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A MONTHLY JOURNAL DEVOTED TO APICULTURE.

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Vol. 6. YORK, NEBRASKA, DECEMBER, 1895. No. 6.

DIED, OCT. 6, 1895.

REV. L. L. LANGSTROTH.

We give below a short biographical sketch of Father Langstroth, written a few years ago by Dr. C. C. Miller, and published in A.B.C. of Bee Culture.

Lorenzo Lorraine Langstroth was born in Philadelphia, Pa., Dec. 25, 1810. He graduated at Yale College in 1831, in which college he was tutor of mathematics from 1834 to 1836. After his graduation he pursued a theological course of study, and in May, 1836, became pastor of the Second Congregational church, in Andover, Mass., which position ill-health compelled him to resign in 1838. He was principal of the Abbott Female Academy in Andover in 1838-'9, and in 1839 removed to Greenfield, Mass., where he was principal of the High School for Young Ladies, from 1839 to 1844.. In 1844 he became pastor of the Second Congregational church in Greenfield; and after four years of labor here, ill-health compelled his resignation. In 1845 he removed to Philadelphia, where he was principal of a school for young ladies from 1848 to 1852. In 1852 he returned to Greenfield; removed to Oxford, Ohio, in 1858, and to Dayton, Ohio, in 1887.

At an early age the boy Lorenzo showed a fondness for the study of insect life; but "idle habits" in that direction were not encouraged by his matter-of-fact parents. In 1838 he began his real interest in the honey-bee, when he purchased two colonies. No such help existed then as now, the first bee-journal in America being issued more that twenty years later, and Mr. Langstroth at that time had never seen or heard of a book on bee-culture; but, before the second year of his bee-keeping, he did meet with one, the author of which doubted the existance of a queen! But the study of bees fascinated him, and gave him the needed outdoor recreation while engaged in literary pursuits, and in the course of time he became possessed with the idea that it might be possible to so construct a hive that its contents in every part might be *easily* examined. He tried what had been invented in this direction, bars, slats, and the "leaf-hive," of Huber's. None of these, however, were satisfactory, and at length he conceived the idea of surrounding each comb with a frame of wood entirely de-

tached from the walls of the hive, leaving at all parts, except the point of support, space enough between the frame and the hive for the passage of the bees. In 1852 the invention of the movable-comb hive was completed, and the hive was patented Oct. 5 of that year.

It is well known, that, among the very many hives in use, no other make is more popular than the Langstroth; but it may not be so well known that, in a very important sense, every hive in use among intelligent bee-keepers is a Langstroth; that is, it contains the most important features of the Langstroth—the movable comb. Those who have entered the field of apiculture within a few years may faintly imagine, but can hardly realize, what bee-keeping would be to-day, if, throughout the world, in every bee-hive, the combs should suddenly become immovable, fixed, never again to be taken out of the hive, only as they were broken or cut out. Yet exactly that condition of affairs existed through all the centuries of bee-keeping up to the time when, to take out every comb and return again to the hive without injury to the colony, was made possible by the inventive genius of Mr. Langstroth. It is no small compliment to the far-seeing inventive powers of Mr. Langstroth that, although frames of different sizes have been devised and tried, and improvements, so-called, upon his hive have been made by the hundred, yet to-day no other frame or size is more popular than that settled upon by him, and, in general, the so-called improvements are one after another dropped into oblivion, and thousands of hives are to-day in use among bee-keepers, scarcely varying, if varying at all, from the Langstroth hive as first sent out.

As a writer Mr. Langstroth takes a high place. "Langstroth on the Hive and Honey-Bee," published in May, 1853, is considered classic; and any contribution from the pen of its author to the columns of the bee-journals is read with eagerness. Instead of amassing the fortune one would think he so richly deserves, Mr. Langstroth is to-day not worth a dollar. He sowed, others reaped. At the date of his invention he had 20 colonies of bees, and never exceeded 125.

In August, 1836, Mr. Langstroth was married to Miss Anna M. Tucker, who died in Jan., 1873. He has had three children. The oldest, a son, died of consumption contracted in the army. Two daughters still survive.

Since his twentieth year, Mr. Langstroth has suffered from attacks of "head trouble," of a strange and distressing character. During these attacks, which have lasted from six months to more than a year (in one case two years), he is unable to write or even converse, and he views with aversion any reference to these subjects which particularly delight him at other times. Mr. Langstroth is a man of fine

presence, simple and unostentatious in manner, cheerful, courteous and a charming conversationalist.

