There is no necessity to go over the facts and show how improbable the consummation of this hypothesis may be, but the writer alluded to has made possible a much more reasonable and equally satisfactory supposition: That if one-tenth of the supposed arable lands that are included in government surveys up to the present time, can be made available for wheat production, the yield will exceed 25 per cent. the total yield of California, with the yield of Western Oregon and Washington to be added. This shows how important the question of ocean transportation is for our future.

WHEAT CULTURE IN THE WILLAMETTE.

While wheat culture is much the same in all regions, there are questions of climate and soil that affect it everywhere. In our western valleys we have the same climate, and the soils generally have the same clayey characteristics that make them superior and lasting, but take the Willamette Valley and we find timber lands with excess of vegetable mould, the flat prairie reaches that lack drainage, with places where water has stood in winter and left what is called white land that responds poorly to cultivation, and the rest of such prairies needs to be thrown up in beds by repeated plowings to make summer fallowing and fall sowing possible. People who farm those lands have generally practiced spring plowing and sowing of spring varieties. What is called Chile Club is very popular, and as we are apt to have rains all the spring it is nothing unusual to hear in the month of May that these lands have not yet been sown. Such lands are found on French Prairie in Marion county and to a large extent in Linn and Lane counties, but not to a great extent elsewhere. Then we have a great deal of high or rolling prairie land that can be summer-fallowed and fall-sown, which produces with much greater certainty. The hill regions of the valley offer the most certain returns, with natural drainage so that they can be plowed at any time and sowed when the ground is in good order. The Waldo Hills of Marion county resemble the dark soil of the best prairie lands, while the red hills south of Salem, in the same county, have a soil strongly impregated with iron, which is indeed red, but for lasting qualities in the production of wheat cannot be excelled. Much of the Willamette Valley, especially the hills region, is underlaid with deep deposits of marl, which furnishes a sufficiently porous bedrock, and indicates that a means of recuperation is at hand if the soil becomes impoverished.

We have asserted that much poor farming could be seen here, and have often been disgusted at the sight of fields choked with sorrel or pernicious weeds. Fields are too often run for a lifetime, whereas the best results come from careful work. In some localities it is found to work well to plow in fall or winter and replow and sow in the spring. The most satisfactory method seems to be to summer fallow every third year. It may not be a rule without exceptions, but we consider it nearly certain that wheat well put in in October is worth five bushels an acre more at harvest than if put in after that. Yet we have actually known years when the yield of spring-sown grain exceeded that of fall-sown. This must have been because, not being put in properly or sufficiently drained, the fall wheat was drowned out or winter killed. Draining lands for thorough and successful cultivation has not yet troubled the minds of our farmers to any great extent. There are some gravelly lands, though not extensive and not generally adapted to wheat. When you reach the mountain foothills there is less clay in the soil, which partakes more of loam, but the clay lands of the Willamette Valley are the ne plus ultra for wheat cultivation.

SUMMER FALLOWING WITH SHEEP.

We have shown the different soils of Western Oregon and the methods of wheat culture followed here, and how wheat is being sowed on different locations from September until June. Thorough cultivation is needed, but even that can be overdone. Some years ago quite an argument occurred in our columns among farmers as to the best method of summer fallowing, and we recollect that it was decidedly proved by a friend living near Bethel, Polk county, that more than one plowing was injurious. The same fact was made plain to us a short time since by Hon. J. H. Smith, State Senator from Linn county, who lives near Harrisburg. One year he tried to rid a piece of land of weeds and put it in most thorough cultivation, so he gave it a summer fallow, with as many plowings and harrowings as were necessary to kill the weeds and put the land in perfect garden tilth. Across the lane from this field a neighbor also had a summer fallow. A heavy piece of clayey soil was thrown up in great clods that baked in the sun, and all the salvation for the piece seemed to be the presence of sheep who kept down all growth. His own field was sowed to wheat early in the fall, in the best manner, while his neighbor scattered seed among the clods, and raked a harrow over them without breaking them, but when the harvest came the neighbor had two bushels to his one. That seems to be the general experience, and now it is an established fact that a band of sheep is necessary for good farming. The advantage of sheep in a summer fallow is beyond a question, and in this country where fall sowed grain often grows all winter, it is necessary to have the superabundant growth eaten down in the spring, or there will be long straw and little grain. Some friend told us the other day of pasturing a field with hogs and other stock until May, and then making an extraordinary harvest, but light-footed sheep answer the best, and they enrich all the while with their droppings. From what we have said it is evident that wheat farming must be studied from the stand point of the immediate locality and soils. These differ greatly through all the region West of the Cascades, and the mind of the farmer must master all the circumstances before he can successfully produce the best results, though the experience of those before him in that locality will answer all questions. No man need hesitate to locate in any wheat producing region if he believes he can do what others have done.

