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POST-WAR TRENDS IN FARM SIZE IN NEW SOUTH WALES

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1. INTRODUCTION

The purpose of this study is to trace the post-war changes in farm size in New South Wales and to comment on the factors which seem responsible for the changes which have taken place. This raises the problem of the best criterion of farm size. Theoretically, it would no doubt be best to use a measure of either total output per farm or of total resources used to produce this output.

Unfortunately such information is not available. However, the Commonwealth Statistician publishes a frequency distribution of farms by land area and herd size classes for sheep, cattle and other animals and it is this statistical raw material which is examined in some detail below, in the hope that it will yield some meaningful information about farming developments in New South Wales during recent years. Nevertheless it should be stressed that the measures of farm size used are inadequate in many respects and this must limit their value.

Farm acreage as a measure of farm size suffers from two defects—firstly, it represents only one resource utilised in production. Thus, for instance, two farms of equal area and land quality may produce very different amounts of output because of differences in the number of men, amount of machinery, fertilizer, stock, etc., used with each farm area. Secondly, land is far from being a uniform resource—an acre of irrigated citrus orchard will produce many times the total value of production of an acre of arid grazing land.

Herd size as a measure of farm size does not suffer from this difficulty to the same extent—while production per animal will differ from farm to farm and from area to area, the differences are not of the same order of magnitude as those in land quality. However, herd size as a measure

of farm size has another disadvantage namely, that products other than those from the animal concerned are ignored. Thus, most wool producers in New South Wales run some cattle as a sideline and no information on the magnitude of the output as a whole is available. It is felt that these limitations must be borne in mind when examining statistics of farm size in terms of acreages and herd numbers.

2. CHANGES IN THE SIZE DISTRIBUTION OF LAND

In a previous article in this Review changes in farm size during the first half of the century were examined. There it was shown that in the twenty-one years prior to March, 1948, two main influences affecting the farm size pattern were at work. Firstly, there was a tendency for the largest estates to be split up and to become less important in number and occupied land area. Secondly, the smallest farms were generally declining in numbers as a result of amalgamation. These two trends led to a growth of medium sized farms—both in numbers and the proportion of the total land area occupied. In terms of acreage, the standard of "small", "medium" and "large" farms varied considerably within the State. In the Coastal Divisions, "small" meant 100 acres or less but in the Plains and Riverina Divisions it meant 1,000 acres or less. For New South Wales (excluding the Western Division) as a whole, the small farms accounting for a declining proportion of the land area were 1,000 acres or less and the large estates which were being subdivided, 20,000 acres or more.

A new examination of the position has been made possible by the Commonwealth Statistician's classification of rural holdings according to size at March 31, 1956. The figures show several significant changes in trends since 1948. As in the previous twenty-one-year period, the largest estates are becoming less important in terms of numbers and in terms of the total area they occupy. Thus in 1948, $14\frac{1}{2}$ million acres in New South Wales, outside the Western Division, were held in units of 20,000 acres or more; by 1956 this had declined to about 12 million acres.

However, while the number of farms (and the area of land occupied) in the 5,000 to 20,000 acres group increased prior to 1948, the latest classification shows a decline of 14 per cent in the total area occupied by holdings in the 10,000-20,000 acre group and a small decline in both area and number of holdings for the 5,000 to 10,000 acre farms.

Another development is the substantial increase in the number of smaller holdings and their aggregate area (apart from the smallest holdings of less than 50 acres). On the other hand, prior to 1948 the area in farms with less than 1,000 acres had shown a decline. The frequency distribution of rural holdings in the State (apart from the Western Division) for four years between 1911 and 1956 is shown in Table I.

To some extent the increase in the number of, and area in, "small" holdings (i.e., 1,000 acres and less) may be the result of the general increase in the total area of land used for rural purposes since 1948 and in the number of rural holdings. As shown in Table I, between 1948 and 1956

¹ F. H. Gruen, "Farm Size and Factors Influencing Changes in Farm size with Particular Reference to New South Wales (1900-1948)", this *Review*, Vol. 17, No. 1 (March, 1949), pp. 6-65.

TABLE I
Rural Holdings in New South Wales
(Excluding Western Division)

