

THE COURSE OF LAND VALUES

IN CANTERBURY

FROM THE FORMATION OF THE PROVINCE

TILL THE PRESENT TIME.

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N.A.*

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C156PRELIMINARY NOTE.

The subject of this thesis was chosen by me at the beginning of this session, because of its fundamental importance in the economic life of a young community. The work here offered has been subjected to even greater difficulties than were at first anticipated in a field in which nothing has been attempted before to my knowledge, even in the shape of searching out and recording data. Some of these difficulties are referred to in the text, and, although they have falsified some of the hopes with which I began the essay, I venture to submit the following sections as a preliminary study of the course, causes, and conditions of land values throughout the history of the chief agricultural and pastoral Province in New Zealand.

The period dealt with covers the transition of the Province from infancy to adolescence, and abounds in that peculiar interest which pertains to an evolutionary economic state in which progress has been rapid. Additional interest is added by the fact that it was in Canterbury that the system of regulated colonisation, associated with the name of Edward Gibbon Wakefield, was carried out more thoroughly than elsewhere.

The all-important position occupied by land has caused it to become closely associated with much of the historical, social, political and economic interests of the Province.

Changes in land values constitute a matter of perennial interest to all and of great concern to many. There arises the usual difficulty of distinguishing superficial changes from deep-seated movements. Of recent years the rise in

land values has been a great stimulus to interest in their past course, but as is clearly seen from the evidence given before the Cost of Living Commission in 1912, by many in positions of authority to speak on such a subject, estimates of the actual extent of the changes are widely divergent, and of narrow range.

One purpose of the following essay is to assist those who would arrive at a greater degree of precision by the application of the methods of economic research.

The Introduction and Part I. are in the main historical and theoretical. Part II. includes a further preliminary survey into matters affecting land prices. Part III. is devoted to the exposition of the data in tabular and diagrammatic form, and Part IV. embraces a critical and comparative examination of the results obtained in Part III.

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PART I. -- I N T R O D U C T I O N.

1. GEOGRAPHICAL.

The Canterbury Land District consists of the old provincial district of Canterbury, and stretches for a distance of about 200 miles along the middle east coast of the South Island. From the coast the land runs back with a gradual upward slope for an average distance of about 40 miles, to a high range of mountains -- the Southern Alps. Their snows feed a series of rapid flowing parallel rivers, whose courses are over the former glacial and delta fan deposits lying to the east and forming the Canterbury Plains.

The plains portion of Canterbury is semicircular or semi-ovalar in shape, the higher land curving round to the sea at Timaru in the south, and near Waipara in the north, and it is eminently suitable for all classes of agricultural, pastoral and dairy farming. As a consequence, the bulk of the population is found settled on the plains.

The quality of the soil ranges from heavy, damp, alluvial, peaty soil along the sea coast, to a light, shingly formation in mid-Canterbury, and lastly to heavier, damp soil at the base of the foot-hills.

The foothills and lower spurs of the Alps are all suited for pastoral purposes, while many of them, especially in the

northern and southern portions of the province, are used for cropping.

The mountain country extends throughout the entire length of the province, with an average width of about 45 miles, and includes the higher main range of the Island and its spurs. Its total area is 7,000,000 acres, 5,000,000 of which, comprising subalpine valleys and flats, are used for pastoral purposes. The remainder is barren, being composed of mountain tops, loess, riverbed and forest.

On the eastern edge of the plains at about their middle part is Banks Peninsula, a hilly district of some 262,000 acres, about 40,000 of which are ploughable slopes and 196,000 acres of hills are composed of rich volcanic soil, suited for pasture and grass seed growing.

The total area of the Canterbury Land District is 9,604,045 acres, and of this there are 2,604,045 acres of rich, arable land suitable for high-class cultivation, cereal growing, pastoral pursuits, and dairy farming.

The chief town of the province is Christchurch, which owes its prosperity to the rich plains surrounding it. It has grown from a small town, a mile square, to a busy city of 85,000 inhabitants in the space of 60 years.

There are two main ports in the province, Lyttelton, near Christchurch, and Timaru, one hundred miles to the south. Both ports engage in coastal and intercolonial trade, being provided with good, easily accessible harbours.

Smaller inland towns of considerable size are found elsewhere in Canterbury; such are Rangiora, Ashburton, Temuka and Waimate. Means of communication are well provided for. A trunk railway runs parallel and close to the sea coast connecting the ports and larger towns. From this line run numerous branch lines westward into the heart of the province.

The flat contour of the country, and a readily available supply of road metal, ensure a system of excellent roads. Numerous telegraph lines radiate to all the country districts.

The climate of Canterbury may be compared with that of the east of England. The prevailing winds come from the N.E. and the S.W., both of which are cool, moist winds. Situated about the 40th parallel south (Chch. Lat. 43 S.), Canterbury is within the range of the roaring forties. The result is that occasionally for long periods in the year the N.W. wind blows. Being changed from a moist to a dry, hot wind by the intervening Southern Alps, this wind rages with particular vehemence over the Canterbury plains, where it has a parching, withering influence. Its action in shifting the fine surface soil in spring, and of suddenly ruining harvest prospects, has exerted considerable influence in Canterbury agriculture. It is in part due to the wind and rain deflecting action of the Southern Alps that Canterbury has a climate on the whole drier than that of any other part of New Zealand.

Christchurch has an average rainfall of $25\frac{1}{2}$ inches (max. 35.3 min. 13.5) for a period of 36 years, and an average temperature of 52.4 deg. F. (max. av. 61.6 deg. F., min. av. 43.3 deg. F.).

Taking climate variations in sections, a heavier rainfall (60 in.) is recorded as the western mountain district is approached, owing to the frequency of N.W. showers. In this district, also, snowstorms occur both in winter and in summer and snow is permanent on all altitudes above 6,000 feet. Snow is seldom heavy on the plains. In general, the average rainfall for Canterbury falls as the coast is approached.

Taken as a whole, the climate is eminently suitable for agricultural and pastoral pursuits. In view of the frequency of the N.W. wind, the rainfall is rather scanty on the lighter lands, both for pasture and cereals.

There is sufficient keenness in the atmosphere to give a bracing, invigorating effect to human energies, neither the heat of the summer nor the cold of the winter being such as to affect these detrimentally in any degree. The frosts of the winter do good service in pulverising the soil, and in destroying injurious vermin, thus rendering great service to agriculture. Nor are they so severe as to necessitate the housing of stock. The general dryness ensures that the soil will keep in a sweet, open condition, and allows ample time for careful cultivation of the soil, and for the successful harvesting of the crops. In addition, it provides for quality either in cereals or in pasture, for in the absence of rank growth a firm grain will mature, and the smaller proportion of water in the grass makes the herbage of high nutritive value in proportion to its bulk. Hence the splendid fattening properties of the Canterbury pastures.

For the seasons 1911 - 13, New Zealand's average wheat yield, the bulk of which is grown in Canterbury, has been 25, 33, and 27 bushels per acre. The yields of all other crops grown in the district is correspondingly good.

The security of farming is aided by the regularity of the seasons which often can be accurately anticipated.

Generally speaking, the seasons are too severe for the plants of the higher temperate zone to yield well, with the result that the hardier crops are the rule.

The greater bulk of the Canterbury Plains was ready for the plough of the first settlers. Little expenditure was necessary for the purpose of clearing land of timber or scrub, as such were rarely found on the plains. However, along the heavier land of the coastal strip a large area was swampy and useless until drained. In mid-Canterbury the lack of water supply and the liability to drought prevented early settlement from spreading far from the rivers which, swift and wide, formed troublous barriers to travel and transport.

The native grasses -- the most prominent of which, the tussock, is a variety of poa -- provided good fodder for sheep and cattle. The vegetation of the swamps, composed in the main of raupo, toe-toe, phormium, nigger heads and fern, provided poor sustenance available only for cattle. The almost entire absence of native fauna eliminated a hunting stage from the evolution of the province, and also in part serves to indicate the comparatively poor quality of the native food plants.

Wherever cultivation has been carried out, the native grasses have disappeared; still, over vast acres of hilly country the tussock still provides food for flocks of sheep and cattle.

I have divided the land of Canterbury into four strips:-

(1) COAST STRIP: First-class land, generally reclaimed swamp, whose loamy soil abounds in rich peat. Its width is from 10 to 15 miles; length about 194 miles, and area $1\frac{1}{2}$ million acres.

(2) INLAND STRIP: Lighter land on a gravelly subsoil, stony in general and formed by river wash; subject to drought. Length 100 miles, average width 11 miles, and a total area of 640,000 acres.

(3) FOOTHILLS: Heavier land, partly reclaimed swamp and inclined to be sour, extending about 6 miles from the foothills, and fertilised by alluvium from these hills. Its altitude would be from 700 - 1000 feet above sea level, and the average rainfall about 27 in.

(4) HIGH PASTORAL COUNTRY: This is composed of high mountainous land, with a severe climate in winter. Its vegetation is scant and moderate in quality. It is about 40 miles wide, and it extends throughout the length of the province.

Both in the north and in the south of the Province there exist considerable areas of low hills, "downs," which would hardly fit into this classification by strips, except in so far as climate and productivity are concerned.

2. HISTORICAL.

The Canterbury settlement owes its origin to a band of Church of England adherents. Under the guidance of Wakefield and Godley, they entered into negotiations with the New Zealand Company for a tract of land to be used almost exclusively for a semi-religious settlement, under the supervision of the Church of England. This was in 1848, a time at which remedies for social distress in England were claiming the thought of many earnest statesmen. The outcome was the selection of the Canterbury Plains as the site for the future home of a

body of Anglican settlers of good standing.

In 1848, Major Kemp, on behalf of the New Zealand Company, had bought from the Maori Chiefs assembled at Akaroa all that piece of land lying between Kaiapoi on the north and Otago Heads on the south, and bounded by direct lines to the West Coast, for the sum of £2000, to be paid in half-yearly instalments of £500.

A portion of this acquisition was reserved for, and subsequently transferred to the Canterbury Association. The certainty of the title, the absence of natural obstacles, and of a warlike population, made Canterbury the ground par excellence for the trial of the Wakefield System. In no other colony were so many essential features of this system embodied in the general scheme of its founders, nor fostered so carefully as in Canterbury.

Although spasmodic settlement had been attempted here and there along the coast of what now is Canterbury, no systematic colonisation was attempted until the arrival in 1850 of the "First Four Ships" with bands of carefully selected immigrants, all possessed of capital and good character. The Association's Charter of 1851 set forth the terms on which the land would be disposed of. Land, it must be remembered, was the sole support of the finances of the settlement, and upon its sales depended the success or otherwise of the venture. Rural lands were to be disposed of at a minimum price of £3 an acre. The money received from such sales was to be distributed as follows:- 1/6th was to go to the Crown; 2/6ths to ecclesiastical and religious purposes; 2/6ths to assisted immigration; and 1/6th to surveys. The guiding principles of the Wakefield System was the sale of the public lands at a uniform price, and its consequent corollaries.

1851 saw the passing of the New Zealand Company, whose land purchases were taken over by the Crown, while two years later, in 1853, the Canterbury Association transferred its lands also to the Crown.

By the Constitution Act of 1852, six Provincial Councils were set up in New Zealand, among other things, to administer the sales of land, each under a Provincial Superintendent. Over all was a General Assembly of two Houses, sitting at Wellington.

Sales of land were pushed on vigorously, so that by 1862 such progress had been made in settlement that the ambitious scheme of piercing the Port Hills by a tunnel $1\frac{1}{2}$ miles in length, providing access from the Plains to a good port at Lyttelton, was commenced. In the same year the electric telegraph was, for the first time, installed. The immigration policy and vigorous sales of land at the "sufficient" price aided all public works. In 1863 the Great South Road, the chief link of communication throughout the length of Canterbury, was completed, and a feasible means of approach was now possible for settlers in the southern parts of the province. Then, too, was made the first line of railway in New Zealand, from Christchurch to Ferrymead, a distance of about six miles.

All the land of New Zealand was vested in the Crown, and all purchases had to be made from the Crown, those purchases made legitimately prior to the passing of the Constitution Act being confirmed.

Sir George Grey's proclamation of 4th March, 1853, dealt with the sale of land. The Crown would dispose of all rural blocks beyond 1000 acres in extent at the rate of 10/- per acre, but modifications were added which brought the price as low as 5/- per acre. This regulation did not prevail over the area formerly held by the Canterbury Association, where

land was still offered at £3, but, as might be expected, with very few sales. At this time some very large estates were founded just outside the Canterbury Settlement boundaries by Australian pastoralists.

In spite of the set-back to revenue in Canterbury caused by this proclamation, progress went on constantly in an unobtrusive way. A Trunk Railway was steadily constructed north and south. Roads -- never a serious item in such a level province, -- with copious supplies of gravel just below the surface -- were extended and improved. Bridges were built over the rapid and dangerous rivers, while a series of branch lines led the way into the very heart of the province. Coastal and international trade was improved. One of the greatest advances occurred when the art of using the rivers to provide a water supply for the plains was perfected. This vastly increased the area of good land available.

1876
As much progress as was possible was made while the conditions were those of an isolated country, but there were no striking advances made until the influences of foreign trade began to tell. In 1875 the provinces were abolished, and during the ensuing seventies and eighties, a wave of extreme depression engulfed the whole colony. In this very time were sown the seeds of change. Invention was coming to the fore. 1882 saw the use for the first time of refrigerating machinery on steamships, an invention of vital importance. At the same period, the reaper and binder in its perfected state revolutionised cereal growing, and later, in the nineties, the refrigerating process was further applied to butter with very happy results.

As regards population: the discoveries of gold in Otago and Westland in the sixties and the seventies had the effect of temporarily diminishing the population of Canterbury, and

subsequently increasing it, so that a steady increase was maintained. Since the effects of the gold rushes have passed, there have been no striking changes in the rate of increase of population.

The price movements of the world have been closely paralleled in New Zealand. Dr. McIlraith has shown in his "Course of Prices in New Zealand" that a continuous fall in prices occurred since 1860, with but few interruptions until 1895, whence there have been rising prices.

3. HISTORY OF THE CROWN LAND ENACTMENTS.

As the sale of land was the chief means of raising revenue to provide capital for progress, it was pushed on by the Crown, which was the chief land seller in the colony. Accordingly, this gives great prominence to all Crown enactments, affecting the sale or disposal of land.

In 1854 the Waste Lands Acts (1) brought in a system of dual control allowing each province to dispose of its land upon conditions sanctioned by the Governor of the colony. This system gave vested interests to each province, which made for conflicts with the General Assembly until such interests were destroyed or consolidated by an assimilating act in 1892.

In 1858 legislation (2) affecting the selling of Crown land was made, having a duration of about 17 years. Its main effects was to check the acquisition of big blocks by a limitation of area to 320 acres. Priority of application was set aside in favour of auction sale, while credit purchases

(1) 18 Vict., No.6.

(2) 1858, No.75.

were disallowed, and an upset minimum price of 5/- per acre was fixed. Under these regulations an upset minimum price of £2 an acre was fixed for all Canterbury land, irrespective of quality.

See Canterbury Hist. 177-300
 With such a system, anomalies were bound to appear, owing to the powers granted to Provincial Councils. These differences soon became harassing, and the abolition of the Provinces was urged, mainly on these grounds. Their abolition in 1875-6 necessitated a rearrangement, and a consolidation of the land laws. To show the complexity of the old system, 56 enactments of the provincial governments had to be repealed.

To dispose of the public estate, the colony was divided into ten districts, each supervised by a Land Board containing nominees of the Crown and representatives of the settlers, under the presidency of a District Commissioner of Crown Lands. Considerable power was granted to these Boards, including the right to increase the upset price of special lands, as well as a power equivalent to that of a Court of Law in all matters of administration. This system of control (embodying as it does both local and central control) has given such satisfaction that it is still in force.

Under this measure, Crown Lands were classified into town, suburban, and rural. The rural lands were to be disposed of in a manner specified for each land district in a way which assimilated as far as possible the usages of the former provinces. Areas of from 20 to 320 acres could be auctioned at an upset price of £1 per acre; but where special areas of poor agricultural land existed, it might be sold in blocks of from 500 to 5000 acres for pastoral purposes at the same price.

✓ Scarcity of capital demanded a system of deferred payments in which land might be obtained in proclaimed areas in blocks of from 20 to 320 acres, to be paid for either:-

- (1) At a price fixed prior to the sale; or
- (2) By auction at a price 50 per cent. above the amount bid.

1875 ✓ This system was instituted by the Land Act of 1875. Licenses to occupy rural land for ten years, during which selectors had to pay annually 1/10th of the price arranged, were also provided for. A progressive system of improvements, cultivation, and residence, was also included in the terms of the license, but the freehold might be acquired within three years, if desired, by payment of the residue of the purchase money. In the case of special pastoral lands set apart for purchase, the license lasted for 15 years, with an annual payment of 1/15th of the purchase money annually. The sale of lands upon the deferred payment system was linked up with the Public Works Department, which was authorised to hand over 1/3rd of the price of such lands disposed of to the local Road Boards, for the purpose of constructing roads to such lands. This important principle was extended farther, at a later date, to include payments of thirds of rents of all lands held from the Crown in the district to the local Road Boards.

1879 ✓ In 1879, the Act was amended so as to allow settlers to take up small lots of from 1 - 50 acres in extent, at a minimum price of £1 per acre.

1882 ✓ By an Act passed in 1882, the sale of areas of less than 20 acres was allowed, as well as the Lease in perpetuity of rural lands, but not more than one-third of the land open for

settlement in any district in any one year was to be leased. The maximum area of a block was increased to 640 acres. The leases were to be for a period of 30 years, with the right of renewal; and the rentals on the deferred payment lands might be capitalised on a 5 per cent. basis. Pastoral leaseholds might be increased to pasture up to 20,000 sheep or 4000 cattle.

The land legislation up to 1885 was trifling in comparison with the activity which then set in. The evils of land aggregation were becoming only too apparent, and strict limitations of areas of holdings were imposed in 1885, ^{due respect being paid to the quality.} Only two grades of quality were recognised, over and under 20/- unimproved value. The maximum area obtainable in one block was 640 acres first-class, and 2000 acres second-class land, while small deposits were to be made on allotment.

Radical political changes in 1890 and 1891 ushered in land laws of consummate importance. In an Act introduced by Sir John Mackenzie in 1892, the principles of the 1885 Act were extended. Wider option as to the leases and sales were provided for, while the lease in perpetuity system replaced the deferred payment, and the perpetual lease systems. This land Act aimed at putting the people on the land as distinct from creating an absentee landlord system. Hence, in every piece of land legislation are found stringent and exact provisions as to residence, improvements and sales, while the terms of rental were made as light as possible, so that the settler with but little capital might not in any way be prejudiced. Men of small means were given an opportunity to acquire grazing runs of 5000 acres first-class, and 20,000

acres second-class at a rental based on $2\frac{1}{2}$ per cent. of the original capital value; at the same time easy residence and improvement clauses were inserted. Provisions were also made for the letting by auction of larger pastoral runs.

A review of the 1885 - 92 legislation shows it to be liberal in the sense of making for a better distribution of the land of the province.[#] There was an attempt to provide land for all those genuinely in search of it for development purposes. Current opinion was that progress lay along the line of development of the resources of the soil -- even in spite of the persistent downward trend of prices. The bar placed on large estates was the natural result of the aggregation which had been a persistent feature since the proclamation of Sir George Grey, in 1852.

Startling ideas relating to the alienation and the occupation of the public estate were embodied in these provisions. The State had entered into a more important role as part owner. It also assumed a monopoly of large scale landlordism. A provision barred the continuance of large companies holding several dispersed estates.

But above all, stands the lease-in-perpetuity principle, which, while giving the Government wide control, was almost as attractive as freehold.

The Act of 1892 authorised the Crown to repurchase compulsorily land previously alienated to private owners under the earlier Waste Lands Acts. The application of this new principle was limited to estates of a certain specified kind, usually large areas suitable for closer settlement, but the principle once established was capable of extension.

The period from 1893 to 1903 is one of intense interest, because of the purchasing of private estates by the Crown, and

[#]This legislation, of course, affected the whole of N.Z.

the placing thereon of numerous settlers by the ballot system.

To enable the successful working of their lands, by men of small capital, the Government undertook the role of State moneylender, borrowing in London at easy rates of interest, and subsequently lending to settlers on land security at more favourable terms than could be provided by private agencies. This meant the establishment of the Advance to Settlers Office, an institution which has been opened in other colonies under the name of a Land Bank.

The great success of the settlers on most of these early lease-in-perpetuity settlements, and the unabated demand for still more selections, led to the demand that the conditions of the leases should be made less kind. By an Act in 1908, the lease-in-perpetuity gave way to a 66 years' lease, and later still, to a 33 1/3rd years' tenure, which is the term now in vogue.

PART II.- METHODS and PRELIMINARY SURVEY.

1. GENERAL SCOPE of the ENQUIRY.

I intend in this thesis to indicate the trend of land values in the province of Canterbury since its foundation by the Canterbury Association in 1850 to the present time; and to show how this trend is related to the changes in the political, economic, and general social welfare of the province.

As to the scope of the term "land," I propose to deal with rural land only, that is, land whose main purpose is to provide opportunity for agricultural and pastoral pursuits. No consideration will be given to lands which form parts of towns or villages, or are regarded as suburban. The "land" of 1850 -- all in its native state, is, of course, a very different thing from the land of 1914, enriched by the application of "doses" of unexhausted capital and labour.

The value of the land will be taken as indicated by the price accepted at sales, or the rental paid at lettings.

To arrive at values and their changes, I have investigated the records of sales and leases during the period. These two kinds of records are interconnected, and the values are usually expressed at a certain money rate per acre. Both the extensive and the intensive methods have been followed. Leaseholds serve the purpose of intensive search better than do freeholds, as the lease of a given parcel of land falls in at regular intervals. Freeholds, on the other hand, seldom are appraised so frequently, and it is very difficult to find a piece of land which has been sold and resold at frequent intervals. Freehold tenure, therefore, hardly allows of

intensive investigation, so in this case I have endeavoured to arrive at values by the examination of a large number of sale records of the given class of land, and to arrive at the current value by the process of averages.

With the leasehold records the changes in value of the same land can be observed, and leases falling due at certain dates can be averaged for each date.

The method of index numbers is a convenient means of comparing values at various periods with those of a given "base" or standard period. To enable comparisons to be made, I have chosen the decennial period 1890 - 99 as the standard period wherever possible. This is the base chosen by Dr. McIlraith in his work on "The Course of Prices in New Zealand", and has been selected by many others as a suitable recent standard period, containing as it does samples of falling and rising prices.#

The first part of this inquiry will plainly be historical and inductive, requiring as it does the accumulation of evidence and statistics. The latter part will provide scope for deductive reasoning, having reference to the results acquired by induction. Deduction is necessitated in reasoning, for example, from the correlations shown to exist between the different series of figures.

R.H. K

#See article on "Course of Prices" by Hooper in Journal of the Royal Statistical Society, Dec 1911.

2. -- CLASSIFICATION OF LAND AND DESCRIPTION OF LANDS

to which the data refer.

Perhaps no single commodity can afford so many gradations of quality as can land. Classification must be according to quality when the question is one of "value." The quality of land depends on a host of considerations, and illustrates the importance of the idea of continuity in economics. Dr. Marshall lays down the minimum consideration as a distinction between "barren" and "fertile" ground. As a question of economics, only the latter kind need be considered, and of it there can be made many grades, arranged according to their respective degrees of usefulness. In estimating the quality of land, we must take into consideration such matters as the following:-

1. The contents of the soil, and its composition, physically and chemically.
2. The porosity and texture of the soil, and its suitability for plant growth or for cultivation.
3. The contour of the land, and its nature as to its power of conserving water supply.
4. The rainfall, conditions of wind, temperature, and the seasons.
5. The accessibility of the land.

In general, two wide divisions have been made in classifying land, viz.:-

1. Land suitable for grazing only (Pastoral Land); and
2. Land suitable for growing crops of cereals, roots, etc., and hence admitting of cultivation (Agricultural Land).

No such classification can be rigorously applied, however, for many shades of differences exist in such a division. There is agricultural land which at times is used mainly for pastoral purposes, as, for example, when bad seasons or low prices for

agricultural products make such farming unprofitable. Again, pastoral land in the early stages of a country becomes agricultural later on. The need for conserving soil energy leads every year to a large area of agricultural land being used for grazing, in accordance with certain approved rotations of crops. Improvements in farming methods, in communications, changes in tariffs, tenures, and great inventions all have some influence on the use to which land is put.

In the early days of the province, the most brisk settlement went on in the heavy seashore semi-swamp lands, and in the grazing runs of the foothills. The drier wind-swept mid-plains were carefully avoided.

The advent of water races and the frozen meat trade changed all this, and now these dry plains are being cultivated, and crops grown successfully in connection with sheep farming. Every year sees the margin pushed out farther, poorer land taken up and subjected to some purpose of production.

In Canterbury we can seldom point to a given farm and classify it as either agricultural or pastoral. Such is true only of the pastoral estates of the Southern Alps, where cultivation is physically impossible.

On the plains such may have been true, thirty or forty years ago; but now every year sees farming becoming more and more a complex occupation, and the processes on any one farm more varied.

The Plains have earned a good reputation for wheat growing, and this at a time when, under a system of extensive

cultivation, wheat was grown year after year in succession, being practically the farmer's sole crop. In its virgin state the land responded fairly well in spite of such impoverishing treatment; but it was fortunate that other industries arose in time to prevent its absolute exhaustion.

This system of "one crop farming" was necessitated largely by the disadvantages under which stock was kept on the plains in summer time, owing to the scarcity of water -- a difficulty not overcome till water-races tapped the supply in the rivers. Thenceforth agriculture was joined with pasturage more intimately, and the present intelligent generation of farmers on the plains combine crop growing and pastoral pursuits in accordance with the best agricultural theories. The system of cropping throughout Canterbury is pursued on a definite, scientifically based rotation; the cereals are now interchanged with roots, legumes, fodder plants -- crops formerly rarely seen. The farmer looks to his fodder crops to fatten store sheep, which can be readily procured from his western neighbours, the hill pastoralists, though he himself also usually keeps a small flock of ewes for breeding purposes. On the heavier coast lands dairying is a third resource, cattle being preferred to sheep on the more moist lands. Though dairying, cropping and fattening stock have always held sway in these districts, dairying has much increased since the establishment of butter factories and creameries, under the co-operative system, and the fattening of stock has eased off.

I have thus written at some length to give some idea of the futility of any rigorous classification of Canterbury Plains land into pastoral and agricultural land, for such would be misleading when applied over any considerable period.

It must be considered futile when it is remembered that we are dealing with an area which has been brought from its virgin state to one of intensive cultivation during the period which this investigation embraces -- a period of momentous change in every industry in the world, and in none, perhaps, more than the agricultural and pastoral industries -- transport excepted.

