



LIBRARIES

UNIVERSITY OF WISCONSIN-MADISON

The Nebraska bee-keeper and irrigator. Vol 7, No 2 February, 1896

York, Neb.: L.D. Stilson, February, 1896

<https://digital.library.wisc.edu/1711.dl/O3H3AXWXWOHKW8O>

<http://rightsstatements.org/vocab/NKC/1.0/>

For information on re-use see:

<http://digital.library.wisc.edu/1711.dl/Copyright>

The libraries provide public access to a wide range of material, including online exhibits, digitized collections, archival finding aids, our catalog, online articles, and a growing range of materials in many media.

When possible, we provide rights information in catalog records, finding aids, and other metadata that accompanies collections or items. However, it is always the user's obligation to evaluate copyright and rights issues in light of their own use.



The ❖ Nebraska ❖ Bee-Keeper AND IRRIGATOR.

A MONTHLY JOURNAL DEVOTED TO APICULTURE AND IRRIGATION.

Vol. 7.

YORK, NEBRASKA, FEBRUARY, 1896.

No. 2.



The ❖ Nebraska ❖ Bee-Keeper AND IRRICATOR.

A MONTHLY JOURNAL DEVOTED TO APICULTURE AND IRRIGATION.

Vol. 7.

YORK, NEBRASKA, FEBRUARY, 1896.

No. 2.

Annual Report Continued from January issue.

The Wednesday evening session opened with election of officers, which resulted as follows:

E. Whitcomb, Friend, Nebraska, President.

H. E. Heath, Lincoln, Nebraska, Vice President.

L. D. Stilson, York, Neb., Secretary and Treasurer.

Next was a paper entitled

Mistakes of Bee-Keepers.

BY L. L. ALLSPAUGH.

We do not see for the life of us, why the program committee assigned us this subject, unless it was because they were aware that we are eternally making mistakes, which we are frank to admit is true.

“Mistakes in beekeeping;” let us see where to begin. Show me one beekeeper that did not make a great mistake in beekeeping in 1894, and I will show you nine that did. Mistakes are as numerous in beekeeping as in any other avocation, in this life. In the spring of the year when old winter begins to vanish, and the beautiful spring comes forth in all its beauty, and the sweet songs of the birds are heard, from every tree and bush in our yard, and the soft breezes that wave over the land, it makes our hearts rejoice and be glad to bid adieu to old winter, and welcome the beautiful spring. While mankind is perfect in every way, look at mankind and his imperfections. First, while nature is coming forth in all its perfection, how apt man is to make a mistake. In the spring when our bees need our attention so much, we are very apt to neglect these wants, and say it is too warm a day to handle bees. We must attend to them; they must be overhauled; hives cleaned out, all dead bees in the combs brushed out. Breeding has begun, and the bees now want some water, and perhaps they may want some feed in the shape of honey or syrup or artificial pollen, etc. Now if we neglect this we have made a sad mistake, for our honey crop depends entirely upon the care we give our bees in the spring. If we allow our bees to go haphazard hither and yonder for water which they so much need, or

if they are allowed to go to the horse trough, where there is an abundance of melting ice, the water is of course ice cold, the bees fill themselves with this and start for home, but get chilled and die on the way. A few days like this, and your hive has become somewhat diminished. Then where are your bees to keep up breeding or gather the saps that are about to begin to flow; what a sad mistake we have made! We have suffered a great loss; we have no bees to gather the fruit bloom honey, which is becoming so plentiful in our beautiful state of Nebraska. In one day's drive last spring we saw what would have made several hundred acres of a solid mass of white fruit bloom. I heard many persons comment about it that they had no bees to gather the honey that was going to waste, although there is some of that honey now in this hall.

We have now come to the time when we should have made all preparations for our June honey flow. How many of us have made all necessary arrangements and provided our bees with ample room in a neat and tidy way, or have we neglected this, and made another sad mistake. Right here comes on the swarming season; have we got our bees in a convenient place where we can see and hear them, or have we got them in some back yard where we never see them, unless we make a special trip to see them, he who has, has made a mistake; for his bees will swarm and go to parts unknown. I haven't time to mention all the mistakes that bee-keepers in general often make, but the honey flow is soon on hand, no supers prepared, much less on our hives. The honey flow is soon over, and our bees gathered no honey; many will say their bees did no good this summer, when the fault was all our own, because of the mistakes we make.

You approach a man and ask him to subscribe for a bee journal, why he says, away with you! I don't put any stock in bee journals, they are full of trash and lies. This man has set himself up for a perfect model; do you know what I think? he is making a sad mistake, yea, worse than that, he is making a fool of himself. I do not mean by this that we ought to burden ourselves by taking all the publications that are now being published, but I think every bee-keeper ought to take one or two of these journals.

I might mention other mistakes, but do not think it advisable to occupy your valuable time, but want to say to all my bee friends, be careful in all your adventures and try to avoid all mistakes that are in your power to do so.

Next came a general discussion.

Mr. Stilson.—Mr. President, I want to ask if a bee keeper does not make a mistake by handling his bees too much?

Mr. Whitcomb.—Mr. Whitford, can you answer that?

Mr. Whitford.—I don't know that I can answer that question. I think it is sometimes a detriment to handle bees oftener than is necessary to keep them in working order—see that they have a good queen, good brood frames and plenty of food at all times.

