O.A.C. REVIEW

Published in the Interests of Agriculture

AUGUST, 1926

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Electric Cream Separator

Neat and Compact in Appearance.

Special Motor and Patented Governor Pulley mounted on stand on Separator.

Bowl is kept turning steadily and continuously at proper speed.

Six V-Shaped openings in split wing use entire skimming area of the discs.

Easy to Fill and Easy to Clean.

To take care of any variations in power, the Massey-Harris Electric Cream Separator is equipped with a new type patented governor pulley. This pulley can be set to govern the separator speed continuously and steadily and when set instantly takes care of any variations in the speed of the motor. The bowl always being turned at the correct speed works to its close skimming capacity all the time.

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Milk is Free From Contamination in a Concrete Milkhouse

A small milkhouse, separated from the dairy barn, is one of the first essentials of progressive dairying. Built of concrete, it is permanent and easy to keep in a clean and sanitary condition. Such a housing is bound to add to the quality of milk production and increase its selling value. The following table shows how simple the construction of a concrete milk house really is:

**RECTANGULAR MILKHOUSE**

<table>
<thead>
<tr>
<th>CONCRETE MIXTURES</th>
<th>1</th>
<th>2 ½</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundation and footing</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Floor</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Cooling Tank</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Mortar</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

**MATERIALS REQUIRED**

(Estimate based on foundation wall extending 3 feet below grade)

- Cement: 44 sacks
- Sand: 4 cubic yards
- Pebbles or broken stone: 5 ½ cubic yards
- Concrete block, 8 x 8 by 16: 353
- Reinforcing Steel: 137 feet ⅞ inch rods

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By Louis Aubrey Wood, Ph.D.

With the study of Agriculture naturally goes a study of the doings of agriculturists. This volume gives a comprehensive treatment of the remarkable series of farmers' movements occurring in Canada since 1872, and shows their effect on the social, economic and political life of the country. Dr. Wood's aim has been to show Canadian farmers struggling through organization toward self-expression and toward an adequate defence of their industry. Particular attention is given to the farmers' plunge into politics in the several provinces as well as in the Federal arena. 400 pages. $2.50.

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THE RYERSON PRESS
Publishers

TORONTO CANADA
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Diligent Suitor—Your daughter has consented to marry me, sir—or—er—er—is there any insanity in the family?" Father—There must be."
Soil Microbiology and its Application to Practical Agriculture

By A. G. Lochhead, Central Experimental Farm, Ottawa.

SCIENTIFIC work, if it is to fulfil its true function, will perform a two-fold service. In the first instance, it will enlarge our knowledge of things, seek to explain phenomena and processes which mystify, and keep unfolding more and more of the unknown. In the second place, it will touch directly the lives of the people, by utilizing the facts of the new discoveries to make life easier or work more efficient;—in other words, it will be applied.

The relative value to humanity of pure and applied science is frequently a matter of discussion, and is one of the questions which will never be settled. Both go hand in hand, indispensable partners in the task of increasing man's comfort or efficiency. Pure science produces the new ideas and discoveries which applied science adapts to meet man's particular requirements.

In some fields of science the practical application of theoretical knowledge has been most extensive, developed in a measure which has revolutionized working and living conditions. This is well exemplified in the case of electrical science, where the practical development of the new ideas and discoveries of men who were working simply to discover fundamental truths has resulted in devices contributing to man's comfort (and amusement) to a degree undreamed of by the pioneers.

Turning to the general field of agriculture and industries directly related to agriculture, we note that the new ideas brought on by scientific research have likewise been applied in a practical way, though to a much greater degree in some fields than in others.

Considering particularly microbiology in relation to agriculture, it may be safely stated that our present system of handling milk and dairy products is almost wholly due to the knowledge based in this particular science. Much the same is true of the various fermentation industries, while practical plant pathology may be likened to a superstructure erected on the foundations laid by mycologists, many of them "pure" scientists.

In the case of soil science, however, practical application as yet appears to lag behind the theoretical discoveries of the relationship of microorganisms to soil fertility. In general it may be said that methods of tilling the land have altered relatively little from early times. To a large extent soil science has served but to explain the principles underlying systems of soil cultivation, crop sequence, etc., which had been found by experience extending through hundreds of years to be of value. To a certain degree, then, scientific research has followed rather than led practice.

There are probably several explana-
tions for the fact that soil science has been slow to result in the practical application of pure research. In the first place soil science is barely a century old, with soil microbiology scarce half that age, and developed by but a handful of workers. Furthermore, the extremely complex nature of soil itself, both as regards its physicochemical and its biological nature has rendered the interpretation of laboratory results in terms of field practice of limited value.

In several directions, however, practical application of theoretical research in soil microbiology has been made which may well be only a beginning of what may be accomplished. The principal application is the practice of legume inoculation, now an established success. This process has greatly helped in the development of alfalfa and sweet clover culture in Canada, probably more than is generally recognized. In fact in a surprisingly large number of cases where such crops have failed lack of inoculation has appeared to have been responsible. Although in recent years this process has been much more widely adopted by farmers than previously, due to the efforts of our agricultural colleges and experimental farms to encourage the practice, yet but a comparatively small portion of our total legume acreage, probably less than two per cent., is systematically inoculated.

Success in the direction of legume inoculation has led to the belief that inoculation could be made equally efficacious for non-leguminous crops as well; and prompted by this belief, or from more strictly commercial motives, cultures for miscellaneous crops have appeared from time to time in Canada and elsewhere. It may be said that such cultures have failed to benefit crops, and for reasons not far to seek. Apart from the legume bacteria, associated with particular crops, there is no scarcity of other useful organisms concerned with decomposition, humus building, nitrogen transformation, etc., in an otherwise good soil. In every soil there will be a balance established through the course of years of organisms which are adapted to that soil, and the bacteria added by the relatively small addition of any particular group or groups through inoculation will be unable to cope with the naturally balanced micro-flora. The case is decidedly different in the fermentation or dairy industries where, by pasteurizing or sterilizing the medium and thus removing opposition, full scope can be given to those organisms it is desired to have predominant.

The use of cultures of Azotobacter for soil inoculation under field conditions has not yet been proven to be generally successful. While practical results have been claimed by some investigators, yet with others the results have been negative. Provided a soil is not too acid, Azotobacter will usually be present, its nitrogen-fixing ability increasing with the degree of cultivation. Under field conditions the amount of nitrogen fixed by this non-symbiotic organism should amount to from 15 to 40 lbs. per acre against from 50 to 200 lbs. by the legume organism. As the acreage under legumes is but roughly 10 per cent. of our total acreage, the total nitrogen assimilation by Azotobacter on our cultivated area is considerably larger. Since this organism can be made to fix much larger quantities under laboratory conditions, it is well worth while continuing to study means to increase its efficiency in the field. Consequently the practical application of our knowledge of this
organism will result rather through adjustment of soil conditions to favor its growth than through inoculation.

The manufacture of artificial farmyard manure, in which decomposition bacteria are made to act on straw, represents another present-day application of soil microbiology. Straw and other materials rich in cellulose have notably a depressing effect on plant growth when applied directly to the land, due to the fact that considerable amounts of nitrates are used up by microorganisms required for the breaking down of the cellulose, which would otherwise go to the crop. The method of converting straw into a material resembling farmyard manure without the use of animals was worked out at Rothamstead and is now being developed commercially on a considerable scale, especially in England. In Canada as yet no great development of the process has taken place. It is possible, however, that the future may see it applied in districts where straw cannot be used as litter for stock.

Partial sterilization or disinfection of soil, as practiced at present, represents another direction in which soil microbiology has found application. The scope of the process, however, is as yet limited, the method being restricted to greenhouse or garden crops, since the disinfection of field soil, while resulting in increased yields, is still too expensive for general application.

Furthermore soil microbiology has resulted in a more intelligent use of fertilizers and soil amendments as lime, sulphur, etc., in which account is taken, not only of the actual potential plant food, added, but the effect on the soil reaction and directly on the soil organisms. The addition of lime and sulphur may be regarded as treatments essentially for soil bacteria, while the proper selection of acid or basic fertilizers influences, not only the higher plants, but the microorganisms as well.

Although application of soil biological science to soil practice has been comparatively slow, there is reason to believe that continued investigation will contribute to further improvement of practical methods. With present day research, there is a better appreciation of the soil as a biological complex, of a recognition of the groups of different micro-organisms. In consequence the term "microbiology" is replacing "bacteriology" with reference to soils. An encouraging tendency also is a realization of the fact that soil fertility problems will only be solved by the co-operation of the physicist, the chemist and the biologist. Furthermore a hopeful sign is the better regard in which "pure" science is being held by those who ultimately stand to benefit from its application. As a prominent Canadian agricultural journal recently put it, "The most practical man is not necessarily the one with the most manure on his boots." We think this belief is gaining ground.
Small Fruits in British Columbia

E. W. White, District Horticulturist, Department of Agriculture, Victoria, B.C.

The small fruit industry has been established in British Columbia for a number of years and for the most part has shown a gradual development from year to year.

Between 1920 and 1922 there was a very decided increase in plantings, which was due partially to the high prices prevailing for small fruits at the conclusion of the war and partially to the settlement of a large number of returned men through the agency of the Soldier Settlement Board.

During 1921 there was a very sudden fall in prices from the peak year of 1920 and consequently the total acreage just about held its own during 1923 and 1924. During the last two years conditions have improved and some new plantings are being made.

It has been the policy of the Horticultural Branch of the Department of Agriculture since 1920, to make what is called a Small Fruit Survey every second year to show the acreage being planted to the different small fruits. This survey was made in 1920, 1922 and 1924 and is again in progress at the present time, but the final figures are not yet available. It is thought, however, that the 1926 figures will not show a very decided increase in total plantings, but that there will be increases in the acreage of strawberries and loganberries.

The following table will show the total acreage of the various small fruits as shown by the surveys of 1920-22-24.

<table>
<thead>
<tr>
<th>Kind of Fruit</th>
<th>1920</th>
<th>1922</th>
<th>1924</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strawberries</td>
<td>1646</td>
<td>5-6</td>
<td>2885</td>
</tr>
<tr>
<td>Raspberries</td>
<td>967</td>
<td>1-12</td>
<td>2105</td>
</tr>
<tr>
<td>Loganberries</td>
<td>209</td>
<td>1-4</td>
<td>505</td>
</tr>
<tr>
<td>Blackberries</td>
<td>210</td>
<td>1-2</td>
<td>328</td>
</tr>
<tr>
<td>Red Currants</td>
<td>23</td>
<td>1-4</td>
<td>42</td>
</tr>
<tr>
<td>Blk Currants</td>
<td>61</td>
<td></td>
<td>138</td>
</tr>
<tr>
<td>Gooseberries</td>
<td>55</td>
<td>3-4</td>
<td>85</td>
</tr>
<tr>
<td>Rhubarb</td>
<td>91</td>
<td></td>
<td>110</td>
</tr>
</tbody>
</table>

Total 3264 2-3 6201 1-3 6309 1-8

It might be interesting to note at this time the production and value of small fruits in the Province during the five years 1920-1924 as taken from official statistics bulletins of the Department of Agriculture. The figures for 1925 are not yet available.

