

## HOPS AND THEIR CULTIVATION.

No. 1.

There is probably no subject of so much importance to the baker as the choice of the quality and age of the hops he uses. Long experience and close observation has convinced me that too little attention has heretofore been bestowed on the selection of hops for yeast making purposes by the practical commercial bread maker, a great many of whom suppose that any kind of hops will answer their purpose. This is a mistaken idea. Having had more than one lesson on this point which cost me a trifle, I found that bought experience is best in the long run.

Hops have been used for many generations in brewing drinks on the continent of Europe, and have been cultivated in Germany as far back as the ninth century. They are believed to have been introduced into England from Flanders in the reign of Henry VIII, about the year 1524. Previous to the importation of hops various bitter herbs were used in beer, especially the ground ivy, and so great was the prejudice against the use of hops at that period that when they were first introduced the city of London petitioned the king to prohibit their use, for fear it would endanger the health of the people. Whereupon the king issued an injunction not to put any hops or brimstone into the ale. The bitter aromatic taste of hops is well known, and like other vegetable bitters they possess medicinal qualities, and have a tonic effect upon the system, they also possess a sedative action, and are not unfrequently prescribed by physicians for derangements of the digestive organs attended by nervous excitability. A narcotic property is also ascribed to the odor of hops, and it is stated that the air of the buildings in which large quantities of them are stored has the power of producing sleep. Some medical men deny this virtue to the hop, while others affirm that a pillow of hops is efficacious in conquering wakefulness.

The hop is a vine with a perennial root—that means perpetual—from which spring up numerous annual shoots, forming slender, flexible stems, angular and rough to the touch. These climb spirally upon trees or around poles to a height of 20 or 30 feet. When in blossom the hop will be found to be a collection of very simple flowers, each consisting of a single pistil surrounded by a sort of membranous covering. The fruit, botanically speaking, is the ripened pistil, which is a small nut that incloses a single seed. Around the fruit are found numerous yellow grains which are peculiar glands, and only produced in the pistillate plant. These grains are called lupulina, lupuline glands, or "flowers of the hop." The lupuline is very resinous, adhesive and aromatic, and it is upon this that the peculiar odor, taste and other properties of the hop depend. The greater or less abundance of lupuline in a sample of hops is one guide in judging of the quality and in preparing them for the market. This is never lost sight of, as the lupuline varies from one tenth to one sixth of the weight of the hops.

In pills of lupuline for sedativeness prepared by rubbing the powder in a warm mortar until it becomes plastic, and then working it into pills, which are given in doses of six to twelve grains. In the low countries of Europe most favorable to the cultivation of the hop, the tender shoots are esteemed as an article of food when they first appear above ground, and are cooked and eaten like asparagus or greens. A dinner in Bavaria will sometimes consist of beer and the materials of which beer is made, barley, boiled and seasoned as a vegetable, and the young sprouts of the hop, which are regarded as delicacies of the season. The southeastern portion of England is particularly favorable for this crop, and in the county of Kent alone 35,000 acres have long been appropriated to it. Hop plantations are also found in other parts of the country, but the product of the county of Kent probably represents one half of the whole amount raised in England.

The Belgian hops have a good reputation, but those of Bavaria are said to be the best of all, the aroma being more perfectly preserved by the method of preparing them in practice there. In Belgium, when the hops are mature, the poles are pulled up with the vines hanging to them, which are immediately carried

ed up to the kilns, on which they are dried upon a floor of wire or hair cloth, at a heat not exceeding 180 degrees Far. Fumes of burning sulphur are admitted to the hops while drying, by which they are partially bleached; they are then packed tightly in bags or "pockets" with the aid of a press, and the parcels made so compact that they may be cut into blocks with a knife. The Bavarians when the hops are ripe, cut off plants close to the ground and leave them upon the poles to dry in the sun. This is considered to preserve the aroma, and the hops, though packed loosely in bags, have more strength and flavor than the English or Belgian.

