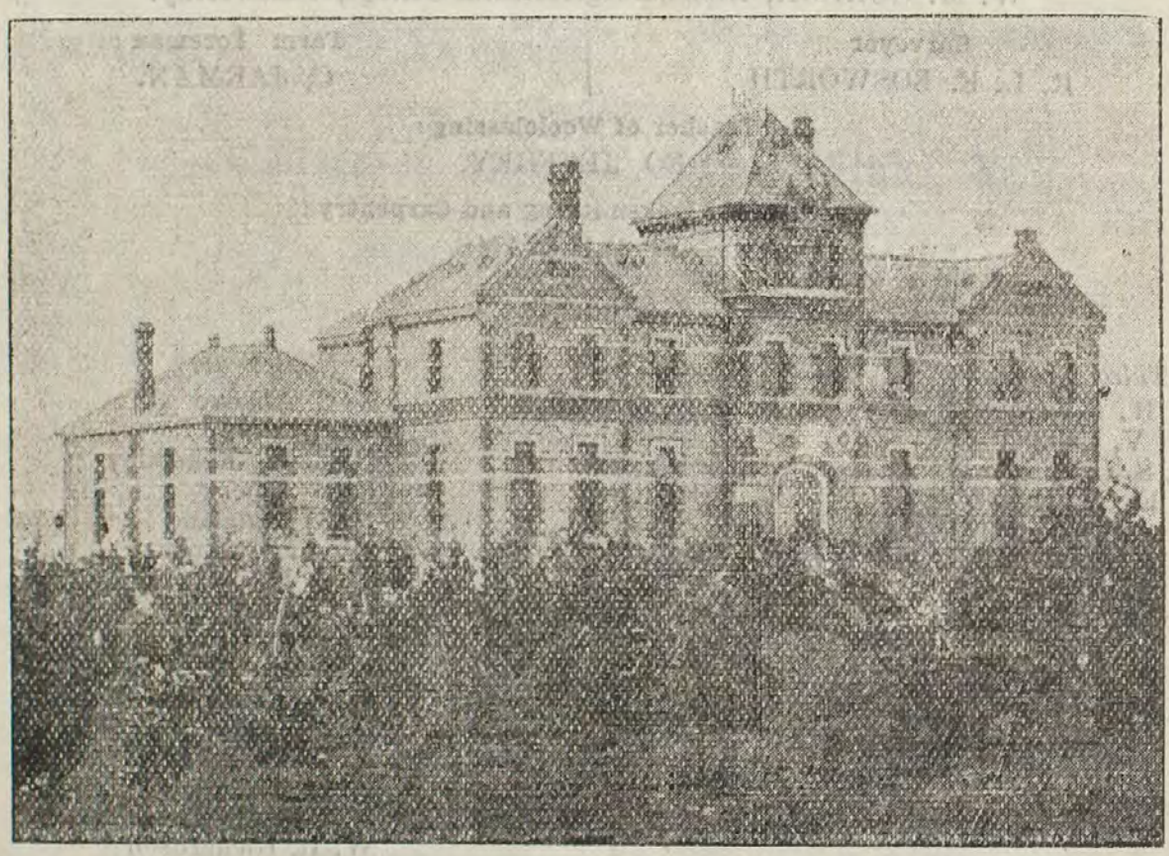
"Et conflabunt gladios suos in vomeres et lanceas suas in falces."

Vol. 1.—No. 8.

FEBRUARY, 1900.

The Rosewortby Agricultural College Student.



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AGRICULTURAL COLLECE, ROSEWORTHY.

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A. H. Bills
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F. E Chapman
W. L Dickson
C A Goddard
H Laffer
G. M Main
J. S Malpas
J. P Richardson
U. W. Seppelt
W A Terry
F. J Tothill
Inman Way

Second Year

H D M Adams
P J Bailey
A. Chillingworth
C P Hodge
E G Spicer
G. Warnes
W. S Yelland
John H Downer

First Year.

T C Angove
W. B. Blue
P. C W Eckersley
E. R Emery
H W. England
W. J Faulkner
T O. Fitch
G C Gurr
H. Hogg
E G. Hubble
W. J Laurence
H. M Main
N. H. Pearse
P. W. Reed
A. E. V. Richardson
W. R. Richardson
T L Rose
A. C. Smith
C. Vaudrey
F. F. Weaver

THE
Agricultural College Student.

Vol. I.—No. 8. ROSEWORTHY, FEBRUARY, 1900. Price, 8d.

SUBSCRIPTION.

Two shillings per annum. Postal-note or stamps forwarded to The Manager A.C.R. "Student" will be gratefully acknowledged. SUBSCRIPTIONS NOW DUE.

Why is it that so many old students do not subscribe to the *Student*? It cannot be that the subscription is too high! Rather, we think, that they deem 2s. too small a sum to take notice of. If this be the case let them send a larger sum, the larger the better for us; besides, it will relieve their minds of a great weight, and ours also. We have to print the magazine, and if old students do not help us how are we to do the thing decently? If the paper is supported now we hope in a year or so to publish it on a larger scale, as well as to produce views from the College. We would then ask all old students to send along their subscriptions, even if it *is* only 2s. Remember that every little helps.

All subscriptions will be gratefully acknowledged in our columns.

We beg to gratefully acknowledge the following:—Messrs C. P Seppelt, 10s; D. Smith, 5s; A H. Morphett, 5s; F. H. McKirdy, 5s.; W. Patrick, 2s, 6d; C. H. Cotton, 2s; and Mrs. C. C. Hill, 2s.

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COLLEGE ITEMS.

[By the Housemaster.]

The year 1899-1900, as far as the College is concerned, is rapidly approaching its terminal extremity, and it would seem fitting at this stage to refer to some of the more striking features which have characterised the period named.

* * * *

From the point of view of members we have been singularly successful, and in these latter days we shall be best understood by saying that a "record" has been achieved. During the first session our roll number of students in residence was 50; the second session found us with 47, and since October of last year we have had 42 students—an average of 45 per session. The encouragement which this increase has afforded has been felt alike by the staff and students, and we can only hope that ere long we shall reach the coveted century.

