilua—usually showed exceptionally high proportions attending school. In general, the rural villages of the outer districts showed higher proportions at school than those areas which have been subject to European influences, including the processes of formal education, for the longest time. Even in the rural districts which showed relatively high proportions not at school, this could usually be traced to one or two delinquent villages rather than to a general indifference. The isolated villages showed extreme characteristics, with either exceptionally high proportions attending, as at Uafato, Taga and in A'opo (which was the only village to show complete attendance), or exceptionally low proportions as at Tafua and in Tīavea where a state of disorganization or village dispute appears to have existed at the time.

Under the present conditions it is particularly unfortunate that in those areas in the northwest sector of Upolu which in the future will be forced to depend more and more on paid employment, subscription to the processes of formal education—a prerequisite to paid employment—is found to be the lowest in Western Samoa. That so many of the rural villages of the other districts have, without compulsion, such high proportions of their young people attending school is on the other hand an encouraging development. But the possible spread of economic conditions of the type which appears to limit school attendance in the more accessible districts (or is it here disillusionment sprung from familiarity?) seems to be an ominous trend.

Urbanization and the External Influence of Apia

Apia is the only town and all Western Samoa is its hinterland. No other settlement in Western Samoa shows signs of developing into a second town and, provided the development of internal communications keeps pace with growing needs, there is little present indication that an alternative to Apia will ever be required. From the earliest days of European settlement Apia has not been seriously challenged as the urban centre for Western Samoa. A site at Saluafata was mooted at various times in the nineteenth century but nothing came of the proposals. It is sometimes suggested that Savai'i needs its own urban centre and its own export port, but none of the sites suggested (Saieloologa and Asau are the main contenders) is entirely suitable; such suggestions get scant sympathy in Apia where the decisions are made.
The source of the urban population

Apia grew out of a collection of small villages, but these, although still existing, now account for only about one-third of the present urban population. They have been engulfed by a collection of more recent settlements, some of which have over the years achieved the status of Samoan villages, but many are unorganized settlements which have just evolved. The population of such areas (and a large proportion of the populations of the traditional villages) has been drawn from the rural districts. The question on 'place of birth' in the 1956 census was answered on an island rather than on a village or locality basis, so that little indication of the principal sources of the urban drift can be obtained.\(^1\)

Within the Apia population are included 2,054 persons who were born on Savai'i, or 7.1 per cent of all persons born on that island. The number of Manono-born living in Apia, 73 persons, gives a similar proportion, 7.0 per cent, while those of the Apolima-born, 17 persons, is 6.8 per cent of their total. It is reasonable to assume that the population of Apia also contains a similar proportion of persons born in the rural districts of Upolu, probably between 3,500 and 4,000 persons. At least a third, then, of the present population of Apia is believed to have been born in other parts of Western Samoa and to have come subsequently into the town. Such a movement of Samoans to the town has meant that most people living in the outlying areas have aiga living in the town. Under the local system of reciprocal hospitality this allows a constant stream of visitors to visit Apia, so that a substantial proportion of its population will at any one time be 'floating'. It has also meant that the 'educational' effects of urban living have been disseminated throughout the villages of the group to a much greater degree than would have been the case had the Apia population been more exclusive or self-contained.

The results of the de jure censuses in which a question on the present residence of persons 'belonging' to the village in question was included, indicated that Apia has probably drawn its population from all Samoan villages; none of the villages enumerated showed less than 2 per cent of their total adhering populations as resident in Apia. Three types of village showed particularly high proportions of their people in this category. These were the more remote villages, such as Taga (10 per cent in Apia) and Falealupu (8.1 per cent); the economically hard-pressed villages not within easy reach of Apia, such as Manono island (7.4 per cent) and Mulifanua (8.7 per cent); and there were also a few villages in which it seemed to have become 'fashionable' to move to Apia, those already there finding places for those who wanted to come. Sometimes these villages were 'progressive' or were dominated by a chief of unusual drive

\(^{15}\) The 'place of birth' is not a particularly reliable guide to population movement, but in this case would give an indication of the relative proportional contributions. Traditionally Samoan women return to their parents' village for the births of their children, particularly for the first. Of recent years, the number of persons who would have to be prevented from naming a hospital in answer to such a question has become significantly large.
or vision determined to raise the living and educational standards of his people. Satufia (10.0 per cent in Apia) and Vaisala (6.5 per cent) appeared to be villages of this type. It became obvious during fieldwork that Apia with its prospects of paid employment (or at least of aiga who are supported from this source) was a major outlet and an indirect source of income to hard-pressed villages.

It is also the place of opportunity for young people. Those most frequently sent into school are the children of prosperous families in the rural villages. Many will thereafter remain away, if they can, in paid employment. The role of Samoa College, the most sought after secondary school in the territory, illustrates this trend. Nearly three-quarters of its pupils are drawn from the rural village areas and although entrance is competitive an extremely large proportion of the successful children's fathers are title-holders or village pastors. Only about 10 per cent come from the family of taule'lea. As a completed education at such a school virtually ensures the pupils' suitability for subsequent paid employment, only a small proportion return to live in their home village once their education is complete.

The flow of commuters

The lure of paid employment offered in Apia has in recent years extended beyond the boundaries of the urban area. This external influence has extended over an ever widening area at an ever increasing intensity in recent years. Although the number of persons in paid employment commuting each day into Apia is not large (663 persons or 15 per cent of those in paid employment in the town), their contribution to the incomes of the villages from which they go is sometimes substantial. This is true particularly of the land-short villages of the north coast. The numbers commuting from the contributing districts, the routes over which this type of movement takes place and the intensity of their dependence on paid employment in the town are shown in figure 54. Journeys of up to 28 miles (in the case of the Faleleitai villagers) are undertaken by some commuters. These are exceptional and the number travelling more than 15 miles is small (16 persons at the time of the survey). The Va'isusu group of villages, adjacent to Apia, show the least intense development, with 9.8 per cent of the population commuting each day (but their journey is actually shorter than some which are made from the inland suburbs of the town area). Also of high intensity, with over 3 per cent of the population commuting, are the Toamua and Luatuanu'u village groups. Further along the northwest coast, although well over 200 persons travel in each day, their contribution to the total economy of their villages is less important. Also in this category are the villages further along the northeast coast, from which 40 persons travel in each day. But of these 15 come from one village, Faleapuna which, as an enclave of the Va'a-o-Fonot political district, does not have unlimited access to the forest reserves of the interior and is now suffering an acute land shortage. Although 13 miles out, this one village has a commuting intensity similar to the Luatuanu'u-Fagalifi group immediately adjacent to the town (class 3). The commercial estates and small-holdings supply a few commuters, the largest single contribution coming from the Aleisa small-holders' settlement, but for these people the availability of paid employment on the estates usually makes the recourse to employment in Apia unnecessary.
The districts of Fagaloa, Faleletai and Lefaga provide the extreme instances of commuting and each contribute one or two hardy persons to the Apia labour force each day. In the Mulifanua area the incentive to commute over the 25 miles into the town each day is motivated by greater financial need than in the other remote districts. Bus fares in Western Samoa (and the standards of comfort) must be among the lowest in the world; the journey from Mulifanua, for example, costs only 2/- (and one suspects something less than this for many regulars, depending on an unofficial and individual relationship with the driver). A person in paid employment can usually expect to be paid at a rate of at least £150 to £250 a year and commuting costs would consume approximately one-third of this sum. The remainder still exceeds the cash income of most families depending on exportable agricultural products in the Aiga-i-le-tai district.

The trend to commuting will probably continue to expand; a decreasing rate of population growth within the town need not therefore always imply a slowing down in the expansion of the employed urban work-force. In itself commuting generates a considerable amount of economic activity - the reliability, punctuality and frequency of rural bus services has improved noticeably in recent years. Urban activities, habits of work, and the other incidental educational effects of urban employment, both good and bad, are disseminated over a large proportion of the Upolu population by such a process. And the commuters enjoy the best of two worlds; they avoid the high living costs which burden the inhabitants of Apia, but by their monetary contribution, usually disproportionate to their status in traditional terms, they acquire a comfortable honour and prestige among their aiga and village community.

The dependence upon paid employment spreading out from the urban area into the adjacent districts serves to differentiate these contributing areas from those still dependent upon local employment opportunities. In the more extreme cases, the future growth and structure of the local populations will be dependent upon the continuing development of this trend.
Chapter 8

AREAL VARIATION: REGIONAL

From the systematic examination of the more important characteristics of the population in Western Samoa, certain regional tendencies become apparent. Immediately obvious in the series of studies included in chapter 7 was a major division between three areally separate sections of the population. The urban area, the commercial holdings and the rural villages each contain a population with its own distinctive set of attributes — geographical, historical and demographic.

These three, as regions I, II and III, have been made the basis for the following division and description (fig.55). There are some methodological difficulties involved. Because of the micro-scale at which this study has been made, areal differences tend to occur suddenly. Surveyed property boundaries, for instance, often form unmistakable cultural and demographic boundaries with a precision seldom found in regional lines. Over larger areas geographical differences are usually due to physical and cultural variations which shade transitionally one into the other. Here, a post-and-wire fence or a row of trees may mark a line separating two sharply different cultures. The consequence is that the regional divisions frequently lack the areal continuity or compactness of macro-scale studies.

A similar geographical problem has been recognized and described by J.F. Unstead. In a regional study of an English countryside he sets out a framework showing 'how one may identify small regions and combine these into areas of higher and higher order' (Unstead 1933, 175). This combination of regional criteria with areal typology seems an appropriate solution to the present problem. Unstead's framework had as its base the small unit area - analogous to the individual estates in the commercial agricultural region and to the statistical areas used in the systematic analyses of the rural districts in chapter 7. On these is erected a hierarchical regional structure.

The definition of the Apia urban region (I) presents no difficulty, but both the others (regions II and III) show a high degree of areal discontinuity. The region of commercial plantations and holdings includes two orders. The individual holdings as unit areas are combined directly into one region. The rural village region, because of a complex, fragmented and extensive distribution utilizes three levels in its descriptive framework. At the lowest level are the

1 Unstead calls these small areas 'stows', which he describes as 'having no connotation which may cause misunderstanding'. But the word seems better suited to the downs and scarps of his English study area than to the nu'u ma fa'atoaga of Samoa. His terminology has not been adopted here.
statistical areas, composed of small groups of villages. These are combined into sub-regions, which are separately described and compared as components within region III as a whole.

Region I - The Apia Urban Area

The urban area was defined for the purposes of the 1956 census as the districts of Vaimauga West and Fa'aleata East, and within this boundary, 45 separate enumeration areas were distinguished.

Within the urban area there is considerable geographical variation and to better illustrate several urban tendencies statistics relating to a central urban core are occasionally cited. This area is not fully described regionally but the figures relate to a definite area. The rest of the urban area forms a peripheral zone.

The establishment of Apia

The town grew up on the shores of a small bay on the lee side of Upolu, protected by the promontory at Mataatu on the east and the Mulivai sandspit on the west. The concentration of fresh water from the several rivers which flow into the bay have locally prevented the growth of the fringing reef which elsewhere protects the shores of this coast. The harbour so formed is protected, except in extremely bad weather, by the natural coral breakwaters. This advantage, combined with the proximity of a lowland on which were several large villages, gave the area an advantage soon recognized by the first Europeans who explored the Samoas. It was used by whalers and traders as a point of contact with the Samoans, and in 1836 was selected by the first permanent LMS missionaries to be a station. Of the area, Mills, the first missionary there, wrote in 1837:

Considereing the number of the surrounding villages, and their thick populations, with the probability of this harbour being frequented by ships, Apia forms as desirable a situation as can be found on the island for a mission station. (LMS S.S.L., Mills 1837.)

To locate escaped convicts and keep watch on the activities of both whalers and missionaries, foreign naval vessels began calling in Apia. One of these, H.B.M.S. Conway in 1838 left a set of port regulations to be executed by the local Samoan chiefs (Adm. 1/218, 1838). The Wilkes expedition used the harbour as one of its principal bases and appointed J.C. Williams, who was establishing a trading store, as acting U.S. consul. George Pritchard on arriving in Samoa stated 'I consider it my duty to reside [in Upolu, i.e., Apia] more ships coming here than to Tutuila' (F.O. 58/38, Pritchard 1845).

In 1853 Murray pictures Apia

2 The villages or areas of Matafele, Mulivai, Tauese, Apia, Maluafou, Niune, Leone, Tufuiopa, Tuloto, Taufusi, Vaimea, A'ai-o-Fiti, Saleufi, Fugalei, and Savalao.
The bay in which the village of Apia is situated is the harbour of the Leeward Islands. Even in those early days it was seldom without vessels and as the years passed on, it was more and more frequented, till it became a rare thing to see a clear harbour... There was a foreign population... white and coloured... of about 150. (Murray 1863)

He also refers to ‘much stir and hustle’. At about the same time Fremantle described Apia as

the principal trading port of the Samoan group and the only one except Pango Pango [sic] where ships anchor. The Government of the harbour is vested in three separate petty chiefs who have but little authority over their people. There are besides, upwards of one hundred foreigners residing in Apia who are subject to no law whatever. They are mostly English and Americans, and a more unruly disreputable community cannot be conceived. (Adm. 1/5672, 1855.)

The foreign population of the Apia district (probably including some persons living outside the present boundaries of the town) was given by Murray in 1858 as 124 Europeans, 125 half-caste children and 52 other islanders, mostly from the Cooks.

When Europeans first began to settle in the district the local villages were politically aligned in three groups. In one group were the villages of Apia, Moto'otua, Tanugamanono and Mataautu; in another were Matafagatele, Vaiala and Magiagi - together these formed Vaimauga district. On the Faleata side were Vaimoso, Mulinu'u, Sogi, Matafele and Lepea villages. These settlements were situated on one of the few gently sloping plains in Samoa, although it is almost bisected by a particularly long flank of the central mountain spine. On either side of this ridge, Vaea, the lowland area, extends inland nearly five miles. The area is watered by several streams, including the Fuluasou and the Vaivase, the western and eastern boundaries of the present urban area. The Vaisigano river, flowing into the head of Apia Bay is principally responsible for the breach in the coral reef. Inland these rivers are deeply incised but toward their mouths, the gorges open out and the lower courses usually submerge themselves in swamp. This waterlogged area, le Taufusi, once extended behind the beach ridge along much of Apia Bay, but part has since been drained. This swamp limited the strategically valuable coastal area and was one cause of the exceptional development of villages inland.

The development of the town

These villages formed the nucleus of the town; as more Europeans settled, buildings mainly of wooden construction were built along the beach. Matafele was the earliest development but buildings gradually came to occupy most of the beach land between Mataautu and Sogi. Stores, grog-shops, consulates, brothels, hotels, churches and private houses were built on land between the traditional village settlements. Here lived the Europeans, the miscellaneous peoples that followed in their train, and the part-Samoan offspring of both groups. As the town grew in importance, Europeans, particularly the more respectable families, tended to move
to the outskirts of the town, inland to the cooler heights or further along the beaches. At the same time, the town began to attract Samoans from beyond its boundaries and these at first began to attach themselves to aiga in the traditional villages. Later however, new non-traditional, but dominantly Samoan settlements began to form. One of the earliest of these was at Mulivai in the shadow of the Roman Catholic cathedral. The building of the church began in the late 1880s, and the settlement, originally established for the Samoan, Uvean and Futunan construction workers, persisted on mission land.

