

THE FARMER'S ADVOCATE & HOME MAGAZINE

THE LEADING AGRICULTURAL JOURNAL IN THE DOMINION.

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THE FARMER'S ADVOCATE, or
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CONTENTS.

EDITORIAL:—

85—Illustration, 86—Our First Page Portrait: "What Branch of Farming Gave Most Satisfactory Results in Your Locality in 1894?"

STOCK:—

87—Chatly Stock Letter from the States; Salt for Stock; Canadian Horse Show; Are Shorthorns as Good as They Used to Be? 88—Weight of Smithfield Club Prize Sheep.

FARM:—

88—Good Roads Convention; The Constituents of Corn. 89—Seasonable Premiums; Reforms Needed in Provincial Agricultural Organizations; Popular Geology—No. 9.

FARMERS' INSTITUTES:—

90—Suggestive Gleanings from Division No. 6; Constructing Concrete Walls; Practical Suggestions Gleaned in Division No. 9. 91—Central Farmers' Institute.

DAIRY:—

92—Feeding Turnips in Buttermaking; The New President of the Dominion Shorthorn Breeders' Association; Paying for Cheese-factory Milk; Farm Buttermaking.

GARDEN AND ORCHARD:—

93—Nova Scotia Fruit Growers' Annual Meeting; The Cauliflower; New Fruits at Ottawa.

POULTRY:—

94—Derbyshire Red Caps; Golden Wyandottes. 95—Dressed Fowls at Poultry Shows; A Convenient Poultry-house for the Farm.

QUESTIONS AND ANSWERS:—

95—Legal; Veterinary. 96—Miscellaneous.

APIARY:—

96—Bee Culture in the West.

FAMILY CIRCLE:—97.

QUIET HOUR:—97.

SOCIAL CORNER:—98.

CHILDREN'S CORNER:—98.

UNCLE TOM'S DEPARTMENT:—99.

STOCK GOSSIP:—102, 103, 104, 105, 106, 107.

NOTICES:—102.

BOOK TABLE:—104.

ADVERTISEMENTS:—99 to 108.

Seasonable Premiums.

On page 99 of this issue appears an attractive list of premiums, which persons old or young can readily secure at this season by obtaining new subscribers to the FARMER'S ADVOCATE. What can so beautify the home surroundings or render the same satisfaction as a tasty flower garden? A little effort will obtain one or more collections of the choicest varieties. The vegetable seed premiums are equally good. The securing of three new subscribers will earn both the flower and vegetable collections, and a choice from the bulb and rose list.

Eggs for hatching, from the famous poultry yards of C. J. Daniels, Toronto, are also offered.

The Siberian oats offered stand ahead of all White varieties sent out in connection with the Experimental Union for the last six years.

Reforms Needed in Provincial Agricultural Organizations.

In Feb. 15th issue of the ADVOCATE we presented some considerations indicating that the work of the Ontario Creamery Association might well be carried on by the Eastern and Western Dairying Associations, thus saving a very heavy item of expenditure to the Province.

During the time of the recent Central Farmers' Institute meeting in Toronto the suggestion was made in several quarters that in view of the fact that the Institute system is now under the special superintendence of an official appointed for the purpose, and that the subjects taken up on the programme are so thoroughly covered by local Institutes and meetings of other organizations, the question of disbanding might fairly be considered. As our readers are aware, it has been more than once urged that the Central Institute has never accomplished anything commensurate with the expenditure which it involved. However, the suggestion to vote themselves out of existence did not find general favor, or, at all events, did not take effect, but we do not see that any additional reasons for its continuance or proposals for making it more really efficient have been offered. Our Provincial Legislators would do well to take this matter into their serious consideration.

In our judgment, the Agriculture and Arts Department, and the Act and various amendments governing same, also stand in serious need of revision. We are glad to note that the Governor's speech in opening the Legislature makes mention of consolidating and amending Acts relating to agriculture. There was a time when the Agriculture and Arts Association had a great deal of work to do, but with the abandonment of the old Provincial Fair and the prize farm system, two of its important functions passed away. To our mind the annual ploughing matches might also be lopped off without serious loss to the farming interests of the Province. As we understand it, the relation of the Agriculture and Arts Association to the Veterinary College is merely nominal, so that point need not be considered. In the matter of keeping official records of pure-bred stock, we see no valid reason why this work should not be controlled and carried on directly by the breeders themselves, as is the case in the great Record Associations "across the lines." The breeders can be trusted to look after this work, because they are the men whose interests are really at stake, and they will certainly look carefully after their own finances. The Agriculture and Arts stamp has been of little avail to us in the effort that has been made during the past year to secure the recognition of Canadian records by the U. S. authorities.

A couple of years ago the Holstein-Friesian men organized an association in Canada; they directly manage their own affairs, pay their own secretary, issued their own herd book, and at the recent annual meeting reported over \$400 in the treasury, with no outstanding liabilities. We fail to see any good reason why the other Breeders' Associations cannot manage their own affairs in a similar way, and we do not see that it is reasonable to ask the Government to do for individuals, or organizations, what they can well do for themselves. Should the breeders absolutely need a grant, it might as well be made direct as filtered through the Agriculture and Arts Association. It will also be no difficult matter to make provision for sufficient inexpensive machinery to co-operate in the holding of the Winter Fat Stock Show and Spring Exhibition of horses, and for that matter the proposed exhibition of dairy stock in Eastern Ontario.