CULTIVATION AND SOILS EAST OF THE MOUNTAINS.

East of the mountains the soil lacks the clay that stiffens that of the west, and is much lighter. The capacity for production seems stimulated and the hills and plains that are "tickled with a plow" soon "laugh back with a harvest." It remains to be seen if they possess lasting qualities, but it is known that the soil is deep and yields with astonishing prodigality. Wherever arable land is found, over all that wide area, it seems to possess this quick, vivifying principle, and under favorable circumstances yields well. So far as we are aware, there is little difference in soil through the counties in all Eastern Oregon and Washington that border on the Columbia. New land is often broken up in the Spring and sown in the early Fall produces well. Rains are not so certain there either early in the Fall or late in the Spring, so the season for sowing grain is not so protracted as West of the mountains. Land is much easier worked there, and as the country is bare of all large growth to a great exient, the new comer unhitches his team from the wagon, when his location is made, only to hitch them to the plow, and he plows and sows wheat without let or hindrance. This, of course, must not be taken too literally, but conveys the idea. Fencing is a matter that comes for after consideration, and is the most difficult problem he has to solve. If you travel far you will find but economical use of timber, that has to be brought from the mountains, usually, ten to twenty miles away. Often ditches are cut and sods piled, to be capped with posts and rails, and occasionally posts are set and a few rails nailed on, and we noticed an occasional attempt at a hedge. The great attraction for the new comer lies in the fact that the country is all open, though often there are steep hill sides, but where a plow can go and a header can follow to save the grain, wheat fields are growing and harvests made. It is truly wonderful how prolific the soil is and how it responds to the efforts of man. Even in the oldest regions we saw few weeds in the growing wheat. More difficulty is anticipated from drouth than superabundance of rain fall. While the prairies of the Willamette can be sowed until late in May, the Eastern farmer takes no chances he can possibly avoid, but gets his crops in early as possible. The wheat planting season closes very early in the Spring and should close with February. Drouth need not be feared when wheat gets a good start in the fall. There is much upland there, and as the soaking rains are lacking there is no excuse for delay in plowing after Fall rains place the soil in proper condition

METHODS PRACTICED AND RESULTS EAST OF THE MOUNTAINS.

With the progress of railroads, the increase of wheat culture will be enormous through all the regions adapted to it, and they are extensive enough to keep a good slice of the world's population from starvation. The enterprises of the O. R. & N. Co. and the N. P. R. R. Co. will bring all the Upper Columbia country within reach of market and pour population in to fill these regions up and cultivate them. Our subject lies more with the methods of wheat culture and the success attained than with men's speculation concerning the future. The possibilities do not need to come before us at the present time.