Production in Province

<table>
<thead>
<tr>
<th>Year</th>
<th>Yield</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1920</td>
<td>114,234 cts.</td>
<td>$439,389</td>
</tr>
<tr>
<td>1921</td>
<td>399,065 cts.</td>
<td>694,682</td>
</tr>
<tr>
<td>1922</td>
<td>153,878 cts.</td>
<td>295,609</td>
</tr>
<tr>
<td>1923</td>
<td>2,798,533 lbs.</td>
<td>280,871</td>
</tr>
<tr>
<td>1924</td>
<td>2,239,987 cts.</td>
<td>365,922</td>
</tr>
<tr>
<td>1925</td>
<td>2,589,539 lbs.</td>
<td>184,623</td>
</tr>
<tr>
<td>1926</td>
<td>1,946,534 lbs.</td>
<td>305,229</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Yield</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1920</td>
<td>101,260 cts.</td>
<td>$359,455</td>
</tr>
<tr>
<td>1921</td>
<td>146,421 cts.</td>
<td>324,331</td>
</tr>
<tr>
<td>1922</td>
<td>77,094 cts.</td>
<td>199,050</td>
</tr>
<tr>
<td>1923</td>
<td>1,534,287 lbs.</td>
<td>182,682</td>
</tr>
<tr>
<td>1924</td>
<td>114,804 cts.</td>
<td>210,473</td>
</tr>
<tr>
<td>1925</td>
<td>1,756,141 lbs.</td>
<td>124,437</td>
</tr>
<tr>
<td>1926</td>
<td>1,946,534 lbs.</td>
<td>305,229</td>
</tr>
</tbody>
</table>
### Blackberries

<table>
<thead>
<tr>
<th>Year</th>
<th>Yield</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1920</td>
<td>20,180 cts.</td>
<td>$58,269</td>
</tr>
<tr>
<td>1921</td>
<td>33,374 cts.</td>
<td>65,730</td>
</tr>
<tr>
<td>1922</td>
<td>22,554 cts.</td>
<td>37,309</td>
</tr>
<tr>
<td>1922</td>
<td>182,643 lbs.</td>
<td>11,093</td>
</tr>
<tr>
<td>1923</td>
<td>28,173 cts.</td>
<td>39,501</td>
</tr>
<tr>
<td>1923</td>
<td>103,844 lbs.</td>
<td>5,282</td>
</tr>
<tr>
<td>1924</td>
<td>29,109 cts.</td>
<td>40,981</td>
</tr>
<tr>
<td>1924</td>
<td>371,631 lbs.</td>
<td>11,093</td>
</tr>
</tbody>
</table>

### Loganberries

<table>
<thead>
<tr>
<th>Year</th>
<th>Yield</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1920</td>
<td>12,643 cts.</td>
<td>$43,352</td>
</tr>
<tr>
<td>1921</td>
<td>23,139 cts.</td>
<td>43,441</td>
</tr>
<tr>
<td>1922</td>
<td>10,412 cts.</td>
<td>23,316</td>
</tr>
<tr>
<td>1922</td>
<td>600,594 lbs.</td>
<td>60,060</td>
</tr>
<tr>
<td>1923</td>
<td>22,070 cts.</td>
<td>22,538</td>
</tr>
<tr>
<td>1923</td>
<td>750,078 lbs.</td>
<td>45,005</td>
</tr>
<tr>
<td>1924</td>
<td>18,058 cts.</td>
<td>30,118</td>
</tr>
<tr>
<td>1924</td>
<td>1,442,943 lbs.</td>
<td>81,846</td>
</tr>
</tbody>
</table>

### Red Currants

<table>
<thead>
<tr>
<th>Year</th>
<th>Yield</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1920</td>
<td>8,189 cts.</td>
<td>$16,026</td>
</tr>
<tr>
<td>1921</td>
<td>8,070 cts.</td>
<td>11,975</td>
</tr>
<tr>
<td>1922</td>
<td>1,520 cts.</td>
<td>2,431</td>
</tr>
<tr>
<td>1922</td>
<td>72,375 lbs.</td>
<td>4,250</td>
</tr>
<tr>
<td>1923</td>
<td>2,877 cts.</td>
<td>3,843</td>
</tr>
<tr>
<td>1923</td>
<td>78,856 lbs.</td>
<td>4,090</td>
</tr>
<tr>
<td>1924</td>
<td>1,429 cts.</td>
<td>2,249</td>
</tr>
<tr>
<td>1924</td>
<td>57,920 cts.</td>
<td>3,172</td>
</tr>
</tbody>
</table>

### Black Currants

<table>
<thead>
<tr>
<th>Year</th>
<th>Yield</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1920</td>
<td>11,905 cts.</td>
<td>$36,501</td>
</tr>
<tr>
<td>1921</td>
<td>13,416 cts.</td>
<td>26,113</td>
</tr>
<tr>
<td>1922</td>
<td>5,299 cts.</td>
<td>13,300</td>
</tr>
<tr>
<td>1922</td>
<td>157,806 lbs.</td>
<td>19,491</td>
</tr>
<tr>
<td>1923</td>
<td>5,794 cts.</td>
<td>10,336</td>
</tr>
<tr>
<td>1923</td>
<td>80,066 lbs.</td>
<td>8,154</td>
</tr>
<tr>
<td>1924</td>
<td>4,631 cts.</td>
<td>9,782</td>
</tr>
<tr>
<td>1924</td>
<td>112,984 lbs.</td>
<td>12,973</td>
</tr>
</tbody>
</table>

### Gooseberries

<table>
<thead>
<tr>
<th>Year</th>
<th>Yield</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1920</td>
<td>13,884 cts.</td>
<td>$32,495</td>
</tr>
<tr>
<td>1921</td>
<td>14,264 cts.</td>
<td>18,814</td>
</tr>
<tr>
<td>1922</td>
<td>5,261 cts.</td>
<td>8,333</td>
</tr>
<tr>
<td>1922</td>
<td>101,633 lbs.</td>
<td>6,595</td>
</tr>
<tr>
<td>1923</td>
<td>7,609 cts.</td>
<td>10,309</td>
</tr>
<tr>
<td>1923</td>
<td>133,841 lbs.</td>
<td>8,198</td>
</tr>
<tr>
<td>1924</td>
<td>5,644 cts.</td>
<td>8,186</td>
</tr>
<tr>
<td>1924</td>
<td>139,189 lbs.</td>
<td>9,120</td>
</tr>
</tbody>
</table>

### Rhubarb

<table>
<thead>
<tr>
<th>Year</th>
<th>Yield</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1920</td>
<td>346 tons</td>
<td>$36,966</td>
</tr>
<tr>
<td>1921</td>
<td>299 tons</td>
<td>29,840</td>
</tr>
<tr>
<td>1922</td>
<td>463 tons</td>
<td>25,303</td>
</tr>
<tr>
<td>1923</td>
<td>611 tons</td>
<td>31,790</td>
</tr>
<tr>
<td>1924</td>
<td>714 tons</td>
<td>41,312</td>
</tr>
</tbody>
</table>

In explanation of the above table it might be said that in 1920 and 1921 the total production was estimated in crates, while since that time the fruit used for manufacturing purposes is shown in pounds. The production of rhubarb is shown in tons.

**Small Fruit Districts**

The small fruit districts in the Province are fairly well confined to five in number and they are as follows:

(a) **Vancouver Island and Gulf Is.** The main development has taken place on the southern end of Vancouver Island in the Saanich district, which lies adjacent to the capital city of Victoria. Small plantings have been made at various up-Island points and on some of the Gulf Islands.

Strawberries and loganberries are the two main fruits which are grown. The plantings of raspberries, blackberries, currants and gooseberries being comparatively small.

It is claimed that Vancouver Island produces the best strawberries in the Province, the bright sunny days and cool nights being admirable for their development.

(b) **Lower Mainland.** This district is also spoken of as the Fraser Valley and in a general way includes...
the land on the north side of the Fraser River from Vancouver, the metropolis of B. C., to Agassiz, approximately 70 miles east, where one of the Dominion Experimental Farms is located, and on the south side of the Fraser River, from the Delta at the mouth of the River to Chilliwack, approximately 70 miles east, which is one of the oldest and best dairy districts in the Province.

This area is the main raspberry producing district of the Province. The climatic conditions are more humid than on Vancouver Island and in some places there is a certain amount of sub-irrigation which results from the high water in the Fraser River in June. These conditions make the district ideal for producing raspberries.

Strawberries are also grown to a considerable extent and the plantings of loganberries are increasing rapidly. Blackberries are also grown extensively, and the Fraser Valley contains the largest plantings of currants and gooseberries. This is also the best rhubarb district in the Province.

The main line of the C. P. R. traverses this district on the north side of the River.

(c) Salmon Arm. This district is also located on the main line of the C. P. R., about 300 miles east of Vancouver, and borders on Shuswap Lake.

Climatic conditions during the winter are more severe than at the Coast, but in an ordinary year good crops of strawberries, raspberries and to a more limited extent loganberries are produced.

(d) North Okanagan. This area is usually described as that part of the Okanagan Valley from Sicamous on the main line of the C. P. R. to Vernon at the north end of Okanagan Lake and includes the districts of Enderby and Armstrong.

The plantings are not large but most of the small fruits can be grown with a reasonable amount of success.

The main orchard area of the Province lies in the Okanagan Valley from Vernon to Penticton, which is situated at the southern end of Okanagan Lake.

(e) Kootenay and Boundary. The Boundary district is located near the international boundary and Grand Forks is the chief centre. Strawberries and raspberries are grown to a limited extent.

The Kootenay district is a large area, but most of the small fruits are grown along the west arm of Kootenay Lake and along the Kootenay River near Nelson, and at Wynndel and Creston near the head of Kootenay Lake.

Strawberries are the main crop grown, and at Wynndel they are grown largely under overhead irrigation.

The Wynndel and Creston areas have a very great advantage in shipping as they are over a day nearer the Prairie centres of distribution than are the Coast districts.

Cultural Practices and Varieties

Cultural practices probably do not vary a great deal from other small fruit growing areas in Canada but a brief summary of these might be of interest.
An excellent patch of Magoon Strawberries near Victoria B.C. Note the mulch of straw. This was the first crop, and the yield went over 4 tons to the acre. Photographed June 5th, 1926.

**Strawberries.** Strawberries are mainly grown on the hill system. Spring planting is recommended and the plants are usually set 18 inches apart in the row, and the rows 3 feet apart. This gives approximately 10,000 plants per acre. Most of the planting is done during April.

As soon as the blossoms show up generally over the patch, it is the custom to cut off all the bloom and no fruit is allowed to develop the first year. One cutting is usually sufficient. All runners are also kept cut off from the plant, except those plants which are to be utilized for propagating young plants for the next year. It is necessary to cut the runners about five times during the season. The plants are kept well cultivated and hoed during the growing season.

It is particularly desirable to send the plantation into the winter in a clean condition, because the spring on the Coast is usually early and sometimes the rainfall is such that work on the land is not possible but weeds and grass grow at a rapid rate.

The second year cultivation is kept up until the plants are in bloom, and then the plantation is "strawed." A mulch of straw is scattered between the rows and the straw placed under the fruit clusters. The mulch aids in keeping the fruit clean, it makes picking conditions very much more cleanly for the pickers and helps to conserve moisture. About 1½ or 2 tons of straw per acre is required.

The picking season at the Coast usually runs from the last week of May to the first week in July. Some years the season is shorter.

After the crop is harvested the plants are cut down and leaves allowed to dry for a few days and then the straw and tops are raked up and hauled off. Some growers use this material for bedding for stock during the winter and some stack it and use it the next year. Cultivation is started again and the plants put in good shape for the next year.

All strawberries are shipped in the 24 deep pint crate. About 50%
of the crop is usually shipped to the Prairie Provinces, and 50% sent to the jam factories. All jam berries are picked and hulled in the field and placed in 25 lb. pails which are supplied by the jam factories.

The prices received by the associations on Vancouver Island averaged $3.08 per crate for berries shipped to the prairies in carload lots in 1925 and the price for jam berries was 10c per lb. These were higher than they have been for some time. The price for jam berries was 11c per lb. in 1926, but the Prairie price will only average about $2.50 to the Associations.

It is usually possible to harvest from two to three good crops.

The strawberry root weevil is the chief pest, and sometimes this insect will destroy a plantation the first year. The latest means of control recommended is the use of a poison bait.

The chief variety grown for shipping is the Magoon, while the Marshall, Senator Dunlap and Parson's Beauty are grown to a certain extent. A good average yield of Magoons would be about 3 tons per acre. Some 1 year old patches went over 4 tons this year.