In reply to a question, he writes, under date of March 26, 1888: "I am now a minister in the Presbyterian church. Although not a settled pastor, I preach occasionally, and delight in nothing so much as the Christian work. My parents were members of Mr. Barnes'church in Philadelphia, the mother Presbyterian church in the United States."

In the death of Father Langstroth it seems to us as though a dear friend had gone. Although we had never met him personally, but through his writings we have learned to love and honor him.

Our first acquaintance with his writings was on Feb., 1, 1856, while in a book-store in Buffalo, N. Y., we saw a copy of "Langstroth on the Honey-Bee," which we purchased instantly, and after completing the days' marketing we drove home twenty miles. After careing for the team and other chores and supper, we began reading the new book, and within 24 hours of the time of purchase we had read every word of its 400 pages. Then after another 24 hours we began reading it through again, studying it more closely, and comparing notes with "Quinby's Mysteries of Bee-Keeping Explained." which I had been studying for two or three years, and comparing with my own experience. This volume is still a treasure in my library and I think I have never allowed an article of any kind from the pen of Langstroth which has come within my reach, to pass by without a careful perusal. In this way I have become acquainted with this grand, noble man, a man of whom it can truly be said "Mankind is the better for his having lived among us: The world is richer by his experience and teaching."

To him, we as bee-keepers, owe a debt of gratitude for the movable frame hive, which has made it possible to successfully manipulate our hives and conduct the many investigations of later years.

He died at his post as will be seen in the following letter, written by his daughter to Mr. E. R. Root, editor of *Gleanings*, and published in that paper and reads as follows:

DAYTON, O., Oct., 8, 1895.

Mr. E. R. Root, Dear Friend:—

I can hardly tell you whether my heart is fuller to-day of sorrow for the loss of my dear father, or of joy as I think of his blessed enterance into the land where "there shall be no more death, neither *sorrow* nor crying, neither shall there be any more pain, for the former things are passed away."

I can give you only a brief account of my father's last days. When asked, the Sabbath previous to his release, by our pastor whether he felt able to make the address at our communion service, he replied, "Oh! I shall be able–it will be a *joy* to me, Mr. Raber. I am

so glad you asked me!" He had been very bright and happy ever since his return from Toronto; but last week he took a heavy cold, and was much oppressed with it; and during the last few days he lost strength so rapidly, and seemed so feeble, that I wished him to notify our pastor not to depend upon his assistance on Sabbath. He was, however, confident that he could carry out his part in the services, and was so anxious to do so that I could not insist.

On Sabbath morning he was unusually bright, and overflowing with happiness and gratitude to the Lord for his blessings. My eldest son, with his wife and baby, had been spending a week with us, and he was much pleased with, and proud of his little great-grandaughter. He asked her mother that morning to wheel her little carriage into his warm room, and I shall not soon forget how happy he looked as he sat beside it, talking to and carressing the little one. They were at church.

After dressing, father seemed much fatigued, and I again asked him whether he thought it were best for him to try to preach. He replied, "Oh yes! I will say a few words, and then I will come home and rest, rest, rest." He is most certainly "at rest with the Lord."

Before preaching, Rev. Amos O. Raber moved the pulpit to one side and placed a chair on the front of the platform. Father began to address the audience, sitting, with some explanatory remarks as to his weakness. After a few introductory sentences requesting the prayers of the congregation for himself and the service, he said: "I am a firm believer in prayer. It is of the love of God that I wish to speak to you this morning—what it has been, what it is, what it means to us, and what we ought—" As he finished the last word he hesitated; his form straightened out convulsively; his head fell backward, and in about three minutes he was "absent from the body, at home with the Lord."

There was no scene of confusion in the church. Tears were running down every cheek, but there were no screams, no loud sobbing. As one person remarked, "Heaven never seemed so near before; it seemed but a step."

"Then, with fiery throbbing pain,
No slow gradations of decay,
Death broke at once the vital chain
And freed his soul the nearest way."

Sincerely yours,
ANNA L. COWAN.

GROWING OF CROPS FOR HONEY.

