by one competitor, and three others were over 250 bushels per acre, while the lowest yield was 180 bushels. Corn, for silage, yielded in competition 19½ tons, the lowest yield being 15 tons, whereas the average for Ontario is 11.56 tons. The ten-year average for barley in Ontario is 30.5 bushels, whereas the two leading competitors produced 55 and 56 bushels respectively. No doubt but these boys did their best to produce large yields, but their results compared with the average prove conclusively that larger yields are possible and profitable. And yet there is a limit to profitable production. The competitor who made a profit of only $2.28 might not have had to go much farther in expense to have showed the balance on the wrong side of the sheet, and we heard of one competitor who produced seed corn at a distinct loss. What must we conclude? It is plain that at average production and average prices grain growing for sale, especially oats, is not a get-rich-quick business; it is equally prominent that the average production of our acres is not as high as it should be, but with this we must bear in mind that increase of yield can be carried beyond the point of profit. And yet these results bear out what Dr. C. A. Cline emphasized in a recent issue of this paper in reference to dairying, that the profit lies in getting out of the rut of average production.

Civilization.

Not long ago a traveller from Fort William to Detroit was jostled back and forth on the ferry from Detroit to Windsor, and rejected on both sides by the immigration officers. When the novelty of the free and frequent steamer trips had waned and he became enraged at the conduct of the officers, he was incarcerated to be tried for insanity. If he were tried on the American side no doubt he could easily be convicted, for they have wonderfully developed machinery for proving insanity in their subjects. It is hard sometimes to conceive where the line might be drawn, and if the mechanism were encouraged to its fullest capacity it might even convict the prosecutors themselves, which in turn would prove all their convicts clothed and in their right mind, but this is apart from the theme of this discourse. This unfortunate voyager was in search of work, and his misfortunes awakening the sympathy of a leading periodical led them to ask, "are we civilized"? It also used this itinerant as a mouthpiece to suggest that some form of labor should be provided for the individual who might be seeking work and could not find it.

Any such inauguration would at once inscribe "over civilization" above the portals of our country. It is nature's plan that the weaklings should cease to exist before they people the earth with their own kind. It is enough that the iniquity of the fathers should be visited upon the children unto the third and fourth generation, and let it be confined to the progeny of those who have sinned without burdening a moral and progressive generation with encumbrances that will only increase and necessitate an enlargement of the system that was put into vogue to preserve them. It is right and just to provide for them that are the unfortunate offspring of unwise parents. Many are born blind, crippled, weak and diseased and are innocent of any transgression. They might be assisted through the vicissitudes of a hardened world which could rest assured that their demise would terminate the line of undesirables. At the same time it is unfair to burden the state with proteges who have luxuriated during the sunny months and years of prosperity only to seek assistance from the provident brother when periods of depression come upon us. Furthermore this wayfaring man was seeking work in a most unlikely place. Why must he migrate to a center teeming with thousands of laborers and a community which must naturally be first affected by any depression in economic conditions? The country has long been calling for help, and yet would receive with open arms a laborer willing to work and share the lot of some of Canada's most healthy, prosperous and respected citizens. Yet this man hies at once to a congested center and rebukes, perhaps, civilization because it does not establish a "sit" for him at his bidding.

Licentiousness and ease have caused the downfall of more than one of the world's nations, and any tendency in the direction of fostering negligence and lack of competition will at once stamp, not civilization, but over civilization on the state, and decrease the ambition, self initiative, provident nature and progressiveness of our countrymen. The time is not yet here when work must be provided by the state. There is work in God's open country. Go work in the vineyard.

The man who takes a pride in "doing chores well" usually has sleek stock and clean stables, and realizes as great a profit from his everyday choring as from any other branch of his yearly farm operations. Chores are too important to be slighted.

Nature's Diary.

By A. B. Klugh, M.A.

Dew and clouds are both formed by the same process—condensation. This process depends upon a decrease in temperature, for, as we stated in the previous article, warm air can hold more water vapor than cold air, and consequently when warm air containing a lot of vapor is cooled some of the vapor must return to the liquid state.