					Number of Holdings	Holding	y y						Area of Holdings	Holdings			
Size of Holdings (acres)	l ļ	1911	_	1927	7.	1948	82	1956	2,6	1911	-	1927	Li	1948	<u>&</u>	1956	9
		Z.	Per cent	Z o	Per cent	Zo.	Per cent	Zo.	Per cent	Area '000acres	Per cent	Area '000acres	Per cent	Area '000acres	Per cent	Area '000acres	Per cent
1- 50	-:	38,008	40.33	14,622	19.08	14,652	20.17	13,295	17.64	487	0.51	328	0.35	250	0.27	251	0.27
51- 100		7,895	8.38	7,072	9.23	5,269	7.25	5,408	7.18	622	0.64	545	0.57	380	0.41	389	0.41
101- 200		12 636	36.30	73 707	5	8,380	11.53	8,418	11.17		6.73	761.7		1,196	1.29	1,206	1.27
201- 500	رسر ۱	0,000	Sc. 7.	761,67	\$1.04 ************************************	12,352	17.00	12,688	16.83	5 0,114	65.0	0,1/0	16.0	4,003	4.30	4,103	4.33
501- 700		100	72.0	070	34.31	5,540	7.62	5,826	7.73) (55.5)	7	9	9	3,293	3.54	3,462	3.65
701- 1,000	_	107,6	07.6	11,040	0 1 .CI	5,493	7.56	6,135	8.14	} 7cc,o {	×/.0	6,515	\$6. 8	4,620	4.97	5,167	5.45
1,001- 2,000		9.753	10.35	12.828	16.74	089'6	13.33	11,744	15.58	} 16,823	17-41	22,071	23.30	13,503	14.52	16,363	17.26
2,001-3,000	_					2,629	10.50	8,352	16.08	`				\$ 23,537	25.31	25,496	26.89
3,001- 5,000	:	2,348	2.49	3,011	3.93					9,025	9.34	11,599	12.24				
5,001-10,000	:	1,777	1.89	2,262	2.95	2,446	3.37	2,443	3.24	12,043	12-47	15,348	16.20	16,403	17.64	16,341	17.24
10,001-20,000	:	721	91.0	741	76.0	998	1.19	759	1.01	9,894	10.24	10,204	10.77	11,534	12.40	9,947	10.49
20,001-50,000	:	495	0.52	372	0.48	275	0.38	243	0.32	14,876	15.40	10,866	11.47	7,914	8.51	7,118	7.51
50,001-100,000	:	134	0.15	78	0.10	99	80.0	4	90.0	9,276	09.6	5,285	5.58	4,088	4.39	3,070	3.24
100,001 or more	:	89	0.07	22	0.03	15	0.02	4	0.02	10,894	11.28	3,804	4.02	2,282	2.45	1,884	1.99
Total	:	94,238	100-00	76,648	100-00	72,657	00.001	75,369	100:00	96,606	100.00	94,741	100.00	93,003	100.00	94,797	100.00
							-						-				

an additional 1.79 million acres were added to the total area for rural purposes. About 1.3 million acres of this total is accounted for by rough grazing land suitable mainly for beef cattle on the Dividing Range, especially in the northern section of the State. This increase is in sharp contrast to the steady decline in the area of rural lands between 1911 and 1948. For example, in the twenty-one years prior to 1948, 1.74 million acres were withdrawn from rural use.

It is not proposed in this article to examine the reasons for these changes in trend but it may be pointed out that the period 1927 to 1948 was one when rural developments were greatly affected by the advent of a severe depression and the pronounced manpower shortage of World War II. These two factors may have affected farm size by forcing many of the smaller landholders to sell out and thus enabling an expansion in the area of medium sized holdings.

During the eight years prior to 1956, the prices farmers received for their products were, on the whole, very favourable. This no doubt encouraged the reoccupation of many areas previously abandoned. It would also have allowed farmers to subdivide holdings and to make a living on smaller areas than would have been possible in the depressed conditions of the 30's.

In addition the increasing importance of smaller holdings may be due to the development of pasture improvement which greatly increases carrying capacity and thus reduces the area required to feed a given number of sheep. As will be shown below, it is the smaller farms of between 100 and 1,000 acres in size which have shown the greatest increase in average sheep flock size.

The Influence of War Service Land Settlement

Another factor influencing changes in the farm size pattern during this period was the operation of Soldier Settlement. Between 30th June, 1948, and 30th June, 1956, the State Government provided 14,085 farms for ex-servicemen; the total area of these being 1.614 million acres. This land was obtained according to either the acquisition or the promotion provisions of War Service Land Settlement. A total of 589 farms or estates were resumed to provide the land for soldier settlers. It is clear, when examining these figures in relation to the actual changes in the areas for the various size groups given in Table I, that War Service Land Settlement could not have been responsible for more than 40 per cent of the total acreage transferred from one size group to another. Furthermore, in some cases, farms were transferred to ex-servicemen from their previous owners without any subdivision taking place.

A 15 per cent random sample of properties resumed for War Service Land Settlement was studied in detail to ascertain the effect of the scheme on the farm size structure. According to this investigation, it would appear that approximately 650,000 acres were transferred from the over 20,000-acre group to smaller areas as a result of War Service Land Settlement. However, as shown in Table I the total decline of rural land in this group was over 2.2 million acres. The estimates of the effect of the Scheme on each farm size group is given in Table II. These figures show that private subdivision—made either voluntarily or to escape resumption by the War Service Land Settlement authorities—has been responsible for the major portion of the decline in the large estates in the eight years following 1948.

TABLE II

The Estimated Effect of War Service Land Settlement 1948-56

(New South Wales excluding Western Division)

Size Gro	oup	Area in of Differ	Holdings ent Sizes	Gross Change	Estimated Effect of
		1948	1956	1956-48	WSLS
Acres 1- 50 51- 100 101- 500 501- 1,000 1,001- 2,000 2,001- 5,000 5,001-10,000 10,001-20,000 Over 20,000		 '000 acres 250 380 5,199 7,913 13,503 23,537 16,403 11,534 14,285	'000 acres 251 389 5,309 8,629 16,363 25,496 16,341 9,947 12,073	'000 acres + 1 + 9 + 110 + 716 + 2,860 + 1,959 - 62 - 1,587 - 2,212	'000 acres + 1 + 30 + 223 + 1,218 - 48 - 318 - 467 - 641

The Western Division

The change in the size distribution of land in this arid section of the State is shown in Table III. Apart from a small amount of intensive fruit production under irrigation at the southern boundary of the Division, merino sheep grazing is the predominant form of land use. Annual average rainfall varies from 19 inches in the north-eastern corner to less than 6 inches in the western portion. Carrying capacity in some areas is a sheep to 25 acres or even less.

Practically all land in the Western Division is held under long-term Western Lands Leases. As a result the size distribution of properties is largely determined by government policy. As in the more closely settled areas, government policy has been designed to break up big estates into "home maintenance" sized farms. In the Western Division these will normally exceed 20,000 acres in area. As shown in Table III the number of properties of 100,000 acres or more has shown a steady decline since 1911. By 1956 less than 28 per cent of all land was held in units of 100,000 acres or more compared with 77 per cent forty-five years earlier.