Mr. Whitcomb.—The continual handling of frames disarranges the hive to a certain extent. A bee hive is a complete family. The queen is the mother of all the bees. The workers—they are females which are undeveloped—are the wax makes, water gatherers, guards, nurses, and honey gatherers as they become older. Each bee takes her position sometime in life in one of these positions which I have named, running a long up until they become honey gatherers; that is the last thing they do. In this paper he speaks about taking care of the bees in the spring and he talked very wisely about it. Early in the spring one bee is worth more than a hundred later on, because if anybody would ask me how long a honey bee lived, I would say about forty days. It does not make any difference about the strength, the amount of honey stored, if you have young bees in the hive in the late fall. It does not make any difference how you winter them, if you find them out in the spring. It is the young bees that go through the winter. If you do not prepare them for the winter in the fall it is necessary to produce bees by artificial feeding. If you do not, they will all be dead. They need water for brood rearing, and it is the young bees that go out in the spring for water. They can't rear brood without water; they use honey, pollen and water. The water is used to mix up a paste for the bees food. They go to a cold stream or tank for this water, or go to a hydrant, and they never come back, and the bee keeper tells me that his colonies have dwindled and that he has lost the best part of his colonies. We find that a bee at this time of the year, May 1st, is worth more than a hundred are later. We can easily spare the bees that have done the work this fall, because they will die in a few days or a few weeks. The young bees are the life of the colony now and until new brood is reared. The growth of a colony is enormous. The queen, who is the mother of all the bees, during a good season and under good conditions may lay four or five thousand eggs per day; and while she perhaps would weigh 1-100 of an ounce she will lay twice her weight per day in eggs—eggs that would weigh twice as much as the queen would. She never mates but once with a drone. After she mates once she never mates again during her life time. She may live four years; ordinarily two and a half or three years is the life of a queen. Every egg laid by this queen in the hive might be reared into a worker bee. Any one of these eggs could be reared into a queen. The only difference between the worker

and queen is the amount of room that is given. They build queen cells on the side of the frames, tearing down two or three worker cells to make it, and then feeding royal jelly, and instead of coming out a worker bee, she comes out a queen or mother. There is something very peculiar about that. Under ordinary conditions this bee would come out a worker and the western saying goes, "would sting at the drop of the hat". This same egg that would ordinarily have developed into a worker bee, if reared into a queen, while she may sting, never does it except under extraordinary circumstances. You may take her between your thumb and finger and pull her limb from limb, pull her wings off and you will not get a sting. You try that with a worker bee. You know if you make any quick movements or jar any of the frames how quick they will dart out and sting you. A queen *can* sting and sting viciously too, but she very seldomly does it. That is something I do not understand about the simple change of the egg from a worker bee into a queen.

A gentleman from Illinois asked me to tell him something about the mode of wintering. He is a German friend, and I have found the Germans to be the most enthusiastic bee keepers.

The Gentleman from Illinois.—In Germany, if they are moving bees along the street, and if a king should come along, he would turn out for the bees, he has so much respect for them.

Mr. Whitcomb.—Ordinarily we have to prepare our bees in the fall, in September, or as soon as the honey flow stopped. We have to feed them with artificial honey or sugar syrup, enough to last the colony over winter. We have taken a considerable stride in the direction of winter feeding. A man says "can we feed in winter". The bees cannot go out of their clusters to take the feed down. They cannot or will not leave the warm cluster to get at the syrup, and bees have been known to starve in the hive because they would not move from the warm cluster to where the food was. They would get chilled and could not get back. Now we take about nine pounds of granulated sugar, and cook it the way we would candy that we were going to pull. Boil it down until it will harden in water, then turn it into a bread pan or a pie pan about seven by ten inches, turn this sugar into that and allow it to cool. When you are packing for winter, take the cloth off of the frames, lay a couple of sticks on top of the frames so as to make a bee space, then lay the cake on these sticks, replacing the cloth and closing the hive, but be sure to have the sugar cake right over the cluster of bees, put back the blanket and that sugar cake will winter any colony. While it is very hard, it has two objects. First; the moisture from the bees dissolves this sugar absorbs the moisture from the bees, which is one thing

you want to get away with. What we want is something to absorb moisture, and the sugar cake does that. First, it dissolves the sugar and then it absorbs the moisture. We find that that there is no such thing as diarrhoea in the Spring by this mode of wintering. Now bees must have water. If I would not let my bees have any water at all you would say that I was a fool, and you would not be far wrong. You want to protect your bees, and see that they have plenty of water right in the bee yard. If I would turn my cattle out into the street you would not expect them to live through the winter. It is the same with bees. They must be cared for. The first elements in beekeeping are observation, promptness and gentleness. The ladies make the best beekeepers; they are gentle and the bees appreciate gentleness. You gentlemen who handle bees know that if you drop a comb or make a nervous move, how quick it is taken up; but if every movement is gentle and firm and there is no dropping of combs, you may handle bees for months and months without even the least desire on their part to sting, but you make any quick or jerky movements, or drop one end of the comb, you will quickly notice how it is resented by the bees. It is said that bees cannot hear, but they get the idea that you are nervous in some way or other and they resent it very quickly.

Mr. W. R. Harris.—When the bees begin to work in the spring and there is not sufficient pollen, what do you usually feed them?

Mr. Whitcomb.—Usually ground oats and corn. It is greatly preferable to rye flour from the fact the the bees breathe through pores in the body instead of by lungs. They get into the rye flour and daub themselves up and that stops up the pores and smothers them. While we are talking about water; it is as essential to water your bees as it is to water your stock. If you turn your stock out and let them go a hundred miles for water they will "dwindle". We might just as well say that our cattle had "dwindled". You will find the weakest begin to drop out, and they will continue to drop out until you attend to them properly. They will "dwindle" the same as your bees if they do not have plenty of water. I water my bees regularly in the yard just as I do my stock, every day in the year when it is necessary for them to have water. The way I water is this: I take a quart Mason fruit jar, take off the top and rubber and lay them away. Then I take a pine board about six inches square and make grooves in it from corner to corner with a chisel, but do not go quite to the corner. These grooves are just deep enough to allow the water to flow freely. I then fill the jar with water and invert it on the board, placing it right in the center. The water will flow out just as fast as it is taken by the bees, and no faster, unless the jar does not set straight. The bees will alight on the

board with dry legs, take what water they need and then go back to the hive. If you notice you will see a little bubble of air rise in the water when the bees are working on it. The jar will not burst as it would if it was left sitting with the top up,—I mean in freezing weather—because the water as it freezes has a chance to expand. I have found this to be the very best way to water the bees. I experimented a long time before I got on to this way. I got a Mason jar and punched the top full of holes, but this was not satisfactory. If the boards are tipped very much the water will run out. Twenty colonies of bees will take two gallons of water every day. I have a water tank within fifty feet of my apiary, but there is not a single bee there at any time, simply because I have given them plenty of water in the apiary. The water is warmed by the sun as soon as the bees can come out in the early spring, so it is not too cold for them.

Mr. Harris.—Is not the first thing that they get pollen from Willow?

