

# THE NEWS RECORD

(Twice-a-Week.)

AN INDEPENDENT NEWSPAPER

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SATURDAY, FEBRUARY 20, 1909.

## OREGON BRIEFLETS

The United States National Bank of Portland has been approved as reserve agent for the First National Bank of North Bend.

At a meeting of the Wasco County Horticultural Society, held at The Dalles last week, The Dalles Fruit-growers' Union was formed.

The senate has passed Senator Fulton's bill appropriating \$175,000 for a site and public building at Astoria.

The controller of the currency has approved the conversion of the Douglas County Bank, of Roseburg, into the Douglas National Bank, with \$50,000 capital.

The oldest horse in Oregon died near Burns at the age of 43 years. The animal was an Indian pony and was owned by the late Captain Jack Kelley, the Indian fighter of Lava Beds fame.

The Baker City Light and Power Company has been absorbed by the Elkhorn Light & Power Company, which has plants in Union, Cove and La Grande. The new company may also manufacture and sell gas.

Threshing men of Clackamas county met in Oregon City and organized the Clackamas County Threshers' Association. The constitution and by-laws of the state association were adopted.

Representative Hawley secured passage through the house of his bill to pay S. H. Green \$200, being the amount of postal money stolen from the postoffice safe at Oregon City when he was postmaster, which amount he had to pay the government.

Walter Johnson, convicted of the murder of Elmer Perdue, of Spokane, was hanged in the penitentiary at Salem last week. The crime occurred in the mountains near Hillsboro, while the men were on a timber cruising trip. Robbery was the motive.

Lebanon has taken the lead of all cities in the state this year in preparing to celebrate the Fourth of July. At recent meeting of the Business Men's League it was decided to celebrate and preliminary plans for a big celebration were inaugurated.

Not a single person has been sent to the Penitentiary from Linn county for the past two years. This county has always been remarkably free from crime, but this is the longest period in the memory of court officers without at least one commitment to the state prison.

Three counties in this state, Benton, Lincoln and Yamhill, have not a single prisoner in the state penitentiary. This is shown by the biennial report of the superintendent, C. W. James, who has classified the prisoners as to their crimes, length of sentence and county from which committed.

Unkempt, dirty and with his ankle so badly sprained that he cannot stand without assistance, Robert Gerrish, who escaped from the Oregon insane asylum last November, was found in a barn at Oakland Friday night and taken back to the asylum. He can give no account of his wanderings or the cause of his injury.

Before the next regular river and harbor bill is framed by congress, a report will have been submitted by the army engineers, passing upon the necessity for a 30-foot channel from Portland to the sea, and that report will be accompanied by the outline of a project and estimate of cost. If the report is favorable, it will be binding upon congress, and it is reasonable to presume that the new work will be started under au-

thority contained in the bill. Four tramps were discovered in an alley at the rear of a Salom brewery Saturday morning by the police. Two of the men were nearly dead and several hours were required to resuscitate them. The other two were unconscious and all were taken to jail in an express wagon. They had been drinking wood alcohol and had fallen asleep in the middle of a mudhole and were nearly drowned as well as frozen. It is possible two of them will not survive.

R. S. Smith, of Klamath Falls, representing the Water Users' Association on the Klamath irrigating project, is in Washington in conference with the reclamation service and the secretary of the interior, in the hope of securing a modification of the order imposing a charge for water right. Water rights at Klamath have been fixed at \$30 per acre, divided into 10 equal payments. He wants the department to make the first payment \$1 or \$1.25 per acre and gradually increase the amount so that the last payment will bring the total to \$30. Smith says settlers will have difficulty in paying \$3 per acre the first year.

After consultation with officials of the reclamation service, Representative Ellis has written to settlers under the proposed Malheur irrigator project, informing them that the government will gladly take up and build that project if they themselves will promptly get together and induce all landowners, including the Wagon Road Company, to join the Water Users' Association in agreeing to sell their surplus lands when the water is ready for delivery and the application for water rights for all irrigable lands. The project is attractive to the government engineers, more so than many others under consideration, but it is up to the people themselves to say whether or not it shall be built now or later.