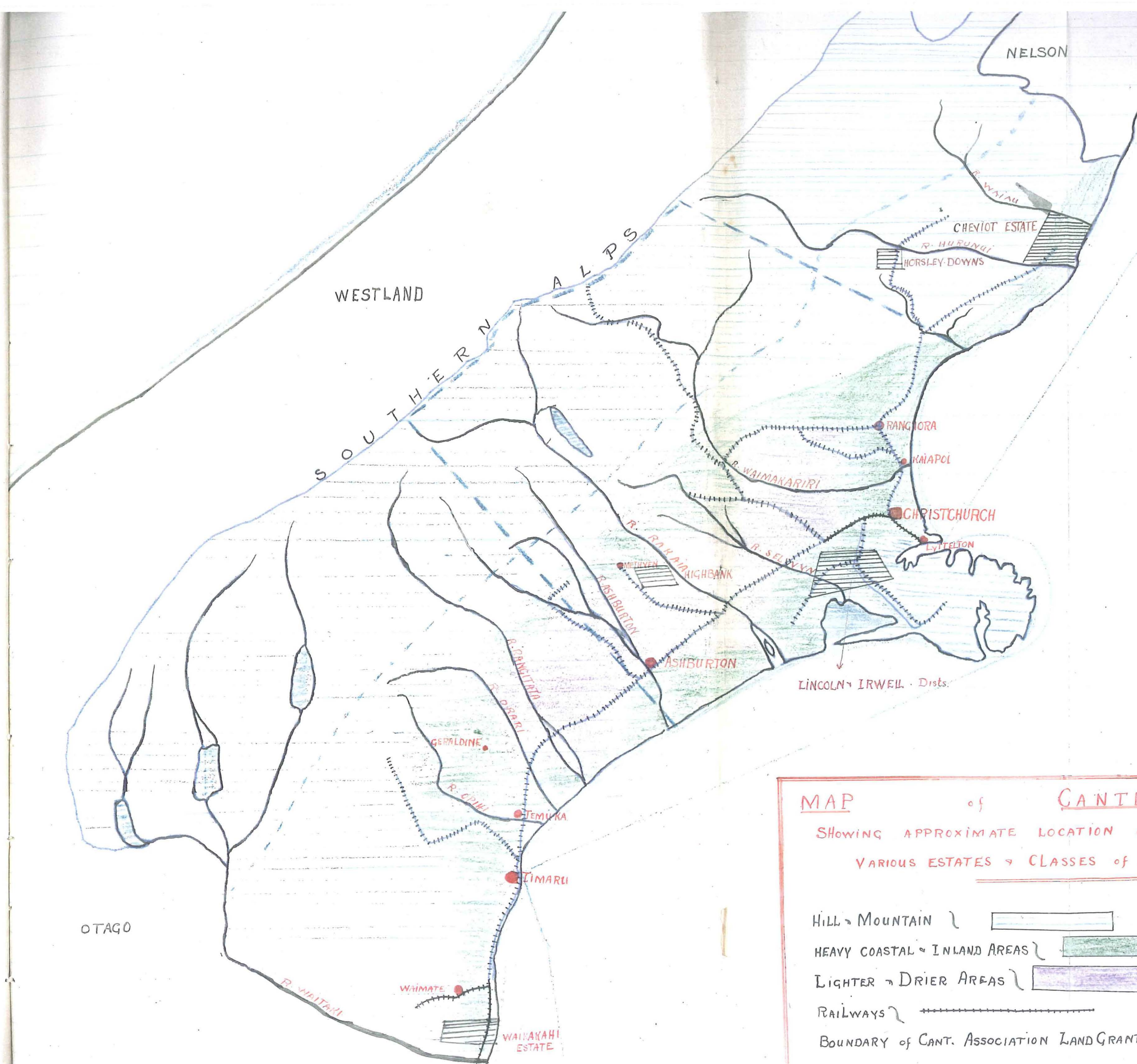
With these reservations in mind, I propose entering upon a classification of lands into three divisions:-

1. Pastoral;
2. Agricultural; and
3. Heavy Agricultural and Dairying land.

As merits for such a classification, I claim:-

1. Simplicity;
2. Suitability to the land in question;
3. Adaptability to the main divisions of farming pursued; and
4. Elimination of difficulties arising from changes in nature, of the use to which land may be put.

So far as Pastoral land is concerned, I have endeavoured to obtain data relating to lands which have always continued as pastoral areas in the main, down to the present time. The land is selected from all parts of the province, and embraces both plains and hills. In this connection, I have thought it wise not to include those large "runs" in the



MAP of CANTERBURY

Showing APPROXIMATE LOCATION of the
VARIOUS ESTATES & CLASSES of LAND

- HILL & MOUNTAIN }
- HEAVY COASTAL & INLAND AREAS }
- LIGHTER & DRIER AREAS }
- RAILWAYS }
- BOUNDARY of CANT. ASSOCIATION LAND GRANT. }

mountainous part of the Southern Alps, as they are held under peculiar conditions, and are subject to a multitude of untoward changes and influences. The greatest difficulty with these estates lies in the fact that they are amenable to no form of classification, which does not assign each to a separate class, owing to their strange individual characters.

As regards Agricultural land, I have made a wide selection embracing such land in all parts of the province. In so doing I have included lands of varying nature and aimed at a good representative selection of agricultural land. Wherever possible, I have selected districts which have earned a reputation for particular branches of farming. I consider that there are districts in the province sufficiently homogeneous in the character of their soils to provide such data. There can be found on such a large expanse of flat land as the Canterbury Plains, areas whose quality is practically constant, and on which all the farms are engaged in the production of almost identical crops; any differences observable, when totalled, are so slight as to be negligible.

Proceeding on the above principles, I have taken the Irwell - Leeston district as a typical wheat-growing area, and the Lincoln - Taitapu district as a typical dairying and general cropping area. With both these districts I have close personal acquaintance.

In classifying lands on the Government Land for Settlement Areas, I have relied partly upon the classification made by competent land valuers at the dates of purchase, and partly

own
 upon my/personal knowledge, combined with descriptions issued by the New Zealand Department of Lands. Unfortunately, these, which are the most reliable records of sales available, go back about 20 years only (to 1894). I have been able to obtain no satisfactory records of sales prior to 1894 from any land agency or Government Department. The only source of early information is the columns of the "Lyttelton Times," a daily paper published in Christchurch since 1851. Descriptions of properties to be auctioned usually appeared in the advertisement columns, and from these descriptions an approximate idea of the character of the land could be formed, using, of course, a broad, simple classification. This fact may be used as an additional justification of the method of classification I have pursued.

For rentals, I have investigated the records, which have all been preserved intact, of the leasing of the endowed lands of Canterbury College. In dealing with these I was assisted by the judgment of the College land ranger, a man of long experience in, and with an intimate personal knowledge of the lands in question. In their case I have adopted a threefold classification, the additional class being composed of heavy agricultural and dairying land, formerly swamp.

Summarising, the sources of data are as follow:-

1. Lease Register of the Canterbury College Endowment Lands (1869 - 1914).
2. Valuation Office Records in Valuation Rolls (1902 - 1913) for special districts.
3. Sales of goodwills of leasehold areas on Crown Settlements (1893 - 1912).
4. "Lyttelton Times" reports of Land Sales (1876 - 1896).

The records from (2), (3) and (4) have been incorporated to form one continuous series of sales of land. The records from (1) form by themselves a continuous series of lease transactions.

3. -- RELATIVE VALUES OF THE DATA AND SOURCES OF INFORMATION.

It now remains to make a criticism of the relative values of the various data, and of the sources from whence they are derived. In compiling the data, one of the greatest difficulties was to get actual data at all. While many agreed that certain changes of an important kind were proceeding in land values, few were found who could furnish actual figures or accounts of good representative sales. Striking and exceptional cases remained tenaciously in their minds, and generally biased their views. For these reasons, I made little attempt to set down data given by farmers and others interested in land. The farmer has a natural reluctance to state even in confidence the results of his land dealings. These dealings have often been complicated, so that it is beyond his power to state what he bought or sold for in actual money.

For actual data I have, therefore, depended only to a slight extent on farmers; but I have made use -- I hope judiciously -- of their willingness to state opinions and generalize on the course and causes of changes in land values.

In Canterbury we have no representative land agency firm of long standing. Though representative firms exist, they have in all cases passed through various vicissitudes which have impaired their continuity. In their eagerness to do business, the importance of records for economic or other investigations has never been considered by local business men. No firm has records of sales preserved for any long period; such have been destroyed soon after sale transactions were completed. From what should have proved a valuable source of data I was, therefore, compelled to turn away.

The development of the country has been such as to prevent or discourage the existence of large landlords, who, in the ordinary course of events, would possess rent rolls from which valuable evidences of changes would have been obtained. In this respect, fortunately, there is one exception. Canterbury University College, at its foundation, received large endowment lands, which have been leased on tenures of seven years, and fourteen years. These records have been my most valuable source of data, as they have the virtue of continuity, embrace representative land, well dispersed throughout the province, and are practically as free as possible from all disturbing influences which often cannot be estimated. The method of leasing has always been by public auction, so that the figure paid is representative of competition value.

It is characteristic of Canterbury leasehold property that no compensation is made to the tenant for improvements made. Hence, the tenant undertakes no improvements except such as will return their cost, and something over, before the expiry of the lease. The burden of the improvements then lies on the landlord. On the Canterbury College lands improvements are not great proportionately to the value of the land, so that in the leases little will count as interest on property that is not land.

Failing to obtain records of sales from land agents or auctioneers, I undertook a search through the files of the "Lyttelton Times," the oldest established journal in the province. These reveal sales made as far back as 1876, but none appear before this date. Even since 1876 the practice of reporting has not been regularly followed. Often during a certain year none of the occurring land sales were recorded. The accounts of the sales were sometimes reported by the

agents effecting the sales; at others by reporters who were in attendance. Comparison of auctioneers' returns with newspaper returns, wherever this has been possible, absolves the auctioneers from the charge that they may have "padded" the return for advertisement purposes.

This particular portion of the investigation entailed a good deal of search, and the rejection of many instances of sales, on account of the dangers of error with which they were fraught. To arrive at a classification was the main difficulty. This was finally accomplished by a careful examination of each property as described in the advertisement bill published prior to the sale. To provide a further check, I brought personal knowledge, both by enquiry and inspection, to bear upon many of the areas concerned.

Even after taking such precautions as these, I am conscious that the probability of error is not trifling, for the very reason of the complexity of the question. To avoid as much as possible the inclusion of improvements, all the instances of sales have been taken from the March, April, May, and June files. This examination made in the period just after harvest does away with the risk of including growing corn in the sale price as a part of the land value. The most that can be claimed from such returns is that the large number of instances taken will provide an average which will show a "tendency" in values, though giving no very accurate measure of absolute values in any particular year.

For taxation purposes all the land of the province is valued, by skilled land valuers at intervals of about four years. At such times the capital value and the value of the improvements are both assessed separately. To arrive at an

assessment, each valuator is supplied with the results of recent leases, and land sales, happening in the locality, and such results aid him very considerably in making a valuation. From the books of such valuations, I received much assistance as regards sale records. These records were also checked by deduction of the estimated value of improvements, and a truer value of the actual land arrived at.

I have had full assurance that the valuations so made by State officials are entirely trustworthy; and they are now usually made the basis of mortgages or any other loans upon land property.

Unfortunately these records do not go back farther than 1897 in a really helpful form; for prior to 1896 the valuation was carried out in a very unsatisfactory fashion. The reorganisation in 1896 served to make it a regular system, and since then records have been partly conserved. The records of the sales are obtained from the Land Transfer Office when, after a sale has been effected, the deed of transfer is drawn up and the consideration money stated therewith. The amounts of such consideration money are duly entered in the valuer's book.

Another reliable source of data is the records of transfers and sales of leases on Government Settlements. Here a computation of the value of the improvements made is given, which enables deductions to be made from the sale price, which is also stated. Better classification was also possible in this case on account of the fuller descriptions, which are a part of each lease covenant, and which also appear in special pamphlet form. They also possessed the further virtue of greater continuity in that the same land was more often considered.

A defect common to all the sources of data availed of is their lack of continuity. They were all set down intermittently, and therefore I have been unable to obtain records for some particular years. In such cases I have thought it unwise to interpolate data. Intermittency in the case of leases is definitely explainable, but in the case of sales it may be due to various undefined causes.

The smallness of the total area of swamp lands in Canterbury has increased the intermittency in the data of that class of land, while pastoral lands suffer least of all from this defect. In recent years a complex system of selling has been much in vogue, and land has been sold on such terms as would make it almost impossible to arrive at the actual price paid.

Perhaps proportionally less land is transferred at auction sales now than at any period, and it is hopeless to endeavour to unravel the intricacies of private bargaining.

Referring back to the newspapers as sources of data, I must point out that from the information they supply, no estimate of the value of the improvements can be readily arrived at. Such is a serious defect, as it obscures the value of the bare land considerably, especially in the case of small acreage farms, where value of the improvements necessitated by intensive farming bears a high ratio to the capital value, or to the sale price of the farm. Even in the most detailed descriptions, the improvements stated are usually only the most tangible, such as buildings, fences, plantations, etc., while drains, condition of surface soil, water supply and such like important improvements are seldom or never mentioned.

Feeling that it would be hopeless to allow for the value of improvements in many cases, I have aimed at including only typical farms, i.e., ordinary farmsteads where the ratio $\frac{\text{Value of improvements}}{\text{Capital value of land}}$ is a fairly constant

quantity. Thus, in including the improvements with the land, changes in values will be changes in values of a composite quantity (land plus improvements). Such should give a general idea of the course of land values; for in the majority of cases, land is the major portion of the compound.

An objection to such treatment would be that changes in the price of land were merely indications of the changing amounts of capital placed in the land. It would be just as correct to say that land that has been treated to a dressing of manure has the value (land plus manure), as to say that a building placed on land gives it a value (land plus building); in the latter case the values of the land and improvements can be differentiated by a valuator; in the former they cannot. A similar condition applies to doses of labour expended in tilling the land.

It seems, then, that from the newspaper data available, only an approximation of the value of the land at many dates is possible. As a rule, the earlier the date, the poorer the data, and the more difficult it becomes to assign the land to the class correctly. It is very important to bear in mind the assumption which one is forced to make, that on typical farms the ratio value of improvements to value of land has remained constant throughout long periods, for influences such as interest rates, changes of tenure, equi-marginal improvement returns, have been undoubtedly at work to modify this ratio.

4. -- AVERAGES AND INDEX NUMBERS.

To simplify and condense the mass of data gathered, and to secure the additional advantages which accrue to the use of this device, I have resorted to the method of averages. On account of its wide scope and ease of application, the simple arithmetic average has been most widely used. It has been used to arrive at the annual averages of sales and lettings, and the general averages.

The weighted arithmetic average has in no case been used on account of its doubtful efficacy in such an investigation. In setting aside the use of "weights," I am following the example of many other investigators, who seem to account their worth less than the trouble and difficulty involved in their discovery and application. A large number of instances has been sought, rather than correct weights.

In subdividing the tables into periods of five years each in duration, I have worked out a quinquennial moving average in several of the tables. This has served to even out the table, though its use is not so apparent in this enquiry as in one where a greater periodicity in movements of price is noticeable.

In the case of the Canterbury College leasehold land, an arithmetic average of all the averages of the five years has been set out. In addition, the average of the year when most leases were sold -- the "model" year -- has been tabulated, and is shown along with the other quinquennial average on Diagram.

In regard to sales of land, I have obtained each year as large a number of transactions of a typical nature, and have then worked out their simple arithmetic average. This gives the average price of land of that class for the year.

To present the results of this investigation in better form, I have made use of Index Numbers. Roughly, this is the method of comparing average prices at any date with the average price existing at or during a certain period, chosen as the "base" or standard period. Index numbers permit of ready comparison of data, and facilitate a better grasp of changes than do simple averages.

The period 1890 - 1899 was chosen as the base period in an enquiry conducted by Dr. McIlraith into price changes of many commodities in New Zealand, and is used in his "Course of Prices in New Zealand."

This base seemed suitable also for the purposes of my enquiry, and so I have adopted it. Such a course will allow of a ready comparison in changes of land values, with changes in the values of other commodities.

The period 1890 - 99 is not only the base period of another economic investigation, with which comparison is thereby facilitated, but it has the advantage of being a period of normal development in Canterbury. True, it has been asserted by Sauerbeck that a period of high prices should be selected as the base period to minimise the undue effects of specially high prices upon the general average, but against the adoption of this view in the present instance, is to be set the difficulty involved in making comparison with earlier years. The period 1890 - 99 affords a better standard of comparison, both with the early years of the province and their peculiar evolutionary character, and with the more recent years of a much closer approximation to economic stability.

Briefly, the compilation of the index numbers given in the following tables was carried out as follows:

The average annual prices for the decade 1890 - 99 were summed, and their simple arithmetic average taken. This average (x) was equated to 100, and the index number for each year was found by multiplying the ratio of the annual average price for that year to (x) by 100.

5. -- RENT AND SALE PRICES.

In Canterbury, the charge made by a landlord for the use of a parcel of land, and the improvements thereon, is familiarly known as "rent." This rent is reckoned as an interest charge on the capital value of the land, and is thus not "true rent" according to Ricardo's analysis. Plainly, it is a composite matter which, upon analysis, may be split up as follows:-

1. Interest on invested capital;
2. Maintenance expenses and insurance charges;
3. True Rent.

The Capital value of all land is assessed regularly by a competent officer of the Government Valuation Office, and the improvements value is deducted therefrom to arrive at the unimproved value. This is an assessment not easily made, for many influences exert pressure upon values of land. The use to which the land may be put, the situation of the block, the selling prices of land in the vicinity, are a few of the considerations of importance.

So far as the land represents an investment of capital on behalf of the landlord, he will expect his "rent" to give him a return equivalent to prevailing rates of interest on other investments. Also, all improvements mean capital invested, and the rent must include interest on this capital and, in addition, furnish a maintenance and depreciation fund.

Before proceeding further, it must be mentioned that it is the custom in Canterbury for the landlord to undertake all improvements, so that there is no arranging of compensation to outgoing tenants.

So far, the "necessary" returns to induce the investment of capital and the maintenance of the industry have been considered. There remains that part of the rent which ranks as

"surplus", in that it is neither returns to capital invested by landlord or tenant, nor a maintenance fund for land, labour, or improvements. This is a differential return arising out of special natural or situational advantages enjoyed by that land as compared with "marginal" land. This is "true rent" in the Ricardian sense, which figures largely in the "unearned increment" of the Single Taxers.

The distribution of this return varies according to the various intensities of demand and supply existing between would-be landlords and intending tenants, and to the keenness of competition.

These considerations seem to point to the fact that rents of land should be closely related to the prevailing rates of interest on investments, and to a lesser extent upon insurance and depreciation premiums. An additional disturbing agency on attempts to capitalise the true value of land from the rent charges, is found in the fact that the more extensive the improvements are, upon a farm, the larger the part of the rental to be classed as interest upon pure capital.

The same considerations crop up in the case of land sales. A sale is usually of a block of land -- a typical farm with all its improvements, and the price is quoted at per acre, but into the price there enters payment for improvements. These improvements are often proportionately greater in the case of small areas than of large, and have a like significance in the land price. Seldom, moreover, is the value of the improvements definitely set down at sales; it usually is left to the individual assessment of the intending purchasers.

There always exists, however, a close relationship between sale prices and rentals; indeed, rentals capitalised are often cited as sale prices. Contrasts and similarities, however, occur when a comparison of the two are made.

(1) Rents are long period prices, inflexible for a definite period on account of the deed of contract. In Canterbury, leases of agricultural and pastoral lands are seldom less than seven years in duration, and often extend to 14 years and 21 years. The true rental at the signing of the lease may or may not be the true rental in the middle or at the end of the period. This will depend upon changes in the value of land, and in the rate of interest. The ruling prices for farm products will also have a great influence. In a period of rising prices, rents will usually be fixed at rates above sale prices, on account of the discounting of probable changes which will be made in the competition by both landlords and tenants. Probably, in times of rising prices, leases will be discouraged on this account. The opposite effects may be expected in times of falling returns to the farming industry, in the shape of falling prices for farm products.

(2) Let us suppose a person has the option either of leasing or of buying a piece of land; he will usually, if he sees a prospect of land values rising, pay a higher price (provided he can raise a loan) than the rent capitalised would give. His idea would be to pay interest on a mortgage rather than rent, because, in the former case, he would be able to realise to his own advantage every rise in the value of land by selling. In the case of leasehold land, the lessee's interest is often removed by restriction on the right to sell the good-will, so that the tenant cannot realise the value which the land has acquired. Moreover, in spite of increases in land values, this value decreases rapidly as the term of the lease nears expiry..

In problems of sale and rent, the provision of the necessary ready capital to effect bargains of this kind, is important. The payment of a cash deposit upon the deed of sale being signed, which is often published in the "Terms of Sale" issued, often limits the number of purchasers, only those able to provide this deposit being able to make their demand effective.

Should large deposits be the rule, men of small means will be compelled to seek leases, and thus the rents offered for leasehold lands will increase.

At sales of leases, usually six months' rent is required in advance upon the signing of the lease covenant, but this is small compared with the deposit required upon acquisition of the freehold, and that at a time when the buyer is sorely in need of capital in easily available form for development purposes.

Lastly, the terms of the lease must be examined. Many leases contain stipulations restricting the free action of the tenant, provide for inspection by a hated bailiff, and otherwise cause an irksomeness which cannot fail to be reflected in the tenant's bid. The very fact that he receives no consideration for improvements limits, in all probability, his development to the full, of the productive powers of the soil, and so restricts his rent-paying capacity. Again, such temporary improvements that he may be induced to make require a very heavy rate of depreciation, and their temporary nature cannot but add to their costliness.

During the past seven years, a system of deferred payment has appeared in connection with sales of freehold land. Easy terms of purchase are given so that, at first sight, a

purchaser really believes that he is securing his land on exceptionally good terms. Part of the purchase money is deposited, and the deeds of the property are handed over when, say, one-third of the purchase money has been paid. With the upward wave of values now prevalent, the seller simply recoups what he yields in terms by increasing slightly his price. During the same period, the rising of the land agency business has been contemporaneous with the development of an intricate system of "high finance", in the form of exchanges, low rate advances, double sales, etc., all of which influences serve to inflate the prices paid for land, as well as to obscure what actually is the basis of payment. Indeed, the discovery of actual prices for land is more difficult in recent years than at more distant dates.

This points out how variations between capitalised rentals and sale prices may be expected to arise, and may serve to indicate precautions necessary in comparisons of rentals and sale prices.

6. -- CANTERBURY LAND IN RELATION TO NEW ZEALANDLAND IN GENERAL.

The extent to which the lands of Canterbury Province can be taken as typical of the land of New Zealand requires notice. Canterbury is par excellence the agricultural province of New Zealand. The contour of the province is a sufficient reason why this should be so. In no other province does such a large proportion of level land exist. Southland alone of the rest has a considerable area of flat land. Canterbury also has a soil and a climate eminently suited to the needs of agricultural farming, and in these two respects far outstrips the best of the other provinces.

In Canterbury, there also exists a large area of pastoral land, but the proportion to the whole area is less than in the other provinces, and accordingly a closer resemblance exists when comparing Canterbury with other provinces, as a pastoral rather than an agricultural area. The quality test, however, favours Canterbury, for the drier climate produces fodder of marked superiority over that in the other districts. Again, the close proximity of agricultural areas provides an easy means of rotation farming, and permits of the provision of large quantities of meat.

Fattening of stock in other provinces has to be done on grass pasture, whereas in Canterbury both grass pasture and special fodder crops can be used. Hence the superior prices paid in English markets for "Prime Canterbury" mutton.

In dairying land, Canterbury compares less favourably with other provinces, than perhaps in any other respect. The area is less by far, but the quality is superior.

Canterbury dairy farms class rather as heavy agricultural land, than as pastoral, as it is only on the very richest lands of the province that dairying is carried on. On the dairy lands of Canterbury could be grown the heaviest crops of cereals in the province; but the surer and safer kind of farming is preferred, though on most of these farms there are also large areas under crop.

A point that may well be claimed on behalf of Canterbury land is its versatility. It can be turned to almost any variety of farming without loss. There is little single product farming in Canterbury. Though most farmers depend in main upon one phase of farming, few there are who depend entirely upon such, and some follow regularly the changes in marginal profits obtained from different varieties of pursuits. In other provinces, this is not so, generally speaking. A slump in pastoral or dairy products, and a consequent rise in agricultural products, would spell ruin to many New Zealand farmers, but this change or any similar one, would be felt least in Canterbury.

The heavily timbered character of most of the land of other provinces required a big initial outlay to bring it to a productive state. This was not the case in the great, grassy, dry, plains of Canterbury. However, yields in those districts are obtained only after lavish application of artificial manures, which in Canterbury are applied almost exclusively to drilled crops only.

Summing up, it seems that comparisons between Canterbury lands and lands in other provinces would be difficult, but that they would be most appropriate in the case of pastoral lands, and but of little use so far as agricultural areas are concerned. It is certain that the average prices paid for Canterbury land is above those paid in all other provinces.

7. -- DEMAND AND SUPPLY AS FACTORS IN LAND VALUES.(1) CONDITIONS OF DEMAND:

Land, as one of the primary factors of production, has throughout the economic age been the object of keen demand. That demand is one which is intimately associated with the number of persons demanding it for the prime necessity of all -- food supply. The more people in a country, the larger the food supply required, and the greater the demand made on the resources of the land suitable for producing the necessities for life.

With a growth in population, other things such as capital and organisation equal, the demand for each unit of such land becomes more intense, as is shown by the efforts made to acquire additional units. The demand is effective only when those concerned offer something in exchange; of course in our present régime this is generally money or general purchasing medium. The amount of money offered for the land is the price. There will be a balancing of the disutilities involved in the expenditure of the money in price, with the utilities accruing from the possession of land. If sales are being made at higher and higher levels, this points to the fact that the utility of land is growing, assuming, of course, that other things, e.g., the quantity of money and its utility in regard to other things than land, has not varied much.

This demand will arise out of an increase either in population, or in the demands of the existing population, or from external demands, foreign trade being implied.

Let us take these in order. The period since the establishment of the province of Canterbury, has witnessed a remarkable growth in population. Though a desire to possess

land is perhaps not consciously felt by more than one-half of the people, yet all are dependent upon the resources of the soil, and this very dependence intensifies the demands of the primary producers to acquire land. The more intense demand would be revealed by a higher level of prices.

The growth of population has been brought about by, firstly, the natural increase; and, secondly, the excess of immigration over emigration. In both instances there has been a considerable surplus, and population has shown a steady growth.

Therefore, from the side of numbers alone, we can assume a steadily increasing demand for land, especially as the province is almost entirely a rural one as to its industries.

Further, we must consider how effective the immigrants could make their demand; that is, the means they had at their disposal to buy land. Unfortunately, only an intelligent guess can be made. If we judge from the experience of the land allotment laws, it seems that the majority of the selectors were not men of capital. There was, indeed, a very serious scarcity of money in the early days of the colony, so much so that a pressing invitation was given to men of large capital to purchase "runs" in order to provide a supply of ready money.

The settlers in the First Four Ships (Wakefield's selection) had all been in possession of a stipulated sum of money. During the short period that immigration was controlled by the Association, this condition was probably fulfilled. The abundance of land available at the fixed price of £3 an acre (later £2), provided the portion from which new selectors made their choice. No indication of the intensity of demand would be

revealed by higher prices until all such vacant land was taken up. The only evidence of the intensity of demand would be given by the number of sales effected. The high minimum price fixed for Canterbury lands had the effect of deterring many of small means from purchasing, especially as land was available elsewhere at a lower price.