Between 1948 and 1956 home maintenance areas were made available to 125 ex-servicemen. A large proportion of the land for the soldier settlers was obtained under the provisions of the Western Lands (Amendment) Act, 1949. The main purpose of the Act was to allow the Crown to resume all lands surplus to two "home maintenance areas" (subject to certain additional land granted to recognised stud properties). Under these provisions of the Act more than 7,000,000 acres were resumed by the Crown.

The increase in the number of very small holdings (i.e., less than 100 acres) between 1948 and 1956 was the result of an extension of the Coomealla Irrigation Area in the early 1950's which increased the number of holdings in the area from 158 to 273.

² For a discussion of Western land laws see C. J. King, "An Outline of Closer Settlement in New South Wales, Part I. The Sequence of the Land Laws; 1788-1956", this *Review*, Vol. 25, No. 3-4 (September-December, 1957), pp. 163-186.

TABLE III

Rural Holdings in Western Division

Cactes No. Per cent No. No. Per cent No. Per cent No. No. Per cent No. No. Per cent No. No.					2	Number of Holdings	Holdings							Area of Holdings	Holdings			
No. Ref cent No. No. Ref cent No. No. Ref cent No. No. Ref cent No. Ref cent No. No. Ref cent No. No. Ref cent No. No.	Size of Holdin	gs	19		151	727	192	<u>∞</u>	19.	56	19	11	19.	7.2	19	1948	1956	9.
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	(acres)			Per cent	, o	Per cent	No.	Per cent	No.		Area '000acres		Area '000acres	Per cent	Area '000acres	Per cent	Area '000acres	Per cent
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ler 51		842	39.98	302	17-44	426	21.17	575	23.13	7	10.0	5	10.0	8	0.01	13	0.02
0	51- 100	:	19	2.90	78	1.62	44	2.19	99	2.41	5	10.0	7	:	e	0.003	4	0.004
0 1 4 5 3 4 5 3 4		:	131	6.22	70	4.04	4	2.04	43	1.73	34	0.04	18	0.02	10	0.01	10	10.0
0 105 4.99 75 4.33 109 5.42 106 4.26 181 0.23 124 0.16 0 49 2.33 40 2.31 109 5.42 106 4.26 196 0.25 163 0.21 9.21 0 104 4.94 104 6.00 94 4.67 105 4.22 773 1.00 813 1.04 0 197 9.35 279 16·11 269 13·37 330 13·30 2.559 3·31 3·904 5·01 0 197 411 27·19 775 28·36 6,560 8·48 12,825 16·43 0 98 4·65 169 9·76 28·6 14·21 8·84 8·87 11,420 14·62 0 199 9·45 11·25 166 8·25 146 5·87 6·100	01- 1,000	:	86	4.65	89	3.41	30	1.49	23	0.93	67	60.0	40	0.02	70	0.03	16	0.02
0 1.03 4.40 1.04 4.54 1.05 4.45 1.05 4.45 1.05 4.45 1.05 4.45 1.05 4.45 1.05 4.45 1.05 4.45 1.05 4.45 1.05 4.45 1.05 4.45 1.05 4.45 1.05 4.45 1.05 4.45 1.05 4.45 1.05 4.45 1.05 1.	01- 3,000	:	105	4.99	75	4.33		(Š	,	181	0.23	124	0.16	7,83	0.37	253	0.32
0 104 494 104 6.00 94 4.67 105 4.22 773 1.00 813 1.04 0 197 9.35 279 16·11 269 13·37 330 13·30 2,559 3·31 3,904 5·00 0 222 10·54 411 23·73 547 27·19 705 28·36 6,560 8·48 12,825 16·43 0 98 4·65 169 9·76 286 14·21 6,560 8·48 11,420 14·62 0 199 9·45 11·25 166 8·25 146 5·87 60·100 77·71 48·781 62·46 2.106 100·00 2,012 100·00 2,486 100·00 73;46 100·00 78;096 100·00	01- 5,000	:	49	2.33	40	2:31		2.4.5	901	97.4	196	0.25	163	0.21	- S	5		}
0 197 9.35 279 16·11 269 13·37 330 13·39 2,559 3·31 3,904 5·00 0 222 10·54 411 23·73 547 27·19 705 28·36 6,560 8·48 12,825 16·43 0 98 4·65 169 9·76 286 14·21 393 15·41 6,864 8·87 11,420 14·62 199 9·45 195 11·25 166 8·25 146 5·87 60,100 77·71 48,781 62·46 2,106 100·00 2,012 100·00 2,486 100·00 73;346 100·00 78;096 100·00	01- 10,000	:	104	4.94	104	9	94	4.67	105	4.22	773	1.00	813	1.04	693	0.91	806	1.04
0	01- 20,000	:	197	9-35	279	16.11	269	13.37	330	13.30	2,559	3.31	3,904	2.00	3,868	2.08	4,747	6.13
0 98 4-65 169 9-76 286 14-21 393 15-41 6,864 8-87 11,420 14-62 14-62 199 9-45 195 110-00 2,012 100-00 2,486 100-00 73,346 100-00 78,096 100-00	01- 50,000	:	222	10.54	411	23.73	547	27.19	705	28.36	6,560	8.48	12,825	16.43	18,076	23.72	24,304	31.38
199 9.45 195 11.25 166 8.25 146 5.87 60,100 77.71 48,781 62.46 2,106 100.00 1,732 100.00 2,012 100.00 2,486 100.00 73,346 100.00 78,096 100.00	01-100,000	:	86	4.65	169	91.6	286	14.21	393	15.41	6,864	8.87	11,420	14-62	19,749	25.92	26,842	34.66
$ \ \ \dots \dots \frac{2,106}{2,106} \underline{100.00} \underline{1,732} \underline{100.00} \underline{2,012} \underline{100.00} \underline{2,486} \underline{100.00} \underline{73,346} \underline{100.00} \underline{78,096} \underline{100.00} $	r 100,000	:	199	9.45	195	11.25	991	8.25	146	2.87	60,100	17-71	48,781	62.46	33,484	43.95	21,463	27.71
	Total	:	2,106	100.00	1,732	100.00	2,012	100.00	2,486	100.00	73,346	100.00	78,096	100.00	76,195	100.00	77,457	100.00