About sunset in well-watered regions, the air close to the ground is nearly saturated, as we may know from the growing dampness of the grass; and from this time on the further cooling of the ground during the night, and the consequent cooling of the air next to it, causes the continuous deposition of vapor in the form of dew or frost; the former if the temperature is above 32 F., the latter at lower temperatures. While part of the dew comes from the air, part of it comes from plants and another portion from the soil. During the daytime, under sunshine and in the presence of wind, the surface of the soil is dried, water rises from the subsoil by capillarity to supply more vapor to the thirsty air. The water which is transpired by plants also freely evaporates. But at night, drops of water may collect on the leaves of plants, where it is unable to evaporate in the cold, still night air, and water rising to the surface of the soil may remain there instead of passing off as vapor.

Frost usually follows a day in the spring or fall which shows, in the afternoon, a decreasing cloudiness and a weakening wind. When the occurrence of frost appears likely, it is often possible to protect crops from injury by building a smoky fire on the windward side of the field, so that a dense layer of smoke may drift slowly over the surface. Radiation is then transferred in great part to the smoky stratum, and the injurious fall of temperature at the level of the ground is efficiently prevented.

Clouds formed at temperatures above 32 F. consist of minute spherical drops of water from one thousandth to one four thousandth of an inch in diameter. Those formed at temperatures below 32 F. consist of minute ice spicules. Cloud particles are so minute that they fall very slowly through the air, and a very slight ascending current is sufficient to bear them upward. When their size increases by continual condensation, they may become large enough to fall and thus rain is produced.

There are three fundamental cloud forms. The high, thin, fleecy clouds are called cirrus clouds; the heaped-up clouds like huge masses of wool are termed cumulus; and those which lie in level banks are known as stratus clouds. Between these fundamental forms we get many intergradations, as cirro-cumulus, cirro-stratus, and strato-cumulus. A cloud from which precipitation is taking place is termed nimbus. The huge "thunder-heads" are, therefore, cumulo-nimbus clouds.

The height of cirrus clouds in summer averages six miles, of cumulus clouds one and a quarter miles, and of stratus clouds one-third of a mile. In winter the average heights are a little less.

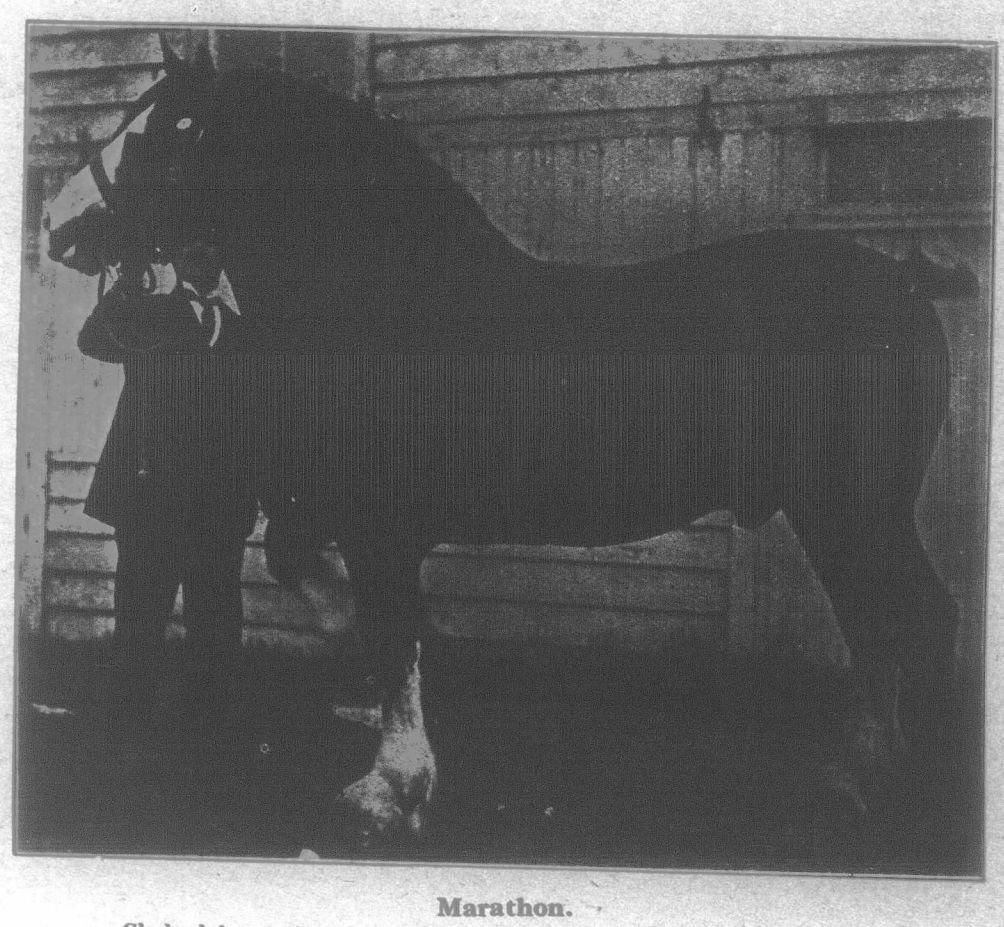
Thunder storms are due to an overturning of the atmosphere. The atmosphere is in a condition of instability owing to a layer of warm air being beneath a cooler layer. Thunder storms are usually accompanied by two changes of wind. First the wind is blowing from the direction from which the storm is approaching, as the storm comes nearer we find the wind changing and blowing towards it, then we get the squall blowing out from the storm cloud. The wind which blows in towards the storm is the warm surface air which is taking part in the turning over. The cool wind of the squall is caused by the downward reaction or from the upward expansion of the great mass of air involved in the storm cloud, and may thus be compared to the "kick" of a gun.