Mr. Whitcomb.—Willow and box elder. When they can get natural pollen, they will leave your artificial pollen. Often you will experience some trouble in getting the bees that have been going elsewhere, to go to these water jars for their supply of water, but you can overcome that by sweetening their water a little bit. They will swarm all over it and thus get used to the place where they can get water.

Mr. Stilson.—The question I asked was about the handling of the bees. Can they be handled too much? Now this morning a man came over where I was and began asking me about bees, and so on, and he said that his bees did not do very well. I asked him if he took care of them, and he said that a man that insinuated that he did not take care and look after his bees was greatly mistaken, that was all. He seemed to be very much in earnest when he was talking, and seemed to think that I insinuated that he did not take care of his bees. I asked him what care he took of them, and he said that every time he passed through his bee yard he lifted the covers of the hives and looked in to see that the bees were there. I said to him, "You go home, and don't touch your bees for a week and don't look inside of them for another week, and you will have better luck".

Mr. Whitcomb.—It is not necessary to raise the cover or disturb the bees. I can tell if they are not working by just looking at them, or if robbing is going on, or if they are starving, or if anything at all is the matter with them, or if they are short of stores. Two years ago we had a wet season and a great many of the bees starved because they could not go out to gather honey, and I had a great many neighbors came to me for bee hives. They said their colonies were all out and

were going to swarm—they insisted that their bees were going to swarm because they were all over the front of the hive in big clusters. I said they are not going to swarm at all; they are starving. You go home and feed them and they will be all right. If you don't you won't have a bee left inside of four or five hours. They did this and the bees all went to work inside of the hive again. They were in the last stages of starvation. One of my own colonies were that way; in the last stages of starvation. They hung out and I went into the house and got some syrup and when I raised the cover of the hive to feed them, I did not find a single bee in the hive. They were all on the outside. In just a little while they were all in the hive. I did not have to look in the hive to see whether they were short of honey. I could tell it by their hanging out.

Mr. L. R. Lighton.—That is not always a sign of starvation. I have hives full to running over with honey, some with sixteen frames of sealed honey, and nearly all the bees are hanging on the outside of the hive.

Mr. Whitcomb.—That is probably caused by the excessive hot weather. They come out to get cool. I turned the syrup over the bees that were on the outside of the hive I spoke about, and it is surprising how quickly they took that. In cases like that, the impression gained by the beginner is that the colony wants to swarm. They don't. They want to eat, and unless they get something soon, inside of three or four hours the bees will all be dead. We often think the bees are robbing, when it is just the young bees flying. They come out of the hive and fly around, crawl up and down the front of the hive. They are come out of the hive. They are just getting their bearings the last thing before they fly for honey. Very frequently bees do rob, but not young bees, but it is very seldom we have trouble with bees.

Mr. Harris.—How do you prevent robbing?

Mr. Whitcomb.—The first precaution I take is to close the entrance so that only one or two bees can get in or out. They will take care of their own hive ordinarily, but as a last precaution, I use carbolic acid. I put that on the alighting board. The robbing bees when they go in and come out take the scent of the acid, and when they try to get back into their own hives they can't. They are not known. Bees go a great deal by scent, and those who are scented with the carbolic acid, cannot get in, and the guards think they do not belong there, as they do not smell right. Often when I want fun or excitement, I swap colonies, and then there is fun I assure you.

Mr. Stoley.—I have swapped colonies, and they don't know brother from sister.

Mr. Harris.—When bees fly like they are angry, make a great noise with their wings when they are flying around, what is the matter with them?

Mr. Whitcomb.—You mean in the afternoon?

Mr. Harris.—Yes sir.

Mr. Whitcomb.—They are young bees.

Mr. Harris.—They make a great loud noise with their wings.

Mr. Whitcomb.—They are drones. A bee has four wings, and when they are on the alighting board fanning, they use all four of them. The wings have kind of hooks on them, and when come in with a load of honey, the wings are hooked together, making as it were two wings. They make that movement of the wings on the alighting board for the purpose of evaporating the water that is in the honey.

Mr. Smith.—I have found melons broken open, and the bees gathering the juices. What kind of honey would that make?

Mr. Whitcomb.—About two per cent. honey. A honey bee is unable to change the nectar when gathered, but a beekeeper can tell what kind of honey it is by the smell and taste. It is thought by some of our beekeepers that there is a slight trace of formic acid in the honey.

Mr. Harris.—Can a bee get honey out of red clover?

Mr. Whitcomb.—Yes sir. Our bees are getting so large and their tongues are so long that they can gather honey from the red clover without much trouble. The water melons contain about 98 per cent. water, so you can imagine the amount of evaporation that has to take place before the juice is changed into what we call honey. It is 98 per cent. water and two per cent. sugar. There is a little formic acid in the blood of the bee, a very slight trace, and I am of the opinion that it goes into the honey, because the bee swallows the honey stomach, and it must necessarily partake of the acid that is in the blood of the bee. Of course it is a very small percentage. That is why honey makes us sick. There is nothing in the honey that will not assimilate with the system. In pure honey there is nothing but what the system takes up. It makes blood, bone and brain. Honey can be retained in the stomach of a person who cannot retain even milk. Why honey makes people sick is because in robbing the bees they do not go at it right. In place of using the bee escapes they go down to the hive with the smoker. The minute the bees smell the smoke, they fill themselves with honey. That is their first impulse. They eat all they can, and there is more or less formic acid comes from the bee and it must go on the honey, and this taken into the stomach makes people sick.

The Gentleman from Illinois (name unknown).—Honey used to make me sick. I can eat sugar and it does not make me sick.

Continued in next issue.

Alfalfa and Honey Production.

E. T. Abbott speaking of alfalfa says. It is one of the best plants known for the production of nature's finest and most healthful sweet. Those who have never given any attention to the production of honey can hardly realize how much wealth is being practically lost every year for the want of bees to gather it up, or how large a part of the value of the 90,000 acres of Kansas alfalfa now wastes its sweetness on the desert air. Alfalfa produces as fine honey as any plant known, and the climate of Kansas is especially suited to the production of a high grade of this, as dry atmosphere and a high altitude are both conducive to the best results in honey production. I know from experience that the alfalfa honey of eastern Colorado and western Kansas is rarely equalled, and I doubt if ever surpassed in body and richness of flavor, and the pure alfalfa honey has that rich, white color which renders it peculiarly attractive.

