SUGGESTIONS

TO

CANE GROWERS,

OR

HOW TO GROW

AND

MANAGE CANE.

By J. W. PERRY.

COVINGTON, OHIO.

Printed by Covington, (O.), Printing Company.

1874.

SUGGESTIONS

TO

CANE GROWERS,

OR

HOW TO GROW

AND

MANAGE CANE.

By J. W. PERRY.

COVINGTON, OHIO.

Printed by Covington, (O.) Printing Company.

1874.

22618-

Entered according to Act of Congress in the year 1874, By J. W. PEARZ. In the office of the
Librarian of Congress at Washington.

SB235

.P46

CONTENTS.

	PAGE
Introduction,	5
Profits of Cane Culture,.....	6
Varieties,-.....	6
Where Shall We Plant,.....	2
Time to Plant,.....	3
Preparing the Ground,.....	6
Planting,.....	9
Cultivation,.....	10
Harvesting,	11
Clean your Vessels,.....	12
The Yield,.....	12
Growing and Saving Seed	13
Imports of Molasses & Sugar,.....	14
Conclud'ng Remarks,	15

SUGGESTIONS

TO

CANE GROWERS.

INTRODUCTION.

I have a three-fold object in view, in offering this little work to my friends:—The first is, to comply with a request often made for a treatise of this kind, and to get rid of giving such suggestions as are herein contained, at a time when I am too busily engaged to do it properly. Secondly, I believe that cane growers have need for such a work. And last, but not least; I have a desire to aid in giving importance to a crop so useful to our wants.

I believe the people for whom I write want plain instructions; instructions derived from many years' experience in growing and manufacturing cane. I have, therefore, written in plain language; leaving it to others to write in classical terms, giving scientific names to the many varieties of cane, and the elements contained in the earth, air, &c., which enter into the composition of good cane.

I believe there is every reason why cane growing should be encouraged, while there are none to the contrary. To the close observer, a constant increasing demand for sweets, is strikingly prominent, in our country. Every year witnesses an increase in the consumption of sugar and syrups. This demand is inexorable, and must be supplied, either by the home product, or by that of foreign countries. Southern cane growers are abandoning the business, on account of the enormous tax on machinery, which gives the northern canes additional importance. With this demand before us, and with this liberty to choose between producing sweets at home, and supplying the want from our own fields, or sending our gold to foreign markets for a lower grade of the same, will the farmers long hesitate? Does it require any argument to prove that it is acting the part of wisdom to keep our money in circulation at home? But I do not desire to urge any one into the business

on account of the demand, only; keeping in mind the fact that the crop is actually less exhaustive than corn, there is still another reason to which to invite your attention, and that is

THE PROFITS OF CANE CULTURE.

The present average yield of syrup, in Ohio, is one hundred and thirty-five gallons per acre. This sells at sixty cents a gallon, giving \$79 per acre for the crop. The average of corn is about 35 bushels per acre; which sells at 44 cents a bushel, giving \$15.40 per acre, for this crop. Now, the additional cost of cultivating and harvesting the cane is not more than \$10, per acre, more than corn, while the cost of manufacture at 22 cents per gallon is \$29.70. This makes the cane cost \$39.70 more than the corn, leaving \$39.30 for the former against \$15.40 for the latter. If this shows any thing, it shows that *cane is more than twice as profitable as corn*. I know that an extra corn crop may be, and often is, as high as 75 or 100 bushels, per acre, under favorable circumstances;—the same is true of cane; I have known it to produce 200, 240, 260, and even 300 gallons per acre, when favored as much. Prices vary also;—the present season I have had no difficulty in disposing of my crop at 75 to 85 cents a gallon. I have sold at 60 cents, and again at \$1, a gallon. So, it will be seen that the 60 cents is a low price for the cane, while 44 cents is a very fair average for corn. Although the larger yields of syrup are not always to be expected, yet, you may always rely upon it, that cane is more profitable than corn, in the proportion above indicated. It must be borne in mind, however, that, in order to "make it pay well," you will have to "work well," being guided by the instructions that follow.

VARIETIES.

Having resolved upon planting a "patch" of cane, the first question that perplexes our mind is, "What *kind* shall I plant?" After perusing the following sketch of varieties, the answer will be plainer.