At this point I wish to make a note on the difference in these two methods of hop curing. In the year 1879, so dry was the summer in Utah, that scarce any hops could be raised, my old stock run out some six months before the new crop was ready; I ordered 5 lbs. to be sent me from Salt Lake City, 60 miles distant, which I received in half pound blocks, branded—(Hops, Humulus lupulus) of these I made a brewing, and found out when too late, that I might as well have made that brewing of musty brown paper. The upshot was, I spoiled two batches of bread, saleable enough to outside appearance, but the bread had a disagreeable, bitter, musty flavor, and had it not been for a fellow craftsman, six miles distant, who loaned me a few pounds of loose hops, I would have been obliged to quit baking. I have been very suspicious of pressed hops ever since, and that paying for the article made up in small blocks is akin to purchasing stale eggs, or a pig in a sack and paying for it before seeing it. When hops are high in price, almost any kind will sell, but when they are low, only the best sell readily. At two years old they are only worth half price, and are worthless at three or four years. The war price of hops was 65 cents per pound. In 1866, Wisconsin yielded from 80,000 to 100,000 bales, and so overdid it that the culture became utterly unprofitable; the result of this overproduction being that in the year 1878 it yielded but 40,000, while the crop of 1879 yielded but 15,000 bales. Under all circumstances, it is best for the consumer to purchase and the producer to sell the first year. For brewing purposes, new hops are considered the best, but old crops are taken for ale-brewing purposes generally, while lager consumes the new crop. The value of this industry in the exceptionally low prices in 1878 is estimated at \$41,000,000 for 260,000 bales. Fifteen cents per pound is reckoned the living price for the producer.

The best hops that come to New York City are those grown in New York State, the next best being raised in California, whose yield in 1879 was 15,000 bales. England prefers her own hops first, then the American, where all the domestic and most of the export trade is done, through New York City, nearly 50 firms dealing exclusively in hops, and representing an enormous amount of capital. The increased consumption of lager beer and its substitution for other beverages, has largely increased the demand for hops for brewing purposes, and although ale manufacturers do not take so great a quantity as they used to do, the decrease is more than made up by the demand from the manufacturers of lager, and it is but fair to suppose that the increase will continue.

Having said all that is necessary on hop production, I will now, for the benefit of the craft to which I belong, give such instructions as will qualify every individual baker to raise and cure his own hops with little cost inside of what he may require for his own use in trade, and on a very small patch of garden ground.

When it is considered that an average crop of hops is 1,000 pounds to the acre, though as high as 1,700 and 1,800 pounds have been raised in New York State on trained strings, it is easy to calculate how small a space of ground is required to raise a hundred pounds, more than the baker doing the largest business in the United States could use in a year, and the quality of the article insured, as in the drying of hops in large establishments, unless great care is used in the curing, much of the flour or lupuline is lost. By the American system of drying on kilns, sometimes two or three pounds to each kiln fall, on which more will be said after treating on their cultivation. There are many varieties of hops cultivated in this country, but English cluster and grape hops suc-

ceed best. The Pompey hop is said to be very large, with long arms but is more subject to injury by rust and insects than the first mentioned, on which the hops hang in large clusters, and both are early varieties. The situation for a hop yard on a large scale should be such that there is a free circulation of air—never by thick woods or in a valley, where rust, mold and lice moss abound—they should have plenty of sunshine, which is the surest preservative against the ills the hop is heir to. The soil should be kept as dry as possible in winter, and no water should lie on the surface at any time. If not naturally rich enough it can be made so by manuring. Any soil where good crops of corn or potatoes can be grown is suitable, but it should be easily worked and kept mellow, as there is much cultivation to be done. In Central New York they are raised on high land, where none but the smallest varieties of corn will grow. The best time to plant a hop yard is in the spring, as early as the ground can be worked; the ground should be plowed and made as fine and mellow as possible, then staked off and marked with a plow or line, and the plants set with a dibble, the surest method of insuring their lives.