Darnand noted that

in the Middle Ages many people came to live in the shadow of the monasteries where they found more liberty and well-being; this gradually developed in the shadow of Apia Cathedral.... (P.99) The church lands supply second homes for many Samoans, those free of the life fa\'atalenu'u [i.e., of the customary villages] who are now outside the authority of the chiefs and of the thousands of obligations which restrict them in their village life...they no longer live a sort of communistic life but here the family life and the liberty of civilized countries. (Darnand 1945, 34.)

Commercial plantations were established at Moto'otua (and the old village moved to Matautu) at Vaivase, Tualaele and later at Alafua and Sinamoga. A hospital was built at Moto'otua in 1905 and a school at Malifa in 1907. The old village in the middle of town, Matafele, was moved and the people re-established themselves inland at Alamagoto. More recently unorganized settlements have grown at a mushroom rate and settlements such as Taufuse, Tuloto, Vaimea and Fugalei have spread out over the poorly drained swamp areas to form the most poverty-stricken and unattractive part of town. Some additional settlements - Niue, Vaipuna and A'pai-o-Fiti - have been established as special communities, in this case for Niueans and Fijians who have bought or acquired land from the Samoans and settled in Apia.

The strategic and economic importance of Apia, and the tendency to select Mulivai as the seat of the Samoan government was the cause of several battles through the streets of the town. Such events inhibited business and alarmed the European women so that after 1889 Apia, together with a tract of country surrounding it, was constituted a Municipality, to be neutral territory in times of Samoan armed disputes.

The growth of the urban population

At the time of the German annexation in 1900, the population of the urban area, as at present defined, was approximately 2,170 persons (fig.56). This figure included about 400 Europeans and 300 part-Samoans. The Samoans, living in 11 settlements, numbered 1,476 persons (G.A.R. IV, 5a, 1901).

The census of 1926 showed the Samoan population to have increased to 4,367 persons, a rate of 4.4 per cent annually over the quarter-century period. The number of persons resident who had 'European' status is not known precisely but is estimated to have been about 45 per cent of the total
'European' group or 1,125 persons. On this basis Apia had a population in 1926 of approximately 5,500 persons. A survey made prior to the landing of American forces at the end of 1941 gave an urban population of 6,400 persons
(A.W.S. 27/1c, no.1, 1941-2). The definition of the urban area is not discussed, but such a total indicates only a very slight increase (about 1.0 per cent annually) and appears to be an underestimate particularly of Samoans. Although it is likely that a combination of economic stagnation and political turmoil which persisted in Samoa between 1925 and 1941 may have inhibited the growth of Apia, it is unlikely to have slowed to this extent. At the time of the 1945 census, the urban population was an estimated 10,250 persons. Samoans alone accounted for 7,286 persons in the urban population, even excluding those listed under 'extra-urban domicile'. For the equivalent area in 1951 the estimated population was 14,100 persons, while the census of 1956 showed 18,153 persons. Although the data are insufficient to show certain fluctuations, it appears that Apia has made a fairly steady growth affected by a possible slowing of the rate in the 1930s and a marked acceleration after 1941. This high rate continued through to the 1950s although some slowing was again apparent by 1956.

Ethnic composition

Of the total urban population only 4.6 per cent are not of Samoan or part-Samoan descent, so that Apia is dominantly a Polynesian town. Not only is it the largest of such towns in the Pacific islands but as a concentration of urban Polynesians it is challenged only by Auckland and Honolulu. Full Europeans numbered only 462 persons in 1956, although they have an economic, social and political effect within the town entirely disproportionate to their numbers. They

<table>
<thead>
<tr>
<th>Table 17. REGION I - THE APIA URBAN AREA: ETHNIC STRUCTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
</tr>
<tr>
<td>Samoans</td>
</tr>
<tr>
<td>Part-Samoans</td>
</tr>
<tr>
<td>Europeans</td>
</tr>
<tr>
<td>Tokelauans</td>
</tr>
<tr>
<td>Chinese</td>
</tr>
<tr>
<td>Niueans</td>
</tr>
<tr>
<td>Tongans</td>
</tr>
<tr>
<td>Ellice Islands</td>
</tr>
<tr>
<td>Others</td>
</tr>
<tr>
<td>Cook Islands</td>
</tr>
<tr>
<td>Solomon Islands</td>
</tr>
<tr>
<td>Fijians</td>
</tr>
<tr>
<td>Persians</td>
</tr>
<tr>
<td>Uveans</td>
</tr>
<tr>
<td>Rotumans</td>
</tr>
<tr>
<td>Gilbertese</td>
</tr>
<tr>
<td>Nauruans</td>
</tr>
<tr>
<td>N.Z. Maori</td>
</tr>
<tr>
<td>Not stated</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

200 Europeans, 1,250 mixed European and Samoan (legally 'European'), 4,900 Samoans, 34 Chinese and 16 Melanesians.
are the most highly urbanized of any component in the country; the Samoans are the least. The numbers, proportion of each ethnic group within the total urban population and the proportion of the total of each component population living in the urban area is shown in table 17.

There is some internal variation in the ethnic composition of the urban area. For instance, in the central part of town the proportion of Samoans is reduced to 69 per cent compared with 54 per cent in the remaining peripheral area. The part-Samoans are more concentrated - 25 per cent in the core area and 15 per cent in the peripheral areas. There is also a higher proportion of non-Samoans in the central area, 6 per cent of its population, while only 1 per cent of the peripheral area is non-Samoan.

The age and sex structure

The age and sex structure of the whole urban area has previously been examined as an extreme example of a population inflated by inward population transfer (ch.7, 132-3, and fig.46). The process of urbanization was seen in this case to have produced an age and sex structure significantly different from that of the rest of Western Samoa. The principal features were excess numbers in the 10-29 age range for both males and females, the modal deviation occurring in the 15-19 age group for both sexes. There was also an indication of deficiency in the numbers in the 0-9 age range of both males and females.

The central core area shows a somewhat different structure (fig.57). The villages in this group have virtually no agricultural land. Their dependence on paid employment appears to have affected their age and sex structure. The principal difference is a greater deficiency of children; not only is the statistically significant deficiency in the 0-4 age group larger in the central area, but the effect extends also into the 5-9 age group. The female groups on whom the juvenile age groups are principally dependent show a greater surplus in the 25-29 age group and a greater proportion absent from the 35-39 age group. In other groups the differences are insignificant, so that the deficiencies in the 0-9 age range are not matched by parallel deficiencies in the groups in which most of their mothers would be found.

In the 15-24 age range for both sexes there are excess numbers to a statistically significant extent but the proportions tend to be less in the central core area than in the rest of Apia. At ages beyond this range, particularly in the 35-39 group, where deficiencies occur there is a tendency for them to be in greater proportion in the inner area.

In general, the central core area shares the major age and sex characteristics of the urban area as a whole, but there is an indication that persons moving into the urban area from outside are attracted to the periphery rather than the central area. Whatever the reason for the deficiency of persons in the 35-39 age group in the total urban area, this characteristic is more marked in the central core than in the peripheral area.

The central core has a population whose economic conditions are dominated by the relationship between their monetary income and their costs of living. Their age and
sex structure indicates that they are disinclined to have (or at least to support) families as large as found elsewhere in Samoa. They appear also to be less willing to accept aiga from outside villages as guests. There is also some evidence that at ages over 30 years there is a tendency for males to attempt to re-integrate themselves with the rural villages from which they originally came. These characteristics are likely to extend further into the urban area as the population grows and densities increase.

**Urban fertility**

From the age and sex structure of Apia there appears to be a marked deficiency of young children, particularly in the urban core. This is not matched by a deficiency of available mothers in the young age groups within the reproductive age range, and the explanation must be sought elsewhere. Lower fertility is an obvious possibility and the performance of urban-dwelling females was examined to see if it was significantly below that of other Western Samoan women.

The child-woman ratio for the whole urban area is 737.0 (s.e. 10.7) — significantly lower than the ratio for all Western Samoa. The ratio for the urban core is even lower, 675 (s.e. 13) while the peripheral area gives a ratio of 836 (s.e. 18); there are significant differences between all these ratios. Child-woman ratios, being affected by subsequent survival and possibly migration, do not themselves constitute a proof of differential fertility, although they may usually be taken as a good indication. To investigate the level of urban fertility directly, the stated total number of children born per adult woman in Western Samoa (Jupp 1956, table 15, 91) was compared with the equivalent numbers for the adult women of the Apia urban area. These are compared in table 18. This indicates that for all female groups between the ages of 20 and 54 years in 1956, fertility was significantly lower among Apia women. The number of children ever born to the women just past reproductive age (45-49 years) was lower by over 1 child per woman in Apia than in the total population.

Some of the difference will be due to the lower performance of the part-Samoan and non-Samoan groups within the town. Nearly half of all the part-Samoan component lives in Apia, in which they are 21 per cent of the total population and fertility in this group is lower than the Samoan. But their fertility over all is higher than that of the

<table>
<thead>
<tr>
<th>Age group</th>
<th>Western Samoa</th>
<th>S.E.</th>
<th>Apia</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-19</td>
<td>1.14</td>
<td>0.001</td>
<td>0.07</td>
<td>0.084</td>
</tr>
<tr>
<td>20-24</td>
<td>1.33</td>
<td>0.074</td>
<td>0.96*</td>
<td>0.047</td>
</tr>
<tr>
<td>25-29</td>
<td>2.96</td>
<td>0.034</td>
<td>2.52*</td>
<td>0.079</td>
</tr>
<tr>
<td>30-34</td>
<td>4.60</td>
<td>0.065</td>
<td>4.19*</td>
<td>0.141</td>
</tr>
<tr>
<td>35-39</td>
<td>6.06</td>
<td>0.092</td>
<td>5.50*</td>
<td>0.034</td>
</tr>
<tr>
<td>40-44</td>
<td>6.76</td>
<td>0.118</td>
<td>6.05*</td>
<td>0.241</td>
</tr>
<tr>
<td>45-49</td>
<td>7.24</td>
<td>0.131</td>
<td>6.15*</td>
<td>0.268</td>
</tr>
<tr>
<td>50-54</td>
<td>7.24</td>
<td>0.150</td>
<td>6.38*</td>
<td>0.280</td>
</tr>
<tr>
<td>55-59</td>
<td>7.37</td>
<td>0.140</td>
<td>6.92</td>
<td>0.308</td>
</tr>
</tbody>
</table>

*Difference exceeds level of statistical significance (at the 5% level).
total urban population. It is unlikely, therefore, that the
fertility of urban-dwelling part-Samoan women could account
for the lowered fertility of the whole urban population.
The other components within the Apia area have a much lower
fertility than either the Samoans or the part-Samoans, but
their small proportion (4.3 per cent) makes it unlikely that
they have more than a slight effect on the fertility charac-
teristic of the whole town. The lowered fertility observed
in the urban area must be, at least in part attributable
to a decreased fertility in Samoan women compared to that
applying in the rural-dwelling population. This is a
characteristic of considerable importance, and is an indica-
tion that the encouragement of further urbanization should
be included in any efforts to reduce the rate of population
growth.

Urban occupation and employment

The lowering effect of urbanization on fertility is
almost certainly connected with economic conditions within
the town. The employment structure in Apia provides a
fundamental contrast with that found in the rural areas.
The general situation was discussed in the previous chapter
where the very low proportion of workers engaged in customary
agriculture was noted (5.8 per cent of the urban work-force).
Only in the peripheral villages is there the opportunity to
supplement the village economy with either subsistence or
cash-crop agriculture. Even in this area only 14.2 per
cent of the work-force declared themselves engaged in
customary agriculture. For the remaining work-force the
opportunities for employment lie principally in paid employ-
ment. The proportion of the urban population supported
directly by paid employment is estimated to be at least 83
per cent. Customary agriculture supports only 7 per cent
of the urban population. Source of support for the remain-
ing 10 per cent is difficult to establish and the group
includes unemployed persons and families whose means of
support could not be established. It is likely that most
of this group is also supported by the wage earning sector
of the total urban population.

The numbers in paid employment and their proportion of
the total work-force are shown in table 19. For the whole
urban area the proportion of the total work-force in paid
employment is 77 per cent. Males account for 57 per cent
and females 20 per cent. There is some difference between
urban core area and the peripheral settlements. There is
a greater dependence upon paid employment by the inhabitants
of the core area; 83 per cent of those in the estimated
work-force hold paid positions. Within this group there
is a higher proportion of women who comprise 29 per cent
of the group having paid employment. In the peripheral
area women account for only 19 per cent of those in paid
employment. The two principal sources of employment in
Apia are the commercial firms and the Public Service. Com-
merce occupies 40 per cent of those in paid employment, while
the government employs 37 per cent of the urban paid workers.
The only other significant group is the church employees.
Nearly 9 per cent of those classified as in paid employment
are employed by the various missions mainly in religious or
educational activity.4 Persons in commercial agriculture

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4 This includes persons who may be classed as 'in paid em-
ployment' only in the sense that they devote their time to
church activities, and the church in turn assumes responsi-
bility for their living and welfare.
Table 19. REGION I - APIA URBAN AREA: EMPLOYMENT STRUCTURE

<table>
<thead>
<tr>
<th>Paid employment</th>
<th>Urban core</th>
<th>Peripheral villages</th>
<th>Total Apia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>1,867</td>
<td>918</td>
<td>2,785</td>
</tr>
<tr>
<td>Females</td>
<td>758</td>
<td>209</td>
<td>967</td>
</tr>
<tr>
<td>Persons</td>
<td>2,625</td>
<td>1,127</td>
<td>3,752</td>
</tr>
<tr>
<td>Total work-force</td>
<td>3,155</td>
<td>1,738</td>
<td>4,893</td>
</tr>
</tbody>
</table>

Proportion of work-force in paid employment

<table>
<thead>
<tr>
<th></th>
<th>Urban core</th>
<th>Peripheral villages</th>
<th>Total Apia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>59.2%</td>
<td>52.8%</td>
<td>56.9%</td>
</tr>
<tr>
<td>Females</td>
<td>24.0%</td>
<td>12.0%</td>
<td>19.8%</td>
</tr>
<tr>
<td>Persons</td>
<td>83.2%</td>
<td>64.8%</td>
<td>76.7%</td>
</tr>
</tbody>
</table>

Number of dependents

<table>
<thead>
<tr>
<th></th>
<th>Urban core</th>
<th>Peripheral villages</th>
<th>Total Apia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of dependents</td>
<td>7,167</td>
<td>4,053</td>
<td>11,220</td>
</tr>
</tbody>
</table>

Dependents per employed person

<table>
<thead>
<tr>
<th></th>
<th>Urban core</th>
<th>Peripheral villages</th>
<th>Total Apia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependants per employed person</td>
<td>2.7</td>
<td>3.6</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Type of employment

<table>
<thead>
<tr>
<th>Total Apia</th>
<th>Government admin.</th>
<th>Commercial agriculture</th>
<th>Church empl. Commercial</th>
<th>Work servicing agriculture</th>
<th>Unemployed</th>
</tr>
</thead>
<tbody>
<tr>
<td>number</td>
<td>1,381</td>
<td>70</td>
<td>325</td>
<td>1,484</td>
<td>140</td>
</tr>
<tr>
<td>proportion</td>
<td>37%</td>
<td>2%</td>
<td>9%</td>
<td>40%</td>
<td>4%</td>
</tr>
<tr>
<td></td>
<td>417</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
form less than 2 per cent of the employed. Of the total number employed 16 per cent could be classed as 'professional' in the sense that their work is concerned with the public good and requires some educational qualification. In Western Samoa this requirement may still be satisfied in most cases by a completed primary school education.