* * * *

It is with considerable pleasure that we refer to the good work accomplished during the twelve months. On the farm, vineyard, and orchard, in the workshop and wine cellars, and in the lecture room, students have ever shown that interest and energy which call forth the words "Well done." Never before in the history of the College has the work gone on more smoothly nor with more efficiency; of course, one reason which may be adduced for this lies in the increased number of students at work, but the chief explanation is afforded by the boys themselves, and without wishing to appear at all invidious one may say that the third year students have played no inconsiderable part in bringing about the success of the whole. They form the largest third-year class we have yet had, and for uniformly good work they will be hard to beat; that their example has had good effect is beyond all doubt.

* * * *

On October 3rd, 1899, our first consignment of lambs were shipped to London through the Produce Export Department. We have not yet received advice of their sale, but the following data are of interest:—

WEIGHT OF CARCASSES.

6 Crossbreds (Dorset Horn x Merino, including 6 Comebacks), 1,035 lbs — average weight, 49 lbs.

5 Merino, 189 lbs—average weight, 37·80 lbs.

Total of 26 lambs, 1,224 lbs—general average, 47 lbs.

SALE OF LAMBSKINS.

21 Crossbreds, 2s. 9½d.	£2	0	0
5 Merino, 2s. 9d.	0	13	9
	£3	12	3
Less commission, &c.	0	4	0
	£3	8	3

Some two months later the first consignment of wine, consisting of 10 hogs-heads, was shipped through the same Department, and in a future issue we hope to be able to chronicle a successful sale.

* * * *

The session and holidays hitherto prevailing here have been found so unworkable that a radical alteration was felt to be necessary, and at a Council meeting held just before Xmas the following revision was made:—

SESSIONS.

The course of study extends over nine sessions or three years. The *first session* of each year begins on or about the third Wednesday in April, and closes on or about the third Friday in July. The *second session* begins on or about the fourth Wednesday in July, and closes on or about the second

Friday in October. The *third session* begins on or about the third Wednesday in October and closes at the completion of the vintage.

Thus the "long vac." will now come during March and part of April of each year, a period of comparative slackness as far as outside work is concerned. Previously this holiday came due in October, and with the almost invariable early harvest was found to be very awkward, for it meant either a shortening of the vacation or an injurious delay of harvesting operations.

* * * *

While we were away for a week at Xmas time there passed away one of the best and oldest friends the College has had. Year in, year out, the late Hon. Jas. Martin of Gawler took a characteristically keen interest in our institution and its work and we have lost a friend. Much has been written and said of his life and work; and what a life it was! Wonderful, from whatever point of view it is looked at, and surely an inspiration to us all to be nobler and better men. He has gone, but his grand record lives on. And for all he has done for us we pay humble tribute in memory of a true and ever generous friend.

"CONCORDIA."

We are again indebted to Mr. Alex. Murray's kindness in being allowed to witness the shearing of his prize sheep at "Concordia." We see the sheep at the shows every year, but it is necessary to see the fleece taken off the sheep to realise the untold value of such stock.

And how carefully they are handled. If some of the sheep on the far north stations were treated as these are they would probably wonder what would happen next,

Each sheep is taken by an expert shearer, shorn, and examined carefully before it is let loose.

Meanwhile, before another sheep is started, the fleece of the previous one is carefully rolled up in a cloth, and after being sewn, is weighed.

These are the show fleeces for next March.

The day we were there all the best sheep were being shorn. The following are some of the weights :—

Six two-tooth ewes cut respectively

16 lbs. 2 oz.	18 lbs.
17 lbs. 12 oz.	15 lbs. 4 oz.
16 lbs.	16 lbs. 6 oz.

Fourteen two-tooth rams, shorn the day before we were there, cut on an average 19 lbs. 7 ozs.

Four two-tooth ewes cut

16 lbs. 15 oz.	16 lbs. 6 oz.
15 lbs. 5 oz.	14 lbs. 5 oz.

All these young sheep were remarkable for the dense fleece of beautifully fine wool, and for the broad flat tip for which the sheep of Mr. Murray are so well known.

Four champion or ex-champion ewes being shorn at once is a sight we may never see again. These were

"Saltbush 40," 3 yrs, 17 lbs. 0 oz.
Reserve champion in 1898,

"Portsea 18," 3 yrs. 16 lbs. 6 oz.
Champion in 1898.

"Portsea 116," 2½ yrs, 15 lbs. 15 oz.
Champion in 1899.

"Portsea 5," 4½ yrs, 14 lbs. 6 oz.
An ex-champion.

CHAMPION RAMS.

1899 Champion	...	17 lbs. 1 oz.
Fame	...	20 lbs. 0 oz.
Renown	...	17 lbs. 0 oz.
Record	...	18 lbs. 1 oz.
Portsea 89	...	20 lbs. 1 oz.
Portsea's Heir	...	20 lbs. 9½ oz.

THE ANNUAL SPORTS.

The sports this year were held on the 27th of September. Influenza and the rain in the latter half of the afternoon robbed them of a great deal of their usual interest, but the performances were, for the most part, very creditable. Several records were broken, and some of the events were very keenly contested. The following are the results for the different events :—

Hundred Yards Scratch.

B. O. Read 1
A. Chillingworth 2
F. Weaver 3

Time, 10 1-5th seconds,

Half-Mile Handicap.

H. Adams 1
N. H Pearse 2
T. C. Angove 3

Putting the Weight.

F. J. Tothill 1
A. C. Goddard 2
B. O Read 3

Distance, 29 feet.

120 Yards Hurdles, Handicap.

H. Main 1
P. C. W. Eckersley 2
N. H. Pearse 3

High Jump, Scratch.

C. P. Hodge 1
A. C. Goddard 2
W. B. Blue 3

Height, 5 feet 1½ inch.

Record—W. B. Read, 1898, 5 feet 8¼ inch

Mile, Scratch.

F. Weaver 1
A. Chillingworth 2
G. Main 3

Time, 5 minutes 41 seconds.

Throwing the Cricket Ball.

