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THE AXE BITES DEEP:

Settlement and Land Use in the Pohangina County,  
1863-1963.

A Thesis Presented in Partial Fulfilment of the  
Requirements for the Degree of Master of Arts  
in Geography at Massey University.

By

LYNETTE ANNE WRIGHT.

Massey University,

1968.

## Preface

Most of the research for this thesis was based upon two types of source material, primary material and other relevant secondary material. The primary statistical material came from a number of sources; published governmental records available in libraries, especially the Appendices to the Journals of the House of Representatives, the Rural Valuation Rolls made available by the Valuer-General at the Palmerston North Valuation Department, and unpublished local body records made available by the Pohangina County Council.

The published governmental statistical records formed the basis of the material in Appendix I. Most of this material was available from the Palmerston North Public Library and the Massey University Library, but for the period 1896-7 to 1916-17 it was found in the Pohangina County Council's archives. The Valuation Department records covering the Pohangina County from 1919 to 1963 provided data on the basis of individual holdings. The Pohangina County Council's archives provided material for the period since 1894 on ownership and tenure of holdings, the communications system, and a valuable collection of newspaper clippings

relevant to the county from 1893 to c.1908. The Manawatu Catchment Board supplied much of the material on the nature and significance of conservation problems.

Many of the older families of the Pohangina County kindly provided old diaries and photographs, in particular Mr and Mrs D.C. Hogan, Mrs V. Spelman, Mr and Mrs W.M. Duncan, Mr L. Miller and Mr A. Miller who provided valuable material.

To Mr M.J.G. Garland who kindly did the cartography and to others too numerous to mention, I also wish to extend my thanks. Acknowledgement is also made for the valuable assistance from the staff of the Geography Department of Massey University and the typist Mrs. A.Burr.

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Introduction.

In the field of historical geography there has been much controversy on the relative merits and validity of particular methods of approach. Early work within this field was concerned more particularly with the reconstruction of past geographies". Darby (1) cites J.F. Unstead who described historical geography as cutting "horizontal sections through time", and Sir Halford MacKinder who spoke of an historical geography which involved "the historic present". German geographers agreed, for Hettner, writing in 1927, mentioned that "... a historical geography of any region is, in principle, possible for any period of its history, and must be written separately for each period; there is not merely one, but a multitude of historical geographies" (2).

But this view, however, is not shared by all historical geographers. Some, for instance, would limit historical geography to the study of those features of the past which are still evident in present-day landscapes, while others feel that there should be little limitation arising from the time element in historical geography. Thus Preston James stated that "the full perspective of

the time sequence in so far as it is related to geographic patterns and processes is essential if we are to read the story of contemporary differences correctly" (3). Carl Sauer also envisaged such an approach in a study of changing man-land relationships throughout time (4).

Each of these approaches has its merits as well as its limitations. The "cross-sectional method" has been hailed by its exponents as being essentially geographical, an assertion based upon the idea that as the geography of the present slices through time present so should historical geography through time past. In some instances this method has been limited to cross-sections in time, as in Ralph H. Brown's "Mirror for Americans; Likeness of the Eastern Seaboard, 1810" (5). As A. H. Clark added, however, "To stop with ...cross-sectional reconstructions would be to fail in an obvious opportunity, if not duty of interpretation" (6). To overcome the obvious limitations of the single isolated cross-section a series of such cross-sections for pertinent dates can be used, a method employed by Cumberland and Hargreaves in a series of articles on early New Zealand (7). As each cross-section would embody both description and explanation it is possible that repetition would occur; but on the other hand, if each cross-section was limited to strictly contemporaneous

material it would fail to interpret the element of change, and to merely imply such would be both inadequate and possibly misleading.

It is possible, however, to base each succeeding cross-section closely on that preceding it. Darby, in referring to the work of S.D. Dodge who dealt with a Corn-Belt township in this manner, maintained that this method succeeded in the small area involved (8). When this method is employed over a larger area, however, it might involve more specific reference to the "changes" that have taken place since the preceding cross-section. Cumberland's and Hargreaves' accounts of New Zealand between 1780 and 1881 used this method. Each cross-section was both self-explanatory and related while the presentation of past landscapes was not lost in a chronological time sequence.

Carl Sauer's treatment of historical geography differed (9). To him, as to many other geographers, the time sequence was vital to understand contemporary differences which had been brought about through changing geographical processes. Such a concept involves a study of evolution or change and the associated processes operating through time. The emphasis within this field may vary, it may be upon the actual processes involved,

upon the results of these processes, or upon the sociological and technological concepts underlying such processes. Often in this kind of study the material is organised on the basis of vertical themes. The use of this method, however, may detract from the total for the sake of highlighting a particular feature with a series of single-factor studies. C.T. Smith suggested that the method of vertical themes was "only a partial solution" which "extends the field without adequately defining the whole" (10). It is possible, however, to combine vertical and cross-sectional methods, as was done by J.O.M. Broek in "The Santa Clara Valley, California" (11).

A number of university theses may be noted amongst New Zealand studies in this field. Oliver's thesis, on communications in the Manawatu-Kairanga area used vertical themes. Nicholls, writing on the Coromandel Peninsula used the cross-sectional method with implied vertical themes, while Kerr's thesis on the Waikouaiti District employed cross-sections interspersed with vertical narratives (12).

The remaining concept of historical geography is that in which the approach is directed along the lines of discovering the origins of certain relict features in an existing landscape e.g. to study the past only in so far as it has left vestiges in the present landscape.

In such a study it is often difficult to distinguish between the specific relict features and the other phenomena closely associated with them. Furthermore, if they are not separated then the problem arises of recreating a fullscale geography of other past periods.

To avoid this a geographer may confine himself largely to the present and refer back into the past only when necessary for explanation. The use of such a "flash-back method" can lead, however, to an imbalanced view. The problem with this concept, regardless of the method of presentation, is that all too often a past phase, or facet, of occupance has had a greater influence upon the present geography than the relict features persisting to the present would suggest.

There are, then, a number of methods available to the historical geographer, each aiming to present the material analytically and each having its particular advantages and disadvantages. The choice of the method is largely dictated by the nature of the study, the character of the landscape to be dealt with, and the nature and the availability of the material.

The method to be employed in this study is that of a series of related cross-sections, a method recommended by Darby for relatively small areas, especially for showing

change over the total unit (13). The underlying theme will be that of the role of man in the evolution of the present land use, settlement and communications pattern of the Pohangina County. Rather than trace all changes genetically this study will set out to assess the contribution of certain periods chosen with reference to significant changes over the whole county by a series of cross-sections, each taken at fairly significant dates.

The material available has exerted some influence on the choice of method and dates of cross-sections. The Rural Valuation Rolls for the county, for instance, presented a valuable source of information but were available in detail only from 1919 to 1963. Likewise the available information for the county in the pre-European era centred around the period 1859-1864. The final choice of 1863 was based on the fact that not only was most of the material related to this date but it was also the last year of total Maori land tenure(14).

The selection of the years 1906, 1936, and 1963 respectively, was based primarily upon an analysis of government statistical material (15). The year 1906 represents the peak of the pioneering era in terms of population, livestock numbers, and area of cultivated land; 1936 was characteristic<sup>of</sup> the earlier phase of a

sheep-dominated mixed economy, with a minor peak in population and dairy cattle numbers. After 1936 sheep numbers increased rapidly leading to a growing trend towards an almost exclusively sheep economy. Between 1936 and 1963 the sheep and the cattle numbers increased respectively by 82.9 per cent and 47.1 per cent although population numbers had dropped to the lowest point since the establishment of the county. For both 1906 and 1936 the presence of further fairly comprehensive statistical material was also very important to the choice of the specific date.

References.

1. Darby, 1962, 128.
2. Cited by Darby, 1962, 128.
3. James, 1952, 205.
4. Sauer, 1965, 351 ff.
5. Brown, 1943.
6. Clark, 1959, 222.
7. Cumberland, 1949, 1950, 1954; Cumberland and Hargreaves 1955, 1956; Hargreaves, 1960.
8. Darby, 1962, 133.
9. Sauer, 1965.
10. Smith, 1965, 133.
11. Cited by Darby, 1965, J.O.M. Broek, The Santa Clara Valley, California., 1932.
12. Oliver, 1963; Nicholls, 1959; Kerr, 1962.
13. Darby, 1962, 133.
14. An important source for this date was the survey of the Ahuaturanga Block conducted by J.T. Stewart in 1859-60. There is extant a copy of his survey map which contains details of settlement and vegetation cover as well as other material. There is also a typescript in existence which contains notes made by Stewart on this survey. Information for this period is scarce and this was a valuable source.

15. The statistical material was available from 1896 onwards. The publications used were; Statistics of the Colony of New Zealand, Statistics of the Dominion of New Zealand, The New Zealand Official Yearbooks, Agricultural and Pastoral Statistics.

## Chapter 1.

### Pohangina County; a Perspective.





The Pohangina County is one of a number of counties comprising the Manawatu District (1). It is located immediately to the west of the Ruahine Ranges with its southern border approximately sixteen miles north of Palmerston North (Fig.1). The Pohangina County is one of the few counties in New Zealand without either a major town or a State Highway running through its confines and is one of the smaller counties in both area and population (2). Its population is overwhelmingly rural in character.

When established in 1894 the county comprised 295 square miles (188,800 acres) and according to the 1896 census had 1,351 persons living within its boundaries. It was smaller than both of the neighbouring counties of Kiwitea and Oroua in both area and population. At 1896 Kiwitea and Oroua had 2,428 and 6,450 respectively. By 1906 the population of the Pohangina County had reached its highest ever recorded peak of 1,797 but thereafter it declined steadily to 1,199 in 1963. The Kiwitea and Oroua Counties, however, both had larger populations in 1963, 2,339 and 4,559 respectively. The Pohangina County's population declined by forty-nine per cent

Figure 1. Sources.

N.Z.M.S. 10a Territorial, Sheets 13, 14, 16 and 17.

# POHANGINA

-  County Boundary
-  Riding Boundary
-  Borough
-  City

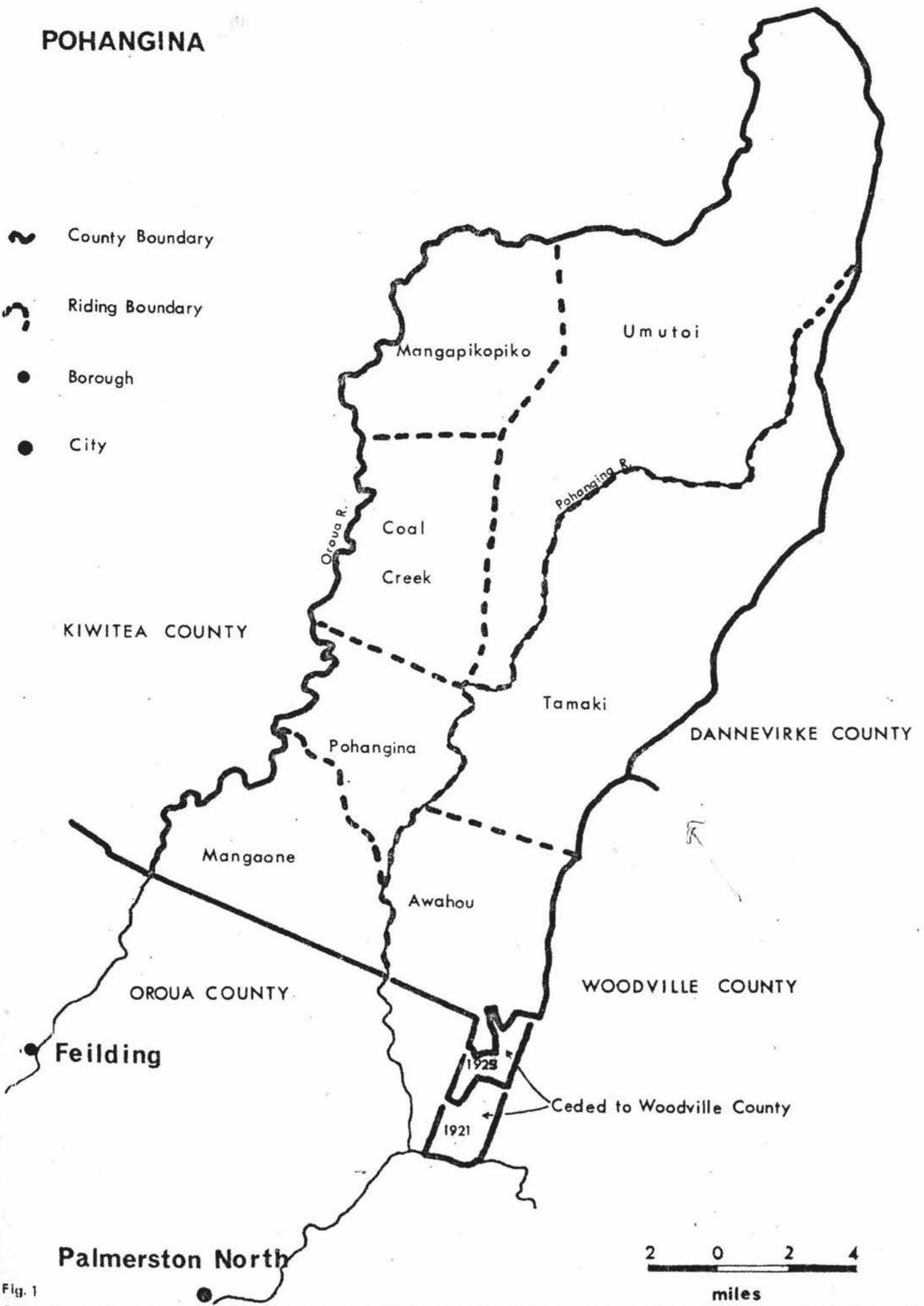


Fig. 1

between 1906 and 1963. By contrast the population of the Oroua County had increased by 23.0 per cent although that of the Kiwitea County had also decreased by 22.9 per cent (3).

Over the years the boundaries of the Pohangina County have been modified (Fig.1). Two consecutive cessions were made in 1921, and 1925 to the Woodville County, these jointly amounted to thirty-six square miles (23,040 acres).

#### Topography.

The Pohangina County is one of the most easterly of the Manawatu counties and is part of the rim of the Manawatu lowlands. Such a location means that the Pohangina County has considerably less flat or easy rolling land within its boundaries than either the Kairanga, Oroua, or Manawatu Counties. The topography of the Pohangina County can be divided into three categories (Fig. 2)

The first group, the terraces, is associated with the major elements of the drainage pattern. The rivers and the larger streams flow in a south-westerly direction to join the Manawatu River. The near parallel river alignment is consequent upon a south-west regional tilt, and can be seen in both the Pohangina and Oroua Rivers

Figure 2. Sources.

Manawatu Catchment Board.	1964	<u>Report on the Catchment Control Scheme for the Pohangina-Oroua Area.</u>
Valuation Department	1963	<u>Rural Valuation Roll for the Pohangina County.</u>

# POHANGINA: TOPOGRAPHY

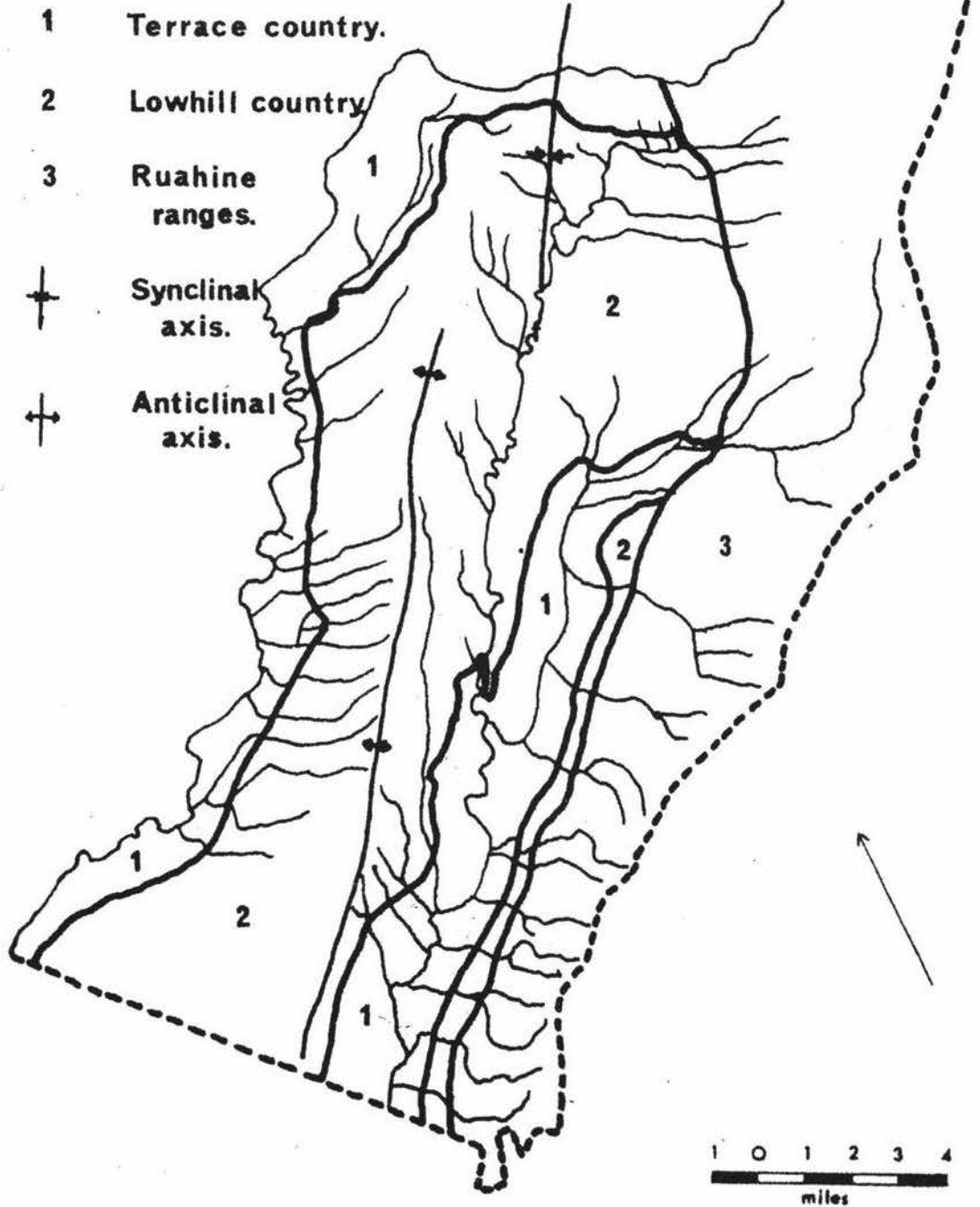


Fig. 2

and Beehive and Coal Creeks. All these consequents have been incised following uplift with the result that the terraces associated with the Pohangina and Oroua Rivers are 150 to 200 feet above the riverbed. This can be seen in Plate 1.

The second category, the hill country, is divided further into two main sections separated by the Pohangina River and its terrace system. There is a small block of hill country to the east of the river lying at the foot of, and against, the Ruahine Ranges. The other block, a larger area to the west and north of the river, is associated with the anticline and syncline. This latter area is drained by a series of tributaries of both the Pohangina and Oroua Rivers. As the anticline is asymmetrical from east to west, those on the longer western flank are less deeply incised than those on the shorter eastern flank. This anticline, similar to others in the Manawatu is estimated to be rising at the rate of one foot in every thirty-six years (4). This has facilitated the development of a two-cycle topography, the anticline having a rounded, mature topography although subsequently with rejuvenated streams there is a more youthful topography. This rejuvenation, coupled with the removal of the natural vegetation, the prevailing climatic



Photo. by Courtesy P.C.C.

Plate 1.

"...the terraces (are) associated with the major elements of the drainage pattern". This view of the Table Flat terraces shows alignment with the river which divides them from the hills in the background. Dairying and "fat"-lamb rearing characterise this area as do the shelter belts.

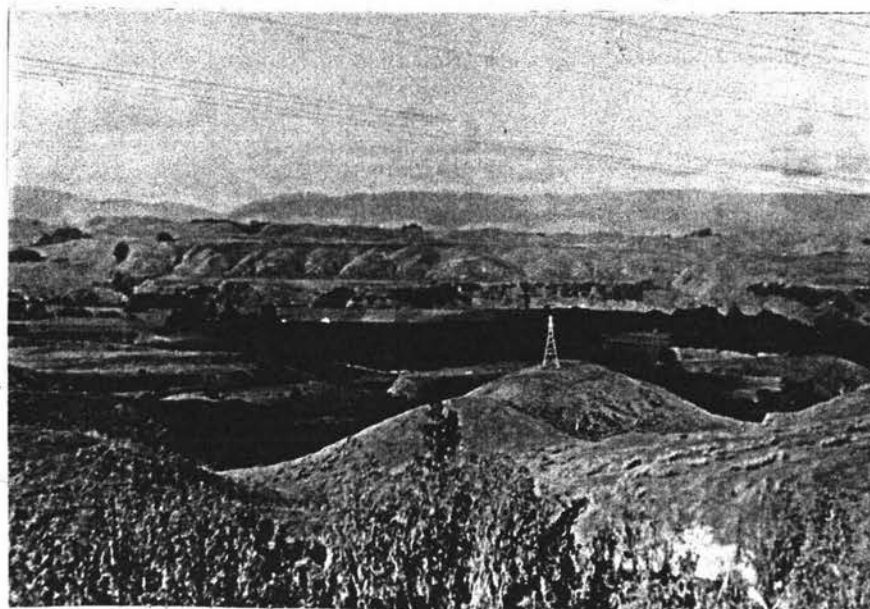


Plate 2.

"...the terraces associated with the Pohangina and Oroua Rivers are 150 to 200 feet above the riverbed". The terraces associated with the Oroua River can be seen in the middle ground of the picture. Above the highest terrace the rounded, mature topography of the anticline is evident, while behind this are the Ruahine Ranges.



Plate 3.

The anticline has a "rounded mature topography". The topography in the foreground illustrates this. On the right a second more youthful topography is evident in the stream valleys and is due to rejuvenation. In the main shelter belts are conspicuous by their absence. The majority of the bush vegetation in this plate is manuka and scrub.

conditions and the underlying geology, has led to many of the present erosional problems within the county.

The northern limb of the hill country includes the Pohangina syncline and abuts on to the Ruahine Ranges. The northeast-southwest axis of the syncline is parallel to that of the anticline, and in its lower portion it is occupied by Coal Creek. In the south it is truncated by the Pohangina River.

The second area of hill country is located east of the Pohangina River, to form a narrow belt between the river terraces and the ranges. This area may represent a well-dissected marine terrace. Remnants of this also may be found in the northern hill country area at the base of the ranges.

The remaining major landform in the county is the mountain range. This may be a horst bounded on both sides by faults, it is part of the North Island axial ranges. In the North it reaches a height of 5,552 feet above sea level but drops away to 3,020 feet above sea level at Wharite Peak as part of the axial sag associated with the Manawatu Gorge (5).

### Climate

The Pohangina County, situated as it is immediately to the west of the Ruahine Ranges enjoys a relatively

humid and cool climate compared with the adjoining low-land areas. Climatic data for this area, other than rainfall figures, is scarce (6).

The county shows considerable variation in annual rainfall from forty inches in the lower south-west portion to more than 125 inches in the north-east. In both an easterly and a north-easterly direction from Te Awa annual rainfall increases reflecting the orographical influence of both the ranges and the anticline. Te Awa averages forty inches per annum while Awahou, approximately nine miles west of Te Awa in a straight line receives 46.8 inches per annum. North of Te Awa, Narama, approximately twelve miles away to the north, receives forty-six inches per annum, Apiti, approximately twenty miles away to the north averages 51.2 inches per annum while approximately nine miles east of Apiti, Table Flat receives 72.1 per annum. These annual rainfall figures reflect the south-west regional tilt of the topography (Fig. 3).

Rainfall is fairly evenly distributed throughout the year with a winter maximum from May to August. The driest months are March and September, with a slight increase in rainfall in the summer months. The annual variability of rainfall is 22.32 inches and the drought

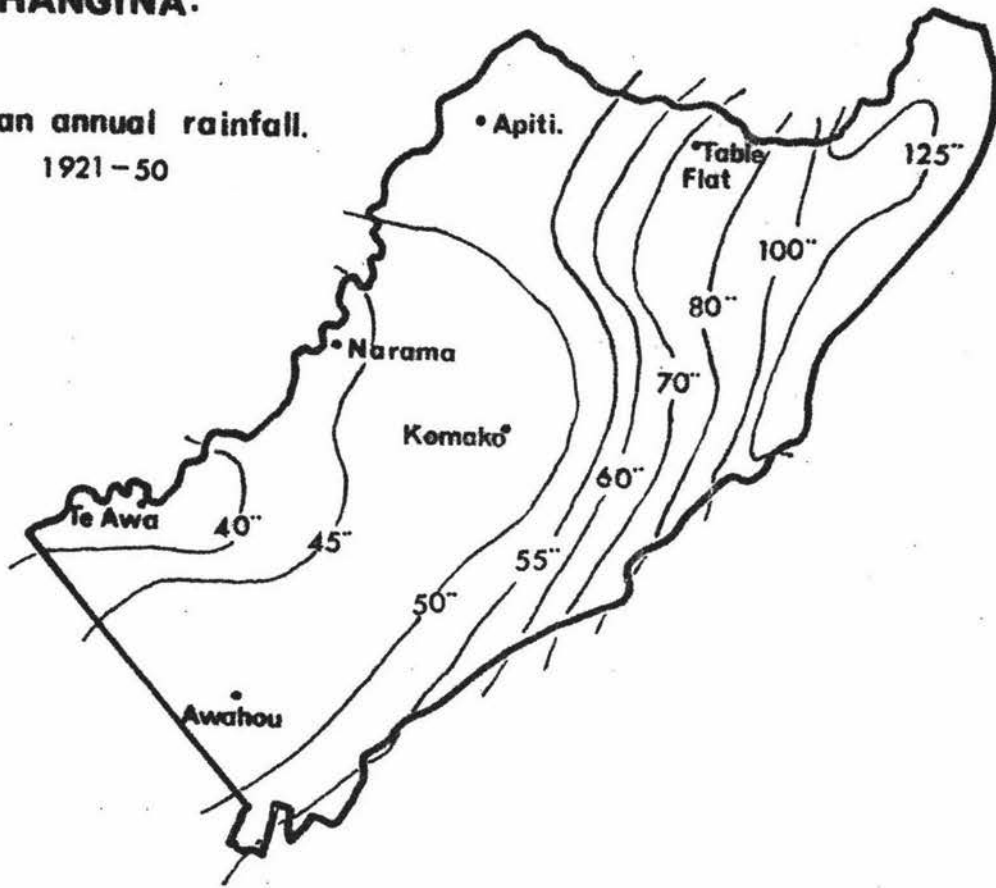
Figure 3. Sources.

Manawatu Catchment Board. 1964 Report on the Catchment  
Control Scheme for the  
Pohangina-Oroua Area.

Pers. Comm. R.N.Z.A.F. Station, Ohakea.

# POHANGINA:

Mean annual rainfall.  
1921 - 50



Max. daily rainfall.

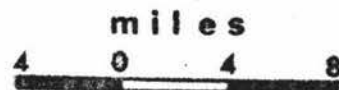
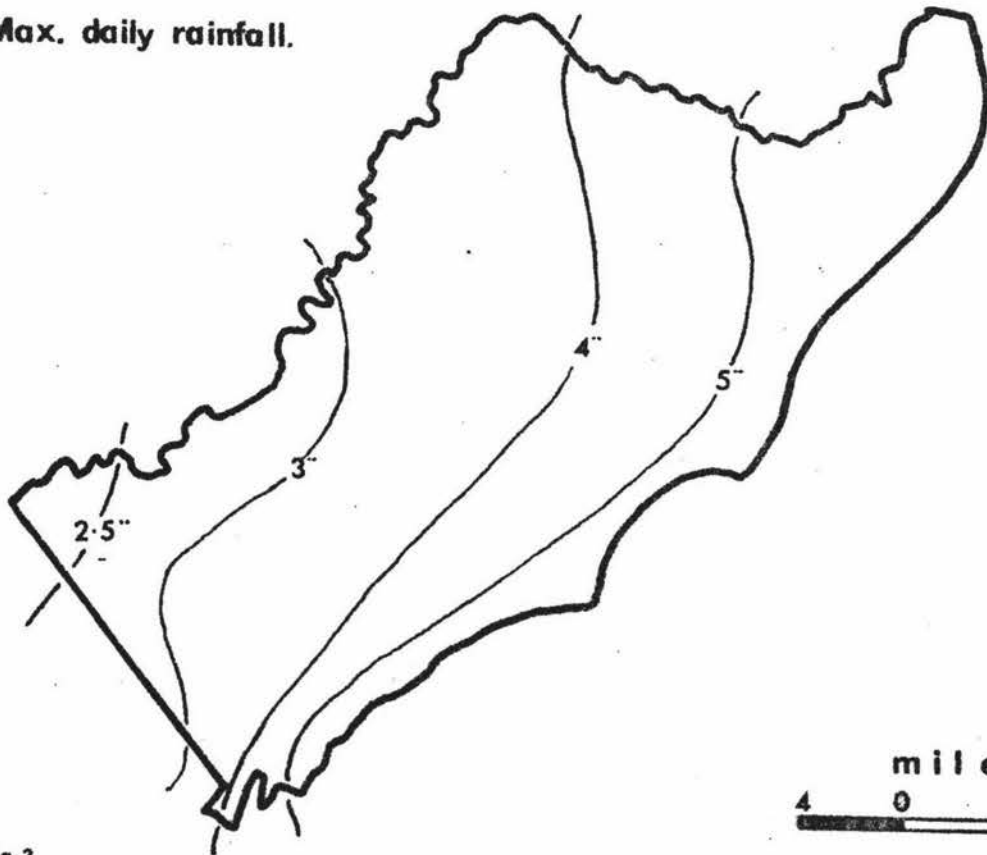


Fig. 3

risk is low (7).

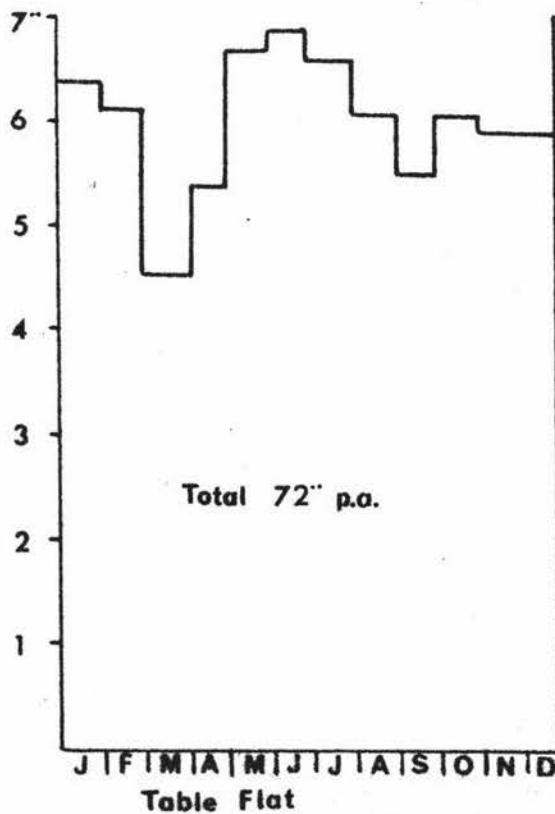
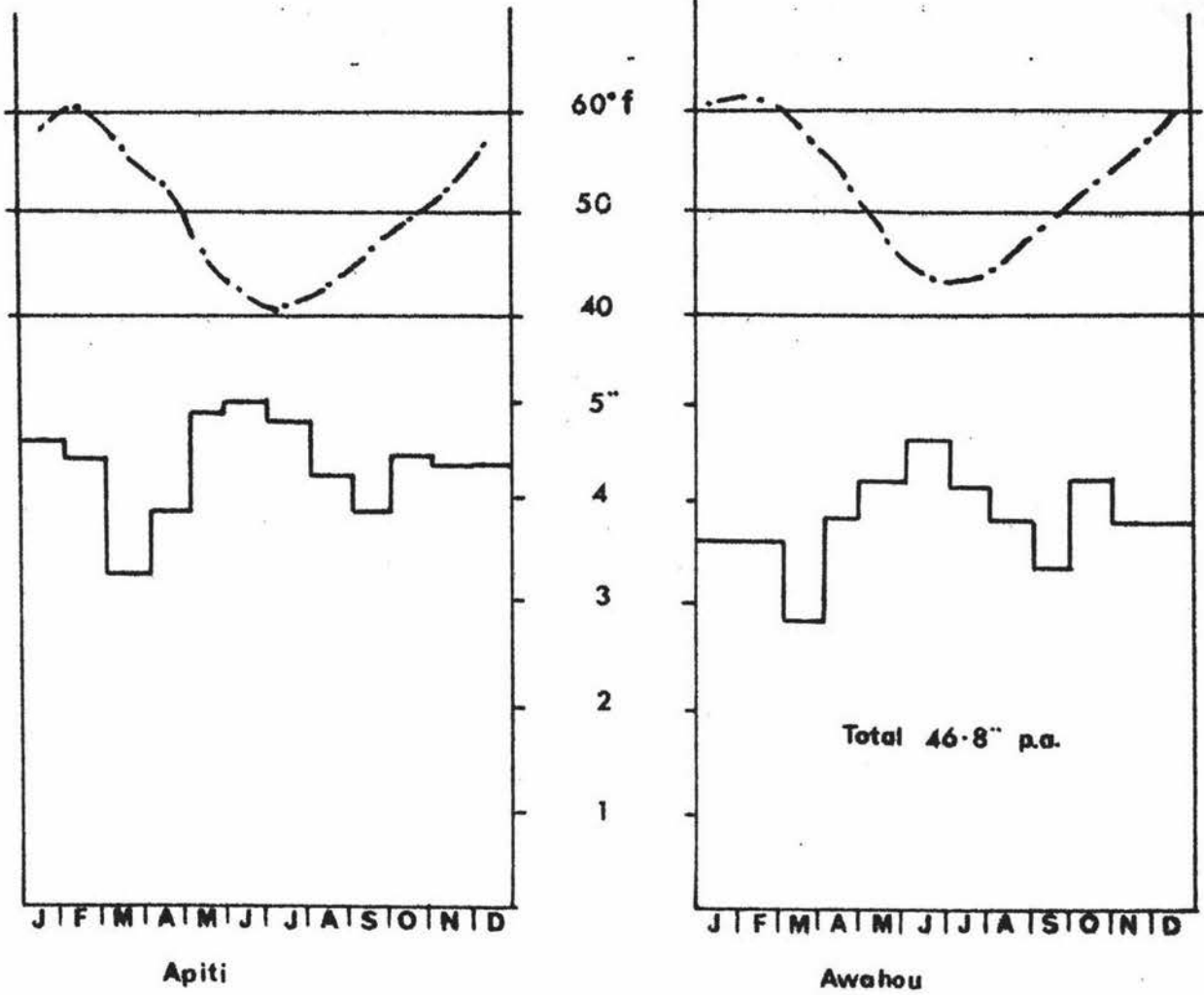
The probable annual distribution of temperatures of Apiti and Awahou can be seen in Fig. 4. Average annual temperatures differ by 2.2 degrees Farenheit between the north and the south, the difference in altitude (Apiti, 1,500 feet and Awahou, 890 feet) probably accounting for the temperature differences. In both stations the warmest month is February and the coolest month is July. The average range for Apiti and Awahou is 17.8 and 17.6 degrees Farenheit respectively. Diurnal ranges are probably about 18.0 degrees Farenheit in summer and 13.0 Farenheit in winter. It is likely that these values would probably increase in the deeper valleys and decrease on the westerly facing slopes, especially higher slopes.

Over the whole of the Manawatu area the winds are predominantly from the west and the north-west. In the area of the Pohangina County channelling by the topography produces a local dominance from the north-west and south-west directions. The windiest month is November and the least windy is July. From September to February inclusive winds are above the annual average. By night a katabatic wind is likely to occur following the drainage pattern. This occurs on most clear nights

Figure 4. Source.

Pers. Comm. R.N.Z.A.F. Station, Chalka.

**POHANGINA: ANNUAL RAINFALL & TEMPERATURE DISTR.**



and except in deep valleys, reduces the likely distribution of radiation fogs.

References.

1. For many statistical purposes the Manawatu embraces the six counties of, Pohangina, Kiwitea, Oroua, Kairanga, Manawatu and the northern part of the Horowhenua County. Cited in Introducing Manawatu 1964.

2. Pohangina County compared to the largest and smallest of the New Zealand counties.

<u>County</u>	<u>Area (sq.miles)</u>	<u>Population 1963</u>
Westland	4,410	8,432
Lake	3,871	3,332
Heathcote	12	161,141
Waimairi	43	46,982
<u>Pohangina</u>	<u>259</u>	<u>1,797</u>

3. The Oroua County was divided into the Oroua and Kairanga Counties in 1902 thus changing the pattern considerably. If considered jointly on the basis of the 1896 area the population in 1963 would have been 10,719 giving an increase of 50.6 per cent.

4. Te Punga, 1957

5. The television transmitter is located on, or near the boundary of the Pohangina and Woodville Counties.

6. Most of the information in this section was

supplied by the Meteorological Office at the  
R.N.Z.A.F. Station at Ohakea.

## Chapter 2.

Pohangina 1863; Prologue to the Axe.

"But Tane completed his work by taking his lofty trees  
and propping up the heaven".

"the Creation" trans. R. Taylor in Te Ika a Maui.