Social conditions in Apia

That such a high proportion of the urban population has paid employment is not necessarily indicative of a high level of prosperity. For many wage earners the returns are meagre and living costs in Apia are relatively high. To achieve a standard of living comparable to that found in a typical aiga in the outer districts it is often necessary to have several wage earners in the family. This is the reason why such a large proportion of wage earners are women, and why their proportion is higher in the central core. The mean size of urban households is higher than that normal for Western Samoa, at 6.5 per household. The tendency for urban households to be larger than in rural areas is accentuated in the core areas where households average 6.8 persons. While the number per household is higher in the central part of town, the number of dependents per wage earner is lower (2.7 per worker), compared with the ratio in the outer settlements (3.6 per worker). The difference between the two reflects the harsher living conditions of the core area where there is little opportunity for growing additional subsistence needs and wage earners are usually dependent on market-bought food.

A further statistic, illustrative of the social conditions in Apia, is the inflated ratio of matai to the 'Samoa' population - 1 to 36 persons. This figure does not necessarily reflect an increased size in urban aiga, but rather that many Samoans in Apia owe no particular allegiance to any matai. Other groups remain part of aiga in outer districts but live in Apia, little affected by the restraints of Samoan custom. In the more traditionally organized villages in Apia the aiga are frequently inflated in size, and this often results in the authority of the matai being seriously diminished. Outside the aiga system completely were those of 'European' status, 17 per cent of the total urban population.

The trends obvious in Apia at present will undoubtedly continue and deepen, probably along the lines indicated by conditions in the central core. The occupied area of the town cannot be extended significantly without encroaching on to commercial plantation land, or on to soils which will not repay their development costs. The population density within the town will therefore tend to increase. Apia is still far from overcrowded, but the town lacks formal planning or direction. There are several problems consequent upon the rapid population growth, including the provision of more educational facilities and other amenities such as health services and sanitation. Less obvious is the problem of keeping the rate of urban growth high. In the past a high rate has been spontaneous. Increasingly, however, it will be necessary to deliberately encourage population growth. Also necessary is the stimulation of economic productivity in urban workers, an increased sense of responsibility in urban employees, and commensurate wage increases. The process of urbanization, in spite of the undesirable features which so often accompany it, will be a major factor in
alleviating the problems, born of excess rural population, which are already evident in the country. The economy now requires a larger proportion of the population supported by paid employment and a higher rate in the creation of new employment opportunities. The town of Apia must continue to grow rapidly if it is to play its appointed part in the economic development of its hinterland.

Region II - The Commercial Holdings

The commercial holdings are defined as the areas which have been removed from the customary system of land tenure and exploitation, and which have been developed for commercial agricultural purposes. The separate areas combined into this region are discernible, although local groupings are discernible. The commercial plantations are concentrated on the northwest sector of Upolu. These are in two groups, those within a tract consisting of several holdings immediately adjacent to, and on both sides of the town. With this group are associated other holdings inland along the gentle foothill slopes behind the northwest coast. The second group is concentrated on the western tip of Upolu in the Mulifanua area. Northwest Upolu has the advantage of gentle topography, soils of moderate to high fertility (class 2) and moderate rainfall in a large tract well inland of the Samoan coastal villages. Elsewhere in Western Samoa commercial plantations are rare. In the past, land alienation has taken place over a much wider area than is now developed commercially. Some plantations established in earlier times have been abandoned or returned to the customary village system. Now only five small establishments remain outside northwest Upolu, one on Upolu and four on Savai'i. They tend to be isolated and economically marginal.

The holdings are of four principal types. The plantations of the Western Samoan Trust Estates, mainly coconut or cacao plantations together with a cattle ranch, are run as a group by a central administration. Privately run plantations form the second group. They are of a type similar to the corporation holdings; some are freehold, some leased from WSTEC. The levels of management vary and although a few are more efficiently run than the corporation holdings, most tend to be less productive. The settlements on the plantations are small nucleated groups of houses, 'quarters' or 'labour lines' often in several locations on each holding.

Another type is the independently run small holdings. The distinction between these and the smaller plantations is sometimes difficult to make exactly, but the small holdings tend to be family concerns and to be run in a less formal way. Their products are usually more diverse, and banana, and often root crops are major products. They are again of two types: the privately developed areas in such localities as Tapatapa and Falemauga form the first group, while the government sponsored settlements Aleisa and Tanumalala form the second.

The process of land alienation and the initial establishment of the commercial plantations has been previously discussed. The subsequent course of population growth is now unknown as, until 1956, the periodic censuses taken in Western Samoa did not differentiate the population of the
Plate 7. Commercial coconut plantation, Faaleata, (wSTEC), Upolu.
commercial holdings. Of recent years numbers have been static or even declining. Full Samoans have become the major component and the practice of recruiting indentured labourers from overseas has been discontinued.

Although Samoans are now the most numerous group and a few own commercial agricultural enterprises, most holdings belong to part-Samoan families of either European or Chinese extraction. Few are now operated by full Europeans.

Ethnic composition

The ethnic structure of the population on the commercial holdings shows greater diversity than is found in any other part of Samoa.

Although numerically the Samoans are in the majority, those living on the commercial agricultural lands form the smallest proportion of the total in any ethnic group (table 20).

Table 20. REGION II - THE COMMERCIAL HOLDINGS: ETHNIC COMPOSITION

<table>
<thead>
<tr>
<th>Ethnic Group</th>
<th>Number</th>
<th>Proportion</th>
<th>Proportion of total ethnic group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samoans</td>
<td>2,398</td>
<td>67.0%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Part-Samoans</td>
<td>1,053</td>
<td>29.4%</td>
<td>13.3%</td>
</tr>
<tr>
<td>Chinese</td>
<td>44</td>
<td>1.2%</td>
<td>30.6%</td>
</tr>
<tr>
<td>Europeans</td>
<td>43</td>
<td>1.2%</td>
<td>6.5%</td>
</tr>
<tr>
<td>Solomon Islanders</td>
<td>14</td>
<td>0.4%</td>
<td>37.8%</td>
</tr>
<tr>
<td>Niuean</td>
<td>9</td>
<td>0.3%</td>
<td>11.4%</td>
</tr>
<tr>
<td>Tokelauan</td>
<td>6</td>
<td>0.2%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Others</td>
<td>10</td>
<td>0.3%</td>
<td>5.2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>3,577</td>
<td><strong>100.0%</strong></td>
<td><strong>3.7%</strong></td>
</tr>
</tbody>
</table>

To compensate, the proportions of several other ethnic groups are considerably larger. The most important are the part-Samoans who form 30 per cent of the population dwelling on commercial agricultural holdings; the proportion of their ethnic group is higher, by nearly five times, than the Samoan component. Higher proportions of the total component populations living on commercial agricultural holdings are also shown by the Solomon Islanders and the Chinese, now meagre remnants numerically of their one time populations. A similar situation applies also to the European and Niuean groups, but to a smaller extent.

Age and sex structure

Not only is the ethnic structure of the commercial agricultural areas fundamentally different from that in the rest of Western Samoa, but the age and sex structure is also at contrast (ch.7, 133-4, fig.47). The population was highly selective particularly for age but also for sex. Its principal features were pronounced surpluses in the 15-49 age range for males and 35-44 age range for females. This range corresponds in males to the years most productive of physical work. Dominant in the population are workers who have migrated to the plantations for paid employment. As the male ages increase the female groups come into better numerical balance with them, so that it appears that the more senior the worker the more likely he will be accompanied by his family. The only other notable deficiency was of children, particularly boys in the 5-9 age group – attributable
to the poor schooling facilities available to these children in their home areas.

Fertility and population change

The process of natural increase operates in this population to a smaller extent than in any other in Western Samoa. The static or slightly declining numbers are largely determined by managerial policy rather than by differential fertility or spontaneous inward or outward migration. The limitations imposed upon family economies by the obligations and returns of paid employment do appear, as in the urban area, to have had some effect upon fertility. But data are limited to the child-woman ratio so that it is not conclusive. The ratio, 895 (s.e. 27) is significantly below that for Western Samoa. It is higher than the ratio for the whole urban area, although it was similar to the ratio for the peripheral urban area. The association between smaller families and an income from paid employment appears to apply to this population but the pressures against large families are not working as persuasively in these rural areas as they do in the town. The child-woman ratio remains undeniable high, and while the apparent lowering of fertility in commercially-oriented families is both interesting and significant, it is as yet relatively slight.

Employment and social conditions

No other population in Western Samoa is as dependent upon paid employment as that on commercial holdings (table 21). Nearly 96 per cent of the workforce has paid employment. For both males and females the proportions with paid employment are substantially higher than for the whole Apia region and also for the central urban core area (males 67 per cent; females 26 per cent).

Table 21. REGION II - COMMERCIAL HOLDINGS: EMPLOYMENT STRUCTURE

<table>
<thead>
<tr>
<th>Persons in paid employment</th>
<th>Regional total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>1,005</td>
</tr>
<tr>
<td>Females</td>
<td>394</td>
</tr>
<tr>
<td>Persons</td>
<td>1,399</td>
</tr>
</tbody>
</table>

Proportion of the work-force (1,497 persons) engaged in paid employment

<table>
<thead>
<tr>
<th>Males</th>
<th>Females</th>
<th>Persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>67.1%</td>
<td>26.3%</td>
<td>93.4%</td>
</tr>
</tbody>
</table>

Number of dependents 1,941

Dependents per employed person 1.4

The principal types of employment; persons engaged

<table>
<thead>
<tr>
<th>Number</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government administration</td>
<td>100</td>
</tr>
<tr>
<td>Commercial agriculture</td>
<td>1,206</td>
</tr>
<tr>
<td>Church employment</td>
<td>7</td>
</tr>
<tr>
<td>Commercial</td>
<td>29</td>
</tr>
</tbody>
</table>
The dependence on one type of employment — commercial agriculture — is also extreme. Only government administration and employment in commerce employs significant proportions outside commercial agriculture. Even in these two classes the proportions employed are extremely small compared with the rest of Western Samoa. The church and customary agriculture are negligible sources of employment and the number engaged in professional occupations is also very small (9 persons). Except at Aleisa where the government maintains a school and a dispensary, there are no social services provided on the commercial properties, although the inhabitants usually have access to schools and hospitals outside the area.

The Samoan customary social organization is almost completely absent on the private holdings, being replaced by the management in the case of the commercial plantations and by the European system of independent family households on the small holdings. There are 54 matai resident in the area. Some are wage earners on the plantations, in other cases small-holders with Samoan connections have acquired titles. The ratio of matai to persons of 'Samoan status' is one to 31; as in the urban area, matai jurisdiction is usually impaired and is frequently completely ineffective. The mean number per household in the plantation area is 7 persons, a figure which confirms the trend to larger households in populations concerned mainly with wage earning.

The economic productivity of this population is much higher than that in region III where the customary agricultural system is almost universal. In 1956 the value (in Samoa) of agricultural production obtained from the commercial holdings was approximately £395,000. The return was £110 per person resident on the holdings, or £282 per person in paid employment. The production per worker on the commercial plantations is extremely low by the standards of commercial agriculture in more advanced overseas countries, even in tropical areas. In Western Samoa however, it is nearly five times that of males working in village agriculture.

The importance of the commercial agricultural holdings in the Western Samoan economy is obviously disproportionate to the size of their population. Their value lies in several directions; in their contribution to the Western Samoan export income, in their high rate of capital accumulation and in their demonstration effect in the uses of skilled labour and modern plantation technology. A further value should, however, not be overlooked; they demonstrate that under conditions of adequate guidance and stimulation, a Samoan-dominated work-force can be expected to return much greater amounts of agricultural produce per capita than is now usual under the customary village system.

Region III — The Rural Village Region

The alienation of land for the development of the urban area and commercial plantation agriculture, although of great economic and cultural importance, left the traditional pattern of Samoan village settlement largely intact. Region III is the area inhabited and agriculturally developed by the Samoans according to their custom. It includes 65 per cent of the utilized area on Upolu and virtually all the inhabited areas on the other three islands.
Plate 8. The traditional village remains the major settlement form. Falealupo, Savai'i.
The characteristics of this large and diverse region have necessarily formed a considerable part of the discussions, historical and systematic, in previous chapters. However, it is necessary to re-examine some of these qualities briefly in their regional context, particularly those which show considerable internal variation.

Included in the region are 151 square miles on which dwell 75,499 persons. The habitation density is 417 per square mile. There were 227 villages with a mean population of 365 persons. Most villages are located on the coast but 15 are inland.

**Ethnic structure**

The population of the Samoan villages is much more homogeneous than those of the other two regions. The ethnic structure is dominated by Samoans, and together with the part-Samoans, they form 99.5 per cent of the population (table 22). Although the numbers in all other ethnic components are small and their proportion of the regional population is infinitesimal, the proportion of each ethnic group living in the rural villages is frequently quite high.

Table 22. REGION III - THE RURAL VILLAGES: ETHNIC STRUCTURE

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Number</th>
<th>Proportion of the total regional population</th>
<th>Regional proportion of the total ethnic group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samoans</td>
<td>72,093</td>
<td>95.5%</td>
<td>81.9%</td>
</tr>
<tr>
<td>Part-Samoans</td>
<td>3,011</td>
<td>4.0%</td>
<td>38.1%</td>
</tr>
<tr>
<td>Europeans</td>
<td>157</td>
<td>0.2%</td>
<td>23.7%</td>
</tr>
<tr>
<td>Tokelauans</td>
<td>69</td>
<td>0.1%</td>
<td>30.7%</td>
</tr>
<tr>
<td>Chinese</td>
<td>45</td>
<td>0.1%</td>
<td>31.5%</td>
</tr>
<tr>
<td>Niueans</td>
<td>33</td>
<td>0.0%</td>
<td>41.8%</td>
</tr>
<tr>
<td>Tongans</td>
<td>14</td>
<td>0.0%</td>
<td>23.0%</td>
</tr>
<tr>
<td>Melanesians (Solomon Islanders)</td>
<td>17</td>
<td>0.0%</td>
<td>45.9%</td>
</tr>
<tr>
<td>Others</td>
<td>60</td>
<td>0.1%</td>
<td>46.5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>75,499</td>
<td><strong>100.0%</strong></td>
<td></td>
</tr>
</tbody>
</table>

This applies particularly to islanders from other parts of the Pacific and to the Chinese. Of the major ethnic groups the lowest proportions in this region are shown by Tongans and by Europeans. The highest proportion, however, is with the Samoans, 82 per cent of whom still live in, or about the rural villages.