Raspberries. The culture of raspberries in B. C. is very similar to the general culture of raspberries in any district. Plantings are usually made about 24 inches to 30 inches apart in the row and the rows from 6 to 8 feet apart.

Some growers practice a heading back of the canes and tying them to the wires, allowing the new canes to come up in the centre, while others adopt a system of twining the bearing canes along the wires, where the growth averages about 8 ft. high and this height is not unusual.

The Cuthbert is the main variety grown and is shipped from the Lower Mainland district in carload lots to the Prairie Provinces. A portion of the crop always goes to the canneries and jam factories. In some years Cuthbert suffers from winter injury but on the whole it is the most satisfactory variety to grow.

Loganberries. This fruit is one with which the growers of the East are not very familiar. It is essentially a Pacific Coast berry and originated in California. For a time it was supposed to be a cross between a raspberry and a blackberry, but the most recent publication of the U. S. Department of Agriculture claims that it is a true species of trailing blackberry and they give it the name of the Logan blackberry. However, the common name of loganberry still remains in general use.

Regarding the culture of loganberries, the general practice is to plant "tips" in the Spring of the year in rows 8 to 10 feet apart and the plants set from 8 to 10 feet in the row. Sometimes the "tips" are planted in a nursery row in the Spring and the transplants or one-year-old plants can be set out in the Fall or in the following Spring.

It is a customary practice to cut back the new growth on logans at the end of the first year so that they will not produce any fruit and all the energy of the plant goes into building up a good strong crown and good canes the second year.

At the end of the second year it is the usual practice to put in posts about every 30 feet in the row and to string two strands of wire, one
A fine patch of Loganberries in the Saanich district near Victoria, B.C. Photographed July 7th, 1926. At this date, over 3 tons of fruit per acre had been harvested, and the crop was only about half over.

about 5 feet from the ground and one about 3½ feet.

The canes are usually allowed to remain on the ground all winter and are put up on the wires in the Spring.

At the end of the picking season the old canes are removed and burnt.

The loganberry is not a good fruit to ship fresh, and up till 1923 practically all the fruit went to the jam factories or canneries. In that year the price was low and some growers were quite discouraged as to the future prospects for the loganberry. However, a new development took place that season; loganberries were used for making wine and the product was sold to the Liquor Control Board.

The Growers' Wine Co., which was organized in Victoria, used 15 tons of logans in 1923; this increased to 50 tons in 1924, 125 tons in 1925, and this year over 200 tons will be used by the company in the manufacture of loganberry wine.

Wine has also been manufactured on the Lower Mainland.

Growers are now more optimistic about the future of this fruit. The price paid by the Wine Company this year was 8c per lb. An average yield would be about 3 tons per acre, but some patches will go 6 tons to the acre.

The loganberry will not stand zero weather.

Blackberries. This fruit is not extensively grown. On Vancouver Island the chief variety grown is the Himalaya Giant, which is a very strong grower of the trailing type of blackberry. It is not uncommon to get a growth of 20 to 40 feet in a single season. The Himalaya, like the loganberry, is fairly tender and will not stand zero weather.

On the Lower Mainland another type of trailing blackberry, known as the Evergreen, is grown to quite an extent. Also a type of thornless bush blackberry is grown on quite a large scale. Other varieties such as
Snyder and Taylor are grown in a more limited way.

**Currants and Gooseberries.** The method of growing these fruits is very similar to the general cultural practices recommended.

In conclusion it can be said that small fruit production in B.C. forms a very important part of the Horticultural industry of the Provinces and it should show a gradual increase in acreage and production in the years which are ahead.

### The Combined Reaper-Thresher

The experience of three seasons at the Swift Current, Sask., Dominion Experimental Station indicates that the combined reaper-thresher can harvest and thresh wheat at a much lower cost per acre than can the binder and grain separator. In his annual reports for 1922, 3 and 4, the Superintendent, Mr. J. G. Taggart, records results of experiments and in his report for 1925 he deals with the matter comprehensively. Not only does he tell of the experience at the Station, but states that nine questionnaires returned from operators or reaper-threshers show an estimated average saving over binding, stooking and threshing of 15.6 cents per bushel. In two cases the machine cut and threshed for the cost of cutting and stooking. In only one case was there enough sawfly damage to make any difficulty and that was partly overcome by the use of lifting guards.

Summarizing results the report for 1925 says (1) the combine can be used to harvest wheat in districts where crops ripen early and fields are reasonably level, and that it has been used successfully and economically to harvest flax, and that one operator reports its use on oats; (2) the wheat crop must be allowed to ripen to such a degree that the average moisture content is below 15 per cent before cutting with the combine is started; (3) no serious loss from shelling has occurred during the ten to fifteen day ripening period; (4) the only important loss in any year resulted from the failure of the combine to pick up wheat that had been cut by sawfly and was blown down while the crop was ripening, and this was partly obviated by cutting with the binder; (5) crops that have been injured by sawfly, or that contain bulky weeds such as Russian thistle or pigweed, are not handled satisfactorily with the combine; (6) clean crops, either short or tall, and heavy tangled crops have been handled more satisfactorily with the combine than with the binder; (7) dependent upon yields per acre and other factors that may affect the speed of operation the saving effected by the combine over the binder and separator is 10 to 15 cents per bushel.
An Amusing Incident With a Bear


It was during the wonderful days of Indian Summer in the North Country. The leaves had taken on their vivid autumn hues and the scent of the pines was wafted hither and thither on every breeze.

We happened to be splitting logs in a little clearing some distance from camp. The head flew off the mall, striking Jake, one of the lumberjacks, on the ankle. The bruise became very much swollen and painful, and it was necessary to leave everything and get the injured man back to the camp doctor as soon as possible. The mall head was strung on a piece of twine, and tied to a low branch of a nearby tree, to be called for at a later date.

On Sunday, a week or so later, being a fine day, and Jake's ankle nearly well, we decided to tramp over the scene of the accident and bring back the mall.

We set out. After an hour's enjoyable tramp through the bush we neared the clearing where we had been working. Jake, happening to glance ahead, stopped short and motioned me to be quiet. Curious, I looked ahead and saw, through a break in the branches, a large brown bear impudently examining our mall hanging by the string to a low branch. Realizing somehow that we were going to see something worth while, we remained quietly, hidden behind the bushes fringing the clearing.

The bear began experimenting with what he no doubt thought was some new insect. He put up his paw and gave the mall a smart tap; it swung away from him, but came back quickly and dealt him a rap on the nose. I never saw a more surprised bear in all my life. He gave it another rap, harder this time; the mall only returned him a harder rap on the nose. After receiving a number of such raps on the nose he became cute enough to dodge the mall on the back swing. However, he only fooled himself by letting the mall swing by, because the mall swung back the other way and rapped Bruin on the back of the head. A few like results sufficed to make him mad and he took a swing at the mall as if he were going to knock it over the horizon. The mall disappeared amongst the leaves, whereupon the bear appeared much satisfied. However, his satisfaction was short-lived for the mall suddenly appeared on the opposite side of the limb and landed on the back of his head. This was enough for poor Bruin who decided that he had had enough of a cowardly bug who hit him when he wasn't looking. He took to his heels, followed by our roars of laughter.

We emerged from our hiding place, untied the mall, and set out for camp to tell the rest of the boys.
A GOLD medal has been awarded, by the American Rose Society, to the “Agnes” rose, originated at the Experimental Farm at Ottawa. This medal is called the Walter Van Fleet Gold Medal, and is contributed by Mrs. James Lyman, sister of the late Dr. Van Fleet, the noted plant breeder, attached to the Department of Agriculture at Washington. The medal is awarded by the American Rose Society and was accepted by them on May 31st, 1923. The medal was to be awarded for an American originated rose that could be termed an outdoor rose. The awarding of the medal has been delayed until the present year, when it was given to the Agnes rose as the occasion of a banquet given by the citizens of St. Thomas on the evening of July 2nd to the American Rose Society pilgrimage. The presentation was made by Mr. F. L. Aikins, of Rutherford, New Jersey, President of the American Rose Society, in the presence of Mr. W. E. Saunders, of London, Ontario, son of the late Dr. William Saunders, the originator of the rose. The medal was received by Mr. M. B. Davis, of the Horticultural Division of the Experimental Farms, representing the Department of Agriculture. Mr. Aikins in presenting the medal, referring to the originator, called attention to the excellent work accomplished by the late Dr. Saunders in pioneer plant breeding. He claimed that the Agnes rose is the only rose of its colour known and considers it a distinct acquisition to the list of hardy roses.

The Agnes rose is a cross between Rosa Rugosa as the seed parent and Persian Yellow as the pollen parent. The cross was made by the late Dr. Wm. Saunders at the Central Experimental Farm, Ottawa, about the year 1900. It bloomed first in 1902 and has been under test at Ottawa ever since and although never protected during the winters of that time it has never been noticeably injured by weather. The habit of the plant and the texture and colour of the leaves somewhat resemble Rosa Rugosa. The flowers, double and pale amber in colour, are borne singly and in great confusion. The originator described it as pale yellow, the outer petals having a delicate creamy salmon hue. It is fragrant and blooms early, but only once in the season. Because of its extreme earliness, great hardiness, and distinct and attractive colour of the flowers this variety should prove a valuable addition to the roses of the Rugosa group. The Rugosa hybrid roses are among the most satisfactory for the colder parts of Canada and the United States, but the range of colour in the flowers of this group has been very limited. It is hoped, however, that before very long we shall have Rugosa hybrids retaining the fine glossy disease-free foliage of the species, but of many more shades of coloured bloom. The Agnes rose introduces a desirable new colour in this interesting group. Mr. W. T. Macoun, the Dominion Horticulturist, announces that the Experimental Farm has a few plants of this rose available to those who care to obtain them.
A Proposed Revision of Dairy Barn Score Cards

Donald Bethune Shutt, Bacteriological Dept. Ontario Agric. College.
Introduction by G. L. Ruehle, Michigan State College

WHILE the use of a score card as the sole system of judging the quality of milk is to be deplored, there are occasions when its use is justifiable. Such an occasion arose last Spring while Mr. Shutt was taking graduate work with the writer. The managing head of a milk plant in Michigan requested that someone be sent to his plant for the purpose of inspecting and scoring the dairy farms supplying milk to the plant. He was assured that what he needed was a bacteriologist who could examine the milk itself. He answered that he expected to do this later, but he wanted a preliminary survey made by the score card method, as he was just starting in as manager of the business and wanted to quickly appraise the sanitary condition of the farms supplying milk to the factory. Mr. Shutt was sent. Before going, the official card was gone over carefully, and such changes made as were thought desirable. After using the modified score card, further changes were found desirable and are embodied in the present paper.

During the past twenty years there have been many attempts to develop score cards for the inspection of dairy farms and dairy plants of various kinds. Within recent years there seems to have been a tendency to select the score card which was devised by a committee of the Official Dairy Instructor's Association and which is used by the United States Bureau of Animal Industry.

The farmers have a right to expect and demand that if a score card is to be used to determine the fitness of their methods and equipment for the production of milk, that it be revised from time to time to make it conform to the results of research work or experience. In as much as a great deal of work has been done since the last official score card was devised and no revisions have been made in recent years, the card as at present constituted is obviously out of date and in need of revision. In this paper the writer hopes to indicate some of the more obvious changes which seem desirable. It is hoped that others will interest themselves in this work and that revisions will be made frequently, so that the scores as determined in inspections shall represent judgment based on the latest scientific knowledge.

During the spring of 1923 the writer was requested by a large milk plant to make a survey of conditions upon farms supplying milk to them. The object in making this survey was not to judge the quality of the milk supply but rather to obtain accurate data concerning the equipment in use and the methods employed. The quality of the milk was to be determined later by a bacteriologist at the plant.