"**SYRUP CANE.**"—This variety has not so tall a growth as the old sorghum; the stalks are smaller (though of good size, when not planted too thick;) has a tolerably long head; and, though the head is not compact, the brush lies close and is not spreading. When it is "heading out," the head has a red appearance, and, at a distance, the cane seems to be ripe, but it should always be allowed to stand three or four weeks, when the chaff will be black and glistening, and loose on the seed. The red appearance of the head, when just out of the "boot," the "glistening" appearance when ripe, and the looseness of the chaff on the seed, are the points by which we are to distinguish this from other varieties. This is an early variety; does not fall down readily; and yields largely of the very best candy-flavored syrup. It is deservedly popular; with us, the most popular.

LIBERIAN.—"The Liberian cane has, so far, been rust-proof, and as it does not fall down, and yields largely of the very best syrup, it is deservedly popular. This variety has red seed and a close, compact head, about five inches long, shouldered at the bottom, and usually square or a little forked at the top of the head. It often yields on good upland, over two hundred gallons per acre." I am not personally acquainted with this variety, but, as the authority quoted is in every way reliable, I think I may safely recommend it.

WHITE IMPHEE.—Seed white or gray; head short (with short brush,) and many seeded; stalks not usually long and of good size. This variety stands up well and yields abundantly of *very* good, golden-colored syrup. By many this is considered the best, as it does not granulate nor "turn to sugar" as readily as the syrup cane molasses. This is a late variety and should be planted early and on warm land.

E-EN-GHA.—This has a fine, tall, slender, but beautifully proportioned stalk; has a large, graceful head, with seed large and a yellowish hue. It is a very sweet cane, and will ripen in from ninety to one hundred days." It is very sensitive about harvesting: If it is not cut just in the "nick of time," it makes a worthless, mealy syrup; but if cut when the seed at the base of the head is in the milky state, the syrup is of the *best* quality. I can recommend this cane in every instance in which I can recommend the man who plants it. The earliest cane that I have grown. Hence if you are right sure that you can harvest it at the proper time, and desire to get the benefit of early market prices, try the E-en-gha sparingly.

"TEXAS CANE."—The description of the Liberian answers so nearly to the characteristics of this variety, that I do not feel certain that they are not identical. I shall soon know the difference, however, if there is any. The "Texas Cane" is very solid, and hard to crush at the factory. If it shall prove to be the same as the Liberian, I would not recommend you to plant *much* of "either," on account of its hardness. It is very late and must be planted very early, on very warm land.*

The above are only a few of the many varieties annually brought to my notice; but they are such as I can recommend for largeness of yield and that, too, of the best syrup. It is not deemed prudent to bewilder the reader with a "whole host" of varieties, some of which are good and others the very opposite. The four varieties: Syrup Cane, Liberian, White Imphee and E-en-gha,—I can recommend in the manner described; and I would advise you to plant two or more kinds, or arrange so that, in a given district, no single variety will be too generally prevalent. It takes *time* to work all the cane brought to a liberally-patronized factory, and, if the varieties are not pretty equally divided, a rush is apt to endanger a part of the crop.

*Subsequent examination has shown me that the Liberian is the same as the "Texas."

The second question to be considered is,

WHERE SHALL I PLANT?

Not in some obscure, shaded spot, where the sun can never penetrate;

Not on the east, north or west side of the woods, because there it will be "out of the way," and will not "cut up" the cornfield;

Not on the lower side of the barn-yard, where the washings from the manure pile will "run right through" the patch;

Not where you had potatoes last year; nor where the ground has been manured heavily with stable or barn-yard manure lately, for in either case, your molasses will be salty, instead of sweet and sugary;—

Not on wet land, unless you want weak, worthless cane;—

Not where the weeds were so thick and high, last year, that a horse couldn't get through the patch; nor nearer than eighty rods of a broom-corn patch—for if you do, it will hybridize, and make the seed unfit for future planting.

Nor should you plant where you cannot get at it, to haul it off, without a great deal of "fussing" and waiting;—but

~~Do~~ Plant in a clear clean, open spot, where the sun can have a fair chance at it; in a place easy of access, whether it "cuts up" the cornfield or not; on good, dry, warm land of a clayey or sandy texture, well drained and in good condition. A clover sod that has been planted to corn the previous year, will be *decidedly* good.

The season and the soil on which the cane is planted certainly influence the quantity and quality of the syrup produced. On a wet season, upland of a gravelly subsoil will be best; while low, black, or marshy land will give a light yield of inferior syrup. Gravelly land on a dry season is not so good as black, low land. To be on the safe side, select a spot where the land will neither dry out nor overflow,—*good dry land*.