**Occupation and employment**

The employment structure also reflects this homogeneity. Nearly 84 per cent of the regional population is engaged in or is directly dependent upon customary agriculture (table 23). Within this group all except the very young and the aged are likely to have some part in agricultural production, but only 13 per cent of the group could be described as full-time agricultural workers. An additional group, matai and females in the age range 15-50, could be described as part-time workers.

---

5 Including some persons who do not live in village communities, e.g., in hospitals or schools. The habitation density for the 'village dwelling' is 403 per square mile.
Table 23. REGION III – THE RURAL VILLAGES: EMPLOYMENT STRUCTURE

<table>
<thead>
<tr>
<th>Sector</th>
<th>Number</th>
<th>Proportion of total regional population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customary agriculture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full time</td>
<td>9,556</td>
<td>12.7%</td>
</tr>
<tr>
<td>Part time</td>
<td>10,277</td>
<td>13.6%</td>
</tr>
<tr>
<td>Dependents</td>
<td>43,315</td>
<td>57.4%</td>
</tr>
<tr>
<td>Total in customary agriculture sector</td>
<td>63,148</td>
<td>83.6%</td>
</tr>
<tr>
<td>Paid employment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>2,537</td>
<td>3.4%</td>
</tr>
<tr>
<td>Females</td>
<td>628</td>
<td>0.8%</td>
</tr>
<tr>
<td>Dependents</td>
<td>9,186</td>
<td>12.2%</td>
</tr>
<tr>
<td>Total in paid employment sector</td>
<td>12,351</td>
<td>16.4%</td>
</tr>
<tr>
<td>Total population</td>
<td>75,499</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total workforce</td>
<td>22,998</td>
<td>Proportion in paid employment 13.8%</td>
</tr>
</tbody>
</table>

Only 4.2 per cent of the total regional population have paid employment, but the sector supported in this way is 16.4 per cent.

Although the proportion of the rural village workforce engaged in paid employment is very much smaller than in the Apia urban region (14 per cent cf. 77 per cent) their internal structures are not dissimilar (table 24). It is apparent that although the Samoan villages are not urban in the true sense, they do perform several urban functions. The proportion of employees in government service is similar.

Table 24. REGION III – THE RURAL VILLAGES: PAID EMPLOYMENT, OCCUPATION CLASSES

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Numbers</th>
<th>Proportion of total in paid employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government employed (full time)</td>
<td>1,020</td>
<td>32.2%</td>
</tr>
<tr>
<td>Village officials (part time)</td>
<td>220</td>
<td>7.0%</td>
</tr>
<tr>
<td>Total government employed</td>
<td>1,240</td>
<td>39.2%</td>
</tr>
<tr>
<td>Church employees (including village pastors, etc.)</td>
<td>617</td>
<td>19.5%</td>
</tr>
<tr>
<td>Commercial agriculture</td>
<td>340</td>
<td>10.7%</td>
</tr>
<tr>
<td>Village traders</td>
<td>378</td>
<td>11.9%</td>
</tr>
<tr>
<td>Other commercial occupations</td>
<td>566</td>
<td>17.9%</td>
</tr>
<tr>
<td>Work servicing agriculture</td>
<td>25</td>
<td>0.8%</td>
</tr>
<tr>
<td></td>
<td>1,382</td>
<td>41.3%</td>
</tr>
<tr>
<td></td>
<td>3,165</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
The proportion of part-time village officials is higher than in Apia. The proportion in commercial enterprise is only slightly lower than in the urban area (41 per cent cf. 45 per cent). Village traders and commercial agricultural workers augment this proportion in the rural villages. The proportion of church employees in the villages is noticeably higher, nearly a fifth of all employees coming into this category (20 per cent cf. 9 per cent).

The distribution of persons in paid employment in the village region shows an overall similarity. Virtually all villages, except perhaps the smaller, support a group of at least three or four employed persons. Usually this group will as a minimum include a part-time government official (pulenu'u), a teacher, a trader, and a pastor. Employees of the Health Department are distributed on a district basis, as are some other government officials. Employees of professional status in the villages are 20 per cent of the total, slightly higher than the 16 per cent proportion in the urban area.

Social and economic conditions

The great dependence on customary agriculture is the principal difference between the rural villages and the other two regions. This has important economic and demographic implications. The function of the matai in directing the aiga remains of real importance in the village community. The number of matai enumerated in the rural village region was 3,908, giving a ratio of one in every 18.9 persons. This is evidence of much more social stability than exists in the urban region or on the commercial holdings. Only 2.0 per cent of the rural village population had 'European' status and lived legally outside the aiga system. The mean size of the household in the rural villages is also smaller than in the other two regions, at 5.9 persons.

In general, Samoan villages continue to be organized in accord with traditional Samoan custom. The size of the households may now be slightly increased while untitled adult males, who are the heads of the biological families or household groups, usually have more independence. But the aiga directed by the matai and the organization of the village and district affairs by fono, to which the local matai belong, remains universal.

The economic life of the rural village region is centred around the cultivation of small plots of customary land. These are worked by members of the aiga together or, in virtually all villages now, by individual taule'lea. Income from this activity is the basis of the village economies. The contribution from salary or wages supplement these returns, but in this region only to a limited extent. In 1956 income from the three principal export crops was approximately £59 per village work-force male or less than £11 per head of total population. Meagre as these figures appear, the village contribution is at least 75 per cent of the income derived from exported produce in Western Samoa.

The age and sex structure

The difficulty of producing sufficient return from customary agriculture to compare with that available from
salary or wages has resulted in a drift of population out of the rural villages.

The magnitude of this trend is apparent from an analysis of the regional age and sex structure (see chapter 7, 131-2). These deviations are shown diagrammatically in fig.45. In general the pattern of deviations is marked by deficiencies occurring for both males and females throughout the age range 10-49 years. For males these deviations exceed the level of statistical significance in all age groups between 10 and 29 years and for females between 15 and 24 years. For the age groups older than these the consistent occurrence of deficiencies, while not singly reaching statistical significance, do indicate that, for at least 35 years, emigration has been occurring.

The maximum deficiencies occur in the 15-19 age group for both sexes, estimated at 12 per cent minimum for males and 10 per cent for females. This group is dominated by pupils receiving advanced schooling, mainly in Apia. However, the next age group 20-24 also shows a deficit, at least 10 per cent of males and 7 per cent of females. These persons will be largely in paid employment or enjoying the urban delights of Apia. The significantly high deficits are indicative of dissatisfaction with village living by young adults. The same reasons apply to those deficiencies at older age groups, particularly of males whose migrations are usually related directly to economic inducement.

Fertility and population growth

The excess numbers recorded in the 0-9 age group, although not individually significant, do exceed this statistical level as a group. As the number of females in the younger groups within the reproductive age range are statistically deficient this variation is of considerable importance. The child-woman ratio for the region is 1,036.0 (s.e. 5.9) which statistically exceeds those of the other two regions, and of all Western Samoa. It is not significantly different from that for the island of Savai'i (1,048 s.e. 9.9). The implication is that the fertility conditions on Savai'i are broadly representative of all the rural villages (Jupp 1958, 34-9). It is probable on this basis that fertility in the rural village region is significantly different from, and higher than in Apia or on the commercial holdings. Although there is insufficient data available on fertility in Western Samoa or its parts, to be certain, circumstantial evidence indicates that the lower fertility characteristic of Upolu is in fact due to the reduced fertility observed in the Apia urban area and probably also on the commercial holdings. In the rural villages of Upolu, recent economic changes do not appear to have induced any useful reduction in fertility. On the contrary, improved sanitary and public health conditions appear to be promoting fertility and a continued increase in the life prospects of young children.

The higher fertility applying to the rural village region is not reflected in a commensurate rate of population growth. An accurate rate of increase cannot be calculated as the censuses of 1951 and 1956 are not comparable. The inter-censal rate for the whole region is estimated to be approximately 10 per cent, a mean rate of 1.9 per cent annually. This is considerably below the rate of increase for all Western Samoa, and particularly below that for the
urban region. It is apparent that about one third of the natural increase occurring in the rural villages was lost in migration to the urban area during the 1951-6 period.

Sub-regional divisions

Although there is a general similarity throughout the villages of Samoa there are some variations of significance enough to be examined at a sub-regional level.

The major differences within Samoan villages, as demonstrated by comparisons made previously between the populations of the small statistical areas, are mostly of cultural and economic origin. The differential rate at which the village-dwelling Samoans have absorbed the social and materialist attitudes of the alien cultures - British, American and German - to which they have been exposed is now reflected in a variety of ways. To some extent these may be measured quantitatively. These include the patterns of population distribution, density, and rates of increase or decrease, economic productivity, levels of consumption, variation in age and sex structure, employment structure and possibly fertility.

The physical separation of the two major islands places Savai'i at a disadvantage. The contact its population has had with the alien commercial and cultural institutions, located mainly on Upolu, has been reduced. For this reason Savai'i will be differentiated as one sub-region. A similar, if less pronounced subdivision, is apparent on Upolu itself. The villages in close proximity to either the urban area or the concentration of commercial estates in northwest Upolu also show significant differences from those in the more remote districts. The village settlements along the northwestern coast of Upolu, between Mulifanua and Luatuanu'u have a much longer history of intensive contact with urban and commercial institutions than the other Upolu villages. Land alienation has accentuated this difference. The deprived village populations frequently suffer severe land problems; but the proximity of Apia has bestowed on them special advantages. Within each of these three sub-regions, further areal divisions, derived from similar variations, may also be determined and the following regional structure will be utilized to describe these.

Region III. The rural village region

A. Upolu: the northwest coast

(i) The peri-urban villages
(ii) The Sagaga-Alofi villages
(iii) Aiga-i-le-tai.

B. Upolu: the outer districts

(i) The southwest coast villages
(ii) The southeast coast villages
(iii) Aleipata
(iv) The northeast bay villages
(v) The central northeast coast villages

C. Savai'i

(i) The southeast villages
(ii) The northern villages
(iii) The western villages
The region III. Upolu: The Northwest Coast

The villages included in this region extend over 28 miles of sea coast and the two off-shore islands, Manono and Apolima. There are 44 village settlements of which only one is inland. The region is more populous than any other, with 25,006 persons. The size of the traditionally organized villages tends to be larger. There are 6 villages of over 1,000 inhabitants, including Faleasii, the largest in Samoa (pop. 1,703), while the mean size of the settlements is 510 persons. Not only are the population groupings larger than in other areas, the density of population is also greater. For every mile of coastline there are 893 persons. Over long stretches of the coast, settlement is almost continuous and in large villages many extend inland for up to half a mile. Cultivation penetrates further inland in this region than in any other, over 6 miles from the coast in the extreme case, but habitation densities rise to 0.96 acres per head, the lowest figure in region III.

One reason for this high density is a long history of sustained and rapid population growth in most of the area, the earliest to be affected by the commercialization of customary agriculture. But because of physical limitations, as on the off-shore islands, or the previous sale of portions of village land, some villages have little reserve of forest land suitable for agricultural development.

The villages of this region are divided into several groups by the intrusion of alienated land, either in commercial estates or in the urban area. Although the Samoans have been generally more fortunate than most other Pacific peoples in retaining their customary land, their good fortune is unevenly distributed. Of the land originally attached to the villages in this region, only 45 per cent remain.

The areal division of the villages has been the cause of the development of three distinct sub-regions.

(i) The peri-urban villages

This group of settlements is itself divided physically into three parts (the basis for 3 statistical areas) by the intrusion of the urban area, the land of European estates and by a physical barrier of rugged hills meeting the sea on the eastern boundary. All three are greatly affected by the proximity of the urban area. As densities increase and pressure on the available land has built up, this effect is accentuated. In the past the lands of Toamua and Vaisu groups have been sold for development into commercial estates. In the case of the Fagali'i-Luatuanu'u villages this cause is combined with the ending of village agricultural land into steep-sided valleys. Habitation densities are extreme, at 0.7 acres per person. This is below the level at which a satisfactory living may be derived from agriculture in its local form and these villages now depend on additional income from paid employment in the town or adjacent commercial estates. The proportion dependent upon paid employment is estimated at 36 per cent. Of this group 65 per cent derive

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Allowing 2 coast miles for Manono and Apolima.
their living from employment in the town; 326 persons commute into Apia each day.

The remainder of the population continues to depend on customary agriculture. Although the proximity of Apia offers some opportunities to diversify (and intensify) their agriculture, little advantage has been taken of this possibility, and copra, cacao and banana remain the three principal crops. The mean income to the persons dependent upon customary agriculture is estimated to be less than £7 per head annually. Paid employment returns far more than this and is much preferred.

The combination of traditional village living, the possibility of paid employment and the facilities offered by nearby Apia combine to make this area particularly attractive to young persons from the outer districts. The rates of population growth since 1900 have been consistently above the mean rates both for the rural village region and for all Western Samoa. Between 1900 and 1926 these villages increased at a mean rate of 1.4 per cent annually. All villages shared in this increase, which is well above the mean for the period, but those immediately adjacent to Apia showed considerably higher increases than those further out. At this time, however, the opportunities for paid employment in Apia were very slight and the advantage lay in a combination of village living and adjacency to the urban area. During the 1926-45 period the villages in the western areas showed below average rates of growth. While employment opportunities were still limited, the available land was completely used and the beginnings of population pressure became apparent. In the eastern villages land was still available and their attraction for migrants from the outer districts persisted. Overall the mean rate of increase was 3.0 per cent annually.

The World War II period accelerated the growth of Apia and the employment openings for Samoans. The commercial estates, too, changed to a dominantly Samoan labour force so that additional opportunities for the inhabitants in nearby settlements appeared. In the period 1945-51 these trends continued and the mean rate of growth for these villages rose to 4.2 per cent. In the villages immediately adjacent to Apia rates exceeded those of the urban area itself. Further out, the villages remained unaffected by the extension outward of urban functions and increasing land shortage reduced their other economic possibilities. Population increased in the Toamua and Fagali'i-Luatuanu'u groups at a rate well below that in the Vaiusu group.

Between 1951 and 1956 the situation changed. Few new employment opportunities were appearing in the town and extreme population densities had built up in all three village groups. The Vaiusu villages had become as densely populated as the whole urban area. Population growth ceased in this area. The impetus moved out to the Toamua and to a lesser extent the Fagali'i-Luatuanu'u villages which grew at rates comfortably exceeding the national mean. For the whole region, however, the period of rapid population growth appeared to be past. The rate, 3.5 per cent annually, still exceeded that for all Western Samoa and particularly the rate for the rural village region.

This recent history of population growth—the effect of spreading urbanism and the proximity of the town with its employment, recreational and educational facilities—is
reflected in the sub-regional age and sex structure (fig. 58). The pattern of surpluses and deficiencies within the age and sex groups is very different from that of the rural village region but shares some of the characteristics of the urban area. The statistically significant surplus of males in the 10-14 age group is an urban rather than a rural characteristic, reflecting the proximity of several Apia schools. The pattern of deficiencies applying to the ages beyond 15 years for both sexes, although no one group attains a significant level, shows a rural characteristic, although the deficiencies are much lower than in most other rural areas. The deficiencies in the mature adult groups, between 35 and 54 years, may be a reflection of the difficulties these villages present to persons dependent on paid employment. For persons of this age employment is difficult to obtain without job training or long experience while the returns from customary agriculture are usually unsatisfactory.