To accomplish this work to the satisfaction of all concerned it was deemed advisable to use some form
of score card as a standard of comparison and as the writer was not satisfied with the official score card, another was drawn up and used. It was felt that the official score card tended to favor equipment rather than methods and that the final score card as based on both equipment and methods gave no indication of the true state of affairs. Therefore a temporary score card was prepared. In this an attempt was made to embody the ideas of the writer and Professor Ruehle as to the present knowledge of dairy sanitation, especially the viewpoint that methods are more important than equipment. Both the official and the revised cards (appended) were used for the inspection of 201 farms in Michigan and the results compared.

From the experience gained with these cards it was found that the final scores were misleading with both cards, in that it was possible to obtain the same final score with either good equipment and poor methods or poor equipment and good methods. With this criticism in mind it was felt that a separation of the two scores was desirable or even necessary from many points of view and that instead of a final score on both equipment and methods a separate score for each be obtained. It was also felt that some further change was necessary in the weighings, or individual scores, which had been assigned in the previous score card. These changes were therefore made with the results shown in the appended score cards, one for the sanitary inspection of dairy farm equipment and the other for the sanitary inspection of dairy farm methods, both being based on a total of 100 for a perfect score.

With such a set of cards it should be possible to be perfectly fair to the dairy farmer who is producing a high grade of milk with a very meagre equipment which he may have inherited, or which he is unable to alter on account of being a tenant farmer. On the other hand, it will be possible to give recognition to the farmer who has the equipment which is deemed desirable.

It is unfortunate that the general opinion among dairy inspectors with respect to scores for dairy barns seems to be that a final composite score, which is made up of a score on methods and one on equipment is essential and that the two scores should be on one card for the purpose of filing. If this is desirable the writer suggests that the final score be computed from the individual scores of equipment and methods somewhat as follows:

- **Equipment**: 100
- **Methods**: 200
- **Total**: 300, divided by 3 = 100

This would mean one final score as in the past, but would require multiplying the score of methods by two, adding the result of the two scores and dividing by three.

It is easier for the inspector to score on the basis of percentage and it should prove of great educational value to the farmer to have the outstanding points brought visibly to his attention. With the official card much of the scoring is necessarily done in decimals which tends to minimize the specific criticisms and the educational value is largely lost.

It will be observed that in many respects the wording of the official card has been retained, merely the
weighings or scores of the various items have been changed and that these changes have been made largely on the score card for methods. Daily exercise for cows has been recognized on the new card and not on the old. This is undoubtedly of value in maintaining the health of the animals. Other changes occur with respect to the handling of the milk.

It must be admitted that these new cards have not yet been used in actual scoring and it is entirely probable that still further changes may be necessary when put to use. Experience has convinced the writer, however, that changes in the official card are desirable if a score card is to be used at all, since the score cards most in use fail to reflect the results of research on milk sanitation. The writer does not believe that any score card can be devised which will indicate accurately the safety of the milk for consumption. Proper methods of pasteurization must be relied upon for this purpose and then only when the process of pasteurization is efficiently controlled by intelligent inspection and supervision. Score cards should never be used for the sole purpose of deciding whether milk is to be accepted or rejected by the milk plant or to be sold in the city. The only justification for their use is as a means of educating the dairy farmer and assisting the inexperienced inspector to look for probable sources of factors which harm the keeping quality of the milk.

In conclusion the writer is fully aware of the many advantages of the official score card, and, not the least of which is its quite general use over the whole country. This enables comparisons to be made between different localities and many inspectors will therefore feel loath to accept changes which might result in the loss of this advantage. This feeling, however, should not be allowed to interfere with changes suggested by the results of newer research. In any field of endeavor changes must be made from time to time if there is to be any progress. These changes are therefore submitted for the purpose of promoting discussion with the hope that some real progress may result.

Acknowledgements

The writer is indebted to the following for valuable criticism and advice: Mr. H. R. Estes, B. S., Dairy and Food Inspector for Flint, Michigan; Dr. W. H. Price, Detroit Creamery; Mr. T. H. Broughton, Director of Dairying, State of Michigan, and to Professor G. L. A. Ruehle, Michigan State College, whose valuable assistance made this paper possible.
Sanitary Inspection of Dairy Farms

SCORE CARD

Indorsed by the Official Dairy Instructor’s Association.

Owner or lessee of farm:

P. O. Address:

Total Number of Cows:

Gallons of Milk Produced Daily:

Product sold by producer in:

For “Milk Supply of:

Permit No.:

Date of Inspection:

EQUIPMENT

Score

Perfect Allowed

METHODS

Score

Perfect Allowed

Cows

Healthy

1

Clean

1

Stables

Allotted

5

Stable at milking time...

5

Health

1

Free from visible dirt, 6)

1

Apparent in good health...

1

Cleanliness of stable...

1

If tested with tuberculosis with...

5

Clean...

1

a year and no tuberculosis is...

1

Clean...

1

acting animals are found and...

3, 1

Removal of manure daily to...

1

Provision for light: Four sq. ft. of...

1

Cows

Bedding

1

Sterilized in steam for 15 minutes...

1

Well drained...

1

Removal of manure daily to 50 feet...

1

Ventilation

7

Protection from contamination...

3

Provision for fresh air, controllable...

3

Cleanliness of milking...

9

Construction of stable...

4

Protection from contamination...

3

Light, ventilation, screens...

1

Clean, dry hands...

1

Construction and condition of utensils...

1

Udders washed and wiped...

6

Water for cleaning...

1

Milk removed immediately from...

2

Small-top milking pail...

1

Cooled immediately after milking...

2

Milk cooler...

1

Cooled below 50° F...

3

Clean milk suits...

1

(51° to 55°; 4: 56° to 60°, 2.)

Milk Room or Milk House

Location: Free from contaminating surroundings...

1

Separate rooms for washing utensils...

1

Compilation of space per cow, 500 ft...

1

Location: Free from contaminating surroundings...

1

Construction of milk room...

1

Cubic ft. of space per cow, 500 ft...

3

Construction and condition of milk room...

1

Provision for steam...

1

Floor, walls and ceilings...

1

Separate rooms for washing and handling milk...

1

Light, ventilation, screens...

1

Facilities for steam...

1

(51° to 55°; 2: 50° to 60°, 1.)

(Signed)

Inspector.

Note No. 1.—If any exceptionally filthy condition is found, particularly dirty utensils, the total score may be further limited.

Note No. 2.—If the water is exposed to dangerous contamination, or there is evidence of the presence of a dangerous disease in animals or attendants, the score shall be 0.

Remarks

Equipment + Methods = Final Score
# Sanitary Inspection of Dairy Farms

## SCORE CARD

<table>
<thead>
<tr>
<th>OWNER OR LESSEE OF FARM</th>
<th>P.O. ADDRESS</th>
<th>ADDRESS</th>
<th>PROVINCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of Cows</td>
<td>Number Milking</td>
<td>Gallons of Milk Produced Daily</td>
<td>Product is sold by Producer in Families, Hotels, Restaurants, Stores to Dealer For Milk Supply of</td>
</tr>
<tr>
<td>PERMIT NO.</td>
<td>DATE OF INSPECTION</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EQUIPMENT</th>
<th>PERFECT</th>
<th>ALLOWED</th>
</tr>
</thead>
<tbody>
<tr>
<td>COWS</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Ker</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>If tested with tuberculin with a year and no tuberculosis is found, or if tested within six months and all reacting animals removed</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>(If tested within a year and reacting animals are found and removed, 3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STABLES</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Location of stable</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Well drained</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Free from contaminating surroundings</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Construction of stable</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Thoroughly clean floor and proper gutter</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Smooth, tight walls and ceiling</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Provision for light: Four sq. ft. of Stables</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Three sq. ft., 2 sq. ft., 1 sq. ft.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Deduct for uneven distribution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BEDROOM</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Ventilation</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Provision for fresh air and controllable the system</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>(Windows hinged at bottom, 1.5; sliding windows, 1; other openings, .5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cubic ft. of space per cow, 500 ft.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>(Less than 500 ft., 2; less than 400 ft., 1; less than 300 ft., 0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UTILITIES</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Construction and condition of utilities</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Water for cleaning</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Clean, convenient and abundant</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Small-top milking pail</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Milk Cooler</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Clean milking suits</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>MILK ROOM OR MILK HOUSE</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Location: Free from contaminating surroundings</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Construction of milk room</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Floor, walls and ceilings</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Light, ventilation, screens</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Separate rooms for washing utensils and handling milk</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Facilities for steam and hot water</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

## Final Score

**Equipment + Methods = Final Score**

Note No. 1—If any exceptionally filthy condition is found, particularly dirty utensils, the total score may be further limited.

Note No. 2—If the water is exposed to dangerous contamination, or there is evidence of the presence of a dangerous disease in animals or attendants, the score shall be 6.

Remarks

(Signed).... Inspector.
# Sanitary Inspection of Dairy Farm Equipment

**SCORE CARD**

**Owner or lessee of farm:**

**P. O. Address:**

**Province:**

**Total Number of Cows:**

**Number Milking:**

**Gallons of Milk Produced Daily:**

**Product is sold by Producer in Families, Hotels, Restaurants, Stores to:**

**Dealer**

**For Milk Supply of:**

**Permit No.:**

**Date of Inspection:**

## EQUIPMENT

<table>
<thead>
<tr>
<th>Cows</th>
<th>PERFECT</th>
<th>ALLOWED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>Apparently in good health</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>If tested with tuberculin with a year and no tuberculosis is found, or if tested within six months and all reacting animals removed</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>If tested within a year and reacting animals are found and removed</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Food (clean and wholesome)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Water (clean and fresh)</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

## Stables

| Location of stable | 1 |
| Well drained | 1 |
| Free from contaminating surroundings | 1 |
| Construction of stable | 7 |
| Tight sound floor and proper gutter | 3 |
| Smooth, tight walls and ceiling | 2 |
| Proper stall, tie and manger | 2 |
| Used for cows only | 3 |
| Provision for light: Four sq. ft. of glass per cow | 4 |
| Three sq. ft., 2 sq. ft., 1 sq. ft., 1. Deduct for uneven distribution. | 4 |
| Bedding | 2 |
| Provision for fresh air, controllable flue system | 7 |
| (Windows hinged at bottom, 1; sliding windows, 1; other openings, 0.5.) | 7 |
| Cubic ft. of space per cow, 500 ft | 3 |
| (Less than 500 ft., 2; less than 300 ft., 1; less than 300 ft., 0.) | 3 |
| Provision for controlling temperature | 1 |

## Utensils

| Construction and condition of utensils | 5 |
| Water for cleaning: Clean, convenient and abundant | 4 |
| Small-top milking pail | 3 |
| Milk cooler (efficient), ice or equivalent | 7 |
| Clean milking suits | 4 |
| Proper storage | 2 |

## Milk Room or Milk House

| Location: Free from contaminating surroundings, and convenient | 7 |
| Construction of milk room | 10 |
| Floor, walls and ceilings | 5 |
| Light, ventilation, screens | 5 |
| Separate rooms for washing utensils and handling milk | 1 |
| Facilities for steam | 10 |
| Boiling water | 7 |

**Total** | 100 |
# Sanitary Inspection of Dairy Farm Methods

## SCORE CARD

<table>
<thead>
<tr>
<th>Owner or lessee of farm</th>
<th>P. O. Address</th>
<th>Province</th>
<th>Total Number of Cows</th>
<th>Number Milking</th>
<th>Gallons of Milk Produced Daily</th>
<th>Product is sold by Producer in Families, Hotels, Restaurants, Stores to</th>
<th>Dealer</th>
<th>For Milk Supply of</th>
<th>Date of Inspection</th>
<th>Permit No.</th>
</tr>
</thead>
</table>

## METHODS

<table>
<thead>
<tr>
<th>Cows</th>
<th>Clean (Free from visible dirt, 10)</th>
<th>Daily exercise</th>
<th>15</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stables</td>
<td>Cleanliness of stable</td>
<td>Floor</td>
<td>Walls and windows</td>
<td>Ceilings and ledges</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Milk Room or Milk House</th>
<th>Cleanliness of milk room (Cut heavily if used for any other purpose)</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utensils and Milking</td>
<td>Clean and cleanliness of utensils</td>
<td>Thoroughly washed</td>
</tr>
</tbody>
</table>

| Handling the Milk | Cleanliness of attendants in milk room | Milk removed immediately from stable without pouring from pail | Cooled immediately after milking each cow | Provision for cooling to 50° F. within 1 hour after milking | Provision for maintaining temperature during storage and transportation at 50° F. | Milk delivered at 50° F. or below | (If delivered twice a day, allow perfect score for storage and transportation.) |
|-----------------|--------------------------------------|---------------------------------|----------------------------------|--------------------------------------|----------------------------------------|-----------------------------|
|                 | 2 | 3 | 2 | 6 | 6 | 6 |

<table>
<thead>
<tr>
<th>Total</th>
<th>100</th>
</tr>
</thead>
</table>
Rose Cultivation

Canada is fast becoming a Rose Country and great strides are being made

By Prof. A. H. Tomlinson.