3. CHANGES IN THE SIZE DISTRIBUTION OF STOCK

Sheep

Striking changes have occurred within the sheep industry in the last sixty-odd years. As shown in Fig. 1, at the end of the nineteenth and early into the present century, the industry was dominated by large graziers (here arbitrarily defined as those running flocks of 10,000 head or more). In 1891, 1,245 properties (or slightly more than 8 per cent of the graziers) accounted for 74 per cent of the total sheep population. The percentage of sheep run by the large graziers had fallen to approximately 57 per cent. by 1901. Since then, the decline has continued steadily, and in 1956, less than 10 per cent of the sheep population were carried in flocks of 10,000 or more.

The decline in the importance of large graziers implies, of course, a growing importance of the smaller type of sheep owner. For purposes of discussion, it is advisable to distinguish between three other classes of sheep farms (a) those where sheep are essentially a sideline; the group containing 500 sheep or less within a flock can be regarded as falling into this category. (b) The group where sheep are the main enterprise and the operator is either the sole or the most important farm worker. This would correspond to the American concept of the family farm and—to some extent—to the Australian concept of the home maintenance area. Such a farmer could run anywhere between 500 and 2,000 sheep depending on the country used, the breed and type of sheep concerned.³ (c) Lastly, there is a group which may be regarded as medium-sized graziers running between 2,000 and 10,000 sheep. Most of the graziers in this category will employ more than one man.

Although there has been some increase in the importance of small sideline flocks (500 sheep or less) these have remained a comparatively minor segment of the industry and have accounted for a fairly static proportion (i.e., 4 to 8 per cent) of the State's sheep population during the last fifty years. On the other hand, both the "family farm" or "home maintenance area" type of grazier and the medium-sized grazier have increased their importance considerably. Thus in 1891 the 500 to 2,000 sheep group accounted for 8 per cent of the total sheep population. This increased to 18 per cent in 1911, 25 per cent in 1929 and 38 per cent in 1956. Graziers running medium sized farms followed a similar pattern—increasing from 17 per cent of the sheep population in 1891 to 42 per cent in 1929. Since then their increase has been smaller; by 1956 approximately 48 per cent of all sheep being run in flocks of 2,000 to 10,000 head. Tables showing the distribution of sheep according to flock size are given in Appendix I.

Information is also available showing the changes in sheep numbers in recent years classified according to the area of the holding. As shown in Table IV, the proportion of the sheep population carried on holdings of less than 5,000 acres has increased steadily; the largest increases in average

³ In the Western Division a "home maintenance area" may exceed 2,000 sheep; but this is a comparatively minor section of the industry in New South Wales.

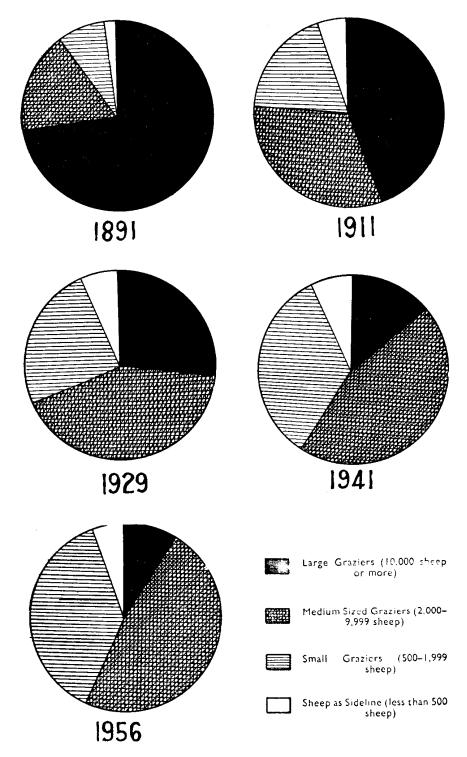


Fig. 1. New South Wales Sheep Flocks—Classified according to the Proportion of Sheep in Flocks of Various Sizes

TABLE IV

Sheep Numbers on Different Sized Holdings

Percentage Change in Average Flock Size between—	ize 1934 and 1950 and 1956	1.51	1.71	+	9.1/ +	+ 14.0		10.3	+ 5.7.3 -	
	Average Flock Size		375		70/	770,1	5,720	1+0,0	4/7,0	
1956	Per cent	0.2	3.5	; =	45.7	4 6 1	* 8:8	0 0	. 4	. 005
	Number of Sheep '000	138	2.180	7 012	28 554	8 614	5.558	5.703	5.354	07.0.63
	Average Flock Size	78	324	646	1.476	3 570	5.572	6,123	10,232	
1950	Per cent	0.1	2.9	9.5	42.4	15.1	10.4	9.1	10.5	100.0
	Number of Sheep '000	78	1,573	5,055	22,595	8,023	5,544	4,861	5,556	53 285
	Average Flock Size	19	233	456	1,422	4,095	6,628	8,073	15,141	
1934	Per cent	0.1	2.4	7.1	37-4	9.41	12.1	10.9	12.4	100.0
	Number of Sheep '000	89	1,238	3,676	19,468	9,182	6,290	5,692	645	52,065
		:	:	:	:	:	:	:	:	' :
อิน		:	:	:	:	:	:	:	:	:
. Holdi		:	:	:	:	:	:	:	:	:
Area of Holding		1- 99	100- 499	500- 666	1,000- 4,999	5,000- 9,999	10,000–19,999	20,000-49,999	50,000 and over	Total