J. P Richardson 1
C P. Hodge 2
A. C Goddard 3

Distance, 105 yards 1 foot 10 inches.

Kicking the Football.

U. W. Seppelt 1
J. P. Richardson 2
F. Weaver 3

Distance, 62 yards 1 foot 8 inches.

Record—C. J. Landseer, 1898, 65 yards

135 Yards Handicap.

H. Main 1
T. L Rose 2
P. C. W. Eckersley 3

Long Jump, Scratch.

H. Main 1
A. C. Goddard 2
B O. Read 3

Distance, 18 feet

Sack Tournament.

G. Main 1
H. Main 2
A. C. Goddard 3

440 Yards Scratch.

F. Weaver 1
B O. Read 2
A. Chillingworth 3

Time, 63 2-5th seconds

Record—F. J. Tothill, 1898, 56¼ seconds

220 Yards Handicap.

H. Main 1
T. L Rose 2
N. H. Pearse 3

Three-Legged Race.

G. Main and H. Main 1
J. Richardson and C. Hodge ... 2

120 Yards Hurdles, Scratch.

H. Main 1
B. O. Read 2
A. C. Goddard 3

Time, 18½ seconds

Old Scholars' Race.

C. P. Seppelt 1

Consolation.

P. J. Baily 1

The day was finished in the usual style by a very successful dance. And the next day saw us on our way for the holidays.

THE SEASON'S WORK ON THE COLLEGE FARM.

By W. Lowrie, M.A. B.Sc.

On the land known as Nottle's, purchased in 1898 in extension of the College Farm, a series of parallel plots were arranged in demonstration of the utility of various artificial manures. The land had been frequently cropped with wheat through a long number of years, but the wheat had been taken after bare fallow and without artificial manures. The land therefore was typically wheat-exhausted, and afforded good opportunity to show the efficacy of the various artificial dressings. The soil varies from light sandy to open light limestone brash, such as often prevails in mallee country, and the variations run transversely across the area, 50 chains in length, devoted to the plots. The yields are light, but the season's rainfall does not altogether account for this, low though it was. The seed time was exceptionally unsatisfactory, and the surface soil was so open and free that in spite of precautions much of the seed went in too deeply for the after-weather conditions to enable it to come through well. A proportion of it malted, and consequently the plant came up too thinly for this district.

The rainfall for the year was 14·8 in., and of that amount 3·9 in. fell before the end of March.

The following are the results :—

Manure Demonstration Plots.

No.	Area	Date of Sowing 1899.	Manure	Quantity per Acre	Per Acre Yield	Per Acre Increase due to Manure.
	Acres	May		Cwts.	bush. lbs.	bush. lbs.
1	2½	9	Lake Fowler Company	2	11 27	3 47
2	1	10	Guano (Wills & Co.)	2	10 16	2 29
3	1¼	10	Unmanured	Nil	7 47	— —
4	2½	10	Basic slag (F. H. Snow)	2	15 3	7 16
5	2½	10	Basic slag (F. H. Snow)	2	15 28	7 41
			Nitrate of soda (F. H. Snow)	1		
6	2½	10	Basic slag (F. H. Snow)	2	15 55	8 8
			Muriate of potash (F. H. Snow)	1		
7	2½	10	Unmanured	Nil	6 17	— —
8	2½	10	Basic slag (F. H. Snow)	2	13 49	7 32
			Nitrate of soda (F H Snow)	1		
			Muriate of potash (F. H. Snow)	1		
9	5	11	Ohlendorff's dissolved guano (Gibbs, Bright & Co)	2	19 55	13 38
10	5	11	Bonedust (Anders)	2	7 11	0 54
11	5	11	Bone char (Hackett)	2	5 44	Nil
12	5	11	Lawes' superphosphate (Elder, Smith & Co	2	18 53	12 36
13	5	11	Lawes' superphosphate	1	15 22	9 1
			Bone char	1		
14	5	12	Lawes' superphosphate	1	15 30	9 9
			Bonedust	1		
15	1¼	12	Unmanured	Nil	6 21	— —
16	2½	12	Lawes' superphosphate (Elder, Smith & Co	1	14 48	8 27
17	1¼	12	Lawes' superphosphate	2	19 4	12 43
			Sulphate of ammonia	¾		

Thus during the past season bone char, or bone phosphate as it was called, had no effect whatever in increasing the yield on this land. When added to superphosphate it gave a gain of only a few pounds per acre. Of course the manure is not lost, as it will become available in the course of time for succeeding crops, but it is not immediately remunera-

tive as some of the other manures of the list superphosphate I do not recommend, but demonstrate to farmers visiting the farm that the practice is not good, and that the same value applied as superphosphate alone is more remunerative. Many farmers regularly sow such mixtures, but I believe parallel tests as above on their lands would convince most of them that the money—even taking residual values into account—can be better spent. In this case the gain in favor of using superphosphate alone was approximately 8s. per acre (wheat at 2s. 6d.) more than that from the same value expended on the mixture. With a heavier rainfall the difference would no doubt be less marked; but I cannot think that the mixing is ever to be recommended. The mixing of bone char or bonedust with a plot was treated with the mixture to

These results confirm the opinions once more which have been so often urged from this institution—(1) That for our conditions superphosphate of one kind or another is the most profitable artificial manure. (2) That 2cwt per acre is to be recommended in preference to 1cwt per acre for the first few years at least of its use. In this case, taking wheat at 2s. 6d. per bushel, the comparative results of the use of 2cwt superphosphate and 1cwt respectively, are as follows:—

	£	s	d
A—2cwt per acre—			
Value of increased yield (12bush 36lbs), at 2s. 6d.	1	11	6
Cost of manure in Adelaide, 2cwt, at 4s. 3d.	0	8	6
Net gain per acre	£1	3	0
B—1cwt per acre—	£	s	d
Value of increased yield (8bush 27lbs), at 2s. 6d.	1	2	1½
Cost of Manure in Adelaide, 1cwt, at 4s 3d.	0	4	3
Net gain per acre	£0	16	10½

The first hundredweight no doubt pays better proportionately to the outlay, but the gain on the second hundredweight is 28 per cent. of the amount expended, which is surely good business.