In 1863 the area now comprising the Pohangina County was occupied by neither the Maori nor the European. The dominant geographical features were, in fact, physical rather than human, although few relict features remained from a former occupancy by the Maoris (1). Most of the Manawatu district at this time was in a similar condition, untouched by European man, and little changed by the Maori

In 1842 the first two settlers took up land on the Manawatu River somewhere near the later settlement of Piaka. By 1858, when the Provincial Government had purchased the land on which the settlers were located, a settlement had grown up at Te Awahou, now known as Foxton. At this same time the Rangitane chiefs indicated their willingness to sell a further block of land adjacent to the Awahou Block, this was the Ahuaturanga Block of 250,000 acres. The Pohangina County was later formed mainly within the boundaries of the latter block (Fig. 3).

John Tiffin Stewart who was sent to survey this block in 1859 described it as follows;

"The large area included in this block is  
mostly bush land, only a portion of which

Figure 5. Sources.

Buick, T.L.

1903

Old Manawatu.

Stewart, J.T.

1859-60

Survey Map of Te

Ahuaturanga Block.

# NATIVE LAND BLOCKS IN MANAWATU

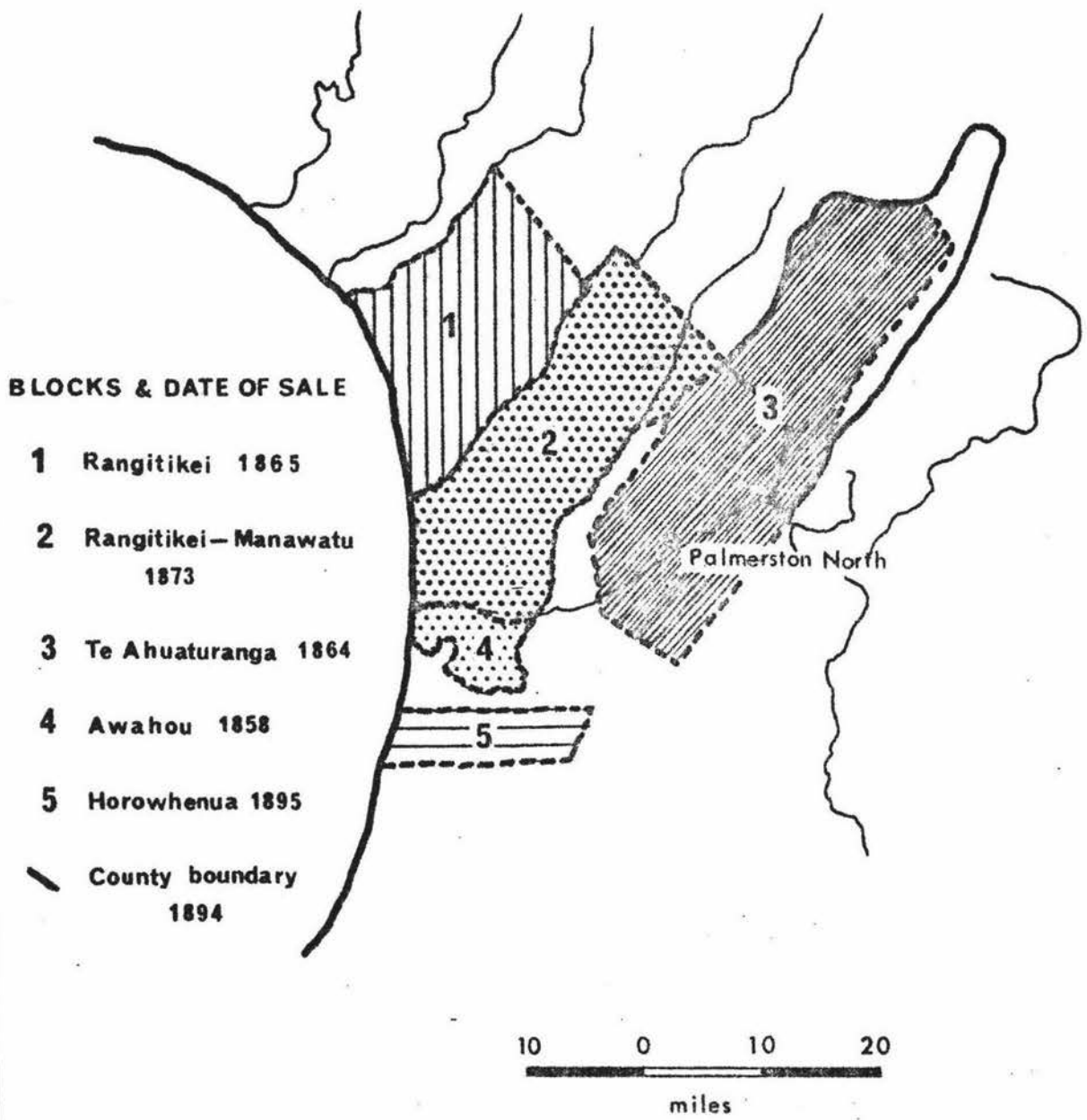


Fig. 5

in the Manawatu (5).

Table I. Maori Settlement in Wellington West Coast, 1862.

Otaki	830	Porotawhao	200
Manawatu	600	Waikanae	200
Rangitikei	400	Ohau	70
Turakina	100		

Source: A.J.H.R., E.9.9, 1862.

There seems to have been little change after Stewart's visit to the Pohangina and Oroua Valleys in 1859-60. Stewart's map of the Ahuaturanga Block recorded only abandoned village sites suggesting some previous Maori settlement (Fig.6). This is also substantiated by William Colenso, who visited the Pohangina Valley in 1848, and recorded the presence of a village "... of seven adults and two children. This handful comprised the whole population on the banks of that river (6)". This village was the home of two of his guides, but it is not on record whether they were reckoned as part of the population. At the most this kainga might have contained eleven people and the abandonment of such sites was probably fairly recent (7). Historical accounts by both Buick (8) and Page (9) suggest several reasons for the abandonment. The inhabitants were probably wiped out by successive tribal invasions in the late 1820's and early 1830's - initially the Hawke's Bay Rangitanes followed by the Ngatitoas and Ngatiraukawas from Auckland. The latter were led by Te Rauparaha who is reputed to have

in the Manawatu (5).

Table I. Maori Settlement in Wellington West Coast, 1862.

Otaki	830	Porotawhao	200
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Rangitikei	400	Ohau	70
Turakina	100		

Source: A.J.H.R., E.9.9, 1862.

There seems to have been little change after Stewart's visit to the Pohangina and Oroua Valleys in 1859-60. Stewart's map of the Ahuaturanga Block recorded only abandoned village sites suggesting some previous Maori settlement (Fig. 6). This is also substantiated by William Colenso, who visited the Pohangina Valley in 1848, and recorded the presence of a village "... of seven adults and two children. This handful comprised the whole population on the banks of that river (6)". This village was the home of two of his guides, but it is not on record whether they were reckoned as part of the population. At the most this kainga might have contained eleven people and the abandonment of such sites was probably fairly recent (7). Historical accounts by both Buick (8) and Page (9) suggest several reasons for the abandonment. The inhabitants were probably wiped out by successive tribal invasions in the late 1820's and early 1830's - initially the Hawke's Bay Rangitanes followed by the Ngatitoas and Ngatiraukawas from Auckland. The latter were led by Te Rauparaha who is reputed to have

Figure 6. Sources.

Bagnall, A.C. and	1948	<u>William Colenso.</u>
Petersen, C.G.		
Buick, T.L.	1903	<u>Old Manawatu.</u>
Elder, N.L.	1965	Vegetation of the Ruahine Range. <u>Trans. Roy. Soc.N.Z.</u>
Stewart, J.T.	1859-60	<u>Survey map of Te Ahuataranga.</u>
Stewart, J.T.	1902	Report on the Survey of Te Ahuataranga.

# POHANGINA 1863: SETTLEMENT & COMMUNICATIONS

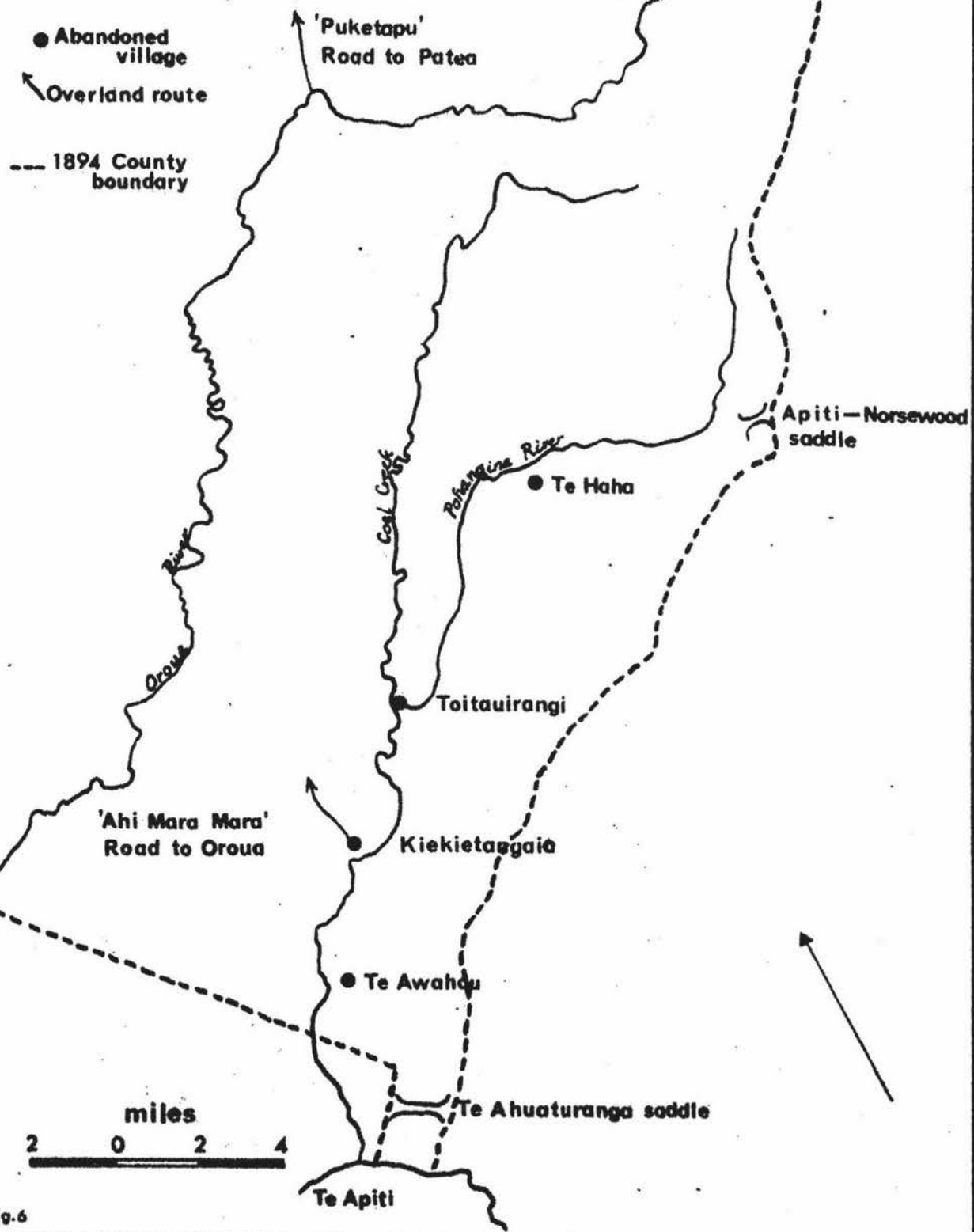


Fig. 6

said, "Clear the weeds from off my field" when he granted part of the Manawatu to the Ngatiraukawas. (10). The following entry in Colenso's journal, after he had left the village on the Pohangina River and crossed to the Oroua River, supports this: "The Ngatirangi who formerly resided on its banks ... (were) completely destroyed in their sanguinary wars". (11)!"

A further possible explanation is that these villages were never occupied on a permanent basis. Buick notes, for instance, several villages in the Upper Manawatu which were used as seasonal homes (12). They were probably occupied only in summer to snare pigeons and gather berries which were to be found there (13).

#### Communications.

The Maoris made use of the Pohangina and Oroua Valley for purposes of communication if not for settlement. Moreover the Pohangina and Oroua River systems were linked with the Manawatu River, the main outlet to the coast. Stewart recorded the principal routeways within the Ahuaturanga Block in 1859-60, the Pohangina and Oroua Rivers and the lower portion of Coal Creek were used for water transport and there was an overland route across the ranges from the North Wairarapa plain (Fig.6).

Through the abandoned village of Kiekietangaio one route ran via "Ahi Mara Mara" to the Oroua River. It is also possible that a further overland route ran from Coal Creek to the Oroua River. From the Oroua River, near present-day Apiti, another route ran to Mokaia Patea. Elder also noted the existence of routes across the ranges through the various saddles to the east (14). The Apiti-Norsewood saddle, as such, might well have been used by the early Maoris.

Maori routeways, however, were few and these were closely aligned to both the terrain and the vegetation. Terrain probably exerted the greater influence as the major routeways were probably the two larger river valleys, running near parallel courses (15). It is probable that the rougher terrain of the anticline was avoided by the Maoris in preference for easier routes on the nearby lowlands; this would account for the fact that the only routes crossing from east to west were located in the south on the lower and less dissected part of the anticline. Here the anticline was only about 1,100 feet above sea level, while further north it rose to more than 1,800 feet. In addition to the increase in altitude, the degree of dissection also increased from south to north for the anticline consists of uplifted, unconsolidated sandstones

which are easily eroded.

#### Natural Vegetation.

The routeways along the rivers and streams were also the most convenient way of avoiding the areas of dense bush so characteristic of this area. There are no extant detailed records of the forested areas in or about 1863, but much of the investigation of the pre-European vegetation has been based upon the present vegetation of the Totara Reserve and other vegetational relics, as well as that existing today in the Ruahine Ranges (16).

The main types of vegetation associations in the area were swamp forest, totara forest, kahikatea-tawa forest, ~~forest~~, black beech forest, podocarp forest and alpine vegetation (Fig. 7).

The swamp forest occurred in small pockets where there was an abundance of water on the river-flats. The main tree species were kahikatea, pukatea and black maire, although where the forest became more dense kahikatea was replaced by the more shade tolerant pukatea. In the more open areas young kahikatea, cabbage tree, mapou, putaputaweta, karamu, tutu, Coprosma tenuifolia, Rubus schmidelioides, R. australis, sedges and young totara made up the plant association. It is likely that increased light intensity rather than

Figure 7. Sources.

- |                 |      |  |
|-----------------|------|--|
| Elder, N.L.     | 1965 | Vegetation of the<br>Ruahine Range.<br><u>Trans.Roy.Soc.N.Z.</u> ,   |
| Greenwood, R.M. | 1949 | Totara Reserve, <u>Bulletin</u><br><u>of the Wellington</u><br><u>Botanical Society</u> ,<br>No.21, August, 2-7. |

# POHANGINA 1863:

## VEGETATION

-  Alpine grasses.
-  Leatherwood scrub.
-  Cedar & Dacrydium.
-  Podocarps.
-  Kahikatea & Tawa.
-  Totara.

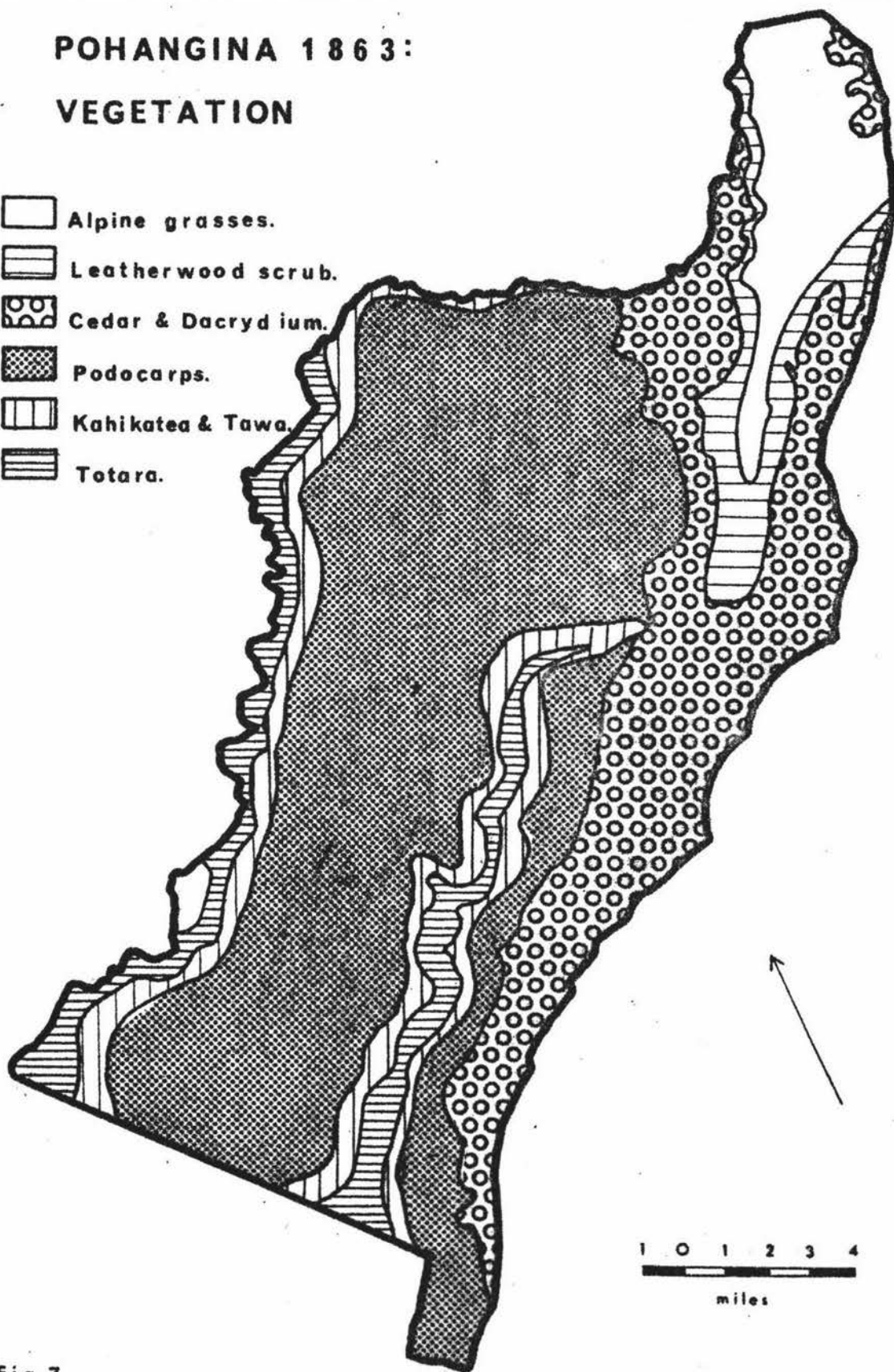


Fig. 7

moisture accounted for the presence of these latter species (17).

Totara forest occurred on the drier areas of the river-flats and appears to have been a significant stage in the succession from the bare river-bed to the mixed forest. The upper canopy comprised totara, kowhai, lacebark, titoki, and white maire and the undergrowth consisted mainly of small shrubs such as Myrtus obcordata, Coprosma rigida, C. rotundifolia, the milk tree, juvenile kaikomako, and ramarama.

On the remaining areas of the river-flats the kahikatea forest was the climax. Although the rata was uncommon in this group other podocarps, and broad-leaved types could be found. The association of the kahikatea and tawa formed a thick canopy. The undergrowth was made up of shade-tolerant species like kawakawa, mahoe, Coprosma australis, pate, fuchsia, rangiora and lianes such as supplejack, bush lawyer, the native passionfruit and climbing ratas. Treeferns were plentiful as were groundferns in areas where the canopy was not too thick.

The largest part of the Pohangina County was, however, covered in an extensive northern rata-podocarp-tawa forest. This forest, with its various modifications, probably covered most of the county area up to a height of about 2,000 feet (18). Northern rata, podocarps



Photo. by Courtesy P.C.C.

Plate 4.

"The upper canopy comprised totara". This view of the Totara Reserve early in the century demonstrates the probable nature of the bush. The Totara canopy stands well above the under-storey and carries many epiphytes.

( e.g. rimu ) and such trees as pukatea and rewarewa made up the canopy, their crowns standing well above the sub-canopy of tawa, hinau, and the maires (Olea spp.) and titoki. The larger trees carried many epiphytes, one of which was the rata, (parastic on the rimu ) hinau, pukatea, rewarewa, totara, and white maire. Beneath this, only shade-tolerant trees and shrubs would survive, and at ground level there was a relatively "clean" community except for an abundance of lianes.

Beech forest was fairly common, particularly the black and mountain beeches. Black beeches were commonly found along the crests of ridges and spurs, the soils on which they grew being generally thin and gravelly with a tendency to dry out quickly in the summer. This, in conjunction with the more open nature of the canopy, led to the existence of a light-demanding and drought-tolerant under-canopy. It consisted of a number of species; Leucopogon fasciculatus, Cyathodes acerosa, kohuhu, lancewood, mapou, kowhai, Coprosma lucida, C. ramnoides, and Helichrysum glomeratum. Epiphytes were common as was Clematis hexasepala but there were few lianes.

In stable areas there was a tendency for this community to be invaded by podocarps but where slips occurred only beech would regenerate. Black beech occupie

the drier sites along the Pohangina River, occurred on the sandstone near the Te Ekaou and Makawakawa streams and is thought to have completely covered the ridge between the Oroua and Pohangina Rivers (19). A block of red beech stood on the southern branch of the Oroua River and along the Oroua Gorge, decreasing southwards to blend into the kamahi at the Pohangina Gorge.

Kamahi was the dominant canopy tree from the limit of the rimu up to approximately 3,000 feet (Fig.8). It was associated with miro and Podocarpus hallii and had a dense undergrowth of trees and shrubs. Above this were cedar and Dacrydium forests which constituted the upper limit of the timber. It would be difficult to define a timberline as both the cedar and the Dacrydium bifforme gradually merged into the smaller leatherwood scrub, particularly in the south. At the head of the Oroua Valley and at the southern extremity of the Ngamoko Range leatherwood scrub was well developed while towards the south Senecio eleagnifolius and Dracophyllum longifolium became more common. The upper zone of the scrub was dominated by Olearia colensoi (20).

Alpine vegetation occurred above the timber-line but was evident only in the northern portion of the ranges the Ngamoko Range having the only extensive snowgrass meadows in the county area.

These altitudinal vegetational belts mainly reflected climatic differences although some associations reflected soil conditions. Table II summarises the major soil groups with the associated vegetation types and climatic conditions. Even today this county is not yet fully surveyed with regard to its soils and there are no detailed soils maps for the whole county. Such maps as do exist are mainly for individual farm holdings.

An analysis of Table II reveals that the Northern rata-podocarp-tawa forest was associated with soils of medium to high natural fertility, while beech forest was associated with poorer soils. Fern, scrub and manuka appear to have been associated with poor soils also and Stewart's survey map indicates that they were present in small quantities. In general it can be said that the vegetational belts were located with reference to soils, climate and altitude.

Climate does not appear to have been a limiting factor in the distribution of vegetational types. Rainfall was abundant over most of the county but decreasing temperatures associated with increasing altitude were important factors in the location of the snow-grass meadows. The relatively low drought risk was important as there was little need for plants to be drought-tolerant.

Table II,

The Soils- Climate-Vegetation Relationship				
Soil Name	Soil Profile	Parent Material	Natural Vegetation	Rainfall
Manawatu Sandy Loam and Clay	6"-12" Light brown or dark grey loam, on yellow brown loam and clay loam High natural fertility	Alluvium	Broadleaf forest	35"-70" p.a.
Tukituki stony gravels	Shallow brown sandy loams on stony gravels	Alluvial gravels	Manuka grasses	30"-70" p.a.
Fairanga Silt loam and clay loam	6"-12" grey heavy silt loam on clay loam mottled grey and brown, High natural fertility	Alluvial gravels	Swamp forest	30"-80" p.a.
Faumai Sandy loam	6" dark greyish-brown loam, 10-15" brownish grey heavy sandy loam strongly mottled on compact sands	Sandstone	Broadleaf podocarp forest	35"-45" p.a.
Raumai Sandy loam Hill series	5" dark greyish sandy loam 9" pale brownish-grey sandy loam, mottled, on compact sand	Sandstone	Broadleaf podocarp	35"-45" p.a.
Tokomaru Silt loam	6"-8" dark brownish-grey heavy silt loam. 24" pale brownish-yellow clay loam mottled on mottled compact sand	Alluvium	Podocarp forest	35"-45" p.a.

TABLE 11 (continued).

Soil Name	Soil Profile	Parent Material	Natural Vegetation	Rainfall
Pirinoa sandy silt loam.	6-9" blackish grey silt loam on pale dull grey clay loam, mottled, and compact below 12"	Sandy mudstone	Fern and scrub	35"-45" p.a.
Omakere Silt loam	5" grey brown clay loam 12" dull yellow brown clay loam	Mudstone and Greywacke Mudstone	Broadleaf podocarp	45"-70" p.a.
Kiwitea loam (hill series)	6" dark grey brown loam on brownish yellow compact heavy silt loam. Medium natural fertility	Greywacke Alluvium	Rata forest	40"-60" p.a.
Kiwitea loam (hill series)	6" dark brown loam on deep yellow silt loam. Medium natural fertility but deficient in phosphorous	Greywacke alluvium	Rata forest	40"-60" p.a.
Pohangina sandy loam	1"-5" brownish grey sandy loam on loamy sand. Low natural fertility	Sands	Beech forest	40"-50" p.a.

Sources: Manawatu Catchment Board, 1951, Pohangina Conservation Survey, 36 + 37  
 Manawatu Catchment Board, 1964, Report on the Catchment Control  
 Scheme for the Pohangina-Oroua Area., 21-25.

As the area is seldom browned off by drought today it is unlikely that the vegetation cover was modified by such conditions.

#### Conclusion.

The geography of the Pohangina County in 1863 was dominated by the physical aspect with a few relict features indicating past human occupancy by the Maoris. Probably the major feature of the physical geography was the dense rain-forest (designated 'bush' in N.Z.) covering the whole area. Even at this period these conditions proved an obstacle to communications. In 1864 the sale of the Ahuaturanga Block was completed and the term of solely Maori tenure was over.

References.

1. Stewart, 1859-60, survey map of the Ahuaturanga Block.
2. Stewart, 1902, 1.
3. Stewart, 1902, 2.
4. Pa a fortified settlement normally occupied permanently  
Kainga a village, sometimes permanently occupied but  
in the Pohangina County area these appeared to have  
been occupied discontinuously.
5. A.J.H.R., E.9.9. 1862.
6. Bagnall and Petersen, 1948, 284.
7. Refer to Note 4.
8. Buick, 1903.
9. Page, 1928.
10. Buick, 1903, 102.
11. Bagnall and Petersen, 1948, 285.
12. Buick, 1903, 8.
13. Manawatu Daily Times, May 12th, 1903.
14. Elder, 1965, 16.
15. This parallel alignment was due to the presence of  
the Pohangina and Oroua anticlines; The Oroua flows  
between them and the Pohangina between the Pohangina  
anticline and the Ruahine Ranges. Both these rivers  
are primary synclinal consequents.
16. R.M. Greenwood wrote on the Totara Reserve as a  
vegetational relic while N.L. Elder completed a

vegetational survey of the Ruahine Ranges.

17. Greenwood, 1949, 7.

18. Greenwood, 1949, 2.

19. Elder, 1965, 42.

20. For a list of common names and botanical names of plants mentioned see Appendix II.

21. This table refers only to that portion of the Pohangina County surveyed by the Manawatu Catchment Board, mainly the Pohangina anticline and associated sandstone area.

### Chapter 3.

#### Pohangina 1906; The Axe at Work.

"Logs, at the door, by the fence; logs, broadcast over  
the paddock;  
Sprawling in motionless thousands away down the green  
of the gully,  
Logs, grey-black."

B.E. Baughan. A Bush Section.

By 1906 many significant changes had been brought about in the landscape of the Pohangina County. The "pakeha" had moved in to introduce new and dynamic elements into an hitherto relatively stable and little changed ecosystem. When the white man had moved into this area initially, the dense cover of forest had proved an obstacle to extensive settlement. Man, however, introduced the axe and the bush retreated before the combined efforts of both settlers and sawmillers.

As the bush retreated newly-sown pastures and permanent settlements were established; the settlers ranged increasingly more widely to clear further bush for pastures, to construct new road lines, and slowly to establish an economy based upon sheep and cows. In short the landscape began to assume a man-made aspect with a semblance of apparent stability; and man and his axe were the agents of this change.

### Population.

There was a rapid growth of population from the county's founding in 1894, until 1906 (Appendix I). This increase was even greater during the early phase of settlement, for whereas in 1886 the Kiwitea Riding of the Oroua County had a population of 523, by 1891 it had increased to 1,504 (1). In fact, the population of the county grew from only a few in 1886 to a total of 1,797 by 1906.

This 1906 figure of 1,797 represented a 3.9 per cent increase over that of 1901, and 32.3 per cent over 1896. Of the population, 55.5 per cent were males and 40.7 per cent were minors (under twenty one). This small portion of young people, (1936: thirty-nine per cent, 1963 forty-three per cent) coupled with the difference between the number of males and females, suggests the characteristic pioneering population. The age-sex graph for the county (Fig. 8) shows these trends.

### Settlement.

The distribution of the population in the Pohangina County in 1906 (Fig. 8) reveals a concentration of population in the lower Pohangina Valley, a smaller concentration to the west and two other groups in the north, the former around Apiti and the other around

Figure 8. Source.

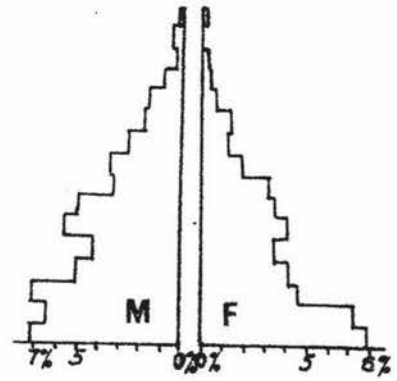
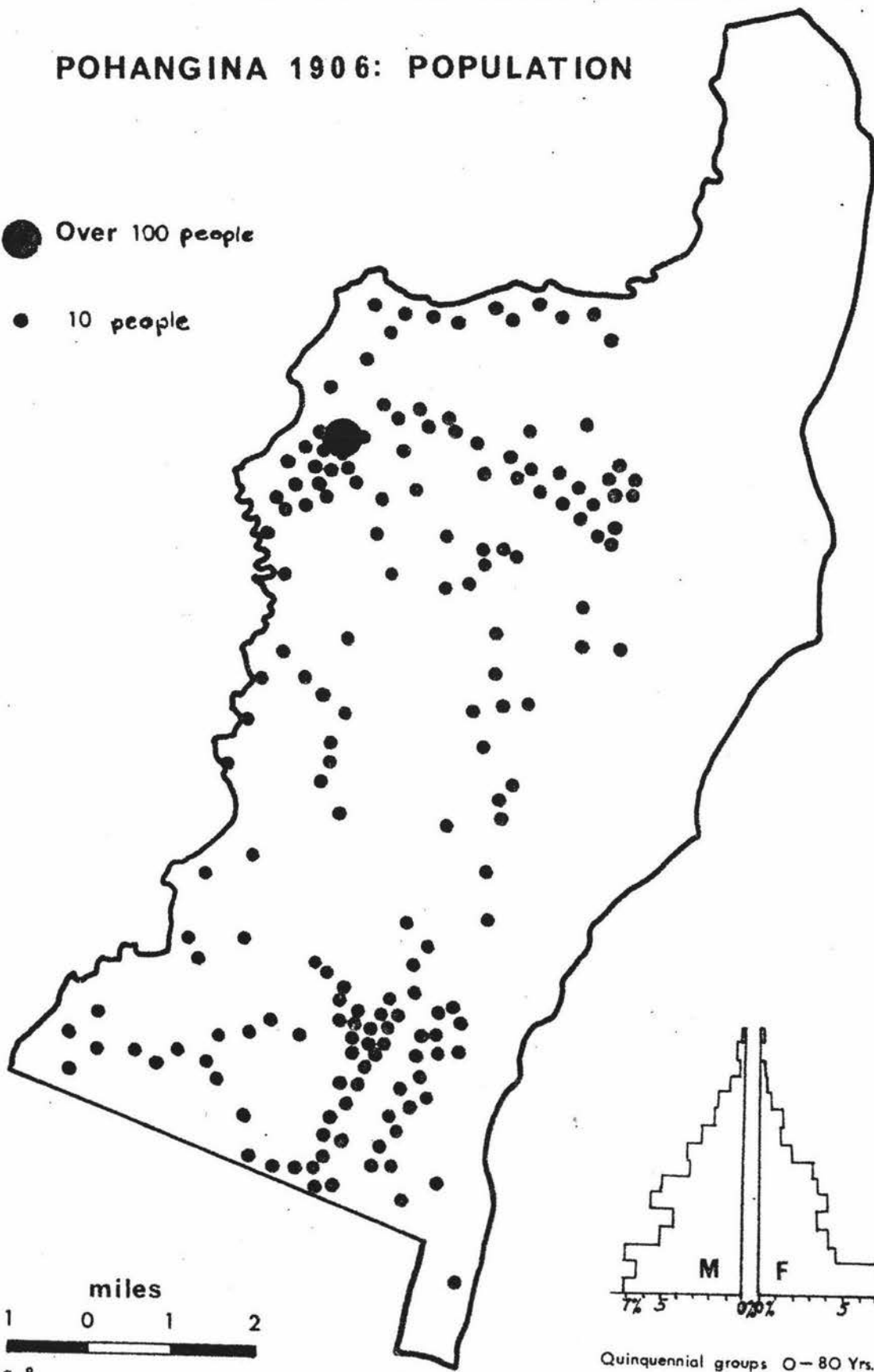
Dept. of Statistics. 1906

Census Volume 1906.

# POHANGINA 1906: POPULATION

● Over 100 people

● 10 people



Quinquennial groups 0-80 Yrs.

Fig 8

Umutoi and Utuwai.

Topography has proved a significant factor in the location of the population, the most striking example being the concentration in the lower Pohangina Valley. Here the settlement was located adjacent to the river on the river-flats and terraces. Such land was accessible and relatively easily cleared of bush, particularly the less densely clad river-flats. The river location also provided a means of communication in the early period of settlement when there were no roads.

In the settlement around Apiti, topography was also a significant locational factor. The river terraces here formed an area of flat land which was more easily cleared of bush than the neighbouring hill country. Furthermore, its proximity to the Oroua River also provided a ready means of access. Although the river did provide a means of communication it was, however, also a barrier with its high papa banks. H.H. Miller writes of "The dangerous character of this outlet from Apiti with its long, greasy slides in wet weather which... the heavily laden horses negotiated by slithering down them with their forelegs stiffened soon gained for itself the name of 'Suicide track'..."(2). By 1906 a road and bridge had been constructed to remove this difficulty.

Topography was not such an important factor in the

grouping of population around Umutoi and Utuwai. This area was described by the surveyor H.J. Lowe in 1891, just prior to the settlement as "rough, hilly country difficult of access" (3). The land was, however, less dissected than the majority of the surrounding low hill country. The location of the small concentration in the south-west was in part also related to relief, since it was located on the broad Pohangina anticline. The location of the northern and south-west settlements were also influenced by their history. The Apiti area was opened up for settlement in 1886 by the Feilding Special Settlement Association (Fig.9), one of the five blocks opened up at the same time as a result of Ballance's 1885 Land Act (4). The 10,000 acre Feilding Block was divided into rural holdings of 100-200 acres and urban plots of less than an acre in Apiti township. This provided for 600 to 800 settlers and their families, under the system of deferred-payment and perpetual lease. By 1892 the whole of the block had been sold (Appendix III). This was one of the earliest settled areas in the county. By 1906 it was noted that a considerable proportion of the original selectors had sold out and aggregation of holdings was taking place (5).

Apiti was planned as the centre of the Feilding Special Settlement Block, a function it did not really

Figure 9. Sources.

A.J.H.R.	1894	C.1.
Mainwaring, R.G.	1965	<u>The Vital Years</u> Unpub. M.A. Thesis.