In spite of the consistent deficits applying to females of reproductive age (15-44) the child-woman ratio at 1,048 (s.e. 21) is higher than for all Western Samoa, but is not significantly different from the ratio for all rural villages. It is reflected in the surpluses observed in the 0-4 age group.

The future prospects for these villages will depend on the expansion of Apia and the employment opportunities therein. There is little opportunity for agricultural extension, although the industry could be intensified, particularly in subsistence food-crops in which the villages have ceased to be self-sufficient. The employment structure will reflect the trend to increasing paid employment in the tertiary sector of the economy. The demographic structure and the rates of population growth should become increasingly similar to those of Apia.

(ii) The Sagaga-Alefi villages

Even in prehistoric times the villages in this sub-region were larger and more closely packed than in the rest of Samoa. They were wealthy and wielded considerable political power. The struggles, centred on the political capitals of Leulumoega and Sagaga (Afega and Malie), culminated in the last decades of the nineteenth century in the selling and mortgaging of much of their most valuable customary land for the purchase of war supplies. Their turbulent history is consequently the principal cause of their present economic difficulties. Until recently these villages had a considerable advantage over most others: proximity to the urban area. They had also derived great benefit from a strong mission.

The analyses of the age and sex structures has shown that the estimates derived from the 50+ control group are more reliable and informative than those from the 0-4 age group. The estimates originating from the infant group may be useful in showing additional characteristics, such as the age structure of the women of reproductive age in relation to the numbers of young children. The general usefulness of their estimates is usually impaired by the close relationship with the structure of adults of reproductive age, and the tendency of that group to be very mobile. In the following analyses only the estimates of the 50+ control group are adopted and shown diagrammatically.
influence, based on Malua and Faleula. Roads built primarily to serve the commercial estates gave them accessibility long before any other rural area. Nor was agricultural land short in the early stages of their commercial development, and it was of superior quality.

These villages responded to their opportunities early. Between 1900 and 1926 the Samoan population rose by 56 per cent, a mean 1.8 per cent annually, over four times the average rate. Rapid growth was particularly characteristic of the villages nearest Apia. Their rate of increase at this time exceeded that of any of the rural village regions. This situation continued until World War II. But the 1945 census showed a changing situation. Other districts were becoming more attractive to immigrant settlement while the Alofi-Sagaga villages were becoming overcrowded and congested. Between 1945 and 1951, while no sub-region exceeded their annual rate of growth, 4.9 per cent, several smaller areas were growing at faster rates. By 1956 it was apparent that land shortage and high population density was inhibiting growth, then down to 2.3 per cent annually — below the mean for the country and near the average for the rural villages. Only in the western villages does a significant opportunity for the areal expansion of agriculture remain, and these villages showed higher rates of increase than those nearer Apia.

The changed status of this region in regard to internal migration has had a discernible effect upon the age and sex structure (fig.59). Unlike the other rural areas, the pattern resembles that for all Western Samoa, although it is more erratic. The proximity of Apia and the location of some residential schools in this region is reflected in the surpluses shown for the 15-19 age groups, statistically significant in the case of females. The deficiencies of males aged 35-39 and that of females 30-34 are similar in number and are probably connected. The reason for the absence of couples of this age is not certain, but may be due to lack of economic and therefore political opportunity which is of special significance to males at this maturing age. Were it not for the location of the LMS Theological College at Malua, deficiencies of young adult males would also have been pronounced, particularly in the 20-24 age group. The surplus of males in the 60-64 age group is only just significant in the statistical sense and as it is not supported by surpluses in adjacent age groups it is of dubious importance. It is possible that the surplus is a remnant of the rapid population expansion characteristic of these villages in the late 1920s. The deficiencies in the aged groups (over 85 years) are also of questionable validity. This group is the remnant of the population unaffected by rapid inward population movement and may have been reduced in its relation to the present population because of this; but the surplus of females of 80-84 years suggests that age misreporting is a more likely explanation.

The structure suggests that had the educational facilities accessible from this area not attracted additional population the slowing of population growth would have been accentuated. The presence of additional males in the 20-34 age range attending theological college obscures a real deficiency in the agricultural village communities. Shortage of males between 20 and 39 years is consistent with the poor economic opportunities now available to young men in this area.
With the reduction in individual returns from agriculture has come an increase in the dependence upon paid employment. Daily commuting to Apia and work on the adjacent commercial estates now plays an important part in the economies of these villages. While paid employment does not yet compensate entirely for the diminishing agricultural income, it supports an estimated 20 per cent of the population. The number in paid employment is 956 persons, of which nearly 30 per cent commute into Apia. The pattern of occupation within this employment group is similar to that established for the rural villages except that the proportion employed on commercial estates is significantly higher (18 per cent). The trend toward paid employment and commuting will undoubtedly continue. The village economy is still dominantly agricultural, however, and the social organization continues to be centered fa'a Samoa in spite of rapid population growth in the past and pronounced acculturation. Aiga size is only slightly larger than normal for village communities (a mean of 23 persons). An unexpected characteristic, possibly connected with stringent economic conditions, is a low child-woman ratio. At 959 (s.e. 12) the ratio is similar to that for all Western Samoa, but is significantly below that for region III.

This sub-region is likely to be among the first to show any trend toward reduced fertility in the village-dwelling population. The lowered ratio suggests that such a trend may now exist. But while the ratio remains so high, the slight reduction indicated in this region may be the grounds for only very limited optimism about the future course of Samoan fertility.

(iii) Aiga-i-le-tai

This region now has the most critical economic problems of any in Western Samoa. It contains 11 villages, which originally formed a sub-district in A'ana, famous in Samoan tradition for their political strength and naval prowess. The villages fall into three groups. The people of Apolima island form two villages, including one recently built on land acquired on the Upolu coast opposite. Manono has six villages and also an additional tract across the water on Upolu. In 1956 this was still poorly developed and without nucleated settlement. On the Upolu coast are three other villages and also a small unorganized settlement centred on the Mulifanua hospital. One of these, Satuimalufilufi, is not a part of the traditional district, but was relocated on part of Falepunana plantation when its land was taken to build the airstrip at Faleoleo in 1942.

Several factors have worked to differentiate these settlements from all others in the rural village region. The physical separation of Apolima and Manono from Upolu has placed their inhabitants at an economic disadvantage. Land area is restricted, by the location on two tiny islands in the case of Manono and Apolima, and by the sale of land to commercial interests in the past in the adjacent part of Upolu. The recent effect has been to induce extreme population densities. The acquisition of small tracts of previously alienated land by Apolima, Manono, Satuimalufilufi and the Mulifanua villages has led to population disequilibrium for short periods in the recent past.

Even in the 1901-26 period this sub-region exhibited extreme conditions in its different parts. The populations
Plate 10.

MULIFANUA: showing commercial plantations and Samoan customary land

0 1 mile
of both Apolima and Manono actually declined in the period while that of the related Mulifanua villages increased by over 100 per cent, probably as a consequence of a population transfer from the islands to the Upolu mainland. Overall population growth was virtually static. It is likely that the inhabitants of both the off-shore islands were suffering from pressure on the available resources even at this time; in 1901 habitation densities were below one acre per person. The population of the Mulifanua villages was small at this time and possibilities of extending the agricultural area remained. The disparity between population growth on the Upolu coast and on off-shore islands persisted into the next intercensal period. Between 1926 and 1945 the Mulifanua villages grew spectacularly with the addition of the relocated Satumalufilufi population. Even without this additional population the increase would have been above the average. Manono and Apolima ceased to lose population because of the higher natural increase but the accumulation of additional numbers was only slow. By 1951 the situation was changing again and the villages on the Upolu coast were becoming overcrowded and had almost fully developed their village land. Apolima had also become overpopulated and showed a slight loss during the 1945-51 period. Manono during this time had acquired additional land on Upolu and her resource problem was temporarily solved; population increased at a mean rate of 3.8 per cent during the period, slightly exceeding the territorial mean.

During the next intercensal period Apolima acquired land on the coast of Upolu and the population trend changed abruptly from decline to rapid growth as a new village for Apolima people was built and a new tract of agricultural land was developed. But the area involved is small and the needs of the Apolima people for further land are likely to recur in the near future. The population of Manono continued to grow, but at a below average rate, due to pressure on the land. In the Mulifanua villages population decline was recorded. In this sub-region the habitation density is 0.9 acres per person, the lowest found in any truly rural area. The effects have been obscured to some extent by the temporary palliatives applied in the cases of Apolima and Manono. The history of population change in this region contains sufficient evidence to indicate that a critical density has been reached (ch.7, 120).

So far three measures have been taken to temper the economic effects of land shortage. Additional land has been acquired by several communities both by their own initiative and by government intervention. There remains some possibility of further grants, particularly from the area owned but not in use by WSTEC inland from Mulifanua. Another alternative has been used by all groups in this sub-region and this is migration to other villages. Persons belonging to one village may utilize their aiga connections to move into another of superior economic promise. During 1956 it was observed in Mulifanua village that 23 per cent of the persons enumerated in a sample de jure census were listed as 'living in another village'. An additional 9 per cent were listed as 'living in Apia', making a total of 32 per cent absent from the village. This was much the highest proportion absent of all villages surveyed (Pirie 1958, 97).

The third alternative has been found in paid employment. The returns from agriculture in this sub-region are now very low, estimated at £5 per head for 1956. Although well located
and supplied with ample transport the sub-region produces a negligible quantity of export banana and the economy is dependent upon coconut and, to a lesser extent, cacao. Several villages are not even self-sufficient in subsistence foods and buy a proportion of their needs in Apia! The desire for paid employment is understandably strong. Some persons commute each day into Apia; they numbered only six persons but the group is likely to increase. Local employment and a large proportion of the additional income is derived from paid employment on the adjacent commercial estates. Of those on salary or wages, 30 per cent are employed in commercial agriculture, the highest proportion outside the commercial holdings region. Of the Aiga-i-le-tai population 15 per cent are estimated to be dependent upon earnings from paid employment. Of those employed, 64 persons or 69 per cent are employed in the village communities in the positions of the type usual in other rural districts. The balance, 28 persons, have, because of economic pressure, found employment outside the village system. A development of this trend would allow continued growth of population and increased habitation densities; but the possibilities seem to be limited. The area is likely to continue to accumulate populations at a slow rate, and to supply a disproportionately large number of emigrants to other parts of Samoa and abroad.

That outward migration has been characteristic of this sub-region for many years is shown by the age and sex structure (fig.60). Population deficits are indicated for both sexes at all ages in the range 0-54 years. For males between 10 and 34 years these exceed statistical significance. The deficits indicate that since World War II at least a quarter of all males on reaching adulthood have left these villages and have stayed away. A deficit in the 15-19 age group, composed principally of young people receiving advanced schooling, may be of subsequent advantage to the home villages but Aiga-i-le-tai shows a lower proportion away than in the older age groups, although it is normal for region III.

For females the pattern of deficits is similar but more irregular. They extend into the older age groups and statistically significant deficiencies occur in the 35-39 and 45-49 age groups.

Unlike the Alefi-Sagaga region, there is no evidence here that economic hardship has influenced fertility. The child-woman ratio is 1.051 (s.e. 31) which, although significantly higher than the ratio for Western Samoa, is similar to that for the rural village region.

The characteristics and problems of this sub-region are relevant to the whole geography of population in Western Samoa; they are the precursors of those which will come to apply increasingly in an ever widening area of the islands.

Region III B. Upolu: The Outer Districts

This sub-region was differentiated from the rest of Upolu because of its relative isolation from, and lack of contact with the nuclei of alien culture; but such disso- ciation has come recently to be more of historical than real importance. Although acculturation is still at a rudimentary stage, its differential effect is the main cause of areal variation within this region.
The sub-regional population of 23,793 persons live in 81 villages grouped into 10 major concentrations around the Upolu coast. Formerly these groups were separated by tracts of uncleared forest and, except by bush tracks or coastwise journeys, were isolated one from the other. Now the road system serves all groups and, except for a few villages, accessibility has ceased to be a problem. In most cases, however, the tracts of uncleared forest remain— in the interests of social and political harmony. The mean size of the villages is 293 persons, well below the size of villages in the northwest coast region. No village exceeds one thousand persons and only one exceeds eight hundred (Solosolo, pop. 881). There are several villages of less than one hundred persons and a few fall below fifty.

Land alienation has been, in practice, of negligible consequence in this area and only one developed commercial holding interrupts the pattern of customary land use. Habitation densities are half those in the other Upolu sub-region, at 1.8 acres per head. Most villages have some cultivable land remaining in forest and the problem of excessive population in relation to available agricultural resources has scarcely appeared. Access to the unused land is sometimes difficult and in several cases the soil fertility of unused land is much inferior to that already exploited.

Region III B has been further divided into five parts. The differences on which this division was based are of recent origin, on the whole no more than 30 or 40 years. While the urban area was being established and the agricultural development of privately owned land was in progress elsewhere on Upolu, conditions in the outer districts retained a similarity based on the persistence of traditional Samoan culture. Although it became apparent early that isolation placed rural villages at a formidable disadvantage, poor access remained common to all. Economic development remained at a very elementary level throughout.

The rate at which different areas changed out of the original subsistence economy into commercialized village agriculture varies greatly. Within the whole of region III B local differences of geographic interest are now primarily due to the stage of economic advancement within the sequential pattern adopted by the Samoan villagers.

(i) The southwest coast villages

Relatively well advanced in this respect are the three settlement groups on the southwest coast of Upolu, Faleletai, Lefaga and Safata. Although the period during which the diversification and extension of customary agriculture has taken place varies between the three, all have superior advantages which showed up at an early stage. Access to the northwest coast and Apia was easy. Soil and terrain conditions in most of the region permitted ready and profitable agricultural expansion. Even in the first intercensal period 1900-26 the area showed a population growth rate of nearly double the mean rate for all Western Samoa. The exception was Faleletai, where numbers remained static. The reason for this may have been proximity to the European plantations and Apia, both offering a constant and unfavourable contrast to the village-dwelling peoples. In the next period, 1926 and 1945, the region again exceeded the mean rate for the total population by increasing at 3.0 per cent annually: Lefaga continued to grow most rapidly with a rate of 4.1 per
cent, but Faleletai also reversed its previous trend and increased at a 3.6 per cent rate, also exceptional for a rural area. Both these rates are undoubtedly due to vigorous economic development. After 1930 the economy of both areas began to diversify as cacao and particularly banana became major village crops. Both Faleletai and Lefaga were supplying export banana before World War II, the only districts outside the north coast of Upolu to be included in the scheme. In 1934 road connection was made with Faleletai, and in 1943 Lefaga and western Safata were directly linked with the northwest coast. A similar economic upsurge did not occur in central and eastern Safata until later although this district had benefited previously to some extent from participation in the banana export scheme. But in the 1945-51 period Safata increased at a 4.3 per cent mean annual rate, while Lefaga showed a rate of only 1.6 per cent. During the next period (1951-6) the emphasis on rapid growth (a 4.8 per cent rate) shifted back to Lefaga. Although population growth rates have fluctuated within the southwest coast region, they have been consistently higher here than in any other part of regions III B or C since 1900 (1900-26, 0.8 per cent mean annual increase; 1926-45, 3.0 per cent; 1945-51, 3.8 per cent and 1951-6, 3.8 per cent).