(3) That nitrogenous and potassic manures, for the first few years at least, are unprofitable In the case of plots 8 and 4 it will be seen that nitrate of soda and muriate of potash, added to basic slag, gave less than basic slag alone, although when one at a time of these manures was added to basic slag there was a few pounds of wheat per acre increase, yet not sufficient to repay the cost in either case of the nitrate of soda or muriate of potash. Similar results will not of course follow in all soils—that goes without saying, but I believe these figures indicate the average trend, especially on mallee lands. On plot 8 the heavy additions of nitrate of soda and muriate of potash in presence of the low percentage of moisture in the soil lessened the percentage of germination. This of course arose from the fact that the crystals of the salt absorbed moisture from the immediately surrounding soil and dissolving therein gave in these spots a solution too concentrated for healthy germination of adjacent grain, and further left the soil surrounding other grains in the coulter furrow too dry.—"Journal of Agriculture."

CRICKET NOTES.

Matches have unfortunately been few this season, not on account of a lack of enthusiasm amongst students, but from a variety of causes not altogether within our control.

No losses have marred our record, but out of six matches played three were drawn, of which two were scarcely in our favor.

One noticeable feature in our season has been the large number of men from which the teams have been selected, there being no fewer than twenty who have played in at least one match. This, from the limited number of students, is an extremely encouraging sign, but also indicates a very dead level amongst those who aspire to become regular members of the Roseworthy College eleven. The

remedy is, however, apparent. Those who are really desirous of joining in the matches must practice. The born cricketer gets out of form without it. Not only does practice place eye, hand, and muscles more at command, but it invariably decides who shall fill the last few places.

Returning to our subject, a review of the season, we come to averages. In this connection, whereas the batting figures are satisfactory, those of bowling are hardly so when looking at what we might call first-class cricket, as the St. Peter's College match. If any one of the coming cricketers wishes to give "our college" team a real good lift let him go in for bowling and leave the batting to take care of itself. He will be sure of inclusion in the eleven, though he make a "duck" each innings. Now for figures. Scores :—

Opponents	... 757
R.A.C.	... 945

BATTING AVERAGES.

Name.	Highest score	Total runs	No of innings	Times not out	Average
C. P. Hodge ...	58*	169	4	1	56
G. Gurr	55	130	5	2	43
J. P. Richardson...	63	174	6	1	34
F. F. Weaver ...	49	95	4	1	31
F. E. Chapman ...	17*	29	3	2	29
H. D. M. Adams...	18	24	2	1	24
W. V. Camper ...	51*	83	5	1	20
B. O. Read ...	11	17	2	1	17
W. R. Richardson	9	13	2	1	13
H. S. Cargeeg ...	22	31	3	0	10
D. Smith	15	28	3	0	9
I. Way	12	41	5	0	8
A. H. Bills ...	21	21	3	0	7

* Signifies not out.

BOWLING ANALYSIS.

	Runs	Wkts	Avg
H. D. M. Adams ...	25	3	8-3
W. V. Camper... ...	147	13	11-3
I. Way	120	10	12
D. Smith	60	5	12
H. S. Cargeeg	15	1	15
J. P. Richardson ...	171	7	24
B. O. Read	93	3	31

WOULD-BE WOOLCLASSERS ABROAD.

With the addition of Practical Woolclassing to the College course as a diploma subject, came the inauguration of an annual visit to the wool stores of Port Adelaide. This is confined to the "Third Year" students, and gives them a splendid opportunity of obtaining an insight into the methods of "getting up" wool for market. Many and various are the methods employed by wool-growers, and some are, at best, not a credit to the sheep owner of South Australia.

There is, however, a gradual but sure change coming. Owing to the energy and perseverance of certain men connected with the wool trade, and to the way in which they have advocated classing on practical and scientific lines, we now find that clips are sent to market in a better state than they were at one time. Even now, much of the wool is mixed up so that a bale may contain types varying in prices from 5d and 6d to 1s 2d. This was pointed out to us in one case by a buyer at one of this season's sales. Consequently the buyers have to protect themselves, and so give a low price for the whole lot. If on the other hand, these different types had been kept separate, the increased price obtained would more than pay for the little extra expenditure of time and labor. A clean, well got-up clip of twenty to thirty bales is a very pretty sight.

We saw several such, ranging from five to twenty-five bales. They immediately strike a buyer's eye, and give him confidence in what he is buying. In this way a buyer will

often stretch a point in his estimate, and pay a little more for such wool, knowing that he can protect himself on miscellaneous and badly classed lots.

Therefore, it is all in favor of the grower to class his wool in such a way that the buyer can readily estimate its yield when scoured.

Messrs Luxmore, Coombs and Co.'s store was the first we visited. They have a really magnificent floor. It is all on the ground and is the largest single-storey shed in Australia. Built on the edge of the canal, wool can be shipped and unshipped with perfect ease. Another feature of its convenience is having the railway lines running right through it, so that there is no unnecessary cartage. They had their new hydraulic dumping press at work, by which means large bales, as they come from the station, are dumped into about one-third their original size. The roof of this immense building is supported by railway rails, and in this way there is no waste of space by pillars of wood. All loading and unloading of bales is done by means of a steam pulley. The show floor, spacious and well-lighted, thus giving buyers a chance of seeing the wool properly.

Messrs Elder Smith and Co have a spacious three-floored store. It is now extremely large, but so extensive has their business become that they contemplate building fresh space before next season. Their floors are exceedingly well-arranged, and everything is done on a labor-saving principle. The light of the show floor is practically perfect. Everything is painted white to enable the wool to be seen at its best.

In these two places, under the guidance of our instructor (Mr G. Jeffery) and Professor Lowrie, we made the most of our time. The various wools were examined, estimated as to what they would yield when scoured, the spinning capacity was estimated, and the wools in general thoroughly criticised. In this way the students learned a great deal more than they could possibly do with our limited supply of wool at the College.