In the regions West of the mountains there is considerable fern land, that is generally the best of soil, but is hard to subdue so that it will produce good crops of wheat, but East of the mountains the whole country is clear of that, or of any other weed or plant that obstructs cultivation to any serious extent. It may be truly said that over a wide extent of open country Nature has rendered farming operations very simple and easy and has done much to induce rapid settlement and cultivation. The ease with which farming is commenced and prosecuted under ordinary circumstances is fully equalled by the exuberance of yield. We have seen many practical farmers who have left Western Oregon for new homes to the Eastward, who assert that they realize double the returns for land grown to wheat that they used to have in the Willamette Valley, which is probably due to the fact that poor cultivation pays better there than here, and it must also be conceded that the soil is quicker and more prolific under ordinary circumstances, though good seasons cannot be so uniformly depended on. A protracted hot spell cut down their yield in the vicinity of Walla Walla, and in many parts of that wide country, in 1880, but even where they complained of having only half a crop they claimed an average of twenty bushels to the acre, and in favorable localities, or where well put in early in the Fall, they realized from 30 to 40 bushels. We think it safe to concede that the best farming lands of Palouse, Walla Walla or Umatilla, will easily average 30 bushels with only fair cultivation, and we are assured, by what we believe competent authority, that 50 bushels is not uncommon, and that 75 can be sworn to.

The varieties of wheat cultivated East of the Mountains are not so numerous as in Western Oregon. There is no difficulty in securing the best of seed wheat, or in obtaining the best information as to how and when it should be sown. Walla Walla wheat commands a good price, at least equal to best California, and perhaps a little more, when in best condition, which was not the case last year, but it is quoted 2½ to 5 cents a cental below the best Willamette Valley white wheat.

Methods of cultivation differ materially in the different sections. Here we find every known harvesters at work; Reapers, Headers, Self-binders, each are busy from the middle of July, when harvest begins, to the first of October, and often to the middle of that month, because the same farmer will have Fall grain ripening in July, Winter-sown fields that come in through August, and his Spring wheat comes along when it gets ready. Thus our harvesting machinery has a long run of it. Many of our large farmers run their header wagons direct to the thresher, but in this moist climate there are apt to be part of days, and sometimes entire days, when the sea damps give fogs or heavy dews so that headers cannot run all the day, while in Eastern regions the clear, dry climate insures that heading can be carried on all day and all night, if so minded. Here the various harvesters cut the grain and it is hauled and stacked until the time for threshing is convenient, unless it is headed, when no time is lost in threshing it but East of the Mountains where no dews or damps are found, headed grain is cut and stacked in immense ricks, not even being put up in the pointed and carefully built stacks, that need to be practically waterproof in our climate where rains in September sometimes cause trouble and loss. So while here all harvesting machinery that is known computes for use, there the only method used is the header, which they say harvests at a saving of 5 to 7 cents a bushel compared with a reaper or self-binder. Where transportation charges cut down the income so greatly, they say it is necessary to practice every economy possible in production, and so the header is everywhere popular.

In traveling over 100 miles among Walla Walla wheat fields we noticed but one field that had bound bundles, which induced us to investigate the methods of harvesting in most popular use. The self-binder men here are confident that they will make their machines more acceptable in the future, but we have given the facts as we learned them on the ground.

In this essay, if we have placed before the world the important facts relative to wheat production in the Columbian region, shown the different results of soil and climate and explained our prospective relations to the world when future transportation problems shall be solved, we have accomplished all we intended or desired.

WHEAT PRODUCTION IN CALIFORNIA AND OREGON.