When control of the immigration passed from the Association, the newcomers formed a heterogeneous current, being composed for the most part of yeomen farmers, labourers, and domestic servants, the great majority of whom possessed very little cash. But they provided a growing demand, as they were of a thrifty nature, and their savings were generally made with the view to future possession of land.

There was also the flow to and from the adjacent gold-fields of miner-farmers. They possessed some capital, but a very small amount on the average; for those who became suddenly rich seldom returned to farming. The influence of the gold-fields was exerted in the period 1868 - 1890.

We must next consider how soon these people of small capital could make their demand felt. The rapidity with which they could become effective demanders of land would depend among other things on the rate of real wages, taking the family as the unit, on the opportunities for saving in the shape of banks, joint stock companies, and similar organisations, and on the terms on which they could assume ownership. In such a condition of affairs as prevailed in early Canterbury, the leasehold farms would be in greater demand, as they would offer opportunity to the lessee to become a semi-independent producer as soon as he had accumulated a small supply of capital. With such tenure he would not have to pay away all his accumulations to acquire the fee simple, leaving nothing to enable him to render the farm productive.

Obviously, there would be a balancing process in men's minds; on the one hand, ~~the~~ the practically certain return from wages would be balanced against the profits of a more risky nature obtainable from working a farm under leasehold conditions. A period of good seasons and good prices would favour the leasehold. Falling prices and adverse years would favour the wage earner (relatively) and would drive some farmers to become labourers.

Again, temperamental differences must be considered as well as the telescopic faculty. The slow, uninitiative person, would prefer to avoid the risks which are a part of independent and semi-independent ownership. He would, therefore, accept the certainty of a wage to the risk of leasehold or freehold farming. A fact frequently emphasized by writers of the early days was that the telescopic faculty was singularly lacking among a great number of an otherwise fine stamp of immigrants. (Reeves' "Ao Te Roa". Stories of Old N.Z. in the Jubilee Numbers of the "Weekly Press" and "Canterbury Times.")

The precarious, fluctuating and strenuous nature of their earlier life had influenced them, so that they dissipated much of their hard earned wealth in periodical debauches at the hotels, which in those days were far more numerous than at present, and which often were mere drinking shanties.

There is no index of real wages in Canterbury or New Zealand from the early years. From all sources it seems to be evident that money wages were much lower the further we go back, and a system of "truck" wages was often followed. This obscures the rate of real wages, but it was quite possible that real wages may have been higher at the early period.

than at present, for then necessities, such as meat, flour, and dairy produce were cheap. The standard of living in every way was less expensive to maintain. But it is certain that fluctuations of wages were more frequent and more severe in such a restricted state of industry as then existed. A large part of the work engaged in by prospective landowners was road and bridge work, which was done on the contract system. Weather vagaries affected the regularity of such work, and the caprice of governments added uncertainty to the wage rate.

Farm labourers were in fairly general demand from the infancy of the industry; but the nature of farming was unsuited to their constant employment upon one farm. The contract system of doing farm work was much practised, especially when abundance of work existed. Again, the lack of diversity of products forced seasons of stress and idleness on the farmers, so that men were employed only at intermittently busy seasons. Co-operation was frequent among neighbouring farmers, and busy periods were thus tided over without recourse to the employment of additional labour. The farm labourers were never evolved as a distinct class, but comprised moving workers in possession of small areas of land insufficient to maintain them.

I have now dealt with the various phases of demand for land by those classes most closely connected with it. It should be remarked that, though labour in Canterbury is fairly mobile between town and country, there is no appreciable constant demand from the urban classes.

In England, a demand for land was occasioned when possession of land carried with it political and social privileges, but from the political side, no such demand has ever arisen in Canterbury. On the social side, the traditions of the United Kingdom have been in part carried to New Zealand, and a vague aspiration exists among many to possess an area of land -- in particular, a sheep "run" of some considerable size. The rôle of squatter is one which still strongly appeals to many. There never has been any tendency apparent, to aggregate land for the purpose of creating a numerous tenancy for one landlord. There is no doubt that the large sheep farmer is regarded as one far higher in the social scale than the agriculturist or the dairy farmer, a feeling due, perhaps, to being the descendant of the possessors of some capital, who were eagerly looked for here in the early days.

I now proceed to deal with demand as affecting the various grades of farms and farmers. In the early days, the varieties in particular demand were the pastoral areas of the western hills, and the rich cropping lands on the coastal strip. The light lands of the mid-plains were shunned, as also were the dear swamp areas. This is fully in accordance with the rule, that in the first stages of colonisation the richest lands are not necessarily the first to be chosen, but rather those lands that can satisfy immediate wants most cheaply and conveniently. The earliest settlements were made on the land to the west of Christchurch, and for a distance of about 30 miles north and south.

The invention of the reaper and binder and the increase of population gave impetus to the demand for cropping land, and in extending the margin made it profitable to take in

both swampy and lighter lands, the latter in particular. The refrigerating process gave these same classes of land additional value for fattening purposes, but added to the strenuousness as well as to the profitableness of this class of farming. To escape the increased supervision and labour, many who were in the position to do so, as the result of successful seasons, sought out runs of larger areas where the continual strain would not be so severe. In selling their agricultural farms, a process of subdivision has gone on, the idea being to meet a larger demand of men of moderate capital, for whom purchase of the whole estate would prove too heavy a burden.

During the past 16 or 18 years, there has been a steady demand for pastoral land from the side of the rich agriculturists. A similar demand is also arising at the present time from successful dairy farmers, whose prosperity dates from the beginning of the century.

In this connection, also, there must be noted the constant endeavour to quit cropping and dairying, two branches of farming where the labour item is a large one, and to adopt sheep farming, where the vexations arising from the caprice of the workers is neither so severe nor so constantly felt.

None the less remarkable, is the increased demand of recent years for light lands on the mid-plains, and light lands generally which high prices of produce, the advent of varied farming and other agricultural improvements, have now brought within the margin of profitable cultivation. There is now a ready demand for this comparatively poor land from a class of men with small capitals, and the success with which they have carried through their venture will attract imitators on lands which were formerly passed over as useless.

As I do not propose to deal with urban lands, I neglect the influences any demands for land for building purposes may have had on land values. Such influences may be said to be inactive in the case of the land with which I am dealing.

I have dealt with land as affected by demands from dairy farmers, cereal growers, and pastoralists, but such a rigid separation of demands is necessarily artificial. Among all these classes there is constant action and reaction. There is a universal law which induces the farmers as a body to aim at obtaining equal-marginal returns, and for the purpose of securing this, they will change their preferences for various kinds of land. It is only new and striking changes in preference that are noticed, while a great stream of constant and regular demand passes by unremarked. These changes are particularly facilitated in Canterbury by the versatile nature of the land, and its ready adaptability to various uses.

Before leaving demand, reference must be made to what should be classed as an extraordinary demand, viz., the demand of the Government for lands for closer settlement. Originally all the lands belonged to the Crown, and were disposed of to purchasers by sale. Believing that progress was being retarded by the aggregation of lands in too few hands, it was decided to repurchase estates for the purpose of closer settlement. This idea materialised after 1893, and has been developed more extensively in Canterbury than in any other province. Up to 1913, an area of 363,607 acres had been repurchased from private owners by the Government at a cost of £2,324,316. Such purchases are conducted by a specially

appointed Land Purchase Board, which employs competent valuers to make an assessment. To this appraisal is added 10 per cent., and an extra 2 $\frac{1}{2}$ per cent., as a premium^u affectionis.

Such an addition to the forces of demand, in addition to a contemporaneous increase in other similar increasing forces, has had a great effect in giving an upward trend to Canterbury Land Values. The constant upward trend of the curve of land values since 1896 may be said to be partly due to the influence of a new and great demand on behalf of the public estate. Indeed, such were the high prices prevailing, and the high prices paid by the Government, that syndicates of speculators often acquired estates in the hope of selling them at a profit to the Government. Such action received a check about 1907 - 9, when the State relaxed its efforts to buy land in response to popular clamour, and the results of quite recent years seem to point to a decrease in the rate of advance in land values.

There is an interesting indirect result from the action of the State in its land policy. The State leasehold -- lease-in-perpetuity system -- was almost equivalent to the freehold, but at its inception was sought after circumspectly, and with some hesitation, owing to the high rents demanded on account of the dear rate at which the purchase from the original owner had been made. Rising prices made many of the estates gold mines to the tenants. The enriched tenants found no outlet for their surplus profits in their own holdings, owing to the nature of the tenure, and to the higher rates of interest prevailing elsewhere. A good deal of this surplus may safely be assumed to have been invested in other land, particularly in the acquisition of blocks of freehold land.

Again, the lessee's interest was increasing, and could be disposed of, so that many Crown tenants have realised this, and sought after other land, thus increasing the flow of demand. The profits made on the Crown settlements were made by the persistent efforts of a body of men in the prime of their life, who were looking forward to securing in later life an easier mode of work, at least an equivalent rate of returns, a portion for their families, and a higher social standing. At the present time, we accordingly see a growing demand for pastoral land coming from the Crown tenants. The State, by increasing supply on easy terms in a period of rising prices for products, has therefore ultimately increased demand.

The inception of the Government Land Policy has done much to increase the labour difficulty on farms. The flower of the agricultural workers' and farmers' sons were attracted by the opportunities offered to acquire farms of their own. Consequently, those phases of farming requiring a large labour supply were much inconvenienced, and to this may largely be set down the decreasing percentage of cereals grown annually in the province.

The quality of the labour has fallen at a time when increased efficiency is needed. The character of the work has made it repulsive to many, and so it often happens that only the unfortunates and the misfits of other professions recruit the ranks of the agricultural workers. The irregularity of the conditions on a farm make it difficult to secure frictionless action between employer and employee. Hence, demand is in preference directed towards land which requires but little labour in its exploitation.

(ii) CONDITIONS OF SUPPLY:

It is a truism that land is a commodity which exhibits limitation of supply to a degree beyond that of most commodities. In short, it suffers from inelasticity, and cannot expand appreciably beyond what nature has made it. This is true as regards area, but not quite so true as regards quality. Improvements may be such as to include under the definition land, what might formerly have been termed swamp or desert. In fact, such land has in the main been "produced." Hence, we must regard transport communication, drainage, and irrigation as factors tending to increase the supply of land available.

The Canterbury land district comprises an area of 9,604,045 acres, and all of this land is under some form of ownership. The nature of much of this country was such that it could not be said to form part of the land supply until roads, railways and bridges should have been built. Thanks to the public works administration, this was done fairly early in the history of Canterbury.

The land of the future province of Canterbury was appropriated by the Canterbury Association in 1850. After this first appropriation, the question of supply was largely one of the distribution of the land.

The area cannot be altered absolutely, but parts of it may be politically or socially placed outside the range of demand. The Charter of the Canterbury Association placed it in the position of a monopolist as regards the sale of land; but this must not be construed to mean that it used its position to secure monopoly gains. The articles of its constitution were shaped to prevent this. The aims with which

Wakefield imbued its promoters were of an altruistic nature, and political and social gains, rather than financial, were sought after. Land was offered by the Association at the "uniform and sufficient" price of £3 an acre, afterwards reduced when its affairs were transferred to the local governments.

The money receipts from the sales of land were to be devoted to securing the welfare of the province, in founding educational and religious institutions, and in promoting public works and immigration. Thus an air of security pervaded the early colony.

The price of £3 an acre seems fairly dear, even now, for some of the land of the province; but this price, together with a restriction as to the area which might be bought, prevented the accumulation of large blocks in few hands within the boundaries of the original settlement. The area of settlement extended from the mouth of the Waipara River southward to the mouth of the Ashburton, and from that line westward to the Southern Alps. Outside these boundaries, to the north and south, large estates were founded.

Hence, until about 1878, there remained a supply of waste or unsold land, and this continued to sell at the uniform price of £2 an acre, so that long after the available land of other provinces was all purchased, Canterbury still offered scope for additional settlers.

Once all the Association's waste lands were absorbed, no source of supply remained, while with fairly continuous immigration, and the prosperity of the settlers, the demand remained unabated. It was then that a contrast appeared in the relative productivity of the large monopolist areas on the borders of the province, and that of neighbouring small farms. Antagonism had long existed between the large land-

owners and all small intending selectors. A landowners' government, anxious to secure land revenue, and to encourage the immigration of capitalists, had framed a Land Law extremely favourable to the aggregation of large estates. A first option over all neighbouring land was granted to all selectors. This gave rise to operations termed "spotting" and "gridironing," two devices barring all chance of entry of new selectors, and restricted the supply to a very great extent. A good deal of the land so affected was used by these landowners free of cost, and such illicit profits accruing to these methods were later applied to purchase the enclosed land, and so form one large consolidated block-out of the whole. In this way, large areas of 30,000 acres or more, often composed of very good land, were locked up in the hands of big landowners.

In time, the contrast between these unpopulated areas and the smaller farms of the vicinity induced the cry that these estates should be burst up on behalf of the land-hungry settlers, who were appearing annually in increasing force.

Sir Julius Vogel's borrowing and public works policy in the early seventies had so improved communication that many of these estates were no longer subject to the disadvantages of isolation from markets. Nothing could be done, however, until the country had passed through the worst throes of the depression that marked the eighties. In addition, the political power of the landowners maintained a non-progressive party in ministerial office.

Changes in industry were in the eighties beginning to revolutionise farming, and to accentuate the evils of a bad distribution. Little could be done with a partisan party

in power in Parliament, and indeed the more serious need was that of a definite policy to pursue. The repurchase of land was a task as yet too colossal for the Government to undertake, while the assumption of compulsory powers by the State was looked at askance by many as a too socialistic step, even for the particular object in view. Moreover, earlier embarkations of the State upon Land Settlement had been very doubtful successes.

But a new radical party reached office in 1891 under a new franchise and important legislative changes became the order of the day.

In 1893, the acquisition of the Cheviot Estate (to the N.E. of Canterbury) by the Government as the result of a dispute in the valuations made for taxation, was something in the nature of a plunge for the energetic Minister of Lands, Sir John McKenzie, though it gave him an opportunity to test some long cherished ideas upon land distribution.

This deal made available a large area of good pastoral and agricultural land, which was subdivided, roaded and leased on the basis of 4 per cent. of the capital value. Allotment was made by ballot, those only being permitted to enter the ballot who had satisfied the Land Board that they were in a suitable position to embark upon the undertaking. The tenure given was known as the lease-in-perpetuity, as it had a duration of 999 years.

The success of this venture was so marked that a policy of repurchasing estates was modelled upon it, and with slight modifications, still is in force. In Canterbury, an area of 363,607 acres, composed of all varieties of land, but in which the agricultural kind predominates, has been purchased, and upon it have been located 1677 landholders, by far the greater majority of whom are married with families.

Another way in which the State assisted to augment the supply of land in the market was by facilitating the transfer of land by introducing the Torrens System in the Land Transfer Act of 1870. This Act removed the friction to transfers caused by the expensive conveyancing hitherto required.

A perennial question of importance concerning the supply of land is that relating to aggregation of holdings. In many cases many small farmers have consolidated adjacent farms with their own, affording, as they can, to pay very high rates on account of the special convenience of purchases of neighbouring fields.

On the other hand, there have been frequent private sales of large estates in comparatively small subdivisions for various private reasons. The Glenmark, Longbeach, Laghuor and Springfield Estates are familiar examples of ^{such} subdivisions, while mention has already been made of a subdivision tendency in agricultural farms.[#] Since 1891 the New Zealand Official Year Book has published statistics of holdings classified according to area. These tables I subjoin, selecting only those bearing upon Canterbury.

TABLE G.

[#]See above p.

An examination of this Table shows that farms of 100 to 200 acres have remained fairly constant in number, there being a decline in the total area perceptible in the classes containing 11 - 50 acres, and 51 - 100 acres.

In the next five classes (100 - 5000) acres, there has been a steady increase in the total number of holdings, and also in the acreage, particularly in the 321 - 1000 acres class.

In the larger areas of 5000 - 20,000 acres holdings have shown a slight decreasing tendency, while total areas have dropped considerably.

From this it seems apparent that a levelling process is in vogue. The smaller areas are aggregating to above 100 acres in extent, and the larger ones subdividing to areas of less than 5000 acres.

Since 1893, an active policy of hostility to large aggregates of land has been rigorously followed by the State. It was realised that the State has a powerful weapon to aid subdivision, in the form of taxation. Accordingly, all estates of 25,000 or over in unimproved value, were made subject to an additional tax over and above the usual tax, and containing the principle of graduation.

The effect of such a tax has been largely nullified by the upward course of prices since 1896, and its immediate effect was not very considerable. Those estates on or below the margin of profitable working at the date of the imposition of the tax, were thrown on the market. The upward course of prices, however, required that the tax should be made more stringent, and such has been the policy pursued up to the present. Indeed, it has been the main plan relied on to provide a steady supply of land, since active purchasing of estates has ceased off.

The ease with which evasion can be effected by regrading downwards, and by subdivision among members of families has had the effect of lessening the sphere of usefulness of such legislation.

To this legislation may be attributed in part the temporary checks noticeable in the advance of land values between 1900 and 1912, owing to the intermittent placing of such large estates from the margin upon the market immediately after a fresh imposition of the tax.

Supply cannot be passed over without reference being made to speculation as a force in bringing supplies of land into the market. Anyone conversant with New Zealand during the past twenty years will often have remarked on the phenomenal growth of land agencies, especially since 1900.

These agencies have, in the main, depended upon commissions for their profits.

Turning solely to their influence on supply, that has plainly been to increase the fluidity of land, so that a wider range of quality and a larger area are now available to the selector. This being the case, it might be assumed that such a process effected a better adjustment of personal qualities to varieties of land. Again, pressure is brought to bear upon owners of land to allow them to place their farms on the market, the agent undertaking all the expenses of marketing. It can hardly be imagined but that all this action increases the amount of land on the market, and to-day a greater proportion of Canterbury land is on the market than ever there has been before.

The reason for this activity in marketing land may be attributed to many causes, among which, the rise in general

prices, especially of farm products, holds an important place. Furthermore, the roving nature of the colonial, his lack of family traditions, his spirit of adventure, help to make him a willing victim to the excitements of speculative dealings in real estate.

(iii) EXAMINATION OF CERTAIN SPECIALLY IMPORTANT
CONDITIONS:

Land ranks as one of the four great agents of production, and as each of these provides a means of creating wealth, so each must have a price when the supply is not such that anyone desiring a quantity of it may appropriate just what he wants, without trouble or sacrifice.

In a community where all land is of equal quality, regarded from every point of view, and where population is scant and altogether out of proportion to the yield of food supply from the land, land would be as the air, a possessor of utility, but not of value.

The increase of population would bring pressure to bear on the food supply, and land, being its sole source, would then acquire a value, or be obtainable only at a price. It is in the relation between food supply and population that land acquires its chief economic importance. On this assumption, then, and, neglecting improvements in the production of foodstuffs apart from land, the growth of population and

the increases in the price of land, should be expected to vary concurrently, and such concurrence would undoubtedly exist in an isolated state with no international trade.

The introduction of foreign trade removes the price of land out of the range of merely local influences, and places it in a position in which it is determined by a world-wide movement, thus bringing it into a more direct line with most commodities. A relation springs up, then, between all the lands of the world concerned in the foreign trade. A study of English land values gives interesting proof of foreign trade influences.

The value of lands in United Kingdom
between 1860 and 1870 rose 10 per cent.

"	1870 and 1880	"	8	"
"	1880 and 1890	fell	16	"
"	1890 and 1900	"	9	"

The fall in the decade 1880 - 1890 is coincident with the introduction of wheat into the English market from the areas on the west of America, which about this time were tapped by railways, so that their immense returns became available for the English consumer.

I am aware that this decade was one of falling prices, but this of itself seems insufficient to account adequately for all of the large drop of 16 per cent.

The introduction of international trade brings in another factor, whose existence has been almost tacitly assumed. It seems that a parallel should exist between the cost of food supplies, and the value of land, or even stronger, that the value of land is a resultant of the price of food products raised from it. It might be said that these very

products are a part of the land itself, and consequently that a very close parallel should exist between their respective prices. In this matter English statistics serve the purposes of illustration again:-

VALUE OF LANDS IN UNITED

KINGDOM:

INDEX NOS. OF WHEAT, BARLEY,

OATS, BEEF and MUTTON, PORK

and BACON:

Between

1860 and 1870 rose 10 p.c.	1850-9 and 1870-9 rose 10.5 p.c.
1870 and 1880 " 8 p.c.	1860-9 " 1870-9 " 11.5 "
1880 " 1890 fell 16 p.c.	1870-9 " 1880-9 fell 14.8 "
1890 " 1900 " 9 p.c.	1880-9 " 1890-9 " 15.5 "

(NOTE. -- This and the earlier table are from "Protective and Import Duties," p.103, by Prof. A. C. Pigou).

This comparative table shows the close concurrence of values between land and the products of land, though of course it does not itself explain the association, and it suggests the influence of foreign land.

It must be noticed that in the case of world-wide land values, direct and indirect influences must be separated. For instance, the food products of the West Indies do not compete directly, to any extent, with those of England, so that English imports from the West Indies show no direct inter-relation to English land values. A different matter arises regarding imports from New Zealand or Canada, and English land values. And New Zealand, Canada, U.S.A., and Australia all being competitors in almost identical products, there exists between them a rivalry which is reflected directly in the movements of their respective land values.

Up to the date that Canterbury began to be a producer for the world's markets, we may safely assume that local

markets were the guiding influences on the price of the land -- pastoral land may in part be regarded as outside this local influence, its chief product -- wool -- has always entered more into foreign than into local markets.

Of course, demand and supply fix the price of land, as they fix the price of all commodities, and in the case of land where supply cannot be increased in the ordinary sense, only a more equitable distribution can prove a deterrent upon rises in the value of land. That is, the ownership has to be spread out or diffused, and not concentrated.

It seems a natural course for land to accumulate in a few hands in most countries where legislation takes no heed of the distribution. In New Zealand, public opinion has had a decided antipathy to large holdings, and this has called forth a mass of legislation in opposition to aggregation. Wherever it has occurred, the state has made great efforts to break it down.

The action of the State in its limitation of areas, limitation of estates, land repurchase laws, and taxation, has been examined in the sections on Demand and Supply, and I shall only recall it here as one of the factors having great influences on the price of land.

The rate of interest on land investments is another factor in the determination of land prices, which must be noted. The easy, almost permanent rate of 4 per cent. at which the State fixed rent as a ratio to the original capital value, made settlers on Crown leases disinclined to purchase the freehold of their tenancies when prices and interest subsequently rose. They preferred to invest in other directions

most of all in other lands, and in consequence these profits, by increasing the demand for land, increased its price.

In the early days the rate of interest on land loans was high, as the security was thought to be weak, and the supply of capital was small in comparison with the amount of development to be done. Moreover, capital from older countries had not then acquired its present day fluidity. Legal restrictions and local demands also acted against its migration to distant lands.

Nowadays, owing to the activity of the State in providing a national security, and the progress of co-operation, there is no fear for the security, and a ready supply of capital is available.

Again, the natural course of events in the case of new countries tends towards a falling interest rate, as capital steadily accumulates and security improves. Especially well favoured in this way was Canterbury, for the rate of interest in the United Kingdom began to fall at a time when it was most required for development purposes here.

The greater the ease with which a farmer can finance his undertaking, and the lower the rate of interest he has to pay, the higher the price he is tempted to pay for the land.

Other things being equal, a man would pay £200 for a section if the rate of interest were 5 per cent., but would only pay £100 if the rate were 10 per cent., supposing the annual return of the land to be about £10 in value. But the value of the annual return would most probably be different with the different rates of interest.

Such a change has come about in Canterbury. The poor security, the scarcity of capital, lack of co-operation, left financing in the hands of a few lenders, who, if sub-agents,

had themselves to pay a heavy rate of interest to insure the immigration of capital from England. In this state of things, interest rates above 10 per cent. were by no means unknown. As regards the rates of interest in New Zealand, see Table E - page 95.

Particularly high rates were the rule about 1880.

Co-operation and state intervention gave a better security and enabled the rate to be considerably lowered, while a declining rate in the English money market from 1844 - 1900# made investors more inclined to seek foreign securities. Consequently, in spite of eager demands, the rate steadily fell to one half of what it was, enabling prices for land to rise. The rate of interest would probably have fallen still more but for the demand for land increasing.

As a field for investment, land occupies a favourite position. Much trust money is invested in land in preference to stocks and shares, owing to the belief that "whatever happens the land remains" -- it is an indissoluble investment.

The influence of situation may now be briefly considered. The accessibility of land by road, rail or water to ready markets improves its value in:-

- (1) Less cost of transport of produce;
- (2) Capacity to take instant advantage of sudden changes in price;
- (3) Convenience;
- (4) Variability in nature of produce, which can be raised at a profit;

The importance of situation, of course, varies as the nature of the product of the land. Early pastoralists settled in remote hilly districts, because their output of wool needed but one transport process annually. The more

#See Journal of the Royal Statistical Society, March 1912, pp.361 et seq.

intensive the nature of farming, the greater proportionally are the transport and marketing expenses, and hence the higher situational value will be estimated.

Another not altogether unimportant situational effect arises when a buyer is induced to offer a price higher than market price for a piece of land in close proximity to his own. His motive for such an offer may arise out of his belief that his extra outlay will be recouped in the future by economics of convenience or other advantages.

In conclusion, there remain the psychological and social factors which tend to make a farming community a stationary one, greatly averse to change of habitat. In the early decades of Canterbury history, movement of the settlers seems to have been infrequent. The ideal of the Association settlers was the foundation of a new home, and its endowment with associations of a clinging nature. They brought in or assessed later a variety of personal property, which it would be difficult to shift in those days of poor transport. The later gold-fields immigrants did not throw out such deep roots, and founded homes with but little encumbrances, so that they could readily take to wandering again. Moreover, means of transport were improving rapidly, so that the difficulties of shifting were yearly becoming less, and this improvement has continued to the present day.

The parochialism which seems to evolve in agricultural communities tends to cause local markets and uneven prices. The farmer comes to look on his land as a part of himself, and he dislikes to venture on to a fresh area.

Such conservation as a force had received a severe blow as far as the Canterbury settlers were concerned. Very strong ties had been broken when they had emigrated from Britain, so that change was no longer a formidable task.

Again, the roving spirit was encouraged by the forces of speculation. Such speculation is stimulated in times of rising prices, and when there is an abundant money supply in the country. Thus, land speculation was rife after Vogel's 1870 borrowings, and it has been increasing rapidly since the beginning of the 20th Century. Such land booms seem prevalent in times when capital is readily available, or when prices tend upwards.

The effects of speculation are very patent to the most casual observer in Canterbury, in the rapidity with which farms are changing hands, and the growth of the land auction and agency business. The great extent of the use of credit in land transactions has made a given deposit serve a wider purpose, and in so doing a sharp check to rising prices has been obviated.

The opinion of Dr. J. W. Millraith is that "the dairy-ing industry has done a vast deal to promote land speculation since its inauguration, but particularly since 1898."