We called at Messrs Luxmore, Chapman and Co.'s, but not having time to spare could not stay more than a few minutes. However, we were enabled to see the manner in which small lots of bags are classed out as nearly as possible into larger lots, and sold in this way.

The day was not yet finished, as there was still Mr McGregor's scouring establishment to be visited. We left the train at Bowden, and walked to Hindmarsh. Most of us had never seen wool scoured and spun into yarn, so this part of the day was specially interesting. We were kindly shown over the establishment by Mr McGregor's manager, who went into details of all the various operations from the sorting of wool before scouring to the making of the cloth.

I am sure that our sincere thanks are due to the various firms, who, through their representatives, so kindly enabled us to receive a valuable object lesson on one of our greatest industries, and who so kindly entertained us at lunch. Also, we have to thank Mr Jeffery and Professor Lowrie for accompanying us, and giving all the information in their power. We were all very tired on reaching Adelaide, where Professor Lowrie entertained us at dinner at the South Australian Club.

A rush for the train finished up an exceedingly interesting and instructive day's outing.

Notes on the Coastal Districts of New South Wales.

(CONTINUED.)

The Autumn in these parts is like a second Spring. Everything in the way of vegetation is in a flourishing condition, Farmers proceed to get their land ready for the Winter crops, and sow such crops as are now seasonable. On the other hand, they are busy harvesting their maize, and cutting their local crops.

The prevailing conditions of climatic changes are pretty much the same in the New England districts as they are to the east of the Blue Mountains proper, except for the varying increase in temperature the further north you go.

The soil on this stretch of country on the whole is very fertile, and capable of producing great results. Unfortunately the farmers who work the arable land, will insist on adhereing to the old-time methods of cultivation, and are slow to take up any of the modern ways of agriculture, which the science and practice of to-day have placed before them. Some of their old-time customs are undoubtedly commendable and not to be despised; but, on the whole, there is a very considerable wanting in their methods which very much detracts from them attaining maximum results. Gradually, however, the Hawkesbury Agricultural College and Department of Agriculture are disseminating very useful knowledge throughout the community, and there seems to be every probability that the rising generation will be endowed with a less conservative feeling towards modern ways than are their predecessors, and will be more ready to appreciate the application of science to their daily labors.

In the southern portion of the area under review, the principal agricultural pursuit is dairying. For many years this industry has been carried on in this district, and has been attended with highly remunerative results. The soil and climate are particularly adapted for this purpose. Rich black loams of volcanic origin, more or less, are to be found in many places, and so fertile are these that they sometimes command a value up to £50 per acre. A good deal of the land has been artifically sown with grasses such as Cocksfoot and Rye-grass. The Clovers also grow rampantly.

Most of the old-fashioned ideas that the dairy farmers clung to a few years ago are rapidly giving place to improved methods. The introduction of modern machinery in place of so much hand work, the greater care exhibited in providing better accomodation for the cows, the keen appreciation felt for the careful selection and culling out in the herds, the introduction of the tuberculin test, the improved methods accepted in the way of sending the produce to market, and the unfailing results obtained from a thorough system of co-operation, whereby the refined product can be disposed of to the best advantage either at the metropolitan market or markets remote from the colony. These have very materially contributed to the great success of an industry, which, while already assuming large proportions augurs to be one that some day the colony will justly be proud of.

On the Northern Coast districts, also, dairying is becoming a very popular means of livlihood. Here the country has not reached the state of civilization that may be found in the South Coast. The reason for this is not because the soil is deficient in quality and the climate not suitable for agricultural purposes, but might

be accounted for by the fact that most of the country is still in its natural state, and requires a large amount of capital to develope it. The soil in parts is intensely fertile, and capable of producing very great results; but the pioneering work must first be entered into, and the dense forests cleaned of their growth; and when better means of communication with Sydney have been obtained, this is a part of the country that must inevitably go ahead with leaps and bounds

To do justice to the mineral wealth of this portion of the country would require the publication of volumes. The coal measures that have been discovered in the various parts revealed practically inexhaustible supplies. The result of this will in time come to be conducive to the establishment of large manufacturing industries in the different centres of population.

Nearly all the rivers that intersect this stretch of country are fed by tributaries, which have their origin and course in highly metalliferous areas, chiefly gold producing, and the winning of gold, silver, and the baser metals, has been, is now, and augurs to be in the future, industries of very considerable magnitude.

Very much more could be said in favor of these Coastal Districts, but I have just touched on the more principal points of interest, leaving the details for some abler pen than mine to expatiate on their various merits.

CONCLUSION.

THE WINE INDUSTRY IN SOUTH AUSTRALIA.

FROM PROFESSOR PERKINS' DEPARTMENTAL REPORT, 1898-99.

Year after year in the pages of my departmental report I have endeavoured to draw attention to the fact that whilst in vine-growing we have firmly established in our midst an industry capable of doing much for the colony, we are very far from deriving from it all the advantages it offers us. My arguments may have passed unnoticed, or they may have fallen on deaf ears; or again, my want of success may be attributable to an error of judgment in the presentation of my plea. Hitherto, I have taken for granted that the importance of the industry was self-evident, and have dwelt mainly on such remedial measures as appeared to me necessary to place it on a firm and flourishing basis. After all, if error it be, it is but the natural error of one whose whole time is consecrated to one line of thought — what in my mind has long since crystallized into well-defined concrete form need not necessarily have emerged from the state of a more or less hazy conception in those many other minds on whom a thousand other interests have a nearer claim. It is possible, therefore, that in my forgetfulness I have been advocating a cause the importance of which is not self-evident to the general public. If in the past such has been my error, I am determined, in this my 1898-9 report, to make ample amends for past transgressions by calling up such evidence as will place the importance of the object of my pleading beyond the doubts of those who have neither time nor inclination to enquire into it. I may then with a freer conscience refer yet again to those measures that I deem so essential to its prosperity.