We have before us the census figures that show the wheat product of Oregon for 1879, also a leading California journal which gives the summary of wheat production in that State for the same year as returned by the State assessors. According to these returns the total average to wheat in California in 1879 was 2,613,663 acres and the total product was 29,944,983 bushels, or exactly eleven and ½ bushels per acre. For the same year the area in Oregon, in wheat, was 441,665 acres, the total product returned by the U. S. census was 7,396,61? bushels, and a comparative statement shows that while Oregon had but one sixth as much acreage, we had one-fourth as much wheat produced from it. To put it again in a more direct shape, while California had 11½ bushels to the acre, we had 17—as an average of the two States. But another very important matter for consideration comes in to further sustain the superiority of Oregon as a wheat producing State, which is that in 1879 there was an almost total destruction of spring wheat in the Willamette Valley, which cut short the yield from two and a half to three million bushels. For the only time in the history of the country we had a failure of spring wheat, and only for this we should have shown a yield of over two bushels for one raised in California. The most sanguine claim made for yield in California in 1880, is 17 bushels per acre, and figuring for ourselves from the data they furnish, 15 will fully cover it. So that when their harvests are superabundant, as they certainly are this year, they fall considerably short of the average yield in Oregon in the worst season ever known. In 1879 Linn county lost a million bushels—over half her harvest—by rust, and yet averaged with California; Marion county lost one third of her wheat harvest and yet averaged 17 bushels; Lane lost over one-third of her wheat harvest and yet averaged 11½ bushels; Polk averaged 16 bushels and Benton the same, though heavy losers by rust, while Washington and Yamhill went 19 bushels—all these in this valley where rust was a destroyer. Eastern Oregon brought up the average as follows: Union county, 25 bushels; Umatilla county, 30 bushels; Baker county 26 bushels. The acreage in our State for 1880, was probably about the same as for 1879, and the aggregate yield must be over 10,000,000 bushels, with an average of over 22 bushels to the acre, which has never been exceeded in this State, and we believe never has been equalled in any State in the Union. It is claimed that our lands, some of them, in this valley have been cropped too long, and that may be true in some cases, but the aggregte harvest of 1880 does not show much damage done. The fairest way to demonstrate the value of any county is by honest comparison, and as the world has to hear much concerning the wonderful fertility of California, we will accept a challenge at any time to compare with her products, and give her at least 15 per cent in the game; that too, when we know well that as a freqent fact, poor farming is done in Oregon.

We unhesitatingly assert that any good farmer who will summer-fallow every third year and work to fair advantage and with good judgment can average 25 bushels per acre in Oregon and by deserving it by thorough cultivation can often realize 30 bushels per acre.

HORTICULTURAL.

FRUITS, VEGETABLES AND FLOWERS.

Early History of Fruit-Tree Planting in Oregon —Methods of Cultivation Successful Here—What Fruits and Vegetables Succeed Here.

MANY EXOTIC PLANTS AND FLOWERS PROVE HARDY IN OUR CLIMATE.

The following essay has been carefully and conscientiously prepared for us by Henry Miller, Esq., the well known florist of Portland, President of the State Horticultural Society, whose long experience in the nursery and orchard qualifies him to do the subject justice. No man can be more impartial, and we assure all readers that all his statements are not only reasonable, but give the worst side of our horticultur.

In times past we used to make the assertion with great confidence, that there was perhaps no country in the world that was better adapted for fruit raising than Western Oregon and Washington, but of late we have not been quite so boastful, for as formerly we never knew an enemy to fruit, we have to contend the last three or four years with the bark louse, and now with the apple tree louse, or aphis. The bark louse ran its course, and has mostly disappeared, applications of lime and salt in solution, applied with a brush, helping it along. The aphis was very destructive in the timbered parts of the Willamette valley and Washington Territory, but not on the prairies. This Winter's season, it is hoped, will have destroyed this pest. The lady bug, a great enemy to the aphis, appeared on the scene last fall and destroyed great numbers. But with all these drawbacks, our markets were abundantly supplied with fruit at usual prices. Apples and pears are sent to market in boxes 12x15 inches and 12 in depth; dried fruit in paper packages of two pounds each.

EARLY HISTORY—THE FIRST NURSERY.

Most of the old orchards in Oregon and Washington Territory originated from a nursery brought across the plains in 1847 by H. Luelling in an ox wagon, the trees growing in boxes. He came from Iowa, and made luckily a good selection for this coast. In 1850 he went back for a larger importation, and he made a large addition to his nursery in all branches of fruit, but, in time, we came to find out that but a few varieties were really valuable for our markets, and the more than 100 varieties of apples decreased to about 20