If you plant two kinds, make two patches, a considerable distance from each other;—otherwise the seed will become impure.

TIME TO PLANT.

Don't put off the cane till all the other planting is done. Cane requires early planting, in order that it may escape the early autumn frost. When the ground is warm enough to plant corn, be sure and plant your cane. If you have selected a warm plot of ground for your cane patch,—which you should always do,—it is better to plant your cane before the corn is attended to. I have known cane to do well when planted as late as the middle of June, but it oftener "misses" than "hits." So, I say, plant early and on warm dry land.

PREPARING THE GROUND.

This should be done in the same manner in which corn ground *should* be prepared: *Plow deep and pulverize well.* The cane plant is very small and tender at first; hence the ground should be well pulverized, in order to aid it in starting. It roots deep: hence the necessity for deep plowing. Now, when you prepare your ground for planting, (or marking off for planting,) don't do it in a careless or exasperated manner; as if cane planting were a burden too irksome to be borne, or as if the result would be the same, whether careful or careless; but *be cheerful and do it right.*

The process of preparing the soil is not complete till the FERTILIZERS have been noticed. As before stated, the ammonial or barn-yard and stable manures are unfit for cane, until they have been thoroughly rotted and mixed with black alluvial, in compost. I am speaking now of applying the manures to the ground expressly for this crop. Lime and ashes contain the elements necessary to a vigorous, healthy growth of the cane plant; hence, if you make use of any fertilizers, try these. They should be applied sparingly, either in the hill or over the whole ground. Cane does not require a *very* rich soil, and will often produce good crops on comparatively poor land. It is best, however, to plant on tolerably strong land. If the land has been manured moderately with stable manure, three years ago, it will be beneficial to the crop. Prepare the ground thoroughly, be it manured or not.

Now "thrash" the seed from the head, by rubbing between the hands; put it into warm water and save only such for planting as does not float. Soak this in warm water;—just warm enough to bear your hand in it without burning;—leave it thus for three or four hours, when it will be ready for

PLANTING.

I prefer planting in hills, the same as corn. By planting this way, you are enabled to cultivate better than in drills; the stalks mature better; and it is easier harvested. I have conversed with as many as a score of growers, who planted in drills last year, (1873,) and they all unite in saying they are "down on" drills, forever! "Cane yields more to the bulk by the hill system; does not fall, as readily; and is not half so wearing on one's patience," is the universal verdict!

Having marked off the ground, level the dirt, in the crosses, with the foot, or a hoe, which will leave a nice hill on which to drop the seed. Put eight or ten seed in a hill, and cover with mellow, moist dirt, about three-fourths of an inch deep. One cause of failure in cane growing consists in planting too thick. Remember this, and see to it that you plant no more than ten (better have only eight,) seeds in a hill. Always be sure that you plant good seed, then you need have no misgivings about its growing. Be careful, and don't

rush through with the work of planting, as if the atmosphere of the cane patch were so vitiated as to endanger your life every minute of your stay therein! No; don't do that; but do the work carefully and well, for if you are careless here, all your labor afterwards cannot compensate the loss. "A stitch in time saves nine."

CULTIVATION.

Should it rain and the ground become baked, before the plant is up, it will be *necessary* for you to break the crust on the hills, with some sharp-toothed instrument;—as a small rake, made by driving nails through a piece of wood, an inch and a quarter square, and six or eight inches long, with a handle fastened to it. Neglecting to help the cane through, in this manner, *leads to very many of the failures to secure a good stand; nearly every failure is traceable to it.* Then, *be sure* and break the crust.

As soon as the plant is fairly through give the patch a good hoeing around the hills. The air and warmth must be let in to the roots, in order that it may get a vigorous, early start. Therefore, keep the ground mellow and loose, by timely hoeing and stirring with the cultivator and plow, until the cane "gets under headway." After it is waist high, it will not do to plow near the rows;—close plowing disturbs the roots, which is an injury to the crop. In the first and second plowings, aim to loosen up the ground several inches deep, being careful not to cover or plow out the hills. Afterwards use a one-horse triangular cultivator, going twice in a row. After a beating rain during the season of cultivation, always be sure and plow as soon as the ground is dry enough;—neglecting to do this, and plowing after the ground has dried out and hardened, is almost fatal to the crop. Ordinarily, one plowing in two weeks is often enough; and after harvest, you need not plow at all, except to kill weeds. Be active enough to destroy all weeds in the start. Two or three hoeings are sufficient, if the land is anything like clean. Keep the weeds and grass down, and the ground in good order. I think it better not to throw the dirt up around the hills, as we do with corn; for this prevents, in a measure, the penetration of the air and warmth, which, I have said, is so necessary to the vigorous growth and perfect development of the cane plant. That mode of cultivation which *does the work thoroughly* and leaves the ground level, is best.