Without any important local manufactures or extensive commercial enterprises, it is generally recognised that we are mainly an agricultural community — that is, a community dependent upon the direct returns of the soil. The main sources of our national incomes are derived from wool and wheat, that all but monopolize our territorial area. Some small space is given up to vines, orchards, potatoes, artificial pastures, &c., but, on the whole we are mainly wool and wheat growers. It cannot be denied that our

local conditions are eminently suited to what necessity and the struggle for existence have in the long-run driven us; nor can I anticipate nor even wish that these, our principal national products, should ever be ousted from their premier position as wealth - bringers. In comparing their gross returns to the community with those yielded by the vine, no thought will be further from my mind than that of belittling the value of any other agricultural pursuit in which I may happen to take a less personal interest. My sole desire and intention may be represented as an earnest attempt to prove that we, as South Australians—be we wheatgrowers or be we vinegrowers—have every interest in fostering and forwarding an industry so congenial to our soil and climate, and so liberal in its returns to our pockets. I am aware that figures may be made to prove much, and that statistics are proverbially erratic. I am certain, however, that those figures to which I may have to appeal represent as fair and faithful a statement as it is possible to draw from our "Statistical Register."

I find that out of 578,000,000 acres of territorial possessions only from 64,000,000 to 65,000,000 acres are taken up by pastoral or agricultural pursuits, and that they may be roughly distributed as follows:—

Grazed area	61,571,000 acres
Cultivated area	2,605,000 "

Further, the most recent returns show that the cultivated area my be divided up as follows:—

	Acres.	Acres.
Cereals (mostly wheat, and inclusive of peas)—		
For grain	1,570,215	
For hay	449,167	
Fallow	507,484	
		2,526,866
Green forage (lucern, &c.)		28,800
Orchards and gardens inclusive of olives		21,600
Vines..		20,000
Other minor crops..		8,000
		2,605,266

The above figures have been rounded off a bit, but for comparative purposes they are sufficiently accurate. In order to establish a reliable comparison between these, our different agricultural industries, it will be necessary to estimate their average gross pecuniary returns, or, in other words, to draw up the average agricultural revenue of the colony. I must admit that the task is by no means a simple one, more particularly as our statistics have not been compiled with that object in view. My own conclusions may not always be strictly correct, but I do not believe that they give rise to errors sufficiently important to materially affect my general line of argument. In any case, as I shall indicate the data on which my figures are based, errors may readily be detected and corrected.

Grazed Lands.—For the estimation of the average gross returns of grazed lands I can find but a meagre supply of official data. So far as I can ascertain, including wool, meat, butter, &c., they would vary from year to year from £2,000,000 to £2,500,000 sterling per annum. For purposes of comparison I shall adopt the higher figure.

Cereals.—The average gross returns from cereals admit of more accurate and satisfactory determination. During the last decade our average yield of wheat has been 5.16 bushels to the acre, representing, at 3s. a bushel for the average area under grain, about £1,215,000. The average yield of hay has been over the same period about .82 of a ton, which at 25s. a ton would represent for the average area under hay about £460,000. We therefore have an average gross return from land under cereals of about £1,675,000.

For green forage I have allowed a gross return of £2 an acre, or, roughly speaking, £50,000. The orchard and garden area includes much land that yields little or nothing, and by supposing an average return of nearly £5 an acre, or £100,000 for the total area, I do not deem myself to be below the average gross returns. And, finally, I have taken £20,000 as fairly representing the gross returns from the 8,000 acres under other minor crops.

In attempting to estimate the average returns from vines there are various secondary matters that require to be taken into consideration. Much of the area under vines has not yet come into full bearing, and some portion of it is given to the production of raisins, currants, and table grapes. Making full allowance for these facts, the official returns do not give us an average return of more than 130 gallons to the acre. For convenience sake I have taken the full area as being taken up by wine grapes, and in full bearing, at 2s. a gallon, the average net price (at cellar door) realized in London by ordinary wines; this represents £260,000 for the 20,000 acres.

From the above figures we now have

the means of forming a fairly accurate estimate of the agricultural revenue of the colony.

	Average area occupied. Acres.	Average gross returns. £
Grazed	61,571,000	2,500,000
Cereals	2,526,866	1,675,000
Green forage	28,800	50,000
Orchard, &c.	21,600	100,000
Vines	20,000	260,000
Other crops	8,000	20,000
	64,176,266	4,605,000

Reducing the figures of the last table to relative percentages, we get the following results:—

	Per cent. of area occupied.	Per cent. of gross returns yielded.
Grazed	95.94 per cent.	54.15 per cent.
Cereals	3.93 per cent.	36.37 per cent.
Vines	0.03 per cent.	5.64 per cent.
All other crops	0.10 per cent.	3.84 per cent.
	100.0 per cent.	100.0 per cent.

Neglecting grazed lands, and comparing the returns from vines with those from crops grown over the cultivated areas, we obtain the following results:—

	Per cent. of cultivated area occupied.	Per cent. of gross returns from cultivated area.
Cereals	96.99 per cent.	79.57 per cent.
Vines	0.76 per cent.	12.35 per cent.
All other crops	2.25 per cent.	8.08 per cent.
	100.0 per cent.	100.0 per cent.

Or finally reducing the gross returns to average gross returns per acre, we have the following results:—

	Average gross returns per acre. £ s. d.
Grazed lands	0 0 9½
Cereals	0 13 3
Vines	13 0 0
All other crops	2 18 2½

We may have felt that wine-making was destined to rank high as a national industry. Such figures must tend to confirm and give concrete expression to what, up to the present, may perhaps have been but intuitive perception. A brief reference, however, to its importance as a national revenue-bringer does not exhaust all its legitimate claims on our attention. From other points of view does it further commend itself to us as a useful and welcome guest. There are few, if any, agricultural industries capable of embracing a relatively large expanse of country, and at the same time absorbing a greater amount of labour per acre than combined vinegrowing and winemaking. At a low estimate, 100 acres of well-cultivated vines, and a cellar of corresponding dimensions, are yearly responsible for the distribution to labour of from £300 to £400, whilst a corresponding area under cereals is probably not responsible for more than £10 to £20. Further, by creating local interests of a permanent and fixed character, and a field of constant occupation, vinegrowing may be said more than anything to tend to fix the population to the soil, and to raise the ratio per unit of area. Such a consideration is surely not without interest in a sparsely populated and more or less nomadic agricultural community.