Farmers can secure loans by references to the State Loan Office, or, rather, the Advances to Settlers Office, inaugurated in 1894, to assist the land settlement policy. This provided a fund of working capital readily available to the settlers. The Government obtained the necessary funds by loans in London on New Zealand land security. A maximum amount of £1,500,000 was to be raised annually, and was to be loaned at the low rate of 4½ per cent. A great amount of

the earlier advances was used by settlers to pay off former loans from private financiers, which had been obtained at higher rates of interest.

Up to 1913, 3,600 grants had been made in the Canterbury province, involving a total sum of £1,622,000. This large sum in itself must have had a very considerable force in uplifting the price of land, in addition to the influence that the knowledge that such easy and ready assistance was available would exert upon the forces of demand.

The Canterbury Association, by its allocation of funds for public works, gave much land a value which would otherwise have been passed over. Roads were rapidly constructed in a district eminently suited for their easy construction, and the river barriers were steadily bridged. For nearly 20 years imperfect accessibility to the chief port was a serious drawback, but an ambitious undertaking was completed in 1867 by the Provincial Government, when the Lyttelton Tunnel pierced the Port Hills.

Railway construction was also pushed on. Such works depended for their existence on the sale of "waste" or unallotted lands, and it is a very healthy sign of the demand for land that such an ambitious policy of progress could be continued. But the scanty population and the surplus lands prevented any appreciable rise in land values from appearing, and the public works policy tended to diminish the differential advantages due to situation.

It is generally in the early stages of the development of a country that the public works policy of the State stands out in bold relief. For this reason, reference must be made

to Sir Julius Vogel's ambitious borrowing policy of 1870. 1870 was the bottom of a trough of depression which held sway in the sixties. The country was languishing for want of capital to develop it. Vogel, in 1870, carried a proposal to borrow £5,000,000 in London, to be used in an immigration and public works policy.

This came into operation about 1872, and immediately a "boom" set in. Buoyancy in trade was the order of the day; money was plentiful and prices soared upwards, bearing with them land itself. In particular, farm products rose markedly in price. This in spite of the fact that waste lands were still obtainable in Canterbury at £2 an acre in almost unlimited quantity. The activity in selecting that went on in these lands is shown by reference to Table H. During this inflation period, however, substantial benefits were secured which were lasting in effect. The construction of means of transport in particular was a lasting force, and so land values were maintained at a high level, even when the ensuing depression set in.

The land on the Canterbury plains had always suffered from scarcity of water, and in summer droughts were frequently severe on these light textured lands, and often entailed a large loss of stock. Especially severe were these droughts on those farmers situated on the lighter lands, which were possible to use for sheep farming only. The consequence was that farms on the plains remained large in area and low in acreage value. A marked change has come about since it has been realised that the waters of the great rivers can be diverted, and sent in water races across these plains. A drought is now scarcely feared at all, and loss of stock through scarcity of water never occurs. The water races were constructed early in the eighties, and so benefited the value of land that some of the high prices which ruled in the mid eighties may be in part set down to this great work.

I have now made reference to the influences of the main early public works, but a policy of advance has been continued since, and it is perfectly certain has done much to promote an increase in the values of land -- to create for the landowner a certain amount of "unearned increment." The nature of the province is one, however, where extensive public works have not been required, and their general influence has been absorbed in that of general progress.

I now propose to examine the epoch-making changes which inventions have brought about, and to give some indication of their effects, as shown by changes in Canterbury land values.

Cropping in Canterbury was carried out in the time-honoured extensive way until the mid-eighties. The great difficulty arose over the actual harvesting of the grain. Farmers were prevented from growing more wheat simply because the labour of harvesting was so costly, and accomplished so little. While a much larger area could be cultivated and sown, if necessary, the crop could not be saved with certainty. The destructive nor-west winds, which sprang up suddenly in harvest time, played great havoc unless harvesting could proceed with great rapidity. On this account, the value of agricultural land was restricted. The perfection of the side delivery mower (Samuelson) and later, in the mid-eighties, of the reaper and binder (Woods & MacCormick) largely overcame this difficulty, and brought many lands within the margin of profitable cultivation. Especially lighter lands profited, because of the ease with which large areas could be dealt with. If any farm machine has caused a radical

change in farming, it is the reaper and binder. However, a steady improvement in machinery for cultivation has gone on, so that now a very high class of implements is in general use, the inventions being such as to have caused a gradual, rather than a radical change.

The successful founding of the meat-freezing industry introduced a diversity into the nature of agriculture that was hitherto wanting. Previous to 1885, land was cropped for several years, and then laid down in pasture or fallowed. In many cases, year after year, the same land was cropped without any attempt to restore its natural original fertility. Verily, "the land itself was being exported."

The absence of a large demand for meat rendered sheep poor investments on any but very large estates, and, in consequence of the low value of the carcase, rape or turnips were not grown for fattening purposes. Fallowing and resting were wasteful and restrictive of rises in value.

The position began its change to a noticeable degree after 1885, and now a careful rotation system is successfully applied, so that a wider variety of crops is grown, and stock is maintained, while the land is also kept in good heart with a minimum of artificial manure. Indeed, manures are manufactured from the by-products of the sheep at the freezing works, and can be applied to the soil under conditions involving a minimum cost and waste, and in accordance with the best principles of agricultural science.

Improvements affecting cereal growing have been hampered by the superior advantages of foreign rivals, who were in possession of boundless tracts of rich corn-producing land, and close to the great European wheat markets, and to the machinery manufacturing centres.

Though great profits were made from cropping, the influence of diminishing returns in the then unscientific state

of farming, acted as a steadying influence. Canterbury, the chief wheat producing area of New Zealand, has in recent years devoted less and less of her productive energy to wheat growing, and more to sheep farming.

Flour mills, established early in the days of the province, have shown little advance with years, though the stone roller process has been superseded by the machine roller, and the small township mills have disappeared, the industry being now almost wholly localised in the cities.

It is to the frozen mutton industry that Canterbury should look for an explanation of the greater part of her advances in land values.

Before 1882, the absence of a foreign market, which was made impossible by the perishable nature of the product, and the length of transport, made the fattening of sheep an industry narrowly limited to the satisfaction of local demands. In those days, sheep were kept almost solely for their wool, the carcass being worth little as shown by the prices then ruling for fat sheep.

Grigg's advocacy of the refrigerator process led to the foundation of the Christchurch Meat Company in the early eighties, and a successful entrance to the London markets pointed out the way to advance.

This was soon followed by an alteration in the methods of farming, and the lighter lands of the Province were brought into more prominent use for the purpose of supplying "Prime Canterbury" fat sheep to the freezing works. The freezing works idea spread, and branch works were opened at Timaru and Ashburton, and a new company commenced operations at Belfast

with other branch factories. Thus, a big demand for fat sheep sprang up, and consequently all land suitable for growing crops of turnips and rape was in increased demand for fattening purposes. This increasing value was reflected upon that of the pastoral hill lands; for the plain's farmers found that it was not so profitable to rear and fatten sheep, as it was to buy "stores" from the pastoral areas to fatten. Consequently, the pastoralists in the hill country were assured of a demand for their store stock, and found that breeding was becoming profitable and yielding profits on a par with those from their former sole product, wool.

This demand for the new joint product made, in turn, their lands still more valuable, and more farmers desired to obtain this particular quality of land; for this particular branch of sheep-farming not only brought better returns, but necessitated a less strenuous existence, and stood high in social esteem. The demand still continues, and the agricultural area is continually invading the purely pastoral, which is yearly rapidly diminishing. So keen is the demand for stock for fattening by the agricultural farmers, that sales of output of lambs are now regularly made, some season or two seasons ahead, for forward delivery.

DAIRY FACTORIES:

The heavier swamp lands along the coast were, in the earlier days, used solely for grazing purposes, and had a value which was enhanced by the proximity of the higher plains land, which was so liable to suffer from drought. The keeping of cows for the purposes of butter and cheese making was done on a limited scale to supply a narrow local market, there being no export trade beyond Australia. The beginning of large scale industry was seen in the foundation of the Sefton Co-operative Dairy Company in the mid-eighties. This Company undertook to buy butter fat from shareholders, and to carry on the process of separating, churning and marketing the product. This relieved the farmer of a great deal of laborious work, but at the same time deprived him of some independence in making bargains. Similar ventures were started at Tai Tapu and Addington, but it is significant to note that these co-operative concerns had for long a precarious existence, due in part to the lack of a foreign market, and in part to the hostility of the farming community, who looked upon them with disfavour on account of their competition with the old established domestic industry, and from the fact that it was generally the least energetic farmers who supplied the factories with their milk. In consequence, it was regarded as something of a disgrace for an old established dairy farmer to send his milk to a factory, where it would be contaminated through mixture with that of his less scrupulous neighbour. Again, local consumers had for a long time dealt with known dairy farmers, and looked with equal disfavour upon the factory made article.

This depression continued until the frozen meat industry necessitated the equipment of vessels with cooling machinery, when it became possible for New Zealand butter to appear in British markets. This gave great impetus to the co-operative businesses, so that with additional careful preparation, they practically captured the local market, took in the supplies of those who were before independent, and did away with domestic butter-making. This complete conquest was accomplished by 1896. Thenceforward, expansion was steady, new creameries and factories were built, additional areas of land were devoted to keeping cows, drainage of swamp lands was prosecuted while to all dairying land much value was added on account of the sure returns to be obtained from the industry. The foreign and local markets were steadily expanding, butter was an article that would not permit of long storage: its supply could scarcely be increased appreciably by a very favourable season; its production was little altered by weather vagaries; and the companies paid the suppliers monthly. All these conditions made it a favoured industry.

But the labour difficulty was from the first an obstacle to dairy farmers, and their main complaint referred to the lack of competent milkers. The result often was a limitation of herds to unduly small dimensions, and this acted as a check on the rise in value of dairy lands, a check whose weight was diminished by the rapid rise in the price of butter. From 1905 onwards milking machines were installed on many farms and this permitted an increase in herds. The demand so far has not been satisfied, and has resulted in high prices for dairy cattle, so that the expense of setting up a dairy herd has increased. This has deterred many of small capital from entering this industry, and the natural result of such a restriction of demand has exerted a restraining influence upon increases in land prices in recent years.

It is the general belief at present that the dairying industry will expand greatly in the future. As, however, all the land which is at present considered suitable for dairying is occupied, either land at present reckoned as waste, or land devoted to some other purposes, will have to be encroached upon, to permit this increase.

The increased uses of the substitute margarine in the world's markets is a matter worthy of consideration at this time.

In the sixties, rich gold fields were discovered in the adjacent provinces of Westland and Otago, and the "rushes" to these fields considerably depopulated Canterbury. Strenuous efforts were made to locate a gold field within the province, but in vain. To the farmer, however, the great influx of population into the colony as a whole proved better than a gold mine, for a market was found for all such of his commodities that would permit of transportation to the gold-fields. Wheat, butter, flour, pork, oats, chaff, fat cattle and sheep were sent thither in large quantities, and secured the advantages of the high prices ruling there. The fact that Canterbury was the nearest source of food supply to the gold-fields acted as a powerful force to steady the decline in the value of the semi-abandoned land of the province.

The gradual working out of the alluvial surface gold left many erstwhile miners without an occupation; and, as a great number of them had been farmers prior to their digging days, they were drawn back to the land. The unattractive nature of the land in the gold-fields provinces diverted many

to Canterbury, and the ultimate effect of the discoveries was the addition of a hardy, sturdy, stamp of men to the population of Canterbury. Indeed, few of the older farmers of to-day are without some connection with the gold discoveries.

Taken as a whole, the gold discoveries can have adversely affected the value of Canterbury lands but little, and records of any such effects are not apparent in the sales of the period. The ensuing rise in all prices, and the succeeding influx of population, did much towards giving land values an upward trend. The discovery of payable gold in Canterbury has remained an unrealised dream in a province whose only mineral wealth consists of a small supply of coal of very indifferent quality, found in the foot-hills of the western district.

The conditions of the early days were those of a self-supporting community, and, in consequence, local markets were small. There were few who were not directly connected with farming; for towns did not quickly spring into existence.

The following shows the percentages of the population living in boroughs and in counties at the census periods. Earlier information would probably show a wider divergence, and a greater proportion in the country districts.

<u>YEAR.</u>	<u>COUNTIES.</u>	<u>BOROUGHS.</u>
1881	59 p.c.	40 p.c.
1886	57	42
1891	56	43
1896	56	44
1901	51	47
1906	51	48
1911	49	50

"N.Z. Statistics."

These figures do not adequately reveal the extent to which urbanisation is progressing in New Zealand; for, during the period, the definition of "borough" has changed, excluding towns of less than 1000 inhabitants. Also, there are large populations living in suburban areas, which recently have really become urban areas, and these are still counted as part of the county population. In Canterbury, particularly, is this marked in the growing population just outside the boundaries of Christchurch and several other towns.

The poor nature of the coastal shipping was a bar to the transport of many products to the other Provinces of New Zealand. From the first, however, there was a steady growth of towns as population flocked in. In consequence, the markets steadily improved, though perishable goods were ever in poor demand, and over abundant in supply. About the time of the gold discoveries, agents from the gold fields improved markets by their competition for food supplies for export. With the steady increase in population, and improvements in transport, the local markets were on the mend, though two commodities, mutton and butter, were in continual glut until cool storage opened an easy way to oversea markets.

At the present time, the continuous growth of population, particularly urban population, has more than ever increased the dimensions of the local markets, and the increase in actual size has been accompanied by increase in the variety of articles offered for sale. Thus, many minor products now find a sale, and these products are eminently suited for production on small farms close to the towns, where intensive farming is the rule. Hence, a reason for the rapid subdivision of estates in the vicinity of towns, which is a marked feature of recent tendencies in Canterbury. The growth of local

markets has given rise to the industries of poultry raising, fruit farming, and market gardening. This has done much to raise the value of land in the vicinity of towns, where situational advantages are of paramount importance.

The high standard of consumption of the town populations, which has come as the result of the prosperity of the farmers since the middle nineties, provides a ready demand for quasi-luxuries, and the effect of this demand is to stimulate the demand for neighbouring land to provide these articles of small industry. And every fresh demand on land to provide a new product tends to render that land more valuable.

Perhaps no other country in the world is so disadvantageously placed with reference to the world's markets as is New Zealand. Distant some 12,000 miles from England and Europe, the chief countries which require her products, and surrounded by countries which are competitors with her rather than purchasers from her, she has carried on her foreign trade under a severe handicap. In the early days, no perishable goods could reach England, and, in consequence, we find the exports of Canterbury limited to such non-perishables as wool, grain and tallow. --- wool, indeed, to a greater extent than all others, and happily it was very remunerative to growers. Beyond this product Canterbury had little stake, as an exporter, in foreign markets.

True, shipments of chaff, oats and potatoes were sent to Australia; but generally the New Zealand farmer learnt to look to Australia only in her times of misfortune; her periodic spells of drought were as windfalls to him in providing a better and wider market, and in removing a weighty competitor from the world's market.

Perhaps nothing did so much to increase Canterbury's markets abroad as the advent of the rapid steamship, equipped with refrigerators, which could nullify baneful action of the organisms of decay and the heat of the tropics on perishable goods, such as meat and butter in process of carriage to the central world markets. Then it was that Canterbury's foreign trade showed a marked advance. Wool still remained an export of first-rate importance, but mutton, wool, lamb, and butter acquired a new importance, which was enhanced by their remarkably favourable reception in the English markets.

It is hard to realise the vital importance of the refrigerator to the welfare of Canterbury. In current discussions of land policy and taxation, too much emphasis is usually laid upon the "community created" increment of value to agricultural lands during the past twenty years, and too little on the influence of invention, and of the pioneers who in the bad times of the eighties and early nineties, shouldered cheerfully many immense risks, under which many failed. Yet some of the attempts were successful, and to-day we are reaping the advantages of projects and inventions cradled in these years of depression. These advantages are reflected partly in the trend of land values.

The range of Canterbury's foreign markets is steadily increasing; her products are now being sought after by Canada, the United States of America, and by European countries, while even her competitors are eager to secure Canterbury products, to improve the quality of their own, so high a reputation has been earned by Canterbury wool, mutton, butter and cheese.

It is plain that such a demand, growing in size and in diversity, must be reflected in the price at which land sales are effected in Canterbury, unless there is always a superfluity of land. Such does not exist here; the area is

distinctly limited, and the scarcity becomes more intense as the market grows wider, so that the increases in land values are concurrent with an increase in the range of foreign markets.

No general land tax was imposed in New Zealand until 1891, though as early as 1878 a land tax had been passed, only to be repealed almost immediately by a new administration. Land was reached through a general Property Tax of 1d. in the £ on all real and personal property over £500 in value. This, pressing heavily on the non-landowners, was extremely unpopular, while at the same time the large landowner with vast unimproved tracts, escaped comparatively lightly. In 1891, the Property Tax was abolished, and replaced by a Land Tax, and an Income Tax. The Land Tax was a general one of 1d. in the £ on all unimproved values. At the same time a graduated tax was placed on all values of £5000 or over, beginning at ½d. in the £ and rising by ½d. until estates of £210,000 paid 2d. in the £ of capitalized values, and over that rate in the case of absentee owners. In 1903 the Graduated Tax was altered to press still more heavily on the very large estates. The tax was altered again in 1912 with slight modifications, mainly in the direction of imposing additional burdens on large landowners.

Prior to 1891, taxation of property was solely for revenue purposes, but in 1891 and 1893 the principle of taxation assumed a twofold aspect. In addition to provision of revenue, it was to act as a coercive force to assist in the subdivision of large estates. It was felt that the large landowners were not carrying their due share of taxation, and in limiting production were retarding prosperity. The property tax favoured to an undue extent the unimproved estate, and penalised the heavily improved one. Briefly, the pastoralist escaped taxation more than did the agricul-

turalist. For the same reason the tax on the value of the land

To remedy these evils, legislators made use of taxation in which a graduated clause penalised the large estates. The discrimination between capital and unimproved values allowed also for penalising land held in an unproductive state. The graduated tax, added to the ordinary land tax, pressed heavily upon the large land owners, so that their only possible avenues of escape from taxation were by selling or by subdividing their lands, or by undertaking an extensive outlay to bring them into a productive state.

The results of this taxation have already been dealt with in the section on Supply. #

It cannot be denied that the value of land must be subject to the influence of taxation, which must, in general, lower land values. The method of imposition, and the extent to which evasion is possible, are all important. Taxes on land may assume the form of Property Taxes, Income Taxes, Areal Taxes, or taxes on Capital. Again, taxes may be connected with land monopoly, with the extent to which new improvements may be introduced, and developed; and the force which a socialistic tax exerts must be counted upon.

Prior to 1891, under the regime of a landowning government, property taxes were imposed. The taxes were imposed after a cursory valuation made by men who were lacking in the requisite ability and knowledge for discharging their tasks. (a)

The effects of these taxes were to encourage large estates and discourage improvements. Consequently, land values became subject to the twofold influences of:-

1. An increase through the contraction of the food supplying area; and
2. A decrease through the discouraging effect of taxation upon the proper utilisation of land.

See above, p. 55

(a) N.Z.O.Y.B. Sec.XXI. (1913).

In this way a restriction of general industry would have an indirect depressing effect on land values, through restriction of the stock of other things.

The system of taxation operating most generally since 1891 is based on the selling value of the land. From the valuator's estimation of the bona fide sale price, is deducted his value of all improvements on the land in question, that belong to the owner's interest (as distinct from the public interest). The tax is imposed upon this unimproved value. It is claimed that the selling price is a good indication of the productive power of the land, and that in this respect the principle of taxation used, rests on a sound basis -- that of being based on income rather than on capital, though it is to be noted that the valuations are made for a period of years during which the tax payable remains the same, although income may have changed. A good deal of dissatisfaction is being caused at the present time through valuations being based upon exchange sales# which, being conducted on credit, show inflated prices that greatly affect values in the district in which they occur.

The graduated tax appears to have been a sound stroke of business for the State, for when the Government entered the lists of land purchasers, and was empowered to purchase only blocks of considerable area, owners of such estates naturally demanded high prices for their land. Although the State was empowered to effect compulsory purchase, it was unwilling to set cumbersome machinery in process to do so. Accordingly, the land settlement policy was held up by the high prices demanded for suitable big estates.

It has become a very common practice during the past three or four years, for owners to exchange parcels of land at very high nominal prices.

During the last decade, there has been a slackening off in the purchases of large estates, but there has been instead a steady progression in the rate of the graduated tax imposed, the end in view being, of course, ^{indirect} compulsory subdivision by the owners.

Of course, it is the marginal estates that will be effected always, and the number of these is almost certain to be effected by the triennial valuations made. Any marginal estate which the valuation brings within the range of the graduated tax, will tend to be thrown on the market.

The connection existing between taxation and valuation allows the State a double means of attack upon land. Unpopularity, coming as the result of a higher tax, is sought to be avoided by the Government by instructing the valuers to put all land values on a higher basis, or to assess the value of improvements lower. The result is one and the same as far as the results in the Treasury show, while odium is avoided.

There is a protective duty upon imports of cereals, live stock, and fodder, and the result has been to discourage importation of these goods. Such a duty has maintained in part, at least, the value of wheat growing land, for it is commonly asserted that the low price at which Australian farmers could dispose of their surplus in New Zealand markets would effectively stop all production of wheat in Canterbury. The duty, therefore, brings land otherwise outside the wheat-growing margin within the margin, and so increases the value of all wheat-producing land.

In conclusion, the total effects of taxation directly upon land values in Canterbury has been but slight, but are undoubtedly of growing importance. Taxation may in part serve

to explain recent temporary checks upon increases in the upward trend of values. That is, these checks have been mainly due to the combined operation of valuations, and the Graduated Land Tax.

PART III

TABLES AND DIAGRAMS.

The following is the general arrangement of the accompanying Tables and Diagrams:--

The main distinct classes of Tables are indicated by Roman letters A.B.C.D., etc. Sections of these classes are distinguished by the addition of Arabic numerals A1, B2, etc.

Each table is illustrated, wherever appropriate, by a diagram similarly numbered. Wherever the data in any table exceed what is expedient to set down in one diagram, additional diagrams have been added immediately after each class.

The remarks offered are mainly descriptive of the general features of the Tables and Graphs, the more detailed discussion and interpretation being reserved for Part IV.

There are eight main classes of tables numbered A to H, comprising 12 tables in all. In illustration of these tables there are fourteen graphs.

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TABLE A. CANTERBURY COLLEGE LEASEHOLD LAND
RENTALS: AGRICULTURAL LAND.

This Table shows clear evidence of the advance in the prices paid for land leases as the colony progressed. The first decade covered by the investigation shows a steady increase, which was not in any way disturbed by great fluctuations. The speculation introduced into land sales by the Vogel Policy does not reveal itself until the eighties, on account of the lag in rentals which occurs because of their seven years' or fourteen years' duration. The high rentals paid in the later eighties and early nineties show the permanent effects of the borrowing policy, the period of maximum production and export of cereals, and the existing faith placed in the future of Canterbury agriculture. To this succeeds a period of five years - 1893 - 1898 - when diminishing returns, falling prices, and changes in population drive land prices downwards. Since 1897, in accordance with a rise in prices and great development in many phases of agricultural life, the course has been an upward one, culminating in an apex in 1910, after which there is a perceptible fall. A noticeable feature of the table is the wide range fluctuations that have occurred between 1884 and 1914, a period in which changes of great importance in the political, social and economic life of agricultural, industries have taken place. The comparative increases are:--

1870 - 1880	increase in price of 150 %
1880 - 1890	" " " " 140 "
1890 - 1900	a rise of 80%, followed by a sharp decline, and subsequent recovery, the period closing without any change in level.

1900 - 1910 increase in price of 77%
1910 - 1914 a steady decline

These fluctuations are based on the moving average.

CANTERBURY COLLEGE LEASEHOLD LAND RENTALS

AGRICULTURAL LAND

TABLE - A. GRAPH - A.

	ANNUAL AVERAGE	INDEX NOS of ANNUAL AVERAGE <small>BASE 1800-99 = 100</small>	MOVING AVERAGE* <small>(QUINQUENNIAL)</small>	INDEX NOS. of MOVING AVERAGE	QUINQUENNIAL AVERAGES their INDEX NOS.	QUINQUENNIAL AVERAGES BASED on Middle Year Quinquennium	DEVIATION FROM GENERAL AVERAGES
1869	2/6	19					-9/4
1870	2/6	19					-9/4
1871	-	-	2/5	16	2/5	2/6	-
1872	2/-	16	2/3	15	(16)		-10/10
1873	-	-	2/6	23			-
1874	-	-	3/8	25			-7/10
1875	5/-	38	4/5	29	4/9	5/-	-8/10
1876	4/-	31	4/5	29	(32)		-8/6
1877	4/4	34	3/7	24			-
1878	-	-	4/3	28			-
1879	4/6	35	4/3	28			-8/4
1880	-	-	6/-	40			-
1881	-	-	6/-	40	8/1	8/7	-
1882	8/7	67	9/6	64	(54)		-4/3
1883	-	-	9/6	64			-
1884	10/4	81	13/4	89			-2/6
1885	-	-	13/9	92			-
1886	21/-	164	13/9	92	11/6	10/4	+8/2
1887	10/-	74	15/-	101	(77)		-2/10
1888	-	-	14/3	95			-
1889	14/-	109	12/-	80			+1/2
1890	12/1	94	13/-	87			-7/9
1891	-	-	16/-	107	14/3	14/-	-
1892	-	-	16/6	110	(95)		-
1893	21/-	164	21/-	140			+8/2
1894	-	-	21/-	140			-
1895	-	-	14/1	95			-
1896	-	-	11/1	74	13/3	14/2	-
1897	8/-	62	10/7	71	(89)		-4/10
1898	14/2	110	12/4	82			+1/4
1899	9/-	70	12/4	82			-3/10
1900	18/-	140	13/8	92	16/11	18/9	+5/2
1901	-	-	15/3	102			-
1902	-	-	18/-	120	(113)		-
1903	18/9	146	18/-	120			+5/11
1904	16/3	127	18/-	120			+3/5
1905	18/-	140	18/-	120	17/2	18/-	+5/2
1906	-	-	18/-	120			-
1907	-	-	17/2	115	(115)		-
1908	-	-	23/-	154			-
1909	19/-	142	23/4	154			+6/2
1910	27/-	211	23/11	160			+4/2
1911	-	-	22/9	152	24/7	25/9	+12/11
1912	25/9	200	22/8	152	(65)		+7/2
1913	20/-	156	-	-			+5/2
1914	18/-	140	-	-			-

GENERAL AVERAGE = 12/10.

MEAN DEVIATION = 64.

* THE AVERAGE is set opposite the Middle Year of the Quinquennium.

TABLE A 1. CANTERBURY COLLEGE HEAVY AGRICUL-
TURAL LEASEHOLD LAND RENTALS.

The low level at which these lands were first leased was to be expected from the original condition of such areas. A steady rise in the seventies was succeeded by a rapid rise in the eighties, and this delay in the rise may be explained by the nature of the tenure. The later eighties and early nineties show a decline, when other classes of land were producing higher marginal returns and a general depression was prevalent. The latter nineties show the approach of prosperity, the rise in general prices, and the advent of the successful exploitation of the British butter market, by a rapid rise in land values. A decrease occurred just before 1910, but additional stimulus was given to production from this class of land by wider markets and invention after that date; thenceforth there was a persistent and rapid rise, until very recent years, when these lands, in common with other agricultural land, show a depression in value.