Sweet clover has been grown for a long time in gardens on account of the delicious fragrance which it emits from the time it begins to bloom. From the gardens it has spread in many localities until there are large quantities of it in waste places. When I lived in Cayuga county, N. Y., says E. Tabbott in

the Agricultural Journal, there were acres of it which had spread along the lake in this way. The bees worked on it from the time it first bloomed, until frost, as it continues to grow and bloom all the season. The honey gathered from it is of the finest quality, and brings a good price in the market. At that time, about fifteen years ago, it was considered a "weed," and an undesirable one, at that Of late years many have awakened to the fact that it has valuable qualities as a forage plant, and as a fertilizer of the soil.

Prof. Massey, in answer to a correspondent, says of it: "Where it thrives it is an exceedingly valuable plant. It does better on limestone soil than else-where; makes good forage, and is a good improver of the land. On the black prairie lime lands of the South it is of the greatest value, and it should be grown wherever it thrives. It grows rather woody for hay, so far as I have observed. It is a biennial, but reseeds itself freely. It will grow on land too dry and thin for most other legumes; and we consider it well worth experimenting with."

As it will grow on almost any kind of land when it once gets a start, it will pay the bee-keeper to sow the seed in waste places. It will resow itself after it once gets a start, and spread very rapidly. Some one who have looked upon it as a "weed" have been afraid to sow it for fear it would spread in the cultivated fields; and be hard to exterminate. I have never known it to become a pest in this way, and as the root dies every two years there is no trouble to get rid of it, if it is not permitted to go to seed. At the present time these is a good demand for the seed, and it will pay to harvest it. If any one has a lot which he thinks is too poor to raise anything but weeds, let him seed it to sweet clover, and let it have its own way for a few years then plow it up and plant to potatoes, and he will be surprised to see what a crop he will raise. It will come as near paying to plant clover on poor land for honey alone, as any plant with which I am acquainted at the present time. The reader can rest assured that it has no other valuable qualities in addition to the nectar it secretes.

Emerson says, "A weed is a plant whose virtues have not been discovered." I especially commend this saying to any one who is laboring under the mistaken impression that sweet clover is only a weed. Time has demonstrated that it is a very useful weed, to say the least, and if Emerson's definition be true, I think it will soon cease to be called a weed, and be classed among the plants valuable to agriculture. All I ask for it is a fair trial, and that those who try it remember that stock must learn to eat it. Do not be too hasty to condemn it until you have given it a fair trial.

A writer from Mississippi says, "Mowed before the plant becomes

too large and woody, the quality equal to any of the clover family. In its green state stock are not fond of it at first, but soon acquire a taste. It is a rich milk and butter food."

Sweet Clover For Honey and Forage in Nebraska.

Frequent requests made in the columns of the American Bee Journal, asking for more information about sweet or melilot clover, are the incentives causing me to report my experience with this most excellent honey and forage plant. For about ten years I have grown it, partly for pasturage and forage for cattle, but also for the purpose of providing for my bees the required bee-pasturage.

For years I have had from 4 to 10 acres growing with melilot, and the public roads within about two miles of my apiary are more or less occupied by it now. The result is a remarkable one, considering that my location naturally is a very poor one respecting honey-production. From natural bloom we have no surplus, except from the middle of August to about the middle of September, and this surplus is dark in color and rank in taste. What are the conditions now? Let us see:

I began with 17 colonies last spring. On April 3 I found 12 colonies in first-class condition, 4 colonies were but medium, and one colony was quite weak. October 15 my carefully kept record showed this:

Best colony, 237 pounds of surplus extracted honey; weakest colony, 97. Total amount of extracted honey secured, 2,980 pounds. Increase, 13 colonies.

I had 8 natural swarms, of which 2 absconded. My average per colony is 175¼ pounds of honey. In light colored honey I got about 2,000 pounds, and my fall honey is by no means dark, for the reason that a large percentage of it is sweet clover honey.

I have also, to a great extent, requeened my apiary, so that I have now 22 choice tested queens of 1885, and but 8 fine queens of 1894.

All my colonies were finished packed inside the hives on Oct. 15, with plenty of natural stores (mostly white honey), and will winter as usual on the summer stands, in a bee-shed open to northeast, east and southeast. Now to return to sweet clover.