**Increase in Tillamook Dairying.** Tillamook — Tillamook county's principal industry, dairying, shows a gratifying increase over the year 1907, as is evidenced by the reports of three cheese factories just made public. The three manufactured 532,553 pounds of cheese, which brought in a revenue of \$65,720. During 1908 the average price for butter fat was several cents lower than in previous years. The average yield of cheese to the 100 pounds of milk was 19.9 pounds for these three factories.

**Notice for Publication.** Department of the Interior. U. S. Land Office at La Grande, Oregon, February 15, 1909. Notice is hereby given that Charles B. Horner, of Lightnings, Oregon, who, on July 31, 1901, made Homestead Entry No. 13723-Serial, No. 01209, for Lots 1 and 2, SW 1/4 NE 1/4, NW 1/4 SE 1/4, Section 1, Township 3 North, Range 49 East, Willamette Meridian, has filed notice of intention to make Final five year Proof, to establish claim to the land above described, before D. W. Sheahan, U. S. Commissioner, at Enterprise, Oregon, on the 5th day of April, 1909.

Claimant names as witnesses: Charles G. Holmes, Colonel F. Graves, Guy C. Horner, William P. Rankin, all of Lightnings, Oregon. F. C. Bramwell, Register.

**Notice for Publication.** Department of the Interior. U. S. Land Office at La Grande, Oregon, February 15, 1909.

Notice is hereby given that Ezekiel F. Fargeant, of Enterprise, Oregon, who on October 21st, 1903, made Homestead Entry No. 13322 Serial, No. 03269, for the North-east quarter of Section 34, Township 1 N., Range 46, East, Will. Meridian has filed notice of intention to make Final five year proof, to establish claim to the land above described, before D. W. Sheahan, U. S. Commissioner, at his office in Enterprise, Oregon, on the 6th day of April, 1909.

Claimant names as witnesses: Harry N. Vaughan, Elmer J. Jewell, Delmar Sargeant and Lora E. Allen, all of Enterprise, Oregon. F. C. Bramwell, Register.

**For that Terrible Itching.** Eczema, tetter and salt rheum keep their victims in perpetual torment. The application of Chamberlain's Salve will instantly allay this itching and many cases have been cured by its use. For sale by Burnaugh & Mayfield.

# Home Course In Modern Agriculture

## II.—How Plants Eat and Grow

By C. V. GREGORY,  
Agricultural Division, Iowa State College  
Copyright, 1908, by American Press Association

EVERY growing plant is a little factory. The green coloring matter of the leaves, or chlorophyll, is the engine. The sunlight is the power that makes the engine go, and the air, water and some of the substances in the soil are the raw materials.

Under the stimulating influence of sunlight the chlorophyll takes the carbon dioxide gas of the air and the water, nitrogen and minerals which the roots send up in the form of crude sap and tears them to pieces. Then it puts them together again in hundreds of different ways. It makes them into the starch of the potato or the sugar of the sugar beet. It puts them together in another way and makes the hard, horny gluten of a kernel of popcorn or the tough fiber of a cornstalk. By

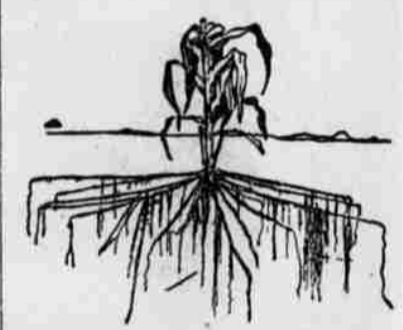


FIG. III.—THE GROWTH OF CORN ROOTS.

building them up in still different ways it makes the hard wood of the oak or the delicate petals of a rose. Man, with all his skill and machinery, has never been able to make any products half so wonderful as are being made every day in every field on our farm.

If plants are to grow rapidly and produce large yields, they must be well fed. About half the dry weight of a mature plant is made up of carbon. Practically all of this comes from the carbon dioxide of the air. Every acre of wheat will use a ton of this gas or all that is in a layer of air three miles deep over the acre. The constant mixing of the air by the wind is always bringing fresh supplies within reach of the plant.

The farmer does not need to concern himself with the supply of carbon dioxide, for every time he builds a fire or even breathes he is adding to the store of this material in the air.