Comparative changes:--

In the period	1870 - 1880	prices rose	250%
	1880 - 1890	"	80%
	1890 - 1900	"	36%
	1900 - 1910	"	60%

CANTERBURY COLLEGE - LEASEHOLD LAND RENTALS

HEAVY AGRICULTURAL LAND

TABLE A-1.

DIAGRAM A-1.

ANNUAL AVERAGE	INDEX Nos. of Annual Averages <small>Base. 1890-99 = 100.</small>	Quinquennial Moving * AVERAGE	INDEX Nos. of * Quinquennial Moving Averages	QUINQUENNIAL AVERAGES INDEX Nos. <small>Base. 1870-99 = 100.</small>	QUINQUENNIAL AVERAGES of MEDIAN year of Quinquennium their INDEX Nos.	DEVIATIONS from GENERAL AVERAGE <small>G.A. = 12/10</small>
1869	3/-	19				- 9/10
1870	1/-	16				- 11/10
1871			1/10	13	1/10	
1872	1/8	11	1/5	10		- 11/2
1873	1/6	10	3/5	24	(12)	- 11/4
1874	-	-	4/-	28		- 5/10
1875	7/-	44	6/1	42		- 6/10
1876	6/-	38	7/8	53	7/8	- 2/10
1877	10/-	64	6/10	47		-
1878	-	-	7/5	51	(51)	
1879	4/4	28	7/10	54		- 8/6
1880	9/3	59	6/10	47		- 3/7
1881	-	-	6/10	47	6/9	-
1882	-	-	16/7	115	4/4	-
1883	-	-	15/9	109	(45)	-
1884	23/10	152	17/4	120		+ 11/-
1885	7/8	49	16/7	115	16/7	- 5/2
1886	20/6	131	16/7	115		+ 7/8
1887	14/4	91	14/2	98	(111)	+ 2/6
1888	-	-	17/5	120		-
1889	-	-	14/-	97		-
1890	-	-	12/-	83		-
1891	-	-	12/-	83	12/-	- 2/10
1892	12/-	77	12/-	83		-
1893	-	-	12/-	83	(81)	-
1894	12/-	77	12/-	83		- 2/10
1895	-	-	12/-	83		-
1896	-	-	21/-	145	20/-	-
1897	-	-	19/5	137	(134)	-
1898	28/-	179	16/8	116		+ 15/2
1899	10/10	70	16/3	112		- 2/-
1900	11/3	72	16/3	112	12/3	- 1/7
1901	14/9	94	12/3	85		+ 1/11
1902	-	-	-	-	(82)	-
1903	-	-	-	-		-
1904	-	-	-	-		-
1905	-	-	-	-		-
1906	-	-	-	-		-
1907	-	-	27/-	193		-
1908	-	-	-	-		-
1909	27/-	172	28/6			+ 14/2
1910	28	-	24/11			-
1911	-	-			24/11	+ 15/2
1912	28/-	178				+ 7/-
1913	19/10	127			(140)	-
1914	-	-			(192)	-

General AVERAGE = 12/10
MEAN DEVIATION = 7/1.

* THE AVERAGE IS SET opposite the middle year of the Quinquennium

TABLE A 2. CANTERBURY COLLEGE LEASEHOLD PASTOR-
AL LAND.

This Table exhibits many features similar to those of the Tables for agricultural land. The steady upward tendency until the eighties or early nineties is common to all, as is also the fall ending about 1896 - 1897, and the subsequent considerable rise until after 1910, whereⁿ a steady fall is perceptible. Pastoral land exhibits more fluctuations in value than do the agricultural varieties; but these fluctuations, though greater in frequency, are less in range. This may indicate the greater stability of this branch of farming in Canterbury.

In 1880 pastoral land was 87% higher in price than it was in 1870
 " 1890 pastoral land was 96% higher in price than it was in 1880
 " 1900 pastoral land has returned, after a severe fall, to the 1890 level.
 " 1910 pastoral land was 50% higher than it was in 1900
 " 1910-1913 rising prices following on a check in 1910-1911.

CANTERBURY COLLEGE LEASEHOLD LAND RENTALS

(1869 - 1914)

PASTORAL LAND

TABLE A-2.

DIAGRAM A-2.

	ANNUAL INDEX NOS. of AVERAGE ANNUAL AVERAGES. BASE 1890-99 = 100	QUINQUENNIAL INDEX NOS. * of MOVING AVERAGES AVERAGES	QUINQUENNIAL INDEX NOS. * of MOVING AVERAGES AVERAGES	QUINQUENNIAL AVERAGE	QUING. AV. BASED ON MODAL YEAR OF QUINQUENNIAL	DEVIATIONS from GENERAL AVERAGE
1869	8/6	35				-3/9
1870	1/-	14				-5/3
1871	1/9	25	1/5	32	1/5	1/2
1872	1/2	16	2/-	30		-4/6
1873	1/10	26	2/2	33	(23)	(16)
1874	1/6	21	2/6	38		-4/9
1875	3/8	52	2/8	41		-2/7
1876	2/10	40	2/11	44		-3/5
1877	2/9	39	3/-	46	3/-	3/8
1878	2/9	39	3/1	47	(46)	(52)
1879	2/9	39	3/6	53		-3/6
1880	4/1	58	3/10	58	4/2	5/2
1881	3/-	42	4/8	71		-3/3
1882	5/2	73	5/2	79	(68)	(73)
1883	4/2	69	5/7	85		-1/1
1884	6/10	96	5/8	86		+1/7
1885	6/10	96	5/6	84		+1/7
1886	4/9	67	5/10	89	5/5	6/10
1887	5/7	79	5/9	87	(82)	(96)
1888	3/6	50	6/6	99		-2/9
1889	8/6	120	7/6	114		+2/3
1890	6/4	90	7/8	116		+2/1
1891	8/5	120	7/8	116		+12/2
1892	10/9	152	6/2	94	8/-	8/6
1893	5/4	75	7/3	110	(122)	(120)
1894	-	-	4/10	73		-
1895	-	-	6/-	91		-1/8
1896	5/7	79	6/6	99	7/4	8/10
1897	3/6	50	6/2	94	(111)	(125)
1898	8/10	125	6/9	103		+2/7
1899	8/2	104	7/6	114		+1/11
1900	4/8	66	8/1	123		-1/7
1901	8/5	120	8/5	128		+2/2
1902	7/6	106	9/11	151	8/2	8/5
1903	11/11	168	9/10	149	(124)	(120)
1904	6/9	137	10/2	154		+3/6
1905	12/-	170	10/11	166		+5/9
1906	8/-	113	10/10	165	10/5	9/9
1907	9/-	127	10/6	159	(158)	(137)
1908	16/-	226	8/2	140		+2/9
1909	-	-	12/5	189		+6/9
1910	9/1	128				+2/10
1911	-	-				-
1912	11/8	165			11/-	11/8
1913	13/-	183			(167)	(165)
1914	-	-				+6/9

MEAN
DEVIATION
= 3/6

* THE AVERAGE IS SET OPPOSITE THE MIDDLE
YEAR OF EACH QUINQUENNIAL

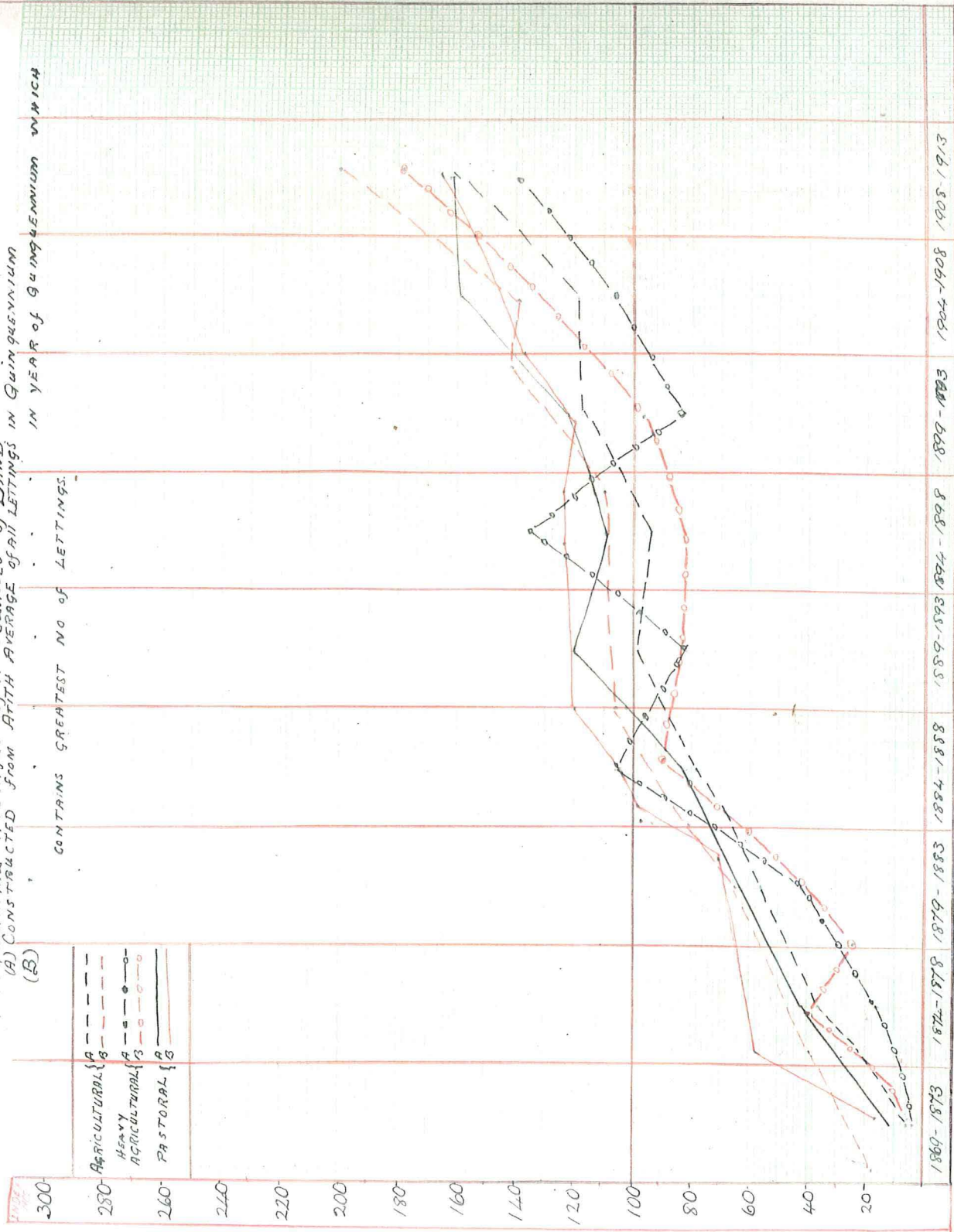
DIAGRAM A 3. QUINQUENNIAL AVERAGES OF THE THREE
CLASSES OF LAND LISTED IN TABLES
A, A 1 and A 2.



The black lines in this diagram indicate the courses of simple quinquennial averages in the periods shown, while the red lines show the average for that year of each quinquennium in which the greatest number of actual lettings was discoverable. The smoothing effect of this diagram is very marked, and it serves to generalise the course of land values to a great degree. It exhibits three well-defined periods in the changes in land rentals since 1869. First, a steady rise until 1888, marred by fluctuations upwards in the seventies, and downwards in the early eighties; secondly, a period of steady prices between 1888 and 1898; thirdly, a resumption of the upward course after 1898 at a greater rate than the rise in the first period.

CANTERBURY COLLEGE LEASEHOLD LAND RENTALS

QUINGUENNIAL AVERAGES OF ALL CLASSES OF LAND
(A) CONSTRUCTED FROM ANNUAL AVERAGE OF ALL LETTINGS IN YEAR OF QUINGUENNIUM WHICH
(B)



DIAGRAM—A-4. DEVIATIONS FROM THE GENERAL AVERAGE.

The General Average rent paid for heavy and medium agricultural land for the period 1869 -1913 was the same, viz., 12/10. A general parallelism is shown between these two classes throughout, except in the decade 1891 - 1900, when the inverse variation is apparent. The upward fluctuations in the case of the heavy agricultural land were the more violent. The fluctuations of pastoral land about the general average of 6/3 per acre are more frequent, but narrower in range. Common features of the three classes of land are:-- (1) All reached the general average after steady progress in the eighties, (2) A general fall took place in the latter eighties and again in the middle nineties, (3) Since 1897 a common rise is discernible with a slight depression following about 1912-1913.

TABLE B. AGRICULTURAL LAND SALES,
 "LYTELTON TIMES" and VALUATION OFFICE
 RECORDS.

This series of tables has a narrower range than any of those concerning rentals, commencing as it does in 1876, seven years after the beginning of the rental tables. The first four years show the inflation caused by the borrowing policy of 1870, while the subsequent fifteen years illustrate the depression of the eighties and early nineties. The changes occurring after 1896 show at first some extensive fluctuations, which later, at the beginning of the century, moderated into a rapid rate of advance which has been maintained until the present year. The general trend is simple and 1893 shows a depression of 33 1/3% on prices in 1880, while prices to-day stand 300% higher than in 1893.

AGRICULTURAL LAND SALES

TABLE B
DIAGRAM B

Lyttelton Times & VALUATION Dept. Records.

	ANNUAL AVERAGE Price per Acre	INDEX NOS. Base 1890-99 = 100 = 100%	Quinquennial Moving Average	Quinquennial AVERAGE	DEVIATIONS From General Av.	
1876	12	70		20	-13	1876
1877	-	-			-	1877
1878	28	165	18		+3	1878
1879	17	100	21		-8	1879
1880	16	94	21		-9	1880
1881	22	129	20	20	-3	1881
1882	21	117	20		-4	1882
1883	22	129	21		-3	1883
1884	20	117	21		-5	1884
1885	21	117	18		-4	1885
1886	-	-	17	18	-	1886
1887	14	82	18		-11	1887
1888	-	-	16		-	1888
1889	18	106	15		-7	1889
1890	15	88	16		-10	1890
1891	13	76	15	15	-12	1891
1892	17	100	15		-8	1892
1893	14	82	14		-11	1893
1894	14	82	16		-11	1894
1895	13	76	18		-12	1895
1896	20	117	19	19	-5	1896
1897	30	176	22		+5	1897
1898	16	94	25		-9	1898
1899	33	194	26		+8	1899
1900	28	165	25	28	+3	1900
1901	22	129	28		-3	1901
1902	26	153	26		+1	1902
1903	29	170	26		+4	1903
1904	25	147	29		0	1904
1905	27	158	30	32	+2	1905
1906	37	212	32		+12	1906
1907	34	200	35		+9	1907
1908	37	217	37		+12	1908
1909	39	229	37		+14	1909
1910	38	223	39	41	+13	1910
1911	37	212	41		+12	1911
1912	45	264	42		+20	1912
1913	44	259			+19	1913
1914	46	271			+21	1914

General Average = £25

† The AVERAGE is set opposite the middle year of the Quinquennium

TABLE B 1. PASTORAL LAND SALES IN CANTERBURY
 "Lyttelton Times" and Valuation
 Office Records.

The first twelve years on this Table show the waning influences of the inflation, though the later seventies show signs of a temporary recovery. The lowest figure in the whole table is reached in 1887, and the following year marks the lowest ebb of New Zealand's prosperity, when there occurred an excess of emigration over immigration in Canterbury alone of almost 2,000. Thenceforward, a slow rise took place until 1895, when the rate increased till 1900 and was succeeded by a series of fluctuations for eight years, little permanent rise being noticeable. Since then the rise has been continuous. A noteworthy point is the early date of the depression (1887) in the case of pastoral lands.

Comparative Prices:

1879 - 1889	Prices slowly falling:
1889 - 1899	Prices slowly rising till 1896, and a subsequent rapid rise till 1899.
1899 - 1909	Prices fluctuating about a con- stant level.
1909 - 1914	Prices rising rapidly.

PASTORAL LAND SALES

Lyttelton Times & Valuation Office Records

TABLE B. DIAGRAM B1

	ANNUAL AVERAGE Price per Acre	INDEX NOS. Base - 1890-99 = 100 = £4.15.0	Quinquennial + Moving AVERAGE	Quinquennial AVERAGE	Deviations from General Av.	
1876	£ 4	94			-6	1876
1877	3 $\frac{3}{4}$	88			-7	1877
1878	6	141	20	18	+2	1878
1879	5 $\frac{1}{2}$	129	21		-	1879
1880	5 $\frac{3}{4}$	135	18		+1	1880
1881	4 $\frac{3}{4}$	112	18	18	-3	1881
1882	3 $\frac{3}{4}$	88	18		-7	1882
1883	3 $\frac{1}{4}$	76	16		-9	1883
1884	-	-	15		-	1884
1885	4 $\frac{1}{2}$	106	14		+4	1885
1886	-	-	15	15	-	1886
1887	2 $\frac{3}{4}$	65	14		-11	1887
1888	-	-	12		-	1888
1889	3 $\frac{3}{4}$	76	12		-9	1889
1890	-	-	14		-8	1890
1891	3 $\frac{1}{2}$	82	15	15	-5	1891
1892	4 $\frac{1}{4}$	100	15		-8	1892
1893	3 $\frac{1}{2}$	82	15		-	1893
1894	3 $\frac{1}{2}$	82	15		-8	1894
1895	4	94	14		-6	1895
1896	-	-	17	17	-	1896
1897	-	-	21		-	1897
1898	5	117	26		-2	1898
1899	7	165	25		+6	1899
1900	7 $\frac{1}{4}$	170	24		+9	1900
1901	6	141	25	25	+2	1901
1902	5	117	25		-2	1902
1903	6	141	25		+2	1903
1904	7	165	24		+6	1904
1905	7	165	25		+6	1905
1906	5 $\frac{1}{2}$	129	26	25	-	1906
1907	5 $\frac{1}{4}$	117	25		-1	1907
1908	6 $\frac{1}{2}$	153	25		+4	1908
1909	6 $\frac{3}{4}$	158	28		+5	1909
1910	7 $\frac{3}{4}$	182	31		+9	1910
1911	8 $\frac{1}{2}$	200	33	33	+12	1911
1912	9	212	35		+14	1912
1913	9 $\frac{1}{2}$	223			+16	1913
1914	9 $\frac{1}{2}$	223			+16	1914

General Av. = £5.10.0

† The AVERAGE is set opposite the middle year of the

Quinquennium

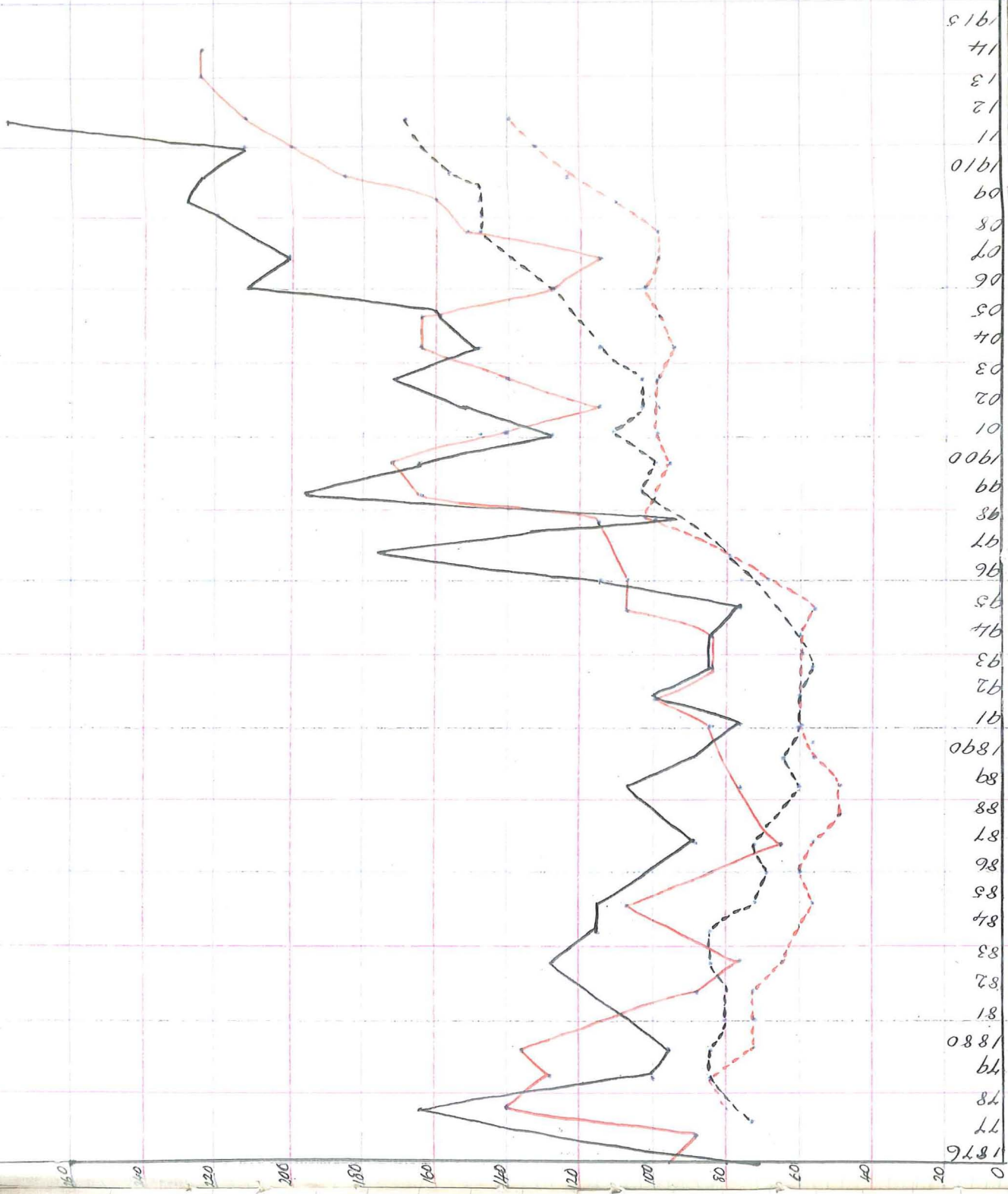


DIAGRAM B-2.AGRICULTURAL AND PASTORAL LAND
SALES, DEVIATIONS FROM THE
GENERAL AVERAGE.

The graph of the deviations shows a progressive downward trend until 1897, commencing from a maximum in 1878. Thence the general average is attained by both classes of land about 1898 - 1899 and progression upwards has since been maintained, the deviation above the average being much greater than the former deviations below it.

TABLE C.

INDEX NUMBERS FROM VARIOUS SOURCES COM-
BINED.DIAGRAM C.

AN INDEX NUMBER OF ALL CLASSES OF LAND.

This Table shows the combination of the index numbers from both rental and sale records to get a view of the course of changes of value, in all classes of land under various tenures. The two ~~classes~~^{classes} of heavy and medium agricultural land are brought together under one head. The close relation of the changes in the values of the two classes gives a table for all land values showing relatively few fluctuations. A more detailed examination of individual sections of the table is necessary.

First, in 1869 - 1874 is a period of very low values, consequent on the gold discoveries of the sixties in Otago.

Secondly, 1874 - 1878 a rapid rise in progress giving a level in 1878 about 330% higher than the level of 1874.

Thirdly 1878 - 1898, a long period showing a very slight upward tendency prevailing, and closing with prices about 11% higher than they were at the commencement of the period.

Fourthly 1898-1914, a rapid rise in values in maintained in this period which closes with prices 130% higher than they were in 1898.

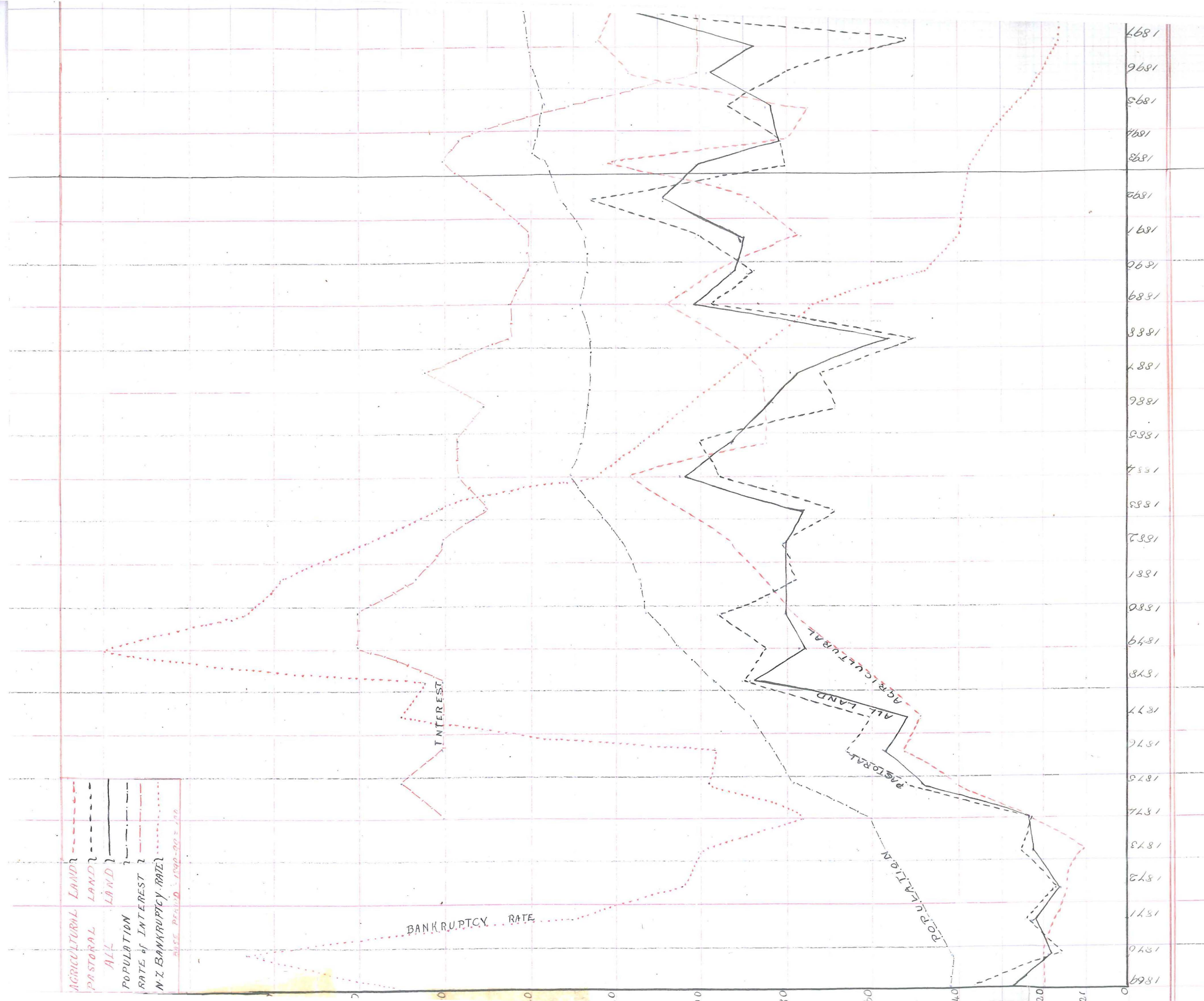
The course of the whole table shows the persistence of an upward tendency, the depressions being short and insufficient to turn the trend downwards. The remarkable upward tendency since 1898 is worthy of notice.