Thus far it is exclusively as we find it around us that I have dealt with our wine industry— a mere pigmy midst local wool and wheat growing, and but a dwarf when compared with its namesake in other countries, such as France, Italy, Spain, &c. Must we, under the circumstances, look upon it as having in South Australia, to the soil and climate of which it is so evidently well adapted, as having taken the greatest development possible, or is it capable of still further expansion. It is some such question that now claims our attention.

Further development does not necessarily imply territorial expansion. It may exclusively affect methods of treatment and accompanying increase of yields. It may have sole reference to the improvement of existing interests. As I understand it, however, in the present instance this development of the industry embraces both aspects of the question; creation of new interests and consolidation and betterment of the old. An expansion of the area of production presupposes, of course, an available market for the produce. Will the wine market stand a further influx of our wines? From the general point of view this question, I think, may unhesitatingly be answered in the affirmative. In the first place, our present vine area expanded to four or five times its present dimensions would not visibly affect the world's output. The world's vineyard is variously estimated at from 18,000,000 to 20,000,000 acres, of which we contribute less than 20,000! Secondly, the great majority of wines made are of low inferior type, in greater part consumed locally, whilst ours are designedly made for export, and in all probability of a higher average quality than those made in any other part of the world. Thirdly, in spite of hindrances to be referred to in the sequel, our export trade is daily swell-

ing in bulk and importance. Though 100,000 acres of vines would mean little to the world, look what it would mean to us. It would surely imply a flourishing state of prosperity for the industry and the necessary adoption of better and more rational methods of cultivation, and the rising of our rather disgraceful average of 130 gallons to the acre to at least 200 gallons. This would represent an annual contribution to the general agricultural revenue of the colony of about £2,000,000, or more than is at present returned by our 2,500,000 acres of cereals.

Could more enticing prospects be imagined? And by those who have not time to look below the surface of things it might well be asked why, in the face of such prospects, does not the industry of itself immediately occupy the requisite number of acres? Surely there must be some flaw in the argument that can conjure up such visions of wealth that yet apparently remain so barren of results?

There is no flaw that I can perceive, and I have thought long over the matter, but in the path of the poor crippled industry lie many obstacles that reduce its yearly expansion to nominal figures—300 acres last year! The two main obstacles are familiar enough figures to those who have found time to wade through my yearly reports—the difficulty of first marketing a new product of unknown lineage, and the relatively large amount of capital absorbed in the first outlay of a vineyard and cellar. With the efforts of the pioneers of the trade, and our more recent London Depot, the first difficulty we have partly mastered, but even in this direction there is much yet to be done. The second we have yet wholly to deal with: grapegrowing at best is not much more profitable than wheatgrowing, and it is further hampered by an unreliable market; in order to participate in the profits grapegrowers must make wine, and it is only from such as are prepared to do so that the expansion of the industry can be looked for. Winemaking is profitable, very profitable, but it unfortunately involves the immobilization of far more capital than the average agriculturist can command. First the vines have to be brought into full bearing, at a cost of from £20 to £30 per acre, representing over 100 acres some £2,500; then a cellar of suitable dimensions has to be erected and equipped, and this cannot readily be done for less than £1,500; the grapes are gathered, the wine made, but under existing state of affairs the hard-pressed producer cannot even at this stage place on the market what it has cost so much to produce; the wine must be kept and matured for at least a couple of years before any one will so much as look at it. Next the wine reaches saleable condition and age; here in establishing our London Depot we have to a certain extent come to the assistance of the grower, but not enough, and if what assistance we have given is not to prove altogether illusory we must be up and render it wholly effective by the adoption of some crowning measure. This Depot has had a hard fight in London, and has on the whole done wonderfully good work for us in the past. It has now, however, reached such a stage of development as to render it conscious of the fetters that hinder its further expansion, and unless it can so expand as to not only find a ready market for the wines at present made in the colony, but further, to stimulate us to the production of greater and greater quantities, of what use will it be to us in the long run? But, unfortunately, in its present fettered state it cannot even satisfactorily fulfil its first requisite function, that of marketing such wines as we now produce.

And here we come to the crux of the whole matter—the measures that are to raise our wine industry to the true rank that it is called upon to occupy, and to save what other measures we may have already taken in that direction from proving wholly abortive. Under existing arrangements, such are the great variations in the types of our wines that for every new shipper and sometimes for every new shipment of an old shipper new customers have to be found by our Depot authorities—it cannot be otherwise. We are not in the position of wine merchants, who buy whatsoever type of wine suits their purpose best, and subsequently by skilful blends out of a more or less discordant material create that type that finds most favour with the consumer. Every man's wine we must place on the market as we find it—a distinct

disadvantage, as the general cries of delayed sales that meet us on all sides may well testify. These delayed sales, this difficulty in finding a market for their produce, has given rise to much dissatisfaction and bitterness amongst our more recent customers. Of what use is the Depot to us, they may well ask, if it cannot sell our wines for us? And yet there is no remedy possible outside a radical change in our general policy. And it is to this change that I look for the impetus that is to drive on the industry to prosperity. If the Depot is to be productive of results worthy of the money and trouble expended upon it it must be placed on an equal footing with other London wine-sellers—it must be allowed to handle and blend the wines that pass through its hands according as circumstances may appear to suggest. And it appears to me there is only one way of bringing this about. We must create some kind of intermediary between the grower and the London establishment: some such central cellar as was recently suggested for Victoria, buying up and not simply receiving for sale wines throughout the country, and building up a uniform type to be placed on the London market. I care little whether the business is to be in the hands of a private Company working under State patronage or whether it is to be carried on directly by the State through its own officers. I know that its early creation is essential to the success of present growers whose produce is just reaching the marketable stage that it is absolutely essential to the future progress of the industry; and I further know that under skilful management, to whoever has the handling of it, it should prove a very profitable business. Much is expected of federation by the wine trade. Without wishing to discount our chances in the new fields to be opened up to us, it is as well to call to mind that we are not the only wine-producing colony, and that, further, whatever our chances of success in this direction, not even the newly amplified local markets would in time be able to absorb our total output; and then we would again have to fall back on the London market, which it would be little short of folly to let drop after succeeding in gaining an entrance upon it at the cost of so much trouble and expense. And here let me again give expression to the hope that at no distant period some suitable scheme will be brought forward giving definite expression to what I cannot help thinking is of utmost importance to a deserving national industry.

