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Improvement of Wheat

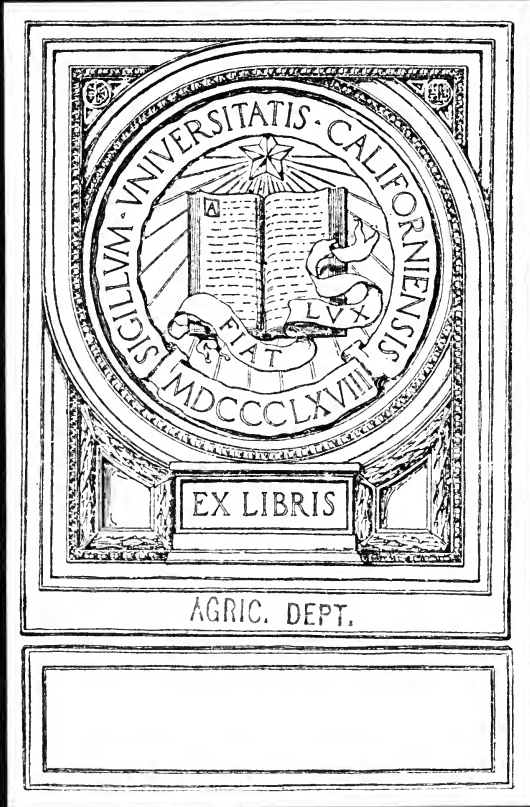
Thos. B. Lord

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THE
FARMER'S GUIDE,

OR A TREATISE ON THE

Improvement of Wheat

BY THOS. B. LORD.

DESIGNED TO INSTRUCT THE FARMER IN SELECTING
HIS SEED, INCREASING ITS FERTILITY, PRE-
VENTING ITS DEGENERATING, OR RE-
STORING ITS FORMER VIGOR IF
IT "RUNS OUT."

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THE NEW YORK
CULTIVATOR

IMPROVEMENT OF WHEAT.

THE degeneracy of our soil and the best strength and fertility of our seed should admonish every farmer that something should be done to strengthen OUR SEED AND IMPROVE OUR LAND!

If I shall succeed in arousing the energies of the farmer to act on this subject, the importance of which is desirable, I shall feel that I have done something for the benefit of the tillers of the soil and for amelioration of the condition of our race, while I am called upon to pay the debt of nature.

In Western New York, formerly one of the best wheat growing sections in the United States, when the soil was rich and the seed strong, Gen. Mills, of Mt. Morris, Livingston Co., raised 47 11-60 bushels of wheat per acre on 80 acres of land; Simon McKinzie, of Caledonia, same county, raised 50 bushels per acre; Capt. Scott, of Covington, Wyoming Co., raised 50 bushels per acre. True, these were extreme cases, but 30, 35 and 40 bushels per acre were not uncommon. Even at a later day, about 1850, Wm. Hotchkiss, of Lewiston, Niagara Co., raised 63½ bushels per acre on 6¾ acres of land; Samuel L. Thompson, of Setauket, L. I., raised 42 bushels and 10 quarts by measure, or 44 bushels and 24 quarts by weight per acre; Justus White, of Parmelia, Jeff. Co., N. Y., raised 40 bushels and 2 pecks per acre. These were premium crops, but even much better crops were raised then than we get now. The

momentous question then presents itself to the farmer, why is this degeneracy, and what is the remedy?

To show this is the object of this pamphlet. If our seed was of the same strength it formerly was, and the soil in the same fertile condition, I know of no reason why we should not raise as good crops as our fathers did. But our seed is degenerated and our land impoverished. But my present object is to give the manner of improving our seed, and shall leave the improvement of the land for a future occasion. I propose then to give the improvements which others have made, and the manner in which it has been accomplished.

General Harmon's Improved White Flint.

"Dr. Emmons says this variety is considered by Mr. Harmon as new, having been produced by himself by a selection of the best seed, and liming and sowing on a limestone soil. It is larger than the White Flint, and yet the cuticle of the kernel is equally thin, delicate and white. It weighs, according to the statement of Mr. Harman, when prepared for seed, 64 pounds to the bushel. Two bushels and eighteen pounds of this wheat produced 106½ pounds flour and 32 pounds of bran; loss, one-half pound.