INDEX NUMBERS from various sources COMBINED.

AN INDEX NUMBER of ALL CLASSES of LAND

BASE - 1890-99 = 100

	AGRICULTURAL			PASTORAL			ALL	
	A Canterbury COLLEGE Records	B Lyttelton Times VALUATION OFFICE Records	A + B Combined	C Canterbury College Records	D Lyttelton Times VALUATION OFFICE Records	A + B Combined	LAND A-B-C-D	
1869	19		19	35		35	27	1869
1870	19		19	14		14	16	1870
1871	-		-	25		25	25	1871
1872	16		16	16		16	15	1872
1873	24		24	26		26	23	1873
1874	28		28	21		21	21	1874
1875	38		38	52		52	47	1875
1876	31	70	56	40	94	67	57	1876
1877	34	-	34	39	88	61	55	1877
1878	-	165	165	39	141	90	7(90)	1878
1879	32	100	66	39	129	84	75	1879
1880	59	94	77	58	135	97	78	1880
1881	-	129	129	42	112	77	77	1881
1882	67	117	92	73	88	81	79	1882
1883	-	129	129	59	76	68	68	1883
1884	117	117	117	96	-	96	107	1884
1885	49	117	83	96	106	101	92	1885
1886	148	-	148	67	-	67	108	1886
1887	88	82	85	79	65	72	79	1887
1888	-	-	-	50	-	50	7(50)	1888
1889	109	106	108	120	76	98	7(104)	1889
1890	94	88	91	90	-	90	92	1890
1891	-	76	76	120	82	101	89	1891
1892	77	100	89	152	100	126	108	1892
1893	164	82	123	75	82	79	101	1893
1894	77	82	80	-	82	82	81	1894
1895	-	76	76	-	94	94	85	1895
1896	-	117	117	79	-	79	98	1896
1897	62	176	124	50	-	50	87	1897
1898	145	94	120	125	117	121	121	1898
1899	70	194	132	104	165	134	133	1899
1900	106	165	136	66	170	118	127	1900
1901	94	129	112	120	141	131	122	1901
1902	146	153	153	106	117	112	133	1902
1903	-	170	158	168	141	155	156	1903
1904	127	147	137	137	165	151	144	1904
1905	140	158	149	170	165	168	158	1905
1906	-	212	212	113	129	121	167	1906
1907	-	200	200	127	117	122	162	1907
1908	150	217	217	226	153	189	203	1908
1909	157	229	193	156	158	158	176	1909
1910	211	223	217	128	182	155	186	1910
1911	176	212	212	-	200	200	206	1911
1912	189	264	227	165	212	189	208	1912
1913	142	259	200	183	223	203	202	1913
1914	140	271	206	-	223	223	214	1914



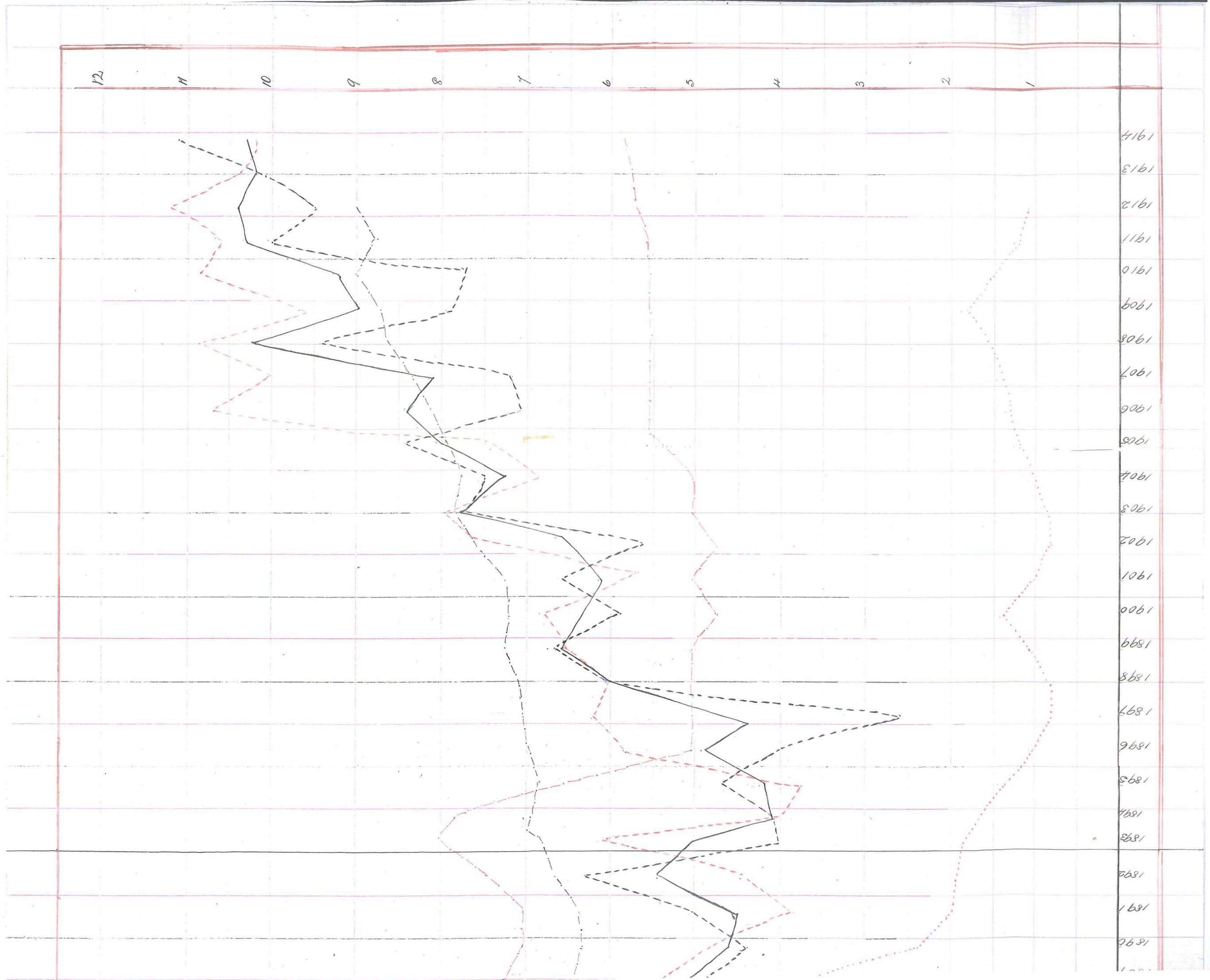


TABLE D.

PRICES OF AGRICULTURAL AND PASTORAL
LAND COMPARED WITH THE PRICES OF
LAND PRODUCTS.

The prices of farm products are from the "Course of Prices in N.Z.", by J.^wN. McIlraith, Litt.D., the only work on this subject. A ^{lesser} ~~greater~~ parallelism is apparent throughout between the prices of agricultural land and agricultural products then between pastoral land and pastoral products. Years of high prices of products are, in many instances, followed at an interval of one or two years, by higher prices for land, e.g., 1878, 1882, 1889, 1899 in the case of pastoral land; and 1874, 1878, 1882, 1886, 1889, 1891, 1898, 1902 in the case of agricultural land. The close correlation of agricultural land values and agricultural land products in the eighties shows the importance of corn production at this particular period and subsequent figures testify to its waning relative influence.

94A.

TABLE D
COMPARATIVE TABLES of INDEX NOS. of LAND & PRICES
of LAND PRODUCTS

The INDEX Nos. of prices of LAND PRODUCTS are taken from "The Course of Prices in N.Z." by J.W. McIlraith Ltd., D.
 Base Period = 1890-99.

	100	500	100	500	100	100
	Agricultural	Agricultural	Pastoral	Pastoral	All	All
	Land	Products (5 varieties)	Land	Products (8 varieties)	Land	Products
1869	19	877	35	790	27	149
1870	19	695	14	692	16	131
1871	-	621	25	584	25	122
1871	16	631	16	619	15	126
1872	16	631	16	619	15	126
1873	24	833	26	724	23	156
1874	28	884	21	757	21	164
1875	38	632	52	546	47	148
1876	56	531	67	571	57	140
1877	54	792	61	577	55	152
1878	165	817	90	776	90	153
1879	66	748	84	805	75	141
1880	77	554	97	832	78	126
1881	129	537	77	800	77	122
1882	42	630	81	912	79	129
1883	129	608	68	843	68	121
1884	117	556	96	790	107	112
1885	83	483	101	802	92	107
1886	148	534	67	759	108	108
1887	85	501	72	798	79	100
1888	-	497	50	745	50	96
1889	108	625	98	906	104	118
1890	91	462	90	888	92	100
1891	76	499	101	818	89	101
1892	89	527	126	814	108	103
1893	123	464	79	837	101	100
1894	80	438	82	887	81	98
1895	76	427	94	753	85	91
1896	117	522	79	749	98	98
1897	124	596	50	702	87	100
1898	120	618	121	721	121	103
1899	132	408	134	922	133	102
1900	136	419	118	416	127	102
1901	112	408	131	894	122	100
1902	153	568	112	947	133	117
1903	158	547	155	1022	156	121
1904	137	488	151	1055	144	111
1905	149	497	168	1047	158	119
1906	212	525	121	1058	167	122
1907	200	607	122	1033	162	126
1908	217	667	189	1073	203	134
1909	193	522	158	1054	176	121
1910	217	552	155	1078	186	127
1911	212		200		206	
1912	227		189		208	
1913	200		203		202	
1914	206		228		214	

Note. The INDEX Nos. of LAND PRICES are based on 100.

The INDEX Nos. of PRODUCTS are based upon 100 for each variety included.

IN THE LAST COLUMN of PRODUCTS THE TOTAL IS REDUCED to the 100 BASIS.

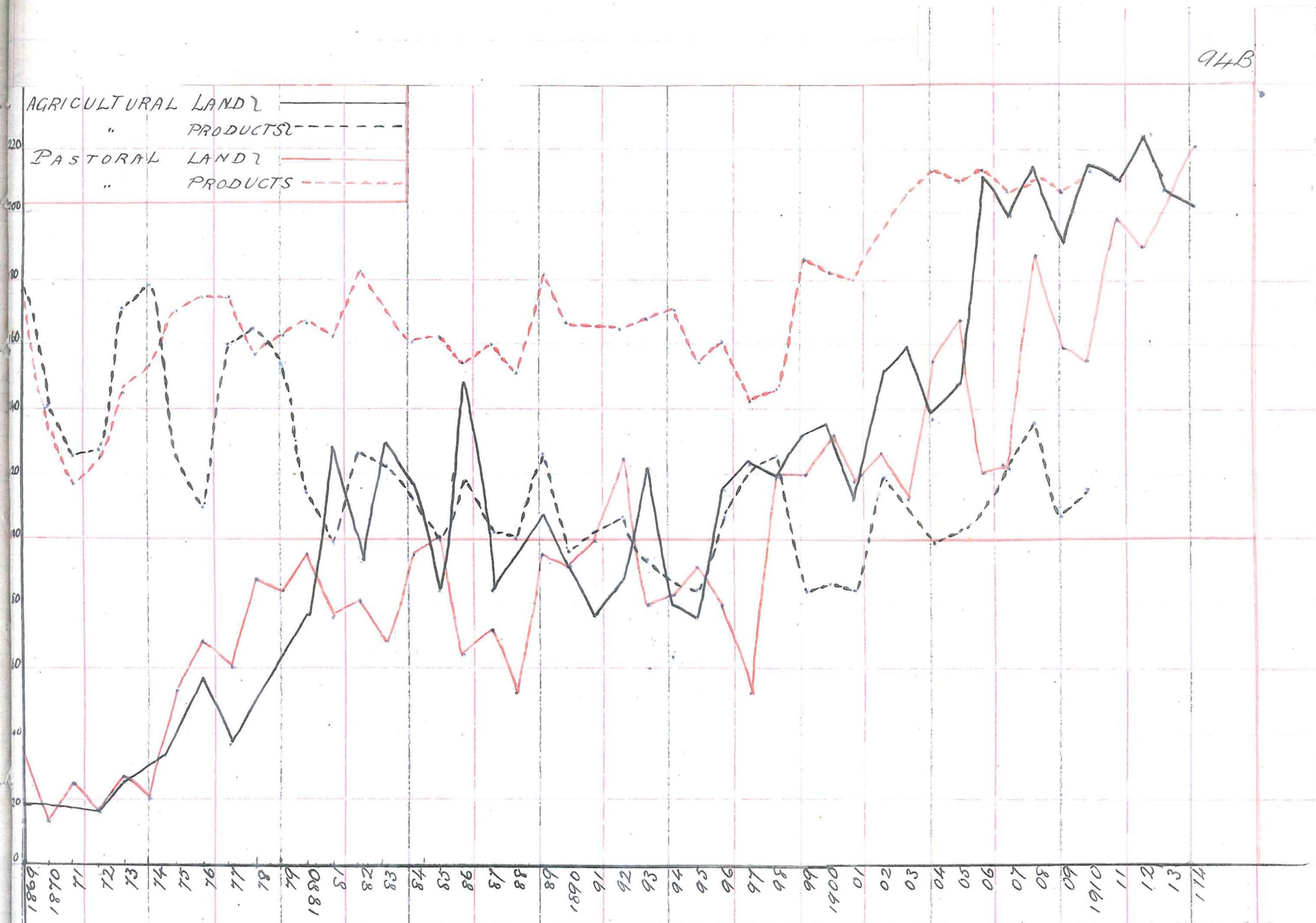
A DIAGRAM SHOWING COMPARISONS

of PRICES of

(i) AGRICULTURAL LAND & AGRICULTURAL PRODUCTS

(ii) PASTORAL LAND & PASTORAL PRODUCTS

THE INDEX NOS. of PRICES of PRODUCTS ARE FROM "COURSE of PRICES in N.Z." (McILRAITH)



L
TABLE E. INDEX NUMBERS OF CANTERBURY LAND
 VALUES COMPARED WITH POPULA-
 TION, IMMIGRATION, RATE OF
 Discount and BANKRUPTCY RATE.

Up to 1897 the growth of population was reflected in the parallel increase of land values. The excess of immigration over emigration shows much fluctuation; noticeable features are the great excess of immigrants in the mid and later seventies which was followed by the rise in land values and the excess of emigration in 1888, contemporaneous with a very low average price for land in that year. Since the beginning of the century the province has gained considerably through immigration.

The rate of interest and the price of land seem to move in inverse correlation. The courses of the rate of interest and of land values moved inversely, both in trend and in narrow fluctuations down to 1900. Changes in the rate of interest made themselves felt in the price of land after one or two years 'gestation period' in each case. Since 1900 the inverse correlation seems to have disappeared almost entirely and a direct movement is very slightly perceptible.

The bankruptcy rate fluctuated enormously between 1869 and 1885. The failures consequent on the gold discoveries had scarcely disappeared when an even higher rate occurred contemporaneous with a great rise in land values. This may indicate the speculative character of the early rise in land values. The subsequent course of the bankruptcy rate in its rapid decline is off-set against the rise in land values.

INDEX NOS. of LAND VALUES COMPARED WITH
POPULATION ~ IMMIGRATION INCREASES ~ RATE of DISCOUNT
IN CANTERBURY PROVINCE
AND WITH
N.Z. BANKRUPTCY RATE.

95A.

	INDEX Nos. of ALL LAND VALUES	Population - 1000 omitted	Excess of Immigration over Emigration	RATE of INTEREST ON LAND LOANS	N.Z. BANKRUPTCY RATE	
1869	27	43	574	No Data Available	342	1869
1870	16	43	1286		411	1870
1871	25	46	818		260	1871
1872	15	49	1123		211	1872
1873	23	55	2300		201	1873
1874	21	58	2269	7-9	151	1874
1875	47	78	11756	8-9	199	1875
1876	51	84	2140	7-9	190	1876
1877	55	91	2169	8	338	1877
1878	90	96	2546	8	336	1878
1879	75	104	1782	8-10	548	1879
1880	78	112	2546	8-10	411	1880
1881	77	114	2169	6½-10	396	1881
1882	79	118	8000	6-10	356	1882
1883	68	124	2400	7-8	412	1883
1884	107	129	2154	6½-9	205	1884
1885	92	126	899	6½-9	233	1885
1886	108	126	166	6-9	246	1886
1887	79	127	84	7½-9	230	1887
1888	50	127	-1970	6½-8	195	1888
1889	104	128	46	6½-8	165	1889
1890	92	128	-	6-8	142	1890
1891	59	129	337	6-8	130	1891
1892	108	133	1016	7-8	107	1892
1893	101	137	2130	7-9	100	1893
1894	81	140	460	6½-9	129	1894
1895	85	135	394	5-7½	96	1895
1896	98	138	378	5	80	1896
1897	87	140	527	5	79	1897
1898	121	142	519	5	74	1898
1899	133	145	360	5	70	1899
1900	127	143	352	4½-5	56	1900
1901	122	145	492	5	39	1901
1902	133	149	1458	4½-5	34	1902
1903	136	153	2072	5	31	1903
1904	144	153	1858	5	41	1904
1905	158	157	1701	5-6	47	1905
1906	167	162	1722	5-6	52	1906
1907	162	166	1016	5-6	53	1907
1908	283	171	2529	5-6	61	1908
1909	176	175	849	5-6	71	1909
1910	186	178	608	5-6	60	1910
1911	206	175	-	5-6	52	1911
1912	208	180	-	5½-7	46	1912
1913	202			5½-7	1	1913
1914	214			5½-7		1914

TABLE E.

LAND VALUES IN CANTERBURY COMPARED
WITH THE PERCENTAGES OF LAND
UNDER VARIOUS KINDS OF CROP.

The Table is an endeavour to bring the productivity and carrying capacity of Canterbury land into comparison with its value. The inverse movements of the percentages under pasture and cereals shows the adaptability of the Canterbury land to either branches of farming and that land thrown out of crop does not thereby become waste and exert a detrimental effect on values. Rather the increase in land values accompanying the reversion to pastoral uses seems to show that the marginal value is enhanced by the change. Green crops comprise special fodder crops, such as raps, turnips and barley. It will be noticed that the periods of depression show a reaction from cropping to pasture, and that the pastoral industry rather than the agricultural controls the fortunes of Canterbury.

The stock returns exhibit the steady and solid advance made prior to the eighties, when parallel with the value of land a depression ensued and the number of animals decreased until the latter nineties, the fall being the greatest in the case of pigs and cattle and least in the case of sheep. Sheep and cattle being more concerned in Canterbury's export trade than any of the other animals, a singular course of change since the latter nineties is noticeable. Sheep, entering the export trade together with their products, have been prevented from increasing numerically, while cattle have shown a rapid increase in numbers, their product only, and not the animals themselves to any great degree being exported.. Beef is but a relatively unimportant export. It should be remarked that the abolition of the sheep tax in 1908 accounts for a considerable part of the increase in the number of sheep returned in that year, a certain percentage of the animals having previously escaped regis-

tration in the endeavour to evade the tax.

Summing up, the amount of stock maintained follows the trend of land values to a very fair extent.

Stock & Crop, RETURNS from 'Statistics of N. Z.'

[illegible]

97B

A DIAGRAM SHOWING INDEX NOS. of LAND VALUES

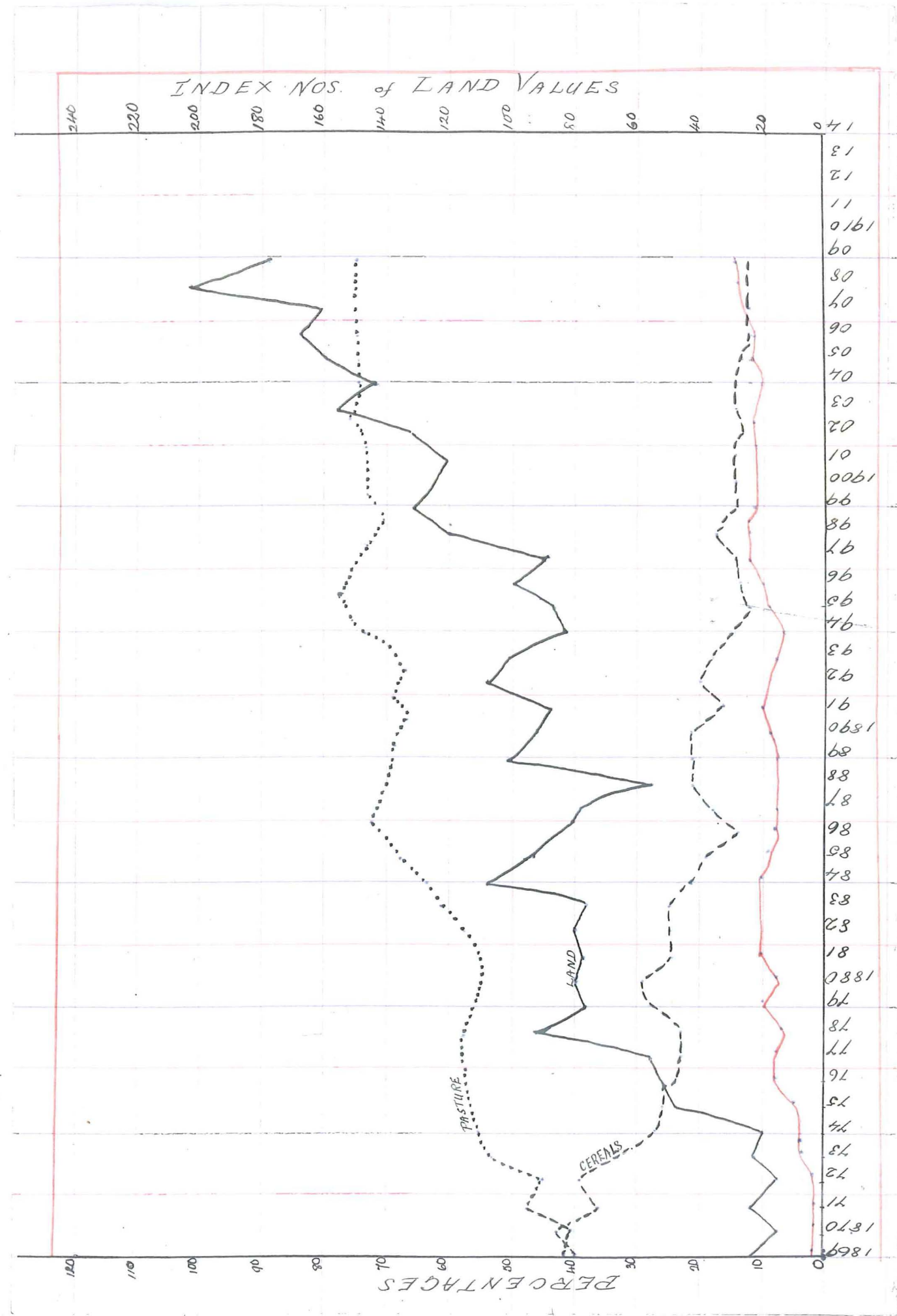
TOGETHER WITH PERCENTAGES

OF LAND USED FOR

PASTURE :g.....

CEREALS : -----

GREEN CROPS : ————



LAND VALUES & AMOUNT OF STOCK IN CANTERBURY.

INDEX NOS. OF LAND VALUES TAKEN.

'000'S OMITTED IN ALL FIGURES AS TO STOCK

HORSES ———
 CATTLE ———
 SHEEP ———
 PIGS ———
 LAND VALUES ———



+ THREE INSTANCES WHERE RETURNS ARE PROCURABLE AT QUINQUENNIAL PERIODS ONLY.

TABLE F. SALES OF LEASES ON CROWN LANDS FOR
SETTLEMENT ESTATES.

This Table shows with greater accuracy than is possible in the case of the other tables the recent changes in the values of agricultural land. The greater accuracy is secured by the method in which all data are kept by the State Land Office. The heavy class of land in this instance is used mainly for cropping and to a small extent for dairy farming, the lighter class being used for cropping and for fattening purposes. The land comprises leasehold land held on the lease-in-perpetuity system (999 years) which gives every facility for disposal of the goodwill.

Little change is observable in values until the beginning of the century, when a definite upward move sets in, the first six years being almost a "probation period" in determining whether or no the new land policy was to be a success.

A period of constancy is observable between 1905 and 1908 - a period of world-wide financial troubles. Since then prices have resumed the upward trend, at a rapid rate, and in 1913 stand over 100% higher than they were in 1903, while between 1894 and 1903 little definite change in any one direction is noticeable.

SALES of LEASES on LANDS for SETTLEMENTS ESTATES

MEDIUM AGRICULTURAL LAND					HEAVY AGRICULTURAL LAND						
	ANNUAL AVERAGE SALE PRICE	INDEX NOS. BASE - 1894-99 = 100 1895 = 100	QUINQUENNIAL MOVING AVERAGE *	DEVIATIONS FROM GENERAL AVERAGE		ANNUAL AVERAGE SALE PRICE	INDEX NOS. BASE - 1894-99 1895 = 100	QUINQUENNIAL MOVING AVERAGE *	DEVIATIONS FROM GENERAL AVERAGE		INDEX NOS. for BOTH CLASSES.
1894	£ 5.9	108		-2.5						108	1894
1895	6.0	110		-2.4		6.5	70		-6.9	90	1895
1896	-	-	4.5	-		7.1	76		-6.3	76	1896
1897	5.7	104	5.5	-2.7		6.9	75	9.3	-6.5	90	1897
1898	5.1	93	5.3	-3.3		10.7	115	9.5	-4.7	104	1898
1899	5.0	90	5.6	-3.5		15.4	166	9.9	+2.0	128	1899
1900	5.7	104	5.4	-2.7		7.7	82	10.8	-5.7	93	1900
1901	6.5	118	5.9	-7.9		9.0	96	10.4	-4.4	107	1901
1902	4.7	86	6.3	-3.6		11.4	123	9.5	-2.0	105	1902
1903	7.7	140	6.9	-0.7		8.7	94	11.3	-4.7	119	1903
1904	7.0	127	7.7	-1.4		11.1	119	12.5	-2.3	123	1904
1905	8.5	154	8.7	+0.4		16.7	179	13.7	+3.3	167	1905
1906	10.6	193	9.2	+2.2		15.3	165	15.1	+1.9	179	1906
1907	9.6	175	10.0	+0.8		16.7	179	15.8	+3.3	177	1907
1908	10.3	187	10.4	+1.9		16.1	173	16.2	+2.7	180	1908
1909	10.7	194	11.2	+2.2		14.3	154	16.8	+0.9	174	1909
1910	11.1	202	11.9	+2.6		19.0	204	17.9	+5.6	203	1910
1911	14.4	262	12.5	+5.9		18.0	194	19.2	+4.6	228	1911
1912	13.2	240		+4.7		22.0	236		+8.6	238	1912
1913	13.1	239		+4.6		23.0	247		+9.6	243	1913
1914											1914
GENERAL AVERAGE £8.46					GENERAL AVERAGE £13.4						

* AVERAGE IS SET OPPOSITE MIDDLE YEAR OF QUINQUENNIAL.