Soil for Roses

A depth of soil eighteen inches to two feet deep is first-rate. There is no special need for more than this. Rose roots do not usually go down below a depth of 18 inches. If it is a question whether deep trenching is necessary or not always it is wiser to have a fair depth of soil in making a rose plantation. The soil deeper down, if brought to the surface, eventually becomes quite fertile. But deep trenching, although frequently done, is not necessary. Gravelly soil, or light sandy soil, may be built up with barnyard manure and semi-composted leaves. Such may be used together or alone.

Planting and Pruning

At planting time in fall or spring it must be remembered that the roots must be spread out in the best soil procurable, and plant deep enough so that all the roots are covered as well as the bud or graft union, if such be not too high from the roots. But deep planting for bush forms must be avoided. With tree or standard roses, if on briar stocks, fairly deep planting is necessary. Rose roots must not be exposed to wind or sun and planting must be immediate, and if needed water must be supplied. Fairly hard cutting back should be done when transplanting in the spring, but not in the fall and shoots cut back to a strong bud or eye. In the fall only dead and weak wood may be removed.

Summer Pruning and Cultivation, Fertilizers, Watering

Summer pruning of roses is essential for best results. Old flower heads should be cut away, always along with any dead growth or weak shoots. Old flowering shoots, especially early in the season, immediately after the flowers have done, should be cut back to a strong, prominent bud. With Teas and H. T.'s, and possibly Hybrid Perpetuals, new flowering wood will at once come about. When this is done a quick acting fertilizer, as Nitrate of Soda, Acid Phosphate or blood manure, 1 oz. to the square yard, should be distributed over the surface. It may be wise to well water the rose bed after the fertilizer is applied; that is, if the season be dry and the roses are suffering. During the growing season roses should never be allowed to suffer for lack of moisture at the root. The writer suggests that, except in very hot weather, rose bushes should never be watered late at night—early morning or early afternoon are the best periods. Roses should never be watered during a cold spell. Mildew and fungus diseases spread rapidly under cold, moist conditions. Deep cultivation for roses is unwise. Rose roots are largely surface feeders and forking is dangerous. Shallow hoeing is the best practice.

Transplanting Old Plants

If roses show signs of weakness and it is found that feeding and every care does not bring about results, it may be necessary to dig up the plants in
the fall or spring and cut away old root sections and replant in an entirely new spot or in the old place with new soil. It is true that some rose bushes have been in the same place for decades and are as healthy and vigorous as ever. These do not need a change at all.

**Choice of Stocks for Roses**

It is taken for granted that certain stocks are especially suited for certain rose varieties, although, it is frequently admitted that Hybrid Perpetuals flourish best on Manetti stock and the Tea forms on Briar. Rosa rugosa and R. Multiflora are also used. It must be borne in mind, however, that it is possible for Manetti stock to be short lived in contrast to other stocks. For exhibition purposes roses on Manetti stock may be chosen because it enables the plant to produce big blossoms more readily than other stocks. Roses on Manetti, which have been grown for a season simply to produce exhibition flowers and then sold for general garden purposes, are not the best stock to purchase.

**General Pruning**

Fall pruning is not necessary except with dead or superfluous wood. Cutting back is not in order until spring. It is better to allow the winter to do what heading back it may and then pruning can take place. Severe cutting back of weak bushes is required, but young, strong, healthy growth need not be cut back very much and more flowers will follow if they remain. In summer staking of Hybrid Tea and Hybrid perpetual growth may have to be done, but in some cases the growth may be bent over towards the ground and supported eighteen inches or two feet above the ground. With climbers, only cutting out of dead and old wood is necessary. Strong, healthy shoots should simply be stopped. The writer believes that it is a pity in the spring to cut back strong, healthy vigorous shoots, of bush or climber, which have stood the winter. If such have to be cut back, why protect?

**Sucker Growth**

Special attention must be given budded or grafted roses in the growing season. Old growth below the union is superfluous and should be cut away. Stock growth has seven leaflets or more which make up the compound leaf. Hybrid Teas, Perpetuals and Pernetianas have five leaflets, infrequently seven and three, and the so-called Rambler type, as Wichuriana and Multiflora have seven leaflets and more. Budded stock of these must be watched very closely. Superfluous sucker growth should be cut right back to the main stem.

**Ground Cover Plants**

Many like to plant in the rose beds dwarf flowering material as Pansies and Violets. These, no doubt, are the best, especially if seed pods be picked off and about August the plants cut back somewhat. This will cause a tufted plant to form which will thrive much better the next season than straggling forms. Other plants may be used as Forget-me-nots, dwarf Antirrhinums, or, for that matter, any dwarf annual. Spring flowering bulbs, as Snowdrops and Crocus are often planted. At the College last year the Viola family was a huge success.

**Preparing for Exhibition**

The foregoing points all tend to help in bringing about best results whether for exhibition purposes or not. Superluxuriant growth will not likely pro-
duce flowers with lasting qualities, so that an over supply of liquid manure or soluble nitrates is unwise. Always it is the strongest shoots that should remain, either for this season's flowering or for next, and the early cutting away of weak and superfluous growth is wise. As the flower buds develop, especially with Hybrid Perpetuals, a thinning of buds is necessary. Usually a crown bud is left, but the thinning of buds must be gradual. Perhaps the scissors is the best instrument for this purpose, but it may be done with finger and thumb. Decorative types need not be thinned very much. Dis-budding is governed somewhat by weather conditions and date of the exhibitions. Very early thinning or dis-budding may cause flowers to open too soon and late dis-budding the opposite. Not much thought is usually given to thinning or dis-budding, but at least some attention should be. The writer believes with some blossoms, especially where exposure to hot sun prevails, that tying the buds with soft white wool is worth doing. This tie should only be removed just prior to the judging of exhibits. “Tying” the rose bud will frequently prepare for the exhibition a perfect blossom which otherwise would be fully blown. Aiding flowers in opening is likely best done by blowing in the centre and between rows of petals. Every care must be taken, however, and in forcing of the petals one must not interfere with the natural form and shape of the roses. Roses that possess pointing-in petals that have been turned back may bring about failure from the judge’s standpoint. It may be wise to cut advanced flowers a day or so before the show, either morning or night and place in water in a somewhat cool spot. In some instances, to push flowers, the day before the show, backward blossoms may be cut and placed in tepid water in a warm, bright situation. It is best always to avoid extremes of heat and cold, both with water and with storage places, that is for roses grown out-of-doors and required for exhibition purposes. It is not wise to cut flowers when moist with dew or rain unless handled very carefully. The bruising of damp petals is easily done. For exhibition a rose must have reached its best possible phase of beauty.

Staging

According to rose varieties and classes, boxes and vases are made use of. In each case the rose shaft and foliage should be placed to look its best. With boxes, high staging is unwise, never more than 6 inches in height and, in fact, usually it is better to have the blossoms and foliage quite close to the moss on the board. But gradation should take place, especially with large exhibits, thus the back rows should be 6 inches, the middle rows medium and the front rows less. Bare stems or heavy foliage should be avoided. It is best to place the darker shades at the back and the lighter ones in front. With vases longer stems, according to variety and types, must be considered. Arrangement must always count. Except in special cases rose foliage is sufficient and the introduction of other foliage is not necessary for the usual rose exhibit. The writer does not like the use of common garden asparagus with roses. The beauty is not enhanced, but spoiled. In some instances Maiden Hair fern and Asparagus plumosa may be introduced, but ordinarily not.

Protection

In the winter a covering of strawy
manure, hay litter, or dry leaves is required to protect roses from drying winds and direct sunshine. Firstly, to prevent the winds from causing evaporation, and, secondly, in late winter and early spring, in delaying the flow of sap. Growth, if exposed to sunshine will likely become frozen after a thaw; therefore, it is a matter of protecting from drying winds and sun's rays, more so than protection directly from frost. For climbing roses evergreen boughs are amongst the best things to use in protecting. Heavy wet covering should never be used.

[Some cuts of the roses at the O.A.C. will appear in the next issue.—Ed.]

**Plant Registration Regulations**

A SLIGHT modification has been made in the regulations governing plant registration carried on by the Canadian Horticultural Council. The changes were agreed upon at a meeting of the Plant Registration Committee held in Ottawa on the 24th of June, when representatives from Prince Edward Island, Quebec, Ontario, Manitoba and British Columbia were present. During the three years that the registration bureau has been in operation, about one hundred plants have been recorded and a few fully registered. The experience gained during this period enabled the committee to deal with the question in a thoroughly practical way.

As was brought out at the meeting the term "recording" has been frequently misinterpreted, as in many cases a certificate of record was taken as an assurance of a superior quality. In order to overcome this difficulty it was agreed that the present certificate of record be no longer issued, and that when application for recording of a new plant has been accepted by the Plant Registration Committee the applicant will be advised of the acceptance by letter only. When a new plant has thus been accepted for record it will then be submitted to the further study provided for in the regulations for full registration. The following recommendations were unanimously passed:

1. No certificates of record will be issued;
2. Upon the recommendation of any recognized horticultural organization, the Council will grant an award of merit certificate for any plant recorded with the Plant Registration Bureau;
3. The fact of the award of this certificate will be taken into consideration, together with the records of tests, when determining the merits of a plant, with a view to registration.

**Conclusion**

In finishing this dissertation it may be said that rose growing is not easy. Much thought concerning varieties, soil conditions and situation is necessary, but, successful results may be obtained. To grow the more tender roses care is needed. After all the rose is worth every consideration. It is not only beautiful but its place in tradition and history is unequalled. In spite of adversity from time to time and threatenings of almost eradication, in roses we find every year better and more beautiful blossoms than ever before.
Migratory Birds Convention Act

A SUMMARY of the Migratory Birds Convention Act is given below. This is the law which is based upon the Treaty with the United States. Any enquiries concerning this law may be addressed to the Commissioner of the Canadian National Parks, Department of the Interior, Ottawa.

Open Seasons
Both Dates Inclusive.
Ontario—Ducks, Geese, Brant and Rails. Sept. 1-Dec. 15.

Closed Seasons
There is a closed season throughout the year in Ontario on Band-tailed Pigeons, Eider Duck (the latter may be taken during the open season in that portion of Ontario, north of the Quebec Cochrane, Winnipeg line of the Canadian National Railway), Swans, Cranes, Curlews, Willets, Godwits, Upland Plover, Black-bellied and Golden Plover, Avocets, Dowitchers, Knots, Oyster Catchers, Phalaropes, Stilts, Surfbirds, Turnstones, and all the shore birds not provided with an open season in above schedule.

There is a closed season throughout the year on the following non-game birds:—Auks, Auklets, Bitterns, Fulmars, Gannets, Grebes, Guillemots, Gulls, Herons, Jaegers, Loons, Murres, Petrels, Puffins, Shearwaters, and Terns; and there is a closed season throughout the year on the following insectivorous birds:—Bobolinks, Catbirds, Chickadees Cuckoos, Flickers, Fly-catchers, Grosbeaks, Hummingbirds, Kinglets, Martins, Meadow-lark, Nighthawks or Bull Bats, Nuthatches, Orioles, Robins, Shrikes, Swallows, Swifts Tanager, Titmice, Thrushes, Vireos, Warblers, Waxwings, Whippoorwills, Woodpeckers and Wrens, and all other perching birds which feed entirely or chiefly on insects.

