

is established, and their chief work is to furnish and deliver. Their trade mark is stamped in the excellence of whatever they have to sell. Neighbors predicted the failure of their enterprise and now wonder at their success. Yet mindful of the natural productiveness of the soil of all this region, they know that it must be well tilled and enriched from its own products. The well fed team is busy with plough and harrow, and wagon, to open and loosen the ground to air and sun light, and to enrich itself by absorbing vapors and gases, and all fertilizers at hand.

THE LESSON.

The farm experiment of this aged minister and his wife, has restored their health and vigor, given them independence, won credit and influence, enabled him to preach the gospel without charge, although conscious that "the laborer is worthy of his hire," and has furnished them the means to pay \$300 this year to erect a chapel for religious worship and this they freely and heartily subscribed besides giving much time to superintend and secure its erection.

ANOTHER FARM.

Not far away, another and better claim twice as large, *i. e.* of 320 acres, was taken by a gentleman and his wife. A small rough house was built with two or three windows and as many rooms. A small low shed sheltered saddles and blankets and a little wood. A rough stable and low loft protected the work horses and their meagre food. Land was ploughed and wheat enough was usually raised to give bread to the family and some extra food for animals. There was a small garden for vegetables, and an orchard of perhaps 150 trees. Fences guarded the fields and a portion of the pasture. The stock ranged at large until the owners were compelled to enclose their own pastures. Then the animals gained their food mostly from natural grasses summer and winter. The dairy barely supplied home wants for part of the year. A few cattle and horses were sold, but very few products of labor. There were few signs of thrift, industry or economy about the place. Ploughs, harrows and other farm machinery were usually left out in the sunshine and storm to rust and swell and shrink and decay, without care or repair or protection.

The owner was an honest sort of a man, temperate and well meaning, but

in five or six years, he found that his farm did not support him. He sold out, left all his "improvements" and his choice location to find another claim a hundred miles away. And illness has crippled his energies there. He is now faithful to warn strangers that this is a poor country for them. He has tried it and he knows that it costs more to raise a bushel of wheat, than you will ever get for it, and that there is no market for produce of any kind.

His farm has not proved to be a model farm, but the older gentleman and his wife say that they have never seen a country, or climate or opportunity so favorable for a poor man to get a living and prosper as this region affords.

MODEL FARM IN OREGON AND WASHINGTON, WEST OF THE CASCADE MOUNTAINS.

No. 2.

BY REV. G. H. ATKINSON.

THE CLIMATE.

The northwestern direction of this mountain range controls rainfall and vegetation. The southwestern winds from the Pacific come laden with vapor, strike the coast range 2,000 to 3,000 feet high, which condense large amounts of moisture, and again strike the Cascades 2,000 feet higher and deposit other large amounts over all the valley and hills. The results are seen in the dense, vast evergreen forests, which cover valleys, hills and mountains to their summits. Their rank growth indicate the strength, and in many cases the depth, of the food supply of plants.

SOIL.

Rains aid the decomposition of the basalts, west of the Coast range—as at Astoria; ten, twenty and even thirty feet of these volcanic rocks are wholly or partly decomposed, and the roots of those majestic firs, hemlock, spruce and cedar interlace and cover the ground, and absorb its richness, while they form a water sponge, which aid the more thorough decomposition. Naturally this soil is cold, and fit only for the more hardy plants. Clear an acre of forest; let in the sunlight; sow clover—a vigorous and voracious plant—and it will cover every inch of ground, and give at first a double crop for the scythes, or a constant pasture. It is an enor-

mous succulent, being, when green about 80 per cent. water. Add manures or ashes to the land and they will double its product of clover hay or vegetables. The analysis of mineral elements in 1,000 lbs. of red clover hay is as follows:

Ash, 6.72; potash, 34.5; soda, 1.6; magnesia, 12.2; lime, 34.0; phosphoric acid, 9.9; sulphuric acid, 3.0; silicic acid, 1.7; chlorine, 0.5.

The analysis of wheat shows the same elements in about equal amounts, viz.:

Ash, 2.07; potash, 31.1; soda, 3.5; magnesia, 12.2; lime, 3.1; oxide of iron, 0.7; phosphoric acid, 46.2; sulphuric acid, 2.4; silicic acid, 1.7; chlorine, 0.5.

Wheat requires about three lbs. less potash, twice as much soda, the same amount of magnesia, four and a half times as much phosphoric acid and one-tenth as much lime in every 1,000 lbs.; but wheat straw requires 69.1 of silicic acid, while red clover needs only 2.7 lbs. per 1,000 lbs.

	POTASH. POUNDS.	SODA. POUNDS.	LIME. POUNDS.	MAGNESIA. POUNDS.	PHOSPHORIC ACID. POUNDS.
There are in 1,000 pounds of					
leached wood ashes.....	25	15	345	15	80
Hard wood ashes.....	100	25	300	50	65
Soft wood ashes.....	60	20	350	60	45
Peat ashes.....	15	8	10	15	6
Soft coal ashes.....	5	4	0	32	2
Hard coal ashes.....	1	1	0	30	1
Birch wood ashes.....	116	56	600	80	85
Beech wood ashes.....	101	54	564	108	55
Oak ashes.....	100	36	735	48	55
Elm ashes.....	239	137	478	77	33
Haw wood ashes.....	558	60	269	42	49
Apple wood ashes.....	120	16	700	56	29
Willow ashes.....	114	56	608	101	164

Wheat and clover draw large amounts of these elements from the soil which must be replaced.

EXAMPLE.

A gentleman reported the following products from a single acre, three-fourths of which has been in clover for three years, and one-fourth in vegetables. He applies twenty to thirty wagon loads of manure per year. Last year he cut and put in his barn five tons of clover hay which feed five or six cows and heifers all winter. He supplied his family of five persons with vegetables and sold several dollars' worth besides.

EXPENSES.

He buys eight and a half tons of bran and shorts per year for his cows, costing ninety-five dollars, and ten dollars worth of wheat for his chickens. His two pigs shared in the supply of food from the bran box and garden and waste