flock size being in the 500 to 1,000 acre group. Unfortunately, information on the average acreage of holdings carrying sheep in these area groupings is not available. It is therefore not possible to ascertain whether the increase in flock size in the smaller acreage groups is partly or wholly due to an increase in the average area of the holdings within these size groups.

Dairy Cattle

Information on the size of dairy cattle herds has only been collated in recent years. The proportion of dairy cattle running on different sized holdings has shown little change between 1950 and 1956—though there was a decline in the number (and proportion) of dairy cattle on holdings of 1,000 acres and over, and a corresponding increase in the 150-499 acre group. Between 1948 and 1956 there was a small (3 per cent) increase in average herd size. As shown in Table V, this was the result of an absolute and relative decline in the number of holdings running less than fifty dairy cattle and an increase in larger herds. This could be the result of the increased use of milking machines. On the other hand, Bollman and Ward have argued that a large part of the increase is the result of creation of dairy farms under the War Service Land Settlement Scheme.

Table V

Changes in the Size of Dairy Herds in New South Wales

Number of Dai	rv Cattl	e	Number	of Herds			Number of	of Cattle	
in Hero		-	1948	1:	956	1:	948	19	56
		No.	Per cent	No.	Per cent	No. '000	Per cent	No. '000	Per cent
1- 49		. 6,959	39.8	6,197	36.0	221	19.3	198	17.0
50- 99		. 7,997	45.8	8,269	48.0	562	49-2	582	50.2
100 or more		. 2,517	14.4	2,765	16.0	359	31.5	381	32.8
Total		. 17,473	100.0	17,231	100.0	1,142	100.0	1,161	100.0

According to their estimate 57 per cent of the increase in large herds between 1948 and 1956 was the result of War Service Land Settlement allotment of dairy farms. However, as the authors point out, this estimate assumes either that these farms were not used for dairy production before being included in the War Service Land Settlement Scheme, or that they were carrying less than 50 dairy cattle. With respect to New South Wales, this is a questionable assumption. Practically all coastal farms allotted for dairying by War Service Land Settlement were originally dairy farms and while their production was generally low, typically such farms carried 30 to 40 cows (or about 45-60 dairy cattle).

cf. F. H. Bollman and A. B. Ward, "The Changing Distribution of Australian Dairy Cattle", Quarterly Review of Agricultural Economics, Vol. XI, No. 2 (April, 1958), p. 79.

BEEF CATTLE

Less than 40 per cent of the State's beef cattle are carried on farms which specialise in beef production. Typically beef cattle are a sideline on farms where sheep, wheat or dairying predominate. Changes in the size distribution of beef cattle herds do not therefore reflect changes in farm size in most cases, but changes in the importance of a sideline enterprise.

Table VI shows the change in the size distribution of beef cattle herds between 1948 and 1956. During this period the average size increased from 50 to 60 head. Small herds with less than 20 head declined in number, while all other size groups increased. It is worthy of note that the proportion of cattle in the largest size groups (500 head or more) showed an appreciable decline.

TABLE VI

Changes in the Size of Beef Cattle Herds in New South Wales

				Number of	of Herds			Number of	of Cattle	
Number of Car	tle in l	Herd	19	948	19	56	19	948	19	56
			No.	Per cent	No.	Per cent	No. '000	Per cent	No. '000	Per cent
1- 19			22,560	62.2	20,031	51.9	143	7.9	138	6.0
20- 99			9,566	26-4	12,961	33.5	423	23.2	595	25.7
100–199			2,142	5.9	3,044	7.9	296	16.3	423	18.3
200–499			1,438	4.0	1,966	5.1	433	23.8	589	25.4
500 or more			543	1.5	604	1.6	524	28.8	570	24.6
Total			36,249	100.0	38,606	100.0	1,818	100.0	2,315	100.0

An examination of changes in the size of beef cattle herds on properties of different area size groups shows substantial increases in average herd size for holdings of less than 10,000 acres, with particularly great increases (i.e., 23 per cent) in the 500 to 999 acre group. This comparison relates to the change between 1950 and 1956. It is possible that these increases are also associated with the expansion of pasture improvement. The percentage increase in beef cattle numbers on the smaller holdings has been greater than that shown for sheep in Table IV. This could be the result of two factors: (a) as cattle require less labour than sheep the greater demands made on the farm labour force when more stock are carried can be minimised by a relative increase in cattle numbers: (b) with increasing areas devoted to improved pasture relatively more cattle may be carried to keep down surplus pasture growth during flush periods.

⁵ However, a recent study by K. O. Campbell and A. M. Kingsland, while not conclusive, suggests that an inverse relationship may hold under certain conditions. cf. Economic Aspects of the Association of Beef Cattle with Sheep Production. Part 1: The New England Region of New South Wales. Mimeographed Report No. I. Department of Agricultural Economics, University of Sydney, Sydney (1957), pp. 30-31.