# POHANGINA 1906: SETTLEMENT BLOCKS

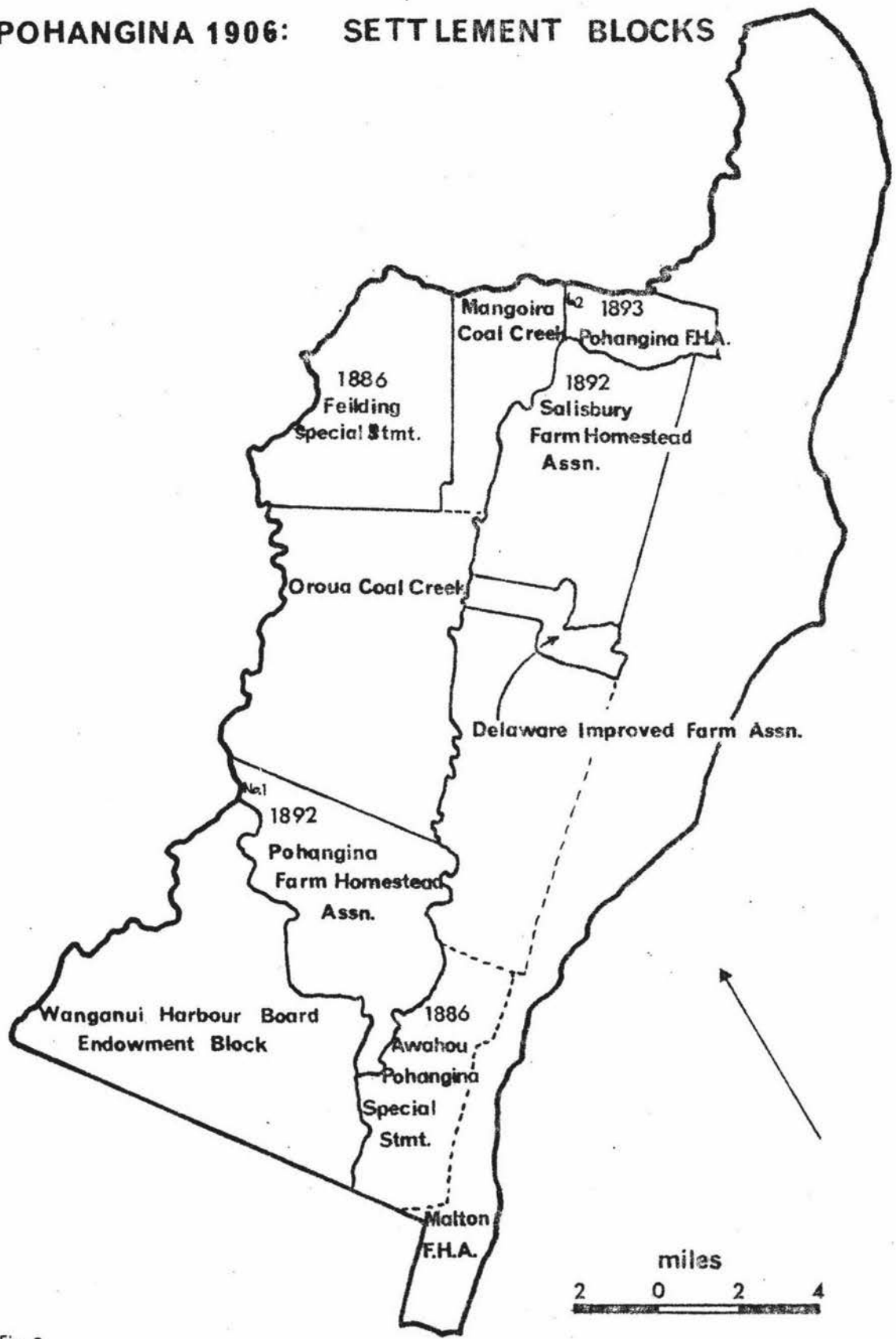


Fig. 9

assume until the mid-1890's.

The grouping of people around Umutoi and Utuwai also reflects historical factors, for these areas were opened up for settlement in 1892 ( by the Salisbury Farm Homestead Association) and in 1894 (the adjacent Delaware Improved Farm Association), jointly consisting of 13,999 acres. This development was a result of the 1892 Land Bill and formed part of a third phase settlement in the county. The earlier phases were represented firstly by the initial unorganised infiltration of settlers in the south, probably from the Manchester Block, and secondly by the Feilding and Awahou-Pohangina Special Settlements in the late 1880's. The holding sizes in the Salisbury and Delaware Blocks were mainly 200 acres or more in the rural areas, with sections of an acre or less in the planned townships of Makoura, (later Utuwai), and Umutoi. By 1895 the majority of the holdings had been sold (Appendix III). The holdings provided for between 500-600 settlers and their families and by 1906 this group numbered approximately 230 (6).

The south-western settlement reflected the very earliest phase of European settlement prior to 1886. The area from the county boundary to the northern boundary of the Pohangina Farm Homestead Association No.1 was originally part of a block given by the Wellington Provincial

Government as an endowment to the Wanganui Harbour Board (7). There appears to be no record of the first settlement in this area but in 1886 it was already settled since the oldest house still in existence in the county was built in this area as early as 1878 (8). As this area was adjacent to the Manchester Block it may be presumed that its settlement may have been linked with that of the latter area. The size of the holdings varied from fifty to over 300 acres, although it is probable that the average size of holding was nearer 200 acres. Here again the holding sizes could have provided for closer settlement of the area, although at the time of the land sales, legislation was less restrictive for the size of holdings than it was for the second phase of settlement in the mid-1880's and the third phase in the 1890's (9).

The lower Pohangina Valley settlement had also been influenced by historical factors. Here the Wanganui Harbour Board Block, the Awahou-Pohangina Block and the Pohangina Farm Homestead Association No. 1 Block all lay adjacent (10). Each of these settlements was located as near as possible to the means of communication, leading to a concentration of settlement along the Pohangina River Valley. It is estimated that there were

some 530 in this group. Thus in 1906, the majority of the population of the Pohangina County was to be found in the rural areas, for less than ten per cent of people lived in the villages (11). Although the proportion of the population in the villages was small, these offered a surprising number of services despite an unpromising appearance (Plates 5 & 6). Figs 10 and 11 show the areas of Pohangina and Apiti devoted to servicing and retailing about 1906 (12). Both of these villages had their general stores, butchers and blacksmiths. Apiti offered a slightly more sophisticated range of services than Pohangina, and included a carrier, saleyards, a hotel, four stables and a tailor. Both villages had postal services, Apiti with a post and telegraph office and Pohangina with a post office-store. Each also served their immediate area for educational purposes. Both schools were large by county standards, each having two teachers and an average attendance of seventy-four pupils.

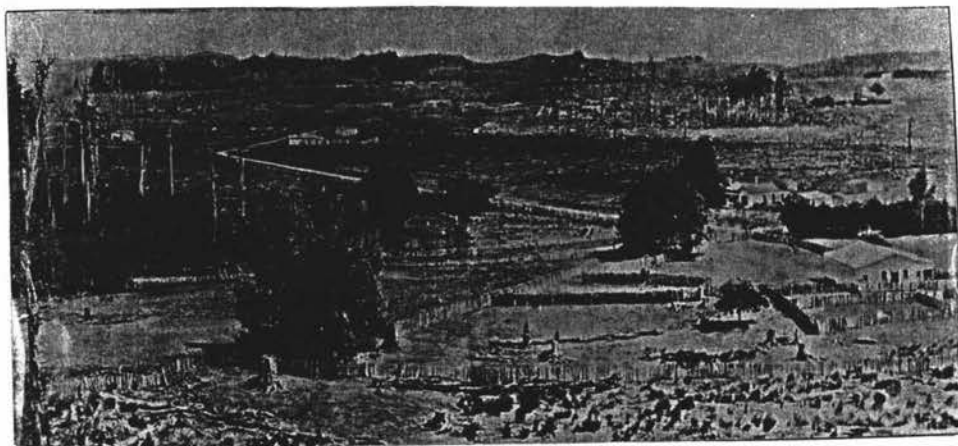
Apiti also had five private dairies and a saw-mill, while only a mile or two to the south was the Apiti Co-operative Dairy Company's creamery established in 1895 (13). Pohangina was also associated both with the early dairy industry and saw-milling. There were two dairies a skimming-station of the New Zealand Dairy-Farmers Union



Photo. by Courtesy D.C.Hogan.

Plates 5 and 6.

"...the villages...offered a surprising number of services despite their unpromising appearance". Plate 5 shows the state of the Apiti township roads with the stump occupying a prominent position. Plate 6. (below) illustrates the degree of settlement in the Apiti township in 1912. The surrounding landscape indicates the recent bush clearance with numbers of logs and stumps.



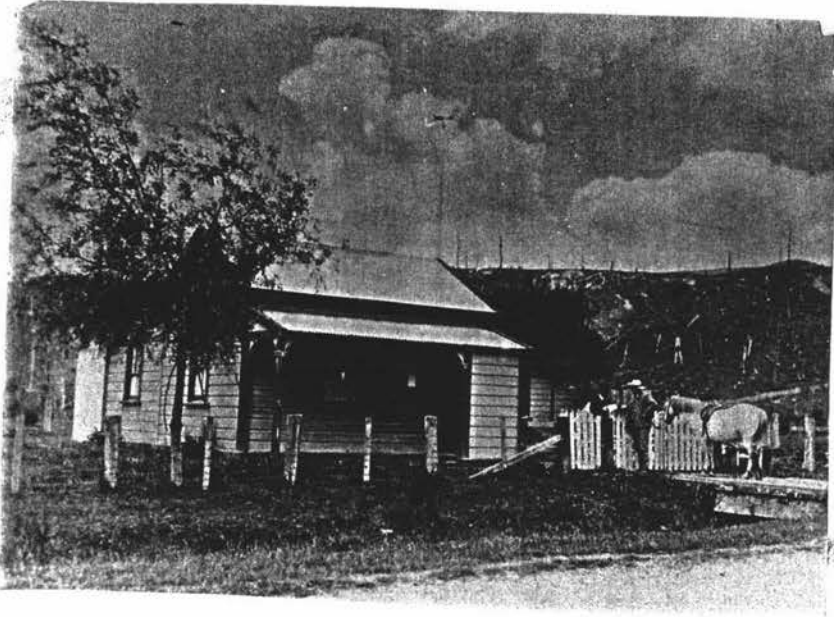


Photo. by Courtesy P.C.C.

Plate 7.

"...the villages ...offered a surprising number of services, despite their unpromising appearance". The state of the Pohangina township in 1894 was revealed by the absence of settlement behind the County Council offices. The stumps and logs testified to the recent bush clearance.

Figure 10. Sources.

P.C.C.	1906	<u>Pohangina County</u> <u>Council Rate Roll.</u>
Valuation Dept.	c. 1919	<u>Rural Valuation Roll</u> <u>for the Pohangina</u> <u>County.</u>

# APITI TOWNSHIP c. 1906

-  Rough grazing.
-  Retail.
-  Services.
-  Residential.
-  Recreation & education.
-  Churches

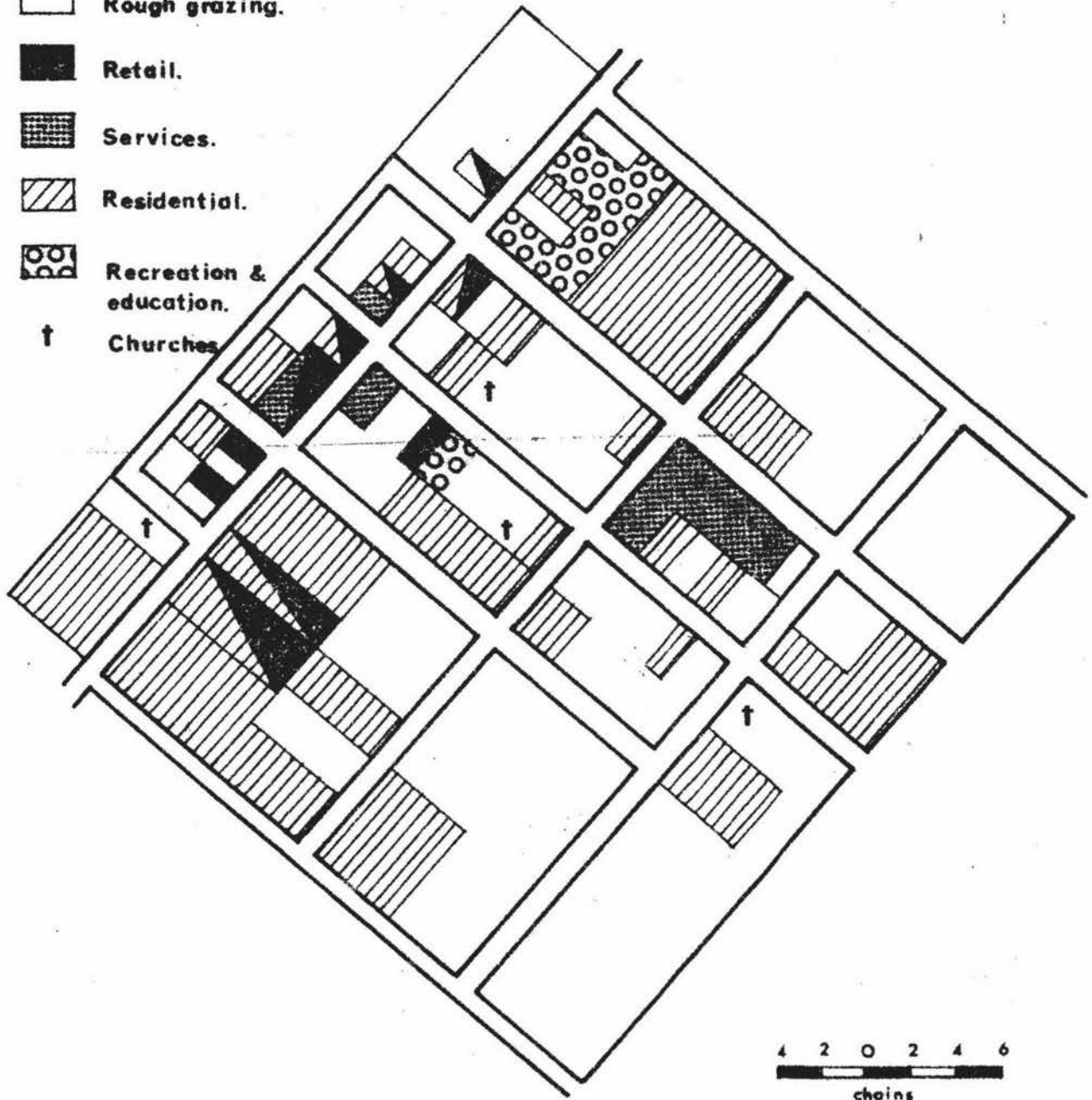


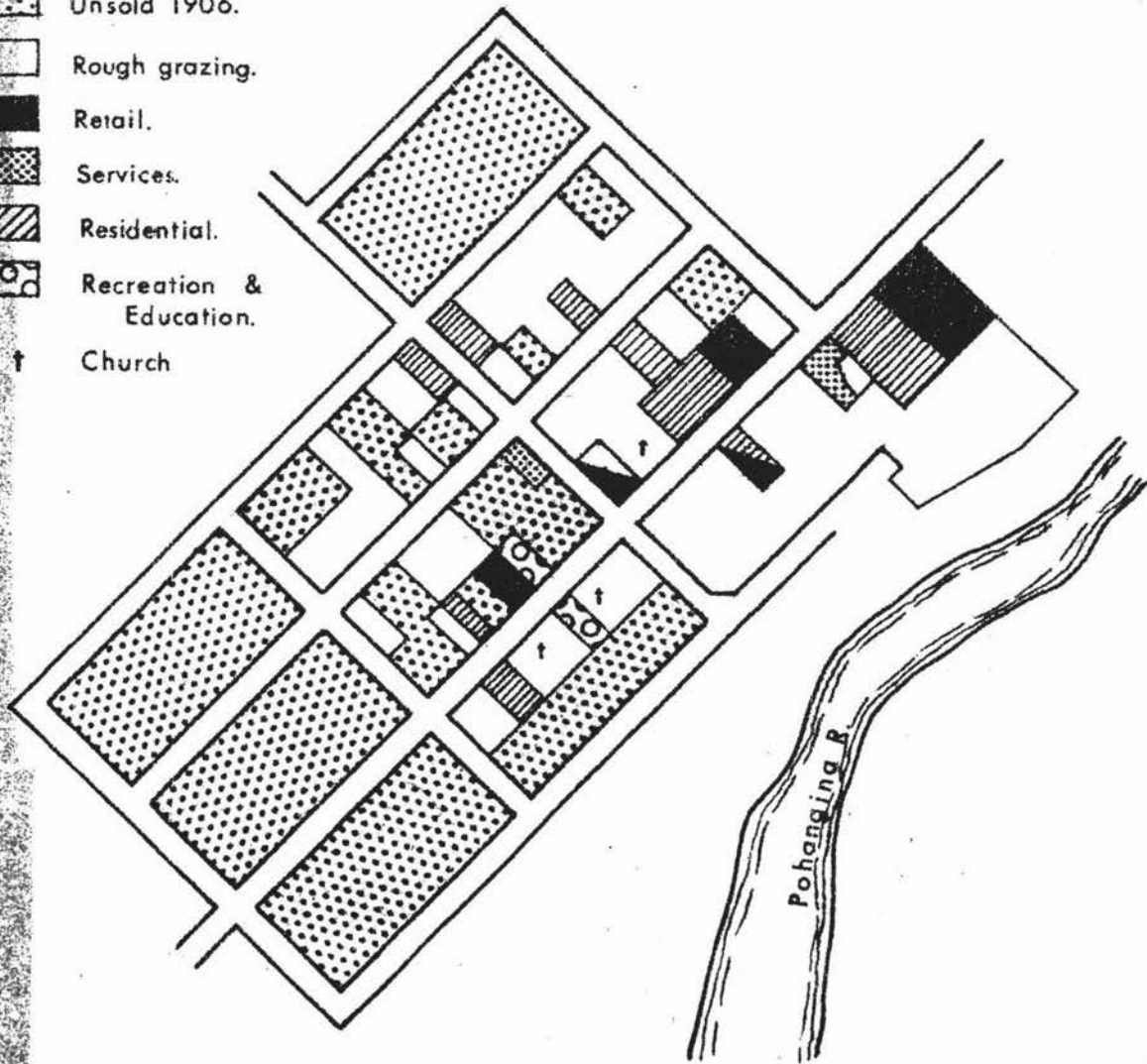
Fig. 10

Figure 11. Sources.

P.C.C.	1906	<u>Pohangina County</u> <u>Council Rate Roll.</u>
Valuation Dept.	c. 1919	<u>Rural Valuation Roll</u> <u>for the Pohangina</u> <u>County.</u>

# POHANGINA TOWNSHIP c.1906

-  Unsold 1906.
-  Rough grazing.
-  Retail.
-  Services.
-  Residential.
-  Recreation & Education.
-  Church



chains



Fig. 11

supplying the main creamery in Palmerston North, and a locally owned and operated saw-mill.

The economy of the villages was thus based on the primary industries of the area, saw-milling and on the processing of dairy produce, as well as meeting the various needs of settlers for goods and services.

A small rural settlement also grew up at Raumai consisting of a hall, saleyards, a blacksmith, two private dairies, a skimming-station, and a nearby school. The settlement at Raumai was strung along the Pohangina River Valley road in contrast to the chequer-board pattern of both Apiti and Pohangina with a "T"-shaped core based upon the road junctions.

Unlike Umutoi and Utuwai, Raumai was never planned as a service centre. Both Umutoi and Utuwai failed to grow much beyond a school, a hall, a skimming-station, and in the case of Umutoi, a saw-mill.

The success or failure of these villages depended much upon the degree of accessibility. The fact that Utuwai and Umutoi developed at all could perhaps be traced to the poor conditions of the roads at the time of earlier settlements, which prevented communication outside the Salisbury Block in winter.

### Communications.

With the advent of European settlement and the removal of the bush, communication lines were gradually established. Close upon the heels of settlement, the most vital links of communication had been established by 1898 providing most settlers with some means of communication with either Apiti or Pohangina. Communication lines to Feilding and Palmerston North existed and were used but the nature of the roads and the long distances restricted travel beyond the county.

Although many roads were actually formed by 1898 they were not in good condition and did not connect with every holding. One settler complained that "...at present it cost him 18/- per 100 lbs of flour to get it transported to his holding whereas if the road was made and metalled past his place he could get his flour for 12/- per 100 lbs. (14). Early in 1899 an article in the Manawatu Evening Standard noted that "... the roads in the Umutoi Riding are in their usual state of mud" (15). Another resident of the county wrote to the editor of the Feilding Star stating that many of the settlers in the Umutoi had bought stock and lost nearly half of them since "... you can't take stock and things on some of the sections except during three or four months of the year" (16).

By 1902 the position had improved and the county had almost 175 miles of road formed and metalled (Fig.12). All the occupied areas had some means of access with the notable exception of the absence of a connecting road from the end of Finnis Road to Pohangina township. By 1906 this was completed, however, and the communications network was further improved by the addition of a bridge across the Pohangina River at Raumai. As this was the only bridge across the Pohangina River, the settlers in the Delaware and Salisbury Blocks had to ford the river in order to go either north or south.

The road network in the county reflected the longitudinal north-south orientation, with the three main north-south routeways and a few lateral connections. One barrier to the development of lateral roads was the necessity, and additional expense, of bridging.

The pattern in the north of the county did not reflect this north-south trend quite so markedly. Indeed, it had a greater network of connecting lateral roads, due in part to the less rugged nature of the terrain, as well as to the history of settlement. The land was uniformly high in altitude and did not present such a distinctly "grained" aspect as did the anticline, river, and foothills to the south. Furthermore, as the Pohangina River left the ranges just below the Salisbury Block,

Figure 12. Sources.

Sinclair, D.	1902	<u>Pohangina County</u> <u>Council Roads and</u> <u>Bridges.</u>
Spelman, J.E.	n.d.	<u>Notes on the</u> <u>Pohangina Valley.</u>

# POHANGINA 1906: COMMUNICATIONS

 Roads.

f Ford.

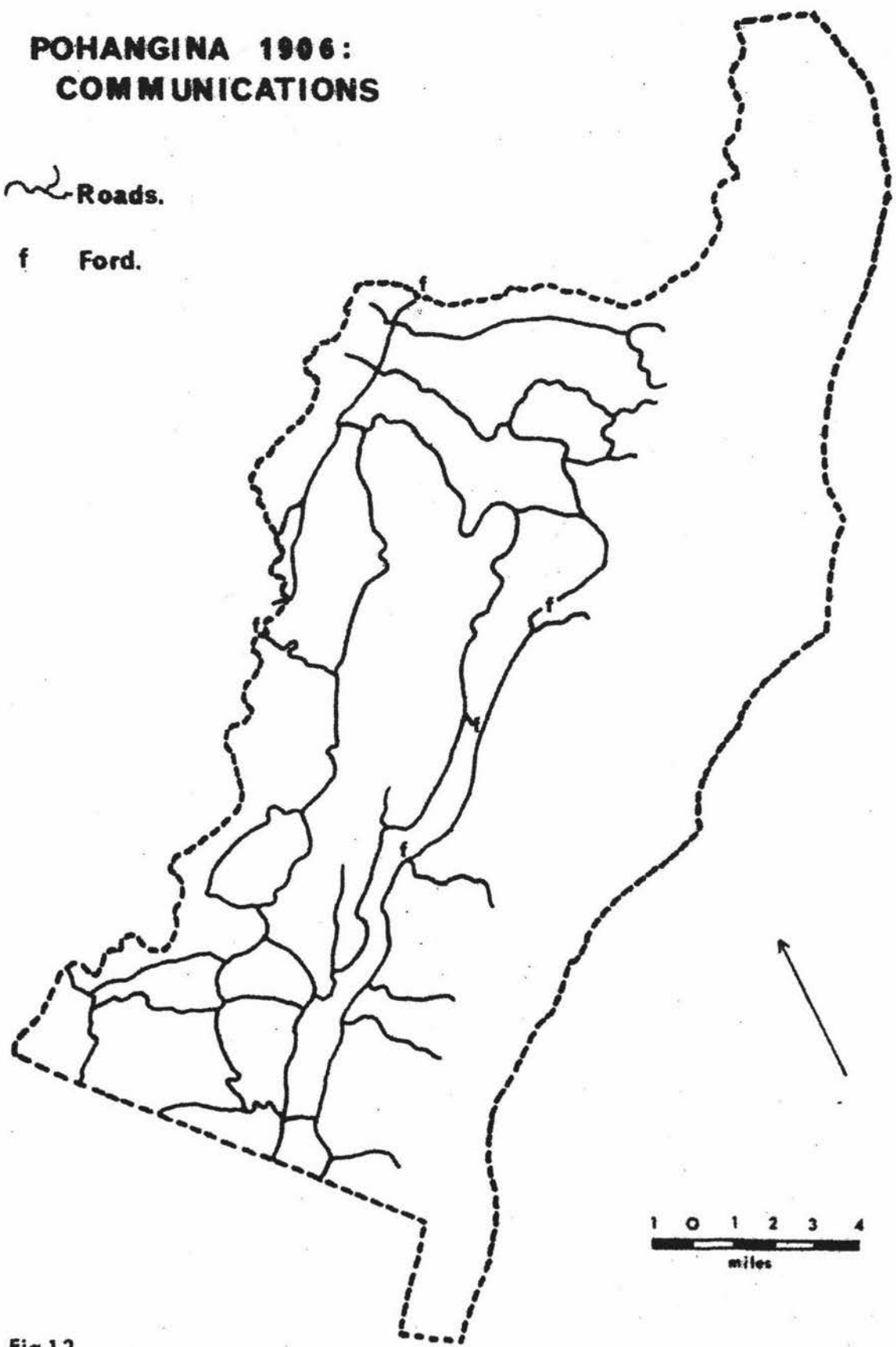


Fig.12



Photo. by Courtesy P.C.C.

Plate 9.

"...many roads ...were not in good condition". The roadline here was cleared of bush but was unmetalled. It was such roads that became quagmires in winter and prevented settlers obtaining supplies and livestock. Many roadlines were cut and cleared before the surrounding countryside.



Photo. by Courtesy P.C.C.

Plate 10.

"One barrier to the development of...roads was the necessity, and additional expense of bridging". The bridge was incomplete but roadlines were cleared and a layer of metal put on them. Prior to the construction of the bridges fords were used. The background shows a characteristic appearance of recent bush removal.



Photo. by Courtesy P.C.C.

Plate 11.

"...the heavily laden horses..." provided one of the few modes of transport in the early days. Roadlines were often not good enough to carry wagons. This photograph, showing both pack-horses and wagons, was taken at a time when bush clearing was still taking place as evidenced by the sky-line.

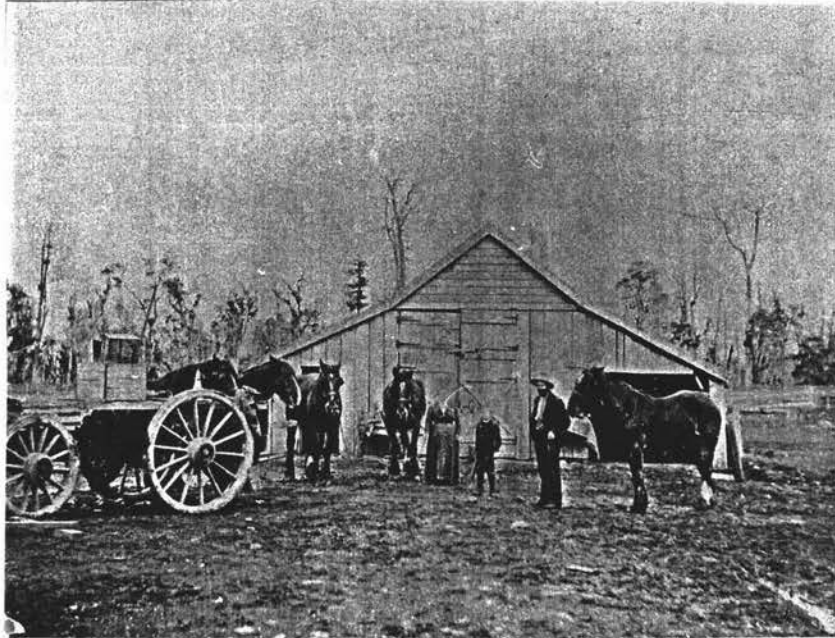


Photo. by Courtesy P.C.C.

Plate 12.

"...residents ...depended upon horse or bullock-wagon to bring in most of their goods". This photograph, taken at Table Flat, shows one of the early carriers with his team and wagon. Behind them stands an example of pioneering architecture, a single gabled shed with a lean-to on either side. In the background there is a stand of cut-over bush. .

the settlers here were virtually cut off from the southern part of the county. Consequently this led to the development of cross-country laterals connecting the Salisbury settlers with Apiti. It was not long, however, before two suitable fording places on the Pohangina River were found, one of which eventually had a "flying fox" cage set up over it in the early 1900's.

The county was relatively well served by telephone in 1906. Raumai, Apiti and Pohangina had telegraphic offices. Raumai and Pohangina were linked to Ashhurst and Palmerston North beyond the county and to Komako within it, while Apiti was connected to Umutoi and Utuwai locally, and to Kimbolton and Feilding outside the county. Telegraphic offices were set up at Komako, Utuwai and Umutoi late in 1906.

Nearly all the settlers in the county were served by mail runs in 1906, either daily or weekly. Services from Apiti included Table Flat, and Umutoi-Utuwai, both twice-weekly. Raumai and Pohangina were serviced daily from Ashhurst while the thrice-weekly services from Pohangina included Awahou, Ngaputahi Road Junction, Komako and Piripiri. The south-west part of the county was covered daily from Colyton after the closure of the post office at Te Awa in 1906.

Communications within and beyond the county were limited, but adequate in respect of roading, mail services and telephone services. The rail services, however, were a different matter. The nearest railhead at the southern part of the county was Ashhurst, only four miles away, but in the north the nearest railhead was at Feilding, thirty one miles from Apiti. In the early 1900's when there had been talk of connecting with Feilding by rail, it had been claimed that such a railway would serve 84,537 acres and 15,500 people in the Manchester Block, the Kiwitea County and the northern portion of the Pohangina County. An article in the Rangitikei Advocate in 1902 compared the proposed line with the Sandon-Carnarvon line most favourably (17). It was estimated that the proposed Apiti line should pay for itself in a very short time. The Sandon-Carnarvon line served a thinly populated area which did its business more in Palmerston North and Feilding than in Foxton, with which it was connected, whereas the proposed Apiti-Feilding line would serve an area which already did most of its business in Feilding. In all, a very telling argument was put forward in favour of the line, but it had not been established by 1906.

Lack of rail communication consequently meant that the residents of the Pohangina County depended upon horse

or bullock-wagon to bring in most of their goods.

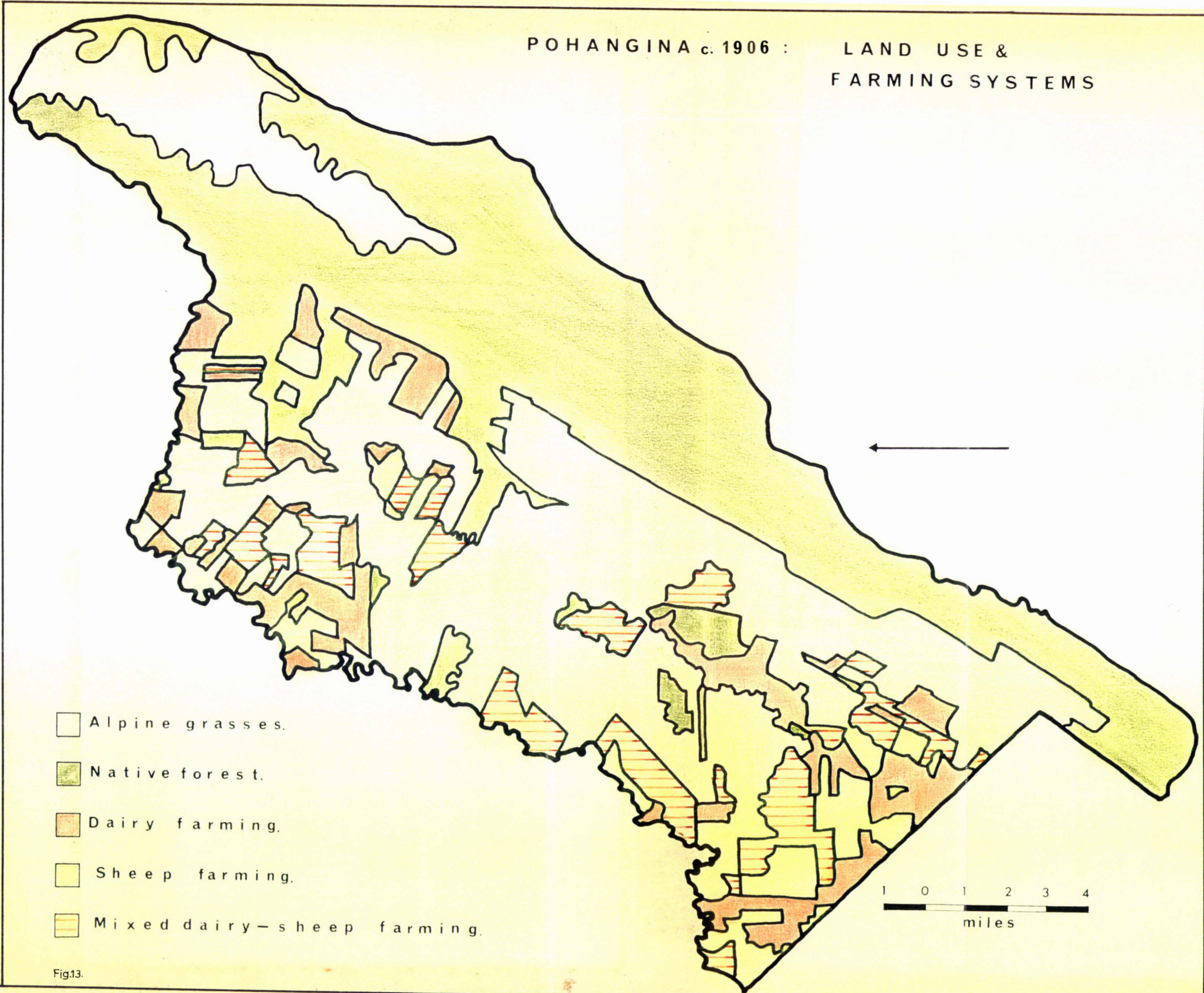
### Bush Clearance.






The most evident change in the landscape in 1906 was, however, the removal of the bush over wide areas, for 1906 lay in the closing years of an era in which man and his axe had almost completely effected this great change. Comparative figures of land use for 1906 and 1936 reveal that although there was still some bush left to be cleared in the county as late as 1906, most of the more readily accessible areas had already been cleared leaving only scattered, usually inaccessible, patches (Fig.13). In 1906, 49.9 per cent of the land was recorded as "cultivated" leaving 50.1 per cent uncultivated. Between 1896 and 1906 the area of uncultivated land had decreased from 72.0 per cent to 50.1 per cent of the county. In a decade some 21.9 per cent of the total area, usually the more recently occupied and lower lands, had been cleared of bush and put mainly into sown pasture. If the area of the Ruahine Ranges is excluded as unlikely to be occupied there was a 33.3 per cent increase in the total area of the land cleared and cultivated.

Figure 13. Sources.

A.J.H.R.	1906	H.23.
A.J.H.R.	1907	H.23
P.C.C.	1906	<u>Pohangina County</u> <u>Council Rate Roll.</u>
P.C.C.	1907	<u>Pohangina County</u> <u>Council Rate Roll.</u>
Valuation Dept.	c. 1919	<u>Rural Valuation Roll</u> <u>for the Pohangina</u> <u>County.</u>

POHANGINA c. 1906 : LAND USE & FARMING SYSTEMS



-  Alpine grasses.
-  Native forest.
-  Dairy farming.
-  Sheep farming.
-  Mixed dairy-sheep farming.

1 0 1 2 3 4  
miles

Fig.13.

Table III. Cultivated Land

Index for the area of cultivated land in the occupied area of the Pohangina County (1896 as the index figure).			
1896	100	1936	208
1906	175	1946	215
1916	189	1956	187
1926	222	1963	203

Sources: Statistics for Colony & Dominion of N.Z., Agricultural & Forest Statistics.

In no other decade between 1896 and 1963 was there such a large scale change in the landscape, and this change was due primarily to the advent of the European settler. The Pohangina County was one of the later settled areas both in New Zealand and the Manawatu. Until approximately 1870 there had been plenty of readily accessible lowland available for settlers, but it had been rapidly taken up. Vogel, for instance, set up an immigration scheme which brought immigrants from Europe to engage in bush-felling and public works in such nearby areas as the "Forty Mile Bush".

After this phase of settlement, however, there was little land left for immediate occupation. Such land as was left was of poorer quality than that settled earlier and was mostly low or rugged hill country. Under such conditions it was only those men with heavy capital backing who could hope to succeed alone, and it was this fact

which brought about the legislation which was responsible for: firstly, the Special Settlements, and later, the Farm Homestead Associations and Improved Farm Associations to facilitate the settlement of men with limited capital resources. In short, the Europeans entered the Pohangina County area with governmental blessing to set up a rural economy based initially on bush-felling, public works and limited agriculture.

With such an aim in mind, the settlers viewed the bush as an obstacle to hinder settlements, that must be removed. It was of little value except for timber for houses and bridges, and consequently a ruthless destruction of the original bush followed in the wake of the major settlement phases in the 1880's and the 1890's.

"Cut and burn" methods further illustrated the limited value put upon the timber by the settlers (18). In the spring and summer the settlers often cut the bush by primitive, unorthodox methods, felling only the larger, more valuable trees, such as totara and rimu, and leaving smaller trees and under growth merely smashed or undisturbed. The ensuing burn in the autumn did not always consume these bushes and smaller trees, and the livestock often were unable to graze readily because of the debris and unburnt bush. As the result of this many

bush-felling contracts included a clause to ensure that all the bush to be felled was cut down and the scrub was to be completely severed from the stump.

An alternative method of early clearing involved cutting the majority of the timber approximately two feet above ground level. Under-scrub was then cut with a slasher between six to twelve inches above the ground while any particularly large trees were cut about three feet above ground level. In some cases it was found more practicable to fell the tree four to five feet up the trunk. In such instances a makeshift platform was constructed of three poles and a length of punga: each of the three poles had forked ends, one being placed against the tree to support the punga while the other two supported the end of the punga.

"To stand upon this apologetic substitute for a platform was an ordeal ... From such a scaffolding Mr. C. Potts fell, ... receiving an ugly gash in the groin from the upturned blade of his axe, necessitating the insertion of several stitches." (19).

A later method made use of the jigger board. It was inserted into a deep notch cut into the tree and its advantages over the earlier platform were great for it was wider, more easily adjusted with regard to height, and was both portable and time-saving. With this advance came a new method of felling. It became the custom to

fell timber with a diameter of more than thirty inches at a height of seven or eight feet. At this height the trees were softer and straighter-grained and time was saved in felling. Added to this there was the fact that the jigger board was not only easily adjustable but its springiness enabled the axeman to make deeper cuts.