Wherever there are 100 acres of alfalfa there is abundant pasture for at least twenty-five colonies of bees; and especially is this true where one of the cuttings is left until the seeds ripen. Of course, if the plant is cut just as it comes into bloom, the flowers will not have much chance to secrete nectar; but where the crop is not cut until the seeds are ripe, or where it is pastured—but not sufficiently to pre-

vent it from blooming—it will yield a bountiful supply of the very finest quality of honey. More, I may say in passing, that I am quite sure that the advantage of bee-keeping to those who grow alfalfa will not be confined alone to the value of honey they gather, but the value of the alfalfa crop will be thereby increased by the larger yield of seed that is sure to follow the introduction of bees.

Bees and Alfalfa.

There is no State advancing more rapidly to the front today as a honey producing State than Kansas. It has been proven beyond a doubt that central and western Kansas is adapted to the successful production of alfalfa. Thousands of acres are now harvested every year without a single failure and without expense except as to first sowing. The much-abused western Kansas, with alfalfa as a redeemer, is fast approaching the "promised land" that "flows with milk and honey." As a honey-producer alfalfa has no equal, in my judgement. I have seen a continuous heavy honey-flow from the middle of May until the first of September from alfalfa clover. And this too, in a season of drouth. Apiary after apiary is now springing up in the alfalfa districts, and the already large crop of alfalfa honey has added largely to the honey crop of the United States. The quality of alfalfa honey is first-class and commands the highest market price in all the best markets. Hence, bee-keeping will go hand in hand with alfalfa raising with equally, if not a better profit. —Kansas Farmer.

- : - THE - : -

© Nebraska Bee-Keeper ©

Published Monthly.

Subscription Price, 50 Cents per Year.

L. D. STILSON, EDITOR.
YORK, NEBRASKA.

*Official Organ of the Nebraska State
Bee-Keepers Association.*

Entered at the post-office as second class matter.

Officers of the North American Bee Keepers' Association 1896:—President, A. I. Root, Medina, Ohio; Vice Pres., Wm. McEvoy, Woodburn, Ont; Secretary, Dr. A. B. Mason, Auburndale, O.; Treasurer, W. Z. Hutchinson, Flint, Mich. The next meeting will be held at Lincoln, Neb.

Officers of the Neb. State Bee Keepers Association:—Pres., E. Whitecomb, Vice Pres., H. E. Heath, Lincoln, Sec. and Treas., L. D. Stilson, York.

We are in receipt of "A Manual of Instruction in Apiculture," by Frank Benton, of Washington. Mr. Benton is a practical apiarist and is also a good writer on the subject, and this volume contains very much of the practical work in the apiary, and is of the greatest interest to the bee-keepers of the Nation of any bulletin ever issued by the Department of Agriculture.

"Vegetables for the Home Garden," is a neat and valuable little book sent out by W. Atlee Burpee & Co., of Philadelphia. Price ten cents. This gives a person a complete list of the best vegetables, how to plant, when to plant, how to cultivate, how to guard against

insects, etc. It is a garden instructor with plain and simple directions yet of no small value. This little book is worth ten cents and more to any one who has a garden.

As many of our readers are making alterations and making new ditches, while others are putting in new plants, one of the best investments they can make will be the purchase of one of the Jackson Grade Levels, which will enable any farmer of ordinary intelligence to lay out his own ditches instead of paying ten dollars per day to hire an engineer to do it for him. Prices \$10 to \$25. Write to the manufacturers at Jackson, Mich. for full particulars and a list of those who are using these levels, mentioning this paper.

As this is the time of year when those who wish to have good gardens are looking for seeds, we wish to call especial attention to the firms who are advertised in this issue. Send them a postal card, and receive their catalogues, and then you can select such as your fancy dictates or the purse will allow. In this way you are sure of getting good, fresh seeds, and not old, worthless trash such as is sold on commission at the junk shop.

SPECIAL COMBINATION OFFER!

The BEE-KEEPER & IRRIGATOR 50c } \$1.50
The ORANGE JUDD FARMER \$1.00 }

OUR PRICE **\$1.20** For both Papers
ONLY One Year Each.

Address, Nebraska Bee Keeper, York, Neb.

IRRIGATION.

Officers of the State Irrigation Association:—President, A. G. Wolfenbarger, Lincoln; Vice President, H. E. Babcock, Ord; Treasurer, Joseph Oberfelder, Sidney; Secretary, James L. McIntosh, Sidney; State Lecturer, I. A. Fort, North Platte. Next meeting will be held at Lexington, Neb.

Large vs. Small Irrigation Plants.

A reader comes back at us for what we said last month, "That the greatest good from irrigation to our state was not in the combination of capital and building large ditches, etc." What we said then, we want to repeat again, not only that which is quoted, but that in the employment of labor and capital, and building of smaller plants away from the streams, building up happy homes on the broad prairies, happy because of prosperity. Now to prove our position, let us give you some figures:

Nebraska has, in round numbers, 49 million acres, and to be very liberal to the ditch irrigation people, we will concede that one million acres can be irrigated by low or inexpensive ditches. Another million acres by what may be classed as medium elevation ditches, and another million acres with high elevation ditches. This, we think a very large estimate. This makes three million acres, or about one-sixteenth of the area of the state, which is all that can even be expected to be irrigated in that manner.

Of the plateaus or table lands there are probably ten million acres of land located so high, and so situated in regard to sheet water of the underflow that it would be prohibitive to irrigate by raising the water on account of the expense.

A portion of the eastern part of the state is so located along the valley of the Missouri river that they would not irrigate unless by very cheap methods. After deducting these areas, it still leaves practically one-half of the state, or over twenty-four million acres of our best lands within reach of water, either as underflow or running streams in steep banks, within 100 feet of the surface and probably one-half of this area is less than 50 feet of water.