4. CONCLUSION

This discussion has been limited to recent changes in the area of holdings and the size of herds, but nothing has been said about changes in the concentration of ownership (or control) of properties. In many instances one landholder owns or controls more than one holding. These may be worked separately or as a single unit even though they are in different locations. Any tendency for concentration of ownership and/or control of a number of holdings may be just as important a social problem as the ownership of large estates. Unfortunately, no information is available about changes in the control of properties.

Although the importance of large holdings has declined considerably in New South Wales, there has been no corresponding decrease in the proportion of the total rural labour force employed as wage earners. During the twenties, an average of 27 per cent of the agricultural work force was wage earners. Despite the continuous decline in large holdings, this rose to approximately 32 per cent in the thirties. This increase was probably due to widespread unemployment in the cities and the consequent increase in the number of persons seeking work on farms. Since the end of the last war the proportion of the rural labour force employed as wage earners has averaged 28 per cent—thus returning to the level of the twenties. The steadiness in the proportion of wage earners in the rural labour force implies either that smaller farms are now employing more permanent labour or that multiple ownership of holdings has become more prevalent. Other factors which may affect movements of agricultural employment are changes in the relative importance of different farming enterprises and the progress of mechanisation. However, the latter would be expected to affect casual workers more adversely than the permanent labour force which is the subject of these statistics. No detailed examination has been made of the effects of the abovementioned factors on the volume of permanent employment, but it does not appear likely that the relative change in importance of different farm enterprises in the last thirty-odd years in the State would have added appreciably to the demand for permanent hired labour.

APPENDIX I.—FREQUENCY TABLES OF SHEEP NUMBERS AND STOCKS

TABLE VII

N.S.W. Sheep Flocks Classified According to Number of Sheep, 1891 to 1956

	Dud	Under 500	20	500-999	1,000	1,000-1,999	2,000–4,999	4,999	5,000–9,999	666'6	10,000	10,000–19,999	20,000-	20,000-49,999	50,000 and more	nd more	Total	al	
Year	N. 000	Per cent of total	.000 .000	Per cent. of total	, No.	Per cent of total	,000 .000	Per cent. of total	,000 ,000	Per cent of total	, No.	Per cent of total	,000 .000	Per cent of total	,000 ,000	Per cent of total		Per	Geometric Mean of Flock Size.
1681	1,038	1.6	1,757	5.8	2,979	8.4	5,494	6.8	4,943	8.1	7,056	11.4	15,554	25.2	23,010	37.2	61,831	100	16,950
1896	. 1,357	2.8	2,122	4.4	2,996	6.2	4,977	10.3	5,073	10.5	198'9	14.2	13,723	28.4	11,210	23.2	48,319	100	15,030
1061	1,485	3.6	2,312	5.5	3,561	8.5	5,519	13.2	5,210	12.5	999'9	16·1	10,552	25.3	6,424	15.4	41,730	100	10,830
9061	. 1,792	4.1	2,606	5.9	4,327	8.6	6,715	15.2	5,287	12.0	296'9	15.8	10,637	24.1	5,801	13.1	44,132	100	9,493
1161	. 2,364	5.3	2,889	6.4	5,150	11.5	8,554	19.0	5,977	13·3	7,143	15.9	8,738	19.4	4,132	9.5	44,947	100	7,228
916	. 2,253	6.9	2,631	8.1	4,297	13.2	999'9	20.5	4,864	14.9	5,592	17.1	4,495	13.8	1,803	5.5	32,601	100	5,391
1261	2,776	8.2	3,207	9.5	4,882	14.4	7,084	20.9	4,956	14.7	4,850	14.3	4,185	12.3	1,912	5.7	33,852	100	4,692
1924	. 2,606	6-9	3,397	9.1	5,491	14.6	8,095	21.6	5,831	15.5	5,405	14.4	4,421	8:11	2,296	6.1	37,539	100	4,916
1929	. 2,822	5.6	4,806	9.6	7,912	15.8	12,795	25.5	8,258	16.5	7,114	14.2	4,944	8.6	1,519	3.0	50,169	100	4,370
1934	. 2,939	2.6	4,614	6.8	8,178	15.7	14,409	27.7	8,938	17.2	7,126	13.7	4,365	8.4	1,496	2.8	52,065	100	4,222
937	3,067	5-8	5,015	9.4	8,156	15.4	15,141	28.5	9,208	17.3	6,481	12.2	4,399	8.3	1,668	3.1	53,135	100	4,143
1941	. 2,895	5.3	5,465	10.0	9,248	17.0	16,179	29.7	9,368	17.2	6,381	11.7	4,072	7.4	914	1.7	54,522	100	3,846
1948	. 3,323	7.2	6,103	13.3	9,481	20.6	13,964	30.3	6,631	4.41	4,169	0.6	2,049	4.5	339	0.7	46,059	100	2,846
1950	3,117	5.8	7,348	13.8	11,497	21.6	16,461	30-9	7,892	14.8	4,355	8.2	2,244	4.2	371	0.7	53,285	100	2,867
9561	. 2,822	4.5	8,548	13.6	15,431	24.5	20,500	32.6	9,727	15.4	3,960	6.5	1,626	5.6	364	9.0	62,978	100	2,730
													-	i		-	-		

N.S.W. Number of Sheep Flocks Classified According to Size of Flock, 1891 to 1956 TABLE VIII