Lightning is believed to be due to the electrical separation produced by the breaking of large raindrops into smaller ones. It is probable that the various parts of a thunder cloud are variously charged, and these parts rise and fall until they come within striking distance of one another or of the earth. The discharge of a flash appears to allow the union of many small droplets which were before held apart by electric repulsion, and thus locally promote the fall of rain. A flash does not follow an angular zigzag line as it is commonly represented in pictures; photographs show it to run in a sinuous path, somewhat like a river course. Sheet lightning is the illumination of the clouds by flashes which cannot be seen by the observer.

Thunder is due to the violent vibrations of the air set up by the heating and electric disturbance along the path of the flash, much in the same way as the sound is produced by the firing of an explosive. When a flash occurs near the observer, the sharp crackling reports first heard come from the smaller branches of the flash, the heavy crash immediately following comes from the trunk of the flash, and the rolling thunder is due to reverberations among the clouds.

As sound travels through the air with a velocity of about 1,100 feet a second, the distance of the flash may be estimated by allowing a mile for each five seconds between the flash and its thunder.

The aurora borealis or Northern Lights, is an illustration of the atmosphere in arches, streamers or sheets of whitish, yellow, green or red light caused by electrical discharges chiefly in the thin upper air.



Marathon.

Clydesdale stallion, well known to followers of Canadian shows.

The comments of readers in renewing their subscriptions for the current year are both encouraging and enlightening. One of them, which is a duplicate of many others addresses: "It is never failing relief to me to have a paper coming along every week that is not only worth money as a real help on the farm, but a safe and cheering visitor in any home. I like its clear-cut, candid statements even if I may sometimes see things differently. I know 'The Farmer's Advocate' is staunch for the farmer every time, and speaks its own mind. I would not be without it for $5.00 a year."

THE HORSE.

The experienced horsemen like to train their colts when the snow is deep.

If a gelding is being fitted for sale, finish him before offering. A horse in good fit commands the top price.

Shoes kept sharp, at least in front, are a good investment on the brood mare. A little slip may mean a grave loss.

Get the colt, to go into spring's work this year, thoroughly accustomed to being driven, drawing light loads, etc., now while time is not so precious as it is later on.

Where is the stallion to-day? Is he in a little, narrow, dark, dingy stall without care or exercise? Exercise is important now as well as later on when the season is approaching.