The smooth upper surface of a leaf is both air and water tight. On the underside, however, are many small openings, which are really the mouths of the plant. It is through these tiny holes that carbon dioxide is taken into the leaf to be used by the chlorophyll. In making starch and other products out of carbon dioxide and water some oxygen is given off. This passes out through the openings in the leaves. Thus you see that plants breathe in much the same way as animals do, only they give off oxygen, the product which is used by animals, and take up carbon dioxide, the gas which is breathed out by animals. In this way plants make animal life possible. Animals give off carbon dioxide and manure as waste products. Plants tear these waste products to pieces and by rebuilding them make them once more into food for the animals.

Next to carbon hydrogen and oxygen are the foods that the plant uses in largest quantities. Since water is composed of these elements, the supply will be plentiful as long as there is plenty of water in the soil.

There is one element, nitrogen, which forms a considerable part of the plant, that is harder to get. While three-fourths of the air is nitrogen, the plant does not seem to be able to use it in this form. The only kind of plants that can use the nitrogen in the air at all are the legumes, such as clover and alfalfa. Certain bacteria that live on the roots of these legumes have the power of changing the atmospheric nitrogen into forms in which the plant can use it. We shall study more about this process later.

Nitrogen is one of the most important plant foods, and it is one that is very often lacking. If the plant cannot get a sufficient supply of nitrogen it will be stunted, will stop growing early, and the yield will be very much reduced. Since all the crops, with the exception of the legumes, must get their nitrogen from the soil, the farmer must see to it that there is a plentiful supply there if he wishes to obtain a large yield.

If you will drop a little rich black soil on a hot shovel some of it will go up in smoke. The part that burns is humus and is made up of vegetable and animal matter which is partly decayed. This humus contains large amounts of nitrogen, and from this source the greater share of this element used by the plant must come. If your soil is black, spongy and well supplied with humus there is little danger that the plant will go hungry for nitrogen. One of the best ways to keep a field in this condition is to apply liberal quantities of barnyard manure. Another way is to plow under green crops, especially clover. Sometimes it is necessary to buy nitrogen for the plant in the form of commercial fertilizers, but this is a very expensive way of obtaining it. Even when the plant is given all the nitrogen it can use it sometimes fails

to do well. This is because it cannot get as much of the mineral elements as it needs.

Too much nitrogen in proportion to the amount of mineral elements causes the plant to "go all to vines." There will be an excessive growth of leaves, but the yield of grain will be small. Take an ear of corn or a bunch of hay and burn it. The ashes that are left are the mineral parts of the plant. These cannot be obtained from air or water, but must come from the soil. Some of the most important of these are iron, which is the substance that helps to build up chlorophyll, and sulphur, which is found in the nitrogenous parts of the plant. There are a number of others also, all of which are present in the soil in such large amounts that there will probably always be all that the crops can use.

Two of these minerals, however, potassium and phosphorus, are not so plentiful. When the plant cannot get enough potassium the grain will not be filled out well. If there is too little phosphorus, especially in the case of fruit trees, the development of fruit is checked. Adding barnyard manure to the soil helps to keep up the supply of these two materials. On farms where little stock is kept or where grain has been raised continually for years and little attention paid to the soil it is sometimes necessary to apply phosphorus and potassium in the form of commercial fertilizers.

In the eastern part of this country there are many farms that have become so badly run down that crops will not grow at all unless they are fed with commercial fertilizers. These are very expensive, and it often takes nearly all a farmer makes to pay his fertilizer bills. These farms would never have become so worn out if they had been properly cared for. Leaving plowed ground, especially on hillsides, exposed for several months during the fall and winter allows much plant food to wash away. Growing the same crop year after year wears out the land rapidly. Different crops require different kinds of food. By changing crops from year to year no one food material is used to excess and the others wasted. By keeping as much stock on the farm as possible, saving the manure carefully and spreading it on the fields before it rots or leaches away and by using leguminous plants to gather nitrogen the soil can be kept well supplied with plant food.