Rapid population increase is reflected also in the age and sex structure of the region. In figure 61 the pattern of deviations is that of a rapidly growing, relatively prosperous population. Deficit groups are confined to those in which school children dominate: the 10-14 and 15-19 in the case of males and the 15-19 in the case of females. The largest deficit occurs in the group composed largely of students receiving advanced education. That at least 20 per cent of the male age group is absent, nearly double the proportion for the rural villages as a whole, is a sign of progressiveness and economic substance. In the working-age groups no significant deviations occur. Although the indication is of deficit, the proportions are minor. The only other important deviations are those of children. Only the males in the 0-4 age group are significantly in excess, surplus numbers are indicated throughout the 0-9 age range. The child–woman ratio is significantly higher than for the total population (1,064, s.e. 17) but is similar to that for the rural village population.

Economic conditions in the southwest coast villages are better than in most other rural areas. The per capita annual return was estimated at £13.9.0 for 1956, or nearly 25 per cent above the mean for the rural villages. The relative profitability of village agriculture is possibly related to another characteristic - a relatively low degree of dependence upon paid employment. Only 10.5 per cent of the population derive their living from this source and the remainder continue to depend on village agriculture.

Economic development has been the cause of considerable change in the western part of this region. Lefaga and Safata are particularly affected. The road from the north coast did not follow the seaside villages for much of the way but took an inland route. This has induced a major alteration in the settlement pattern in both districts. In Lefaga feeder roads have been constructed down into the coastal villages. Aiga have established households on the many plots traversed by the new routes. The settlement so far has remained dispersed, except in the case of Salamumu where there is a concentration of new houses where the access
road to the coastal village turns off. The road has stimulated adjacent clearing in areas formerly forested and the new agricultural land has been settled by households moved from the coastal villages. In the Safata area the effect of the road is even more pronounced. Two villages - Vaie'e and Sa'aga - had moved completely by 1956 and two others - Fusi and Fausaga - were in the process. The Vaie'e peninsula was becoming completely depopulated as villages moved across the lagoon on to the road which follows the sheltered coast. Other villages had spawned offshoot settlements inland on the road. Sa'anapu, Sataoa, Lotofaga, Mulivai and Siumu were affected in this way. In all, an estimated 1,500 persons within the sub-region had shifted their homesites by 1956 as a direct consequence of the new road. Such a movement, involving nearly 25 per cent of the local population, had a profound social effect. The possibility of movement away from the village gave two groups, the discontented, and the progressive and intelligent, an opportunity to change their conditions. The rhythm of fortnightly banana shipments and the regular pay-outs created a situation similar to paid employment for many families. The result has been that these villagers are more commercially oriented than is usual in the rest of the region. But, in spite of the possibility of social disruption, the change has created fewer problems than might have been anticipated. The shifted villages re-formed along the traditional pattern. The plantation households for the most part retain close ties with their village group. The trend toward individualism has been limited and a traditional village culture, modified but unmistakable, has been preserved.

(ii) The southeast coast villages

The agricultural expansion of the type shown by the southwest coast settlements of Upolu has been shown only very recently in the southeast. The village groups of Falealili, Lotofaga and Lepa were among the most isolated on Upolu. Only since 1954-5 has the area had connection with the island road system. Until this time the area was retarded by difficult access and the lack of opportunity to diversify agriculture particularly into export banana. The area remained dependent upon copra and to a much smaller extent on cacao.

In the first years of European administration the population of this inaccessible area declined. Between 1900 and 1926 population fell at a mean rate of 0.8 per cent annually. The actual loss of over 700 persons is certainly related to outward migration, probably into the expanding areas of western and northern Upolu. In the next period population loss was stemmed but growth remained well below average at 1.7 per cent annually. The Falealili villages particularly increased very slowly. Between 1945 and 1951 the momentum of population growth continued to rise, but the relative position of the area remained among the lowest at a mean of 2.5 per cent annually. Not until the inter-censal period 1951-6 did an economic surge affect these villages. Population growth showed an immediate response and the newly accessible areas increased at a mean annual rate of 4.4 per cent. While habitation densities remain low (2.3 acres per head) and economic opportunity stays high, rapid population growth is likely to continue.

The age and sex structure was similar to the southwest coastal sub-region (fig.62). The only major addition was
a statistically significant deficit of males and females in the 20–24 age group. At the higher ages the proportions are approximately normal until the 80–84 female group which shows an excess. While the normal proportions throughout most of the 'working age' groups indicate a satisfactory economic situation in the area, the deficit in the 20–24 groups, approximately 16 per cent for males and 13 per cent for females, reflects economic conditions not as favourable as in the villages of the southwest coast. The proportion absent from the 15–19 age groups, an indication of those receiving advanced education, is even higher than in the villages of the southwest (males 23 per cent, females 12 per cent). In the youngest age groups surpluses appear, to a significant degree in the male 0–4 group. This is related to a child–woman ratio of 1.080 (s.e. 0.22).

Social conditions in the area are stable, strongly traditional and continue to be centred on the aiga, the matai and the churches. Income from agricultural produce is high, over £14.10.0 in 1956 or nearly 35 per cent higher than the regional average. This figure is largely the result of a high per capita production of copra built up during the period prior to the recent addition of cacao and banana as alternative crops. Cacao was a relatively minor source of income in 1956 but export banana had risen rapidly and then supplied about 20 per cent of the total income. The employment structure showed no significant difference from that characteristic of region III B as a whole. The sector of the population dependent upon paid employment was 12.1 per cent of the total. With high monetary returns and ample possibilities of expansion in customary agriculture there is little need to seek paid employment. The habit of emigration in the past, however, has made many communities in the area conscious of the possibility, although local opportunities are limited. But the embryonic development of commercial agriculture on individualized but Samoan land along the Mafa road is an indication of a possible future trend.

(iii) Aleipata

Until recently Aleipata was considered one of the most remote and conservative districts in Western Samoa – and one of the most backward. Even in 1956 it retained a type of economy, based almost entirely on subsistence crops and copra, superseded in most other districts, even in Savai'i (Pirie and Barrett 1962, 78-80). Over 90 per cent of the return (£10.12.6 per head in 1956) from export produce was derived from copra. This return is a little below average, but the income in most villages is somewhat lower, as two villages, Amaile and Samusu, have diversified their agriculture and have higher per capita incomes than the rest.

Although the Aleipata population did not decrease after 1900 (which itself may be interpreted as a sign of conservatism under such circumstances), it has consistently shown rates far below the means in each intercensal period. In the 1951–6 period population growth was beginning to show some acceleration (about a mean of 2.4 per cent annually), particularly in the northern villages. The population as a whole, however, increased at slightly below the mean rate.

A long period of outward migration is reflected in the age and sex structure which shows a larger proportion of working-age males absent than any other in region II B.
(fig.6). Male groups of 20-24 and 35-39 years both show significant deficits. All age groups in the 10-44 year range appear to have been depleted. The proportion of school age children absent, however, is smaller than in more prosperous areas. A further contrast appears in the 0-4 age group which also shows a deficit. This is related to depletion of women in the youngest groups in the reproductive age range but the child-woman ratio is also low (947, s.e. 31).

The connection of Aleipata to the Upolu road system in 1955 should initiate a change in the characteristics of the district. The road has been anticipated to some extent in the two northern villages which are fortunate in that the road to Ti'avea passes through the length of their agricultural land. This road was built in 1952, before the outside connection was made, and has stimulated agricultural development and the establishment of a new embryonic inland village. This new settlement, composed of families from the three adjacent villages, is the only contemporary example of a new rural village combining people of previously separate groups. The possibilities for expansion are not as favourable as in the rest of region III B, but some further development could easily be achieved. The district has been a secondary centre of government administration for many decades and the proportion dependent upon paid employment is raised as a consequence. As few other opportunities occur in the district the proportion so employed (12.1 per cent) remains similar to that found elsewhere in the region.

(iv) The northeast bay villages

The differentiation of this sub-region has its origin in the local prevalence of rugged landforms. Extreme slope has restricted both the area which can be settled or agriculturally utilized and has also been the cause of the isolation which is characteristic of this sub-region. The consequences are apparent in its population geography.

Settlements are confined to the four largest bays. Fagaloa, the largest, includes 6 villages, and other settlements are at Sauago and Saletele in one bay, and at Ti'avea and Uafato. Villages are small, with a mean size of 162 persons.

Until 1956 the villages were all inaccessible by road. In this year, however, the road from Aleipata was continued into Ti'avea, a road into Fagaloa Bay was begun and another into Savago and Saletele was projected. The feasibility of carrying a road into Uafato is remote.

In 1956 the effect of these developments was negligible and the sub-regional population showed most of the traits found in areas of similar isolation. The effect of outward migration over a long period was apparent in the age and sex structure (fig.64). Deficits in the male groups occur to a statistically significant extent in both the 20-24 and 25-29 year groups. The proportions away are high, 32 per cent and 28 per cent respectively. There is also an indication of long-term outward population movement in the deficits in the male 40-59 range. Although the absences in no one group exceeded statistical significance, together the deficits from the four adjacent groups were significant. Relatively few school age males are away and these are concentrated at ages 10-14 rather than the more usual 15-19 group. The absence of females in the equivalent group
shows a different pattern, with an exceptionally large proportion of girls in the 15-19 group being absent. The reason for their absence will be partly connected with education, but it is likely that a paucity of eligible males in the young adult groups may be a contributory cause. A similar pattern occurred also in Aleipata.

There is a surplus of children in the 0-4 year group, an indication of high fertility. The child-woman ratio is excessive at 1,215 (s.e. 40); the women most likely to be mothers of children 0-4 years, those in the 20-29 age range, are in approximately normal proportions while those in the less fertile groups, 15-19 years and over 30 years show deficits, so that this will contribute to the high ratio. But the major reason for the ratio, significantly higher than for region III as a whole, must be largely due to very high fertility. This is not reflected in the rates of population growth. Until World War II the relative accessibility of this area was not significantly worse than other outlying villages. The coastal journey between Apia and the furthest village does not exceed 25 miles—less than the sailing distances to both the south coast of Upolu and to Savai'i. The building of roads on Upolu, however, soon put these isolated bays at an obvious disadvantage and rates of population growth fell below average. In some villages decreases were recorded, as in Sauago and Saletele in 1945-51 and in Ti'avea in 1951-6. Overall the mean annual increases were low for both periods, 1.4 per cent and 1.9 per cent.

Although inaccessible, the area is relatively advanced economically. The steep hillsides and the colluvial and alluvial materials at their feet all give rise to soils which are persistently fertile due to constant renewal. The region shows a high per capita production both of copra and export banana. Cacao was a less significant addition to village incomes but was increasing. The mean income within the area was estimated at over £13.0.0 or 20 per cent above the mean for all the rural villages. In 1956 export banana was still shipped out by launch (a process which began in 1930) but where possible the adoption of road transport was projected. The major economic problem of the area was the shortage of cultivable land. Only in Ti'avea could the agricultural area be usefully extended. Habitation densities, although still average at 1.8 acres per head, can only increase as the population rises. The recent improvement in communications is likely to raise the rate of population increase only very temporarily.

The opportunities for diversifying the economic base of the region are slight. There is still scope for a greater dependence on paid employment, although a few persons appear to make a daily journey into Apia to work. The population dependent upon paid employment is 13.6 per cent, an average figure, and the proportions in each type of work follow the pattern normal in the rural villages.

(v) The central northeast coast villages

The villages of this sub-region are located either on the coast between the Falefa river estuary and Solosolo, or on the plain which extends behind this coast inland for five miles. Curiously similar in several ways to that at Apia, this plain contains the inland villages of Falevao, Manunu, Lalomauga, and the LDS settlement at Sauniatu.
These villages utilize one of the few acres in Western Samoa with ample supplies of surface water and alluvial soil. They are pitonu'u of the larger villages on the coast and are the remnants of a more numerous group (ch. 3, 21).

Relative proximity to Apia has given these villages several advantages. A road along the coast to Falefa was built in the first years of the New Zealand administration and the area was included in the banana export scheme from its beginning in 1928. Although not affected to the same extent as the villages of the northwest coast, this area has had a greater exposure to European commercial and urban organization than have other parts of region III B. Their economic opportunities were limited in several places by the lack of cultivable land. The coastal villages are constricted either by rugged terrain or by the lands of the inland villages and the commercial plantation at Solaua. The Falevao plain is fully, although not intensively, utilized and steep slopes also limit the possibilities of areal extension by the inland villages.

In spite of its advantages, the region has developed at a very moderate pace. Between 1900 and 1926 population increased at a rate of 0.5 per cent, slightly above the mean for the territory. The rate for 1926-45 was 2.6 per cent annually, again only slightly above the mean. In view of the economic stimulation caused by further road construction, the development of the export banana industry, the economic opportunities offered by the American occupation, all in this period, the progress is less than might have been expected. Between 1945 and 1951 population growth of about 2.6 per cent annually continued, although the rate for the whole country rose to 3.7 per cent. In the following period 1951-6 the below average progress was continued with a rate of 2.3 per cent. Sluggish development applied particularly to the coastal villages — those inland on the plain increased more rapidly, particularly as they were given road access during the period.

Economic conditions in the area are reasonably good. Income from the three major export crops is estimated as 9 per cent above the mean. Of the three crops, copra is the dominant product, while cacao is less well developed than in several other districts on Upolu. Banana accounted for approximately 20 per cent of the returns from exported produce. Habitation densities at 1.4 acres per capita are becoming higher than is comfortable, particularly when the local economy is dependent upon coconut and banana rather than on cacao.

Recently the work-force of this area has been turning to employment opportunities offered in Apia. Forty persons commute daily into Apia and 15.3 per cent of the population now depends on paid employment. This is an average proportion for the whole rural village region, but is the highest level found in region III B. The extreme case is Faleapuna with a restricted and fully developed agricultural area in which 27 per cent of the population depends on paid employment, over half of which is in Apia, 15 miles away.

The age and sex structure reflects the lack of definite trend observed in the other characteristics of this sub-region. The attitude of the inhabitants appears to be one of resignation to average conditions. The only significant deficiency occurs in the male 15-19 group, but the proportion
absent is lower than in other parts of region III B (fig. 65). Since it is possible to commute to the schools in Apia this is not unexpected. There is a tendency for females in the 15-39 range to be fewer than expected but in no one age group does the deficit achieve statistical significance. Males of working age appear to be in normal proportion here. The only other significant deviations occur in the female age groups 40-44, 60-64 and 55-59 years. In all cases they are small and the cause is unknown. In relation to the 0-4 age group, women of reproductive age are very significantly fewer than normal. This is a reflection of high fertility in the rural villages. The child-woman ratio is 1,103 (s.e. 23), very considerably higher than in region III as a whole.