I will say further, that the hostility of some farmers against sweet clover is abating. It has taken them years to learn that sweet clover is one of our most valuable forage and pasturage plants, but they are forced to "acknowledge the corn" at last. For years we have had a protracted drouth in this part of the world. Early last spring there actually was nothing to feed to horses and cows, with many a poor man in the city, and a great many farmers found themselves in the same fix. Not a spear of green grass would appear after

sweet clover and alfalfa was up 12 to 18 inches high. Such a condition of things was apt to prove the merits and demerits of the plant in question.

Well, to be short about it, I will say that the poor people with their one milch cow, went onto our country roads and got all the nice, green clover they wanted. Not only their cows, but also horses and hogs soon learned to relish the herb, and it proved to be a veritable blessing to a multitude of people.

We have an old saying, that a farmer will not eat unless he knows what it is. Yes, many of them will refuse the choicest of oysters. So with melilot clover—I consider it the "oyster" among the forage plants—after a taste for it has been acquired by stock. For bee-keepers it is just "the thing"—at least in this section of our country.

Melillot requires considerable curing when cut for hay, and salt should be used freely when it is stacked, but the hay is relished by cattle is particular.

Alfalfa, although excellent in its place, cannot compare with sweet clover here as a honey producer, since it is always cut just about the time it begins to yield honey in profusion.

WM. STOLLEY.

Grand Island, Neb.

Bee-Keeping For Ministers.

Many ministers have insufficient incomes, that need supplementing either by home missionary grants or imitation of the apostle Paul's example, who said: "These hands have ministered to my necessities and them that were with me." As an expedient in the way of self-help bee-keeping is worthy of consideration. It is not hard physical work, nor does it require an exhaustive putting forth of brain power. It gives gentle exercise in the open air, brings into contact with the forces and beauties of nature, and is a most interesting, fascinating study. A recent writer on the subject calls it "the pleasant occupation of tending bees."

Bee-keeping is, moreover, quite a clerical pursuit. Some of the most distinguished apiarists have been ministers. Langstroth, Dzierzon, Quinby, Harbison, Miner, Mahin and others are all familiar and familiar and noted names of clerical bee-keepers. The late Rev. J. Vogeler, Missionary to the Indians at Moravian Town, Ont., stated in a letter published in the Canada Farmer of Feb. 1, 1864, that in 1843 he obtained a swarm of bees from a hollow tree in the woods, and the profits from that wild swarm had, in twenty years, paid for a farm of 219 acres of land. Not to multiply instances, the following capital story, copied from the Mark Lane Express, the leading agricultural journal of Great Britain, doubly bears on the matter in hand, being at once an example of clerical and profitable bee-keeping:

A bishop was holding his first visitation of the clergy in his diocese in a town in one of the Mid-

land counties. Among those assembled he soon discovered an old college acquaintance whom he had not seen for a great number of years, but whom he greeted with all the warmth of a renewed friendship. On comparing notes with his friend, the bishop learned with regret that he was still a curate in a country village, at a stipend of a hundred pounds a year, and that he had a wife and large family to support The worthy curate, however, invited the bishop to spend a day with him before he left the neighborhood, and the latter, not wishing to appear proud, accepted the invitation.

On reaching the parsonage, he was surprised to find his friend's wife an elegantly dressed lady, who received him without any of the embarrassment which a paucity of means is apt to occasion in those who feel its pressure. The children also, were all well dressed and looked like anything rather than as having suffered in any way from the pinch of poverty.

But the good bishop's surprise was still greater when he sat down to partake of a repast, little short of sumptuous in all its appointments. Knowing that his friend was originally a poor man, he considered that he must have received a fortune with his wife. After, therefore, the latter and the children had withdrawn, the bishop expressed a fear that his friend had gone to an injurious expense to entertain him, and that it would entail privation upon him afterward. "Not at all," replied the curate; I can well afford to entertain an old friend once in a while without inconvenience."

"Then," rejoined the bishop, "I must congratulate you, I suppose, on having received a fortune with your good lady?"

"You are wrong again, my lord" replied the poor curate.

More mystified than ever, the bishop resumed: "Then how is it possible for you to have those comforts around you that I see, out of a hundred a year?"

"Oh, my lord, as to that, I am a large manufacturer as well as a clergyman, and employ many operatives, which bring me an excellent living. If you will walk with me to the back of the premises, I will show you them at work."

He accordingly took him into the garden, and showed him at the back of the house a large and splendid apiary, the source of the curate's prosperity.