Clippings from the Report of the Minister of Agriculture, 1898-9.

FROM THE COUNCIL'S REPORT.

Representations having been made that students who had conscientious scruples against tasting alcoholic beverages were debarred from gaining the diploma of the College because of the inclusion of Œnology as a compulsory subject in the course of study, the Council recommended that provision be made for two courses by which the diploma may be obtained, and that from one the subject of Œnology be omitted. This recommendation has been approved by the Government, and the prospectus of the College has been revised accordingly.

The revision reads as follows:—

To obtain the College diploma candidates must have gone through the second and third years' course of study, and must pass a satisfactory examination in the following subjects:—

	Marks
(a) The science and practice of agriculture ..	250
(b) Wooldassing	50
(c) The science and practice of fruit culture	150
(d) Health of stock and elements of materia medica	150
(e) Chemistry	150
(f) Surveying and levelling..	75
(g) Bookkeeping	150

And one of the following groups (A) or (B)—

(A)—1. The science and practice of viticulture	150
2. The science and practice of winemaking (oenology)	150
(B)—1. Comparative anatomy and physiology	150
2. Physics and mechanics	150

Owing to the increase in the number of students the dormitory accommodation at the College is taxed to its utmost capacity. The Council considers

that at an early date additional dormitories should be provided.

A building which could be used as a hospital for the isolation of infectious diseases is a necessary adjunct to an institution such as the College, and the Council has brought the matter under the notice of the Government, with a view to the needful action being taken.

During the year five sections in the Hundred of Mudla Wirra, numbered 406, 700, 412, 413, and 503, and containing in all 245 acres, have been purchased. The total area of the College land is now 1,475 acres or thereabouts. It is hoped the Government will secure other sections recommended by the Council to be purchased as opportunity offers.

On the recommendation of the Council the Government have authorized an alteration in the method of financing the College Farm. Hitherto supplies have been voted by Parliament to meet capital and working expenses, whilst the income derived from both has been paid into the Treasury to the credit of the general revenue of the province. Parliament will now be asked to vote a sum of £300 as a capital account for the farm. The working expenses will be met out of the farm earnings, and at the end of the year the profits will be paid to the credit of the general revenue. Should a deficiency occur in any year it will be included in the Estimates to be voted by the Legislature."

FROM PROFESSOR LOWRIE'S COLLEGE FARM REPORT.

"STOCK.—Pigs have again proved the most profitable line of stock on the farm, and I am satisfied that we are getting together a very worthy herd. Sheep did well, and we were able to secure a first prize at the Royal Society's show for lambs. We had reason to be much satisfied with the cross-bred lambs from a Dorset Horn ram, presented by Mr. John Melrose, of Ulooloo, and Merino ewes. They are proving remarkably early - maturing sheep, very shapely, and pleasing to the butcher's eye, with a good covering of wool of good quality. I believe the Dorset Horn breed will prove well worthy the attention of our lamb-breeders. Dairy cattle (Jersey grades) are gradually getting better from the continued use of well-bred, good-quality Jersey bulls. The yield of milk averages about 470 gallons per cow per annum, but we have a long distance to go in the course of improvement before they can be claimed to be a first-class dairy herd. But the conditions of the farm are far from being suitable to the best dairying results, and I am satisfied that we would not be justified in incurring expense necessary to bring the cattle up to a first-class standard. The conditions do not justify a valuable herd."

FROM PROFESSOR PERKINS'S COLLEGE VINEYARD REPORT.

"VINEYARD.—During the past season we attempted to extend the College vineyard by some twelve acres. Of these eight were planted with rooted vines, and the balance with cuttings. The area under rooted vines took fairly well; that under cuttings failed almost completely. From the end of August to October 28 we had practically no rain. This is not the first year that it has been very forcibly borne on me that rainless springs spell certain failure to cuttings. But who can foretell what the season has in store for him?

"The growth and yield of older vines was fairly satisfactory, even in the worst types of soil, excepting, however, two acres of Shiraz on dry limestone, that made miserable growth, and yielded hardly anything worth picking. This variety is notoriously delicate, and I am afraid that it is only a succession of good seasons that will restore these vines to anything like good condition. Over the rest of the vineyard the crop promised to be fairly heavy, until towards the end of November a hail-storm eased us of fully one-third of it. Owing to arrangements in connection with the diploma examinations that had to be made some time in advance, we were, on the strength of a cold January, obliged to commence our vintage somewhat tardily. The first fortnight in February upset all my calculations, and the grapes reached the cellar in a very reduced shrivelled state. In future years we shall have to recognise that the date of the vintage cannot under our somewhat peculiar climate be fixed six weeks in advance.

"ORCHARD.—Every year we have more and more definite proof that ours is not a fruitgrowing district. I suppose that since 1895 we have lost fully

300 full-grown trees, and in addition to that the fruit from the remainder has been excessively poor and scanty. Were it not for the fact that in an Agricultural College some teaching in that line must necessarily be done, I would recommend the uprooting of every fruit-tree on the place. Possibly, however, with the aid of the Barossa water scheme we may in a near future be able to secure somewhat better results. I have little to report but a painful list of failures—apricot-trees are all dying out, peach-trees seem inclined to follow in the same direction, and plums we have had to give up long ago. Apples and pears placed in the best soils and spots are doing a little better, but are suffering, and not profitable here. Alone almonds and olives withstand the effects of bad seasons and poor soils. The former, under our local conditions, we shall have to use almost exclusively as stock for stone fruit.

LAWES' ENGLISH SUPERPHOSPHATE,

(36 per cent. to 38 per cent. Soluble in water.)

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