 - -	Unde	Under 500	666-00\$	666	1,000-1,999	666,1	2,000-4,999	666	5,000–9,999	666'6	10,000-19,999	666,61	20,000-49,999	49,999	Over 50,000	0,000	Total	la.
	No.	Per	N. o.	Per	No.	Per	, o X	Per	, o Z	Per	ŏZ	Per cent	, o	Per	Š	Per cent	No.	Per
1891	5,358	40.6	2,248	17.0	1,954	14.8	1,696	12.9	989	5.2	495	3.8	491	3.7	259	2.0	13,187	100
. 9681	6,598	48.3	2,240	17.9	1,706	12.5	1,339	8.6	628	4.6	438	3.2	382	2.8	122	6:0	13,653	100
1061	8,838	50.5	2,962	16.9	2,351	13.4	1,722	8.6	729	4.2	465	2.7	344	2.0	88	9.5	17,499	100
. 9061	10,447	50.7	3,447	16.7	2,925	14.2	2,127	10.3	757	3.7	484	2.3	357	1.7	80	0.4	20,624	100
. 1161	13,895	54.0	3,878	15.1	3,510	13.6	2,735	9.01	847	3.3	507	2.0	296	1.2	59	0.5	25,727	100
. 9161	14,576	58.9	3,650	14.8	3,029	12.2	2,206	6.8	969	2.8	398	1.6	159	0.7	24	0.1	24,738	100
. 1921	15,431	57.3	4,474	16.6	3,459	12.8	2,310	9.8	722	2.7	349	1.3	149	0.5	28	0.1	26,922	100
1924	13,446	51.4	4,752	18.2	3,882	14.8	2,663	10.2	841	3.2	387	1.5	155	9.0	34	0.1	26,160	100
. 6261	13,061	41.2	6,789	21.4	5,669	17.9	4,271	13.4	1,209	3.8	518	9.1	171	0.5	20	0.1	31,708	001
1934	13,833	42.7	6,545	20.2	5,577	17.2	4,494	13.9	1,277	3.9	511	1.6	154	0.4	22	0.1	32,413	100
1937	13,671	40.8	7,064	21.1	5,819	17.3	4,973	14.8	1,348	4.0	476	1.4	191	0.5	24	0.1	33,536	100
. 1941	12,517	36.7	7,681	22.5	6,563	19.3	5,326	9.51	1,384	4.1	471	4.	143	0.4	13	0.0	34,098	100
1948	12,792	40.1	7,632	23.9	6,042	18.9	4,192	13.1	885	2.8	279	6.0	19	0.3	\$	0.0	31,894	100
1950	11,111	33-1	8,990	26.8	7,252	21.6	4,815	14.3	1,042	3.1	280	8.0	11	0.3	5	0.0	33,566	100
. 9561	10,945	28.0	10,452	26.8	896'6	25.5	6,038	15.5	1,325	3.4	262	1.0	55	1.0	ς,	0.0	39,050	100

APPENDIX II.—FREQUENCY TABLES OF LAND IN GROUPS OF DIVISIONS

TABLE IX

Rural Holdings in Coastal Divisions

						Number of Holdings	of Holding	Si						Area of	Area of Holdings			
Size of Holdings (acres)	oldings ;)	<u>'</u>	1911	=	1927	7:	1948	48	1956	26	1161		1927	27	1948	48	1956	26
•			No.	Per cent	No.	Per cent	Z o	Per cent	Z,	Per cent	Acres '000	Per cent	Acres '000	Per cent	Acres '000	Per cent	Acres '000	Per cent
Under 51	:	:	23,812	9.15	8,557	26.9	10,747	33.4	9,204	29.3	300	2.3	181	4.1	159	1.4	155	1.3
51- 100	:	:	5,150	11.2	4,501	14.1	3,246	10.1	3,351	10.7	407	3.1	352	2.7	238	2·1	246	2.0
101- 500	:	:	12,801	27.8	13,771	43.3	13,452	41.8	13,761	43.8	2,975	7.22	3,248	24.9	3,111	26.9	3,217	26.1
501- 1,000	:	:	2,393	5.2	2,656	8.4	2,505	7.8	2,649	8.4	1,672	12.7	1,843	14.1	1,711	14.7	1,817	14.7
1,001- 2,000	:		1,500	3.2	1,837	5.8	1,308	4.1	1,439	4.6	2.368	18.0	2,910	22.4	1,781	15.4	1,959	15.9
2,001- 3,000	:	_			`		ر ر 678	2.1	761	2.4					2,028	17.5	2,267	18.4
3,001- 5,000	:	:	210	0.5	263	8.0					812	6.2	1,014	7.8				
5,001-10,000	:	:	133	0.3	167	0.5	162	0.5	171	0.5	931	7.1	1,129	8.7	1,074	9.3	1,167	9.5
10,001-20,000	:	:	99	0.1	42	0.1	53	0.5	53	0.2	915	7.0	576	4.4	703	6.1	693	9.9
Over 20,000	:	:	\$	0.1	37	0.1	23	:	19	1.0	2,748	20.9	1,776	13.6	774	9.9	805	6.5
Total	:	:	46,119	100.0	31,831	100 0	32,174	100.0	31,408	100-0	13,128	100.0	13,029	100.0	11,579	100.0	12,326	100-0