The bishop never forgot the circumstance, nor did he ever fail to make use of it as an argument and example, for when he afterwards heard some poor curate complain of the scantiness of his income, he would cut the matter short by exclaiming, "There, there; let's have no more grumbling. Keep bees, like Mr. —. Keep bees!"

—*American Bee Journal.*

A Model Bee Cellar, and How Constructed.

S. T. Pettit, writing on this subject in Gleanings in Bee-Culture, gives the following plan:

I make it a point to have my bees in good shape, and well supplied with good stores. When I must feed I bring 8½ wine quarts of water to a boil, then stir in 40 lbs. of sugar; and when that boils I lift it off the fire and pour in 8 lbs. of honey, and stir well. The ½ quart is for evaporation. I am of the opinion that a good deal of loss occurs from too much water in the food. Many colonies fail to do more than just store it My cellar is constructed in heavy clay, and a shop is built over it. The shop is very warm, and has a 5-inch floor. The cellar is so deep that the shop floor is about even with the surface of the ground, Now, as the earth is always giving off heat, this depth is of much benefit to the bees. With a cellar so constructed, more air can be admitted, and the temperature keep right, than in one whose walls are considerably above ground, even though they be several feet thick. A brick or stone wall, however well made, cannot supply the heat; but the earth does, and it will pay to utilize it. My cellar-walls, though under ground, are as nearly air-tight as can be made of stone and mortar. The wind blows pretty freely through the ground, hence the necessity. The windows are on the break-joint principle, to admit air and exclude light. They are adjustable to suit the weather. Large curtains of open cloth are hung between the windows and the hives to distribute the in-flowing air.

About the 20th of November the bees are placed in, about 18 inches from the ground. The back end of each hive stands 3 inches higher than the front. I pry up the back end and slip in bits of lath. I leave the cloth, covered with propolis, flat on top of the frames. I like it sealed down air-tight. A chaff cushion is placed on top of each hive. To keep the hives at the proper pitch, a piece of lath is laid across the lower end of each hive on top of the cushion, before placing the next hive on. The walks, to prevent crushing bees, are made of boards, across which are nailed strips about an inch apart. The floor is the natural earth, worked down hard and smooth.

A stove is in the shop above, in which I keep a gentle fire most of the winter. With the stovepipe is connected a 6-inch pipe, which extends to within 8 inches of the cellar-floor. A damper is in this pipe Now, in sharp weather, the upward rush is pretty brisk; but with the combined heat of the bees and the earth the temperature keeps at about 40 in steady cold weather.

I wish to point out that although the air may be saturated with moisture at 40 degrees, when it enters the hives and is warmed to the temperature of the bees it becomes thirsty, and takes up the moisture

thrown off by the bees, and thus they are kept dry and healthy. This is is one reason why the temperature in a damp cellar should be kept down to about 40 degrees; and, more than that, this difference of temperature of the cellar air and the hive air, if the bees are fixed up right, produces automatic ventilation through the hives, and the bees are not obliged to fan or drive out foul air; and that being the case, and their conditions and surroundings being just right for their happiness and supreme comfort, they will become so quiet that not a flutter nor hum can be heard from most of the hives.

I have learned during the past few years, 1. That bees that hum all winter run down in spring more or less, while those that are wintered right, boom right along, and generally gather a surplus of spring honey, and are ready for any flow that may come. I do some visiting among bee-keepers. 2. That sub-earth ventilators as usually constructed make the cellar very wet, and that they are of but little if any use made of tile. 3. That damp cellars may be made dry by admitting no air that comes in, in any way, through the ground, either through the walls or under them, and admitting air only from above ground 4. That it is a mistake to leave the bees in the cellar late in spring if they are at all uneasy. If a fine day comes the first week in April, out go my bees. 5. That a good warm cushion on top is all the packing necessary in spring. 6. That bees do just as well with entrances to the north as any other direction, provided there are good wind-breaks to the west and north. 7. That hive air will be purer and dryer, and the bees warmer and more comfortable, with liberal entrances than with too small entrances. Also, there will be less robbing and less fighting among quaruelous Italians of the same hive; entrances from 3 to 6 inches in early spring, and ⅜ high. Quaruelous Italians must have more to keep them at peace among themselves. 8. That bees winter better and do better in the spring in small hives than large ones. 9. That bees winter better on 9-in. than on 12-in. frames. 10. That cards more than ten inches deep should have a hole or two made a little above the center of all the combs.