Yet another method of felling trees made use of "drives". Selected trees were given a front "scarf", cut and then left. The "driver" tree was usually a large, heavy, totara, rimu, or kahikatea which was cut and felled so as to fall upon a nearby tree with a "scarf" cut. This tree in turn fell upon another, also "scarf" cut, and so set in motion a line of falling trees. H.H. Miller records a family "drive" which fell in two directions and accounted for fourteen trees. This was a "...crashing and thundering...operation in which the trees became a confused wreck of shattered limbs, and in some cases broken or fractured barrels" (20). This evidently was not a method to be employed for felling timber for market. It would seem that the felling of individual trees and bushes as shown in Plate 13 was the only method employed for felling market timber.

There were a number of saw-mills in existence up to and including 1906 (Fig. 14). Unfortunately a large number

Figure 14. Sources.

1906, Annual list of Creameries, Factories, Private  
Dairies and Packing Houses.

# POHANGINA 1906: PRIMARY PROCESSING INDUSTRY

- △ Sawmill.
- Cheese factory.
- Creamery.
- Skimming-station.
- Private dairies:
  - Butter.
  - Cheese.

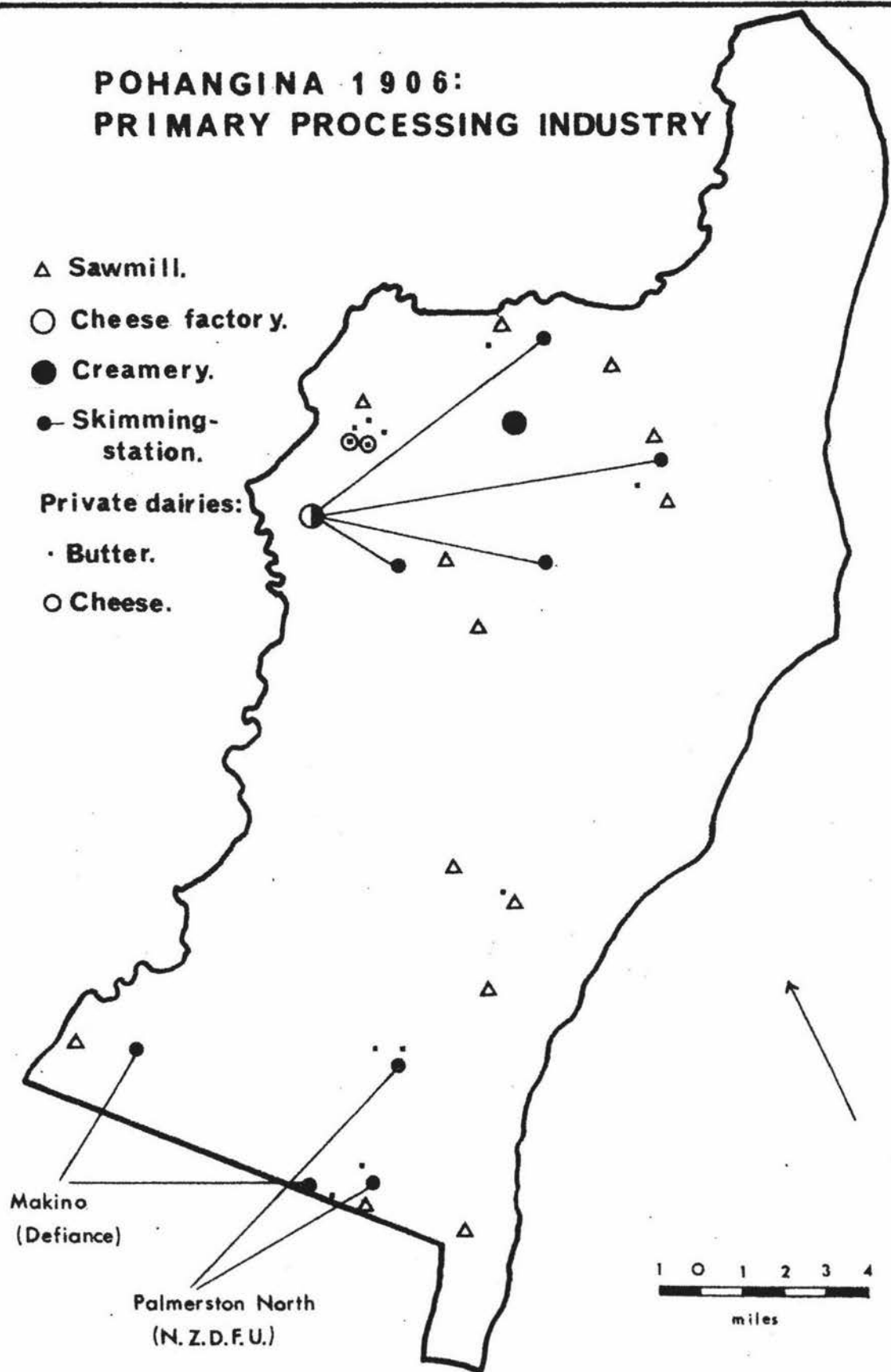


Fig. 14

of these had shut down or had refused information for the government surveys in the early 1900's. The results of these were published in the Appendices to the Journals of the House of Representatives for 1905 and 1907 (21).

These two lists record at least seven saw-mills which were still in operation in, or around 1906, all of them in the northern half of the county.

In 1906 57.0 per cent of the mills were cutting on freehold, 28.5 per cent were cutting on crown land and the remainder were cutting on land of unspecified leasehold (Table IV). Of those mills recorded the average number of men employed was 10.5 per mill. Production was relatively low, and the average for the four mills with complete figures being only 27.0 per cent of the cutting capacity. The Table Flat No. 1 Mill was cutting to 32.5 per cent and No 2 Mill at 40.0 per cent of their capacities but the Coal Creek Mill was cutting to only 12.5 per cent of its capacity, while the Umutoi Mill cut 22.0 per cent. Such low production figures suggested a scarcity of raw materials, substantiated by Fig. 13.

While the total capacity was 4,820,000 superficial feet, only 1,000,000 superficial feet were being cut and yet even this relatively small amount could not be absorbed within the county. At least three of these mills had to

Table IV.

Sawmill Production 1906				
Location	Tenure	Number employed	Capacity per annum	Production
Apiti	Freehold	9	120,000	
Table Flat 1.	Freehold	13	800,000	300,000
Table Flat 2.	Freehold		1,000,000	400,000
Coal Creek	Freehold		800,000	100,000
Umutoi	Crown	8	900,000	200,000
Piripiri	Lease		information refused	
Totara Reserve.	Crown	12	1,200,000	

Table IV.(cont.)

Location	Wood milled	Product	Market
Apiti	Rimu, Matai	Sawn timber	Local
Table Flat 1.	Rimu, Matai Kahikatea	Sawn timber	Local Feilding, Wanganui
Table Flat 2.	Rimu, Matai Kahikatea.	Sawn timber	Local
Coal Creek	Kahikatea	Butter boxes	Apiti Dairy Factory
Umutoi	Rimu Kahikatea	Sawn Timber	Local
Piripiri	Rimu	Sashes and Doors	Palmerston North, Ashhurst.
Totara Reserve	Matai, Totara	Railway Sleepers	Wellington

Source; A.J.H.R., 1905, C.6.  
A.J.H.R., 1907, C.4.

market some, or all, of their production outside the county. Within the county it appears that the dairy processing industries and public works were the main non-domestic users of timber.

Not only was there a relatively poor demand for timber but it was also a very selective demand for five species only, which excluded such trees as tawa, beech, and maire, all of which were large, and it is likely that the maieres and the beeches were present in millable quantities and in readily accessible areas.

In itself the timber industry encountered few problems, particularly in its early days. Labour was generally plentiful as employment in a saw-mill meant that there was some income while the land was being initially cleared. Timber also was plentiful but the supply outstripped the demand. Of the timber felled in the county not all was the work of saw-millers, since it was sometimes the work of the individual settlers who while waiting to clear the land, had not the capital to contract for the skilled labour. This appears to have been the case with the Oroua-Coal Creek area, as there are no records of a saw-mill either in it or in close proximity to it.

A problem associated with the timber industry was the flooding resulting from the removal of the native vegetation (22). Heavy flooding occurred in 1897 and

again in 1902. This latter flood appears to have been the largest in living memory.

In 1903 a report brought down relating to the conservation of forest proposed to conserve the forest from the Kauwhatau River (north of the Pohangina County) to the Manawatu Gorge, to prevent mountain erosion, flooding and the accumulation of debris on the lower land (23). The report stated that, "Objections are often raised by settlers and others to the setting aside of blocks of forest land, ... and attempts are made to have them unreserved, or applications are made to the Lands Board to cut and utilise the timber" (24). In the same letter (dated 21st. April, 1881) from J.W.A. Marchant, the Chief Surveyor of the Wellington District, a report made to the Surveyor-General shows that the early settlers were perhaps justified in their attitudes. "The Bush ...affords shelter to wild cattle, pigs, dogs, and to some extent rabbits, and sheep affected by scab;..."(25). H.H. Miller records that it was not until the majority of the bush was cleared that this wild life decreased (26).

After the bush was felled the next task was to burn it This was not generally done until the late summer or autumn as the humid climate prevented earlier "burns" which were not always successful, as the increasing amount of

secondary growth by 1906 indicated. The firing of the bush aided the settlers in two ways, firstly, it was inexpensive and relatively easy way of removing the remains of the bush, and secondly, it gave a high initial fertility. But it had its disadvantages, both at the time and much later. Prior to Christmas 1897 a series of small fires, originating from burns, occurred in the southern end of the county (27). Early in 1898 a large bush-fire swept through the northern portion of the Pohangina County, particularly in the Mangapikopiko Riding and the Umutoi Riding. On the 14th of January strong winds kindled smouldering "burns" and on the same day a Salisbury Block farmer set fire to his bush. These fires spread and the majority of the settlers lost a number of their stock, their fences, while some lost their homes as well. The Apiti residents were unable to relax their vigilance for nearly a fortnight, although heavy rain had quelled the fires elsewhere (28).

#### Grass Seed Industry.

When the burns were complete, grass was sown amongst the ashes and remaining charred stumps and logs (Plate 13). The burns usually succeeded in killing the seeds of bracken fern, bidi-bidi and other secondary invaders. If

the felled scrub and bush was too damp, however, this was not the case. The usual seed mixture sown after the 'burn' was predominantly ryegrass, crested dogtail, and cocksfoot. The "top-dressing" provided by the ashes from burns led to a high level of induced fertility and good yields, which in turn often led to the illusion of a high level of natural fertility.

For the first few years after felling and burning it was customary to take crops of seed from the pastures, rather than graze them. Even the roadsides were harvested with the county council letting contracts for this (29). Indeed, at harvest time most other work came to a standstill (30). The seed, once harvested, was bagged and carted out. A series of photographs held by the Pohangina County Council indicates that Barraud and Abraham of Palmerston North bought seed from the Pohangina farmers. Presumably other merchants in Feilding and Palmerston North did likewise.

#### Pastoral Industries.

In 1906, 49.9 per cent of the total area of the count was "cultivated", this area can be seen in Fig. 13. At this time the average holding size was 329 acres. The majority of the holdings, 77.94 per cent, ranged in size



Photo.by Courtesy P.C.C.

Plate 13.

"...the felling of individual trees...for ... market...". In the left foreground a deep "scarf" cut has been made in a tree, in the middle background a man is standing on a jiggerboard. This method of tree-felling made a relatively clean "burn" as there were few large stumps left.

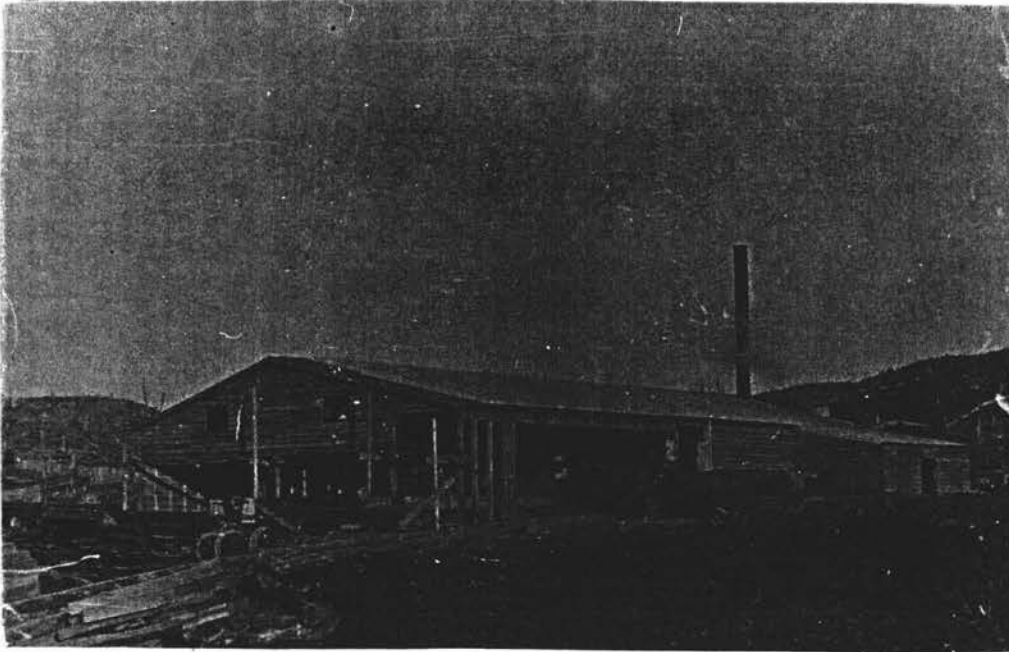


Photo. by Courtesy V. Spelman.

Plate 14.

"There were a number of saw-mills in existence" in the Pohangina County. This one was located in the southern portion of the county in a cut-over area characterised by remaining stumps. From the left foreground a wooden tramway carried logs to the mill. Sawn timber lies piled at the left. The large smoke-stack indicates that this was a steam-operated mill.



Photo from Davies.

Plate 15.

After the bush was felled "burns" were commonly used to clear the ground. In 1897 and 1898 a series of fires originating from "burns" swept through portions of the Pohangina County. This photograph was taken at Komako presumably at this time.



Photo. by Courtesy P. C. G.

Plate 16.

After the fires "grass was sown amongst the ashes and remaining charred stumps and logs". The litter left depended upon the success of the burn.

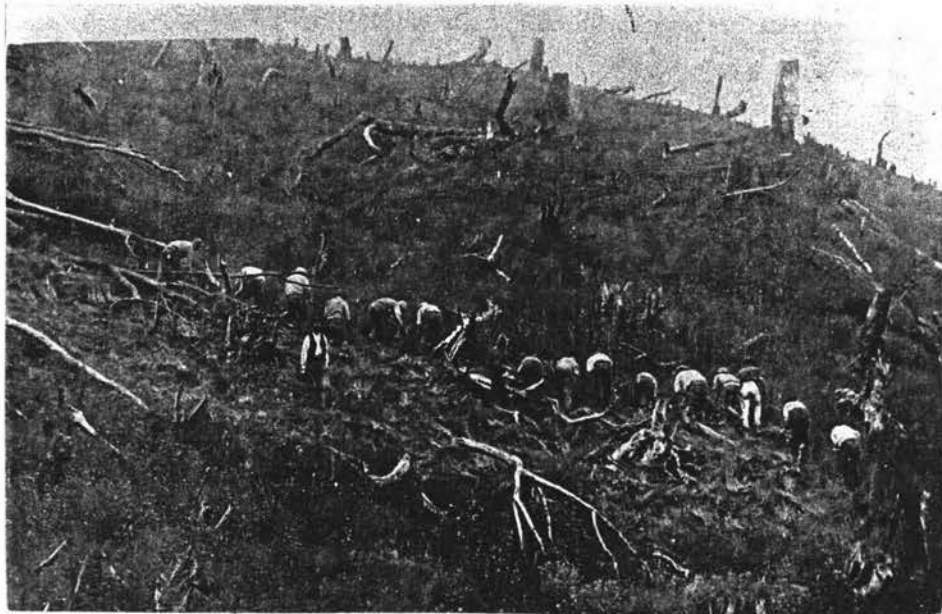


Photo. by Courtesy P.C.C.

Plate 17.

"...it was customary to take crops of seed from the pastures". This group of men were cutting the grass with sickles. Even a scythe would have been an embarrassment amongst the logs and stumps. Growing grass for seed supplied a ready source of capital to develop the farms. Even the grass on the road verges was harvested.

from fifty acres to 499 acres, but covered only 43.39 per cent of the total cultivated area. Large holdings were not characteristic of the county as holdings of more than 1,000 acres covered 18.97 per cent of the area and accounted for only 3.1 per cent of all the holdings. Those ranging in size from 500-999 acres covered 28.28 per cent of the total area and accounted for 15.86 per cent of holdings. Table V shows that the largest group of holdings ranged in size from 150 - 249 acres. The overall pattern of relatively small holdings was derived from the legislation restricting holding sizes which was associated with the special settlement groups. A large portion of the county was taken up under Special Settlement Association, Farm Homestead Associations and an Improved Farm Association. The legislation associated with the two latter associations limited rural holding sizes to 320 acres which is reflected in the average holding of 329 acres.

Not all the settlers' holdings were given over to the production of grass seed. By 1906 most settlers had some livestock of their own. Indeed, many settlers had run livestock as soon as possible because there was a local market for products such as milk, cheese, cream and butter. Those employed in public works, saw-milling, and grass-seed harvesting had to live and they formed a ready market for

Table V.

Distribution of Holdings by Total Number and Total Area Occupied, 1906.					
Sizes (Acres)	Number of Holdings	% of Holdings	Area of Group	Average Size	% of Total Area
10-49	9	3.10	345.2.0	38.1.22	0.36
50-149	60	20.69	6,149.0.12	102.1.38	6.44
150-249	95	32.77	18,785.1.01	197.2.38	19.67
250-499	71	24.48	25,097.2.24	353.1.38	26.28
500-999	46	15.86	27,003.0.38	587.0.04	28.28
1,000-1,999	6	2.07	8,551.3.11	1,425.1.19	8.95
2,000 +	3	1.03	9,556.1.21	3,188.3.07	10.02
	290	100.00	95,498.3.27	329.1.09	100.00

Source; Pohangina County Council Rate Roll, 1906.

the early dairy industry.

#### Early Dairy Industry.

In 1906 there were 4,542 dairy cows in the Pohangina County. Since 1896 there had been a 29.5 per cent increase in dairy numbers from 1,440 in 1896 to 4,869 in 1904-5. The 1906 number represented a 6.7 per cent decrease from the 1904-5 peak (Appendix I).

Fig. 13, indicating the extent of dairy farming in 1906, shows two main areas, one in the north and one in the south. The northern area shows two concentrations, one located on the terraces of the Oroua River and the other in the low hill country comprising the Ruahine foothills. The first concentration is coincident with the Feilding Special Settlement Block and the second with the Salisbury and Pohangina Farm Homestead Association's Block. This was related to the holding sizes in these areas. As cited above, the holding sizes in these three settlements were fairly small, approximately 150 acres in the Feilding Block and 200 acres in the Salisbury and Pohangina Block. A government report in 1903 stated that, "The Pohangina, ... Salisbury, Delaware, ..." settlers "are now making good progress. Dairying is the chief industry, most of the holdings being too small for

ordinary farming purposes" (31). By 1904, however, the position had changed, the settlers were still doing well but it was noted that they were now running sheep as well as dairy cows (32). There was a complaint, however, that the 200 - acre holdings in the hill areas were too small for sheep farming and yet too exposed for dairying. Added to this the settlers could neither sell to, nor buy from, their neighbours as 320 acres was the upper limit for holding size in the Farm Homestead Associations (33).

In the south the dairy farms were located along the river valley on the river flats and terraces. This pattern reflected the concentration of population and was also associated with the existence of small holdings of less than 200 acres. From this area a small south-western limb extended across the anticline to the Oroua River.

Spelman (34) states that the first herds were "anythin that gave milk" and a description of one of the first herds verifies this (35). It consisted of twelve cows and a Shorthorn bull. The description gives the name of the cows, their colour, their age, suggesting a mixed herd which possibly consisted of two Jersey-shorthorn cross, an Ayrshire, a Friesian, and eight Shorthorn cows. Only three of these cows were "young", and one "well-aged", the remainder being of "medium age". The herds of 1906

were probably of the same mixed character, for Spelman records that they remained so until "herd testing" in the 1920's resulted in the culling out of low-producing cows (36). In Plate 17 the herd of Mr. Scholes of Awahou is obviously of a mixed nature. Such stock were far from first class but they were probably better suited to grazing on the types of pasture usually available (Plate 16). The cows were often turned loose, after the grass seed had been harvested, to graze amongst the charred logs and stumps. Those farmers living near the rivers could graze their herds on the river-bed, but this practice had its dangers as the Feilding Block settlers soon discovered, as the Oroua River bed was infested with tutu, a plant poisonous to cattle.

Even by 1906 it was becoming increasingly evident that the pastures were beginning to deteriorate. The seed sown after the burn was predominantly of high fertility demanding species. Initially these were well supplied by the accumulated humus and the ashes left after the burns, but as this induced fertility declined, rye-grass and cocksfoot began to recede before such secondary invaders as bracken fern, bidi-bidi, and manuka. The rural valuations sheets for this period record many comments about the presence of "Hutewai" or bidi-bidi.

The population of the county had reached a peak by 1906 but it was not enough to absorb the production of the county's dairy cows. For every person in the county there were 2.4 dairy cows, so that the surplus milk production was processed both within and outside the county. The dairy processing plants in the Pohangina County included skimming-stations, creameries and cheese factories (Fig.14).

There were two dairy factories located within the county, the Apiti Cooperative Dairy Factory and the Clover Valley Dairy Factory. The Apiti factory drew its supplies from the northern portion of the county (Fig.14) through a network of four skimming-stations located at Table Flat, Umutoi, and Apiti-Norsewood and Ridge Roads, each centred upon a dairy farming community. These stations received whole milk daily from the farmers and separated the cream which was sent to the Apiti creamery. The farmer returned home with the skimmed milk, presumably to feed the pigs and calves. In 1906 the Apiti Dairy Factory had sixty-two suppliers and manufactured 109 tons of butter (37). The factory had a chequered history. When established in 1895 it manufactured cheese, but in 1898, it turned to butter production after it had been burnt out earlier in the year, probably in the January bushfire.

The Clover Valley Dairy Factory was established in 1906 on the Apiti-Norsewood Road. Unlike Apiti, it was not served by a network of skimming-stations, but was supplied direct by a total of at least seventy-five cows, the minimum number supplying any registered dairy factory.

In the southern part of the county there were no local dairy factories although two dairy companies had set up skimming-stations there. Nathan and Company's "Defiance" factory of Makino had two skimming-stations, one at Pohangina and another at Raumai, while the other two skimming-stations supplied cream to the New Zealand Dairy Farmers Union creamery in Palmerston North. The cream was transported from these skimming-stations to Ashhurst and thence railed to the respective factories.

At each of the skimming-stations a daily sample of the farmers milk was tested for butter-fat content as a basis for calculating the payout. The amount of skim milk for each farmer was calculated on the basis of ten pounds weight of skimmed milk for each "tip" of milk by the farmer. Needless to say not all "tips" were of the same size and consequently the last farmer to get back his skimmed milk was often short-weighted.

Although dairy farming was established originally

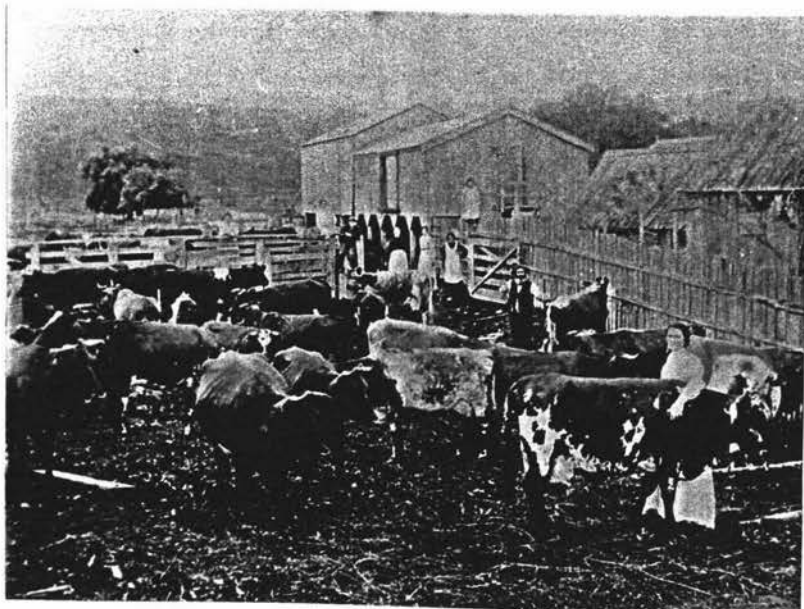


Photo. by Courtesy P.C.C.

Plate 18.

The dairy herd "...obviously of a mixed nature", belonged to a Mr. Scholes of Awahou. These cows appear to have been of a predominantly Shorthorn variety. The lavish use of wood in the fences reflects the abundance of this as a raw material for construction purposes.

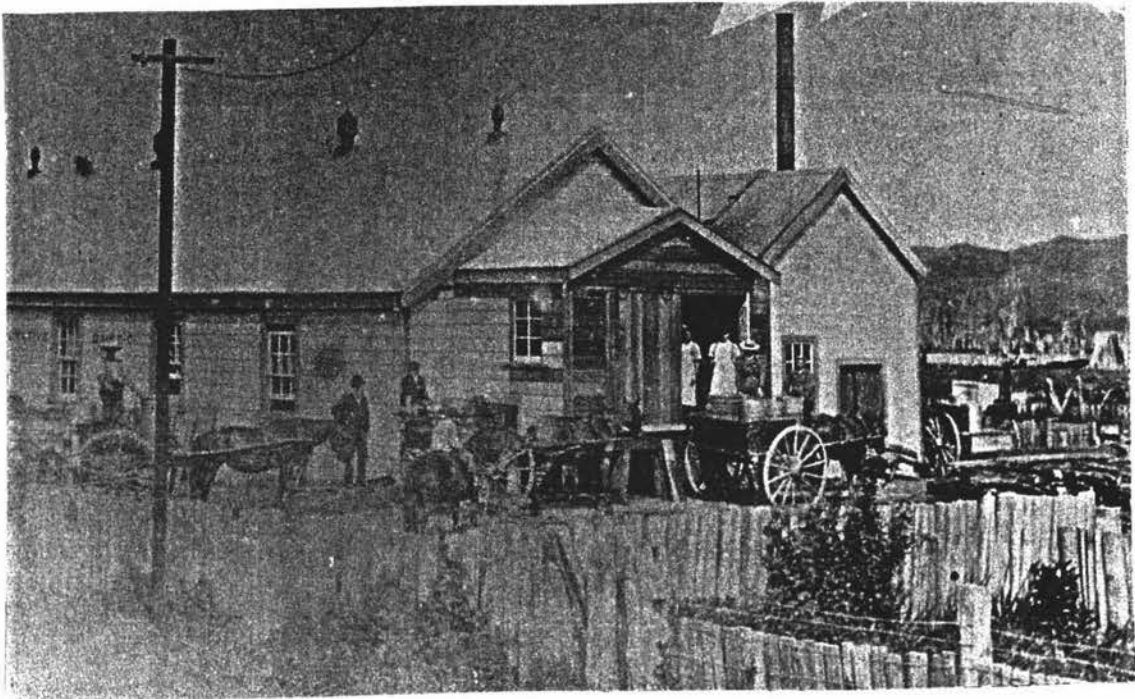


Photo. by Courtesy D.C.Hogan.

Plate 19.

"The Apiti factory drew its supplies from the northern portion of the county through a network of four skimming-stations located at Table Flat, Umutoi and Apiti-Norsewood and Ridge Roads, each centred upon a dairy farming community". This factory remained in operation for sixty-three years unlike the Clover Valley Creamery which closed in 1908.



Plate 20.

"In Apiti the forces of decline, already operative in 1936, had taken a further toll by 1963". The Apiti Co-operative Dairy Company's factory had closed in 1959, and in 1963 was being used for storage purposes by a carrying company.

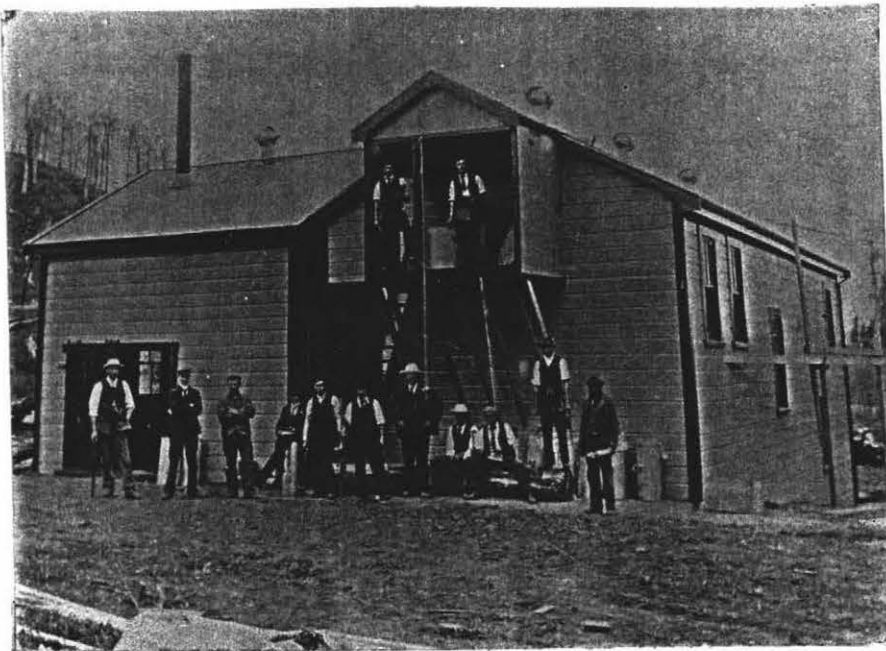


Photo. from Davies.

## Plate 21.

"Nathan and Company's 'Defiance' factory at Makino had two skimming-stations, one at Pohangina and another at Raumai...". The method of carting milk by horse-drawn vehicles limited the supplying area to a radius of four or five miles. Plate 22 shows the skimming-station at Awahou in 1894 in a landscape dominated by tree-stumps.

## Plate 22.



for subsistence as well as the limited local market, the development of refrigeration provided the major stimulus for the export of dairy products, a development which also made its impact upon sheep-farming because it was then possible to export frozen meat as well as wool.

### Early Sheep Industry.

Sheep-farming in 1906 was the most important of the total livestock units, accounting for 61.9 per cent on the basis of ewe-equivalents. Sheep-farming occupied the most rugged areas of the county along the anticline, the Mt. Richards ridge and the foothills of the Ruahine Range (Fig. 13). It virtually occupied the central area of the county for dairy farming was found on the periphery of the intervening pockets of mixed dairying and sheep farming.

A comparison of the distribution of farming systems with the original settlements reveals a strong relationship between the more intensive forms of land use, such as dairying and mixed farming, and the special settlements. The Feilding and Awahou-Pohangina Special Settlements, for example, were almost entirely made up of 200 acre holdings, which in 1906 were predominantly taken up in dairying or mixed farming. In both settlements, only the rugged eastern peripheries were occupied by sheep farming. The

Pohangina and Salisbury Farm Homestead Blocks showed less relationship with dairying and mixed farming, probably partly on account of the nature of the land on which they were located. The trend towards more intensive forms of land use was more evident on the small holdings. The southern portion of the Wanganui Harbour Board Block was given over mainly to dairying because of both the size of its holdings and the easier nature of the terrain. The northern portion, however, (the Pohangina Farm Homestead Association No. 1 Block) was located on hill country with larger holdings and hence sheep farming prevailed.

The Oroua-Coal Creek and Mangouira-Coal Creek Blocks were sub-divided and sold in much larger holdings of about 500 acres, since areas of less than 200 acres would probably have proved uneconomic in hill country. The remaining area of the county had been disposed of as "Small Grazing Leases" but by 1919 few were still recorded (38). Spelman states that, "The Tamaki Riding was cut up into 'runs' comprising areas of up to 2,000 acres but some of these 'runs' have been cut up into smaller areas in later years" (39). In 1906 the holding sizes in the Tamaki Riding varied from 500-1,000 acres.

In 1906 there were about 121,940 sheep in the Pohangina County giving a sheep/dairy cow ratio of about four to one on the basis of ewe equivalents (Appendix III). Of the



Photo. by Courtesy P.C.C.

Plate 23.

"Sheep farming arose initially because of the suitability of the land ". The nature of the early sheep runs are indicated by this photograph. Tree-stumps were common in the pastures and patches of unfelled bush still remained.

total livestock (ewe equivalents) 16.1 per cent were dairy cows, 61.9 per cent were sheep, and 22.0 per cent were beef cattle.

Thus sheep farming and the associated rearing of beef cattle not only comprised the largest portion of livestock numbers, but also formed the fastest growing sector of the agricultural economy. Between 1896 and 1906 the sheep numbers had increased by 59.0 per cent, beef cattle by 43.7 per cent, and dairy cows by 29.5 per cent.

In the 1890's the flocks had mainly consisted of Lincoln sheep. By 1906, however, they were no longer so important for their wool retained moisture under the prevailing humid conditions producing a tendency to "mat". This problem was further aggravated by the twigs caught in the wool, especially after recent "burns". An analysis of the stud sheep used for flock breeding in 1906 gives an indication of probable flock composition.

Table VI.

Stud sheep types.			
Merino	2.5	English Leicester	4.1
Romney	49.7	Shropshire	10.6
Lincoln	20.2	Southdown	3.9
Border Leicester	5.3	Others	3.7
Source. A.J.H.R. 1906, H.23.			

This table indicates that the Romney breed was already popular as it constituted nearly one-half of the stud stock used. The Lincolns were second in importance but accounted for only one-fifth of the stud stock.

Farmers were breeding their own flock replacements keeping their ewe lambs and adding them to their flocks as two-tooths, while selling the old ewes. Not all the lambs were kept, since on those farms where there were more favourable conditions Romney lambs were fattened. These were then driven to the nearest rail-head or freezing works by local drovers.

There were few industries associated with sheep farming located within the county except the saleyards. These were located in both Apiti and Pohangina, as well as at Raumai, Komako, Utuwai and Ngaputahi. Most of the sales were organised by Abraham and Williams, The Loan and Mercantile Company, and Dalgety and Company from Feilding and Palmerston North.

Sheep farming arose initially because of the suitability of the land and the size of the holdings. The greatest change in the Pohangina County since 1863 had been the clearance of the bush from nearly fifty per cent of the total area of the county. This change effected by man

created new elements in the landscape i.e. village settlement, roads, saw-mills, dairy factories, and most important of all, sown pastures. Of the total area, 49.9 per cent was cultivated, the majority of this being used to pasture sheep, cattle or dairy cows.

References.

1. In 1886 the Kiwitea Riding of the Oroua County corresponded to what is now the southern portion of the Pohangina and Kiwitea Counties. The northern portion of the Pohangina County was presumably unoccupied before 1886. In 1886 most of the population was located in the Kiwitea County.
2. Miller, n.d., 6.
3. A.J.H.R., C.1.a., 1891.
4. The other blocks were; Pemberton (Rangiwahia) taken up by Wanganui, The Awahou-Pohangina from Foxton, Marton Block from Marton, and Birmingham from Palmerston North.
5. Mainwaring, 1965, 30.
6. Estimate only as population was given by roads and not by settlement groups.
7. Stewart's survey map of the Ahuaturanga Block (1859) records the Wanganui Harbour Board Block as consisting of 24,000 acres.
8. Rural Valuation Sheet No. 1395, 1963.
9. Jourdain, presents a detailed analysis of this legislation.
10. Rangitikei Advocate, September 18th, 1894.
11. No figure was given for the Pohangina township for

1906; calculations were based on the average of the population for 1901 and 1911 census returns, and 1906 only, for Apiti.

12. These maps were constructed on evidence covering a period of thirteen years so were only an estimate for 1906.
13. Annual list of Creameries, Factories, Private Dairies, and Packing Houses, 1893-1906.
14. Rangitikei Advocate, May 19th, 1898.
15. Manawatu Evening Standard, March 17th, 1899.
16. Feilding Star, May 1st, 1899.
17. Rangitikei Advocate, May 14th, 1902.
18. Miller, n.d., 20-30.
19. Miller, n.d., 22-23.
20. Miller, n.d., 24.
21. A.J.H.R., 1905, C.6.  
A.J.H.R., 1907, C.4.
22. A.J.H.R., 1905, C.6.
23. A.J.H.R., 1903, C.13.
24. A.J.H.R., 1903, C.13.
25. A.J.H.R., 1903, C.13.
26. Miller, n.d., 40.
27. Feilding Star, February 19th, 1898 Manawatu Evening Standard, February 21st, 1898.

28. Mainwaring, 1965, 27-28.
29. Feilding Star, January 16th, 1897.
30. Manawatu Evening Standard, February 3rd, 1899.
31. Feilding Star, February 20th, 1903.
31. A.J.H.R., 1903, C.1.
32. A.J.H.R., 1904, C.1.
33. Jourdain, 1925, 112.
34. Spelman, n.d., 127.
35. Miller, n.d., 12-13.
36. Spelman, n.d., 128.
37. Annual List of Creameries, Factories, Private Dairies,  
and Packing Houses.
38. Rural Valuation Rolls, 1919.
39. Spelman, n.d., 19.

#### Chapter 4.

Pohangina 1936; Epilogue of the Axe.