No person shall kill, hunt, capture, injure, take or molest migratory game birds during the closed season. Sale of these birds is forbidden.
The killing, capturing, taking, injuring or molesting of migratory insectivorous and migratory non-game birds is prohibited.
The possession of legally taken migratory game birds is allowed until March 31st, following the open season. In Ontario it is an offence to kill or attempt to kill any migratory game bird between sunset and sunrise.

Bag Limits
Ducks 25, but not more than 200 in a season, Geese 15, Brant 15, Rails 25, Greater and Lesser Yellowlegs 15, Wilson’s Snipe 25, Woodcock 10.

Guns and Appliances.
The use of automatic (auto loading), swivel, or machine guns, or battery, or any gun larger than a number 10 gauge is prohibited, and the use of any airplane, power-boat, sail-boat, or night light, and shooting from any horse-drawn or motor vehicle is forbidden.

Penalty
Every person who violates any provision of this Act or any regulation shall, for each offence, be liable upon summary conviction to a fine of not more than three hundred dollars and not less than ten dollars, or to imprisonment for a term not exceeding six months, or to both fine and imprisonment.
EDITORIAL:

Rural American Education

The following material has been sent to the Review Office by the American Library Association. It states that our public school system is not reaching 35 per cent. of rural American boys and girls, and, moreover, it suggests a possible remedy for this startling situation. Read it!

"7,200,000 boys and girls of rural America, between the ages of 6 and 20, are to-day out of school, according to a survey of rural education by the American Library Association, a national advisory body representing 6,800 libraries throughout the country.

Yet for the youth of America there exists to-day an investment of nearly $6,000,000,000 in facilities for formal education, in text books, in buildings, in machinery and equipment. What is the return upon this huge investment, as an index of the national culture of the American people.

A study of the available statistics reveals the fact that while the American system of formal education offers an opportunity to all, it actually produces the following results among an average group of 100 children of school age:

54 are attending public elementary school.
36 are not attending school at all.
7 are attending public high school.
3 are in public night school, vocational school, etc.
2 enter college or university.

Public school education represents the maximum organized education open to the people. Yet this reaches but 64 per cent. of the youth of America, and even this 64 per cent. does not, on the average, receive a complete public school education. The average of these
who go is seven and a half years. College and university education reaches only 2 per cent. of American youth.

In a democracy educated intelligence seems scarcely less necessary in the followers than in the leaders. Upon education largely depends the future of our civilization, the trend of our institutions, the kind of society and the measure of its opportunities under which our sons and daughters and their children shall work and live.

What other means are at hand which will give to our present and future citizens an understanding of life, which will prepare them to function as proficient individuals, constructive producers and intelligent citizens, a task which formal education to-day only partly succeeds in doing.

Aside from the influences of the home, the church, business and society and club, there are five main channels of informal education open to the American people. They are books, magazines, the daily newspaper, the moving picture and the radio.

Two of these, the moving picture and the radio, are largely recreational rather than educational. And while magazines and newspapers make up one of our most important sources for informal education they are of value chiefly to those who are already well begun on the path of education. They presuppose the groundwork of knowledge.

There is one more channel for informal education, that of books. They are the essential link in all education, for in them are embodied all the great aggregations of knowledge. All new knowledge eventually finds its way into book form. They supply knowledge in units; they tell a whole story as no other medium can. And, most important of all, books can furnish, as no other agency, the materials either for beginning an education or continuing its progress at any point.

If books could be brought within the reach of all, together with some form of advice and guidance in ordering and correlating that knowledge, a real contribution to the present problem of national education would be made.

A way that will help toward this lies at hand, a means which can reach the members of that large group who do not or can not attend, or who never finished school. This is the American system of public libraries.

The public libraries are free to all. They possess the necessary organization and experience for furnishing the counsel and direction needed for a wise and orderly progress through the various fields of knowledge. They hold all the essential resources of book knowledge. And the library provides a path to education which need not exclude any other activity but which may accompany it, and make it more valuable.

Yet a survey of American libraries reveals the fact that there are to-day in the United States and Canada more than 51,000,000 people, the majority of whom live in rural communities, who are without access to public libraries. One of the important channels for furnishing an education to the people is out of reach of nearly half of them. To bring the library system within reach of these 51,000,000 people would constitute an important step in the achievement of national education.

The American Library Association is engaged in a programme both to create library facilities for this group and to extend the facilities of established libraries to them through the travelling library and through the mail.

To achieve this end, the diffusion of
knowledge through free books, and the organization of this knowledge through library guidance, a programme of co-operation with every willing public and private agency has been begun. The Association has placed the resources and knowledge of 6,800 American Libraries at the disposal of State Library Boards, and County, Town, Village and City Committees on Education.

Yet the magnitude and far-reaching importance of the work require the co-operation of all for its achievement. The American Library Association, whose headquarters are at 86 East Randolph Street, Chicago, Illinois, therefore asks the co-operation of rural business organizations, of Churches, Chambers of Commerce, of School Boards, of institutions and clubs, indeed of every agency or individual who desires that a broad, free, growing intelligence be spread everywhere in America.'

Former Editor Selected to Fill Important Post

It is not very often that we have occasion to refer to a former editor, except, perhaps, through the Alumni Section, but we feel that special mention should be made of the honor which has been accorded our last year's editor, Mr. H. H. Hannam. Mr. Hannam has been selected as Live Stock Representative of the Canadian Countryman, to succeed Mr. F. Napier, who is joining the Breeder's Gazette, Chicago. The Review wishes him the best of success in his new work. We who have worked under him, know that his industry and perseverance are bound to win anywhere, and we feel sure that his numerous friends will join with us in wishing him the best of good luck.

College Comment

Tradition

Alberta Gateway:—The great thing in this world is not so much where we stand, as in what direction we are moving. Whence are we travelling spiritually and sentimentally, as well as materially.

The world is moving from the ancient idea of regarding human conduct largely by tradition and time-honored custom toward a mode of living adjusted by hide-bound laws and mutual distrust. The honor system is daily marching toward extinction. Many of the grand old traditions of life are becoming faint memories, which are no longer handed down from father to son—c'est domage.

The old tradition of "Alma Mater"—a fostering mother—is, for instance, one which has suffered heavily of recent years. Particular in the West here—where we are "super-progressive"—has the tendency been notable. When the press makes a reference to our Alma Mater, the idea conveyed is that of the physical university; a collection of buildings where one spends four years in preparation for entrance to the school of life. There is little of the splendid old sentiment connected with the term, that there is for the man from old Edinburgh or Oxford.
In his rectorial address to the graduating class of St. Andrew, Sir J. M. Barrie concluded his eloquent and stimulating effort with: "Fight on—you—for the old red gown till the whistle blows." The old red gown! What does he mean? To the men of St. Andrews it means everything that is lofty and idealistic in life. It means courage and sympathy and tolerance; it implies hard work with little thought of recompense; it connotes the finer things of life.

The recent move by the Senior Class in encouraging the wearing of under-graduating gowns in the University of Alberta—our Alma Mater—is to be commended. It is a step in the right direction. This institution is sadly lacking in the philosophic atmosphere of higher learning. We need more of the spirit of tradition in these halls. Customs, free from legal shackles, but enforced by a uniformity of student opinion based on the dignity and nobility of high ideals, should find a place in the U. of A.

Notable Milk Record Made in Bang Herd

The Bang herd, made up of reactors to the tuberculin test at the Central Experimental Farm at Ottawa, and consisting of five Ayrshire cows and one Ayrshire bull and seven Holstein cows and one Holstein bull, made some wonderful milk yields during the year. The Holstein cow, Lady Segis Jewel, produced 26,290 lbs. of milk, containing 835 lbs. of fat, in one year, while during the same period of time the Ayrshire cow, Starlight, of Fredericton, yielded 19,071 lbs. of milk, containing 855 lbs. of fat. By a notable coincidence these are the highest records ever made for these breeds at the Central Farm. Without considering labor and the value of the calves, these cows gave a profit between calvings of $358.96 for the former, and $336.00 for the latter. These records are recorded in the Animal Husbandry Division report, available at the publications Branch of the Department of Agriculture at Ottawa.

Plant Registration

The Plant Registration Committee of the Canadian Horticultural Council has accepted for recording four new plants, including the blackberry "Logarno," the peach, "South Haven," the apple "Reveller," and the tulip "Dean Clement." The blackberry "Logarno" is a thornless loganberry discovered last year in British Columbia. The "South Haven" peach originated as a bud sport. All these varieties will be submitted to thorough test to determine whether they shall be fully registered.
Trail of the ’98—Today

Nita E. Murphy, Normal ’27.

Seven A.M.! So say our watches as we step out on deck this last morning on board ship. Seven A.M.? The sun shining overhead with almost noonday splendour says, "Watches are poor affairs, look at me!" But we, remembering it is June, and we are in Alaska, think for once the sun is wrong and there is still the hope of breakfast.

What a morning! Sunshine everywhere, glistening and sparkling on the smooth calm waters of Lynn Canal. Is it possible that here the angry waves can ever rise to the height of fifty feet? All too true, as a glance at the ship's log will tell us. Overhead the blue-blue sky, seldom seen out of the north, everywhere the sparkling water, and rising on each side the high rugged mountains ending in eternal snows. Not a sound breaks the stillness, not a passing boat, not a house or sign of habitation, we might be floating in space, so unreal it seems. A slackening of speed, long wharves seem to come from nowhere to meet us, and we are in Skagway—the gateway to the North.

Skagway—Indian name, meaning Mud Flats—lives up to its name. Viewed from the mountainside it seems a truly modern city, with its well laid out streets and well placed buildings—two or three banks, apartment houses several hotels and a number of stores in the business section. On the outskirts we see residences of unusual size, five or six churches, two schools, a large hospital, three tennis courts, with club houses, and crossing and re-crossing, in exact city blocks, wooden streets, with a street car line running down the centre of the main one. Through the middle of the city runs the foaming Skagway River, and five long wharves stretch out like arms to welcome the whole world to the Northland. In the background, brooding over all, looms the huge A. B. Mountain, with its A. and B., emblem of the Arctic Brotherhood outlined in snow.

The city looks so attractive from this distance we long to see it near at hand and hasten down. But alas! What appeared a thriving city is in reality a deserted village. Stores and banks closed, side walks broken, windows out or boarded up, wharves, even the one where the historical outlaw, Soapy Smith, met his death at the hands of the North-West Mounted Police, falling into ruin. The street car line proves to be the road bed of the White Pass and Yukon Railroad. Skagway, which grew from a population of two hundred to one of twenty-five hundred literally overnight, when word reached Sitka that a new pass into the Yukon
had been discovered, now fallen back even lower than two hundred with the end of the gold rush.

Trains now run where once the pack horse was the only means of transportation, and we board the puffy little one at the station. Away we go up Main street, across the sparkling river, whose bank we follow up the valley, winding and curving between mountain ridges. The scenery is delightful and we only need the tales of a sourdough, one at least is on every train, to add to our enjoyment. On the far bank of the river we catch sight now and then of a path or road. Our sourdough tells us that is the old trail up which mules, pack horses and men, toiled in the '98, pushed on by the lure of gold.

A stop for a second engine, and we commence to climb; then down a huge mountain and up the side of another; over a large trestle, actually built on the face of the mountain, we hold our breath and heave a sigh of relief to be safely over. This is the greatest piece of engineering on the White Pass and Yukon line. Here, too, far below, we see a few shacks and camps, all that remains of the once famous White Horse City, with a population of two thousand, now not one living soul.