Belmont, Ont., Can.

We have just received from T. G. Newman, Chairman, the report of the committee appointed at Toronto, to act on the proposed union of the North American Bee Keeper's Association and the National Bee-Keeper's Union, which we will print in the January issue as it came too late for this issue.

The Third Annual Convention of the Nebraska State Irrigation Association will be held at Sidney, Dec. 18 and 19. Reduced rates are given throughout the state on all railroads, and a good meeting is expected, as many able speakers and practical irrigators will be present.

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L. D. STILSON, -:- -:- EDITOR.
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The Past and The Future.

With this month, the year and its work closes. How fast the years go by; only a few days ago it was New Years'; a few days more and it will be New Years' again. Not the same old one of 1895, but the new, bright one of 1896. As we look back over the old year, and note its changes; what has it brought us, pleasure, profit, or sad experiences. Have we been made wiser by its lessons, will we begin the new year better prepared for its duties by having lived this year? These are questions for each reader to answer for themselves and if you are not better prepared for next year, what is wrong? Are you out of touch with your Maker and your fellow-man? Are you drifting like a ship without a rudder? Have you lost your compass? Have you no fixed purpose here in this life?

In looking over the year's correspondence we gather these figures for the State of Nebraska:- Loss of colonies of bees from September 1893 to May 1895, 95 per cent. Surplus honey placed on the market, 10,000 lbs. Gains in colonies, May 94 to September, 95, about 4 to 1, so that we go into the winter with about 20 per cent of the number we had to begin the winter of 1893, and nearly one-half as many as in 1894, and our surplus honey crop this year is more than ten times that of 1894. One year ago we predicted very heavy losses on account of there being so few young bees to begin the winter with. This season the reverse is true. Colonies are well stocked with sealed honey and plenty of young bees, and we think bees will winter better than for some years past. Not since the fall of 1889 has there been as good a show for the coming year being productive of honey as now. 1890 and 1891 we produced more honey than any other two years in the history of our state. Get your dishes ready. There will be honey next year. The fall rains this year have started the honey plants in good shape and unless they are destroped after this there will be a larger honey production to the square mile than there has been for a long time.

Beginning with the January issue, we will print the proceedings of the State Bee-Keeper's meeting held at Omaha.

The International Bee-Keepers' Congress meets at Atlanta, Ga., Dec. 4 and 5. It is destined to be an informal meeting of representative bee-keepers of America.

Rainfall of Nebraska, Past and Present.

BY G. D. SWEZEY, METEOROLOGIST.
UNIVERSITY OF NEBRASKA.

For three years past this portion of the United States has suffered more or less severely from the drouth and, in one of these years at least, Nebraska was much more seriously affected than her neighbors. The almost total failure of crops in Nebraska in 1894, the necessity laid upon our sister states of extending liberally the hand of charity during the winter of 1894-95, and finally the partial failure of crops here again in 1895 has led to the impression that Nebraska is destined to be a drouth-stricken region and has raised the question in the minds of many of our own people whether they had not better forsake their farms and seek more favorable climes.

In view of this prevalent feeling of uncertainty and unrest it may not be amiss to compare Nebraska with some neighboring states in this all-important matter of rainfall. The following table shows what is the annual average rainfall of such stations as have records complete or substantially so extending back over a period of nineteen years, or as far back as 1876 Previous to that time there are not sufficient records to afford a trustworthy average.

Name of Station.	Average Rainfall.
Omaha	31.9 inches
Weeping Water	31.3 inches
Tecumseh	32.4 inches
Fremont	28.8 inches
Crete	28.4 inches
Superior	28.1 inches
Marquette	25.2 inches
Genoa	26.0 inches
Ft. Hartsuff	21.4 inches
Ravenna	24.6 inches
Precept	25.5 inches
Red Willow	19.7 inches
North Platte	18.6 inches
Valentine	20.7 inches
Ft. Robinson	17.2 inches
Cheyenne, Wyoming	12.4 inches
Ft. Sully, South Dakota	17.1 inches
Ft. Randall. South Dakota	23.8 inches
Yankton, South Dakota	25.6 inches
Duluth, Minnesota	31.1 inches
St. Paul, Minnesota	25.5 inches
Cresco, Iowa	31.6 inches
Ames, Iowa	30.8 inches
Monticello, Iowa	37.4 inches
Davenport, Iowa	34.2 inches
Keokuk, Iowa	34.5 inches
St. Louis, Missouri	38.3 inches
Independence, Kansas	37.6 inches
Dodge City, Kansas	20.4 inches