The cost of machinery to raise this water by wind power, which is ever present, where the lift is 25 feet or under is no greater than the cost of the ordinary canal system, and its maintenance no more than that of the canal. Then when the individual owns his own plant, he can use water as he likes and when he chooses the entire year through, while with the canal it is only by courtesy that you get water more than four or five months. I am not so much of an enthusiast in irrigation as to think that every acre of Nebraska land will be irrigated this year, or next. As a class, we must learn to use water, as well as everything else.

Our state presents many varied and strange conditions. It seems to be the meeting place of plant and animal life from the east, west, north and south. We have a greater variety of bird life than any other state, save perhaps one exception. So too of our flora. The streams and winds from the old Rockies bring their tribute, while loving friends bring the flowers from the old home in the east, and the frigid north and the torrid south each contribute to our varied plant life. The varieties of altitude also tend to further add to this mixture giving us climatic conditions for all, so that it is not strange that our soil should produce wonderfully whenever it is intelligently cultivated and in order to do this the farmer must be a student. Men may by the application of large quantities of water from ditches raise fabulous crops; but to raise fruit most successfully he should be on the higher lands and to use the water, air, sunlight, everything to the best advantage, he must study, and in doing so he will elevate himself, and his family.

Again we repeat that the greatest good of irrigation to Nebraska, is where windmills raise the water for thousands of happy homes. We do not deery the work of canal irrigation. It has opened up a new era for the state. It will carry on an educational work in the future. It has set men to thinking and activity. It should make every available acre produce a hundred fold over dry farming.

✧Irrigation ✧ in ✧ Nebraska.✧

L. D. STILSON.—I am in receipt of your publication of Jan. 1, '96. I regret very much that more of our papers are not devoting their columns to irrigation. One of the greatest hinderances and obstacles that was met with in pushing the irrigation question in the state, was the idea of the immense cost connected with this method of farming. These ideas were the results of reports sent out from California and other points throughout the west of the enormous cost of the irrigation works by the bond booming canal companies, that were more anxious to sell bonds than water. Bonding a canal meant the sale of the same, at figures high enough to cover all cost of the same, and leave an immense profit to the company that had sold the bonds.

If farmers on these canals could only escape with the original cost of the water right they would be fortunate. But in many cases they agreed to pay from \$1.50 to \$5.00 annually for maintenance; this sum per acre being sufficient to absorb all the spare earnings of the farmer.

Here in Nebraska, we possess more advantages in the way of independent systems than any other state in the Union. There is no good reason why on every Nebraska farm west of the 97th meridian, there should not be an irrigation plant, that would water from two to thirty

acres; the amount of land to be irrigated would depend on the depth of the wells and the power used.

Another advantage that Nebraskans could avail themselves of, is winter irrigation. Orchards could be easily and cheaply irrigated in the winter time by the windmills. When irrigated at this time of the year a small plant would successfully keep in good bearing condition from five to forty acres of fruit trees, all depending on the depth of the wells or as I stated before, the power used. It is to be regretted that our present state law offers no encouragement to the windmill and pump systems of irrigation, that is in reality far more important than the canal methods, and it is to be still more regretted that the state affords no means by which the people could be educated on this question. If I was financially able, I presume I could be out all the time lecturing and talking on this subject. I meet with some of the most impractical and expensive methods imaginable, that have been proposed by farmers who are desirous of irrigating their lands. Whenever possible wind power should be used, as the cost of fuel will eat up all the farmer's profits.

We hear of patent devices for the raising of water enough to irrigate all the lands in the state, yet inventors have nothing that will lift water more economically today for low lifts than the Archimeder screw, that was invented three thousand or more years ago, the old fashioned porcelain lined iron pump with good clock valves is not excelled by any new device. The Egyptian current wheel will lift water more economically where there is a current in the stream than any machine in existence. There are a large number of the paddle wheel or jumbo windmills in our state, most of these give fair results, but there is a great loss of wind power as only about one-fourth of the surface of the mill is exposed to the wind and only about one-eighth directly exposed. Nebraskans should invent a home-made mill, that could be made by the farmers, that would face the wind similar to the standard windmills of to day. The sails could be made of duck cloth and furled and taken in when necessary. Such a mill would naturally have to be a surface mill the same as a jumbo, and could not be mounted on a tower, but with such winds as we have in Nebraska a 20 ft. surface mill would furnish power to work a large and heavy pump, that would irrigate a large tract of land at a very low cost besides do a large amount of work of different kinds upon the farm, where power should be used. I have in my mind as well as a draft of what should be made, but I know your space is limited, and therefore will not trespass upon it any further. I trust that your journal may be of great benefit in promoting this cause as it has that of beekeeping.

I. A. FORT.

Irrigation in Morgan County Colorado.

I would have one acre of land here under irrigation, than ten acres without irrigation in any locality I ever lived in.

My lands here are under the Platte and Beaver ditches north of Brush. I have been engaged in sheep business chiefly, but have also carried on some farming and take quite an interest in fruit culture. I have 325 fruit trees now growing, including apples, plums, cherries, apricots and pear trees. Locust trees planted at one year old, are, after four years growth, 20 feet tall and 15 inches around. I have thoroughly tested growing currants, gooseberries, strawberries, blackberries and grapes, all of which make a prolific growth and yield abundantly. proving to me that small fruit growing in this locality is a profitable industry. Vegetables produce wonderfully, and last year I grew ten tons of sugar beets on one-quarter acre of land. Many single beets weighed twenty-five pounds.

A. J. Morey.

Subsoiling Saves Water.

Last spring my wife, who superintends our Oklahoma farm during my absence, had Red Rock Valley land broken by the subsoiler, sixteen inches deep, and then had the land cross-broken by the same implement. Apparently the ground contained no moisture during the first nine days of April, and in the dust she had alfalfa seed sown by hand. Rain came on the tenth, and at irregular intervals thereafter throughout the season. The precipita-

tion sometimes measured several inches, but no matter how great the down-pour became, the water did not run off or stand on the surface to be licked up by Texas winds. It quickly disappeared in the deeply pulverized alluvial soil as it gravitated toward a lower level. Every alfalfa seed seemed proud of its location in the wake of the subsoiler and vied with its neighbor in spreading aloft the prettiest and largest banner of green. The ground was soon covered with alfalfa plants remarkably free from the presence of dodder or other extraneous soil productions, and my wife had two crops cut from this year's seeding. I spent the month of August on the farm and saw the second crop grow. The sight of that alfalfa on land where blue stem grass six feet high had possession prior to the sixteenth of September, 1893, was a powerful cerebro-spinal stimulant, and it was also good for my soul.