"Too late we hear, too late, the undertones  
Of lamentations in all the natural songs--"  
M.U. Bethell, By the River Ashley.

Mary Ursula Bethell's poem adequately states the change that European man had wrought in his New Zealand environment. This reference to change from bush to pasture was equally applicable to the Pohangina County as to the Canterbury river of the poem. But the change wrought by man and his axe was not necessarily good, the damage had been done, it was "too late".

As suggested, the geography of the Pohangina in 1936 was in marked contrast to that of 1906. The readily-accessible bush had been cleared, the land sown and settled. Pasture had almost everywhere replaced bush, and livestock rearing was beginning to dominate the county's economy. Change, however, had also raised problems of pasture deterioration and soil erosion, with flooding becoming increasingly evident. Furthermore, the world-wide economic depression had tended to mask a trend towards outward migration, agricultural decline and stagnation.

### Population and Settlement.

The population of the Pohangina County in 1936 was about 1,350, a twenty-four per cent decrease since 1906. The population had remained steady from 1906 to 1911, but between 1911 and 1926 had declined from 1,797 to 1,300. Throughout this period there had been a strong trend towards outward migration. This was illustrated by the closure of many saw-mills and the end of public works expansion within the county, forcing many people to seek alternative employment, either locally as farm labourers or in the nearby towns. It is possible this outward trend may have been obscured by a return to the security of the land engendered by the economic depression for the intercensal period, 1926-1936, showed a three per cent increase in the county population.

In 1936 the outward migration appeared to be mainly restricted to the younger sector of the population and the young women between the age of twenty and twenty-four seem to have been the most ready to leave (Fig. 15). The lack of a corresponding outward migration of males may have been due to the fact that while young men were often employed on the family farm there was not always employment available for their sisters. The ratio of males to females showed a continuing male predominance of 56.2 per cent.

Figure 15. Sources.

Dept. of Statistics. 1936

Increase and Location  
of Population.

Dept. of Statistics. 1936

Ages and Marital  
Status.

# POHANGINA 1936: POPULATION

● Over 100

● 10

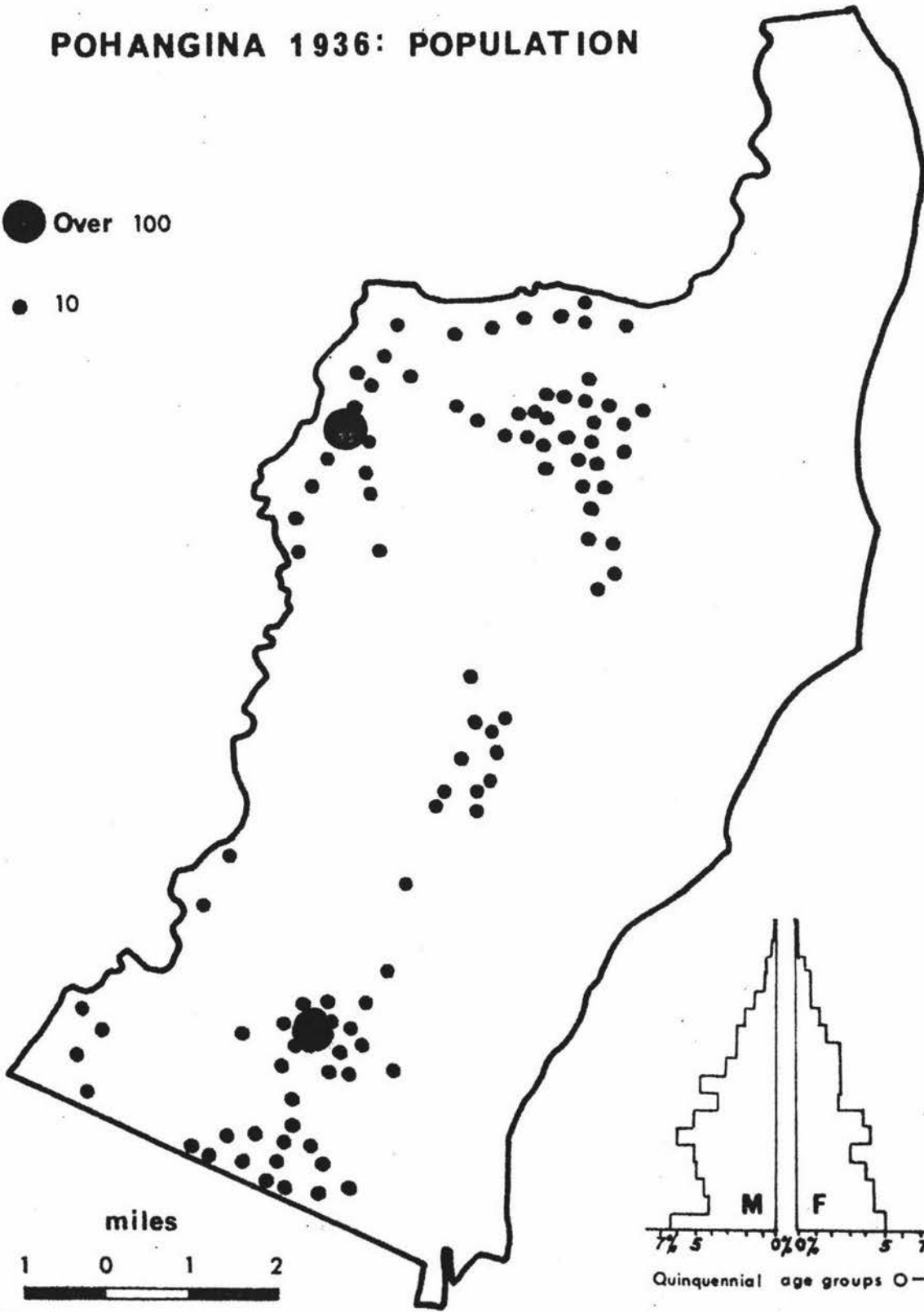


Fig 15

The location and distribution of the population suggests the influence of topographical considerations, especially their relationship to the communications system and land use.

The most noticeable relationship between population and relief was found in the south in an area extending up the Pohangina River Valley and its associated terraces. Except for the extreme north, the distribution in this southern area was similar to that of 1906.

Two other notable concentrations of population which had changed little since 1906, were those in the Apiti and Umutoi vicinities. The Apiti grouping, much smaller than in 1906, was on the terraces and easier hill country and was associated mainly with dairying, mixed farming and "fat" lamb rearing. Similarly the eastern group around Umutoi was not only associated with more intensive forms of land use and the relatively easy topography, but also coincided with the former Salisbury Block. Further north there was a smaller group on Table Flat terraces.

The distribution of each of these groupings was also related to the communications system. This was most pronounced in the southern Pohangina Valley where the major roads ran parallel to the river on either side with a small number of tributary roads leading

away from it (Fig. 18). The north-eastern group was associated with the junction of longitudinal and lateral roads in the Apiti vicinity. Population and settlement were stretched out along the route connecting Feilding and Rangiwahia.

Only two of the population clusters were associated with townships, in the south around Pohangina and in the north-west around Apiti. In 1936 eleven per cent of the population were living in these two townships. But unlike the county's population, that of the two townships had increased since 1906, while the ratio of urban- to rural-dwellers had increased by four per cent possibly reflecting the more widespread phenomenon of "urban drift".

In the meantime, since 1906, the function of these townships had changed. Apiti retained its former function as a service centre but had also developed as a social centre, for while public amenities and residential areas had increased within the township both retailing and servicing had declined. The nature of the services offered reflected some of the changes that had taken place since 1906. Most of the blacksmiths, for instance, had been replaced by motor garages and service stations, reflecting a change in technology the horse being replaced by the automobile, trucks and tractors. New services included a

Figure 16. Sources.

Valuation Dept.            1932-39    Rural Valuation Roll  
for the Pohangina  
County.

# APITI TOWNSHIP c. 1936

-  Rough grazing.
-  Retail.
-  Services.
-  Residential.
-  Recreation & education.
- † Churches

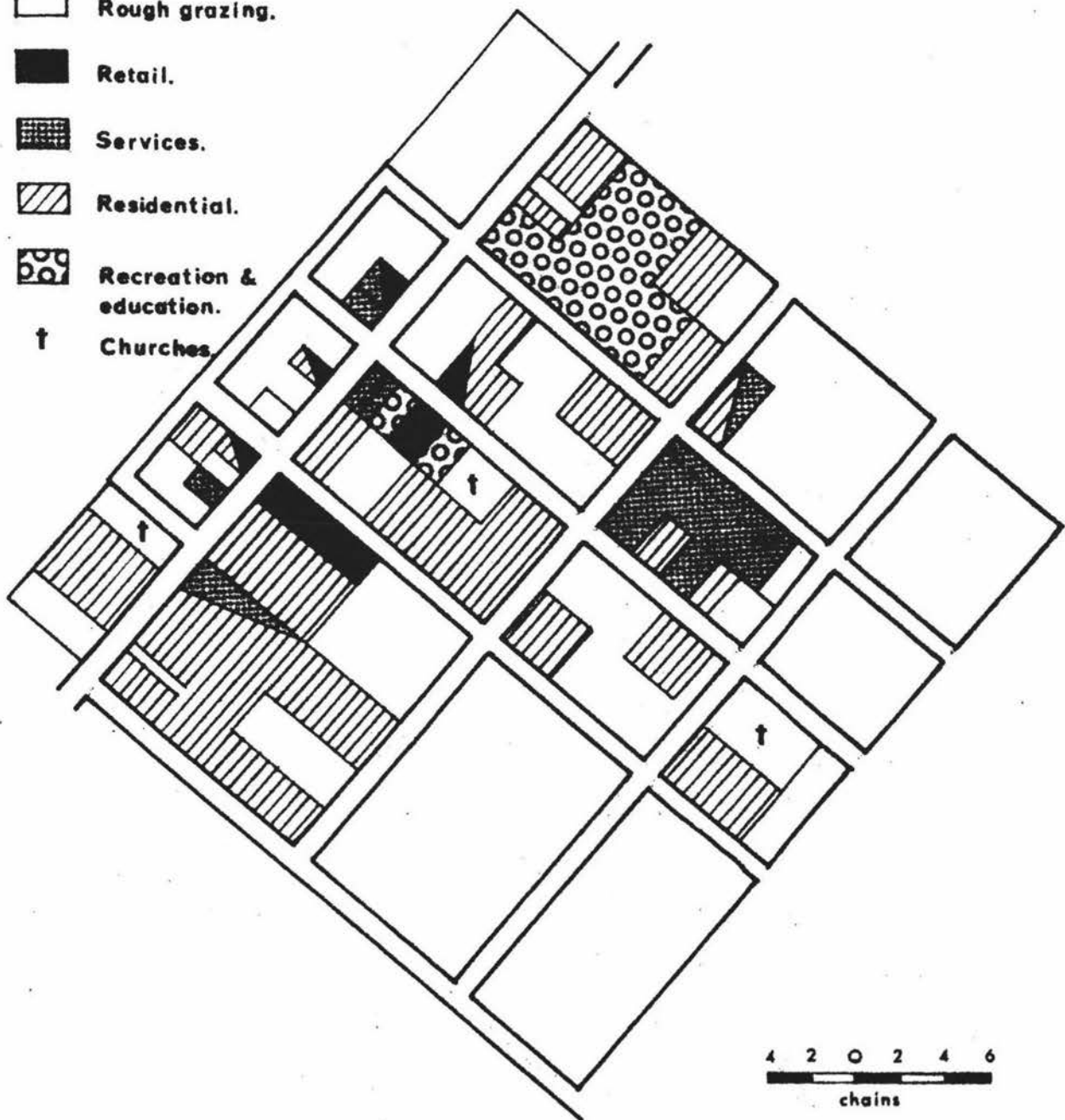


Fig. 16

Figure 17. Source.

Valuation Dept.

1932-39

Rural Valuation Roll  
for the Pohangina  
County.

# POHANGINA TOWNSHIP 1936

-  Rough grazing.
-  Services.
-  Retail.
-  Recreation & Education.
-  Residential
-  Church.

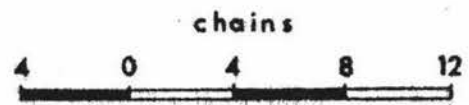
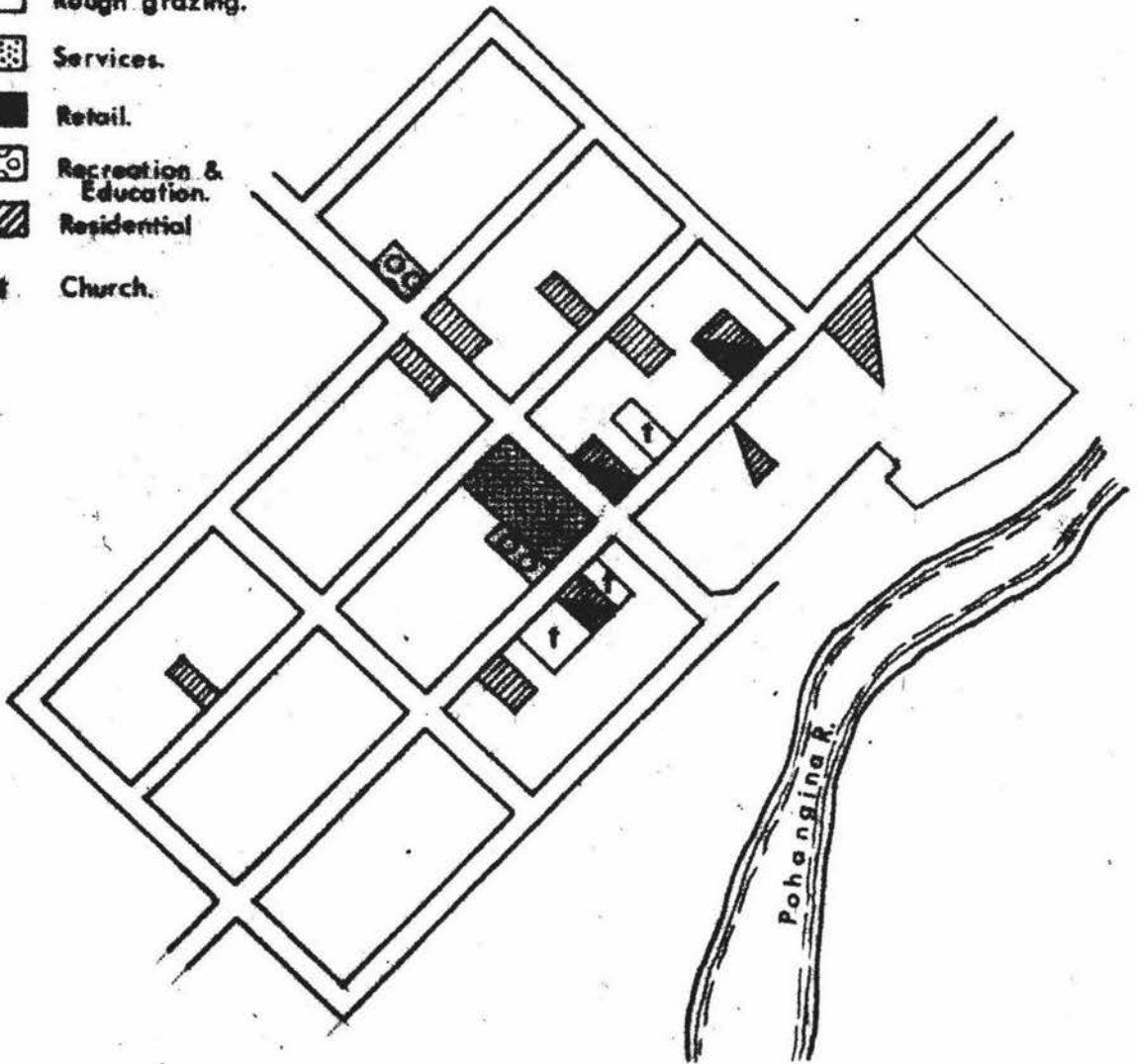


Fig. 17

butcher, a carpenter, a baker, and a branch of the Bank of New Zealand (1).

Unlike Apiti, Pohangina had not maintained its function as a service centre (Fig. 17). By 1936 there were only two stores in Pohangina, and apart from the County Council offices Pohangina had declined. The population had not grown as rapidly as in Apiti where an 88.0 per cent increase since 1906 contrasted sharply with an increase of 48.0 per cent in Pohangina (2). Both increases were relatively large, however, as a result of the localised "urban drift" which masked the actual decline of these townships, for with the advent of the motor-car such townships were bypassed in favour of other nearby centres such as Ashhurst, offering a wider range of services.

#### Communications.

Between 1906, and 1936 the roading system in the Pohangina County changed little and such changes as had taken place had only reduced the actual mileage of road (3). Three roads, totalling more than seven miles, had fallen into a state of disrepair and were no longer used. The Branch Road between Pohangina township and Ridge Road had proved difficult to maintain because of the nature of

the terrain on which it was constructed, the unconsolidated sandstone proving liable to constant, severe erosion. Denton's Road, which had formerly followed the line of Coal Creek for a mile and a quarter and also Beehive Creek Road were no longer in existence. The Makiekie Road from the Mt. Richards-Utuwai Road to the Pohangina River at Digger's Creek presumably fell into disrepair, after the ford across the river ceased to be used, about the time that the Piripiri bridge was built (Fig. 18).

Although none of these roads were tarsealed (4) the newspapers of the period did not contain numerous complaints from the residents of the county regarding the state of the roads, and those that were received were more often concerned with the state of the upper limits of the lateral roads on the east bank of the Pohangina River. The mountain terminals of many of these roads had fallen into disrepair. As the early settlers who had once lived on these roads had often sold out to their neighbours when their holdings proved uneconomic, few people moved into these areas to live and consequently the roads were infrequently used.

The position of external communications had not changed radically either. There were still roads linking the county with Palmerston North and Feilding. Since 1906

Figure 18. Source.

Spelman, J.E.

n.d.

Notes on the Pohangina  
Valley.

**POHANGINA 1936:  
COMMUNICATIONS**

 Roads.



**Fig.18**

bridges had been constructed connecting Te Awa with Colyton and Kiwitea, as well as across London's Ford providing the Ridge Road residents with a shorter route to Feilding than that through Apiti. A bridge had also been built across the Oroua River improving the northward access to the Marton Block and Rangiwahia.

There had been no change in rail connections with the Pohangina County, however, and the proposed rail connection from Feilding was never built while the nearest railheads remained at Ashhurst, four miles to the south, and Feilding, thirty-one miles from Apiti. The advent of motorised transport improved the connections with these centres making it possible to move out cattle or sheep in less than a day, a decided improvement over the lengthy droving process necessary in 1906.

The most radical change in the communications system was the rapid reticulation of electric power throughout the county during the 1920's. Spelman records that the first homes received electricity in 1924, while by 1927 electric power was available throughout most of the district except for a few isolated holdings (5). Power was reticulated through the Bunnythorpe Sub-Station and revolutionised the rural mode of living and working.

Mail and telegraph services covered most of the county.

Apiti and Pohangina were the only centres retaining post offices, for while the Raumai Post Office had been closed in 1931, those at Komako and Awahou had been closed earlier. The two remaining postal centres distributed mail and operated savings bank accounts and money order services for most of the county.

### Forestry.

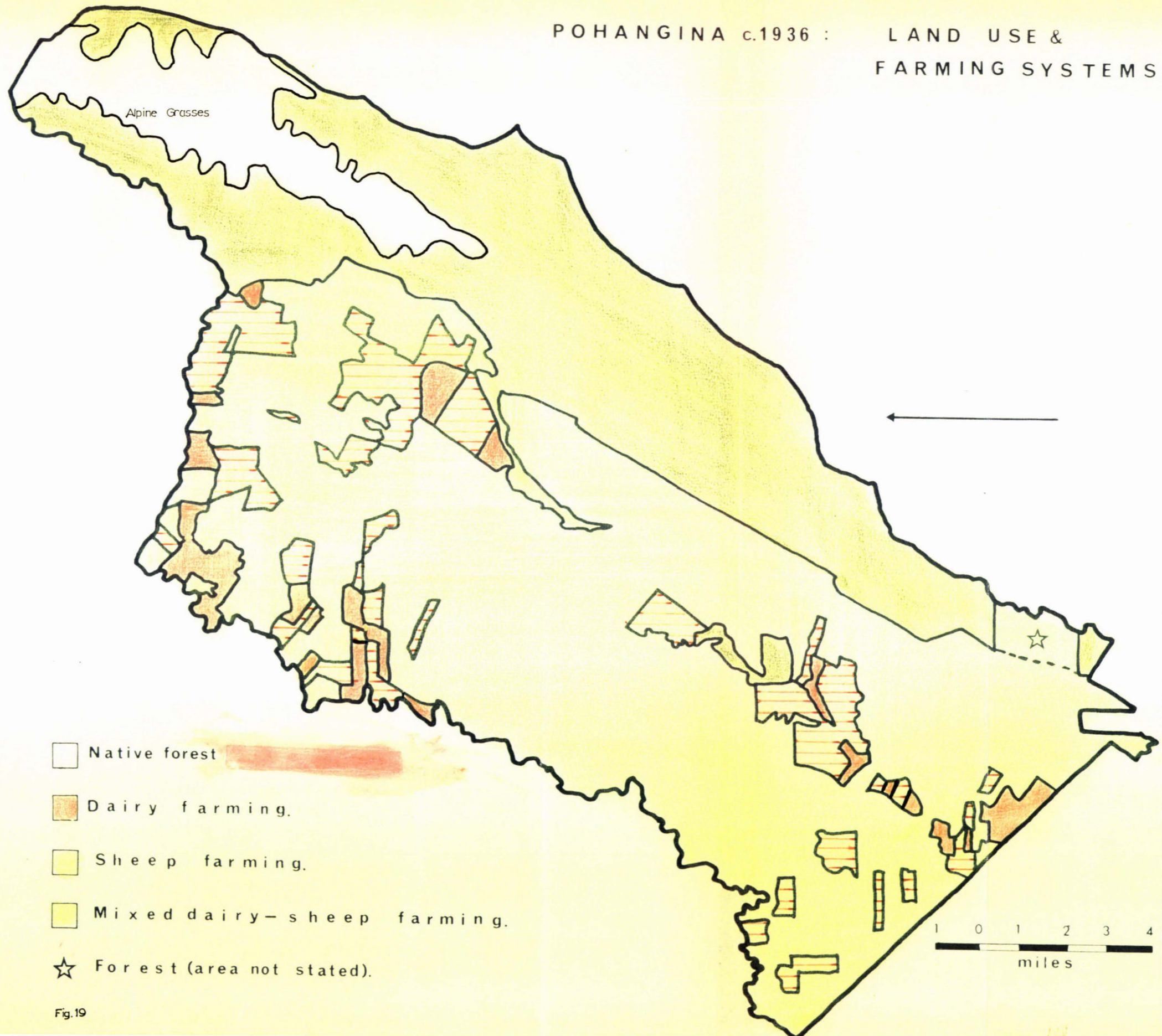
In 1936 some 63.4 per cent of the total area of the county was occupied; 59.3 per cent of the total area of the county was "cultivated", (including sown pastures), leaving 4.1 per cent unimproved and 36.6 per cent unoccupied under native forest and alpine meadows (Fig. 19). Forest was more or less limited to the uninhabited areas of the Ruahine Ranges.

Since 1906 most of the accessible bush remaining on the lowlands had been removed and the timber industry declined rapidly. After 1906 eight saw-mills were in operation for varying periods of time, but all were closed by 1936. The mills moved eastwards into the Ruahine foothills after 1906 to the last "pioneer fringe" in the Piripiri Block. Most of the timber milled came from Crown Lands which were later leased, or sold for settlement.

Figure 19. Sources.

Valuation Dept.	1932-39	<u>Rural Valuation Roll</u> <u>for the Pohangina</u> <u>County.</u>
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POHANGINA c.1936 : LAND USE & FARMING SYSTEMS



Alpine Grasses

- Native forest
- Dairy farming.
- Sheep farming.
- Mixed dairy-sheep farming.
- ☆ Forest (area not stated).

1 0 1 2 3 4  
miles

Fig.19

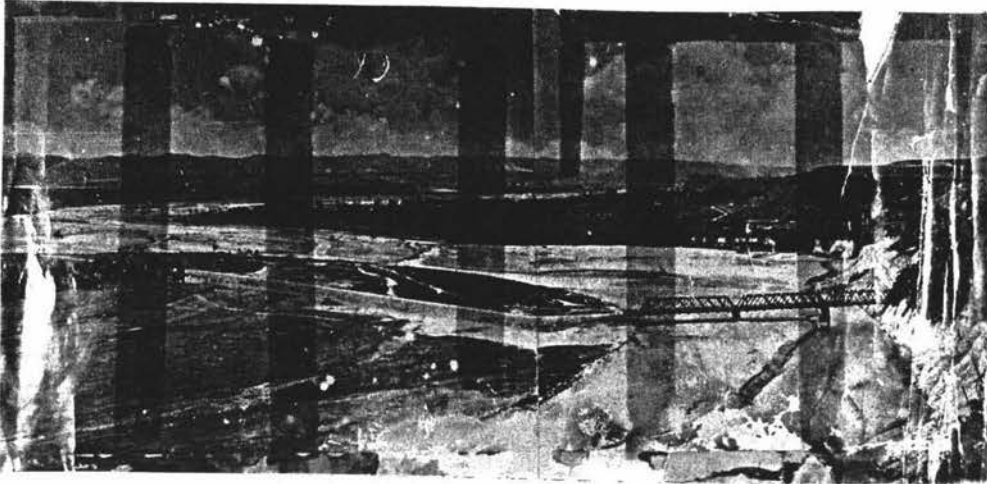


Photo. by Courtesy P.C.C.

Plate 24.

The above plate illustrates the log-strewn landscape of the early twentieth century (middle ground) shortly after the reconstruction of the Raumai bridge in 1908. Below, the change to a man-made landscape was completed by the late 1930's with the bush and logs replaced by shelter belts. The automobiles beneath the bridge suggest the use of the area for recreational purposes.

Plate 25.



forms of pastoralism. The cultivated area of the county in 1936 was mainly under pasture increasing by 9.4 per cent since 1906 and represented 59.3 per cent of the total area.

The total number of holdings had decreased since 1906 from 290 to 278, although the size of holdings had not changed greatly, the greatest proportion of the holdings still being between fifty and 500 acres (Table VI). Only 4.68 per cent of all holdings were less than fifty acres in size. Few of these were economic units. Several were merely run-off areas for farmers living in or outside the county, while many of the remainder were farmed as small dairy units, especially on the river flats and terraces in the vicinity of Pohangina township.

A group of holdings from fifty to 149 acres in size reflected the influence of the size of the original holdings, and in 1936 were used for dairying with fat lamb production, and had carrying capacities of more than two ewe-equivalents per acre. Such farms were generally located on the river flats and terraces, nearly fifty-eight per cent being on the terraces surrounding Apiti.

The largest group of holdings (26.97 per cent) were from 150 to 249 acres in size, and sixty-one per cent of this group were scattered over the old Feilding Special Settlement Block and the Salisbury Farm Homestead Associatic

Table VI.

Distribution of Holdings by Total Number and Total Area Occupied, 1936.					
Size	Number of Holdings	% of Holdings	Area of group	Average size of holdings	% of Total Area
10-49	13	4.68	386.1.05	29.3.31	0.36
50-149	68	24.46	7,213.0.24	106.0.12	6.87
150-249	75	26.97	14,670.0.03	195.2.16	13.96
250-449	60	21.58	23,320.2.30	388.2.28	22.20
500-999	43	15.47	28,921.2.14	672.2.15	27.53
1,000-1,999	15	5.40	19,362.0.37	1,290.3.11	18.43
2,000 +	4	1.44	11,207.1.24	2,801.3.16	10.67
	278	100.00	105,071.1.17	377.7.33	100.00

Source: Rural Valuation Rolls, 1936.

Block. Most of these holdings, located on easy hill country and high level terraces, were based increasingly upon fat lamb and wool production.

Holdings from 250 to 499 acres accounted for 21.58 per cent of all holdings and occupied 22.2 per cent of the county. These holdings were located in moderately hilly areas, approximately forty-six per cent coinciding with the Salisbury and Pohangina Farm Homestead Association Blocks. This suggests that the original sections were uneconomic as aggregation had taken place to give an average size of 377 acres in 1936, nearly double the original acreage.

Only 15.47 per cent of all the holdings in the county ranged from 500 to 999 acres in size but accounted for only 27.53 per cent of the total area. They were scattered throughout the county, especially on the hillier areas, usually with an average carrying capacity of less than two ewe-equivalents per acre.

One group of holdings which had shown a significant increase since 1906 was that in which holding sizes ranged from 1,000 to 1,999 acres. These had increased from 2.07 per cent of the holdings, and 8.95 per cent of the occupied area in 1906, to 5.40 per cent of the holdings, and 18.43 per cent of the occupied area in 1936, a

notable trend associated with growing sheep-dominated pastoral economy.

### Dairying.

Dairying had increased in importance since 1906, for in 1936, there were 5,575 dairy cows in the county, an increase of 22.8 per cent since 1906, and dairy cows accounted for 17.5 per cent of all livestock.

Although dairying had grown in importance since 1906, at the same time the area given over to dairying had actually decreased. The allocation of the dairying areas in 1936 suggests that it was no longer associated with pioneer farming (Fig.19). In general, it was confined to the flatter lands of the Oroua and Pohangina River valleys for few holdings outside these valleys carried significant numbers of dairy cattle. The farming community no longer had to resort to carrying a few dairy cows for both subsistence and ready capital in order to build up their farms as in 1906. The association of greater dairy cow numbers with fewer holdings also indicates that herds had increased in size since 1906 with a growing measure of specialisation. The livestock returns on the rural valuation rolls for this period, showed a number of farmers carrying both dairy cows and sheep. A comparison

of Fig. 13 and Fig. 19 reveals that this was perhaps more common in 1936, although, in effect, both dairying and mixed farming had decreased in area since 1906.

Like dairying, mixed farming also showed a greater correlation with topography in 1936 than in 1906. In the south of the county, mixed farming was closely associated with dairying in the Pohangina Valley, although it had also spread over the broad, southern portion of the anticline. Northwards, near Apiti, both dairying and mixed farming were found on the high level terraces associated with the Oroua River Valley. A small pocket, extending in an easterly direction towards Coal Creek, was in the main associated with immature dissected hill country.

The historical factor was negligible in the location of dairy farming and mixed farming in the southern part of the county. In the north, however, some measure of correlation was still to be found. The Pohangina Farm Homestead Association Number Two, and the Salisbury Farm Homestead Association Blocks were the two older settlement areas with the most marked degree of relationship. The former particularly, was in a similar position in 1936 to the settlement groups of the first phase in 1906, so that the predominance of mixed farming may well have been

due to the need to increase self-sufficiency in order to maintain ready capital for development purposes. Most of these farms were located on the terraces of the Oroua River.

In the case of the old Salisbury Block the relationship was not so great and it is likely that relief paid a more important role in the location of this area of more or less semi-intensive land use.

The increase in dairy cow numbers between 1906 and 1936 was not steady (Appendix I), although it might not be expected that in an area such as the Pohangina County, dairy cows would account for as much as 17.5 per cent of the livestock on the basis of ewe-equivalents. A number of factors accounted for this increased importance of dairying in the rural economy at this time; the improvement in the state of the roads, the adoption of the farmhouse separation, and the economic depression of the 1930's (9).

The improvement in the conditions of the roads and the introduction <sup>of</sup> farmhouse separation enabled many more isolated farms to turn to dairy production.

Whereas in 1906 the dairy farms were located mainly within a radius of four to five miles of the dairy factories and skimming-stations, the particular limit for transport of whole milk by horse-drawn vehicles, farm separation

improved roads, and the introduction of motorised transport now enabled more isolated farmers to engage in dairy production.

The slump in dairy prices in the 1921-1922 season brought with it the realisation of the need to intensify production. In the past farmers had often counteracted low prices by buying more land, where feasible, to extend production. This trend towards intensification in the 1920's and 1930's resulted in increased use of hand-spread artificial fertiliser, closer subdivision of farms and an increase in the cultivated area under fodder crops. Within the Pohangina County intensification over the whole area was not possible, indeed much of the area was already declining in fertility and the pastures were beginning to deteriorate as evidenced by the appearance of second growth and declining carrying capacities (10).

An important factor in the increase in dairy cattle numbers for the Pohangina County was the economic depression which began with the slump in agricultural prices in the 1929-1930 season, and one direct effect was the increase in the number of dairy cattle in order to maintain dairy incomes to a stable level and subsequently to increase the importance of pigs as a supplementary source of income (Appendix I).

### Dairy Processing Industries.

The introduction of farmhouse separation and motorised transport not only led to an increase in dairying but also changed the pattern of the associated processing industries. By 1936 Apiti had the only remaining dairy factory (Fig.20). Two of its associated skimming-stations had closed during the 1910's as had also a number of private dairies and packing-houses.

The earlier skimming-station closures had been associated with the introduction of farmhouse separation. It is not known when the Apiti dairy factory introduced the use of farmhouse separators but by 1929 all its skimming-stations were closed (11). Spelman reports that in 1920 the Cheltenham Dairy Company bought out Joseph Nathan's Makino factory, introduced farm-separating machines and closed the associated skimming-station at Pohangina and Raumai (12). It was during the 1920's that the increasingly widespread use of farmhouse separation necessitated the closure of the remaining skimming-stations.

The earlier introduction of the factory-type production resulted initially in closing many private dairies and packing-houses. Fifty-eight per cent of the closures, however, took place in the period of 1907 to

Figure 20. Source.

1936. Annual List of Creameries, Factories, Private  
Dairies, and Packing Houses.

Pers. Comm. D.C. Hogan.

# POHANGINA 1936: PRIMARY PROCESSING INDUSTRY

△ Sawmill.

■ Butter factory.

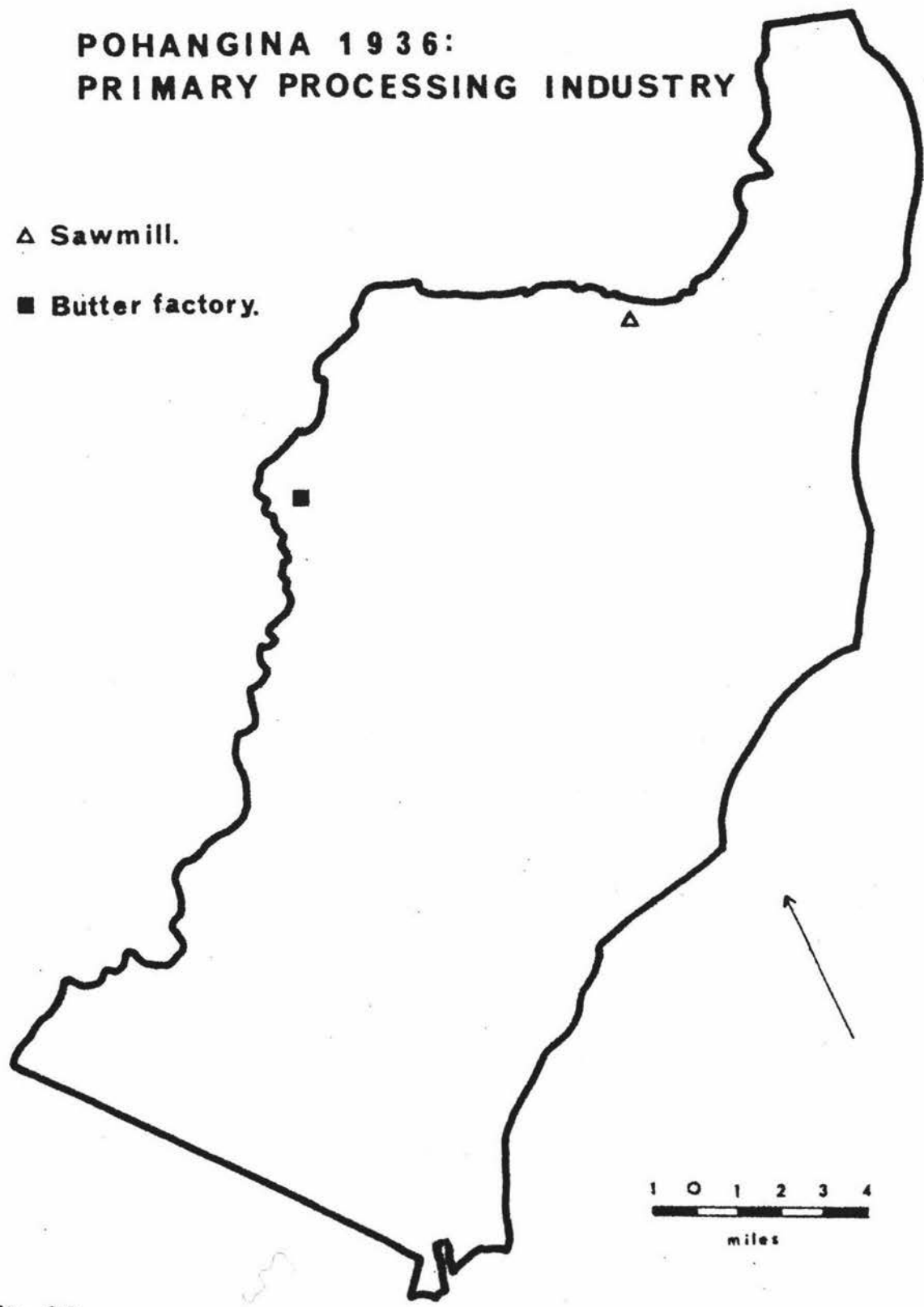


Fig. 20

1912 and were associated with the declining dairy cattle numbers.