Since all these records cover the same period of years and a period long enough to furnish good average, we can judge for ourselves whether our climate is normally an arid one or whether the two or three years past have been exceptional ones, and particularly we can compare our climate with that of sister states bordering upon ours and see whether we are better or worse off than they.

Comparing Nebraska with Dakota we notice that Fort Sully, which lies near the geographical center of South Dakota, has normally a smaller yearly rainfall than North Platte, which lies farther west in Nebraska, while Fort Randall and Yankton near the Southeast corner of South Dakota have seven or eight inches less than stations similarly situated in Nebraska. The Minnesota stations, Duluth and St. Paul, have an annual rainfall comparable with that of Weeping Water and Precept in Nebraska, that is with Cass and Furnas counties respectively; in other words, Minnesota, lying so far east as it does and so much nearer the great lakes than we, has nevertheless a rainfall not greatly in excess of ours; indeed the eastern half of Nebraska lies in just about the same rainbelt as the state of Minnesota as a whole. Dodge City, Kans., has about the same

precipitation as Valentine, Neb, and lies in about the same longitude; but Independence, in Southeastern Kansas, has more rainfall than any Nebraska station. The Iowa stations show only a slightly larger precipitation than those of eastern Nebraska.

The average rainfall for the state of Nebraska as a whole is 23.58 inches for this same period of nineteen years. The rainfall of 1891 was far in excess of that amount; that of 1892 was about normal; while for three years since the rainfall has been very deficient, that of 1893 being 16.80, that of 1894 only 13 31 —the smallest that we ever had—while that of 1895 thus far has been about 18 inches. Plainly then these last three years do not represent normal conditions here in Nebraska; they represent occasional conditions which we must be prepared to expect from time to time.

Adverse conditions have combined against us of late; a dry subsoil, deficient rainfall, and in 1894 a temperature the highest ever recorded in the state. But there is no reason to think that these last three dry years indicate a progressive change in our climate towards desert conditions; the period from 1859 to 1862 was a similar period of drouth here in Nebraska, the rainfall for all these four years being below the normal and that of 1860 being probably almost as small as that of 1864, although records are too meagre to give exact averages.

The fact that we have to go back thirty-five years to find another group of years with such a small yearly rainfall, shows that the deficiencies of the last three years are very unusual here in Nebraska.

But it may be asked: "Even if our yearly rainfall is usually ample for the growth of crops, are we not particularly liable to a deficiency in the growing season and especially in the critical months when the corn is earing?"

The following table gives the average monthly precipitation for the state:

Month.	Precipitation.
January	0.70 inches
February	0.72 inches
March	1.19 inches
April	2.42 inches
May	3.69 inches
June	3.90 inches
July	3.56 inches
August	2.63 inches
September	1.88 inches
October	1.57 inches
November	0.68 inches
December	0.64 inches

It thus appears that of the 23.58 inches of yearly rainfall in Nebraska, 16.20 inches, or 69 per cent of the entire amount, falls during the five months of the growing season, April to August, inclusive. That we may see how we compare in this respect with other states, the following table, compiled from the record of weather bureau stations, shows what per cent of the total yearly rainfall occurs in these same five months in other localities:

Station	Growing Season Per Cent.	August Per Cent
St. Louis, Mo	48	7
Cheyenne, Wyo	71	13
Dodge City, Kan	73	15
North Platte, Neb	72	13
Omaha, Neb	67	10
Huron, S. D.	74	14
St. Paul, Minn	61	12
Duluth, Minn	57	11
Davenport, Ia.	55	11
Keokuk, Ia	54	8

It thus appears that the states of Nebraska, Kansas, Dakota and Wyoming with their none too plentious supply of yearly rainfall, have on the other hand the advantage over the states lying farther to the east, that a large percentage of this rainfall occurs in the growing season, when it is most useful, and that as we go eastward the percentage gradually falls off, particularly towards

the southeast, or in other words in the direction towards which the actual amount of rainfall increases most decidedly; so that if we compare the rainfall of the growing season alone in different localities, Nebraska does not appear in so unfavorable a light as her small yearly rainfall would indicate.

