

## Agriculture

We purpose, in this column, to discuss the general principles of Agriculture as taught in the common and technical schools of the province, by means of selections from writers of authority and prepared articles by competent instructors. In the meantime, we shall discuss the soils of New Brunswick according to the Geological formation.

### The Soils of New Brunswick

The soils of New Brunswick may be roughly classified under two great divisions: First, soil that has been formed by the weathering of the immediate rocks of its vicinity; and, second, that soil which is made up of transported material and has only a partial relation to the underlying rocks. Each of these divisions may be sub-divided: the former into classes, each referable to the character of the rocks from which it is formed, the latter as to the manner of its deposition whether, glacial, river, or tidal deposits.

Although the Ice Age wrought havoc with the surface of our province, in common with other Northern portions of the continent, still there is ample evidence of a distinction between the different formations, in the character of the soil and vegetation produced.

New Brunswick is divided geologically into two distinct parts by the belt of granite, that marks an ancient fault. This belt of granite crosses the province diagonally, from Bay Chaleur to the vicinity of McAdam Junction. North-West of the granite belt is the Silurian area, with its deposits of limestone, extending through the northern counties of the province and Arctostook County, Maine. South and East of the fault lie the Carboniferous area and the region of old crystalline rocks that border the Bay of Fundy.

Two outliers of the Carboniferous (some say Devonian) are found north of the granite, one on the Tobique, the other along the Becaguimac river. There is no doubt but that the region of the south branch of the latter river was one time a Carboniferous sea. We shall later take up this question more fully.

The granite area is entirely unsuited to farming except along the margin of its rivers or where it merges into other formations; The region is productive of white spruce and pine and should be reserved for timber and thoroughly developed by scientific forestry. Many of our men are familiar with the granite belt where it crosses the Nashwaak and Miramichi rivers.

Since there is such a contrast between different sections it is difficult to lay down rules for cultivation applicable to the whole province the same is true in regard to climatic conditions. Dr. James, Dominion Director of Agriculture, in speaking of the contrast between Canada and some of the countries of Europe, says: "Canada as a country differs from these countries and we cannot adopt their systems without change but we must work out a system applicable to Canada, in fact we need a system applicable to the different provinces."

It seems as far as general rules go that we need special modification for different sections of the same province in cases for the same county hence more the need for the farmers to know the various types of soil in order to apply the correct rule to the individual case for in this the old saying applies "What is one man's meat may be another's poison."

Next time we shall take up the general characteristics of the Silurian area.

## History

### Trial By Battle

We read, in our common school history, that the Normans established Trial by Battle in place of the ordeals practised by the Early English, which were the crude methods of administering justice at that time.

Trial by Combat or Wager of Battle, as it is frequently called, was a means of settling disputes when there was lack of direct evidence to prove the case. There was a special court presided over by a constable or marshal to witness the challenge and arrange for the combat, so the whole proceeding was simply a legalized duel in which the victor was always supposed to be the innocent or injured party, victorious by the judgment of Providence. Montesquieu, in his spirit of Laws, traces modern duelling, with its so called laws of honor, from this form of judicial com-

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We have set apart this page of OUR PAPER for a SCHOOL and FARM Section. It will contain SPECIAL INFORMATION along the line of work prescribed for the public school as well as the general principals of agriculture as outlined by the specialists at work on its different branches.

A column will be devoted to questions and answers on points that may arise in school work.

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bat.

The Court of Wager of Battle had authority over both criminal and civil cases, in the former the parties themselves were compelled to fight but in civil disputes they might appoint champions willing to take their places. Anyone preferring a charge against another was liable to be challenged by the defendant except, women, priests, minors, and aged or infirm persons.

The mode of procedure was the same in all cases, when an accused person wished to bring his adversary to combat he threw down his glove in the court and declared that he would prove his right or defend himself with his body. His prosecutor, in accepting the challenge, picked up the glove and declared that he was ready to make good his appeal, body for body. The day was set for the meeting and was often a time of much display especially if the parties were of the military class, sometimes even the Royal family were spectators.

In the case of Ashford vs Thornton in the year eighteen hundred and eighty, the defendant demanded a trial by battle and the Court of King's Bench decided that it was still part of the law of England as it had not been abolished, but the plaintiff refused to pick up the glove and there the question rested. The next session of parliament Wager of Battle was abolished by 59 Geo. III ch. 46. Now it must not be supposed that the custom continued until this time for it had not been practised for centuries; like slavery it passed out with the feudal system but was not actually forbidden until the date mentioned.

### The Celestial Globe

Let us imagine that the Universe is bounded and that we are inside this immense sphere. The bounded Universe is called "the CELESTIAL SPHERE."

Again imagine the plane of the earth's equator enlarged until it meets the celestial sphere, the line where they meet is the CELESTIAL EQUATOR. It is the circumference of a great circle as large as the celestial sphere.

Owing to the rotation of the earth the sun appears to pass around it; a similar delusion is sensed from the earth's annual motion, the sun appears to move in relation to the fixed stars. This apparent path of the sun around the celestial sphere is the ECLIPTIC it is the central line of the Zodiac which is the belt of the twelve principal groups of stars that the sun appears to pass during the earth's annual motion.