LAND VALUES ON GOVMT. LAND for SETTLEMENT ESTATES

A MORE ACCURATE DESCRIPTION OF RECENT CHANGES IN AGRICULTURAL LAND VALUES

AGRICULTURAL LAND
 HEAVY $\frac{19}{3} = 100$
 MEDIUM $\frac{15}{2} = 100$
 ALL $\frac{17}{4} = 100$

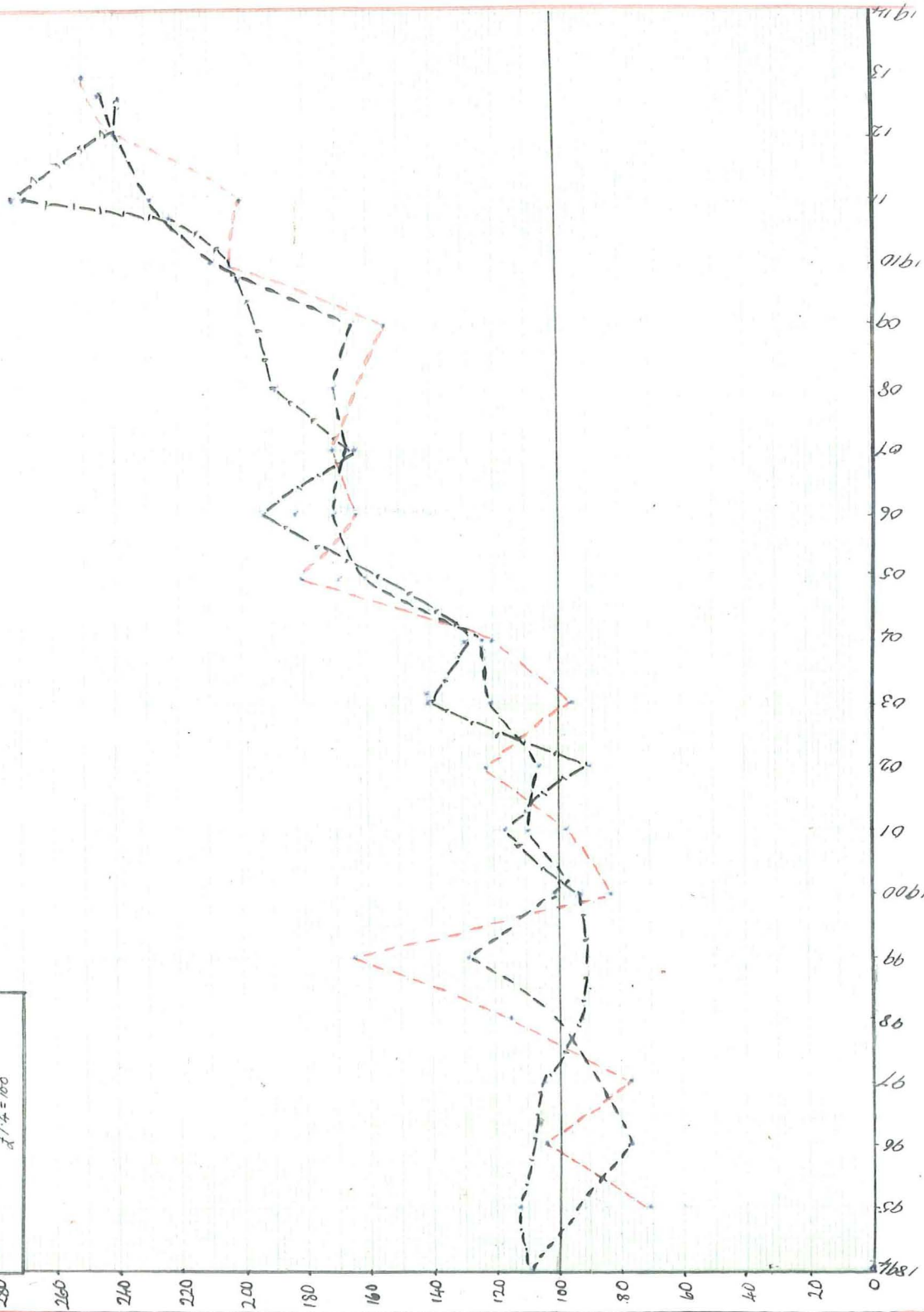


TABLE G. THE NUMBER AND DISTRIBUTION OF LAND
 HOLDINGS IN CANTERBURY.

A Table such as this is useful in considering the subject of land aggregation or "monopoly." Unfortunately, the data are not available prior to the census of 1891. Since then unprecedented activity has prevailed in all matters - social and political - pertaining to the land. However, the average holding has shown but little change in area, being 616 acres in the nineties and 595 acres in the present century. The greatest changes in areas are found in a grading-down process observable in the 5,000 - 20,000 acre classes, and a grading-up to this class from the immediately lower classes. The period of twenty years shows an increase of about 3,000 holdings, or about 38% between 1891 and 1911.

TABLE SHOWING DISTRIBUTION of LAND in HOLDINGS

CANTERBURY PROVINCE

CANTERBURY PROVINCE											
	1-10	11-50	51-100	101-200	201-320	321-640	641-1000	1000-5000	5000-10000	10000-20000	TOTAL
1911	14502 3321	60,890 2192	86,460 1137	194829 1317	250770 976	553054 1231	408540 509	1381409 608	336680 55	386271 27	6,587,587 11276
1908-9	15691 3907	62269 2239	84473 1094	189417 1267	250962 967	514174 1136	357967 445	1298797 653	419567 67	404181 29	6,558,942 11858
1907-8	16090 3964	62083 2214	88348 1169	192675 1285	244213 952	507244 1092	319304 420	1382646 613	376409 59	425825 34	6669193 11849
1905-6	15778 3924	62263 2257	88632 1159	191082 1284	233696 908	491601 1091	314120 391	1237289 682	410382 60	408688 34	6779315 11792
1903-4	15378 3842	59833 2176	84799 1112	187614 1248	214908 846	448293 953	292233 362	1117604 576	439836 65	396761 30	6663136 11293
1902-2	14964 3359	62141 2243	88950 1161	188062 1272	227135 887	410499 906	278095 326	1082250 516	393590 60	470095 27	6493592 10853
1900-1	14470 3549	63523 2296	90609 1120	190528 1289	218335 876	413364 916	261989 315	1054436 534	413229 59	475851 33	6449162 11086
1899-1900	14192 3508	64255 2295	98360 1221	186796 1257	215853 867	398181 843	273776 328	1051304 520	390844 54	502909 34	6391606 10965
1898-99	13238 2433	65621 2246	95469 1255	188060 1264	206883 797	369901 807	261938 307	984509 480	421962 56	512278 37	6341491 10554
1897	14476 3556	67192 2833	89877 1180	181686 1247	202609 779	376462 824	243485 303	980709 458	450787 60	610729 36	6171645 10579
1891	2727	2061	1057	1087	648	670	258	371	57	36	6610210 8989
AVERAGE HOLDINGS at DATES INDICATED											
	1891	1897	1899	1901	1902	1904	1906	1908	1909	1911	
Acres.	734	561	574	586	590	606	565	606	596	599	
Note	Figs. in black give Total Acreage in each Class Figs. in red give Holdings in each Class										

TABLE H.

The Waste Lands of the Province being of considerable area in the seventies a great portion of the eager demand for land was satisfied by the sales of these lands at the uniform stipulated price of £2 an acre. This supply, of course, lessened the rise in the price of land offered for sale by private persons and, consequently, the prices do not adequately indicate the extent to which speculation prevailed in the seventies. I, therefore, have thought it necessary to attach this table in order to illustrate better the force of the impetus to sales which was caused by a vigorous borrowing and immigration policy. The speculation caused two notably conspicuous years of rapid sales, viz, 1874 and 1878, after which depression set in definitely. So rapid was the course of alienation that the alarm engendered out of too splendid success resulted in the beginning of the belief that the Crown should retain and even retain in part its original estate, a belief which materialised later in the nineties in the repurchase laws.

TABLE - H.

100A

THE EFFECTS of VOGEL'S 1870-BORROWING POLICY in CANTERBURY

	LAND SALES	REVENUE from LAND SALES	
	Acres	£	
1867	43,767	57,534	
1868	19,695	40,978	
1869	11,856	32,881	
1870	16,934	35607	} INITIATION of PUBLIC WORKS, SCHEME
1871	18,460	36225	
1872	43,075	119991	
1873	146271	575832	} PERIOD of LAND BOOM.
1874	253456	632692	
1875	194564	214788	
1876	186354	513441	
1877	412126	981426	
1878	662455	1,002,068	} BEGINNING of SUBSEQUENT DEPRESSION.
1879	86765	173445	
1880	25987		

PART IV. -- CRITICAL EXAMINATION OF TABLES AND
DIAGRAMS AND GENERAL CONCLUSIONS.

1. THE THREE PERIODS.

The course of land values since 1869 seems divisible into three distinct periods. (Table

- (a) 1869 - 1878, a period of rising values.
- (b) 1878 - 1898, a period of fluctuations, about a general level with a slight rising tendency.
- (c) 1898 - 1914, a period of marked rise with temporary checks of small consequence.

I now propose dealing with these periods in more detail.

(a) 1869 - 1878, a period of rising values.

The later sixties were a period of acute depression coming after the great gold yields had begun to decline. Prices fell at an appalling rate, and especially the prices of farm products, which in 1871 were about one half of what they had been in 1866.

Abroad, the Franco-German war was raging in 1870, and a general uneasiness prevailed. Immigration had dropped off considerably and the demand for land was indeed weak.

In the midst of such depression a vigorous plan was outlined by Sir Julius Vogel, whereby an ambitious borrowing scheme was launched to bring capital to the country. This plan was executed, and there was vigorous selling of crown lands and encouragement of immigration. In 1871, prices had taken the turn upwards, and these upward changes were later reflected in the higher prices paid for land after 1874. A slight depression abroad occurred in 1876 - 7, but though reflected in small degree in land prices, it was but brief, and prices of land subsequently soared up to the apex, which occurred in 1878 - 80.

The boom then burst, and values fell, but they remained at a higher level showing that there was some permanent influence coming from the result of Vogel's policy.

This period is one when markets were extremely local in character, and in which industry received a high rate of increasing returns from the introduction of much needed capital spent in such a way as to be well distributed. To the policy of the State then must be attributed in the main, the rise in land values in the period 1869 - 78.

A comparison between agricultural and pastoral lands during this period shows that the latter were in favour, though not to any great extent. Moreover, at this time a great deal of land in its virgin state was taken up and classed as pastoral. Indeed, the very market advantages which were then available were such as would put pastoral land into eminent favour. A greater demand for pastoral products came from the goldfields, while they looked to elsewhere for flour and other agricultural products. The larger capital requisite for corn growing was lacking, and during the 'rush' periods labour was scarce. Finally, the limitations of the area which could be safely harvested also limited the demand for crop growing-land.

(b) 1878 - 1898, a period of fluctuations about a slow upward trend.

This is a period of trial during which the main conditions for the future of the province were laid down. After 1873 prices were slowly tending downwards in all parts of the commercial world. Products of the land shared the fall with the rest. Many had bought land during the boom of the seventies, and were forced to abandon it in the ensuing depression. The gloom deepened as the eighties wore on, and in 1888, the excess of emigration over immigration in Canterbury was nearly 2,000. The Government could render no as-

assistance to ease the trouble, and had even to pursue a vigorous retrenchment^{ch} policy in the Civil Service. Pessimism was the prevalent feeling. A change of tone became perceptible about 1891, when a new party of progress entered office, and proceeded with a vigorous policy of progress. For seven years little apparent results were apparent, for the steady persistent fall in general prices was too great an obstacle to be readily overcome. Moreover, the gold mines of the colony were decreasing their output, and the depression in prices had brought a bad crisis in Australia, which was so acutely reflected in New Zealand that the Bank of New Zealand would have failed, but for Government aid at the critical moment. The turn in prices in 1896 was the beginning of a great period of prosperity, which continues till the present.

The period of the eighties appears as the gloomiest in the commercial and social history of New Zealand. Recriminations against Vogel, the author of the preceding boom, were rife, and his good influences are even now judged unfavourably in the light of what followed them. Still, the period of the eighties saw the laying of the foundations of our present prosperity. 1881 saw the foundation of the New Zealand Farmer's Co-operative Association, now one of the largest joint-stock trading companies in the Dominion. In 1882, the first successful shipment of New Zealand frozen mutton was sold in England. In 1885 - 88, we note the establishment of dairy factories and woollen factories, and the introduction of the reaper and binder. Nothing has been more closely associated with our present day prosperity than have these institutions. Their success was by no means immediate; a long period of severe probation had to be undergone. Indeed, their immediate effect was slightly to increase the depression. Details of operation had to be perfected before the proper benefits could be reaped. Failure was sometimes bound to be encountered,

and, as is generally the case in such instances and in such pessimistic times, to be exaggerated. The crest in 1884 seems attributable to the buoyant feeling brought about by the success of the refrigerator and the short upward movement of prices of farm products in 1882. Agricultural land shows the greater rise, because the fattening of sheep would be carried on, principally on the rich grass fields of the heavier lands; the potentialities of the lighter lands in growing artificial fattening foods having not been discovered.

The buoyancy was shortlived, and a sharp fall occurred, obviously through the invention not quite coming up to expectations, mainly of course owing to insufficient time for the new product to overcome old habits and tastes and become solidly established, especially in foreign markets.

It is noticeable that the drop was more acute in the case of pastoral lands. An explanation is that their potential sources of production were as yet unknown. About 1889 a temporary rise in the prices of farm products assisted a rapid rise in the price of land, but the persistent fall in general prices was such as to prevent any decided and permanent rise in the value of land.

Improvements were sufficient to maintain a slightly rising curve against the dispiriting effect of downward prices, but every disturbing factor sent prices down. The financial crisis of 1893 - 4 put a large area of the Bank of New Zealand's estates on the market, while at the same time the Cheviot estate of 45,000 acres was ballotted for. Consequently, a depression in land values was unavoidable. Particularly severe was the fall in pastoral lands, for the bulk of the Bank of New Zealand's estates comprised this class of land. Their forced sale put an excess of such land on the

market, and the very cause of their sale gave them a bad reputation. Moreover, the pastoral lands had not as yet begun to send their products in any great amount to the freezing works.

During the whole of this period the rate of interest had been particularly high and proved a serious check upon rural progress. Only low prices could be offered for land in view of the heavy mortgage on which, in the great majority of cases, from 7 to 9 per centum had to be paid. Added to this was the Property Tax, which checked improvements badly required to meet the new conditions of industry.

The success of the dairying industry was sufficient to enhance the value of heavy agricultural land by 1896, and it was soon followed by that of pastoral land in 1898.

(c) 1898 - 1914, a period of rapid and extensive rises in land values.

General prices had reached their lowest in 1896, and began to rise throughout the world after that date. The rise is attributed to many causes, but perhaps to the increased production of gold more than to any other. The rise in New Zealand was more pronounced in farm products than in other products. From 1899 - 1901, the South African war was in progress, and in its earlier stages made considerable demands on New Zealand farm products, so that occurring together with a general rise in world prices, it increased the demand for land, and hence higher prices were paid. The usual after-war depression was shortlived, especially as the South African gold mines began to rapidly increase their output, and by 1902 a very decided upward trend is noticeable, both in prices of commodities and in prices of land.

* Up till 1908 the State was weakening the intensity of the demand for land by its purchase, and subsequent leasing of

estates, so that slight checks in the general upward price movement are apparent.

The supply of cheap money by the Advances to Settlers Office and private lenders permitted ^{higher} prices to be paid for land.

The export trade in farm products was rapidly on the increase; markets were growing wider; Australia was suffering the throes of a drought, and the United States of America was quickly finding a sufficient outlet for her products among her own growing urban population. The standard of consumption of the masses had grown in the time of low prices, and the world-wide demand was beginning to outstrip the supply. Could it be doubted that such a rise in prices of farm produce would be reflected in the prices offered for land?

A great many more transfers of land were effected annually than formerly, and speculation was exerting an appreciable upward force upon prices.

The care with which the early stages of the farming industry had been established in the period of severe probation in the eighties, had the beneficial result of putting the farmers into such a position that they could take immediate advantage of the change in prices and advance in prosperity which came after 1896. In this year the farms were in a very favourable position to turn their energies to the best advantage in a new condition of production.

A wave of financial stringency passed over the world in 1907 - 8, and its effects were felt in New Zealand, particularly by those whose products were dependent mainly on foreign sales. Wool and mutton in particular suffered from this crisis, especially as an excess had been previously exported and helped to cause a glut in the World's markets.

In 1910 - 1 another depression of little magnitude occurred as was natural after a period of boom prices. The

results of the earlier crisis had not completely passed, and credit had received such a set-back that land deals were few and made at low prices. Subsequent development of credit machinery overcame in part this depression, and since then prices have resumed their steady upward trend.

Since 1907, the price of agricultural land has remained higher than that of pastoral. In many instances this is due to the success of the dairying industry, which in this period has been particularly marked. Again, subdivision has gone on to a greater extent on pastoral lands, so that the supply of such land has been large.

The striking feature of the result of the investigation is the rapid and continued rise in land values since 1896. Too often this great and rapid rise is described as community created value, and too seldom is credit given to the sacrifices made in the eighties to build, at great cost, the foundations of future success upon firm ground.

The period of upward prices has been contemporaneous with a vigorous policy on behalf of the State in connection with land settlement, land purchase, and the financing of struggling settlers.

Again, science has done much to increase the productiveness of the soil, and to eliminate waste, so that the soil has now a greater potentiality than formerly. Every encouragement to application of such scientific ideas has been given by the Agricultural Department, and by Farmers' Associations.

2. CHANGES IN THE RELATIVE VALUES OF SEPARATE CLASSES OF LAND.

With changes in the nature of the farming industry, such as have occurred to a great extent since 1869, changes in the relative values of different classes of land were certain to appear. Waves of preference for lands of varying quality are conspicuous phenomena in the course of demand for land. A few seasons' drought will bring the lighter lands into disfavour; high prices for wool and low prices for corn will cause preference to be given to pastoral land. A multitude of such causes may be enumerated, but in all cases changes in demand are mainly due to economic reasons -- viz., the desire to possess resources which are yielding a high rate of marginal utility.

The more distinct are the various branches of farming, the more pronounced will these changes of preference be marked. Consequently, a system of 'one-product' farming is best suited for illustrating such fluctuations.

The close, and growing interdependence of the various classes of land in Canterbury has not favoured the occurrence of such changes. The various classes of farming have drawn together so closely, and have become so much dependent, rather than competitive, that it is not easy to distinguish class fluctuations.

In the early days, and up to at least 1885, the conditions of farming and of the markets available were such as to favour the farming of sheep and cattle on the nutritive dry native grass that grew in abundance. The sheep were kept solely for their wool, for which a satisfactory sale could always be obtained by exporting. The carcass was worth but little or nothing owing to the narrow limits of the local markets in which there was a continual glut of mutton, (mutton often sold at 1d. a pound wholesale) This fact in

itself considerably lessened the number of sheep which it was possible to keep, and consequently checked the rise in price of pastoral land.

In the first period, 1869 - 1873, and indeed until 1880, pastoral land shows a continuous superiority over agricultural land in its price, particularly between 1873 and 1880. This may be explained in part at least to the high prices ruling for wool during 1872 - 6. During this time an increase of 30 per centum in the export of wool shows the activity with which pastoral farming was taken up.

After 1880 a fall in wool prices took place, but the productions still showed an increase. A fall in the value of such land was inevitable, especially when the other circumstances of the depression period are considered.

The hazardous nature of cropping and the rapid action of diminishing returns made agricultural farming in this period an unsatisfactory occupation. The larger supplies available from Australia discouraged the growing of corn in Canterbury, and at that time imported flour was used in the greater part of New Zealand. Canterbury is almost the sole wheat producing province of New Zealand; but it was not until about 1873 that New Zealand became self-supporting in wheat. It was about this time that mowing machines, delivering the corn in untied sheaves were first brought into use, and so a larger area could be safely harvested. Consequently, a large increase in the production of wheat was accompanied by a considerable increase in the price of agricultural land. The markets of the other provinces were being captured by Canterbury flour, for since the earliest times small township flour-mills were well dispersed throughout the province. It was in this period that the Ashburton county and the Ashburton town began to make rapid strides, for there were to be found large

areas of splendid agricultural land.

The period 1880 - 1890 was the time when agricultural advance was the prevailing force in Canterbury. Wheat and wool had ever been the main articles of export from the province, but in this period the export of wheat reached its highest point. From 1880 to 1890, Canterbury produced over 7,000,000 bushels of wheat annually, of which amount about 2,000,000 bushels were exported. This large production made possible by inventions in agricultural machinery, by the increase of population, growing transport facilities and growing markets, helped to minimise the drop in value of agricultural land during the general depression of the eighties, and also the continual fall in the price of agricultural products. Consequently throughout this period, agricultural land was in greater demand than was pastoral; and this serves to explain the relative superiority of the price of the former class of land in the period 1880 - 1890.

The marked divergence in prices, which is observable towards the end of the period was aided by the development of the meat freezing industry. This gave the heavier and richer agricultural land a new value as a fattener of sheep, for as yet the potentialities of the lighter lands in growing crops of rape and turnips were not discovered.

The period 1885 - 1890 was one of acute general depression. It is reflected in the fewness of the sales made, and indeed those of pastoral land showed it most acutely.

The eighties saw the conversion of much pastoral land into agricultural. Formerly cropping was payable only in heavy land where a large yield per acre was attainable; the reason being, of course, harvesting difficulties. The mower, reaper and binder introduced economies in harvesting, and made pos-

sible the utilisation of lighter lands.

Such lands lost their yielding capacity rapidly, and of course diminishing returns on all lands began to exercise considerable influence towards 1890. This, and the growing meat freezing industry began to cause in the nineties quite a reverse action to the change from pastoral to agricultural, which had been so conspicuous in the eighties.

A change to pastoral farming was commencing in particular among those farmers situated on marginal land with light wheat yields. This continues almost to the present, and is evidenced by the average yield per acre for wheat which has risen from 28 bushels for the period 1890 - 1900, to 32 bushels for the period 1900 - 1910. This difference is not explained by differences in weather conditions, or in general farming organization. Further, the general average production during the nineties fell to 6½ million bushels, while the export was less than one million bushels.

After the slight impetus to agricultural products in 1889 had given a similar impetus to land prices, the earlier nineties show a series of fluctuations in prices marking a period of important adjustments in farming industries, but owing to uncertainties of the ultimate results, and to financial shocks, no marked preferences were revealed.

In 1896, the downward trend of general prices ceased, and an upward movement commenced. The growth of the dairying industry, a long period of downward prices for wool, and the land settlement policy; all these had the effect of bringing agricultural land into greater favour, and of unduly depressing pastoral land. The depression, however, was not so serious as is represented by the tables or by the graph, for I have reason to believe that the standard of quality of the pastoral land sold in that year was unduly low.

From 1898 - 1905 a close parallelism is observed, the

growing diversity of farming and the multiplication of other influences affecting prices, being such as to benefit one class of land as much as another. Moreover, during this period, no striking factor stands out in bold relief from the general current of advance.

In 1907 there occurred the American financial crisis, which was reflected in a monetary stringency in New Zealand. At this time agricultural land assumed a level much in excess of that of pastoral land, because a feeling of uneasiness was abroad. Farmers hesitated to put all their stake in the section of the industry which could not be so readily adapted to diverse production. Also the larger areas in which pastoral land was sold required a larger supply of capital at a time when the stringency was prevalent.

About 1906 the dairying industry gave signs of great future prosperity, for the introduction of milking machines seemed to provide a way out of the chronic labour difficulty, which beset the industry. Moreover, the prices of agricultural products showed no fall in 1907 - 8, while the prices of butter were increasing. Pastoral products fell in price about 1907 and 1909. The fall in 1909 - 10 was common to both agricultural and pastoral products, and this import serves to explain the parallelism apparent here.

Since 1910 the upward tendency has been resumed, but has steadied in respect of agricultural land. The futility of endeavouring to make large profits from corn growing since the beginning of the century has been made doubly plain by the effects of Australian competition. The already high prices paid in 1907 - 8, and the subsequent struggle made to earn profits from such land has put agricultural land in disfavour. Pastoral land on the other hand has come largely into favour on account of its relatively lower price per acre, allowing of the acquisition of a greater area for a similar amount of total

outlay. Moreover, prices of pastoral products have shown greater promise, and in addition must be reckoned advantages arising out of freedom from increasingly intractable labour supply, and from the prevalent desire to invest in circulating capital of stock, rather than in the fixed capital of an agricultural farm.

In the present year the preference for pastoral land is shown by the action of the pastoral curve tending rapidly upwards, a motion contemporaneous with a descent of the agricultural curve. That any wide divergence is likely to occur seems at present improbable, owing to the peculiar nature of Canterbury land.

3. COMPARISONS BETWEEN CHANGES IN LAND VALUES, AND IN SOME OTHER RATES.

(a) POPULATION.

Up till 1900 population ran almost parallel to land values. Indeed the tracing of the population graph might be taken as a smoothed frequency curve for land values. The rapid increase in population up till 1884 through immigration is closely reflected in the increased prices offered for land. After 1896, the parallelism ceases with the rapid rise in land values. This gives some idea when urbanisation began to increase, and when a greater part of the population became not directly dependent upon the land. At present this tendency seems to be increasing, in spite of great efforts to put people on the land.

Moreover, before 1896, the comparative isolation of Canterbury in respect to trade caused the largest demands for farm products to come from local sources. This local influence waned of course when foreign trade began to reveal its strength. Henceforward, it was not the population of Canterbury alone that was to be considered, but rather that of the world as a whole and that population made a comparatively large demand on the products which Canterbury land was capable of producing.

The natural increase of population (excess of births over deaths (per 1000)) for New Zealand as a whole shows a sharp decrease since 1880. This decrease has in some part been balanced by immigration gains, but still its influence has been very considerable.

The trough of the depression was reached in 1898, about 18 years after its beginning. Consequently, this period seems to have been required to pass before an alteration in the normal relation hitherto existing would come into full effect.

(b) BANKRUPTCY RATE.

The remarkable height of the bankruptcy rate, immediately after the rise in the seventies, caused by the borrowing policy, gives some evidence of the rank speculative forces which this boom called into action.

The passing of the boom caused by the gold discoveries was barely complete, when the influx of capital which the loans brought in gave rise to undue speculation, particularly in land, and very high prices ruled. The period of depression in the eighties gradually found out the unsound bloated ventures, which succumbed gradually year by year in decreasing numbers. About 1898, the bankruptcy rate was the lowest on record.

The subsequent rapid rise in land prices did not call forth a very great increase in the bankruptcy rate, which though increasing, is altogether out of proportion to the immense increase that has taken place in land values.

The explanation of the different results in 1870 and in 1896 seems simple. The rises in prices in 1870 were the result largely of a financial juggle, and were not on a solid lasting basis. Those of 1896 onwards were based solidly on foundations which had been severely tested in the probationary period of the eighties. The land was now productive, and its products were finding profitable markets.