Shortly after this we reach Summit, which marks the boundary line between Alaska and the Yukon. Here the train stops to leave one engine and to take on Canadian Custom officials. We all alight to see the monument marking the settlement of the boundary line and to view the two flags, Union Jack and Stars and Stripes, floating side by side from their high poles.

From Summit on we lose sight of the old train to pick it up once more at Lake Bennett, where the gold seekers took the boat up the lake into Lake La Barge, made famous by Robert Ser-
Had I not been too fond of getting the last word in an argument, I should never have become the victim of a persistent misunderstanding, and been made an indignant prisoner for a day.

Ever since I was able to talk I was able to argue and to get the better of the other fellow until this fateful morning. I was walking down the street with a friend, who, it seemed, had learned to argue before he had learned to talk and stoutly refused to see things from my point of view.

"It's just this way," I shouted, bringing my right fist down in my left palm with a sounding slap, as if to strengthen my statement, and I knew the red blood was coloring my face, while my eyes felt as though they were bloodshot.

"Any nut could understand," I went on, quivering with rage and quite oblivious to the fact that Morley had stopped to tie his shoe-lace and was some distance behind.

Suddenly my arm was clutched by a very alarmed looking man, who called loudly for help and a taxi. In a moment a sedan, driven by a burly chauffeur, came whirling up to the curb and pulled up beside us. I was too thunderstruck to start an argument, for it was but a matter of a second till I was roughly shoved into the back seat and held in the strong embrace of that well-meaning gentlemen, whose name I afterward learned, was Mr. Grappell.

"What do you mean by this?" I stammered, in a choking rage, for I had just heard my strong companion talking in low-tones to the driver and had been able to catch the one dreadful word, "Insane."

"Insane—insane!" "You're insane, not I," I fairly shrieked, trying to choke back the big lump of anger that almost seemed to make me dumb.

He was busy trying to bind my wrists together with a particularly touch handkerchief and did not deign to reply. At this my wrath grew almost unmanageable. I plunged forward and struck the taxi-driver, but only succeeded in making Mr. Grappell look more alarmed, grab my scarf and bind my wrists to my sides.

"Help! Help!" I shouted to closed ears as we rode on at a great speed and finally stopped before a great brick building, over the entrance of which was a sign in large gilt letters: "Lansdowne Hospital for the Insane."

"What are you bringing me here for?" I demanded, angrily.

I received no reply, but a look of consternation, and, I think, to my chagrin, there was a touch of pity in it.

In the meantime the driver had alighted and was bringing some assistants from the hospital. They, with dear Mr. Grappell's help, marched me politely up the steps and into the hall of the great building, paying no attention, apparently, to my vigorous objections.

"What would mother and the others say, and why did not Morley come to my rescue, for I should by this time be in the office?"

I was left to ponder these questions alone in a little room with a barred window. Two pretty nurses came in occasionally and tried to soothe my ruffled feelings with food.

"Where is the doctor?" I asked indignantly.
They replied that he would be in directly, but it was nearly six o’clock when he finally came and began to examine me. I immediately started to assure him of my sanity, but he didn’t appear to share my opinion in that matter till quite unexpectedly he gave a loud guffaw, whacked me on the shoulders and said:

“Well, old man, you’d better go home to your mother, she’ll spank you if she knows you’ve been up here, playing hookey from your work.”

I swallowed an angry retort and took a hasty departure, not even stopping to smile at the nurses and bid them a polite farewell—or rather, I should hope, “Good-bye.”

I arrived home at the usual time, and was greatly relieved to find that none of my family knew of my humiliating adventure. Naturally, I was too sheepish to inform them, for they had always made fun of my demonstrative mode of arguing.

“But why had Morley not told them? Yes, and just why had he let me stay in that dreadful asylum all day without coming to my rescue?”

I lost no time in calling on him and, scarcely was I into the house till, shaking him soundly, I gasped out.

“‘Why didn’t you save me from such utter humiliation, old man?’

“‘What humiliation?’ he asked, feigning innocence.

“‘Come,’ I said, boxing his ears soundly, ‘weren’t you alarmed when you saw me carried off so suddenly?’

“‘O,’ he returned, with a maddening smile, “I did get a bit of a jolt at first, but then I caught on, seeing what a picture of animated rage you were, and as soon as I could grab the office phone I gave the doctor all the details of your ease, and made—yes, made him detain you till six.’

“‘And the boss?’ I choked, turning pale.

“‘I made it all right with him, don’t worry.’

Through the angry clouds on my face there burst a ray of mirth and understanding, and I clapped good old Morley on the back.

“‘Never again!’ I exclaimed, and never again have I insisted on getting the last word.
Mr. and Mrs. George R. McKiel, Guelph, announce the engagement of their daughter, Carita Theresa Falconer, of the Ontario Agricultural College, to John McKay Moore, B.S.A., M.S., of Michigan State College, Lansing, Mich., son of Rev. John and Mrs. Moore, of Strathroy, Ontario, the marriage to take place the latter part of August.

RECEIVES GOOD APPOINTMENT.

Charles M. McLendon, a graduate of the Ontario Agricultural College, has been chosen to take charge of the agricultural publicity work by the Venice Company at Sarasota, Florida. Mr. McLendon is an agriculturist and a writer of experience on agricultural subjects. He has had considerable experience in ranching and farming in general in Western Canada. He was formerly live stock editor of the Nor’ West Farmer, editor of the Alberta Farmer, and agricultural editor of Calgary Daily Herald. He is very enthusiastic over the possibilities of this phase of the Venice Company’s empire-building project. The Brotherhood of Locomotive Engineers own and operate the Venice Company.

M. J. Altenberg, ’23, who was formerly with Wheat’s Ice Cream Co., Buffalo, is at present taking some special work at O.A.C. in Dairy Chemistry and Bacteriology.

O. R. “Evy” Evans is now at Tillsonburg with the Canadian Milk Products Co.

O. G. Pilkey, who has been head of the Science Dept. in Milton High School for the past two years, has accepted a similar position in Kincardine High School for the coming year, at a salary of $2,600.

News from Capetown, South Africa, brings the sad news of Capt. Harold Lionel Phillips, who was found dead in his bed. Capt. Phillips was educated at Eton and Oxford, as well as the University of Toronto. His parents, Sir Lionel and Lady Phillips, have long been identified with South Africa. Sir Lionel is a former member of the South African Assembly, and his wife is a daughter of A. F. Ortlepp, of Colesburg, South Africa. Capt. Phillips’ wife is the eldest daughter of Frank Hills, of Hamilton, and is left with one son and two daughters.

FISHER-McCONVOY

On Saturday, July 13th, Helen Mercy, second daughter of Mr. and Mrs. J. A. McConvoy, Dufferin Ave., London, to Paul Hector Fisher, of Hamilton, son of Mr. and Mrs. T. R. F. Fisher, of Montreal. The wedding took place at St. Andrew’s Presbyterian Church, London.
Baron-Prichard
Harriston, July 6th.—In the United Church, Mildred Estelle, daughter of Mr. and Mrs. J. J. Prichard, became the bride of H. Marshall Baron, son of Mr. and Mrs. J. H. Baron, of Ottawa.

NOTES
W. Brooken is now taking graduate work in Agronomy at the University of Nebraska.

O. E. Cameron, '24, has been appointed to the Ridgetown High School.

Miss M. S. T. Edwards, '22, is now teaching Household Science at Olds, Alberta.

K. A. Harrison, "Ken," '24, is now assistant Plant Pathologist at Kentville, N.S.

"Hammy" Hamilton, '24, we learn is engaged to Miss Gladys Eaton. They are to be married in September.

Miss Myrt Sanderson, formerly of the Hort. Dept., O.A.C., is now engaged in greenhouse management, Experimental Division, on the 1050 acre Forsgate Estate, Cranbury, New Jersey.

A. B. Jackson, '20, is to be congratulated on receiving the M.A. degree in Botany and Plant Pathology at the University of Toronto. Mr. Jackson is assistant plant pathologist at the Dominion Station, St. Catharines.

Queen Bee Breeding

THERE is no more interesting branch of bee keeping than that relating to the queen. In his report for 1925 the Dominion Apiarist (Mr. C. B. Gooderham) deals rather fully with this subject, first as to breeding, second, relative to Carniolan versus Italian bees, and, third, as to the age of the queen in relation to brood production.

Relative to queen-breeding Mr. Gooderham explains that in former years all the queens were reared at Ottawa and some of them sent to Kapuskasing, but that last year part of the rearing was done at the latter station from queens sent from Ottawa in the spring. Of the queens mated at both places some were sent to branch farms and a limited number disposed of to private keepers. Prior to 1925 the method used in getting the queen-cells started was the swarm-box method, but last year queenless and broodless colonies were used in this way: Three days before the grafting of cells was to be done a colony of medium strength was chosen and to it was given about five pounds of thin syrup through a slow feeder. On the third day the queen and all the brood were removed from the colony and grafted cells given a half hour later. The queen and brood were placed in a super over a strong colony with screen between the super and colony. Two days further on the cells were removed from the starting colony and grafted cells given a half hour later. The queen and brood returned. This method of starting cells, it was found, required less labor than the swarm-box method and gave equally as good results.
The truck drew up with a creaking groan at the curb-side and the driver climbed down from his precarious perch.

Two assistants made their appearance from inside the vehicle and all three proceeded to carry a huge plate-glass window into an adjoining shop.

As they struggled with the monster pane the usual crowd, including two small errand boys, gathered and prepared to enjoy the spectacle.

When a quarter of an hour had passed, one of the youths, growing weary of the extreme care and deliberation with which the men were handling the glass, turned to his companion and said:

"We may as well be moving, Tom. They ain't going to drop it, after all."

The learned counsel glared over his eye-glasses at the witness.

"Are you positive, sir," he demanded, "that the prisoner is the man who stole your horse?"

"Well," answered the witness, "I was until you cross-examined me. Now I'm not sure whether I ever had a horse at all."

"I called on the Jackson's this evening," said Mr. Jones.

"Did you?" remarked his wife, pleasantly. "How are they?"

"Oh, all right, I think Jackson was beating his wife when I got there."

"What?" gasped Mrs. Jones.

"He stopped when I went in, although I begged him to go on."

"You brute! You mean to say you stood there and saw that scoundrel beat his wife?"

Jones smiled calmly. "I could beat you," he said, "if I held the cards that he held."

The office boy rushed into the manager's office with his hat on one side of his head and shouted, "Hey, boss! I want to get off to go to the ball game."

"William," said the manager, "that is no way to ask. Sit here at the desk and I will show you."

He went from the room and returned with his hat in his hand, saying, "Please Mr. Smith, may I go to the ball game this afternoon?"

"Sure," said Billy, "here is 50 cents for a ticket."

Brown—"Stout people, they say, are rarely guilty of meanness or crime."

Jones: "Well, you see, it's so difficult for them to stoop to anything low."

Father—"Is there anything worse than to be old and bent?" His Son—"Yes; to be young and broke."
Bill—‘You look tired.’
Joe—‘Well, it’s hard work carrying a lot of bricks up to the third storey.’
Bill—‘Have you been doing it for long?’
Joe—‘No, I start to-morrow.’

Doctor—‘H’m! You are run down, sir. You need an ocean voyage. What is your business?’
Patient—‘Second mate of the Anna Maria, just in from Hong Kong.’

Child (innocently)—‘Mother, how did father become a professor at the college?’
Mother—‘So you are beginning to wonder, too, are you?’

‘But are you sure he’s highly bred?’
‘Highly bred! Why, mum, ter git the best bout of this little dog yer husband will ‘ave ter wear spats an’ a tall ’at.’

A boy furrowed his brow over an examination question: ‘What is a canard.’
At last, he wrote down this answer—‘Something you canardly believe.’

Dayton—‘I don’t think my wife could tell I lie in twelve months.’
Darby—‘You’re fortunate. My wife can tell a lie the instant I utter it.’

Sleepy Parent—‘I don’t think much of that young Staylate’s manners.
Daughter (yawning)—No; they are just like his calls—they lack finish.