When the Cheltenham Dairy Company bought out Joseph Nathan and Company in 1920 they introduced herd-testing as well as farmhouse-separation. This was a scheme whereby the farmer took samples of his milk and sent it to the factory for testing. It was on the basis of these that the payments were made for the season. This system continued for some years and tended to improve the herds as farmers then saw the economic gain in culling out cows which were poor producers. As a result of the culling, and selection and breeding policies the herds in 1936 were predominantly Jersey and Jersey-cross.

#### Sheep Farming.

By 1936 this sector of the pastoral economy had also changed. Sheep numbers had increased twenty-six per cent since 1906 and had accounted for 52.1 per cent of the livestock. But as a proportion of the total livestock, sheep accounted for 9.8 per cent less than they had in 1906 despite their actual increased numbers. This proportional decline was the direct result of the increased numbers of dairy cows. Since 1906 beef cattle

numbers had increased by 51.4 per cent and accounted for 30.4 per cent of the total livestock, 8.4 per cent more than in 1906. The increased importance of such cattle was influenced by two factors; firstly, the natural progress from pioneering to a more stable rural economy, and secondly, the need to control the increasing reversion of pastures to secondary growth and scrub.

Other changes were evident. Sheep-rearing was no longer based predominantly upon wool production, for fattening had become increasingly important. Most of the fattening was done on a mixed dairy-sheep farm. The available statistics for this period are inadequate relevant to the number of livestock sold as "fat", "forward store" or "store". But in general it may be said that a large number of farmers reared a significant portion of "fat stock".

On such farms the stock was mainly Romney or Romney-cross, with most of the lambs being fattened for sale. Some farmers bought five-year-old ewes from a breeder, while others bred their own ewe-lambs. Usually the farmer buying five-year-old ewes would be "fattening" and the man who bred his own flock replacements would have sold approximately 60.0 to 75.0 per cent of his lambs as "fat". Those farmers selling their lambs as

Figure 21. Source.

Valuation Dept.

1932-39

Rural Valuation Roll

for the Pohangina

County.

"fat" usually had higher carrying capacities than their "store" producing neighbours (13). Fig. 21 shows the estimated carrying capacities for 1936, and those areas carrying two ewe-equivalents or more per acre were probably producing "fat" lambs and "fat" cattle for sale to the freezing-works. On the basis of those years for which the number of breeding ewes was obtained (1896-7 to 1916-17 and 1945-46 to 1951-52, and 1962-63 to 1964-65) it was calculated that on the average, 68.0 per cent of the sheep in the Pohangina County were breeding ewes, leaving 32.0 per cent for breeding rams, "fat" lambs, and "fat" ewes. From this it would appear that the Pohangina County has, in the main, produced "store" sheep over the larger part of its area, with only more limited areas of fattening.

The "store"-breeder ran Romney or Romney-cross sheep on semi-improved pastures of danthonia or browntop, varying quantities of cocksfoot, timothy, dogstail, rye-grass and clover. These farms had a carrying capacity of one-half to one and a half ewe-equivalents per acre (Fig. 21

The products from this type of farm were wool, "forward store", or "store" lambs, five year breeding ewes for the meat-producer and "store" or "fat" cattle. This was the sector of the economy that made extensive

Figure 21. Source.

Valuation Dept. 1932-39 Rural Valuation Roll  
for the Pohangina  
County.

POHANGINA c.1936 : ESTIMATED  
CARRYING CAPACITY

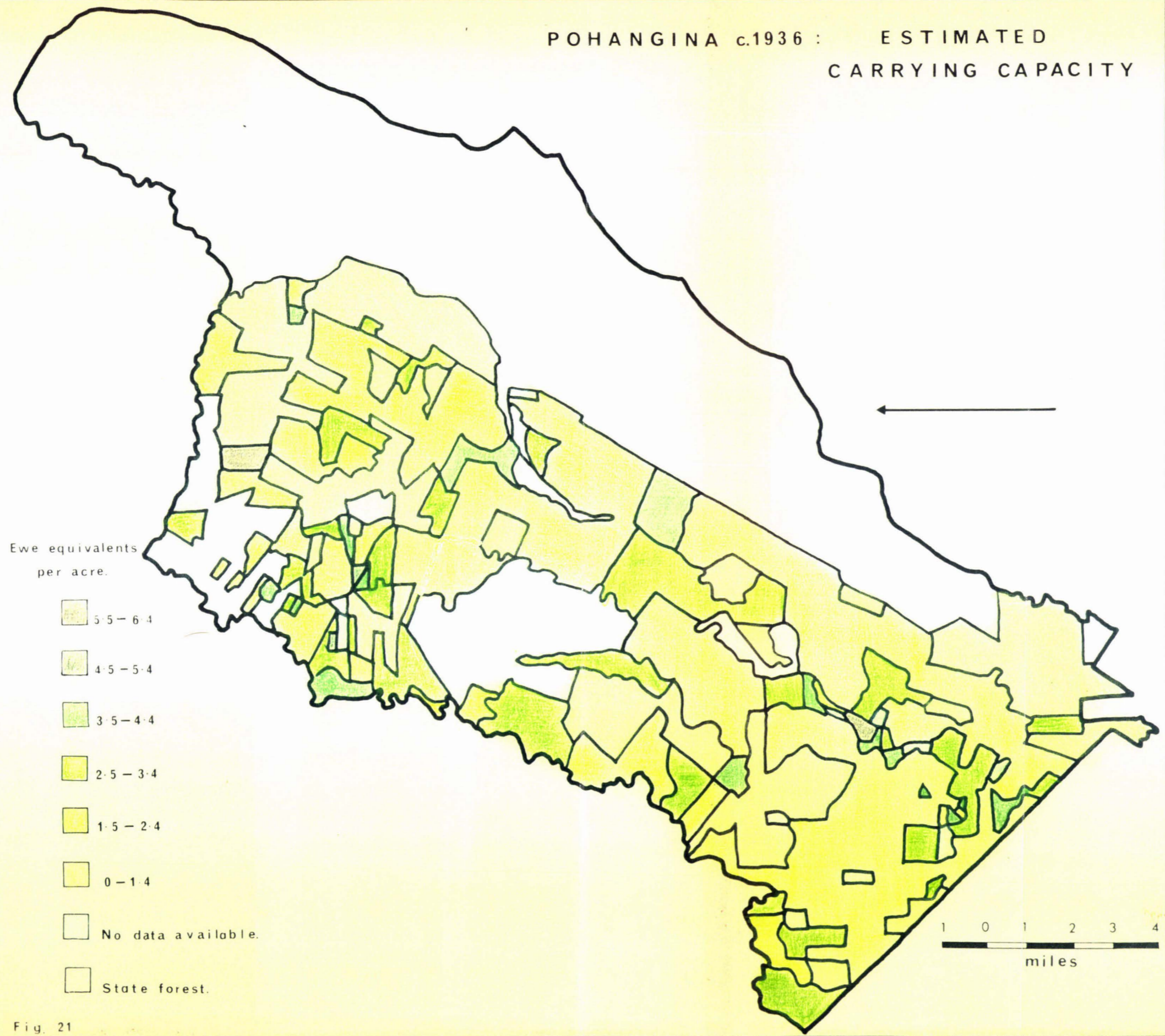


Fig. 21

use of cattle as second growth "crushers". The areas in which "store"-stock producing was to be found were characterised by reversion of pastures and the development of gully-erosion.

These two sheep farming groups were not mutually exclusive, "fat" producers could sell ewes, "store" producers could sell their wether lambs as "fat", and "fat" producers could breed their own ewes and often carried dairy cattle as well. All these groups were interdependent. If the store farms produced poor breeding ewes, then the meat-producers obtained poor lambs for meat and a poorer income. When this happened the meat-producer began to breed his own replacements thus reducing his income as well as the income the "store"-producer derived from the sale of breeding ewes.

The carrying capacities reflect the land use to some degree. Carrying capacities of 2.5 ewe-equivalents per acre and more were, in general, associated with areas of dairy farming and mixed dairy-sheep farming. This is especially true of the Pohangina River valley and the flatter land surrounding Apiti. The larger portion of the county was carrying less than 2.4 ewe-equivalents to the acre and the hillier areas less than 1.4 ewe-equivalents to the acre. The area of highest carrying capacity was in the Pohangina River valley on the river flats and

was under mixed dairy-sheep farming. The average carrying capacity for the whole of the county was 2.28 ewe-equivalents per acre.

### Conclusion.

The slow rate of growth in livestock numbers, the increasing use of beef cattle, and the low average carrying capacity indicated that the pastoral industry had its problems. Briefly they were, the current economic depression, the gradual deterioration of pastures, and the increasing incidence of soil erosion since 1906.

The affects of the depression have already been mentioned. In summary it may be said that the drastic cut in incomes led to an initial intensification in agriculture. As the depression continued, however, money was not available for development and the pastoral economy gradually stagnated (Appendix I). From 1929-30 to 1933-34 dairy cattle numbers rose from 3,996 to 5,817, but the 1936 figure of 5,575 represented the start of a steady decline. Similarly the pig numbers increased from 1931-32 to 1937-38 and then began to decline. During the same period sheep numbers decreased but began to increase by 1937-38 as did beef cattle numbers.

The remaining problems arose as a result of the early pioneers' methods of bush-clearing and pasture sowing, and the subsequent farming practices. Pasture

deterioration was widespread in the 1920's but may have decreased a little by 1936 with the increasing use of handspread artificial fertiliser. The deterioration of pastures had been caused mainly through poor methods of clearing the land. The "bush-burn" technique was successful only if the burns were sufficiently hot to destroy the seeds of secondary invaders such as manuka, bidi-bidi and bracken fern. This meant that the burns had to take place in late summer. If the rainfall was heavier than usual for the month, or rain fell during the burn, it would not be successful and the following pastures would be subject to invasion by undesirable species especially if the farmers were not running many beef cattle, and most were not. In addition to this, the initially induced high fertility after the burns declined rapidly when it was not replenished by artificial fertilisers.

Deterioration of the pasture was aggravated by the malpractices of the farmers, inadequate stocking rates, insufficient fencing, and the use of poor quality grasses. Many farmers in the early part of the twentieth century had insufficient stock on their pastures. This meant the pastures would "open up", if understocked and undergrazed.

Pasture deterioration was also associated with deteriorated or deteriorating land. Slips had been common throughout the period of European settlement but, by 1936, gully erosion was becoming much more common and was beginning to accelerate, scouring out gullies, especially in the areas of unconsolidated sandstone. The types of erosion becoming prevalent in 1936 were mass movement, surface movement and gullying.

Mass movement was occurring most frequently in the deeply-dissected areas of the low country, the slopes becoming unstable under high moisture conditions. Without the protection of the forest the slopes moved in slips and slumps. This was common from June to October but occurred again with the high intensity storms of January and February.

Surface movement, (earth slips, debris avalanches, and mudflows) was related to slopes. Long steep slopes (e.g.  $28^{\circ}$  or more) were subject to this type of movement. Where this type of movement was severe a slip scarp was left just below the crest of the ridge, which was subject to rill and sheet-wash which also helped to keep these slopes on the move. Slips were most common on the northerly faces and probably had some association with close grazing.

Both these types of erosion removed little material when compared to gully erosion. As far as can be ascertained gully erosion was not serious within the county until 1936. In January of that year 4.98 inches of rain fell and was followed by 7.49 inches in February. It was following a heavy storm in February that accelerated erosion became widespread over the sandstone area of the county (14). Prior to 1936, however, gully erosion, slips and slumps occurred intermittently as the normal adjustment of hills and gullies to meet the newly imposed physical conditions. A series of storms over the 1935-36 period resulted in the removal of the soil covering the unconsolidated sandstone beds thus laying bare material which was easily eroded.

This erosion was the result of a land adjusting to new physical conditions after the removal of the bush. The forest had offset the effects of climate, topography and soil and once it was removed it could no longer intercept the rain. The increased runoff caused by the removal of the bush was perhaps a major factor in the readjustment of the land surface. Another major factor was the continuing uplift of the anticline.

The increase in soil erosion was of great importance to the farmers as slips and slumps reduced the area of

pasture, gullying also reduced the pasture and resulted in the loss of livestock.

In contrast to the geography of 1906 there were no "pioneer fringes" left, all the accessible bush had been removed, and with it went the saw-mills. Technological changes had effected marked changes in the geography of the county. The processing industries associated with dairying had been greatly influenced by such changes, as had the communications system of the area but the economy continued to be dominated by pastoralism.

References.

1. Rural Valuation Rolls, 1932-39.
2. The figure for the increase in Pohangina township was calculated on the basis of the average between the population figures for 1901 and 1911 to give a figure for 1906.
3. Information on roading for this date is scarce. The Pohangina County Council had no record of the total length of roading for this date. The information in this section was based on the roads mentioned in the engineer's reports to the council. It was presumed that the roads not mentioned were no longer in existence. Of those three were recorded by Spelman as no longer extant in 1947, Denton's Road, Branch Road, and the road to Digger's Creek.
4. Spelman, n.d., 68.
5. Spelman, n.d., 25.
6. Personal communication from Mr. and Mrs. D.C. Hogan.
7. A.J.H.R., 1920, C.3a.
8. Rural Valuation Rolls, 1919.
9. A.J.H.R., 1934, H.30. Elaborates on the reasons for the expansion of the dairy industry in New Zealand.
10. Spelman, n.d., 23.
11. Annual List of Creameries, Factories, Private Dairies and Packing Houses.

12. Spelman, n.d., 126.
13. A.J.H.R., 1940, H.29a.
14. Manawatu Catchment Board, 1951, 25.

## Chapter 5.

Pohangina 1963; The Axe in Retrospect.

"...Pale now and gossamer-thin  
The web their lives had woven".  
J.K.Baxter. The Fallen House.

The influence of the pioneering activities was still evident in the geography of the county in 1963 as this geography had its antecedents in the activities of the settlers in the early part of the century. By 1936 the results of these activities were evident and were followed by an era of experimental work designed to overcome the consequent problems. This was largely successful and the pioneers and their axes had become little more than a memory in the minds of the older settlers.

### Population and Settlement.

The population of the Pohangina County had dropped to a low ebb of 1,199 in 1961. Since 1906 there had been a 33.38 per cent decrease in the population, while since 1936 the decrease had been 11.2 per cent. The population of the Pohangina County in 1963 was the lowest since 1896. Neither was numerical change the only significant difference, for the population had become

more youthful than in either 1906 or 1936. In 1963, 43.0 per cent of the population were minors as compared to 39.0 per cent in 1936 and 40.7 per cent in 1906. Outward migration for education and employment had reduced the 10-14 and 15-19 age-groups (Fig.22). This trend towards outward migration was also affecting the male-female ratio, for in 1961 there were 4.6 per cent more males than females; the predominance of males over females also reflected a New Zealand-wide trend.

The population at this date was mainly grouped on the lowland area in one small and two large concentrations. The two larger groups were located at the northern and southern extremities of the county with a smaller concentration in the Pohangina River Valley itself.

The southern group was located on the broader southern margins of the anticline, on terrace land associated with both the Pohangina and Oroua Rivers. The most marked concentration within this group occurred along the Pohangina River Valley, on the river-flats and terraces.

Excluding the village centres of Apiti and Pohangina, both groups of population were approximately the same size (i.e. c.360 in the south and c.380 in the north). With these two centres included, however, the northern

Figure 22. Source.

Dept. of Statistics. 1961 Increase and Location  
of Population.

Dept. of Statistics. 1961 Ages and Marital Status

# POHANGINA 1961 : POPULATION & SETTLEMENT

● Over 100

● 10

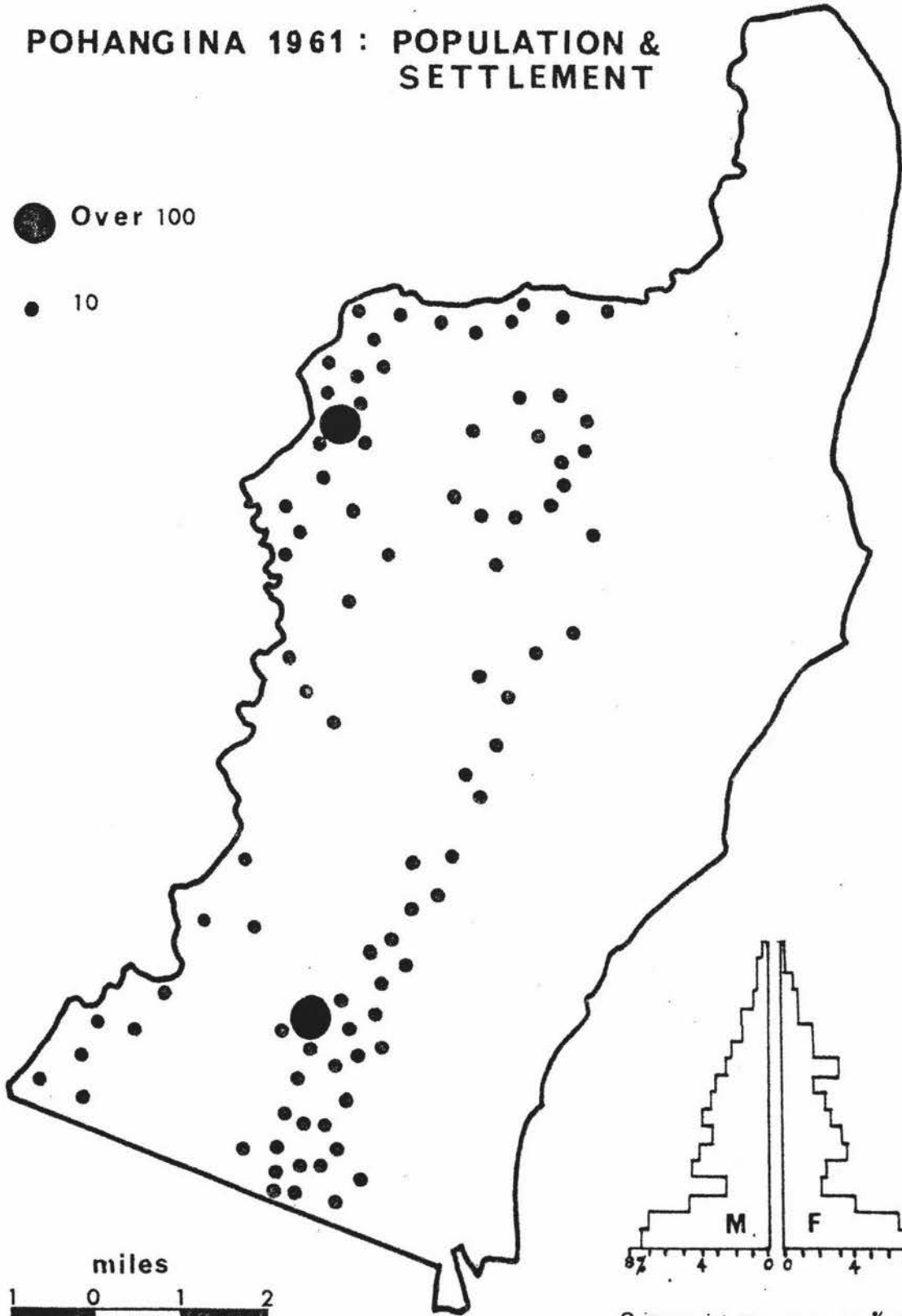


Fig 2 2

Quinquennial age groups as % of total population.

was larger than the southern, since in 1961 while Apiti had a population of 188, that of Pohangina was only 129. Significant changes in the size and status of these two centres had taken place since 1936. Apiti population had declined by 26.0 per cent while that of Pohangina had increased by 4.8 per cent. In Apiti the forces of decline, already operative in 1936, had taken further toll by 1963, for at that date there were only two retailers, a hotel and one motor garage left in Apiti (Fig.23). Apiti was a declining township with a number of vacant sections, a township presenting little opportunity for employment and, in the main, populated by retired people, county council employees, and such public servants as teachers and post office officials. Of the recreational facilities formerly offered in Apiti, only the billiards room had been closed. Although Pohangina's population had increased slightly, its services, however, had declined. The general store had closed, leaving three churches, a public hall and the Pohangina County Council offices, (Fig.24) in a settlement whose main, if not only, function was that of a 'County Town'. Population numbers were maintained in part by council employees based there, but apart from the County Council there were no employment opportunities in the Pohangina township.

Figure 23. Source.

Valuation Dept. 1963

Rural Valuation Roll for  
the Pohangina County.

# POHANGINA TOWNSHIP 1963

-  Rough grazing
-  Services
-  Retail
-  Recreation & Education
-  Residential
-  Church

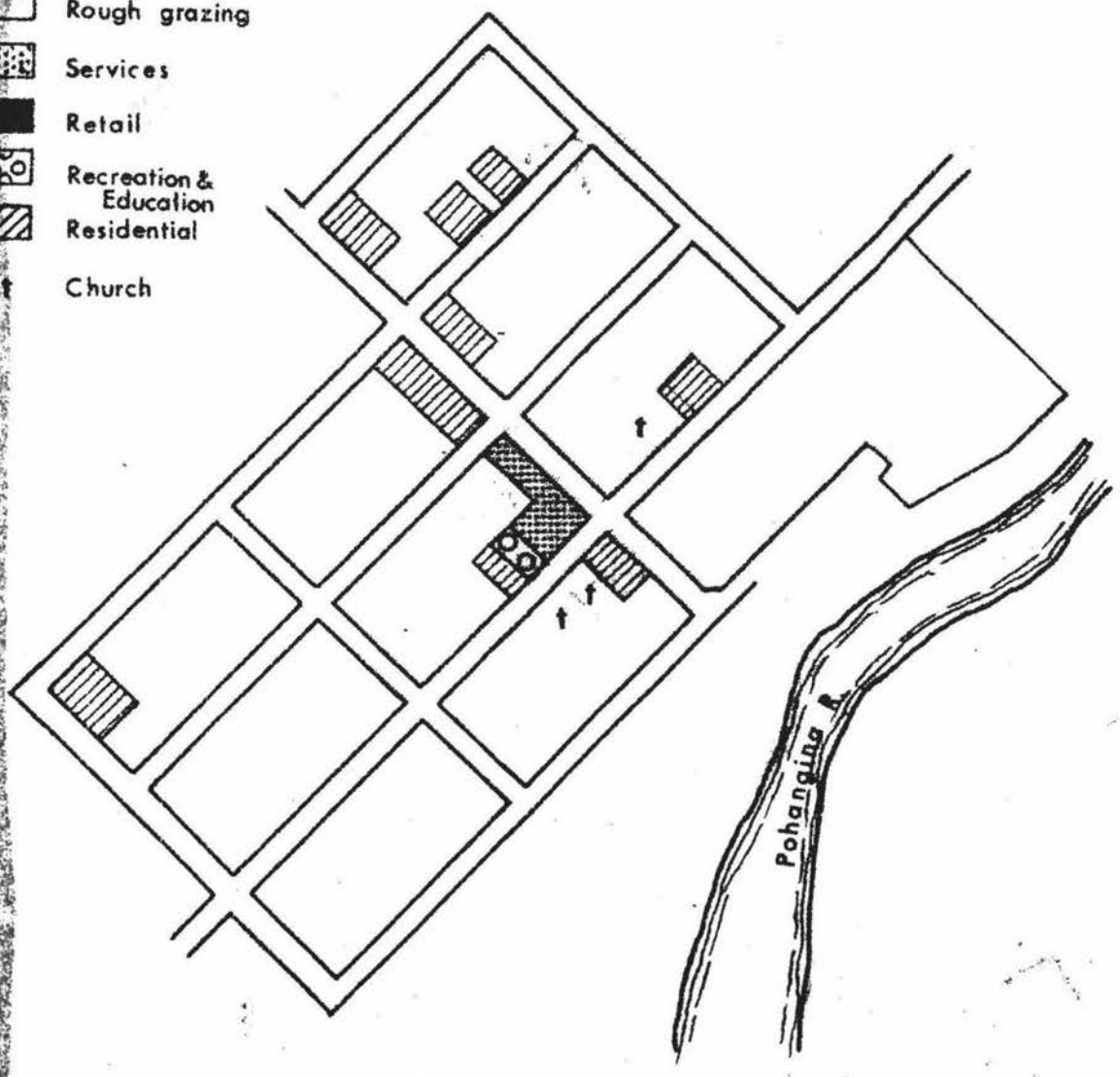


Fig. 24

chains  
4 0 4 8 12

Figure 24. Source.

Valuation Dept.

1963

Rural Valuation Roll  
for the Pohangina  
County.

# APITI TOWNSHIP 1963

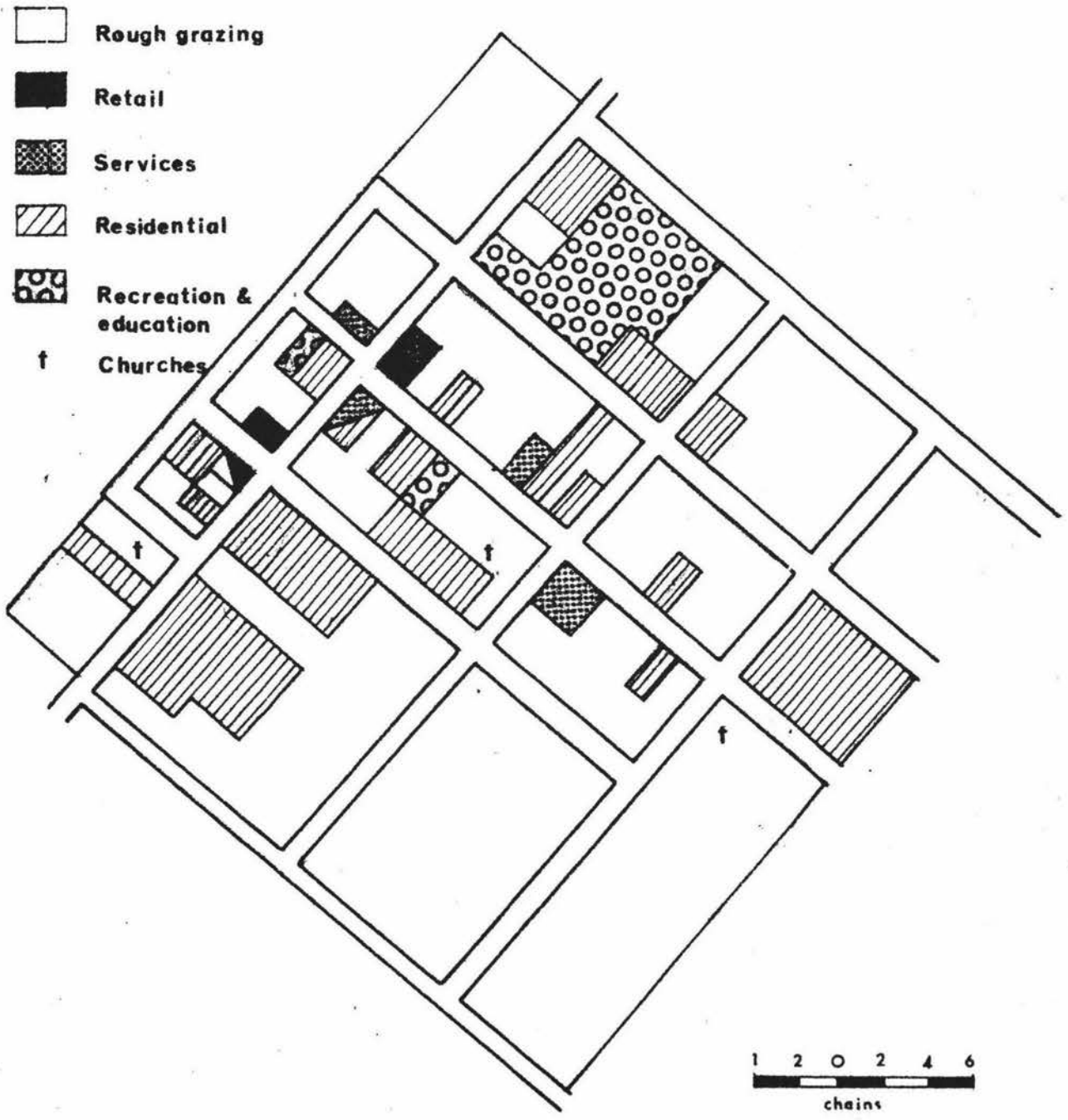


Fig.24.

Since 1936 a fourth minor phase of settlement had taken place within the county, for after World War II the government bought up land for the resettlement of soldiers. Within the Pohangina County the Awawaro and Konewa Farms were bought in 1947 and 1948 respectively, for the resettlement of soldiers. The exact number of those resettled is not known, but Awawaro, consisting of 5,117 acres, was sub-divided into seven holdings, while the Konewa, (1,836 acres) was subdivided into two holdings. The Awawaro was located on the anticline south of the old Feilding Block while Konewa was just south of the Pohangina River near the old Delaware Block.

The distribution of rural population and settlement for 1963 shows evidence of the gradual decline since 1906, although the population of the townships had shown signs of decay only since 1936.

#### Age of Rural Housing.

This decline was reflected in the distribution of rural housing by age, or period of construction. Over all the county 54.0 per cent of the existing houses were more than forty-three years old in 1963. The oldest house in existence had been built as early as 1878 and was located in the Mangawone Riding, in the area settled

in the first phase of settlement. In this riding 61.0 per cent of the present houses had been built prior to 1920, 26.0 per cent before 1900, and 35.0 per cent between 1900 and 1920. In the rest of the county only the Tamaki and Awahou Ridings illustrate the early phases of settlement with 58.0 and 59.0 per cent respectively of all houses built prior to 1920 (1).

In the north, in the vicinity of Apiti, a large proportion of the houses had been built between 1900 and 1919, (Fig.25) and another fairly large group about 1945-1950 to 1958-1963. Further east, in Umutoi, half the houses were aged between forty-three and sixty-three years, reflecting the early "flush" of building that occurred within a few years of settlement in the Delaware, Salisbury and Pohangina Blocks.

Over the whole county six of the seven ridings had approximately one-quarter of their houses built since 1945, many replacing former houses because of the peculiar resale position of rural housing. The majority of these had been built during the improved economic conditions of 1952-1960. Coal Creek Riding had a much greater proportion of modern houses, with forty two per cent built since 1945 which reflected the fourth post-war settlement phase.

Figure 25. Source.

Valuation Dept.

1963

Rural Valuation Roll

for the Pohangina

County.

# POHANGINA 1963: AGE OF RURAL HOUSING

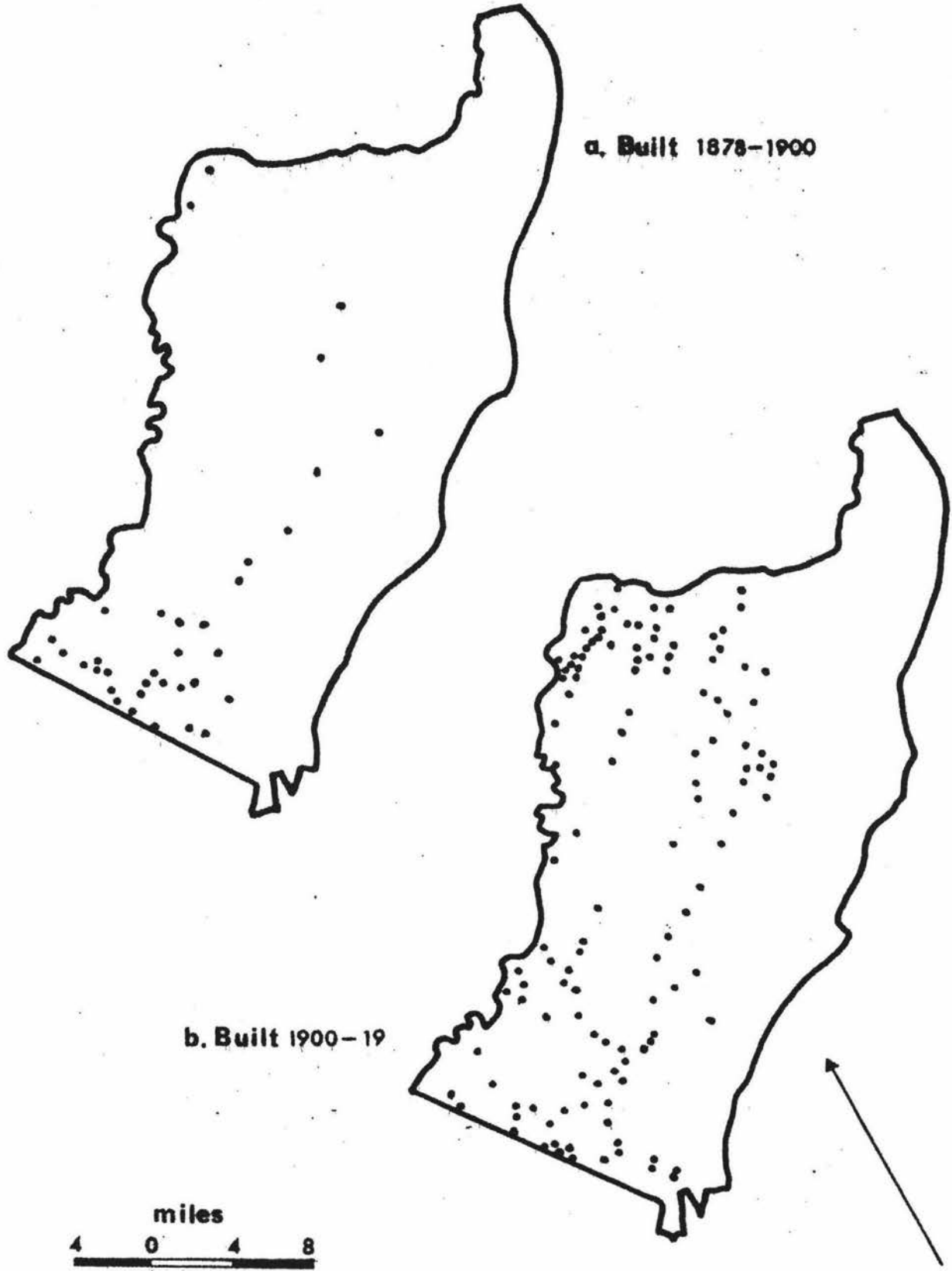


Fig.25

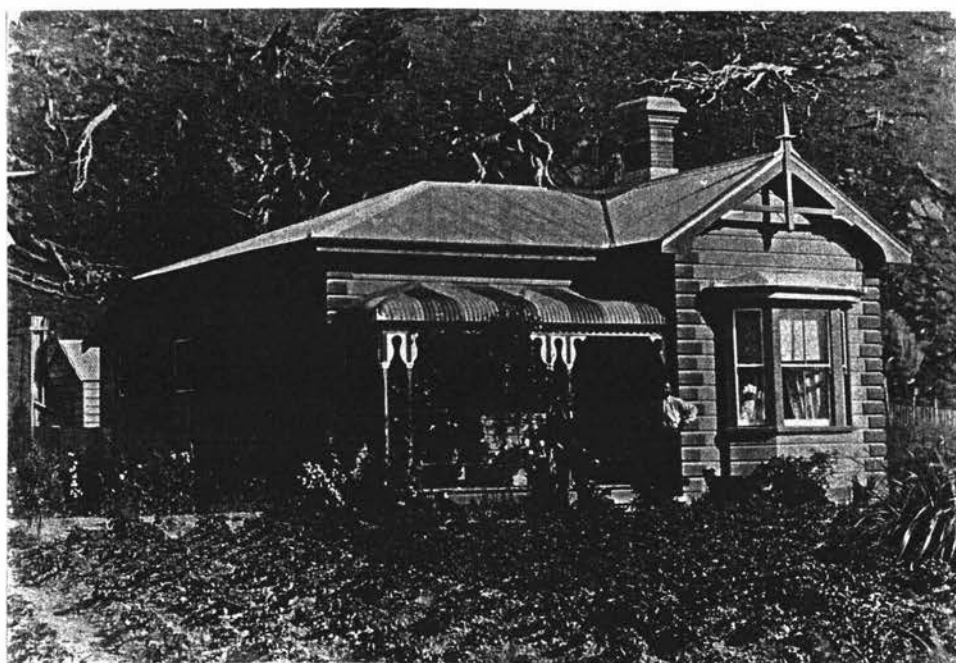


Photo. by Courtesy P.C.C.

Plate 26.

"Over all the county 54.0 per cent of the existing houses were more than forty-three years old in 1963". This house appears to have been <sup>built</sup> prior to 1900. Behind it can be seen the original "whare" with its tin chimney. The family had lived in this prior to the building <sup>of</sup> this house. It is also notable for the attempt to do in wood what was often done in stone, especially on the corners of the walls.



Photo. by Courtesy P.C.C.

Plate 27.

"Over all the county 54.0 per cent of the existing houses were were more than forty-three years old in 1963". The house in this photograph was probably built at the turn of the century. The original building was probably the front gable only, the rear portion having been added later. Once again wood has proved a useful fencing material.

Figure 26. Source.

Valuation Dept.

1963

Rural Valuation Roll

for the Pohangina

County.