The area has the advantage of good, and if need be, rapid access to the major hospital at Apia, but has an economy still largely based on village and subsistence agriculture. It is likely that the high ratio is related to these conditions which would encourage unchecked fertility and low infant mortality.

Region III C. Savai'i

Although Western Samoa is more compact than most other Pacific island groups, the physical separation of Savai'i from the smaller, but better developed and more populous Upolu has been a great disadvantage to the larger island. The populations of the two main islands are believed to have been similar in prehistoric times, although even then Savai'i is likely to have had the smaller population (ch.3, 29-30). By the 1840s there was a definite and growing differential between the two; less than 40 per cent lived on Savai'i (ch.4, 44). Since this time the population of the island has increased, from an estimated 14,000 to 26,898 in 1956. But while Savai'i scarcely doubled its population in the period, Upolu increased by over 400 per cent.

Full Samoans dominate the Savai'i population (96.7 per cent) and, of the other ethnic groups, only the part-Samoan group (2.9 per cent) is of any significance. Settlement is almost completely of the traditional village type. There are 95 villages containing 97 per cent of the total island population. There are only three commercial plantations on alienated land, but although some other land has legally passed from Samoan ownership, the effect on settlement and agricultural development has been insignificant.

Contact between Upolu and Savai'i by ferry launches is both easy and frequent. But economic development has lagged in Savai'i; opportunities for paid employment are small, there is no urban centre and there are few alternatives to a life of village-dwelling and customary agriculture.

Villages tend to be smaller than on Upolu, with a mean of 283 persons. Four villages fall below one hundred persons and only three exceed one thousand. The situation of the Savai'i villages in relation to agricultural land is similar to that in region III B. All villages have some land reserves remaining in forest, the habitation density overall is the same, at 1.8 acres per capita, and the pattern of village grouping is also similar. The rugged land forms and steep slopes which occur on Upolu are absent on Savai'i, but recent lava flows effectively divide the
northern villages from the rest of Savai'i. Only in one case, between Palauli and Satupai, does alienated land serve to separate two village groups. Elsewhere rocky (but not necessarily infertile) soils, lack of fresh water, and frequently merely distance, in the form of cultivable land remaining in forest, serves to separate the groups. The only two examples of lone inland villages completely surrounded by forest, A'opo and Letui, occur on Savai'i. On Savai'i, too, there is the risk of further volcanic eruption, a possibility which appears less likely on Upolu. The only example so far of the destruction by flowing lava of commercial village crops occurred on Savai'i, at Lealatele, in 1905-11.

The island settlements may be divided into three sub-regions, each composed of several groups, but separated by extensive tracts of forest or raw surface rock from recent basalt lava flows.

(i) The southeastern villages

The villages between Pu'apu'a and Gataivai form the largest sub-region of the Savai'i division. There are 48 villages, inhabited by 12,182 persons. Although the mean size of these villages, 254 persons, is lower than average for Savai'i some of the small villages are amalgamated into large continuous settlements which are usually known by one collective name such as Salelologa, Iva and Safotulafai. Except for the Tafua peninsula, population density along the coast is high and settlements continuous for several miles in some places. There are two villages inland. As yet there is no pressure on the land and the habitation density is low at 1.9 acres per capita. Most villages have ample reserves, although cultivation extends inland up to four miles in some instances.

The local economy is still about 70 per cent dependent upon copra. Cacao is of increasing importance, but very few villages were participating in the banana export scheme in 1956 and its contribution to the local economy was negligible. Monetary returns from export crops were higher, by almost 15 per cent, than the mean for all village agriculture. Much of this must be attributed to the southern villages, however, where the mean income exceeded £15.0.0. Elsewhere in the region incomes were average or slightly below.

The dependence on customary agriculture is at a similar level to that observed for the outer districts on Upolu and for all Savai'i, 87.1 per cent. Government employees account for a larger proportion of those in paid employment than is found in the outer districts of Upolu, due to the location here of the administrative centre for the whole island (Tuasivi).

The region is a major source area for persons migrating to other parts of Samoa and abroad. The locational disadvantage applying to all Savai'i is one major reason. Economic conditions are only moderate in most parts of the region and there are other local problems such as lack of water, rocky soils and frequently inaccessibility of undeveloped or newly developed land. The effects are unmistakably shown in the age and sex structure (fig.66).

Deficiencies which are statistically significant occur for males in several working-age groups (20-24, 25-29 and
45-49 years). Females are similarly affected but lower proportions tend to be absent. The females of reproductive age are depleted to the extent that the numbers of children are affected in their turn, particularly in the 5-9 and 10-14 age groups. The 0-4 group is also depleted, although not to a significant extent. The child-woman ratio is 1,073 (s.e. 15) which, while not significantly different from the ratio for all rural villages, is a strong indication of very high fertility. The largest proportion of absentees occurs in the 15-19 age group for both males and females. Most in this group will be receiving advanced schooling; but the proportion away is not particularly large (12 per cent for males and 15 per cent for females), the dominance of females in the group is a sign of local conservatism. Most revealing is the persistence of deficits only slightly lower in the young adult groups, an indication that males of prime working age do not find conditions in this region attractive.

That this has been true for a considerable period is shown by the extension of deficiencies into the middle age groups. Further evidence is supplied by the history of population accumulation in the region. Between 1900 and 1926 all Savai'i lost population and many villages of the southeast were included in the trend. The overall loss was very slight, however, 2.5 per cent in the 25 years, in spite of the influenza epidemic in 1918, so that in normal years the population must have increased slightly. After 1926 the spread of efficient public health services to Savai'i was the cause of a strong upward movement and the southeast villages increased at a mean annual rate of 2.0 per cent. During this time the proximity of this region to Upolu gave it some advantage over other parts of Savai'i but compared to northern and western Upolu, population growth was slow.

Between 1945 and 1951 the rate (3.7 per cent) was considerably higher, but remained only average compared with the rest of Western Samoa. The development of cacao during this period gave some areas on Savai'i an economic advantage, and some parts of this region were favourably affected. But after 1951 the relative poverty and isolation of the region, compared to the rapidly developing areas on Upolu under the stimulus of the banana export scheme, had its effect. The population growth rate fell far below average for the village region. The overall rate was 1.6 per cent annually, but was even lower in the Salelologa, Safotulafai and Faga village groups where the rate was below 1.0 per cent.

The prospects for an increased rate of development and a higher rate of population growth are good in this region. The extension of the export banana scheme should have a most beneficial effect here, provided access to the interior lands is improved. The extension of the road pattern throughout the island serving the port village nearest Upolu, Salelologa, will tend to enhance the importance of this whole region.

(ii) The northern villages

The smallest and most compact settlement cluster on Savai'i is crowded into a short stretch of coast in the northernmost part of the island. In addition to 16 coastal villages, there are also 6 inland villages. The total population is 6,745 persons and the mean size of the village settlements just 300 persons. The region is separated from other coastal settlements by recent lava flows, in the west by the A'opo flow of 1760 and in the east by the Matavanu flow of 1905-11. The surface rocks in both cases are only
slightly weathered and are as yet useless for agriculture. Other flows, of Pu'apu'a age, older but still too little weathered in most areas and devoid of surface water, also meet the sea on each side of this region and have inhibited the extension of agriculture and have made communications difficult.

The recent volcanic activity has affected the region in two other important ways. The flows have limited the land available for cultivation, particularly in the east, and several villages have little or no forest reserved for future clearing. The second effect was to create some apprehension about future volcanic activity. This effect appears in the change in population numbers between 1901 and 1926 when a 17 per cent fall was recorded over 25 years (a mean annual rate of 0.6 per cent). During the period the lava flow inundated seven villages and part of another. The people were evacuated without loss of life, but many left Savai'i permanently and established two new villages, Leauva'a and Salamumu on Upolu. This combined with the 1918 influenza epidemic to cause the observed depopulation.

At every subsequent census this region has recorded a lower rate of population increase than the other Savai'i regions. Between 1926 and 1945 the rate averaged 1.8 per cent annually. In the next period it rose to a mean of 3.5 per cent but in the 1951-6 period fell back to 1.3 per cent. A notable exception to the regional trend were the three eastern inland villages which for reasons which did not apply to the rest of the area recorded sharp increases in population.

The slow population growth appears to be related to retarded economic development, poor accessibility and possibly a continuing dejection since the volcanic eruption. Habitation densities remain low at 2.0 acres per head. The returns from agriculture are somewhat higher than the characteristics of the population might have us expect. Annual per capita returns were a little over £12 for 1956, nearly 14 per cent above the mean for the rural villages. Although copra was the most important crop, accounting for an estimated 55 per cent of the total income, the share of cacao was considerable, particularly in the western villages. In 1956 the export banana industry affected only the three fast growing inland villages to a significant degree. Although the sale of banana accounted for only 25 per cent of their crop income, their importance as a recent and successful innovation was disproportionately great. Together with road construction, also in progress in 1956, the expansion of banana growing accounts for their rapid population increase.

The age and sex structure of the region reflects the long history of slow population growth (fig.67). For a long time the area has obviously been one from which a high proportion of young people have been pleased to depart. There are deficiencies in the observed number of males in each age group from 0-49 years. Although in only three cases do these exceed the level of statistical significance, that the modal deficit occurs in the 20-24 male age group is indicative of unfavourable economic and social conditions. At least 18 per cent of this group is estimated to be absent. At the higher groups within the working age range the deficits are only minor. In some female age groups absences are more striking. This is possibly a reflection of the discrepancy between the agricultural returns available in some parts of
this region and its relative unattractiveness for young restless Samoans. Young girls in such a case will often be more mobile than males in the equivalent age groups. There are significant deficiencies in the 10-14, 15-19, 20-24 and 30-34 age groups. The lack of females of reproductive age has affected the number of children in this area, significant deficits appearing for both males and females. The childwoman ratio is 995 (s.e. 20) which is significantly below those for the other two Savai'i regions.

The central villages of this region have reached the stage where the opportunities for further agricultural development are limited. This is reflected in the apparent lack of opportunities available to young adult males. But although the uncleared land remaining is largely of inferior quality, there remain large areas worthy of development. Prerequisites are an increased willingness to live inland, for which there is already ample precedent in this region, and the solving of the problems of water supply.

(iii) The western villages

Although more remote than the other regions of Savai'i, the western villages increased their population at a higher mean yearly rate, 3.2 per cent in the 1951-6 period. While this is only slightly above average, that it occurs in an area which is at a great disadvantage in terms of distance and transport cost does require some explanation. Even before this period the rate of population did not show the expected effect of inaccessibility. Population numbers were virtually stationary until the 1920s while Savai'i as a whole showed a decrease, but accelerated at a 2.0 per cent rate between 1926 and 1945, and to 3.9 per cent in the 1945-51 period.

The reasons appear to be related mainly to superior soil fertility. Over much of this region the soils are of class 2 quality (fig.34) and agriculture is more rewarding here than in most other parts of Samoa. In 1956 transport difficulties still excluded this region entirely from the export banana scheme, but the villages have compensated for this by the widespread planting of cacao. Except in drought years the crop does particularly well throughout most of the region, with the greater freedom from disease and heavier yields than elsewhere on Savai'i. The mean per capita income from export crops in this region is particularly difficult to estimate because of the unreliability of estimated income from cacao. It is believed to be approximately £13.0.0, cacao accounting for about 60 per cent. An income of approximately 20 per cent above average, derived from a crop which gives a relatively high return per acre and hours worked, is probably sufficient to account for the vigorous demographic characteristics noted in this region.

Unlike the other two regions on Savai'i this area shows little evidence of outward migration. Significant deficits within the male age groups occur only at the 15-19 age group (fig.68). At ages beyond this there is an abrupt return to normal or even excess populations. The 35-39 group shows a statistical surplus; the 20-24 group, frequently a useful indicator of unhappy local conditions, although showing a deficit, is lowered by only an insignificant proportion. The pattern shown by the female groups is similar to the male. Significant deficits occur only in the 15-19 and 20-24 group, the latter showing an estimated proportion
absent of 12 per cent. The 30-34 group shows a surplus. In spite of the deficits shown by the females in the younger groups within the reproductive age range, there are surpluses in both the 0-4 and 5-9 groups. The child–woman ratio is 1,086 (s.e. 18) which is significantly higher than for the whole rural village region. In general this population shows progressive characteristics. The male work-force is high in relation to the rest of the population, while there appears to be a desire on the part of many families to send their young people away for further education. The estimated proportion of males 15-19 years away is estimated at 17 per cent, a higher proportion than average for the rural villages. The region is one of contrasts. In several ways it is most representative of the Samoa of former times. The pattern of settlement has remained of a purely traditional type except for one commercial plantation on alienated land and a few others on Samoan land but with commercial characteristics. With these exceptions the people live in 20 villages, dispersed, usually singly, along 40 miles of coast. The mean size is 305 persons. Habitation densities tend to be higher than elsewhere on Savai'i, with a mean of only 1.6 acres per head. The proportion of the population dependent upon customary agriculture is normal at 86 per cent. But recent development is a noticeable feature of this region, and this has coincided with the increasing harvests of cacao. The high prices obtained during several periods since World War II have wrought great economic changes, particularly in some more progressive villages. Several very successful Samoan entrepreneurs have emerged in this region in a manner not seen in any other rural area. But while these men may run successful business ventures and work virtually as commercial planters, their taule'lea may fish for bonito in a way unchanged in a thousand years. The old women in their families may still spend their working hours plaiting the traditional 'fine-mat', a practice almost vanished in most parts of Samoa.

The unused agricultural resources of this region are superior to any remaining in Western Samoa. Scarcely a third of the more fertile soil area has yet been utilized. The problems of water supply and isolation are both amenable to fairly easy solution. When this occurs the potential for this region is greater than for any other in the country.
In terms of economic development Western Samoa lies low on the world scale. Its characteristics coincide very closely with the list of criteria of economic backwardness provided by Leibenstein. These include a high proportion of the population dependent upon agriculture (the proportion in Western Samoa, 68 per cent, is slightly below his minimum figure, 70 per cent). There is evidence of 'over-population' or disguised unemployment in the agricultural communities and low indices of income, capital investment, savings and trade (Leibenstein 1957, 40-1). Customary agriculture in Western Samoa also follows his classic pattern. The land is excessively fragmented. Techniques are crude and sur­pluses are small. Credit and marketing facilities are poor, and although indebtedness is widespread the capital has seldom been invested in agriculture or even profitably employed elsewhere. Soils are exploited rather than farmed and yields are low and often falling. Although the bases for Leibenstein's criteria are not defined or quantified, the levels found in Western Samoa are of the order generally found also throughout much of Latin America and Southeast Asia, where retarded economies are usual.

Demographically, Western Samoa is disproportionately well developed. The latent possibilities of human fertility are very fully realized, while this effect is preserved by a mortality which is quite low and highly controlled. Public health and sanitation are reasonably efficient, there is little evidence of nutritional deficits and food is normally plentiful. Housing of the traditional kind is adequate, healthful, suited to the climate and frequently achieves elegance. Literacy is high, educational facili­ties are widespread and achievement satisfactory, at least at the elementary level. A significant proportion of the population is bilingual and receives news and ideas from the English-speaking world. Communication and transport facilities have been greatly improved recently and are now comprehensive.