But it may still be asked whether our rainfall is not particularly liable to fail us in the latter part of the growing season, in the critical months when the corn is earing and maturing. Here again a reference to the table given above will show that we compare favorably with the states farther east as to our percentage of August rainfall. A much larger percentage of the entire year's rainfall occurs in August in the western states than in those farther east.

Moreover, a comparison of past years is somewhat reassuring as to the comparative infrequency of severe droughts in July and August. The average rainfall of Nebraska for July is 3.56, and for August 2.63 inches, and the following table will show that the actual rainfall for these months has only now and then fallen seriously below the normal amount:

Year.	July Rainfall. Inches.	August Rainfall. Inches.
1876	4.28	3.25
1877	1.45	2.04
1878	5.71	2.16
1879	5.92	1.54
1880	3.36	3.87
1881	3.38	1.18
1882	3.40	1.31
1883	2.81	3.21
1884	5.79	2.97
1885	4.32	3.96
1886	1.84	3.22
1887	3.10	4.13
1888	3.10	3.11
1889	5.77	2.40
1890	2.10	2.24
1891	5.47	2.92
1892	2.57	3.20
1893	2.62	2 33
1894	1.43	0.74
1895	1.73	3.04

Thus it appears both from a comparison of our yearly rainfall for the past nineteen years with that of other states and from a study of its distribution through the months of the year, that the past two or three seasons have represented climate conditions which are exceptional rather than normal, and which are to be expected occasionally rather than ordinarily in Nebraska.

Where will the winter meeting of the State Bee-Keeper's Association be held? What town or city wants to have the meeting? Speak quick or write to us.

The North American Bee-Keeper's Association agreed to come to Lincoln next year, and now some are kicking for fear they cannot get railroad rates to suit. There are no Nebraska men on the board of managers this year, and so we will have no say as to the time of meeting; but if they will listen to echoes from this end of the line, they can fix a time when low rates are given. This year those attending the meeting at Toronto paid full fare both ways, while at the same time anyone between the Missouri river and Chicago could have reached here for one fare plus $2.00, for the round trip, and from Chicago to the Atlantic Ocean it would have cost one fare plus $4.00 for the round trip.

Whenever you go east again, better buy return trip ticket first.

Gentlemen, don't talk about

holding the meeting in connection with the G. A. R. Encampment until after next year, but come and see how well we can use you.

Excursions to Nebraska have been run by the railroads each year for several years past during the fall months from eastern points, and we have reason to hope that they will not be discontinued next year. We still have elbow room for several good farmers, and the railroads want to have them come and see this land of ours.

The Iowa Seed Co., Des Moines, Ia., are offering a fine assortment of choice seeds for gardeners and farmers. We have received their quarterly price list and their prices are very low and reasonable.

Hicks' Great Works.

Rev. Irl R. Hicks, the celebrated storm prophet, of St. Louis, is now a household name in nearly every home in America. His wonderful Almanac predicts the weather for a year ahead more correctly and accurately than any other publication or any other system. The testimony of a large number of careful observers is that 99 per cent of Hicks' predictions are fulfilled to the letter. His series of annual Almanacs are now well and favorably known in all parts of this country and in foreign lands. The new Almanac for 1896 is the most practical and instructive as well as the prettiest of this splendid series. It contains 100 pages, printed on fine book paper, with covers elegantly printed in colors. The matter, although scientific, is written in popular style, there being nothing difficult to understand about it. It is also finely illustrated. Don't confound this with some patent medicine pamphlet. It is nothing of the kind, but is a fine book, which sells at all news stands for 25c. This fine Almanac is given as a premium to every yearly subscriber to the Rev. Irl R. Hicks' well-known and deservedly popular paper, WORD AND WORKS. This unique journal is a peerless educator of the masses, and is fast becoming a household guardian and necessity in the homes of America. Those who want to keep up with the advanced thought of the age in science religion and all social, commercial, intellectual and domestic subjects, should subscribe for WORD AND WORKS. Subscription only $1.00 a year. You can send for both direct to Word and Works Publishing Co., St. Louis, Mo. Single copies of Word and Works are 10 cents.