While hoeing the second time, be sure and thin out to six or eight stalks in a hill. A greater number of stalks prevent a proper development of the cane. Pull off all "suckers," about harvest time, (July to August.) They don't mature; are an injury to the cane; hinder in harvesting; and, also, in manufacturing. Keep them off—as nearly all, as you can. They "suck" up the elements that ought to enrich the main stalks.

HARVESTING.

If you have heeded the foregoing instructions, and have been favored with anything like a good season, your cane crop is worth harvesting in the most approved manner. When your crop is very large, it may be advisable to commence harvesting soon after the cane is out of blossom, as a handsome syrup can then be obtained; but it will be more difficult to divest it of the cane taste, and the amount of syrup will be less than when the cane is ripe. Generally, cut your cane, when the seed at the base of the head is in the dough state. A few days earlier or later will do, if other farm labor is *uncommonly* pushing, or if the manufacturer desires you to do so; but the **BEST TIME**, is when the seed is in the dough. Don't forget that the Eengha must be cut when the lower seed are in the milky state. Make your arrangements to attend to your cane in the proper time;—"delays are dangerous." If the cane has been blown down; as soon as it blossoms, harvest it. If blown down in the blossom or afterwards, harvest as soon as you can enter the patch. Don't handle cane while it is wet; the dirt sticks to it and it will not "keep," nor will it make good molasses. Cane loses by standing after it is ripe. Cut before it is ripe, rather than let it get frosted. If frosted, it should be worked up before it has time to sour: frost injures cane. *Always strip, top, cut, tie into convenient bundles, AND HUAL TO THE FACTORY THE SAME DAY.* When cane is lodged, the labor of stripping and cutting will be greatly facilitated by topping first. Cut the tops off below the first joint; or, if the cane is very long or rather green, top below the second joint. In all cases, provide a saw-buck, or a similar contrivance, for each cutter to lay his cane on. Be careful to keep the cane clean. "Down cane" makes a smaller yield, and not so good a quality of syrup, as standing cane. It deteriorates in quantity and quality, if not cut on the same day on which it is stripped. Therefore, be diligent; heed the instructions herein contained, and you will not be guilty of hauling poor cane to the mill and expecting the manufacturer to turn out a handsome yield of premium syrup, when your cane is capable only of a common yield of common or under-average syrup. Moreover, I can assure you that you will have no occasion for hauling poor cane, provided you give due heed to the considerations already adduced.

One thing more: A cord of cane weighs less than a cord of wood. The generally received opinion is, that it is a great deal heavier; and, acting on this belief, most cane growers haul only very small loads—not more than half-a-cord, or three quarters of a cord at most. This is all wrong: a common team can haul a cord of cane as readily as a cord of wood, and should be made to do it. Some recognize this and act upon it, thus saving time and expense in hauling. Weigh an average-sized bundle, multiply the weight by the number of bundles on a load, and be convinced. Haul larger loads.

CLEAN YOUR VESSELS,

Before taking them to the factory to be filled. No syrup, no difference how excellent, can remain so, if put into a dirty cask or barrel. It is not sufficient that you scald your barrel two or three times with hot water; this only aggravates the matter. Take the head out, after marking it, so you can put it back right; wash the barrel thoroughly, dry it as carefully, put the head in nicely, and hoop it securely. It don't pay to put molasses into a poorly hooped keg or barrel, only to find that enough to buy a good, new barrel, has leaked out! Neither is it safe to put molasses into an old barrel in which molasses has soured. You have had a great deal of trouble and labor to raise and harvest your cane, and if it will pay you to be careful at any time, now is the time; for, after all your labor, the syrup will be, in a measure, spoiled, unless you *are careful to have it put into a clean, sweet vessel.*

So, you see, cane growing requires care, attention and patience, from the first to the last. No one need expect to make a fortune at the business, nor even pay expenses, by neglecting the crop. But those who *work* with a will and do it intelligently, need have no fears on that score. However, with the best care that we are able to bestow upon it, a great variety of "turn-outs" is noticed. Viewed in this light,