It is very apparent from these considerations, as well as others that might be offered, that the time is opportune for a thorough revision of the Agriculture and Arts Department, and we have no doubt that the Minister of Agriculture, and those members of the Legislature particularly conversant with the live stock and farming interests of the Province, will give this matter their prompt and earnest attention.

A very considerable saving might be effected, or, at all events, the grants which go in the directions referred to, or a portion of them, might be better employed otherwise in fostering the interests of agriculture. The Agricultural Department should be dealt with like any other department of the Government, according to its needs, which, as we have shown, vary greatly under altered conditions.

The patrons of the Elma cheese factory have decided to try Prof. Dean's plan of paying for milk next season; that is, adding two per cent. to the actual fat readings and then dividing in that proportion.

Popular Geology—No. 9.

(BY PROF. J. HOYES PANTON, M. A., F. G. S.)
COAL—ITS ORIGIN AND FORMATION.

Carboniferous System.—This name has been given on account of the nature of the products in this system, there being much carbon present. This is a term likely to be misleading; for we may conclude that wherever much coal occurs, the rocks must belong to the Carboniferous. This is not the case, as is seen in the coal deposits of our Northwest, which belong to the Cretaceous system (No. 11). However, Carboniferous has been applied to the system by early geologists, and must in the meantime be accepted.

The rocks of this system include 15,000 feet of deposits containing immense quantities of coal, which is found in seams varying from a few inches to 30 feet in thickness; between these are layers of shell, sandstone and clay, and often deposits of iron ore. Limestone is also found in rocks of this system. As we learned in the last chapter, the geological records of Ontario closed, and we must therefore seek elsewhere for coal deposits. Such occur in Nova Scotia and New Brunswick. The plant life of this period was of a most luxuriant type, and very uniform; it is the same in all beds of the coal of this time, which leads us to infer that there was a uniform climate for that period in all parts where this system occurs, and we find it represented in the United States, Canada, Greenland, the Arctic regions, and Australia. The plants were large, and very numerous, but the species were limited and all were flowerless types like the ferns, mosses and club-mosses of to-day. They bore no flowers and matured no seeds, but produced spores, from which plants of low types grow. So abundant was this simple form of plant life that the period has been termed the "Age of Flowerless Plants." The typical plants of the time were ferns, calamites (allied to our horsetail plants), lepidodendron, sigillaria, and stigmaria; some of great size, though the types of our plants allied to them are seldom more than a foot high. The accumulated remains of these luxuriant forms of plant life are what contributed the material for the production of coal. Animal life was not so characteristic and striking as that of plants. Some frog-like creatures, spiders and some snails have been found imbedded in the deposits. The trilobites are nearly all extinct; consequently where we find trilobites on rocks near the surface, we need not expect to find coal below, as they disappeared before coal was formed.

Economic Products.—The great product of this system is coal, but iron ore is sometimes associated with it. Limestone and sandstone are also obtained from these rocks, and in some places Petroleum occurs. Regarding the origin of coal, two theories are set forward; both agree in considering that coal is derived from the accumulated remains of plants, but differ as to how the formation of the deposits took place.

1. **Raft Theory.**—This theory accounts for coal by an accumulation of vegetable matter which may have shifted from its original position, then became submerged and changed into coal. This might occur in large rivers, and is only applicable to comparatively limited areas of deposits.

2. **Swamp Theory.**—According to this view, the remains did not change position, but simply became submerged and gradually changed to coal, beneath whatever may have covered the beds, such as sand or silt. A forest located at the mouth of a river not much above the level of the sea would be in a good position to undergo the change. Every seam of coal represents an ancient land surface; consequently where several seams occur, we are led to believe that there were several periods of elevation and submergence. The luxuriant vegetation of the time seems to indicate warmth, humidity, uniformity and very little movement in the atmosphere.

Some argue from the rank vegetation an excess of carbonic acid in the air. The absence of mountains would, no doubt, cause less precipitation and more moisture. It was a time of forest and jungle, and the sea covered with numerous islands. At the close of the period the rocks were much disturbed and subjected to change by subterranean forces. All coal is not confined to this system. It is found in Jurassic (No. 10), Yorkshire; Triassic (No. 9), Virginia; Cretaceous (No. 11), Northwest; Miocene (No. 13), Oregon; Carboniferous (No. 7), England, Nova Scotia and Pennsylvania.

Permian System.—This represents a transition period. Some of the gigantic types of plant life have passed away and never appear in the rocks again. The system is represented in Nova Scotia and some parts of Virginia by red sandstones. It ends the second volume (Palaeozoic Age). At the close of this age the Appalachian Mountains appeared. During this age 70,000 feet of rock were formed, and throughout this vast period of time igneous ejections occasionally occurred, as is seen in some Cambrian deposits in the Rocky Mountains; Cambro-Silurian of Nova Scotia; Silurian of New Brunswick; Devonian of Quebec; and lower Carboniferous of New Brunswick.

Kindness will do more than brutality; therefore, do not use harsh language to your horse, or lash, beat or kick him. Bear in mind that he is very intelligent and sensitive, a willing servant, and deserving of your kindest treatment and thought.