The plane bounded by the ecliptic is called the PLANE OF THE ECLIPTIC and it passes through the centre of the sun and the center of the earth. The line where the plane of the ecliptic cuts the earth is commonly called the ecliptic so the word is used in two senses. The definitions may be distinguished by referring to the former as the Celestial Ecliptic and the latter as the

Terrestrial Ecliptic which is indicated on the globes by a diagonal line between the Tropics and indicates the latitude of all places where the sun shines vertically at sometime during the year.

The two points on the ecliptic where it cuts the celestial equator are the EQUINOXES. The word is also used to indicate the point of time when the sun shines vertically at the terrestrial equator which is obvious for when the sun is at an equinox it is in the plane of the earth's equator. If the axis of the earth was perpendicular to the plane of the ecliptic the plane of the ecliptic and the plane of the earth's equator would coincide out the earth's axis is inclined sixty-six and one half degrees to the plane of the ecliptic which is the same as saying that the plane of the earth's equator cuts the plane of the ecliptic at an angle of twenty-three and one half degrees.

(to be continued)

## The Pacific Coast Of Canada

The Western coast of Canada may be compared to that of Norway only on a grander scale. It is bordered from sixty to eighty miles in width by the belt of mountains known as "The Coast Range" whose summits rise from three to seven thousand feet in height, generally lowest near the sea and increasing in elevation toward the axis of the range. These mountains are massive composed chiefly of granite, with steep, often craggy slopes and rounded dome shaped tops.

The valleys are deep and steep-sided with numerous glaciers in the upper portions, especially in the northern sections. Dense forests clothe the lower slopes to an elevation of four thousand feet.

The deep dissection of the original elevation and the subsidence of the land has produced an intricate coast line with fiords indenting the range and owing to the same subsidence, groups of islands fringe the coast, separated from the mainland and in many cases from one another, by deep narrow channels which are of much value to commerce, providing long stretches of sheltered waterways for the coast trade.

The natural scenery of the region is wonderful. The rugged mountains rising steeply from the water their sides clothed with dark fir and cedar and their summits topped with glaciers or rock mass form a most impressive scene.

Large drainage channels cut the coast range to provide outlet for the water of the interior country. The two most noted are the valleys of the Fraser and Skeena rivers both of which are traversed by transcontinental railways. There is a marked contrast in their lower courses. The Fraser is much broad-

er due to a slight uplift of the land since the glacial period which evidently did not reach the valley of the Skeena for that river for forty miles from its mouth is narrow and fiord-like though quite alluvial beyond. Both rivers are important in the development of the country and a full description of them and their associations would occupy many pages.

The Canadian Geographic Board

## Nature

### Clouds

People living inland are not so much concerned about approaching storms as the inhabitants of the coast; we know but little of the anxiety of the faithful watchers "when the harbor bar is moaning" still the state of the weather has an influence with many of our plans for the near future. A little general knowledge with observation will enable one to make a fairly true prediction.

Some persons, in making forecast, depend much on the direction of the wind but that is no assurance for any length time, a better forecast can be made by



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a careful observation of the sky which varies in appearance according to the amount and form of the clouds.

A cloud is a mass of water—dust—fine particles of water condensed from the water vapor of the air. The amount of vapor held in the air depends on its temperature, when the air is saturated or full of water vapor, clouds will be formed if the temperature is lowered this occurs either by the air rising higher or cold currents flowing in.

The different forms of clouds have been arranged into three principal divisions, Cirrus, Cumulus, and Stratus, these form various combinations but it is sufficient for the present to keep in mind the three main forms.

Cirrus is the highest and least dense of clouds, it is generally slow of motion, and is parallel curling or partly straight in shape commonly called "mare's tail." These clouds being so high are made up of minute ice crystals whose refractions cause the halos or circles about the sun and moon. White parallel bands of Cirrus in fine weather presage a storm moving in the lighter currents of air they precede the wind and indicate its direction for the bands of light cloud meet to form a V opposite the point on the horizon from which the wind will blow. Cirrus cloud changes shape slowly if it changes rapidly with fine filaments streaming it is a sign that the approaching storm will be sudden.

It is true that we sometimes observe these clouds when no storm follows but if inquiry be made we should find that there was a storm at nearby places for example, often, when a storm passes up the St. Lawrence valley the sky here will be obscured by cirrus clouds but yet we are too far from the storm center to receive the rain or snow, also we see cirrus cloud when a storm has passed in that case they are frequently in quite rapid motion. In all cases we should make our conclusions in these observations in regard to the other facts that modify the situation.

(Continued.)

## Demand More Money From Belgians

London, Nov. 23.—The German levy on Belgium has been increased from 40,000,000 francs a month to 50,000,000, according to a Reuter's Amsterdam despatch, quoting the Echo Belge.

The despatch says the new order was issued by the governor-general of Belgium and was signed by the Duke of Wurtemberg and General Friedrich von Falkenhausen. It states that the levy is to pay the cost of maintenance of the German army of occupation and the German administration of the occupied territory.