On land adjoining the alfalfa, the soil of which was of the same quality and structure, but had only been stirred to the orthodox depth of a few inches, water stood in places two or three days.

I have great admiration for and confidence in that rich, mellow, virgin soil, and I believe that I give it full credit, but with present impressions, I would not for any reasonable monetary consideration do without the "Redeemer" with a big R, the subsoil plow, on Prospect farm.—W. McKay Dougan, Shoshone Agency, Nev., in Kansas Farmer.

Irrigation in Dakota.

Irrigation is causing that much neglected section of the Western country to blossom like the rose. Quoting from a published article on the subject, it is stated that "men who are accustomed to farming in non-irrigated districts are slow to believe the reports of enormous yields of all kinds of farm products in those sections of the country where irrigation is practiced." An ir-

rigated 40 acre farm produces greater and better results than a 640 acre farm cultivated in the ordinary way. In a few weeks we hope to be able to publish various items from different individuals giving their personal experiences in irrigation farming.—Wisconsin Agriculturist.

The new dispensation for western Nebraska is based largely upon the windmill. To be able to pull through from one year to another, through thick and thin, is the one thing desired for the pioneer. With water for but a few acres this consummation is reached. The cost of a plant that will do this work is no longer a consideration, the only question being, can it be done? It can be accomplished. The fact that Nebraska is now fairly dotted over with small farms where the windmill reigns supreme, except when it rains sure enough water. Give the windmill and alfalfa a foothold in every county in Nebraska and we are all right. We can then afford to stand inside the door when it does rain because we shall have something to work for as long as the sun continues to shine. The people of Nebraska are built upon the plan of asking for what they want if they don't see it, and then if they don't get it, to go after it solely on their own account.—Nebraska Farmer.

Testing the Platte.

Kearney, Neb., Jan. 18.—For a few days past Prof. O. V. Stout, a government civil engineer and geological surveyor, has been in the city locating and contracting for a number of deep wells for the purpose of investigating the underflow of the Platte river. The wells will be thirteen in number, and

are to be located at various points along Central avenue, from the north bank of Wood river to the foot of the sand hills south of the Platte river, a distance of about four miles. They will be tubular wells and sunk a distance of five feet in living water. Measurements will be taken in these wells once a week and a record kept to determine the rise or fall of the water. These experiments will be made in order to determine, if possible, whether the underflow is dependent upon the snow or rains in the mountains, or whether, as has been supposed by some, that the underflow was one vast sheet of water entirely independent of outside causes. These experiments will be watched with considerable interest, as it will determine, to a large extent, the matter of perpetual and unlimited irrigation from the Platte river.—State Journal.

T H E NORTH-WESTERN

LINE

F. E. & M. V. R. R. is the best
to and from the
Most Fertile Farming Portions
OF
NEBRASKA.

Sweet Clover Seed.

WE have just received a supply of Sweet Clover seed and will sell at 30cts. per pound, by mail, postpaid; 5 lbs. for \$1.00 to be sent by express, purchaser to pay expressage. Send CASH with order.

Address,
BEE-KEEPER, York, Neb.

**BUY
FRESH
WESTERN SEEDS**

from **KANSAS SEED HOUSE** F. BARTELCES & CO.,
Lawrence, Kas.

Grass, Field, Garden, Tree and Flower-seeds, all especially grown and selected for Western soil and climate. Alfalfa, Ka Bircorn and other forage plants for dry climate a specialty. Our elegant 18c catalogue is ready and will be mailed Free on application. Send for one now

Irrigation in Western Kansas.

Mr. James A. Sherman, of Utica, N. Y., in speaking of a western trip says of western Kansas:

The conditions are all favorable to plant growth, and the soil is exceedingly productive, the only requisite being a sufficient supply of water at the proper time, when this country would be the finest agricultural country in the world. The climate is mild, and the native grasses are very nutritious, and I was much impressed with the adaptability of these prairies for growing cattle. In my travels I saw large numbers of cattle feeding on the prairie grasses, and all were in splendid condition and apparently fit for market.

The method of irrigation employed is somewhat novel. Instead of taking the water from rivers and large reservoirs, and distributing through long canals, the new way is simply pumping the water up from an underground stratum of water-bearing sand. On the river bottom land this sand-water stratum is found at a depth of from six to ten feet, and here irrigation is most successful and most cheaply prosecuted. An important feature of this method of irrigation is the comparatively small expense required to install a complete working plant. Under the canal system several hundred thousand dollars might be required to be expended before any results could be had, and before the scheme could be

demonstrated to be a success. And then high water in the river might wash out the dams and flood-gates, and prevent any successful cultivation for that season. The individual pump plant is always under the control of the owner, and affords the most certain results. The supply of water is inexhaustable, and always at command. Undoubtedly a very large proportion of this western section of Kansas is underlaid with this water-bearing sand stratum. But outside of the valleys the greater depth to the water increases the expense, and it is only the river bottom lands that are now being irrigated in this manner.

The question is asked us if alfalfa is good for honey. Certainly it is, and one of the very best, and when alfalfa and irrigation get another year's growth in Nebraska this will be one of the best states in the Union for the bee keeper, as the yield of honey from alfalfa is large, and our prices for honey good.

We are in receipt of inquiries from parties asking for estimated cost of windmill irrigation plants. We will give replies to these in next issue, and if any others wish us to give them an estimate of cost for plants if they will write us giving depth of wells, amount of ground they wish to irrigate, and what crops they expect to raise we will give them the approximate cost for pumping plant and fixtures.

When you write to an advertiser state to him that you saw his ad in this paper.

THE * LATEST.*



The Kouns Mill
Ball Bearing.
WEIGHS 140 Pounds.
Price \$20.
\$180 per Dozen.
KOUNS MFG. CO.
Salina, Kansas.

"THE MARKET GARDEN."
A MONTHLY JOURNAL
For Market Gardeners
And Truckers.
50c a Year. Sample Copy FREE.
THE MARKET GARDEN CO.,
Minneapolis, Minn.