Patient—‘Doctor, what I need is something to stir me up—something to put me in fighting trim.’
Doctor—‘Well, perhaps I had better send in my bill.’

Prue: ‘The latest from Paris is that wigs are coming in.’
Dorothy: ‘Can you beat it?’ Now they’ll be selling us back the hair we had bobbed.’

Just about the time the scientists became hopeful of being able to prolong the span of human life, the automobile was invented.

‘My daughter has a great ear for music.’ ‘Well, that wouldn’t be so bad if she didn’t think she had a voice for it, too.’

When a man is a ‘bad egg,’ the fact is seldom discovered before he’s broke.

The objection to an open mind is that convictions get out as fast as new ideas get in.

Worse than a wife who can cook and won’t is the wife who can’t cook and does.

‘Why do so many girls marry old derelicts?’ Probably for the salvage.

‘Harvey was one day walking down a street in Chicago, when he saw an old woman begging. As he was passing her, she stopped him and said: ‘Could ye spare a few cents for a poor auld woman, sorr?’
‘Harvey, taking pity upon her, gave her a quarter.
‘God bless you sorr!’ said the old woman, ‘and may every hair of your head be a candle to light you to glory!!’
‘Taking off his hat and showing his shining pate, Harvey said laughingly: ‘It won’t be much of a torchlight procession, my good woman!’
He had been kept waiting as usual. When she arrived he said: "Well, I suppose I ought not to complain. So far you have always managed to get the day and the month right."

Lawyer (helping pedestrian up): "Come with me, my man. You can get damages." Pedestrian (groggy): "Heavens, man, I have got all the damages I want. Get me some repairs."

Shopwalker (rebuking assistant for contradicting a customer): "Miss Jones, you must remember a customer is always right."

Miss Jones: "Well, sir, she said you were an old shark."

Bonem: "After my death, the world will realize what I have done." Sympathetic Friend: "Well, don’t worry about that, old chap. You’ll be out of harm’s way then."

Tommy’s Sister—"Tommy, what is a synonym?"

Tommy—"A synonym is a word you use when you can’t spell the other one."

Mean Coed
Two weeks ago I refused to marry your brother and he has been drinking heavily ever since.

He—Yes, he’s the kind of a fellow who never knows when to stop a celebration.—Froth.

TACTFUL DIMENSIONS
The outspoken modern girl went to order a hammock. "About what size miss?" asked the assistant. "Big enough for one, but strong enough for two," she answered, without turning a hair—Ex.

Was After Him
Dorothy (at a dance)—"What are you doing here?"
Majorie—"I’m looking for a husband."
Dorothy—"But you’ve got one."
Majorie—"Yes, that’s the one I’m after."—Ex.

Interested
"I beg your pardon," said the girl timidly, "would you care to help the Working Girls’ Home?"

"Sure thing," said the Sparks Street ornament, briskly. "Where are they?"—Midnapore Gazette.

Just a Hint
Squad Leader—"I hear the battalion commander called you a blockhead. Is that correct?"

Plebe—"No, sir, he didn’t make it that strong. He just said: ‘Pull down your cap, here comes a woodpecker.’"—Annapolis Log.

Domestic Note
Teacher (seeking to point out the wickedness of stealing)—"Now, if I were to put my hand in someone’s pocket and take out the money in it, what would I be?"

Tommy—"Please, Miss, you’d be his wife."—The Sydney (Australian) Bulletin.

Sharp
Tourist—"What’s that animal?"
Native—"That’s a razorback hog, suh."
"What’s he rubbing himself on the tree for?"
"Just stropping himself, sur, just stropping himself."—Tit-Bits.
**Worse Than Foolish**

Thomas was not a prime favorite with his rich uncle. In vain did he try to impress him, but the old man was not easily impressed.

One evening the young man went to his uncle’s home for a call, and in the course of conversation asked:

“Uncle, don’t you think it would be foolish for me to marry a girl who was intellectually my inferior?”

“Worse than foolish, Thomas,” was the reply. “Worse than foolish—impossible.”—Brockville Recorder and Times.

**An Editor’s Woes**

Professor Phelps relates that when he was a boy he used to set type on a religious journal which became noted for its typographical errors and misplaced paragraphs. One day, in the column “Ministers and Churches,” there appeared in the proof: “Lillian Russell will wear tights this winter.” How it got there no one knew. The editor in disgust crossed out the line and wrote: “Such is life!” on the margin. When the paper appeared it contained among the news of the clergy, the item about Miss Russell, followed by the editorial comment: “Such is life!”—Boston Transcript.

“I say, Bob,” asked an acquaintance, “why did the foreman sack you yesterday?”

“Well,” was the reply, “a foreman is one who stands around and watches his gang work.”

“I know; but what’s that got to do with it?”

“Why, he got jealous of me! People thought I was the foreman!”

They say that the frankest criticism an actor ever receives comes from Lancashire. Anyhow, a certain artist was having a drink in a Liverpool bar near the theatre when one of the habitues of the place opened a conversation.

“You’re at the Ippodrome this week, ain’t tha, lad?” asked the local gentleman. “Yes, that’s right,” said the actor genially, rather scenting a compliment. “Aye... ah thowt so,” said the other morosely, “thou’rt the best in the show, and tha’s no good at all.”

An American had been speaking in a superior manner to an Englishman, who was very bored.

At last the American said, “of course, you know the English can never see a joke.”

“Is that so?” replied the Englishman. “Then will you explain how it is that I have seen you?”

An eminent specialist was a guest at a dinner party. “Is it true, doctor,” said the lady sitting next to him, “that eating fish invigorates the brain?” “I won’t go so far as to say that,” replied the doctor, “but catching fish undoubtedly stimulates the imagination.”

Experience is what one gets when one fails to get what one is looking for.

Some families have more skeletons than cupboard to keep them in.

A good complexion on the face is worth two in the beauty shop.

It has been discovered that rice can be grown very successfully near the coast line of Australia. Nervous bachelors are pushing further into the interior.—London Opinion.
TO A ‘FLU GERM

(With Abject Apologies to Robert Burns.)

“Whee, sleekit, cowrin, treach’rous beastie,
O what a venom’s in thy breastie!
That ye shou’d deal wi’ me sae sairly.
A dirty pliskie!
I wad be glad to rin an’ lae’e thee,
Thou murd’rer pawkie!

“I’m truly sorry man’s dominion
Has not denied you social union.
And ostracising ill opinion
Not sent you skirlin.
For me, thy poor earth-born companion
Ye’re sairly nibblin!

“I do na doubt but thou man thieve,
Or that, poor beastie, thou maun live
On wholesome parritch you would thrive
Why choose my chest?
I’ll gie my blessin’ if you’ll leave
And let me rest!”


“Yes,” the teacher explained, “quite a number of plants and flowers have the prefix ‘dog.’ For instance, the dog-rose and dog-violet are well known. Can any of you name another.”

There was silence, then a happy look illuminated the face of a boy at the back of the class.

“Please, miss,” he called out, proud of his knowledge, “collieflowers!”—The Progressive Grocer.

“Is your daughter well educated in musical matters?” a friend asked Mrs. Nettleby. “Oh, rather,” she replied. “You’ve only got to mention the name of any record and she can tell immediately what’s on the other side.”

The woman took off her hat, threw it on the table, and dropping into an easy chair, lighted a cigarette. She had been to a political meeting, and proceeded to regale her husband with her views.

“We are going to sweep the country, James,” she said, airily.

“Excellent,” said her long-suffering husband. “Nothing could be better. I hope you’ll start with the sitting-room.”
Mrs. Gableigh (at the shore)—I often wonder what the wild waves are saying.

Husband—Nothing, Maria. They are like some people I know; they make a great deal of noise but they don't say anything.

A weary-looking man who had been seeking work for a long time happened to see a police notice headed: "Murderer Wanted."

"Well," he said, scratching his head, it's better'n nothing, anyhow. I'm going in to ask for the job.

Said the magistrate to the burglar: "And you burgled the same house twice in one week."

"The shortage of 'ouses is chronic," was the law-breaker's sad reply.

Father—Ye were seen at the pictures the nicht wi that lassie McClean?
Son—Aye! She had twa free tickets.
Father—That's a' richt then. Only I feared there was a catch in it.

"Come, come," said a kind old gentleman to a little boy who was crying, "What is the matter?"

"I've been playing truant, and just remembered it's Saturday."

Customer: Here, I say, when you sold me this medicine you told me it would cure me in a night. Well, it hasn't cured me.
Chemist: Ah, but it doesn't say which night on the bottle, sir!

"So he said I was a polished gentleman, did he?" "Well, yes, it was the same thing, I suppose." "Ah, what were the exact words?" "He said you were a slippery fellow!"

---

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**Chilean Nitrate Committee**

(Dominion Delegate: B. Leslie Emslie
Member of the C.S.T.A.)
Reford Building, Toronto.

---

A teacher asked a pupil the definition of a "vacuum." After pondering over the question for a while the pupil replied hesitatingly:

"I have it in my head, but I can't express it."

Old Lady—"Guard, I hope there won't be any collisions."
Railway Guard — "Oh, no fear, mum."
Old Lady—"I want you to be very careful. I've got two dozen eggs in this basket."

I can't quite understand our chemist. 'E told me if I took 'is powders for me bad 'ead I'd soon shake it off.

Some people wake up to find themselves famous; others find themselves famous and then wake up.
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HOW MANY, MANY TIMES YOU NEED SOMETHING OF THIS KIND, TO KILL LICE ON A COLT OR CALF, TO TREAT A CASE OF MANGE OR RINGWORM, TO WASH OUT A CUT OR A SCRATCH, TO DISINFECT A WOUND OR A RUNNING SORE OR GALL, HOW OFTEN YOU COULD MAKE GOOD USE OF A RELIABLE ANTISEPTIC IF YOU ONLY HAD IT.

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PHONE 1068
"I ain't losing my faith in human nature," said Uncle Eben, "but I kain't help noticin' dat dere's allus a heap mo' advertised 'Lost' dan dar is 'Found.'"

"I have seen better days, sir," said the out-of-work. Business Man—"Yes, I suppose so; but I haven't time to discuss the weather with you now."

There are two reasons why some folks don't mind their own business. One reason is that they haven't any mind and the other is they haven't any business.

He—"I ran across a friend of yours the other day."
She bored)—Oh, in your car, I suppose."

Ella—"Something is preying on Dick's mind."
Jack—"Don't worry; it will die of starvation."

"So you desire to become my son-in-law?"
"No, sir, I don't; but if I marry your daughter I don't see how I can get out of it."

Chemistry Professor—"What can you tell me about nitrates?" Student—"Well—er—they're a lot cheaper than day rates."

Husband and wife are one even though they sometimes make a noise like a dozen.

As a restraining force conscience gets a lot of credit that really belongs to cold feet.

"Waiter, it is almost half an hour since I ordered that turtle soup."
Waiter—"Sorry, sir; but you know how slow turtles are."

Don't mistake the stubbornness of your prejudices for the courage of your convictions.

Horace was sent to his room for taking forbidden cake from the cupboard. His mother, thinking to make his punishment more impressive went to his room and, after all was forgiven, said:
"Now, Horace, what did I punish you for?"
"Well, ma, I like that! I've been kept in bed all the afternoon, and now you don't know what you did it for."

A nervous passenger said to a chauffeur, "Supposing you were going sixty miles an hour down hill with a stone wall at the bottom of it and your brakes wouldn't act, what would you do?"
"Nothing to do," answered the chauffeur. "It's done."

"Why so glum?"
"The doctor has just prescribed rest and change for me."
"Well?"
"He advised me where to get the rest, but he didn't tell me where to get the change."

Question at Marylebone County Court: When did this dispute between you and your landlady begin? Witness: I do not think it had any beginning, and there is no sign of it having an end.

An old gentleman said to some girls who were talking very loud at the opera. "My dear young ladies, please talk a little louder; the music makes such a noise I can't hear half you say."
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Says

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