"Some twenty years ago General Harmon sent a quantity of the above named wheat to the Patent Office for distribution. At that time I received a small sample, but as I knew nothing of the culture of winter wheat I sowed it so late in the season that most of it was destroyed by the midge. After two trials I gave it up, saving what little the midge left, perhaps half a gill or so, which was put in a package properly labeled, where it remained in my seed-box till about seven years ago, when I received six or eight packages of Patent Office wheats. These, with the White Flint, were carefully sown in drills, the Flint yielding the best of the lot. From that small beginning I have every year since raised fair crops and sold many bushels for seed. The crop of 1861 weighed 64 pounds per bushel, making

48 pounds of superior flour. This year it weighs 63 pounds per bushel, making $47\frac{1}{2}$ pounds of flour per bushel, of as good quality as the best western flour, which is worth ten dollars per barrel here at the present time. Four and one-quarter bushels will make a barrel of extra flour, thus making the wheat worth a trifle over \$2,33 per bushel, for the coarse flour and bran are worth more than I pay per barrel for flouring, viz: twenty-five cents per barrel. From the foregoing data, our northern farmers can judge whether it is better to raise wheat for family use, or raise other crops and purchase western flour."

In addition to this I would say, that Gen. Harmon went into his barn when there was a brisk wind, opened the main doors on both sides, threw his wheat against the wind, and the largest kernels would go farthest. These were gathered up and sown. The following year he repeated the process. In a few years he secured the improved "Flint Wheat," which yielded 45 bushels per acre, and made 48 pounds of superfine flour from a bushel of wheat. One bushel of this wheat he claimed would go as far in sowing as $1\frac{1}{2}$ bushels of common wheat. A quantity of this was sent to the Patent Office at Washington, and distributed through the country. It was finally destroyed by the midge and lost to the farmers.

SELECTION OF SEED.

The experiments of Maj. F. F. Hallett, of Manor Farm, Kemptown, England, in the selection and planting of seed have attracted much attention among agriculturists in that country. In a paper read by him before the Midland Farmer's Club, at Birmingham, June 4, 1874, he says:

"The plan of selection which I pursue is as follows: A grain produces a plant consisting of many ears. I plant the grain from these ears in such a manner that each ear occupies a row by itself, each of its grain occupying a hole in this row, the holes being twelve inches apart every way. At harvest, after the most careful study and comparison of

the plants from all these grains, I select the finest one, which I accept as a proof that its parent grain was the best of all, under the peculiar circumstances of that season. This process is repeated annually, starting every year with the proved best grain, although the verification of this superiority is not obtained until the following harvest.

“In illustration of those principles of selection, I now give the following results, due to their influence alone—as the kind of seed, the land, and the system of culture employed were precisely the same for every plant for four consecutive years; neither was any manure used, nor any artificial means of fostering the plants resorted to.

Table showing the importance of each additional generation of selection.

Year	Selected Ears.	Length	Containing	No. of ears on finest stool.
		Inches.	Grains	
1857	Original Ear,-----	4 $\frac{3}{8}$	47	
1858	Finest Ear,-----	6 $\frac{1}{4}$	79	10
1859	Finest Ear,-----	7 $\frac{3}{4}$	91	22
1860	Ears Imperfect from wet season,-----			39
1861	Finest Ear,-----	8 $\frac{3}{4}$	123	52

“Thus, by means of repeated selection alone, the length of the ears has been doubled, their contents nearly trebled, and the “tillering” power of the seed increased five-fold.

“The following table gives similar increased contents of ear obtained in three other varieties of wheat :

Varieties of Wheat.	Grains in Original Ear	Grains in Improved Ear
Original Red, commenced in 1857,-----	45	123
Hunter's White, commenced in 1861,-----	6	124
Victoria White, commenced in 1862,-----	60	114
Golden Drop, commenced in 1864,-----	32	96

“It was supposed by the ancient writers that the powers of grains differed in relation to their position in the ear. This I investigated in 1858 by planting the grains of ten ears on a plan showing their several positions in the ear. The only general result, among most conflicting ones, was

that the smallest corns—those most remote from the center of growth—exhibited throughout, most unexpectedly, a vigor equal to that of the largest; and that the remarked worst grains, in one or two instances, did not by any means fall so far short of the good ones as had been expected. I have also made frequent trials of the comparative power of large and small, plump and thin grains; and, in the case of oats, which produce a small grain attached to a large one, trials as to their respective powers, with uniformly the same result, viz, that in good grains of the same pedigree, neither mere size nor situation in the ear supplies any indication of the superior grain.”