Hence the different relations that may exist between the bankruptcy rate and the price of land in apparently similar circumstances. It should be noted that there has been during the periods under review no important change in the bankruptcy law, such as would seriously affect the comparability of the bankruptcy statistics.

(c) THE RATE OF INTEREST.

For the period for which the rate of interest returns are available, the relation existing between it and the price of land seems to be an inverse one. During the eighties and the early nineties, the rate of interest remained high, reaching, at its maximum, 10 per centum, and never falling lower than 7 per centum. The maximum of 10 per centum occurred in 1879 - 1880, and thence onwards there was a gradual downward tendency, met by a gradual upward tendency in land prices. In this period, there are three crests of high rates of interests, (1879, 1887, 1893) and each one slightly precedes a trough in land prices. This is what might be expected to occur, for a rise in the rate of interest upon mortgages would be followed by a decline in the demand for land, and by the sale of all those farms, which the increase would put below the margin of profitable cultivation. Moreover, as Professor Irving Fisher has shown in the case of the United States of America, ⁽²⁾ the rate of interest is highest just before a commercial crisis.

The launching of the Government Advances scheme in 1894 brought about the greatest decrease of all in interest rates, which in 1896 reached 5 per centum, and later in 1900, 4 per centum.

This scheme was launched at a particularly good time; for money was obtainable in 1895 in the London Money Market cheaper than at any time in that decade.

The following table shows the average rate of discount charged on 3 months bankers' bills during the period 1890 - 1900 # (b)

F.N. # (a) See his "Purchasing Power of Money," p. 65, and pp. 271 - 3.

F.N. # (b) See T. T. Williams in Journal of Royal Statistical Society, March 1912, p. 384.

1890	--	3.88 p.c.
1891	--	2.77
1892	--	1.76
1893	--	2.32
1894	--	1.18
1895	--	0.96
1896	--	1.56
1897	--	1.92
1898	--	2.62
1899	--	3.35
1900	--	3.70

The rate in 1895, 0.96, is the lowest rate on record since 1844, and consequently the influence of this low rate made its influence felt subsequently in a corresponding low rate in New Zealand. The rate of discount, though not the same as the interest rate, yet bears close relation to it over long periods.

Immediately following came the rise in the sale prices of land, which were enhanced by the fact that the much and long-looked for abundance of ready developmental capital came at a time when other mighty forces were acting in the same direction. A gradual rise in the rate of interest is now proceeding.

The data for the interest rates I have obtained partly from the "Course of Prices in New Zealand," and partly from the books of an institution which makes loans specially upon landed property.

At the present time the increases in the rate of interest are acting as a deterrent upon demand for land, and to some extent checking its price.

Generally speaking, the relation between the interest rate and the price of land in Canterbury is a good example of an inverse relationship.

4. COMPARISONS OF LAND VALUES WITH THE PRICES OF THE PRODUCTS OF LAND, CANTERBURY, 1869 - 1914.

(a) GENERAL VIEW.

On *a priori* considerations, there should be similarity of trend between the prices of land and the prices of products derived from it.

An examination of the table shows that this is true to some extent. The movements of the curves referring to pastoral lands and pastoral products suggest a fairly close correlation. This is less true in the case of agricultural land and agricultural products, where though the ups and downs of the two curves correspond closely in time, yet their intensities and trends differ. The general upward trend of land values is balanced against a downward trend in prices of products which, however, are recently tending slightly upwards.

But caution is necessary in the comparison of these two tables or curves. The nature of Canterbury land is such as to place dairying land in the agricultural, rather than in the pastoral class. The index numbers taken from "The Course of Prices in New Zealand" for pastoral products include the prices of butter and cheese -- the important products of the dairying lands.

Such vitiates the comparative values of the two tables.

(b) PASTORAL LAND AND PASTORAL PRODUCTS.

Throughout the table close parallelism is noticeable, and is such as almost to indicate that the price of the pastoral products exercised an all-important influence in controlling changes in the price of pastoral land.

Looking at the table as a whole, it is noticeable that

years of high prices for products were followed at an interval of from 3 to 4 years by high prices for land, and low prices were similarly placed. This seems to have been a general feature of the trend from 1869 till 1897.

This peculiarity suggests a "gestation period" in land, during which there is a readjustment of the factors of production to the price of products, and during which certain privileged factors earn quasi rent. #

After 1897 there is a greater degree of convergence apparent: movement in prices of products are earlier reflected in the prices given for land. Land prices show more violent fluctuations than do prices of products, and even after allowing for the imperfections of the tables, these fluctuations seem to point to influences other than the price of products being in action.

The depression which occurred in prices of all commodities in 1871 - 2 was the natural result of the bursting of the gold-fields boom, which was rapidly decreasing with a rapid decline in the gold output of Otago and Westland. This is in particular reference to New Zealand causes, but Sauerbeck's table shows that world prices were simultaneously suffering a check, so that the waning of the gold production of Otago and Westland does not account fully for the depression. All prices were falling all the world over after 1873, but the advent of Vogel's loans sent prices up rapidly, and there soon followed a similar rise in land values.

The bursting of this boom was reflected in the price of products, which had the effect of sending down somewhat sharply pastoral land values; but the initial success of the meat F.M. # See Marshall, "Principles of Economics", Vol. 1, Book 5, Chap. 5, and D. H. Robertson, "Some Material for a Study of Trade Fluctuations", Journal of the Royal Statistical Society, January, 1914, p. 159.

freezing industry in 1882 - 3, and higher prices brought the price of land up smartly again.

The continued fall in general prices in the eighties was largely a fall in farm products, and depression was most acute in 1888. A temporary rise in prices in 1889 brought a very considerable rise in land values, and indicated the degree of hopefulness that animated the farmers. But the downward slope continued, and the trough was not reached until 1896.

The rising prices of the period 1897 - 1904 are fairly well depicted in the prices of land. This shows that the productive capacity of land was still as always the main controller of its value. From 1904 onwards, the prices of products ceased to rise rapidly, and assumed a steadier tendency. The same time saw a series of great fluctuations in the prices paid for pastoral land. Very slight depressions in the prices of products were accompanied by large falls in the prices paid for pastoral land, but the general trend of these land prices was still rapidly upwards. No longer did the prices of products exert their old influences.

The rapid rises took place about the time when the financial basis of land transactions was greatly changed through the medium of agencies which enhanced credit. These arrangements all made for high prices of land, in order to compensate sellers for concessions made in regard to terms of payment. A more hopeful feeling was in the air, encouraging speculative dealings in anticipation of further rises.

The increased use of credit in land transactions, as well as the higher prices, will serve largely to explain the comparatively rapid rate of advance since 1904.

Throughout the whole period, 1869 - 1914, the course of prices of pastoral products shows a more even movement than does that of pastoral land values. The general trend is to a

greater extent similar between the two sets of prices, but in the case of the products, the range of fluctuations is narrower.

(c) AGRICULTURAL LAND AND AGRICULTURAL PRODUCTS.

From 1869 till 1882 the prices of agricultural products fell in a series of remarkable fluctuations; during the same time the value of agricultural land rose rapidly with but little departure from uniformity. The two huge waves of high prices for products were reflected in higher prices paid for land even when their buoyancy had gone, and the ensuing depressions had set in.

This was a period showing signs of great agricultural activity. Inventions were revolutionising harvesting, and so a great demand for good agricultural land was widespread.

Again the markets of the seventies were local ones to a great extent, and foreign competition was acute. The very limitation of the range of the market made fluctuations probable in the price of corn. The downward tendency of course was but a part of the general falling level of prices.

From 1881 - 1896 land prices and the prices of agricultural produce show a parallel course, fluctuations in the former being subsequent to those in the latter by a period of about one year. A period of "gestation" governed by the realisation of the previous year's product; the time required for sowing and reaping a crop, changing methods of farming, etc., being about 12 months in length. New markets were now available. A settled trade had sprung up, and local markets were exercising a much lessened influence on the prices of products. The agricultural advance, aided by increasing returns to extensive farming, did much to maintain a fixed level

of land values. In no period was cropping more in vogue, and so the land was worked as yet with little thought to renew its fertilising elements. This led to the close correlation between the two prices, for with falling prices in general, much movement and change was discouraged.

After 1899, the rate of increase in values of agricultural produce did not keep pace with that of land. True, fluctuations show a time relation, but by no means a relation in degree. A comparison of the period, 1898 - 1908, shows that while land pursued a rising course during the whole time, and showed an increase of nearly 100 per centum in 1908 on what it was in 1898, the prices of products during the same period were almost always lower than what they were in 1898, and by 1908 had reached a point but little higher than what they had been ten years previously. The fact that the index numbers of agricultural products refer only to cereals, and that it was since 1899 that the dairying industry showed wonderful advance, is sufficient to explain the divergence on the table -- a point in the construction of the tables, to which an allusion has been made earlier. The growing dislike to cropping is tending to throw agricultural land to more pastoral uses, so that the prices of cereals are in the present century less important controllers of the trend of land values than they were in the eighties and earlier nineties. Farmers are showing a greater readiness to adopt their mode of farming to current prices, illustrating more closely the principle of equimarginal returns, so that cereal growing is dwindling in importance.

5. FLUCTUATIONS IN LAND VALUES ABOUT THE GENERAL AVERAGE
FOR THE PERIOD 1869 - 1914.

The General Average rental for the Canterbury College Agricultural land was 12/10 per acre, and for the Pastoral land, 6/3 per acre.

From 1869 till about 1885, the prices of all kinds of land were below the average, but were approaching it at a fairly general rate, and attained that height about the latter date.

The first to reach the average was the heavy agricultural land, which showed a marked rise in the early eighties. This was no doubt due to its sure qualities in days when droughts were feared over the greater part of the light lands. The earlier settlers seem to have reckoned this advantage a very important one, for all the early settlement went on in the heavy agricultural coastal strip. Again, such land was eminently superior to any other for cereal producing purposes, at a time when heavy yields on a concentrated area were the only safe means of successful cropping.

The eighties and early nineties were years of fluctuations for far the greater part above the average. The depression of 1881 - 8 is revealed in a temporary fall below the average.

During the eighties, medium agricultural land rose higher than any other class, and dairying was depressed. This was of course the period of agricultural advance, while the heavier dairying land had not as yet revealed its productive capacity, largely through lack of markets, and of large scale production.

A change occurred in the relative positions of heavy and medium agricultural lands about 1895, when diminishing returns were beginning to be felt on the lighter cropping

land at a time when the dairying industry was commencing operations. This rise was somewhat premature, and of short duration, and the real continuous rise did not reach a level above the average till about the beginning of the century, and within three years it had completely outstripped medium agricultural land prices.

Throughout the period, pastoral lands seemed to have deviated in common with medium agricultural land.

A glance at the graph will show that deviations have not been so marked in the case of pastoral land. This may be partly explained by the fact that pastoral land is usually sold in much larger areas than agricultural land, and price charges per acre also being based upon a smaller, lower standard of valuation do not exhibit such marked changes in value.

It may be said that land sold in smaller areas, as is the richer, shows intensive fluctuation in price, while that sold in larger areas exhibits extensive fluctuations.

The following is a table showing the mean fluctuations occurring between 1869 and 1914 in the sales and rentals of the various classes of land considered.

	<u>Rental</u>	<u>Sales</u>
<u>Agricultural, medium</u>	6/4	8.9
heavy	7/1	
<u>Pastoral</u>	3/6	6.7

6. VARIOUS PERCENTAGES OF THE TOTAL LAND CULTIVATED IN
GRASS, IN GRAIN, IN GREEN FODDER CROPS.

These percentages are computed as follows.

The total area of land which has been changed from its virgin state, "broken up" as it is termed, is obtained from detailed schedule investigation. The respective areas of grass, grain and green crops are also returned, so that a percentage calculation is made possible.

The tracings of the graphs of the percentage of land under grass and grain provide a remarkably good example of inverse correlation, and indicate that alterations in the one class are made at the expense of the other.

The relative amounts of Canterbury land devoted to pastoral and to agricultural pursuits show that pastoral industries have been the main agents in directing the course of land values. Whereas, pastoral land has ever taken up a larger and larger percentage, agricultural land seems to be seriously dwindling in area. The fall in area has some correspondence with the fall in prices of farm products in all except the last stage. Another important factor is revealed in the increase of the area under green fodder crops -- barley, rape, turnips and kale -- to be used for fattening purposes.

An examination of the curves seems to indicate that land values at certain periods showed some affinity to the amount of grain crops in existence, and at others to the amount of land sown in grass. Up till the middle eighties, the parallelism was between land values and the percentage under grass, and this might be expected owing to the preponderance of pastoral industries at this stage of the development of the province.

From the middle eighties until the end of the century,

land values move more in accordance with the percentage of land under grain crops, and contrary to the percentage of grass. This covers the period of the zenith and decline in agricultural corn production. During this period, the throwing of land out of use for cropping indicated a fall in its value. Also the transition in farming then in progress, rather favoured agricultural land to an excessive degree.

Since the beginning of the century, there has resulted a period of markedly steady percentages in both grass and cropping areas. The same period has witnessed a remarkable rise in land values. Does this mean that the rise in the price of land has not brought an extensive increase in cultivation in its train? A consideration of the data will make this clear. When percentages are quoted, there is no reference to the absolute area. The base, as it were, changes every year, according as more or less land is under cultivation, and the marked even course of the graph simply indicates that the relative proportions of the two classes of crops have remained constant. That is, there has been no marked transition from cereal growing to pastoral farming, or vice versa.

The curve of the percentages of land under green crops shows, in spite of its low average rate, the tendency or general trend of land values more accurately than do the other two curves.

The sharpest gradient in this curve is seen in the seventies at a time when cropping was rapidly declining.

The depressions of the eighties and the nineties are shown in the lowering of both this curve, and that of grain growing, and the consequent increase in the percentage under grass shows the end of these conversions. Small profits and unsatisfactory labour conditions had dealt the marginal lands a blow, and put them out of action, so they were laid down in grass.

The increased tendency to the fattening of stock is shown in the enlarged area of green crops, and in part may serve to aid explanation of the recent rapid rise in land values; for the productive capacity of Canterbury land, with little application of artificial manures, is very high.

7. -- LAND VALUES AND THE NUMBER OF STOCK.

The number of stock on farms in Canterbury is obtained upon the issue of schedules to farmers at intervals, generally of three years. There are three exceptions to this rule, in the seventies and the eighties, when no returns were made up for five years. The figures exhibit a fair degree of accuracy.

From the earliest records till the middle eighties, the increase in all kinds of stock was fairly rapid and fairly regular. This was contemporaneous with a rise in the value of land, and serves to show that the value of the land was increasing, in correspondence with the increase in its stock-carrying capacity.

After the middle eighties, the quantity of all stock showed a decreasing tendency, and corresponded to a halt or depression in land values. The decline in the number of stock may be due to several causes. First, the initial stages of the frozen meat industry had not yet shown that a constant and rising demand for stock for export would appear, and its present action was to deplete the existing supplies at a time when farmers were not taking care to replace those exported. Secondly, a greater marginal profit at this period was obtained from cropping, so that a smaller area was left for pasture and fattening. Consequently fewer stock could be carried on the diminished pastoral area. After 1896, a rise in the number of stock again set in, and has continued with slight checks until the present. Of course, this increase has many explanations, among which are:-

1. The increase of intensive farming;
2. The constant rise in prices, especially in the prices of animal food products;

3. The increased subdivision of estates;
4. The progress of the meat export and dairy export trade.

All of these influences have tended towards increasing the marginal profits obtainable from pastoral farming, and have induced farmers to make great efforts to augment the number of stock on their farms. To do this, it was necessary to increase the carrying capacity of the land by judicious scientific farming, and consequently a great deal of capital was expended on the preparation of the soil, giving the land a greater intrinsic value.

The rise in the value of land has been, since 1896, more rapid than that of the number of stock carried in Canterbury. This is due to the keen demand for land -- a demand which would have been keener had the stock increase been greater. The heavy toll of the export trade, and the scantiness of flocks in neighbouring districts, however, have imposed great checks upon the increase of stock. Particularly noticeable is the slow increase in the number of sheep. Sheep are, of course, the stock most affected by the export trade, and are also liable to serious diminution at times of heavy storms.

The increase of cattle corresponds closely to the increase of the value of the land, and helps to explain how the growth of the dairying industry since 1898 - 9 has affected land values. The bulk of the cattle in Canterbury are used for dairying, and their influence on this industry, and on the value of land, seems to bear out Dr. McIlraith's inference of the connection between the dairying industry and rising land values.

In the early days, cattle were kept mostly for beef, and grazed in large herds in the marshy ground, and on the hills. At this time, the consumption of beef was more general than that of mutton. The extension of the cropping margin in the

late eighties and early nineties imposed a serious check on the numbers of cattle until the dairy factories were established.

Pigs show some connection with cattle, and increased in number until 1886. From 1886 the abundance of grain made for a quick supply of pig's flesh. The markets, which were of limited extent, were glutted, and pig-rearing went out of fashion rapidly. The later restriction of the corn supply in the middle nineties, the abundance of skim-milk -- a by-product of the dairy factories -- together with a better and wider market, have helped to increase the number of pigs it is now payable to keep.

Horses are little used for market purposes, and exert but little or no influence on the value of Canterbury land.

To sum up, it seems that the number of stock kept, reflects to some extent the value of the land. This is what might well be anticipated; for the number of stock must give some indication of the carrying capacity of the soil. The conclusion arrived at is: that land values are influenced to some extent by stock "carrying" or "producing" capacity, and the predominant influence of the number of sheep serves to indicate the variety of stock which is best adapted for Canterbury land.

The present preference shown for pastoral land is likely to increase the degree of correlation existing between the number of stock supported and the value of land.

8. -- ECONOMIC SIGNIFICANCE OF THE LEVEL OF LAND VALUES
AND ITS CHANGES.

The value of land must be of first-rate importance in a country where land occupies the premier position among the agents of production. With changes in the prices paid for land, occur a multitude of other changes of deep importance throughout the whole industrial fabric.

The greater the proportion of the national wealth obtained from the soil, the greater will be the total value of the land, and should there be a sharp restriction placed upon land by its small area, this value will be high for individual areas also. In Canterbury, the proportion of the national wealth arising from manufactures or from mines is insignificant so that it is to land that the province owes the major portion of its wealth. Moreover, the areal restriction also applies within Canterbury's narrow borders.

In many countries, possession and even occupation of land is associated with many advantages other than economic, but in Canterbury, any such political and social advantages count scarcely at all. A high price paid for land indicates that such land has a high producing power and vice versa.

It is generally the case that higher prices are caused by the marginal returns, actual or anticipated, increasing above normal. It is certain that the marginal returns to land in Canterbury are closely compared with those obtainable from other sources of investment, and that the general level of prices paid for productive agents is such as to return at least the current rate of interest. Thus, the economic law of substitution is actively at work to prevent undue inflation of land prices.

Changes in the value of land have exerted some influence on its distribution. For example, a partial monopoly in land seems to have arisen when the districts outside the Association's purchase were thrown open for selection at very low prices, and without areal restrictions. Within the purchased area, the maintenance of a fairly high price and of a maximum area, prevented "monopolists" from obtaining a pre-dominant position, throughout the greater part of the province. Similarly, in more recent times, there is considerable evidence that the higher priced land has been subject to more subdivision than medium priced larger areas. In periods of falling values of land, there was usually also serious declines in the value of land products. Such often spelt disaster to the farmer of slender means, who often was forced to surrender his land to some capitalist in a position to afford him some relief, even though on usurious terms. In periods of falling land values, aggregation was encouraged by the action of the smaller farmers seeking aid from the larger, whose advantages in securing loans and withstanding lean periods was greater. The course of events at such periods seem to indicate that the smaller farmers are the keener users of their capital, and that as all their means are invested in productive agents, little is left for a surplus to be available as insurance in bad times; consequently, they are particularly hard hit by falling prices.

When land values are rising, such opportunities of assimilating smaller estates do not present themselves; but there arises instead a tendency to devote all surplus profit to the purchase of other land in anticipation of a further rise in price. Such a tendency becomes more marked when the rise has been continuous for some considerable time.

Falling values, on the whole, have exerted considerable influence in promoting aggregation, and uneven distribution of the land to a degree greater than rising values have done, but such other forces have been in operation that it is easy to over-estimate the practical importance of these particular factors.

When land is rising in price, there are usually large numbers of exchanges of land carried out, in attempts to secure the advantages of the rises in values.

So far as can be ascertained, a far larger number of sales took place in Canterbury, during periods of rising prices, than at other periods. Indeed, during the depression of the eighties, some years passed with exceedingly few sales. Since the beginning of the century, however, there has been a vast number of farms placed on the market and sales effected. When values show a falling tendency, those who have previously purchased, make great efforts to economise their expenses of working, so as to enable them to pay interest and other charges incidental to the possession of land. At the same time, they withhold the land from the market, and if, ultimately, they are unable to meet all charges, the land upon which considerable charges have accumulated, is handed over to the mortgagee. It will be valued for the purpose of estimating the discharge of the debt, and only on rare occasions will it be sold, the mortgagor preferring to lease it or work it himself from the previous mortgagee and present owner. Thus, periods of acute depression are often inadequately revealed in the course of land sales. Paucity of sales in such depressions give some idea of the extent of the depression; but the prices obtained are not likely to reflect its intensity. Good prices will be obtained for special selections of exceptional quality, and as

these successful sales are likely to be the only ones reported, averages at such times contain a considerable element of bias.

Increasing prices, by promoting land transfers, bring about a better distribution of land, in the sense that such free exchange will allow a better adaptation of personal qualities to the various kinds of land. Rising prices are a stimulant to production. The very fact that a man hopes to sell his land, and to make a profit thereby, urges him to carry out a system of very thorough cultivation, which will produce excellent crops or support a large number of sheep to the acre. The general appearance of the farm will be better and more attention will be given to arrangement to provide for convenient and cheap management. A higher quality of stock, crops, and other improvements, will be sought after.

Other accompaniments of rising prices are the general feeling of hopefulness prevalent, the sharpening of intelligence—bringing increased keenness of competition, and a more abundant supply of products of better quality. That such progress goes hand in hand with increases in land values is strikingly exemplified in the great advances made during the rapid rise in land values in Canterbury, since 1896.

Some reference should be made to the connection between the changes in the price of land and those in the cost of living. On this point, I find myself in agreement with the opinions expressed by the Royal Commission on the Cost of Living in New Zealand, 1912, and may be permitted to interpolate here a brief reference to its findings. Its Report affirmed that the rise in the price of rural land, which has occurred during the past 20 years, has not increased the prices of the principal necessities of life produced by the farmer, as the

prices for these commodities are fixed by prices ruling in foreign markets, to which New Zealand exports.

"The produce of land is high, not because land is dear, but land is dear because produce is high, and farmers compete for its use, in order to get the benefit of the high prices."

In one case, however, the rent, or the price of land, affects the price of goods sold in towns. That is the case where land will not be used for building upon ^{nor} less it at least pays the agricultural rent. The higher the rent (or price) of land used for agricultural purposes, the less incentive to use land for other industries, and the greater the price of the products of such industries, owing to restriction in their production. This instance is, however, so unimportant in ^{Canterbury} New Zealand that its effects are imperceptible.

Increases in the prices of land brought about by the higher prices of its products, has added to the total wealth of the community, and to the modal wealth also.

The increase in the prices of land has had the evil effect of creating a class of people separated from the active cultivation of the soil, who, in devoting their capital to the pursuit of pleasure and luxury, excite the use of additional capital in unproductive investments. Again, a class of speculators has appeared, whose business it is to effect sales at increasing prices.

The general effect of these tendencies is, indirectly, to enhance the cost of living.[#]

Upon the extent to which the value of land changes, depend many matters of political interest. From the land, no inconsiderable portion of the revenue is obtained, and in the case of Canterbury, this revenue is based upon the value of

[#]Report of Royal Commission on Cost of Living in New Zealand, Chapter VII. (N.Z. Parly. Papers, 1912, H.18).

the land. Rises in the value of the land, therefore, bring in an additional revenue, without any increase being made in the rate. Taxes being fixed at periodic intervals, therefore, will in general be less onerous upon the land in times of rising prices than during periods when falling prices rule, while during rises a wider scope of action will be open to the State. In times of falling prices, the State, badly in need of revenue, will be less ready to adjust taxation so as to lessen its burden on the farmer, already hard hit by the depreciation in value of his property.

When land values show a rapidly rising tendency, agitators for the "single tax" and propagators of similar gospels, whose object is to catch the "unearned increment" for the community, show great activity; and the perennial contest between advocates of the leasehold and freehold principles of dealing with the Crown lands, becomes particularly keen and acrimonious.

It cannot be said with certainty that the increasing prices of land during the last 16 or 17 years has had any appreciable effect in altering the relative numbers of the urban and rural population. A larger percentage of our

people now live in boroughs than in 1896, the respective percentages for the years 1896 and 1911 for the whole of New Zealand being 43.69 and 50.14. The county population is engaged chiefly in rural pursuits; the high price of land is an index of the public expectation of the profits to be made from its use in agricultural and pastoral farming, and of the desire to participate in these. Such has not discouraged the erection of houses in the country by those not dependent on farming, for purely residential lots may be had at low prices by the comparatively few who require them.

It is true that it is now more expensive to establish sons on farms; but this increased expenditure is cheerfully borne in anticipation of the increased returns.

The causes of the relative decrease of the rural population must be sought in other directions than the course of land values, and are in fact sufficiently obvious.

But as I have mentioned before, the era of rising prices has been marked by the appearance of quite a numerous class of speculator-farmers; and by increasing the temptation to speculate in land values, it has tended to make the country population even more migratory than before.

In conclusion, it is necessary to point out that the facts revealed in this investigation require to be used with caution by those who would base any practical proposal upon them. Future developments may be upon different bases from those of the past, and essential differences in the bases may be easily overlooked by the investor in land or the politician in search of arguments for a policy. In the second place, the results obtained apply to Canterbury land only. They may be accepted as true of the greater part of this province, but it is by no means certain that they are representative of the course of prices and the forces that have been at work, say,

in the adjacent province of Westland, where the agricultural and pastoral land forms but a small proportion of the whole; and a similar reservation is necessary when the other provinces are considered. A rapid rise in the value of dairy land will give a greater increase for land values in general in Taranaki province than in Canterbury. Only in those years in which sales of pastoral land predominate in Canterbury, is it likely that there is a very close relation between the course of prices recorded for land in general in Canterbury, and in the other provinces.

Canterbury land is well suited for more than one use; the law of indifference acts within a very narrow range of fluctuations in the price of products. It is at some periods almost a matter of indifference to a very considerable proportion of Canterbury farmers, whether they devote their land to pasture or to crops, and it will be found that fluctuations in the general average price of land, in the other provinces which do not exhibit this feature to anything like the same degree, are therefore of wider range, though perhaps less frequent.

But it is hoped that, if due precautions are taken, this preliminary attempt to depict the course of land values in Canterbury, since 1850, and to account for the changes observable, may be of use to local men of business, students of economics and statesmen, and not without interest and profit to all who are engaged in studying similar phenomena in other countries, and who realise that in this age of rapid transport and communication, and increasing mobility of labour, capital, and business ability, the same group of causes may be at work in countries half the world apart, and, whether in similar conditions and with similar effects or not, presenting valuable data for the application of the comparative method.

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