A Huge Pile of Confederate Money.

\$80,000,000 of Bills issued by the Departed Nation shipped to Atlanta.
Eighty million dollars in bills were shipped to Atlanta yesterday, the mammoth package of money filling five large dry goods boxes and making in all more than a dray load. None of the bills are current however, as they represent "nothing in God's earth now and naught in the waters below it." They were Confederate bills of the rarest type.
The huge pile of Genuine Confederate money was shipped here from Richmond, Va., the former capitol of the Confederacy, and is now the property of Mr. Chas. D. Barker, No. 90 S. Forsyth Street, this city. The money is of every denomination issued by the departed nation, and in the big collection are bills of the rarest type. There are bills issued during every year of the war. Thousands of them are very valuable as relics, but the greater number of them Mr. Barker has on hand will make them so common as to bring but little on the market.

The eighty million of dollars of Confederate money has been all along sup-

posed to have been destroyed. This is undoubtedly the largest lot of Confederate Money in the world.—Atlanta Constitution, Atlanta, Ga., June 4, '95.

SMALL FRUIT,

PLANTS AND NURSERY STOCK
Millions of Strawberry Plants. Largest Stock in the State. Have the BEST standard varieties for the WEST, and many of the newest sorts. Our Plants have been irrigated, and are unusually *thrifty, well rooted*, and more valuable for planting than those stunted by drouth. A full line of NURSERY STOCK at HARD TIMES PRICES. Get the BEST near home and save freight or express. Send for price list to North Bend Nurseries, -:-North Bend, Neb.

FOR SALE!
A Farm of 120 Acres.

- 8,250 Fruit Trees,
 - 80 acres in cultivation,
 - 40 acres in timber,
 - 2,300 Apple trees,
 - 4,000 Peach trees,
 - 800 Pear trees
 - 150 Cherry trees,
- All the above in FULL BEARING.
Also 1,000 Pear trees not bearing.
300 3 year old Apple trees. 8,500 trees in all.

25 Acres Small Fruits.

Good house, stone cellar, cistern, evaporator, stock pond, etc. One fourth mile from Seligman, Barry Co., Mo.—a good shipping point. Will take some property in Nevada, Mo., for part pay.
All the fruits on this farm have been selected as the most profitable varieties. This place is located 200 miles due south of Kansas City, Mo., and would be cheap property at ten thousand dollars. Price, \$6,500.00, terms easy. Two crops will pay for it. Address,
J. H. LOGAN, Nevada, Mo.



FOR **FARMERS, DITCHERS, IRRIGATORS.**

Do you Grade, or Drain, or Irrigate? If so you need this Level.

MOST SIMPLE, DURABLE, ACCURATE, THE BEST.

Recommended by hundreds who have used it, and some of whom you doubtless know. Their names and addresses, with full descriptive price list and illustrated catalogue sent free on application to parties who mention this paper.

No. 1....\$25.00
 No. 2.... 20.00
 No. 3.... 10.00
 Target and Rod
 Free with
 Eaah.

Address, **GRADE LEVEL CO., Jackson, Mich.**



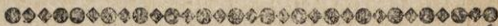
1838 NUT AND FRUIT CULTURE. 1896

More profitable than *Wheat* or *Cotton*, with less labor and risk. Send for catalogue illustrating and describing best varieties. ALPHA, the earliest Chestnut, opens Sept 5 to 10th without frost; RELIANCE, the most productive; PARRY'S GIANT, the largest, six inches around; PARAGON and others.

STARR, "the perfection of early apples." BISMARCK, fruits at two years old; PARLIN'S BEAUTY, the handsomest; LINCOLN CORELESS, Koonce, Golden Russet, Angel and other pears. Japan Quince Columbia, a handsome shrub producing a *valuable* fruit unequalled for jelly.

Small Fruits, Rare Novelties and valuable introductions. *Fruit, Shade and Ornamental Trees.* PARRY'S POMONA NURSERIES, *Parry, N. J.*

Headquarters for Sweet Peas



Mixed Varieties, per pound 40 cents.

Half pound 25 cents.

Quarter pound 15 cents.

...THE ONLY

NEW DOUBLE SWEET PEA, Bride of Niagara,

True to name. Price—Packet 25 cents, half packet 15 cents.

The Wonderful CRIMSON RAMBLER ROSE, only 15 cents.

VICK'S FLORAL GUIDE, 1896.

TRIED AND TRUE NOVELTIES

The Pioneer Seed Catalogue.

Fuchsias, Roses, Blackberry, The Pearl Gooseberry, Potatoes, Earliest Tomato known, etc.

Lithographs of Double Sweet Pea, Roses, Fuchsias, Blackberries, Raspberries, New Leader Tomato, Vegetables. Filled with good things, old and new. Presswork on Novelty Pages, entirely new idea—a real work of art. Full list of Flowers, Vegetables, Small Fruits, etc., with description and prices. Mailed on receipt of 10c., which may be deducted from first order—really free,—or free with an order for any of the above.

ROCHESTER, NEW YORK.

JAMES VICK'S SONS

BURPEE'S FARM ANNUAL for '96

"The Leading American Seed Catalogue."

A BOOK of 184 pages, more complete than ever before;—hundreds of illustrations, pictures painted from nature—

It tells all about the **BEST SEEDS** that Grow, and rare Novelties that cannot be had elsewhere. Price ten cents (less than cost), but mailed FREE to all who intend to purchase SEEDS.

W. ATLEE BURPEE & CO., PHILADELPHIA, PA.

E. Kretchmer, Red Oak, Ia.

Sends Free, His 72 page Illustrated Catalogue of

Everything Needed In The Apiary.

Largest Stock. Best Goods at Lowest Prices.

Write at once for his Catalogue.

Water Tanks. All Sizes. At Low Prices.

ONE MILLION Strawberry, Raspberry and Black-berry Plants for Spring of 1896. Send for pamphlet "How We Made The New Farm Pay,"—containing Price List and other information. Address, J. H Logan, Nevada, Mo.

CLIMAX
BAKING
POWDER
 PUREST
 AND BEST
 LESS THAN HALF THE
 PRICE OF OTHER BRANDS
 + POUNDS, 20¢ +
 HALVES, 10¢ QUARTERS, 5¢
 SOLD IN CANS ONLY.