**POHANGINA 1963: AGE OF RURAL HOUSING**

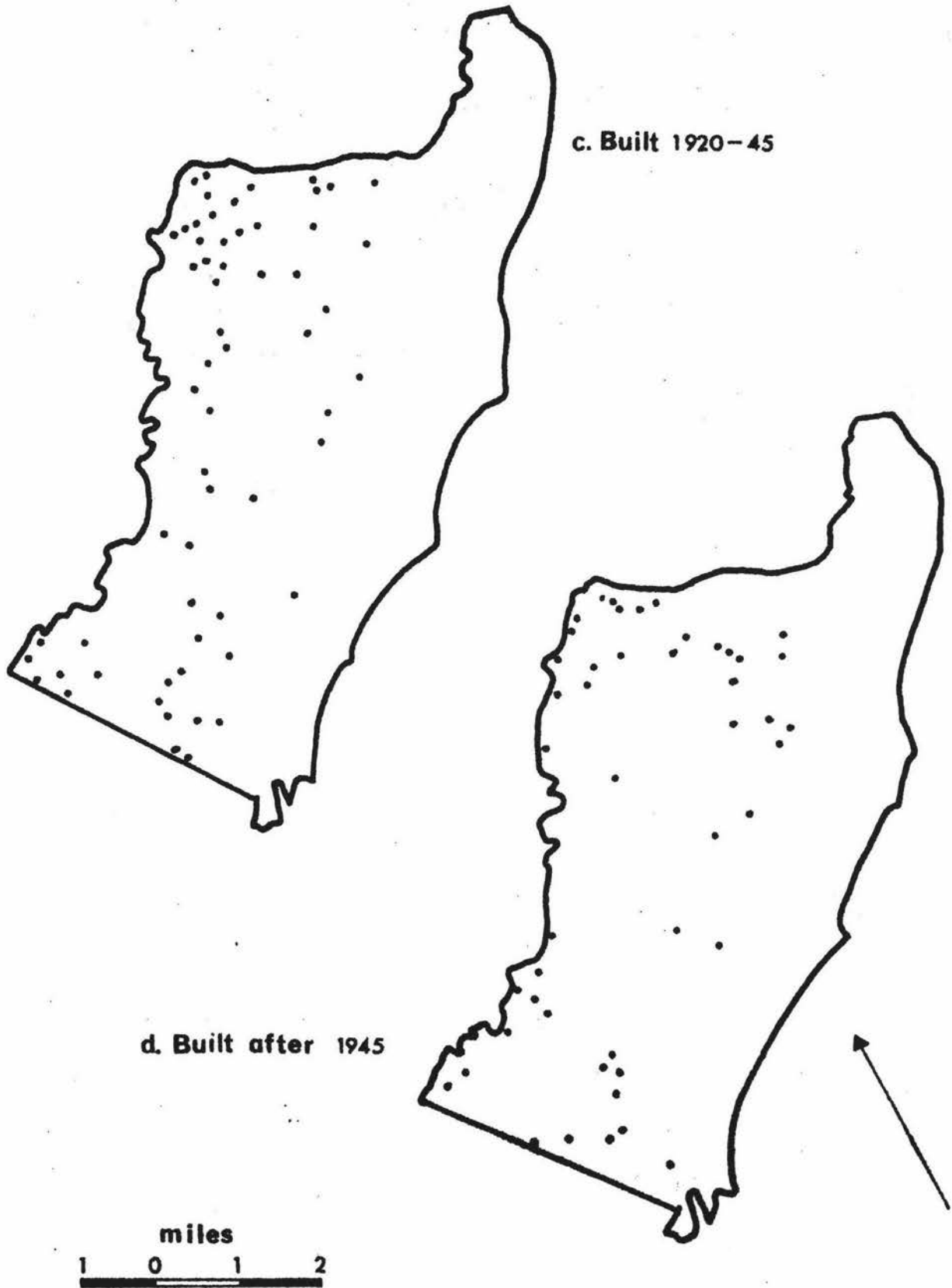


Fig. 26

Communications.

In 1963 the Pohangina County had 194 miles of road, 11.5 per cent of which were sealed (Fig.27). Most of the sealed roads were formerly state roads, but by 1963 the Pohangina County had become one of the three counties in New Zealand without a state highway (2). This low proportion of sealed road was a reflection of the council's inability to provide adequate roading revenue from rates assessed on the basis of the unimproved value. Added to this, the Pohangina County had a relatively small population and subsequently a relatively smaller number of ratepayers spread over a fairly wide area, all of which needed a variety of services and amenities, to be financed by the county authorities. Revenue from rates was therefore lower in comparison to other counties (e.g. Kiwitea) although the cost of many amenities and roading may have been at least as great.

The communications system of the county is further complicated by certain geographical and climatic considerations. A large portion of the occupied area of the county consists of unconsolidated sandstone, (Fig.30) which is very easily eroded under conditions of high intensity rainfall. This results in numerous drop-outs and slips on the county's road network which every year

Figure 27. Sources.

Manawatu Catchment Board 1964 Report on the  
Catchment Control  
Scheme for the  
Pohangina-Oroua Area.

N.Z.M.S. Topographical Sheets, N 149, 144, 145, 150.

# POHANGINA 1963: COMMUNICATIONS

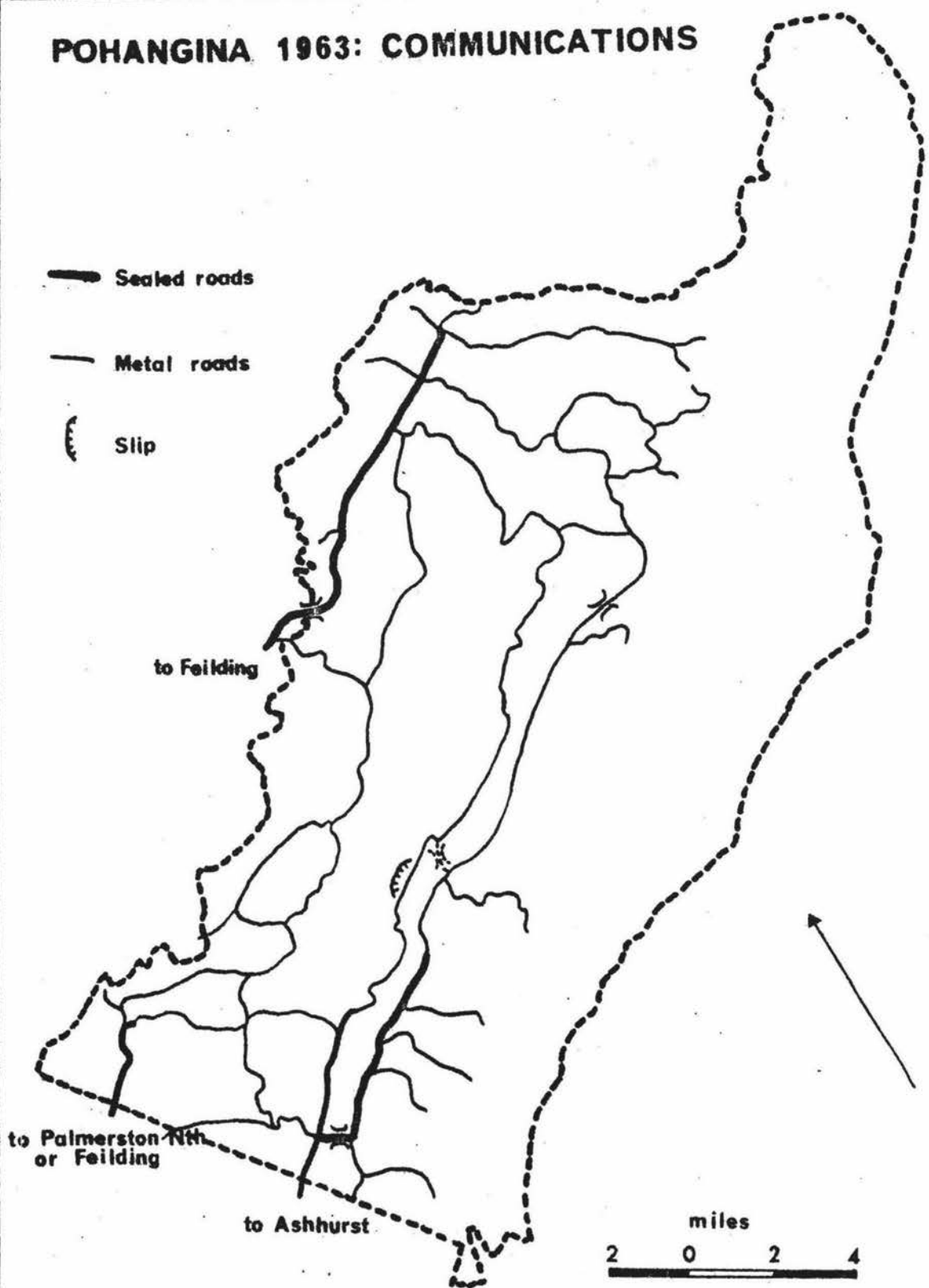


Fig 27

necessitates costly repair work. In 1959 this problem became particularly acute when a large slip between the Pohangina township and Totara Reserve buried 220 yds of road to a depth of thirteen feet and dislodged 1,250,000 cubic yards of soil (3). A report in the Manawatu Evening Standard three days later recorded that workmen had shifted 6,000 tons of soil to clear a track through the slip (4). Nearly every winter since that date this road has been closed because new slips or damp slippery surfaces made it impassable. In addition, some settlers have had to make lengthy detours to travel to Palmerston North or Feilding, or even across the valley as there were only two bridges across the river, one at Raumai and one at Piripiri. For those living further north on the Pohangina Valley West Road, the only outlet was through Apiti or across the Piripiri bridge, giving some residents detours of up to forty miles. This illustrates the limitations imposed upon communications by relief. Indeed over most of the county any disruptions on the longitudinal north-south roads were likely to cause major detours for many settlers.

It was this slip which helped to bring about the building a new bridge over the Pohangina River at Totara Reserve in order to give settlers an alternative

outlet in winter.

In 1963 the Pohangina County was still without railways, the nearest railheads remaining at Feilding and Ashhurst. This was responsible for the increased cartage costs on artificial fertiliser, farm equipment and livestock which had to be carried by both road and rail.

With the advent of aerial top-dressing, many farmers have built their own air-strips wherever possible. Aerial top-dressing was facilitated by the presence of companies operating from nearby aerodromes at Taonui and Milson.

The reticulation of electricity through the Bunnythorpe Sub-Station covered the populated area of the county, enabling farmers to use electrically-operated shearing and milking plants, as well as domestic appliances.

Since 1936 the position of telegraphic services had changed. Although Apiti had retained its own exchange, Pohangina lost its local telegraph service when the Postmaster-storekeeper retired in 1939. At this point the Pohangina subscribers were connected with the Ashhurst exchange (5). This system became overloaded in 1952, and in 1959 a new automatic exchange was opened at Pohangina serving ninety square miles northwards from Raumai (6).

With the retirement of the Postmaster at Pohangina,

the area served by the Pohangina postal service was incorporated into the Ashhurst Rural Delivery, although Apiti still retained its post office, serving the northern portion of the county. Some of the more westerly parts of the county, between Pohangina and Apiti were serviced from Feilding.

### Forestry.

In 1963, 63.9 per cent of the total area of the county was occupied, leaving 36.2 per cent unoccupied, the major portion of this being under State Forest (Fig. 28). Not all this unoccupied area was under forest, however, as evidenced by the extent of the alpine meadow in the north. The cedar (<sup>Kaikawaka</sup> Libocedrus bidwillii) and the yellow <sup>pink</sup> pine (Dacrydium biforme) were the dominant canopy trees below the leatherwood scrub which gradually merged into alpine meadows. Between the Pohangina and Oroua Rivers, red beech (Nothofagus fusca) was the dominant canopy tree below the cedar and yellow pine. On the southern side of the Pohangina River the canopy at the equivalent altitude to the beech was dominated by kamahi. At the lowest altitude within the forested area, northern rata-podocarp forest was still to be found with rimu as the canopy tree. Modification of the vegetation

Figure 28. Source.

Valuation Dept.

1963

Rural Valuation Roll  
for the Pohangina  
County.

POHANGINA 1963: FARMING SYSTEMS & LAND USE

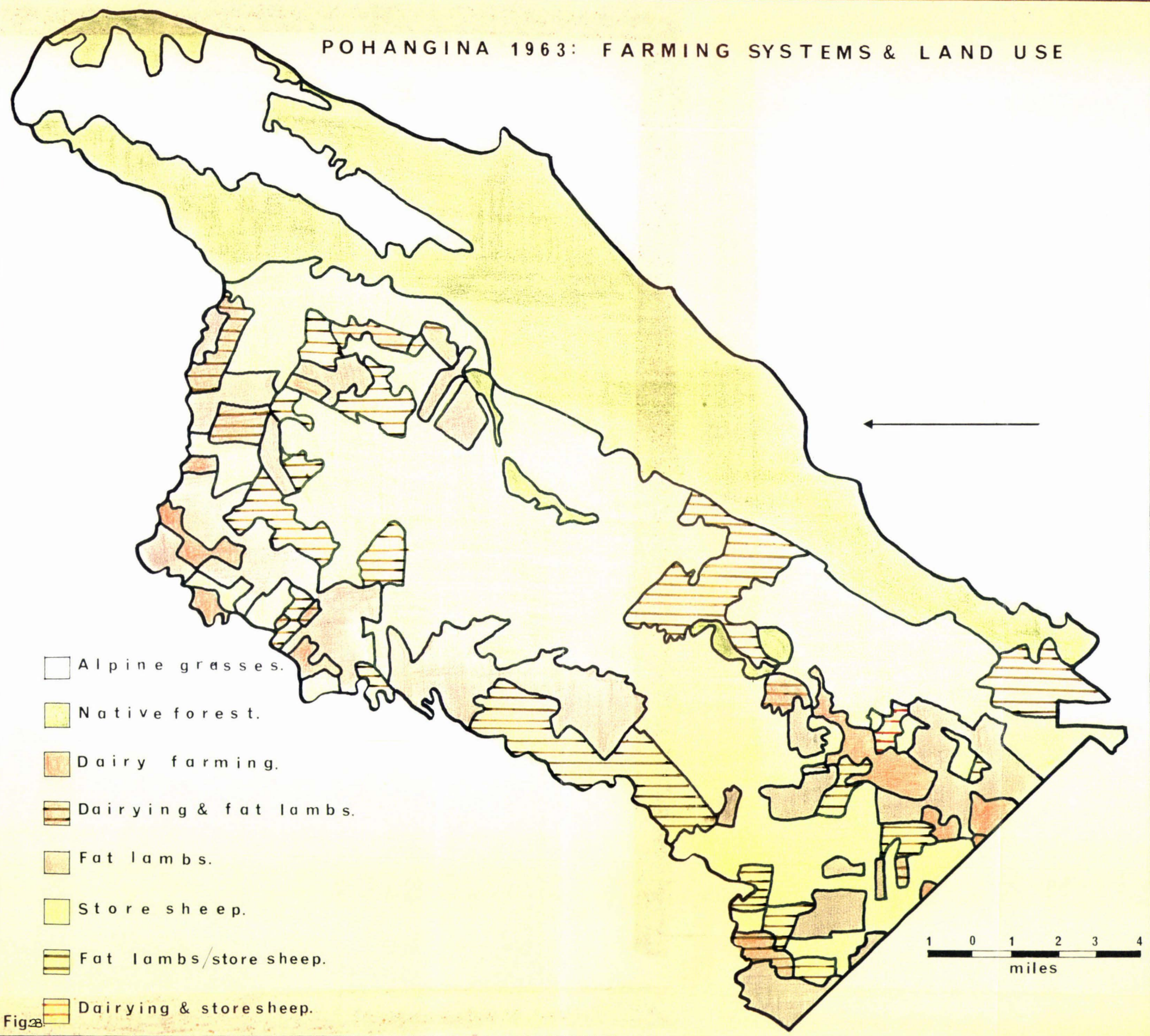


Fig. 28

previously affected by fire, was then being affected by noxious animals.

Deer and opossums had caused most of the damage in this portion of the Ruahine Ranges. Red deer had been liberated in the head of the Oroua Valley in 1914 and below the Pohangina River at Delaware in 1922. By 1940 there were large numbers of deer in the upper Pohangina Valley. Between 1945 and 1962 deer began to infiltrate the Southern Ruahines in increasing numbers. Defoliation of the canopy by opossums had allowed the understorey to grow rapidly and much of this was palatable to deer. Further north in the Ruahines deer had already made inroads on the beech forest and alpine scrub, but by the late 1950's persistent shooting in the critical soil erosion areas had reduced their numbers and by 1963 the beech forest was beginning to recover (7).

Opossums were liberated near the Pohangina-Oroua head-waters in 1893 and again in 1914. By 1948 kamahi, rata and fuschia were reported to have been seriously damaged by opossums. Rata was apparently one of the most heavily defoliated species, for the opossums browsed on the new shoots, stimulating production of more shoots to the point of exhaustion for the tree. A newspaper report dated October 11th, 1963, recorded a heavy

opossum infestation

"...one Apiti resident has given up growing chou-moellier because of the heavy opossum infestation. The officer said when he made a tour of the area recently he could see the opossums in broad daylight chewing grass" (8).

With the exception of Totara Reserve and a belt in the northern Pohangina Valley, most of the forested area was located on the Ruahine Ranges. The forest here was never readily accessible for milling and furthermore, had been reserved for conservation purposes. With the exhaustion of readily-millable timber the saw-mills had also disappeared. The one mill remaining in 1936 had eventually closed down in 1959.

#### Pastoralism.

After 1936 the character of the pastoral industries had changed. Although the 1936 pastoral economy was sheep-dominated, a significant portion was also occupied by dairying. In 1963, however, dairying was no longer significant and the pastoral economy was almost exclusively a sheep economy. Dairy cattle accounted for 5.9 per cent of all the livestock in "ewe-equivalents" while sheep accounted for 52.9 per cent and beef cattle 31.2 per cent. Thus the sheep and associated beef-cattle accounted for a total of 94.1 per cent of all livestock units.

Between 1936 and 1963, the size of holdings had also increased, the average for the county being 425 acres (Table VIII). The largest group of holdings, 58.16 per cent, ranged in size from 250-999 acres and accounted for 64.66 per cent of the total occupied area. As in 1936, only a small number of holdings were less than 50 acres in size and these were mainly "run-off holdings". A few, used as dairy units, were scattered along the Pohangina River flats below Totara Reserve.

The second group of holdings 50-149 acres, had decreased both in total numbers and in area occupied. The greater extent in 1936 of this group of small holdings had been due partly to the "return to the land" engendered by the economic depression. Progress was based less upon the smaller holdings so prevalent in 1906, but more upon the larger holdings as in 1963. This significant decrease in this group of small holdings was probably also influenced by changing economic conditions which made the small holdings an uneconomic unit, especially in view of the trend of the county towards sheep farming.

Holdings ranging in size from 150 to 249 acres had also declined. In 1936 this constituted 26.97 per cent of all holdings and was the largest single group, but in 1963 it accounted for only 17.53 per cent of all

Table VIII.

Distribution of Total Number of Holdings and Total Area Occupied, 1963.					
Sizes (Acres)	Number of Holdings	% of Holdings	Area of Group	Average Size	% of Total area
10-49	11	4.38	317.2.0	28.3.19	0.30
50-149	34	13.55	3,628.1.39	106.2.35	3.40
150-249	44	17.53	8,559.1.33	194.2.5	8.02
250-499	84	33.46	26,610.2.26	316.3.7	24.95
500-999	62	24.70	42,363.1.20	683.1.5	39.7
1,000-1,999	13	5.18	17,945.0.3	1,380.1.22	16.82
2,000 +	3	1.20	7,275.0.9	2,425.0.3	6.80
	251	100.00	106,699.2.20	425.0.16	100.00

Source: Rural Valuation Roll 1963.

holdings. As in 1936, this group was still associated mainly with sheep fattening. A new element, however, was the mixed sheep-dairy farm.

The largest group of holdings in 1963, from 250 to 499 acres, occupied 24.95 per cent of the total occupied area and accounted for 33.46 per cent of all holdings. The farming associated with this holding size included some mixed sheep-dairy farming but was mainly "fat-lamb" rearing, although the group also included some farms of mixed "fat-lamb-store" type.

The second largest group of holdings, 24.7 per cent of all holdings, occupied 39.71 per cent of the total occupied area. This group, given over entirely to sheep farming, included both mixed "fat-store", and "store" farms. These holdings were located along the anticline, on the ridge between Coal Creek and Pohangina River and between the river and the Ruahine foothills (Fig.28).

The remaining holdings of more than 1,000 acres accounted for 6.28 per cent of all the holdings and covered 25.2 per cent of the total occupied area, and made up a mainly wool and "store" sheep economy.

In 1963 some 25.28 per cent of all the holdings were leased either from the Crown, from the Pohangina County Council, or privately. Over half, 59.78 per cent,

was freehold land. This was the largest portion of holdings to be under freehold since 1906 when 43.86 per cent was freehold. This figure reflects the land tenure of the original settlement blocks, as leases from the Crown were common (Table IX). From 1906 to 1936 the number of freehold holdings increased from 43.86 per cent to 56.25 per cent of all the holdings. A significant change in 1936 was the small percentage of land leased privately. This was associated with the return to the land engendered by the economic depression of the 1930's. The proportion of Crown holdings had declined from 1906 to 1963.

Table IX.

Changes in Land Tenure from 1906 to 1936.			
Tenure	1906	1936	1963
Freehold	43.86%	56.25%	59.78%
Private lease	15.56%	3.93%	6.70%
Crown lease	19.85%	17.85%	16.28%
Crown land		7.66%	9.77%
Pohangina C.C. lease	20.73%	9.16%	2.30%
Pohangina C.C. land		5.42%	5.17%
	100.00%	100.00%	100.00%

Source: Craig, J., pers. comm.

Rural Valuation Rolls 1932-9,  
1963.

Dairyfarming.

Dairy cow numbers had decreased by 49.7 per cent and the number of dairy farms had dropped since 1936.

The location of the dairying areas had not changed greatly, previous concentrations around Apiti and the Umutoi area had dwindled to scattered pockets. The only remaining area of any consequence was that of the southern Pohangina River Valley. The persistence of dairy farming here suggests not only conditions suitable for dairyfarming, but also the proximity of the Palmerston North and Feilding urban markets. Practices within the dairy industry had also changed by 1963. The improvement in dairy herds, already visible in 1936, was very much in evidence in 1963. Prior to the Second World War a Herd-Testing Association had been established. The culling of herds was then carried out much more efficiently and resulted in the predominance of the Jersey breed among the dairy herds.

Most farmers had electric milking-machines by 1963, while in 1936 only a small proportion of the dairy farmers would have been able to afford electrically operated machines.

Generally, dairy units were on the better land in the southern Pohangina Valley where many dairy units had a

carrying capacity of 7.7 cwe-equivalents per acre. Not all units were characterised by such high carrying capacities; some of them carrying less than 1.4 live-stock units per acre (Fig.29).

Associated with the decline in dairy cow numbers came the closure, in 1959, of the Apiti Co-operative Dairy Company, the last remaining factory processing dairy products within the Pohangina County. The closure of the Apiti Co-operative Dairy Company's factory was part of a New Zealand wide movement towards amalgamation in the dairy industry. During the late 1950's and the early 1960's many dairy companies throughout New Zealand had amalgamated in order to eliminate the uneconomic methods of so many small dairy factories. After 1959, the Apiti dairy producers supplied cream to the Cheltenham Dairy Company at Makino as other dairy producers in the county had already been doing. In the southern part of the county many producers were on tanker-supply for the Manawatu Co-operative Dairy Company in Palmerston North.

#### Sheep farming.

Unlike dairy production, wool, "store" sheep and cattle and "fat-lamb" production within the county had

Figure 29. Source.

Valuation Dept.                      1963      Rural Valuation Roll  
for the Pohangina  
County.

POHANGINA 1963: ESTIMATED CARRYING CAPACITY

Ewe Equivalents per acre.

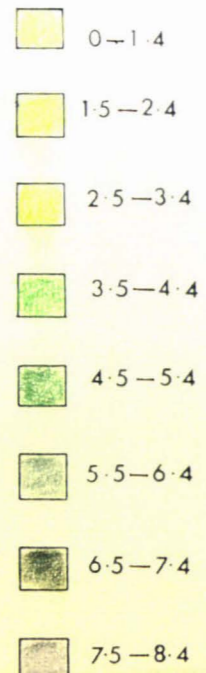
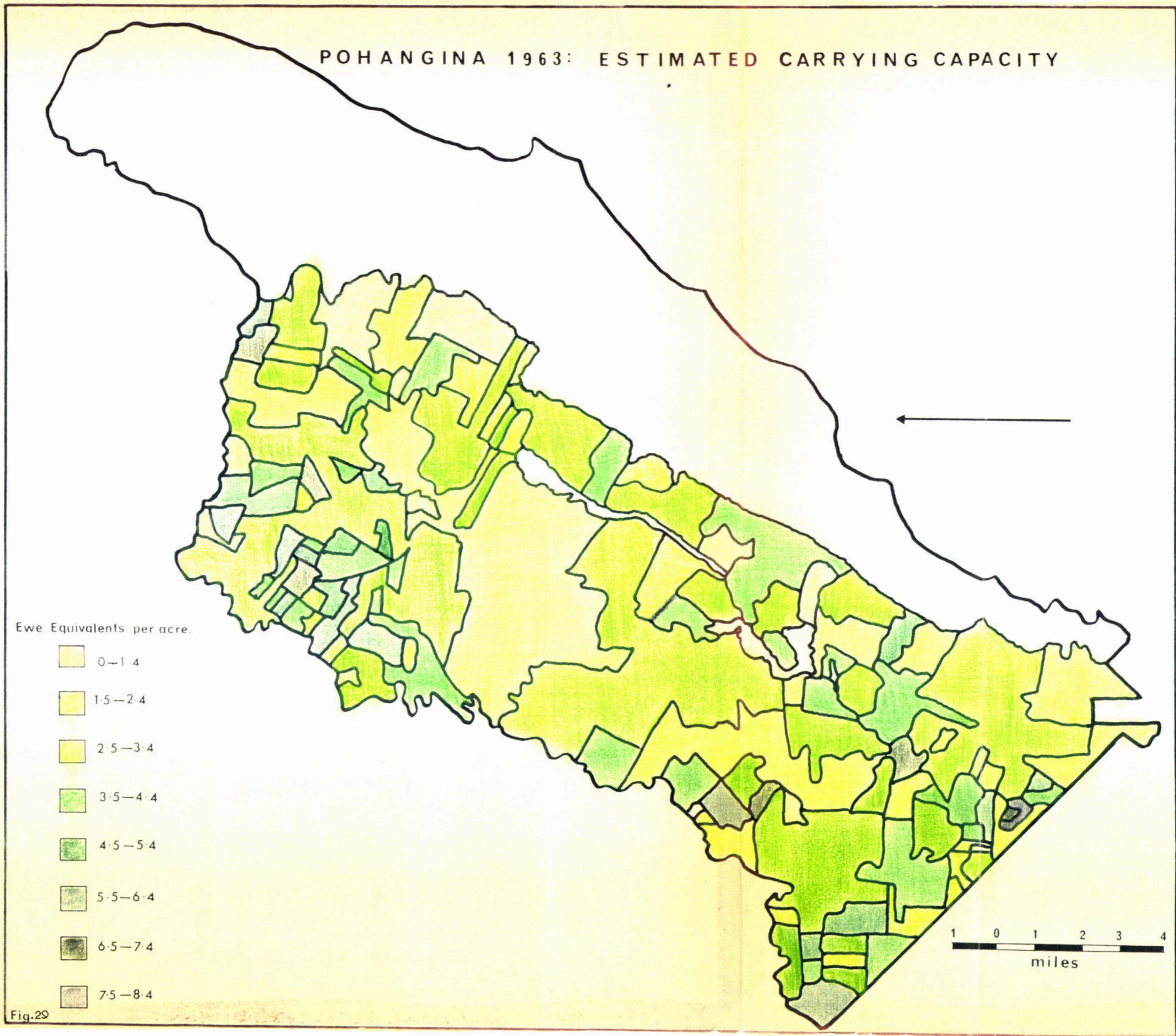
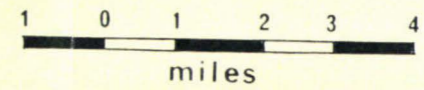


Fig.29



expanded. Sheep numbers stood at 290,293 of which 66.0 per cent were breeding ewes and accounted for 62.9 per cent of all the livestock units (9). Within the general sheep economy there were a number of different farms, mixed sheep-dairy units, "fat-lamb" units, units producing either "store" or "fat-lambs".

The sheep industry was characterised by its almost exclusive use of Romney and Romney-cross breeds, although scattered throught the county there were some Dorset and Southdown rams.

The store farms (Fig.28), running both sheep and cattle, were located in the hillier parts of the county; most of this area carrying between one and three ewe-equivalents per acre (Fig.29). The products were wool, store wether lambs, five-year breeding ewes and store cattle.

The beef cattle showed variation in management practices. A number of farmers had run a breeding cow herd for their own replacements, while others ran no breeding stock, preferring to buy in 2-3 year-olds for scrub control, and yearlings for pasture control. The main purpose of these run cattle was to control scrub growth and coarser grasses in the pastures so that the sheep could graze effectively. The "forward store"

and "fat" lamb farms were located on the periphery of areas of relatively more intensive land use. Generally, the mixed economy sheep farm was to be found on less rugged country than the "store" farm and was generally associated with the high level terraces of Pohangina and Oroua Rivers. The products of this farming system were wool, "fat" or "store" lambs and "fat" or "store" cattle, carrying capacities ranged from one to four ewe-equivalents per acre.

"Fat Lambs" farms were located on terrace country and over the broad southern margins of the anticline. It was on these farms that the majority of the Southdown rams were to be found as crossed with Romney ewes they produced good "meat" lamb.

Most of the stock were fattened entirely on grass, for the area under crops was only 2,177 acres or 2.2 per cent of the total cultivated area. Most of the cropping was carried out on the flatter areas of the county, the terraces of the Pohangina and Oroua Rivers and Coal Creek. The crops grown included swedes and chou-moellier, and the usual crop rotation included grass, chou-moellier, swedes, grass. Over most of the county the crops were used for wintering stock rather than fattening. Little hay was grown within the county.

By 1963 top-dressing within the county was fairly widespread, averaging about two to three hundredweight of superphosphate per acre. The application of lime did not appear to be widespread, although a group of farmers at Waiata had tried it earlier and found it beneficial (10). The shortage of farm labour restricted top-dressing programmes.

Considerable areas of the county were covered in secondary scrub, especially on the steeper faces and in the more or less stable gully bottoms. Where slips had occurred they were generally recolonised by manuka. In some areas, where labour was plentiful, the scrub had been cut and burnt.

Only the river flats and terraces near Apiti and Pohangina, and Table Flat were characterised by shelter belts which were conspicuously absent in the hill areas.

#### Some Problems of the Pastoral Industries.

The problems of the sheep-raising were mainly those described in 1936, i.e. slipping, slumping and gully erosion (Fig.30).

The effects of serious gully erosion on farm productivity was evidenced by the Department of Agriculture (13).

Figure 30. Source.

Manawatu Catchment Board. 1951. Pohangina Conservation Survey.

Manawatu Catchment Board. 1964. Report on the Catchment Control Scheme for the Pohangina County.

# POHANGINA 1963: SOIL EROSION (BY TYPE)

 High Country erosion.

 River erosion.

 Active Gully erosion.

 Relatively stable.

 Slipping & Slumping

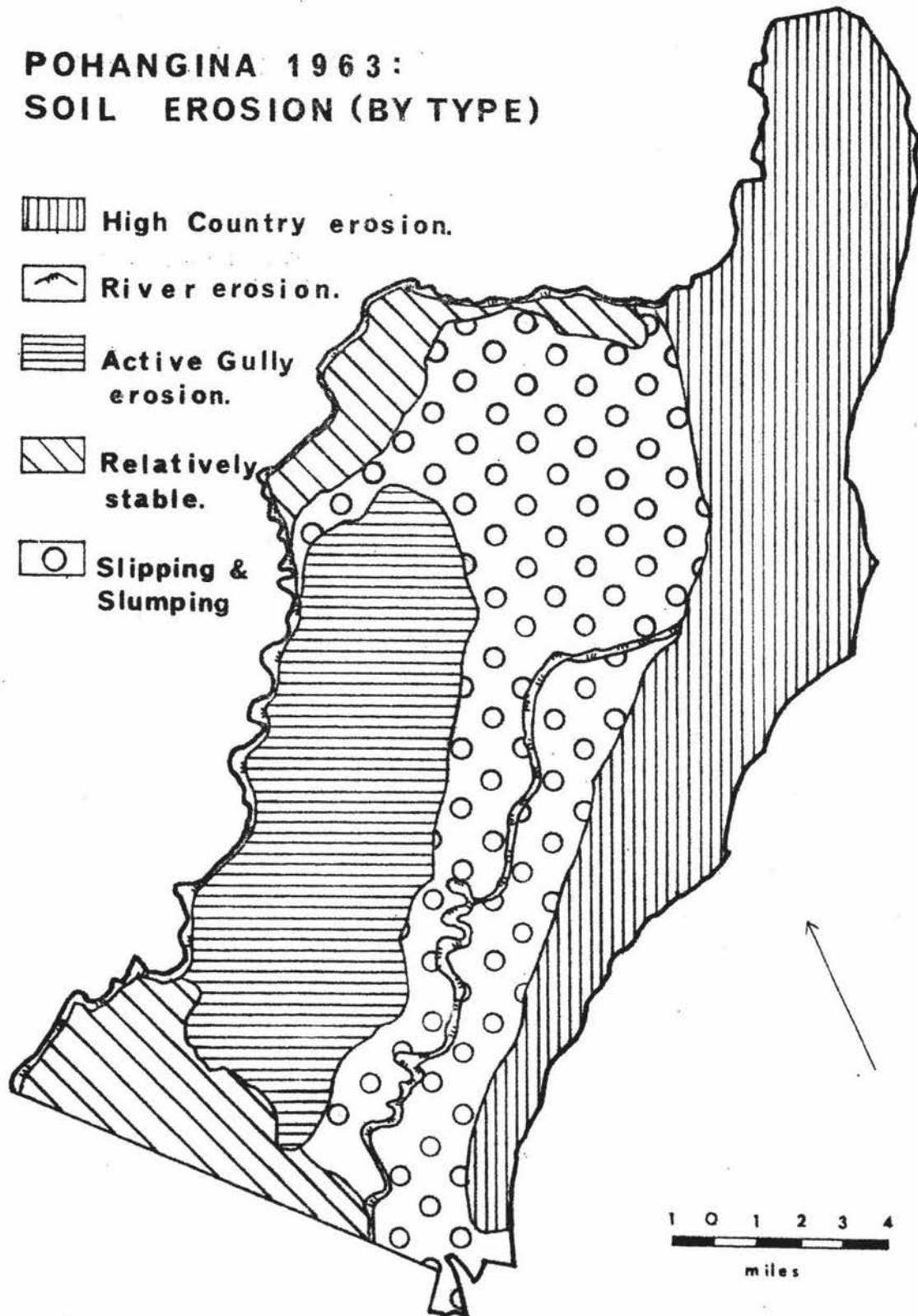


Fig. 30

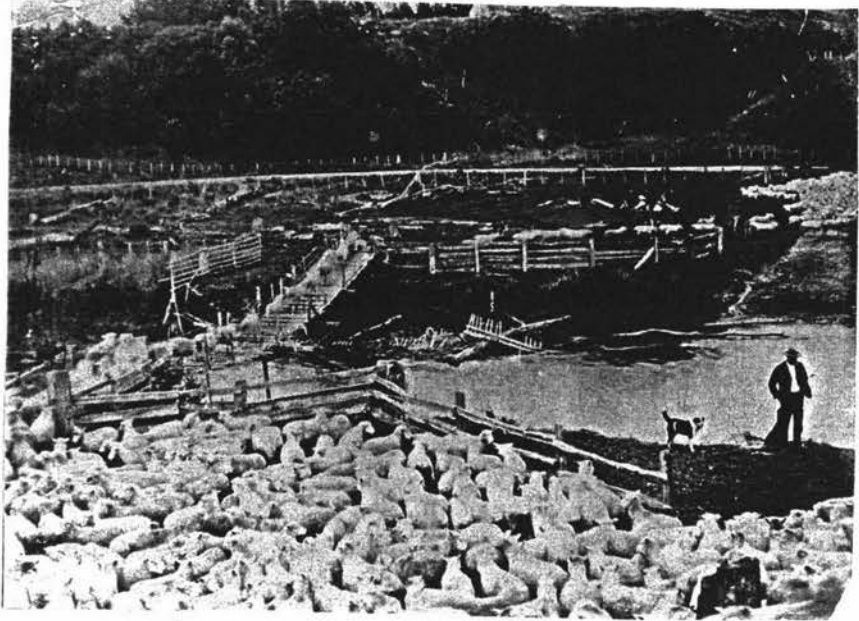


Photo. by Courtesy P.C.C.

Plate 28.

This early photograph of the county indicates that flooding has been a continuing problem. The swollen stream has prevented the sheep using their usual route through the stream-bed on the right. The condition of the bank indicates the flooding in the stream with debris piled against it.



Photo. by Courtesy Tribune.

Plate 29.

"A series of storms...resulted in the removal of the soil covering the unconsolidated sandstone beds thus laying bare material which was easily eroded". This particular gully began to erode severely in 1935 and was nearly 300 feet deep in 1963. This gully has been allowed to develop unchecked.

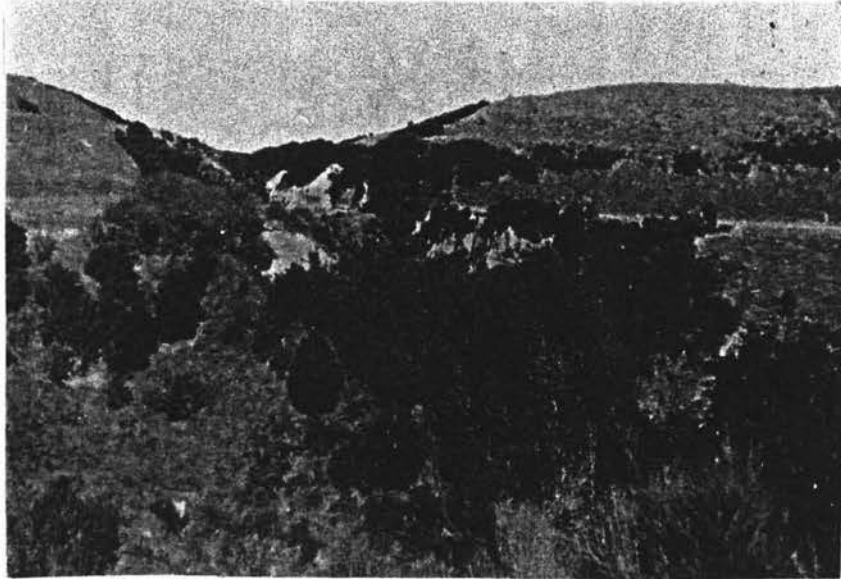


Plate .30.