The sets for planting are runners from old vines, care being taken to keep the sets from male plants separate from the others. The hop is a dioecious plant, that is, having the staminate or male and the pistillate or female flowers on separate plants. There should be but one male hill to every eight hills, each way, or one in sixty-four; the male hill to be marked by a stake when planted, so that it can be distinguished at a glance. The sets are cut to two pair of eyes each, or, if very short, jointed to three eyes each and three to four of them are put in a hill according to their condition, and set in from two to four inches deep, as the soil is light or heavy. When the ground is very mellow, with but few stones, holes are dibbled just deep enough to admit of the sets being under ground. When planting is done early and with good fresh sets, there is but little risk from failure. The cultivation for the first year consists in keeping the weeds down and the ground mellow. If good sets, planted the first year are used, it pays to raise a crop the first year, and the plants are all the better for it. One stake is set in each hill and the vines allowed to grow around it; the stakes should be eight feet long and set one foot in the ground. The holes for the stakes can be made with a crowbar. There are string yards and pole yards, but the string yard is the most convenient as well as ornamental. A string yard is where the poles are placed wider apart and the hops allowed to "string" and run along extended cords, which they do at their own sweet will, paying a mute but very appealing tribute to the picturesque, and having the advantage of more light and air. The best stakes for a string yard are one and a quarter inch sawed wood. Gas tar for dipping the stakes into, which costs but a dollar a barrel, is used by careful growers. It is heated in a pan and the whole stake soaked into it. This gives a fine coat of paint to the stake, protects it from the weather, and renders it exceedingly offensive to insects. If the stakes are any more than eight feet long, or seven feet above ground for the first year, the vines will not get to the top in season to "hop" well. It is considered best to stake the sets when planted, so that they may be out of the way of damage when cultivating the yard for any other kind of crop, and where there is a fence, they should be planted in the line of it eight feet distant. From 200 to 400 pounds of hops to the acre can be raised the first year, with little or no cost to the grower. When the stakes are set connect them at the top by twine, hemp or woolen twine is best, running across the stakes both ways, to be tied to the outer stakes only and wound once around the inner ones. A small twine that will measure 700 feet to the pound is strong enough, and if tarred with good pine tar will last for years. At the male hills put one tall pole about 18 feet long, so that the male vine will run up it, and the wind can blow the pollen over the yard. The string should pass these poles free so that the wind will not break the twine.

The hop vine having passed its first year, to commence with the second year early in the spring, or as soon as the yard is dry enough, it must be grubbed and the debris hoed from the hills, this without injuring the root. All the old vines are cut

off smoothly with a knife, as well as old runners; the latter must never be torn off or cut with a hoe. The hills must be examined for grubs, and all insect life destroyed. The yard is then plowed out, and the runners or sets, which are only found in the second year, and worth from fifty cents to one dollar and a half a bushel, carefully taken out, care being taken to break them as little as possible, and not to allow them to remain lying long in the sunshine, or be frozen while lying on the ground. It is also absolutely necessary in setting the stakes, that they should be all on the same side of the hill, so that in plowing, the horse may be guided to prevent his stepping on the crowns. The stakes should be all of the same length, and when the vines reach their full height, they should be tied, four to each stake, except in the outer hills when five or six may be tied, so as to fill the strings to the outer row of stakes—if the vines are not adjusted round the stakes the way the sun goes they will not run, and where they are obstreperous it is necessary to tie them with bass matting or old woolen yarn. The vines will need tying up as often as they leave the poles, but it must never be done on a cold day or early in the morning. Whenever a vine gets its head broken off another vine must be substituted. When the tallest vines reach about two feet above the tops of the stakes they are laid on the strings and loosely wound round. The vines are put on the strings while they are growing very fast, about twice a week, or when they are two or three feet long and they are allowed to hang down about six inches.

The vine having passed the first space, is allowed to run pass the stake on to the string having forward vines upon it, and when it reaches the second string it is trained to hang down like an arm, these arms should never be put on the strings, but allowed to hang down and wind around each other, as they will not break by hanging, and will be more exposed to the sunshine and air, and so long as to brush the ground, they are laid upon others, where they remain. The hop is ripe when on opening it the seed is hard and of a purple color. After that it turns brown, the seeds drop out, resulting in a great loss in quality and weight. Of course in a large yard where little help is at hand, all the hops cannot be picked exactly the right time, as the hops will ripen sooner in some parts of it than others, and should be picked first. The picking should commence when the seed begins to get hard.