SOIL MOISTURE!

HOW BEST TO CONSERVE IT.

Send us your name and address, mentioning the paper in which you saw this advertisement, and we will send you a pamphlet giving our own experience, together with the experience and conclusions of fifty more of the best farmers in Nebraska and Kansas. Also our—wholesale price-list of choice FRUIT TREES, plants, and ornaments. Address,

YOUNGERS & CO., GENEVA, NEB.

DOES FRUIT-PLANTING

PAY? Yes, if done judiciously, planting only hardy kinds, and stock fresh, healthy and TRUE TO NAME.

WHERE CAN I GET SUCH

STOCK? You can get the very hardest Apple, Cherry, Plum, Grapes, Small Fruits, Tree Seedlings, Shade Trees, etc., of us. Stock positively TRUE TO NAME, fresh and healthy.

CAN YOU SAVE ME

MONEY? Positively one-half, if you order of us DIRECT. To be convinced, write for our ILLUSTRATED DESCRIPTIVE PRICE LIST.

A valuable present with each order if you mention this paper.

Sioux City Nursery and Seed Co.
 SIOUX CITY, IOWA.

THE ORANGE JUDD
FARMER.
 —Central Edition American Agriculturist.—
WEEKLY.

Original. Progressive. Practical.
ONLY \$1.00 A YEAR.

All the Leading Features that have made this journal so popular are to be retained this coming year and many new features added; such as *General and Local Market Prices, Crop Reports in their Season, Condensed Farm News, and Letters Among the Farmers.* Its Farm Features, Such as *Live Stock, Dairying, Horticulture, Poultry, Market Gardening,* and other topics, written by *Practical and Successful Farmers,* supplemented with illustrations by able artists, combine to make it invaluable to those who "farm it for a living."

The Latest Markets and Commercial Agriculture are Leading Features, in which the ORANGE JUDD FARMER is not excelled. Reliable *Special Correspondents* at the General and Local Market Centers all over the United States enable us to report the latest prices on everything the farmer has to sell. This department alone is worth many times the cost of a year's subscription to any farmer.

The Family Features, *Short Stories, Latest Fashions, Fancy Work, The Good Cook, Talks with the Doctor, Puzzle Contests, Library Corner, and Young Folks' Page,* combine to make this Department of as much value and interest as most of the special Family Papers.

QUESTIONS answered on Law, Medicine, Veterinary and other topics FREE.

THE MAGAZINE FORM. Each issue comes out with a neat cover, the number of pages varying from 28 to 36.

AN IDEAL FARM AND FAMILY WEEKLY.

FREE SAMPLE COPY sent on request.

ORANGE - JUDD - COMPANY.
 —Pontiac Building, CHICAGO, ILL.—

SPECIAL COMBINATION OFFER!

The BEE-KEEPER & IRRIGATOR 50c } \$1.50
 The ORANGE JUDD FARMER \$1.00 }

OUR PRICE **\$1.20** For both Papers
 ONLY One Year Each.

Address, Nebraska Bee Keeper, York, Neb.

Double YOUR CROPS

THE VALUE OF YOUR LAND

By subscribing to

Western Soil Culture

\$1.00 PER YEAR.

It tells you how and why certain methods of Cultivation will INSURE A GOOD CROP EVERY YEAR IN SITES OF DRY SEASONS. This is no experiment, but a *Thoroughly Demonstrated Fact.*

We operate an Experimental Farm in the Dry District of each of the following States— Iowa, North Dakota, South Dakota, Minnesota, Nebraska, Kansas, Colorado and Texas, and publish monthly full reports of the results obtained. Write for Sample Copy to

WESTERN SOIL CULTURE PUB. CO.,
 Sioux City, Iowa.



Scientific American Agency for

PATENTS

CAVEATS, TRADE MARKS, DESIGN PATENTS & COPYRIGHTS, etc.

For information and free Handbook write to MUNN & CO., 361 BROADWAY, NEW YORK. Oldest bureau for securing patents in America. Every patent taken out by us is brought before the public by a notice given free of charge in the

Scientific American

Largest circulation of any scientific paper in the world. Splendidly illustrated. No intelligent man should be without it. Weekly, \$3.00 a year; \$1.50 six months. Address, MUNN & CO., PUBLISHERS, 361 Broadway, New York City.



\$12.00 FOR A \$12 MACHINE
 to weave your fence at 25 Cts. per Rod.
 10 No. 10 Gal. wires, Cross wires No. 12. We will sell wire for a 100 rod fence for \$20. Agents Wanted. Catalogue Free.
CARTER
 Wire Fence Mach. Co.
 Box 80 Derby, O.

SOME OF OUR
DEPARTMENTS:

Five-Acre Farm
Fertilizers
Devices

for Saving Labor

The Orchard
Small Fruits
Vegetables
The Vineyard
Implements
Kitchen Garden
Current Work
Rural

Improvement
Tree Planting
Landscape Art
Home Grounds

To have Handsome

Flowers
Window Garden
Exhibitions
Greenhouses
Ornamental

Gardening
Bulb Garden
Grape Culture
Spraying
and Spraying Material
Hardy Shrubs
and Plants

Entomology
Plant Diseases
Apiary
Poultry Yard
Question Box

Science and Practice.

*Our Doctrine: INTENSIVE CULTIVATION—the ability to obtain
large results from limited areas. . . .*

AMERICAN GARDENING

PUBLISHED WEEKLY. \$1.00 A YEAR.

OFFICES: Rhinelander Bldg., Rose and
Duane Sts. (P. O. Box 1697), New York.

An Illustrated Journal of Technical Instruction
and Record of Current Events: from the
Window Garden to the 5-Acre Farm.

No other paper unites so systematically and thoroughly the beautiful with the needful, embracing all Pleasure and Profit in working the soil, elucidating all methods that tend to make it yield freely, and its products subservient to home and market. Our energies are directed to the well-being, comfort and financial success of our tens of thousands of readers in country and suburbs. **American Gardening** fills all wants and includes all that is worth knowing.

GOOD AGENTS WANTED.

SPECIMEN COPY will be mailed FREE to all Applicants.