Canyoning and gullying can be controlled as on the Te Awa experimental farm. Here the gully bottom and sides have been planted out with trees. This coupled with other measures, has led to the stabilisation of the gully systems in this area.



Plate 31.

The "use of cattle as second growth 'crushers'" is common on "store"-stock farms. On this farm their function appears to be only partially fulfilled as bracken fern is rampant on the hill slope. Generally, the quality of the fence appears to be indicative of the quality of the farm and the land.



Photo. by Courtesy Manawatu Evening Standard.

Plate 32.

" A large portion of the occupied area of the county consists of unconsolidated sandstone which is very easily eroded under conditions of high intensity rainfall. This results in numerous drop-outs and slips on the county's road network".

1. Heavy stock losses in the numerous eroding gullies.
2. Mounting fence maintenance costs.
3. Increasing shrub infestation where slipping occurred.
4. Increasingly difficult internal farm access.
5. Increasing county rating due to frequent road damage.
6. Falling tendency in market values of properties concerned.
7. Lowering of net incomes.

The magnitude of the problem was recognised by the newly established Manawatu Catchment Board in 1944, and it was under their aegis that the Department of Scientific and Industrial Research set up a soil conservation station at Te Awa in 1945, the area of which consisted of 180 acres (11). In 1947 the Department of Agriculture set up a demonstration unit on a local farm nine miles west of Pohangina which covered 428 acres, 330 of which were in steep to very steep hill country (12).

The result of the experimental work demonstrated possible increases in production and carrying capacities. The following table illustrates this.

Table X. To Show Increased Carrying Capacities on an Experimental Area.

Year	Ewe-equivalents/acre.	Wool; lbs per acre.
1950-51	1.93	22.33
1951-52	2.03	22.95
1952-53	2.73	31.27
Overall increase	.80	8.94
% increase	41.45	40.04

Source. Glass, A.N., 1957, 12.

Similar work was carried out at Te Awa sub-station increasing the carrying capacity from 1.5 ewe-equivalents per acre to seven ewe-equivalents in 1963 (18).

The results of the experimental work proved that the problems associated with erosion could be minimised if not overcome.

#### Conclusion.

Between 1936 and 1963 the population of the Pohangina County had declined. The character of the pastoral economy had become increasingly dominated by sheep, while associated with the sheep was a significant proportion of run-cattle. Finally the problems of pasture depletion and soil erosion were increasingly evident and occupied more and more the attention of various research groups.

References.

1. Rural Valuation Roll, 1963.
2. The other counties without a state highway were Ashley and Peninsula.
3. The Dominion, June 5th, 1959.  
Manawatu Evening Standard, June 5th, 1959.
4. Manawatu Evening Standard, June 5th, 1959.
5. Newsclipping October, 1959, in Spelman, 76, no paper name.
6. Spelman, notes attached to 75.
7. Elder, 1965, 46-54.
8. Manawatu Evening Standard, October 11th, 1963.
9. Agricultural and Pastoral Statistics, 1963.
10. Manawatu Catchment Board, 1951, 50.
11. Suckling, 1949.
12. Glass, 1957.

## Chapter 6.

### Conclusion; In Truth the Axe Bites Deep

Between 1865 and 1963 the land of the Pohangina County was changed completely. Perhaps the most significant changes were those associated with the removal of the bush but especially the spread of sown pastures and the associated rise of essentially a pastoral economy together with the rise and decline of a transitory timber industry. Associated with the development of the pastoral and timber industries there also arose related patterns of settlement and communications.

The original bush cover was removed by the European settlers in a relatively short time, available records indicating that most of the bush was cleared and the first pastures sown between 1886 and 1906 (Appendix III and Fig. 13). Prior to 1886 the Maoris had had little or no effect on this area for it fulfilled only a very marginal role in their economy, supplying only certain seasonal foods.

This rapid retreat of the bush followed closely on the clearing of the more readily accessible and adjoining lowlands. The timber industry associated with the removal of the bush was short-lived. There had been numerous

saw-mills in the county since the late 1880's but it is likely that a large number of these have remained undocumented. From these records still in existence, however, it would appear that by 1906 most of the readily-accessible bush had been cut over. Many of the mills had been built close to the source of the timber and could be said to have been truly on a "pioneer fringe", clearing land which was shortly to be sown in pasture. There was an ever-increasing area under sown pasture after 1896, the most rapid increase taking place during the thirty-year period, 1896-1926.

Table XI.

The Increase in Area of Sown Pastures (1896 index).			
1896	100	1936	207
1906	150	1946	212
1916	184	1956	194
1926	217	1963	200

Source. Statistics for the Colony, and  
Dominion of N.Z.

Agriculture and Pastoral Statistics.

With the establishment of the sown pastures the early dairy industry provided a ready source of subsistence and income for the settlers only able to develop their

holdings slowly. At first the market was local but grew with the spread of the factory system after the introduction of mechanical separation and the beginnings of the exports following the introduction of refrigeration. In the Pohangina County the early dairy industry was characterised by a comparatively large number of private dairies together with skimming-stations supplying the two local, as well as the other nearby creameries. The spread of the early factory system led ultimately to the closure of the private dairies. In 1906 there were 4,542 dairy cows in the Pohangina County. By 1936, this number had risen to 5,575 although the actual area of dairying had decreased, and the skimming-stations had all closed. The peak of the dairy industry was during the 1930's.

Sheep-farming was also established during the early years of settlement but although sheep numbers were considerably greater than those of dairy-cow the economy was not dominated by sheep until the late 1940's. Sheep-farming comprised the major proportion of the occupied area from 1906 onwards. By 1936, however, not only was it occupying the largest area, but it also appeared to have become more diversified. Thus in 1963 94.1 per cent of all the livestock units were sheep and

associated beef-cattle as compared to 83.9 per cent in 1906 and 82.3 per cent in 1936.

Settlement and communications patterns developed along with the rise of the pastoral industries. In 1906 and 1911 there were more people recorded as living within the county than at any other time, but the overall pattern of distribution was very similar to that of 1936 and 1963. The main groupings of the population followed the Pohangina River Valley in the south, and the Oroua River Valley near Apiti in the north, while one other pocket persisted in the vicinity of Umutoi and Utuwai. The county was not characterised by any urban developments for only two of the planned townships, Apiti and Pohangina, had grown to villages of any size by 1963, although Umutoi and Makoura (later Utuwai) had also been planned as townships. The development of Apiti and Pohangina as service centres declined with the advent of motorised transport. The persistence of Pohangina as a village up to 1963 has probably been on account of its function as a County Town while Apiti's location on the Feilding-Rangiwahia route no doubt contributed to its continuing service functions.

Together with the early settlement of the Pohangina County, road-lines were constructed. These did not provide a ready means of access as evidenced by the numerous

complaints of the period. A road network served most of the occupied area by 1906, however, but it was limited in extent and was often in a poor condition because of timber-wagons and horse teams. Once established the longitudinal road network altered little until the mid-1960's. Electric power was reticulated throughout the county during the 1920's and the 1930's, although the postal and telegraphic services had been in operation since the late nineteenth century. Pohangina was never linked with the national network of the rail system although a branch line to Apiti was mooted as early as 1902.

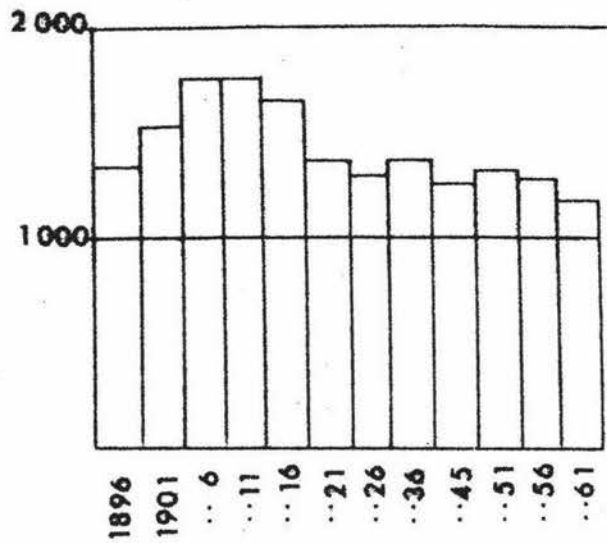
The changing pattern of the Pohangina County, especially during the bush clearing period of 1886-1906 illustrated a pattern of rapid change throughout the bush land of the North Island during the late nineteenth and the early twentieth centuries. The settlers usually moved into the accessible lowland areas initially, felling and clearing bush, to establish pastures. But then, when most of the available lowland had been taken up the "pioneer fringe" was pushed out into such adjoining hill country areas as the Pohangina County, for settlement on the Manawatu lowlands was well established by the early 1890's, when the major settlement phase in

the Pohangina County was just taking place.

The removal of the bush has not only led to the creation of new man-made elements in the landscape but has also resulted in a profound disturbance of the existing ecosystem. With the removal of the bush, initially there was little left to check the erosive power of water, for the strong root system and the protective canopy of the bush was replaced by a cover of newly-sown pastures. Initially, the debris left after the bush-burn provided some protection. The changing physical conditions, especially the introduction of new animal species coupled with the unstable nature of the sub-soil resulted in growing erosion problems, which were evidenced as a result of a series of high-intensity storms in 1936.

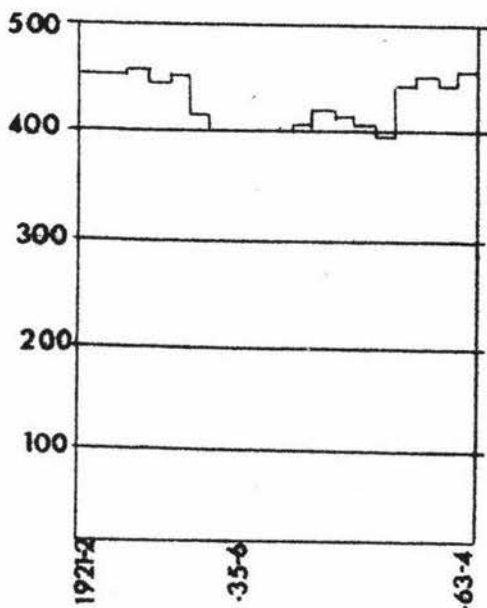
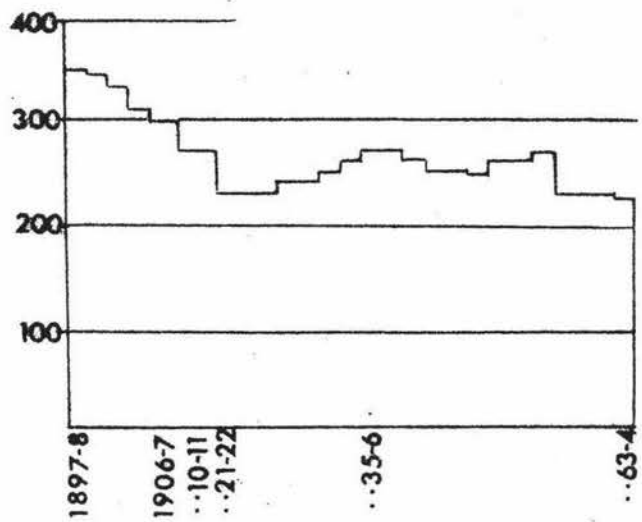
Man's removal of the bush had created a new problem, a man-made problem. In truth the axe bites deep!

APPENDICES.



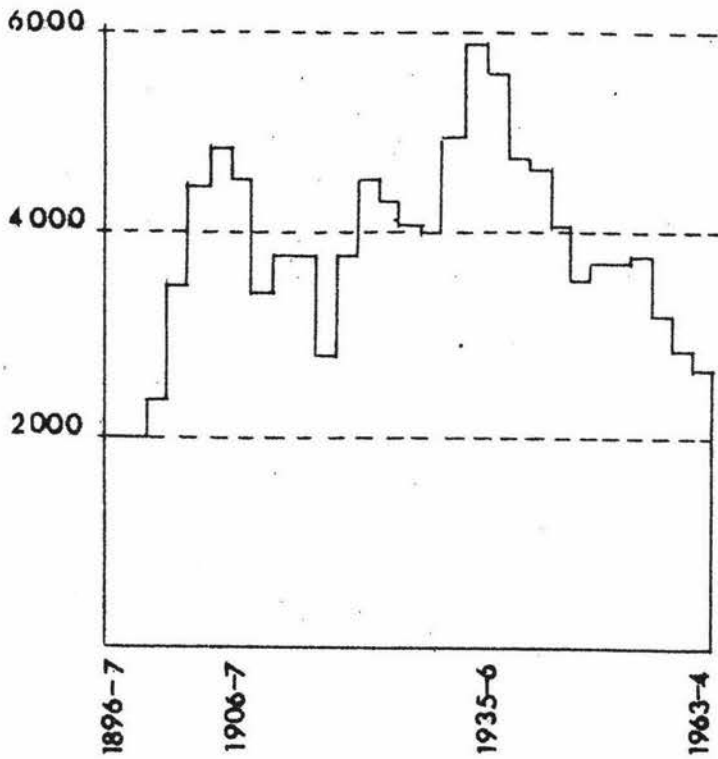
POHANGINA COUNTY: POPULATION

NUMBER OF HOLDINGS  
1897-1911 & 1921-64

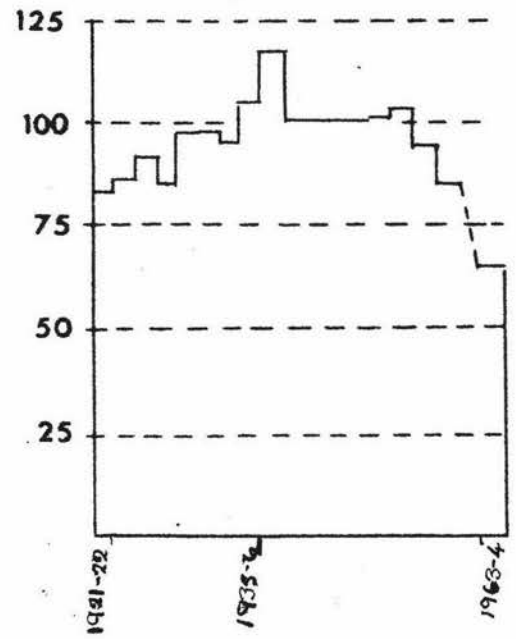


AVERAGE HOLDING SIZE

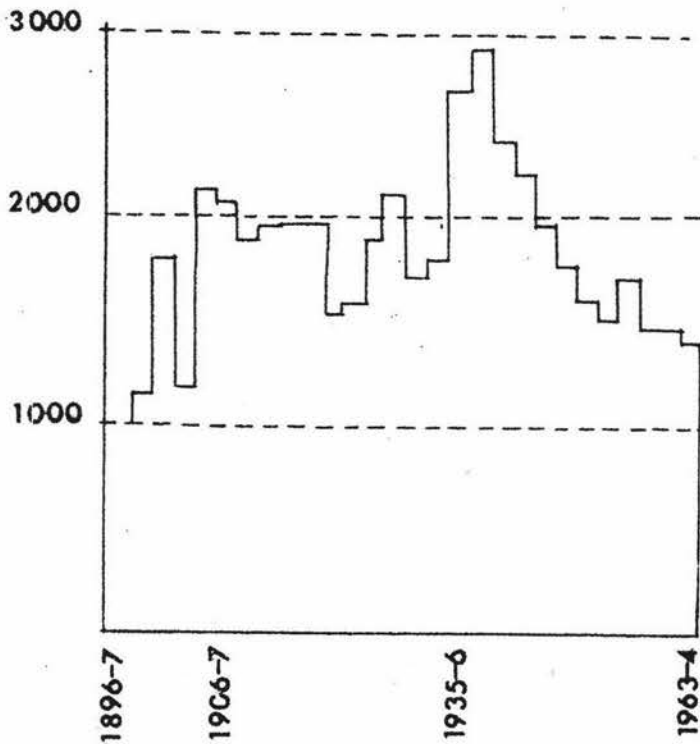
DAIRY CATTLE NUMBERS 1896-1963



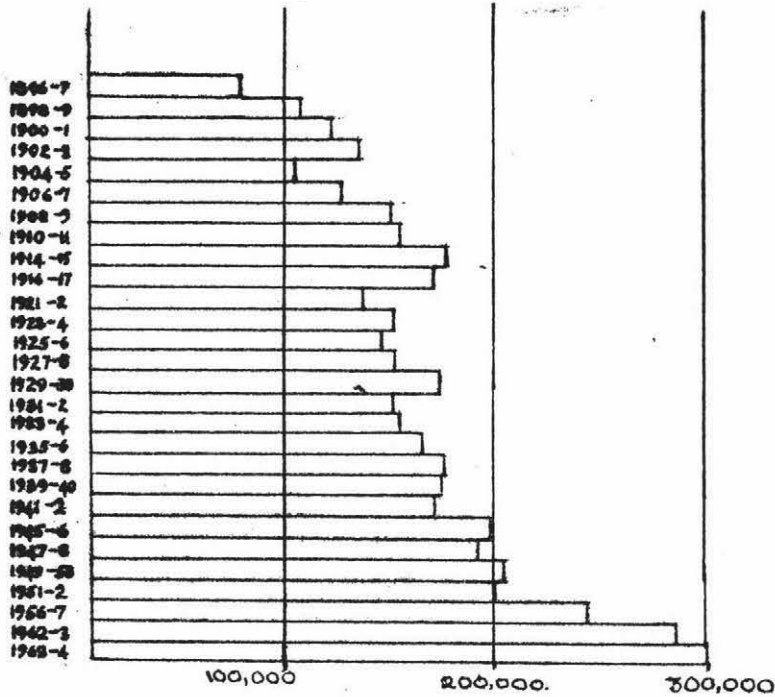
INCREASE IN MILKING PLANTS 1921-63



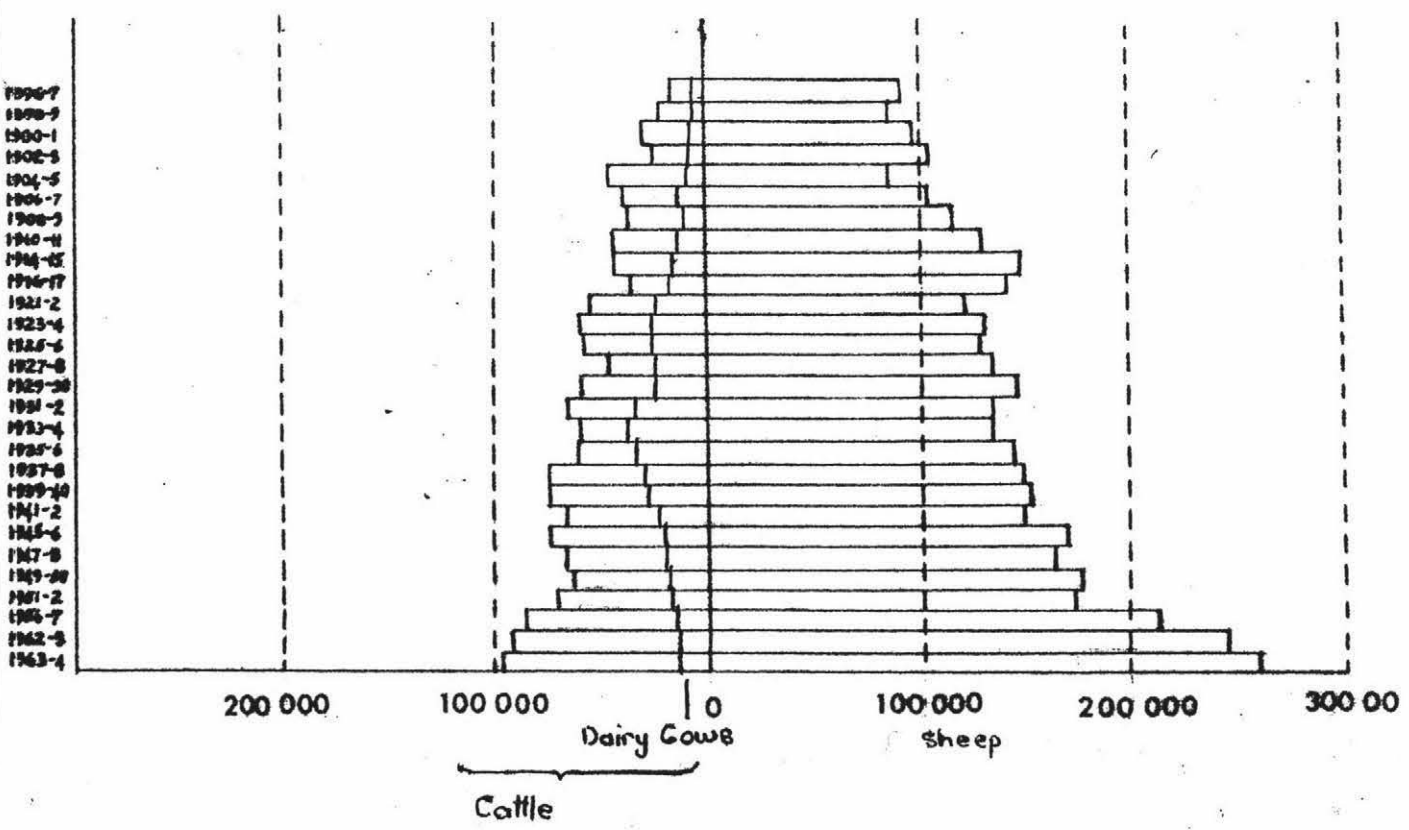
PIG NUMBERS 1896-1963



POHANGINA COUNTY: INCREASE IN SHEEP NUMBERS



RATIO OF SHEEP TO CATTLE TO DAIRY COWS IN EWE EQUIVALENTS PER ACRE



Ewe-equivalent figures from which all carrying capacities were calculated, and formed the basis of figures for total livestock percentages.

Ewe-equivalent figures (1967)

Supplied by the Department of Agriculture to the Valuation Department March 1967.

Sheep

1 ewe = 1 ewe

1 wether = .6 of a ewe

1 hogget = .6

1 ram = .8

Others = .75 (This figure was used for all unspecified sheep)

Dairy Cattle

1 cow = 6.5 ewes

1 calf = 2.0 ewes

1 yearling = 3.5 ewes

1 bull = 5.0 ewes

Others = 4.25 (This figure was used for all unspecified dairy cattle)

Beef Cattle

1 breeding cow = 6.0 ewes

Beef Cattle cont.

1 calf = 3.0 ewes

1 weaner or

1 yearling = 4.0 ewes

2 year old = 4.5 ewes

1 bull = 5.0

Others = 4.4 ( This figure was used for all  
unspecified animals).

## Appendix II.

Botanical names of native plants.Group 1. Swamp Forest.

Cabbage Tree	<u>Cordyline australis</u>
Putaputaweta	<u>Carpodetus serratus</u>
Karamu	<u>Coprosma lucida</u>

Group 2. Totara Forest.

Facebark	<u>Hoheria angustifolia</u>
Milk Tree	<u>Parastrophis micrphylla</u>
Kaikomako	<u>Penantia corymbosa</u>
Ramarama	<u>Myrtus bullata</u>
Titoki	<u>Alectryon excelsum</u>

Group 3. Kahiatea-Tawa Forest.

Kahikatea	<u>Podocarpus dacrydioides</u>
Kawakawa	<u>Macropiper excelsum</u>
Mahoe	<u>Meliccytus melifloris</u>
Pate	<u>Schefflera digitata</u>
Fuchsia	<u>Fuchsia extortica</u>
Rangiora	<u>Brachylottis repanda</u>
<u>Lianes in this group</u>	
Supplejack	<u>Ripogonum scandens</u>
Bush Lawyer	<u>Rubus dissoides</u>
Climbing ratas.	<u>Metrosideros perforata</u>
	<u>M. colensoi</u>
	<u>Muehlenbeckia australis</u>

	Tree ferns	<u>Dicksonia spp.</u>
Group 4.	<u>Beech Forest</u>	
	Black beech	<u>Nothofagus solandri</u>
	Mountain beech	<u>Nothofagus cliffortioides</u>
	Kohuhu	<u>Pittosporum tenuifolium</u>
	Kowhai	<u>Sophora microphylla</u>
	Lancewood	<u>Pseudopanax crassifolium</u>
	Mapou	<u>Suttonia australis</u>
	<u>The epiphytes of this group</u>	
		<u>Earina autumnalis</u>
		<u>E. mucronata</u>
		<u>Astelia solandri</u>
Group 5.	<u>Northern Rata-Podocarp-Tawa Forest</u>	
	Northern Rata	<u>Metrosideros robusta</u>
	Rimu	<u>Dacrydium cupressinum</u>
	Rewarewa	<u>Knightia excelsia</u>
	Pukatea	<u>Laurelia novae-zealandiae</u>
	Minau	<u>Elaeocarpus dentatus</u>
	Tawa	<u>Belschmedia tawa</u>
	Maire (black)	<u>Gymnelaea cunninghamii</u>
	Maire (white)	<u>G. lanceolata</u>
	Matai	<u>Podocarpus spicatus</u>

Figure 3.1. Source.



Oroua County Council.

1886

Rate Roll for the

Kiwitea Road District.

# POHANGINA 1886: HOLDINGS

-  Unsold land (forest).
-  Sold land (not necessarily cleared).

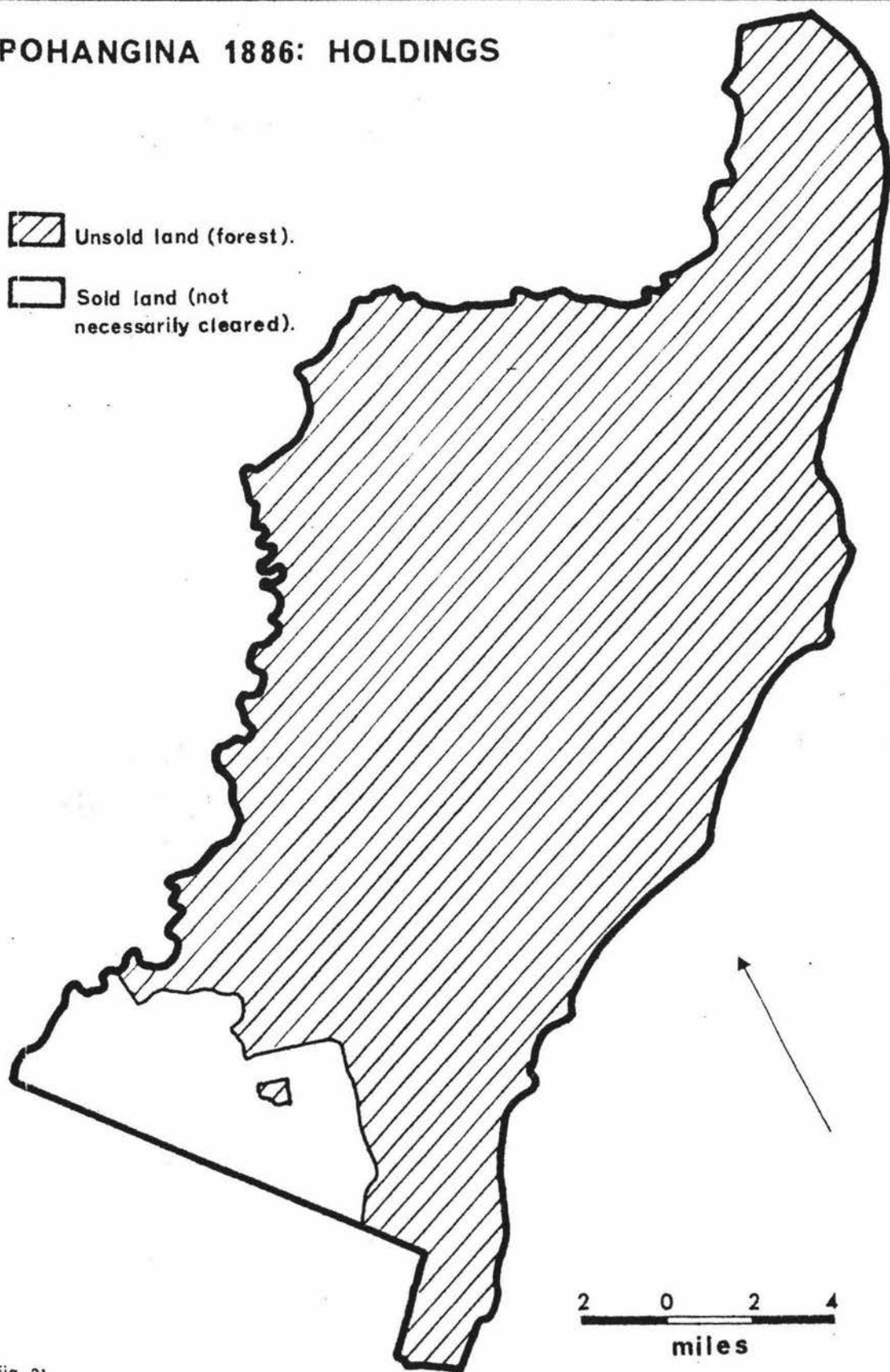


Fig. 31

Figure 32. Source.

Oroua County Council. 1892 Rate Roll for the  
Pohangina Road District.

**POHANGINA 1892:**

**HOLDINGS**

-  Crown land (forest).
-  Wanganui harbour land (forest).
-  Land sold  
(Not necessarily occupied or cleared).

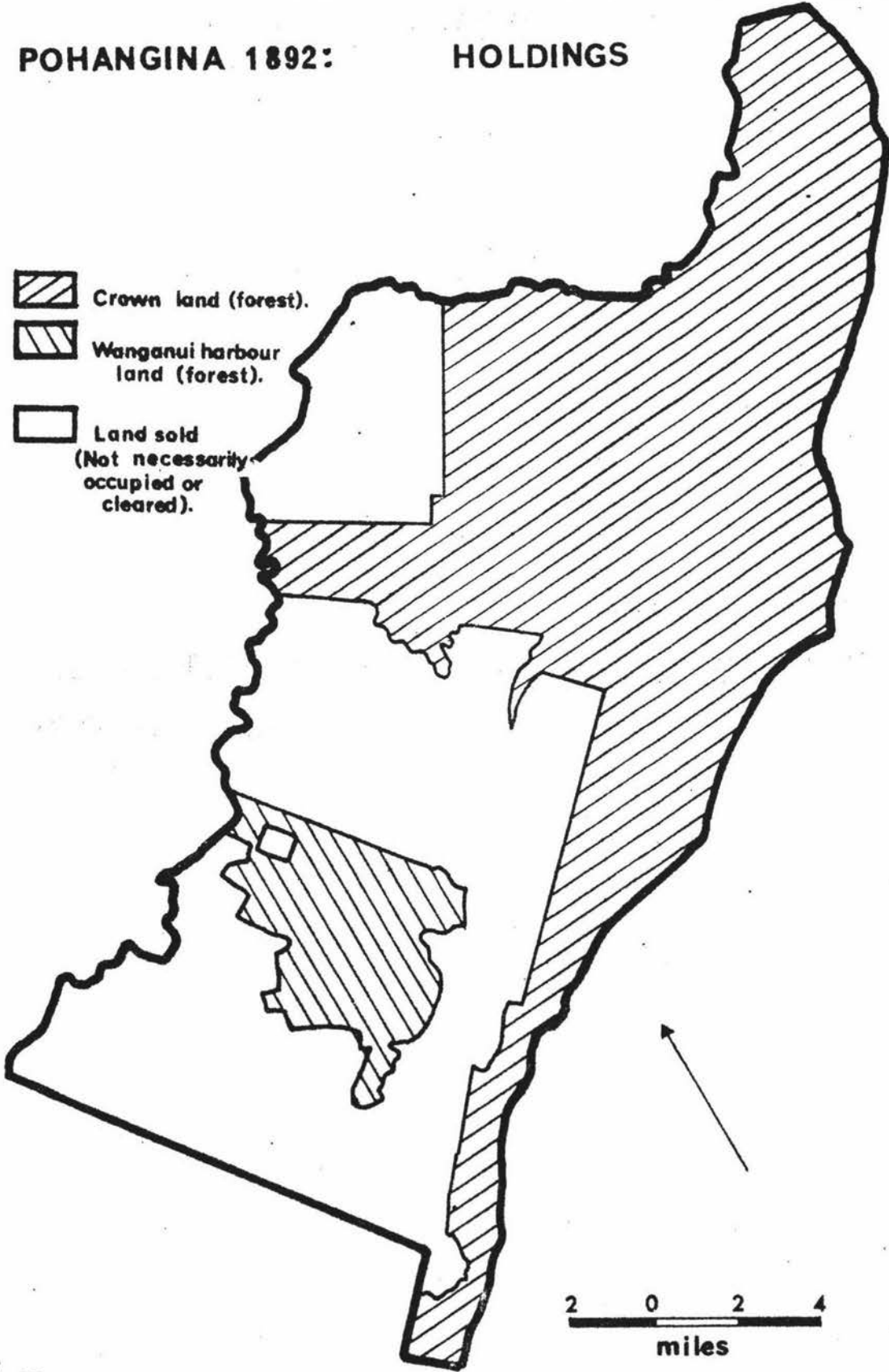




Fig. 32

Figure 33. Source.

Pohanning County Council. 1895 Rate Roll for the  
Pohanning County.

# POHANGINA 1895: HOLDINGS

-  Land unsold (mostly forest)
-  Land sold (not necessarily cleared)

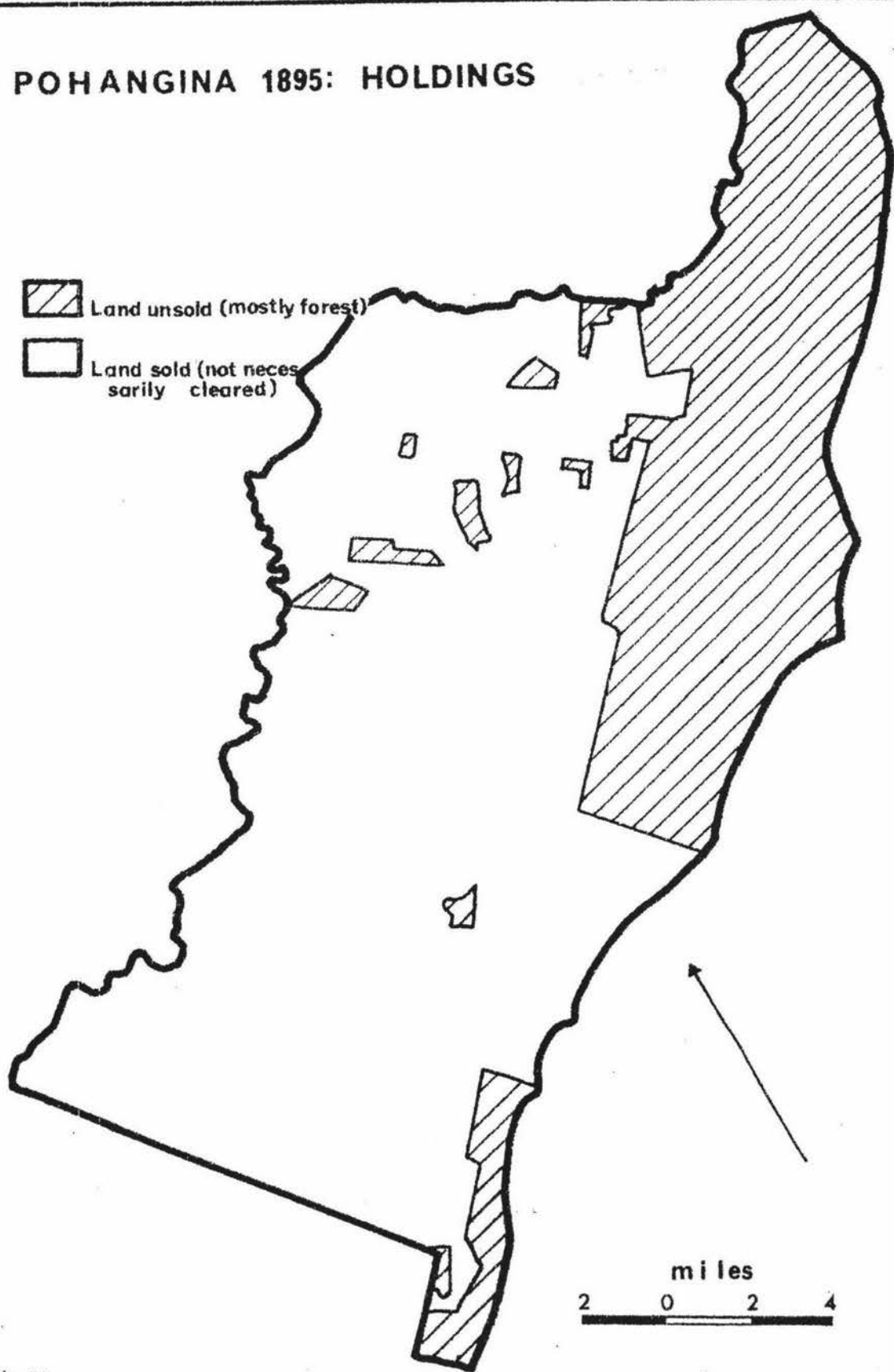


Fig. 33

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