The general method of picking is to begin at the ripest part of the yard, with light willow baskets, which hold from three to four bushels, loosen the strings from the stakes, and let them drop until held by the vines, they will then be about five feet high, and can be pulled lower as wanted. Pick clean, put the fingers through between the hops in the bunch, instead of around it and stripping, as is often done. Put in all the hops, but none of the large leaves, and as few of the small leaves as possible; often there is no care taken to keep out small leaves, but for a prime article very few should go in, and no bunches of more than three hops should ever be allowed in the basket when prepared for the market. A man who has the reputation of picking his hops clean and putting them up nicely will get an extra price for them, and find a quick sale when hops are low. The difference between "fancy hops" and "common sorts" is always enough to pay the whole cost of raising the crop. The best hops alone have the advantage of the foreign market.

(To be continued.)

## Correspondence.

### A Suggestion Worthy of Attention.

MANTI, Sept. 21st, 1880.

Editor Deseret News:

As co-operative institutions are in vogue, I thought I would make a few suggestions in relation to home industry. There is a superabundance of coal in the vicinity of Fairview in this county, and there is plenty of means to work it—both money and muscle. But the question naturally arises, how can it be utilized, as there is more than would or could be consumed here? Would it not be a paying investment to organize a joint stock coal and coke company, and thereby not only give employment to men and teams, but create a

source of revenue not only to Sanpete but to Utah? I have been informed that several hundred thousand dollars are annually paid for imported coke, while we have thousands of tons of good coking coal almost at our doors, and plenty of men and means, if properly organized, to manufacture all the coke which would be needed for home consumption, thus saving a large amount of capital in the Territory and building up a paying business for the many. If coke can be manufactured in Pennsylvania and shipped to Utah at a profit, we can surely compete with them and sell for a less price and still make a profit. If not, why not?

Yours respectfully,  
J. J. T.

### Change of Name.

THERMOS, (formerly Hot Springs),  
via Minersville, Utah,  
September 17, 1880.

Editor Deseret News:

As there are at least three distinct Hot Springs delineated on the geographical and geological map of Utah issued by the Department of the Interior, I entreated Mr. Gilbert Thompson, topographical surveyor, recently engaged here in the employ of Mr. G. K. Gilbert, in making a geological survey of this part of the Great Basin, to change the name of these Hot Springs to Thermos, the Greek equivalent.

The complaints, confusion and vexation which this egregious disorder has occasioned is well known to postmasters, forwarding merchants and freight teamsters. These parties will no doubt readily approve of the change of name. Still, in order to make the change beneficial, the fact of it must be made public, which I would respectfully request you to attempt in your extensively circulated newspaper.

The greatest natural heat of the water here is 182 degrees by Fahrenheit's scale, just twenty degrees less than the boiling point of water, and 52 degrees more than scalding heat, at this place or altitude, which is 5,600 feet above sea level. Latitude 38° 13m. and longitude 113° 13m. west from Greenwich.

Very respectfully,  
HENRY CROUSE.

### Dams and Fish.

Editor Deseret News:

The Territorial Legislature, at its last session, amended certain laws for the protection of game and fish, which, no doubt, were as well adapted to the purposes intended as circumstances would admit.

Section 2201, Compiled Laws, provides that any person constructing or keeping a dam across any stream of water, so as to obstruct the migration of fish to and from their spawning grounds, or without providing suitable means for them to pass and repass, is guilty of a misdemeanor. Section 2202 describes how fish ways are to be constructed.

There has been for years near the point of the mountain south of this city, a dam across the river Jordan, that blocks the stream and prevents large quantities of fish from reaching their favorite resort, one of the most beautiful spawning grounds, created by nature's Great Artificer, and in every way adapted to their wants and instincts, namely, Utah Lake. Because certain persons have failed to comply with the law, the fish, not having wings wherewith to fly, must remain below the dam. As a consequence of this neglect I have for several years past observed a steady decrease of fish in the Jordan. Vast numbers of them collect at the dam, and, unable to pursue their journey they become poor and emaciated and unfit for human food.

Will those whose business it is or should be remedy the evil at once, and thus honor and sustain the law? I would suggest an inspection of all dams and fishways by the officers of the Game and Fish Society, who are specially interested in seeing that dams and fishways are not only kept in order, but also constructed in conformity with the law. H.

### The Work in Kentucky.

MARTINSBURG,  
Monroe Co., Kentucky,  
September, 1880.

Editor Deseret News:

Since last writing we have been busily engaged opening up new fields of labor in the counties of Muhlen, burg, Butler, Warren and Logan