THE YIELD

Is peculiarly interesting, as it is the object of the season's operations in the cane patch. With the present irregularity of cultivation, no fact in cane growing is more remarkable than this: That the *size* of the bulk is a very poor criterion by which to judge the probable yield of syrup. Even old molasses makers often find themselves to be very "wild guessers." But close observation and a long experience in every department of cane management have shown me that there is a criterion by which we can "make a very close guess," everytime: There are certain conditions upon which the yield of syrup depends; as sure and as unerring as the conditions upon which a good corn crop depends. They are these:

1. Where planted;
2. How cultivated;
3. What kind of a season;
4. When and how harvested; and
5. When and how worked.

The chapter on Planting gives the conditions requisite for our part in the starting of a good, heavy crop—such as all desire to have. I have recommended care and attention in cultivation, because, in order to obtain a large yield, *you must cultivate well.* The season may baffle all your efforts, sometimes. There are good "cane seasons," as truly as there are good "corn seasons." Up to the time of "heading out," cane requires the same kind of a season as corn; during the month of August, little rain is needed. On

wet season, especially if July and August be wet, cane will be weak (watery)—even should the stalks be large. Cane is more readily drowned out than corn: Heed the admonitions on, "Where Shall I Plant?" As stated in the chapter on Harvesting, cane loses by standing after it is ripe, and after it has been stripped; whenever it commences souring, it commences losing. Many persons imagine that cane should be worked immediately after being cut and hauled to the factory, but this is a mistake. Unless frosted or very ripe, it is benefitted by lying. The time which cane may lie without injury depends upon the condition in which it is when delivered, and the variety. Therefore, don't "hurry up" the manufacturer, and tell him that you are "mortally afraid that your cane will spoil," and all that; but be prompt in harvesting and hauling it, and, if he is alive to his own interests, he will do the best he can for you.

GROWING AND SAVING SEED.

"It is a law of physical nature, as universally applicable to the vegetable as to the animal kingdom, that 'like produces like.' The recognition of this law is not merely theoretical or speculative; it is of universal acceptance, and its existence has been attested by long experience and the most critical observation. The judicious stock-raiser gives his testimony to his belief in its existence, when he consents to pay fabulous prices for what he denominates 'pure blood,' whether it be of horses, cattle, sheep, or swine." * * * * "Reverting to the premise laid down in the beginning, we re-assert that the physical law, previously announced, is as applicable to the vegetable as to the animal kingdom. If this be true, how very important is it that the agriculturist, upon whom exclusively the population of the earth is dependent for an adequate supply of food and raiment, should give the utmost care and attention to a judicious selection of seeds from which his crops are to be realized." * * * * "Recognizing the fact that as in the animal so in the vegetable kingdom, to preserve seed from degeneration, and to keep it up to its original standard of excellence, it will be necessary to give to the parent stock an ample supply of nutritious food, so as to keep it in good condition and to impart to it that healthful vigor so essential to successful propagation."

The foregoing quotations are taken from the Agricultural Report, for November, 1873. To give all the sensible things said in that Report, on this subject, would extend this article beyond proper limits. But the closing paragraph quoted recommends the establishment of a "seed patch" on every farm; that it be made a permanent institution; and that it be made very fertile, so as to impart great vitality to all seeds therein raised. Speaking particularly of cane, I think it would be better to plant a few hills in a sunny corner of the garden, give them the best care in your power, and leave them

to stand till the seed is thoroughly ripe, irrespective of manufacturing. Let them stand till *dead ripe*; the stalks will be excellent hog feed. Now, that you have grown a patch expressly for seed, put the seed away in a good dry place, being careful not to have it in a bunch; it needs ample ventilation. Good seed is the first requisite to a good crop.

QUANTITY OF MOLASSES AND SUGAR ANNUALLY CONSUMED IN THE UNITED STATES.

To give the readers of this little work some idea of the quantity of Molasses and Sugar yearly consumed in our country, I give the following extracts, which are taken from the "Agricultural Report of 1862." "The new product of Sorghum cane has established itself as one of the permanent crops of the country. The introduction of the Chinese and African canes was at a most auspicious period, for it enabled the interior States to supply themselves with a home article of molasses, thereby keeping down the prices of other molasses from any great advance over former rates, which otherwise would have been a result of the war. The Louisiana cane molasses in 1860 was 16,313,903 gallons, and the sorghum 7,176,042 gallons. The increase of the first was but 4,277,197 gallons over the product of 1850, clearing showing that it was incapable of supplying the rapidly increasing consumption of molasses. The amount of sorghum molasses was doubled in 1862; and from reports received at this Department, the crop of 1863 will be at least 25 per cent. greater than that of 1862." "But the extent of this crop will be governed very much by the success of the northern cane as a sugar making plant. Every thing is favorable to that success, as will be seen from the report of the chemist of this Department as well as from the numerous specimens of sorghum sugar forwarded to it."