TABLE X
Rural Holdings in Tableland Divisions

					Number of Holdings	Holding	δί						Area of Holdings	Holdings			
Size of Holdings	lings	=	1911	1927	27	1948	8#	1956	26	1161	11	1927	27	1948	84	161	1956
(40103)		No.	Per cent	No.	Per cent	óZ	Per cent	, oZ	Per cent	Acres '000	Per cent	Acres '000'	Per cent	Acres	Per cent	Acres '000	Per cent
Under 51	:	6,855	33.9	2,524	16.0	1,415	10.4	1,509	10.3	96	0.5	62	0.3	34	0.5	38	0.5
51- 100	:	1,471	7.3	1,314	8.3	911	2.9	935	6.4	1115	9.0	66	0.5	65	0.3	29	0.3
101- 500 .	:	5,201	25.7	4,350	27.6	3,297	24.3	3,235	22-1	1,407	8.9	1,183	5.9	668	4.6	888	4
501- 1,000	:	2,649	13·1	2,623	16.6	2,410	17.8	2,743	18.7	1,916	9.2	1,917	9.5	1,751	9.6	1,997	10.0
1,001- 2,000	۔ :	2,865	14.2	3,557	22.7	2,676 ا	19.7	3,275	22.4	4,691	22.5	6,114	30.4	3,785	19.4	4,602	23.0
2,001 3,000 . 3,001 5,000 .	¬ :	495		715	4 5	2,155	15.9	2,313	15.8	1,863	0.6	2,723	13.5	6,475	33.2	6,918	34.5
5,901-10,000	:	340	1.7	417	5.6	515	3.8	483	3.3	2,430	9.11	2,899	14.4	3,455	17.7	3,219	16.1
10,001-20,000	:	182	6.0	185	1.2	145	·	115	8.0	2,546	12.2	2,523	12.6	1,923	6.6	1,483	7.4
20,001–50,000	:	114	9.0	73	0.5	33	0.3	28	0.2	3,317	16.0	1,997	6.6	883	4.5	750	3.7
Over 50,000	:	26	0.1	6	:	4	:	;	:	2,411	11.6	297	3.0	227	1.2	68	0.4
Total .	:	20,198	100.0	15,767	100.0	13,561	0.001	14,636	0.001	20,792	100.0	20,114	100.0	19,497	100.0	20,051	100.0

TABLE XI Rural Holdings in Western Slope Divisions

				Number o	Number of Holdings					Area of	Area of Holdings		-
Size of Holdings (acres)		115	1927	11	1948	31	1956	51	1927	151	1948	-	956
	<u> </u>	No.	Per cent	No.	Per cent	N.	Per cent	Acres	Per cent	Acres	Per cent	Acres '000	Per cent
Under 51	-	1,970	11.5	1,401	8.7	1,448	8.3	49	0.5	30	0.1	32	0.1
51- 100	:	931	5.4	672	4.2	922	3.7	70	0.3	46	0.5	47	0.5
101- 500	:	3,920	22.7	3,006	18.6	3,060	17.5	1,206	5.0	874	3.6	876	3.6
501- 1,000	:	4,321	25.1	3,932	24.3	4,095	23.4	3,133	12.9	2,896	11.9	3,047	12.4
1,001- 2,000		4 307	0.36	3,825	23.7	4,764	27.3	7 382	30.4	5,300	21.8	6,620	27.0
2,001- 3,000	<u></u>	/0c' t	5	2,537	15.7	2,809	1.91			7,714	31.7	8,369	34·1
3,001- 5,000		932	5.4					3,512	14.4				
5,001- 10,000	<u>-</u> -	610	3.5	573	3.5	518	3.0	4,144	17.0	3,782	15.5	3,344	13.6
10,001- 20,000	:	168	0-1	169	1.0	103	9.0	2,279	9.4	2,240	9.2	1,323	5.4
20,001- 50,000	:	69	0.4	45	0.3	28	0.1	1,889	7.8	1,281	5.2	692	3.1
50,001-100,000	:	S	:	3	:	-	:	396	1.6	200	8.0	136	0.5
Over 100,000	:	6	;	:	•	:	:	245	1.0	:	;	:	:
Total	:	17,235	100.0	16,163	100.0	17,481	100.0	24,305	100.0	24,363	0.001	24,563	100.0
	-		-				_	_	-				

TABLE XII
Rural Holdings in Plains and Riverina Divisions

			Number o	Number of Holdings					Area of	Area of Holdings		
Size of Holdings (acres)	-	1927	<u> </u>	1948	11	1956	- 15	1927	51	1948		1956
	No.	Per cent	Z	Per cent	, Š	Per cent	Acres '000	Per cent	Acres	Per cent	Acres	Per cent
Under 51	1,571	13·3	1,089	1.01	1,134	9.6	37	0.1	27	0.1	27	0.1
51- 100	321	2.8	440	4.1	467	3.9	24	0.1	28	0.1	30	1.0
. 500 -101	1,751	14.8	116	9.1	1,050	6.8	538	1.4	315	8-0	328	6.0
501- 1,000	2,248	19.1	2,186	20.3	2,474	20.9	1,622	4.3	1,556	4·1	1,768	4.7
1,001- 2,000	3,127	26.5	1,871	17.4	2,266	19.2	} 5.665	15.2	2,637	7.0	3,181	8.4
	<u> </u>		2,259	21.0	2,469	20.9	22,6	1	7,321	19.5	7,941	21.0
3,001- 5,000	1,101	9:3					4,351	11.7				
5,001-10,000	1,068	0.6	1,196	111.1	1,271	10.7	7,176	19.2	8,091	21.5	8,611	22.7
10,001- 20,000	346	2.9	499	4.6	488	4.1	4,825	12.9	899'9	17.8	6,448	17-0
20,001- 50,000	200	1.7	178	1.7	191	1.4	6,062	16.3	5,219	13.9	4,993	13.2
50,001-100,000	. 29	0.5	64	0.5	38	0.3	4,005	10.8	3,418	9.1	2,646	7.0
Over 100,000	18	0.1	15	0.1	14	0·1	2,988	8.0	2,282	6.1	1,884	4.9
Total	11,815	100.0	10,759	100.0	11,838	100.0	37,293	100.0	37,562	100-0	37,857	100.0