It is much more profitable to feed the crops in this way than to buy plant food on the market at excessive prices. Usually, however, the plant is hungry for the mineral elements not because they are not in the soil, but because they are in a form in which it cannot get at them. The roots of the plant spread all through the soil in search of food. If you will look at a little root through a magnifying glass you will see that it is covered with root hairs. It is through these root hairs that the plant takes up food from the soil. There are no openings directly into them, but the walls are so thin that the water can soak through to the inside. Solid substances, of course, cannot get in, so that the plant food must be dissolved in water before it can get into the roots and so up to the chlorophyll, which is waiting to build it into seeds or leaves.

If the soil has been worked until it is fine and loose each little particle

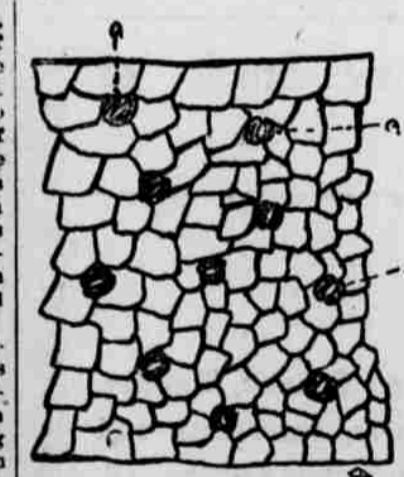


FIG. IV.—MAGNIFIED SECTION OF UNDERSIDE OF LEAF SHOWING BREATHING PORES—A, A, A.

will become surrounded by water, which will readily dissolve the plant food from it. If, on the other hand, the soil is in the form of chunks and clods very little of the plant food can be dissolved. The plant food that is on the inside of a clod might as well be out in the road or over on one of the neighbors' farms.

Some of the potassium and phosphorus will not dissolve even when brought in contact with water. It takes a long contact with the air to cause chemical actions which will change it into a soluble form. Continual stirring of the soil hastens this change. Though stirring also loosens up the ground so that air can get down to the roots. Without aid they will stop growing and the entire work of the plant will stop. The yellow appearance of a patch of corn in a low place where the ground is water soaked is due to lack of air about the roots.

## NOTICE OF GUARDIAN'S SALE OF REAL PROPERTY.

In the County Court of the State of Oregon, for Wallowa County.

Notice is hereby given that by virtue of an order of the above-entitled Court, made and entered on the 8th day of January, 1909, licensing, authorizing and empowering the undersigned guardian of the estate of Beulah Bunnell and Irene Bunnell, minors, to sell all of the interest of the said minors in and to the E 1/2 of the NW 1/4 and the W 1/2 of the NE 1/4 of Section 35 in Township 1 North of Range 44 E. W. M. in Wallowa County, Oregon, the same being an undivided one-third interest, I will from and after the 12th day of February, 1909, proceed to sell at private sale all of the interest of said minors in and to the said described real property. The terms of said sale are as follows: The entire purchase price is to be paid in cash.

Dated this 13th day of January, 1909.

MINNIE AKINS, Guardian.  
First insertion Jan. 14, 1909; last Feb. 11, 1909.  
BURLEIGH & BOYD, Attorneys for Guardian, 2115

## ADMINISTRATOR'S NOTICE.

In the County Court of the State of Oregon, for Wallowa County.

In the Matter of the Estate of Martha J. Brown, Deceased.

Notice is hereby given, that the undersigned, the administrator of the estate of Martha J. Brown, deceased, has filed his final account of his administration of the said estate with the Clerk of the County Court in and for said County of Wallowa, and that the County Court of said Wallowa County, by order duly made and entered, has fixed Friday, March 12th, 1909, at the hour of ten o'clock in the forenoon of said day, as the time, and the County Court room in the County Court House in the City of Enterprise, in said county, as the place, to hear objections to said final account and settle the same. All parties interested in said estate having objections thereto, if any there be, are notified to present the same, in writing, at said time and place.

Dated this 9th day of March, 1909.  
J. A. BURLEIGH,  
Administrator of the Estate of Martha J. Brown, Deceased. 2515

## GAME LAWS.

Any person knowing of a violation of the game or fish laws of this state, or of persons not properly keeping screens over irrigator ditches, are requested to notify

JOE CLEMONS,  
Deputy State Game and Forest Warden, Zumwalt, Oregon. 431f

Read the advertisements.

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