"Nor is there any nation so much needing a sugar-making plant that may be generally grown, as the United States. This will be seen from the following statistics of the amount of molasses and sugar consumed in it :

IMPORTS OF MOLASSES AND SUGAR.

Years	Molasses (gals.)	Sugar (lbs.)
1856,	23,617,674	545,262,754
1857,	32,705,844	777,063,185
1858,	24,566,357	519,240,945
1859,	32,818,146	655,868,415
1860,	30,922,633	694,879,785
1861,	29,941,397	807,938,946

The domestic molasses and sugar from the Louisiana cane are about 16,000,000 gallons of the former, and about 300,000,000 lbs, of the latter, making the annual consumption about *forty-five* million gallons of molasses, and about one billion pounds of sugar. This amount is almost incredible. Comparing

the sugar of the first three years, in the above table, with that of the last three, we find the increase has been eighteen per cent. The ratio of population and the increase of the consumption of sugar are as follows :

Years,	Population,	Sugar,
1840 to 1845,	16 per cent.	50 per cent.
1845 to 1850,	16 per cent.	34 per cent.
1850 to 1855,	16 per cent.	100 per cent.
1855 to 1860,	15 per cent.	43 per cent.
Total	63 per cent.	227 per cent.

"These statistics show the great inducements that exist to stimulate the farmer and the sugar-refiner to continued exertion for the complete success of the northern cane."

Estimating the molasses at 30 cts. per gallon, and the sugar at 7 cts. per pound, we are annually sending abroad from sixty to seventy million dollars in gold for sweets that we ought to produce from our own fields and factories. In fact we have ample reason for believing the imports of sweets to be much greater now than in 1862; for the Louisiana cane-growers have been gradually abandoning the business, and the maple forests are being destroyed by storms, the ax, and by continued "tapping." So that, when we take into consideration the fact that the consumption of sweets is annually increasing among us, we feel assured that we are now sending nearly one hundred million dollars, each year, in gold, to foreign countries for sweets. But the reader will ask:—"Can first-class sugar be made from the northern canes?"—My experience convinces me that the day is not far distant when the canes we now grow in our own fields will be recognized as "sugar canes," as fully as those of Louisiana. Indeed, the conditions necessary to produce granulation are generally known among practical manufacturers, and the process of refining has proved a success. The cost of machinery and labor, only, prevents the realization of our desires to make the canes of our latitude pay as sugar-making plants. One condition, however, must not be overlooked, namely: That a perfectly-developed cane is the first essential to success, in sugar making. It behoves us, then, to study the characteristics of cane; to ascertain, by the closest observation, what conditions are necessary to give it the highest shade of development. To stimulate others in this work, is the object of these pages. READER, WILL YOU DO YOUR PART IN THIS IMPORTANT WORK?

CONCLUDING REMARKS.

In the preceding pages, I have frequently recommended care:—This is essential to success in every avocation of life. Without it, the smith would

burn his iron, the tailor spoil his clothes, the lawyer lose his client, and the merchant become bankrupt. Without it, the farmers are annually losing thousands of dollars, without knowing it. I have seen the ill effects of carelessness so often, that I have thought proper to keep the idea constantly before the reader, that CAREFULNESS IS THE FIRST ESSENTIAL TO SUCCESS. Keep your eyes and ears open, and your hands in readiness to do their part of the work.

I have not attempted to discuss the whole subject of cane management;—to investigate every point that may have a bearing on cane culture;—for that was not my intention. Many other points might have been considered, but I have not thought prudent to weary myself and the reader with any such disquisition. In the mean time, I shall not discontinue my investigations on the subject; and if it shall be my good fortune to discover facts of such an important nature as to demand publication, the necessary publicity will be cheerfully given.

I have carefully compared the above figures, with those of the official documents, and found them correct. Attest,
S. W. ELY, Printer.

THE END.

LIBRARY OF CONGRESS

0 000 931 462 3