Several social characteristics are not as well developed. The proportion of the middle-class within the population is low. Political power remains in the hands of a small, largely conservative group (although the Samoan matai can scarcely be compared with the entrenched and privileged aristocracy of underdeveloped or feudal lands). The behaviour of the bulk of the population con­tinues to be traditionally determined to a large extent, although no one sex, age group or class is particularly oppressed. The system as a whole, generally referred to as fa'a Samoa, is subscribed to with conviction and trust by the vast majority of Samoans.

This brief description implies that in important re­pects the 'preconditions' for continuing economic development, listed by Rostow, have already been met.
Before Western Samoa can begin its own "long fluctuating story of sustained economic progress", however, several more preconditions will have to be added. Development has been uneven and economic progress has lagged far behind that achieved in such spheres as health and education. The major reason is that the New Zealand government, still concerned with the economic development of its own territory, was little interested in Western Samoa. Its main concern after the experience of the Mau was to keep the Samoans quiet. The health, public works, education facilities created during the New Zealand administration were gratefully received, although the capital was largely Samoan and the amount spent or invested by New Zealand was small. But any suggestion of tampering with the stronghold of Samoan custom, the rural village system, was firmly resisted by the Samoan representatives in the government. Consequently, definition of land boundaries, tenure problems, agricultural development and marketing arrangements were left in village hands. Land disputes were handled by a court which often gave decisions based on very conservative (and sometimes no longer current) interpretations of Samoan custom.

The successful organization of the export banana scheme was an exception to the prevailing indifference to economic development. Although the motivation behind the promotion of the health, education and public works facilities was largely social or humanitarian, these too are basic to further economic progress. Another frequently cited cause is the disinclination of the Samoans to make the required effort at changing their present condition. Undeniably their living standard, while low in monetary terms, is normally sufficient in terms of food, clothing, shelter, employment, health, social satisfaction, leisure and political expression.

Recent economic development has only diversified their choices somewhat and provided some added conveniences. Nevertheless, it is important to make distinctions between the attitudes of different Samoan groups; the village-oriented matai who voice a preference for the status quo, the lesser people who have to service it, and the group often including titled persons with entrepreneurial, progressive or acquisitive inclinations. The disinclination for change lies mainly with the first group who retain most of the political power and claim to speak for their aiga. Although there are matai who are well informed on economic conditions abroad and who do advocate reforms intended to promote economic well-being, their number is as yet small. Much larger is a traditionalist group whose power is derived from the village structure and whose economic influence rests in the retention of control over customary land. This group has been quick to notice that economic development and their melting authority are associated. One of the principal findings of this study, however, has been that a significant proportion of the Samoan population, mostly belonging to the second and third groups, is prepared to abandon their home villages for the sake of economic betterment. There are several forms of this migration. The most significant as an indication of social and economic change is the movement from remote, retarded or overcrowded villages to others which show economic innovation or high incomes. Other types include the search for paid employment, the movement of Samoans to the commercial plantations, into the urban area, and emigration overseas. All in this procession are voting with their feet for greater economic returns.
Plate 11. One form of investment which has the full support of the traditionalist matai group - Church at Safotu, Savai'i.
Few migrants have any political influence, franchise in Western Samoa being restricted to the holders of matai titles (a group of about 5 per cent of the total population but about 30 per cent of all adult males). With advancing age and because of their ability, enterprise and acquired wealth, many in the progressive and migratory group will move through the traditional channels into positions of political influence. Then the prevalent attitudes to economic development may be expected to change.

A recent complication has been the termination of the New Zealand Trusteeship and the initiation of complete independence for Western Samoa. This was achieved mainly through the efforts of the traditionalist matai group (although the process was educational to those directly concerned and the end result was consequently not always what was at first envisaged). The structure of the new government is largely inherited from the Trusteeship administration but with some native additions. Such a system, elaborate and of primarily Western design, will require an increasingly westernized economy for its support. Election to the legislature is already becoming difficult for those matai who are eligible but lack economic substance. Instead of the aura of prestige-derived interest from the pule over tracts of customary land, the politically-oriented matai needs now to have a considerable amount of fluid wealth. Independence will therefore also encourage an interest in economic development among those most able to promote it. The extent to which Samoans are now willing to subvert their traditional custom for the sake of immediate advantage is shown in the number of new matai created, for the sake of a pledged vote, prior to national elections. Although the motivation is political, the process has important economic and social implications. The recent changes in the economic inducements working on Samoan matai will take some time to take effect and in many cases will await a new generation of title holders.

The immediate effect of independence is likely to be one of economic stagnation, as the uncertainty bred by the political change will retard local economic investment and enterprise. This applies particularly to the part-Samoans of formerly 'European' status, who are dominant in the entrepreneurial group. The long term effect may be the promotion of a useful acceleration in economic development.

Several characteristics of the Samoan population make it plain that the untitled group, though economically unaware and politically inarticulate, will accept eagerly opportunities to improve their material wealth. Economic planners can therefore proceed with some assurance that a major prerequisite to economic development is already being met; that for the most part the local population wants it. Given a clear programme and progressive leadership they will accept the accompanying conditions. As the interests of the untitled Samoans and those of their matai increasingly coincide, the pre-conditions for enduring economic development should be achieved.

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Also eligible are adult persons who are Western Samoan citizens outside the traditional Samoan society, a provision designed to accommodate those who under the New Zealand administration had European status.
Bearing in mind the nature of the population of Western Samoa, it is necessary to discuss the ways most suited to its further economic progress.

As any development must arise out of the present situation, it is certain that the economy will continue to be based very largely on agriculture. But it has become an economic truism that 'no country can be truly prosperous if most gainfully occupied people are occupied in low-productivity agriculture' (Higgins 1959, 767). It is necessary therefore to investigate the ways in which Samoan agriculture can be made less wasteful in the proportion of the labour force it absorbs, and more highly productive, both per unit of labour and per acre.

The standard ways of doing this, technological improvement within the existing agricultural industry and additional investment in ways which will provide more positions of paid employment outside agriculture, both have many possibilities in Western Samoa.

Several trends in these directions are already operating: not all have been successful. The attempts at planned settlement have been of limited success. Both Aleisa and Tanumalala have been unduly expensive both of administrative effort and capital. The increased production has been small and the demographic effect insignificant. Road building and its incidental effects in diversifying the settlement pattern and extending the area under cultivation have been both more effective and much cheaper.

An alternative which has not been attempted is the development, on a village co-operative basis, of large tracts of unutilized land. This would allow an operation at a scale which cannot be attempted by individual cultivators. The WSTEC plantations provide some indications of how such a scheme might work. It seems likely that such schemes, in areas of good potential, supported by supplementary public works and adequate technical assistance, might be successful. The productivity per worker could be raised above the levels current in village agriculture. It is scarcely a substitute for the village system, however, at least not at the present stage. It could be useful as an alternative only if additional non-agricultural employment opportunities are made available for the labour rendered surplus by such a system. At present commercial plantations employ about one quarter of the labour force per acre that is usual in village agriculture, and there would be no point in developing additional schemes on customary lands unless a similar reduction could be achieved.

A much higher rate of investment is needed in additional enterprises which would increase the numbers in paid employment. The commercial structure of Western Samoa is very undeveloped and the types of enterprise show little diversity or specialization. Many normal services are provided in an entirely inadequate form or not at all. The wants of the village population have not been stimulated in several directions which would not only increase business but stimulate economic activity in the rural areas.

A much neglected field is secondary industry. There are only a few small workshops or factories producing such items as furniture, soft-drinks and soap for the local market. Timber is milled on a small scale and curios and
handicrafts are made for sale. Although the development of manufacturing must necessarily be restricted by the small market and narrow resource base, Western Samoa is lagging behind Fiji, American Samoa and even Tonga and the Cook Islands in industrial development. Several items, an outstanding one being canned meat, are imported in relatively large quantities and could well be replaced by locally processed goods. The market possibilities are wider than is often supposed. For several types of industry it would be reasonable to include all of Western Polynesia and also Fiji in the market area. There is already a little reciprocal trade in some manufactured goods in this area and the trend may be expected to develop. The market, nearly 600,000 in 1956 and increasing at a rate well above world average, is not insignificant. So far the administration in Western Samoa has shown itself less agile in capturing the enterprises offering than has American Samoa. Apart from this there is some opportunity to develop, as the Cook Islands have done, some industry oriented to the New Zealand market. Unskilled labour and lack of capital are the main deterrents to such enterprise at present, but these could be overcome without excessive difficulty. The initial advantage would be inexpensive labour, compared with that available in New Zealand. Any industry which is established on this basis, however, should be efficient and be prepared to gradually eliminate most of the differential as the productivity of its workers improves. Industry will inevitably tend to congregate in Apia, differentiating it even further economically, from the rural villages; but some thought should be given to locating suitable industries, such as those processing local produce, in rural areas, particularly overcrowded ones such as Mulifanua.

The other neglected source of income and employment is the tourist industry. Of all the countries in the western Pacific, Samoa has most natural, unspoilt beauty, and an exceptionally attractive population. Tourism has not been encouraged and meets disapproval from most Samoan leaders. There is a fear that the development of tourism to a level where it could make a useful contribution to the economy would have several undesirable side-effects. Those suggested include the corruption of Samoan culture, a rise in local prices and also an alteration of the laws governing alcoholic liquor which would inevitably extend its use by Samoans (G.W.S., 1961, 13). Tahiti is usually cited as the awful example of the consequences of a large tourist industry. As all three of the specified trends are already operating quite vigorously without tourist stimulation, the stated reasons are largely specious. It should be noted, however, that countries usually receive the type of tourist they deserve. The most profitable group in the modern world tourist traffic are those whose tastes could be well satisfied by an elegant resort and the attentions of a group of professional pueyors of Samoan culture. Their contact with the Samoan people need be minimal.

The final trend to be discussed is that of emigration. There has been a trickle of people leaving Western Samoa for many decades, and since World War II the volume has greatly increased. Full Samoans are an increasing proportion of the flow which is at present between 700 and 1,000 persons annually. The Samoans who emigrate are assuming big obligations; they undertake to find paid employment and to compete on equal terms with workers accustomed to a higher technological level and to a more rigorous work
schedule. That so many Samoans achieve this successfully is an indication of what could occur under similar conditions in their own country. Other emigration takes place for educational purposes. Whatever the cause, emigration can only benefit the Western Samoan population and should be encouraged. The advantages are several. The effect of the excessive natural rate of population growth is lessened. Capital and miscellaneous monies are remitted back to Western Samoa, while a proportion of the emigrants will return educated to the ways, economics and attitudes to fertility current in the metropolitan countries. These people are likely to demand higher standards of economic, social and political organization back in Samoa. The home population receives and benefits from new ideas, skills and interests. The main objection to emigration from Western Samoa is that those who emigrate tend to be the more useful members of society, frequently including those who have received advanced education at public expense. Western Samoa retains the loyalty of its people to a larger extent than is normal among migrants, and many of them, even the most skilled and highly educated, eventually return. There is little that can be done to stem this outward flow of talent. Western Samoa stands to benefit from emigration to an extent which justifies acceptance of the fact that in the outward stream will be persons whom Western Samoa should have striven harder to retain.

Inordinate population growth will act as a drag on any progress attempted and will cripple the efforts of the government to better the social and economic status of its people. For some age groups it is more difficult to make provision than for others. The numbers of children attaining school age who will require additional educational facilities will burden government finance. Past progress in educational extension gives some hope that these young people will be provided for in the future; but it would be in the government’s interest to attempt to reduce fertility rather than to provide, at much greater cost, for its consequences. At projected rates the school population (ages 5-15 years) will increase by nearly 60 per cent in the 15 years to 1971. This is a conservative estimate and the preliminary results of the 1961 census showed a mean annual rate of growth in the school population of 4.0 per cent rather than the projected rate of 3.6 per cent.

The problems of providing for the increased numbers of school-age children are slight compared with those implied by the projected increase of work-force males (taken under Western Samoan conditions as 15-44 years). During 1956-61 this group had a projected rate of increase of 4.2 per cent annually and over the 1956-71 period of 4.0 per cent. These rates are in excess of that for the total population and are alarming in view of the current lack of employment opportunities. The preliminary results of the 1961 census, however, allowed a more optimistic interpretation of future trends. Instead of the projected rate, a much lowered increase was observed, only 2.3 per cent annually over the five years. At least 2,000 of these adult males appear to have emigrated during the period. Should this trend continue, the problems of providing additional employment will be reduced.

Although there is evidence of lowered fertility in the urban area and it seems improbable that fertility in the rural areas can go much higher, population problems affecting Western Samoa have only just begun. It is very possible
that the peak rates have not yet been attained. Projected rates, made on the basis of the 1956 census, were substan-
tially exceeded by the preliminary results for 1961. Mor-
tality, although extremely low for an indigenous popula-
tion in a humid tropical environment, is yet higher than in
developed areas and there remain many possibilities for its
further reduction.

The record of the New Zealand administration in public
health was an outstanding one. Any suggestion that the
standards already achieved should be sacrificed are not
only wrongful but unrealistic. Lives are not to be callously
and needlessly sacrificed nor lived out in the misery of
ill-health if the means are, and have been available in the
past, to prevent it. The maintenance of health by modern
methods is also an educational process and increases a sense
of human dignity and individual worth. Without such attitude,
attains at reducing population growth to rational levels
and encouraging economic betterment cannot succeed. But as
life is not to be maintained with indifference or thrown away
without compunction, neither is it to be initiated heedlessly.
At one time the pattern of high fertility was necessary to
the maintenance of Samoan numbers both as an ethnic group
and within individual aiga; this time is well past. To
persist in attitudes which have been outlived precludes a
useful increase in the well-being of the Samoan people. It
will also create an environment in which Samoan custom and
social organization can scarcely survive. The Samoans have
a gracious and well-developed society, built up on a basis
of a subsistence economy in an expansive and benign environ-
ment. Surpluses were easy to obtain and the result was a
large investment in leisure and a formalized system of
political and social life. This has already changed over
the last century. But excessive rural densities, a scrabble
over land and a reduction to meagre subsistence would eliminate
the traditional civilization which would be judged by the
Samoan people to have failed them. It seems that Western
Samoa cannot escape the institution of a formal plan to
reduce fertility. Such a programme would have a head start
in Western Samoa as the obvious organization to handle it -
the Health Department - is already well organized, effective
and has the confidence of the population. Any programme will
take a considerable time to gain acceptance and even longer
to become effective. The size of the projected populations
in Western Samoa and the densities they imply indicate that
little time remains.

Few countries afflicted with problems similar to those
of Western Samoa are so fortunate in the means available to
remove them. Adjacent metropolitan countries are willing
to accept and absorb Samoan migrants. Because of the past
connection with New Zealand and the United Nations, capital
is more likely to be available to Western Samoa than to most
other countries. New Zealand must also have a concern for
stable conditions in its near north. The amounts of capital
and the size of the population involved are after all extremely
small, and spectacular results could easily be achieved with
a little outside help. But most fortunately the Samoan people
already give some evidence of being prepared to accept the
changes necessary to effectively stabilize their population.
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