

## The Farmer's Advocate AND HOME MAGAZINE.

THE LEADING AGRICULTURAL JOURNAL IN  
THE DOMINION.

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JOHN WELD, MANAGER.

Agents for "The Farmer's Advocate and Home Journal,"  
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1. THE FARMER'S ADVOCATE AND HOME MAGAZINE is published every Thursday. It is impartial and independent of all cliques and parties, handsomely illustrated with original engravings, and furnishes the most practical, reliable and profitable information for farmers, dairymen, gardeners, stockmen and home-makers, of any publication in Canada.
  2. TERMS OF SUBSCRIPTION.—In Canada, England, Ireland, Scotland, Newfoundland and New Zealand, \$1.50 per year, in advance; \$2.00 per year when not paid in advance. United States, \$2.50 per year; all other countries 12s. in advance.
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  12. WE INVITE FARMERS to write us on any agricultural topic. We are always pleased to receive practical articles. For such as we consider valuable we will pay ten cents per inch printed matter. Criticisms of Articles, Suggestions How to Improve "The Farmer's Advocate and Home Magazine," Descriptions of New Grains, Roots or Vegetables not generally known, Particulars of Experiments Tried, or Improved Methods of Cultivation, are each and all welcome. Contributions sent us must not be furnished other papers until after they have appeared receipt of postage.
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the men on the farms of this country, the legislation they desired would be passed without the necessity of sending a deputation to Parliament. And, in all cases, any group of men selected to lay agricultural matters before the cabinet should be truly representative of the branch or branches of the calling in which they are engaged, and be commissioned by their fellows to state the case. By standing together the men on the farms could accomplish great things, divided, they have got and will continue to get very little of what they ask.

### Nature's Diary.

By A. B. Klugh, M.A.

There is no phase of nature which concerns us more directly than the weather. There is no more frequent topic of discussion than the weather, whenever there is nothing else to talk about this is the old stand-by. Yet very little is generally known about the causes of those phenomena which collectively make up our weather.

All these phenomena occur in what we term the atmosphere, so let us first enquire as to the constitution of the atmosphere. It is chiefly a mixture of Nitrogen and Oxygen, in the proportion of 21 parts to 79 parts by volume. These two gasses are not chemically combined, but are simply mixed together. Their mixture is very perfect and extraordinarily uniform the world over. The ordinary atmosphere possesses in addition to the Nitrogen and Oxygen, about three-hundredths of one per cent. of Carbon dioxide, a variable amount, sometimes three per cent. but usually much less, of water vapor and various microscopic solid particles, such as dust from the land, and salt from the sea.

The water vapor, though small in amount, is of extreme importance in many respects. The movement of vapor in the atmosphere constitutes part of the continuous circulation of the waters of the world, beginning in the evaporation of water from the ocean surface, passing then as vapor, carried by the winds, until condensing in clouds and falling as rain or snow, it reaches the land or the sea, whence it evaporates once again.

The solid particles in the air are known meteorologically as dust. It is raised into the air largely by winds, though volcanoes also play a part. The coarser particles soon settle down again, but the finer ones may remain in suspension of months or years. Even the clearest air of the ocean and mountains contains innumerable quantities of extremely minute dust particles.

The atmosphere is believed to extend about a hundred miles above the surface of the earth, and as air is highly compressible it is much denser near the earth than at the higher altitudes. The pressure also naturally decreases with the altitude, at sea level it is 30 inches of mercury (that is the pressure is sufficient to support a column of mercury of that height), at 1,850 feet the pressure is 28 inches, at 10,550 feet the pressure is only 20 inches. It is this decrease of pressure which causes trouble in respiration, dizziness and bleeding from the nose in ascending high mountains.

The ultimate cause of all the changes occurring in the atmosphere is the heat received from the sun, to which we may apply the convenient term insolation. The heat emitted from the sun's surface has been compared with that given out from an equal area of melted steel in a Bessemer furnace, the ratio being 87 to 1 in favor of the sun. The heat received from the sun's rays falling vertically and unobstructed on a square mile of the earth's surface would warm 750 tons of water from the freezing point to the boiling point in one minute.

Probably no question is more often propounded concerning any natural phenomena than "Why is the sky blue?" Before we answer this query, it is necessary to consider for a moment the nature of light. Light consists of waves sent out from a luminous object. White light consists of a mixture of rays of different lengths. When white light is broken up by passing through a prism we see red at one end of the band and violet at the other. The red waves are the longest, being .00075 millimeters (a millimeter equals one twenty-fifth of an inch) in length, the violet are the shortest, being .00036 millimeters long. Now when white light travels through great stretches of atmosphere it encounters the minute particles of dust which we have already mentioned. In looking up into the sky the light which comes to our eyes is that which has been scattered from many solar rays as they encounter these myriads of suspended particles, and as these particles are more effective in turning aside the short waves than the longer ones, the eye receives them in excess and the sky appears blue.

The sun appears yellow or red at sunset because its rays then traverse a thick layer of atmosphere that the blue rays are all scattered leaving the red and yellow in excess.

We are all familiar with the glorious glow which succeeds a fine sunset. It is produced in the following manner. Shortly after sunset, when the observer and the air for several thousand feet above him are in the shadow of the earth, the glow comes from the particles in the upper air; and as these are small and more nearly uniform than those nearer the earth, the glow increases still more in purity as the lower air darkens. The glow descends and fades away when the sun is about six degrees below the horizon.

### Growing.

With this issue "The Farmer's Advocate and Home Magazine" nears the half century mark by beginning its forty-ninth year of publication. The paper began as a monthly in 1866, and so continued until 1893, when it was issued semi-monthly with pages of much larger size. After eleven years publication in that form it made its appearance as a weekly in 1904, the size of pages being maintained, and the number of pages frequently increased. The policy has been steadily pursued also to give a higher quality of service to its readers. The first Christmas Number made its appearance in 1896. The increase in the amount of high-class matter supplied the readers is well shown by the remarkable growth in weight of volumes and the total number of pages per year. The subscription price per year was \$1.00 until the weekly issue began in 1904, when it was advanced to \$1.50, but this was far outstripped by the growth in size and quality of the paper, so that readers have been steadily receiving much more for their money, and the paper has steadily grown in popular favor. In fact the renewal time is an annual bargain day for every subscriber to "The Farmer's Advocate and Home Magazine." The appended table exhibits the growth from 1869, the three prior volumes unfortunately not having been preserved. The issues of 1913 show a still further increase in numbers of pages and in weight:—

Year.	No. Lbs.	No. Pages.
1869	1½	192 Monthly.
1871	2	192 Monthly.
1876	1½	244 Monthly.
1881	2½	316 Monthly.
1886	2½	384 Monthly.
1891	3½	504 Monthly.
1893	4½	494 Semi-monthly.
1896	5½	552 Semi-monthly.
1901	7	870 Semi-monthly.
1903	11½	1200 Semi-monthly
	(1904 began weekly.)	
1906	17½	2096
1911	18	2182
1912	21½	2300

### Man's Right and the Railroad's.

Day after day, complaints from land owners whose property has been severed by railroads comes before the Railroad Commission for consideration. It seems to be a common grievance to have the farm divided into two equal or unequal parts, while season after season, and day after day, the farmer and his family must cross this hazardous line of steel to do the ordinary farm work and drive the live stock from one part of the farm to another. In a time of farm labor scarcity, what is more reasonable than an estimation of the time lost driving to and fro the stock which in the absence of the railroad, would go unattended by human guidance and seeing that the farmer must pay well for any services rendered by the road is it not right that the transportation companies should pay well for the land they utilize and liberally reimburse the farmer for his perpetual inconveniences. This is not enough. Parents in this vicinity are still sorrowing over the loss of a daughter, run down while driving stock home from the fields over the deadly level crossing. Cattle passes should be provided even if they are obliged to go below the level of the ground, to economize the farmer's time and prevent the reckless sacrifice of human life.

Dr. James Mills of the Board of Railway Commissioners for Canada has compiled some enlightening estimates of the loss incurred by a farmer whose application recently came before the Commission Board. In the statement are set forth the facts that holdings are very materially depreciated when severed by a railroad and that the injured party "may be compensated to a certain extent but, under normal conditions, he can not be adequately paid for the injury done to his property" and the contention that a farmer should accept something near the average price for acre of land in that locality, is manifestly unwarranted.

Such findings as these by a body of men in supreme command of our relations with large corporations is indeed encouraging and should give the individual renewed faith in the justice of those in whose hands we are. But why has it not been longer so? It is true that more people use the railroad for travel and transportation of freights than are affected by its presence on their property. But is might right? If many people are benefited by this exploitation, if the many industries are boosted by its services, if the nation as a whole is built up and enriched by the operations of transportation companies, should not all in turn contribute to the handsome remuneration of the individual who daily suffers while others enjoy and profit by this severance of farms and property?

The estimates plainly show where time, valued at \$60.00 per year, is wasted in order to guide the live stock in safety past the road. This does not include the time employed in opening and closing gates when the teams go back and forth, and which in haying or harvesting might amount to a dozen times per day. \$60.00 means the interest on \$1,200.00 at five per cent.; why should this not then be expended on live stock, or cattle, passes in order to repair in part the damages to the injured parties. We do not advocate higher transportation charges, quite the reverse, but if the railroads are only making legitimate earnings then tax, directly or indirectly, other institutions that profit most by the operations of the steam railway. Tourists must travel quickly, the products of different manufacturers must be distributed in the shortest possible time, and travelers for houses and industries will brook no delay. The loudest cry is "speed." In order to meet this request the survey cuts diagonally across the lot to shorten distance or goes in a semi-circular manner to avoid a hill and lessen grade. In either case the property owner is the heavy loser, but do the partially though never satisfied parties, who demand this recognition, pay the bill? Speed is a second consideration with the man through whose land a road may pass, and if the line fences were followed it would be far better for him, but modern demands prohibit such recognition of the owner's rights without compensation from those who profit most thereby. Might is not right, and if the railroads are not financially able to construct safety passes and remunerate the injured land owner, then parliament should reimburse and protect the one who has been sacrificed on the so-called altar of prosperity.

### Valuable.

I am a constant reader of "The Farmer's Advocate" and consider it a very valuable paper and would not be without it for any consideration.

JOHN POLAND.

Lambton Co.