“Very close observation during many years has led me to the discovery that the variations in the cereals which nature presents to us are not only hereditary, but that they proceed upon a fixed principle, and from them I have deduced the following law of development of cereals:”

1. “Every fully-developed plant, whether of wheat, oats, or barley, presents an ear superior in productive power to any of the rest on that plant.”

2. “Every such plant contains one grain which, upon trial, proves more productive than any other.”

3. “The best grain in a given plant is found in its best ear.”

4. “The superior vigor of this grain is transmissible in different degrees to its progeny.”

5. “By repeated careful selection the superiority is accumulated.”

6. “The improvement, which is at first rapid, gradually after a long series of years, is diminished in amount, and eventually so far arrested that, practically speaking, a limit to improvement in the desired quality is reached.”

7. “By still continuing to select, the improvement is maintained, and practically a fixed type is the result.” * * *

“The superiority of some individuals over others is so

marked in various ways as to lead irresistibly to the inference that it must be hereditary. * * * * Upon this great principle, running throughout all nature, I base my system of selection. The results of selection in many agricultural plants, such as the parsnip, turnip, cabbage, potato, hop, &c., are well known; and there has recently been published in France a report showing how my principle of selection, applied to the beet cultivated for sugar, has resulted in an increase of 5 per cent. of sugar. In the case of the vine, too, I may cite an instance: Some eight years since I communicated to an Italian friend my views as to the selection of the vines. These he carried back with him to his relative in Piedmont, and two years ago he informed me that the produce in wine from his relative's estate had been trebled by adopting the principle of selection."

"Major Hallett insists strongly on thin sowing of wheat. It is to be remembered that he is speaking of practice on English soil, in good heart, kept clean, and thoroughly tilled. He urges that it is necessary to the full vigor and and greatest product of the plants that they be sown early, giving each plant sufficient room to develop itself completely, by tillering freely, and occupying its just measure of ground. He recommends for large fields of wheat that planting take place from the last of August to September 10, using two gallons to three gallons of seed per acre. When circumstances delay planting beyond this period, an additional gallon of seed, per acre, should be used for every week of delay up to the end of September. Early planting gives advantage in saving of seed, in forwarding the fall work of the farm, in enabling the plants more effectually to resist the lifting of winter frosts, and in an earlier harvest.

In illustration of the vigor of grains grown by him, he states that at the Exeter meeting of the British Association he exhibited three plants of wheat, barley, and oats, each from a single grain, showing the following number of

stems, respectively: wheat, 94; barley, 110; oats, 87. As to the effect of the increased size of the grains on the aggregate of the crop, he adds that he has found one bushel of his pedigree wheat, (original red,) produced from single grains planted 12 inches by 12, to contain about 460,000 grains; a bushel of ordinary wheat containing 700,000 grains. The enlargement of the grains tend to a proportional increase in measured yield. On three acres of land he has averaged 72 bushels of wheat per acre from a seeding of one-third of a bushel per acre, and on an entire field of barley he has averaged, per acre, 82 bushels, weighing 57 pounds per bushel, from a seeding of one peck per acre."

In respect to regularity of drill, Major Hallett says:

"My principle object is to insure perfect singleness and regularity of plant with uniformity of depth. The two latter may be attained by the drill, as may the former also by adopting the following plan: The seed-cups ordinarily used in drilling wheat are so large that they deliver bunches of grain, consisting of six or seven, which fall together within a very small area, from which a less produce will be obtained than if it had been occupied by a single grain.

The additional grains are thus not only wasted, but are positively injurious. By using seed-cups, however, which are only sufficiently large to contain one grain at a time, a stream of single grains is delivered, and the desired object, viz., the depositing of grains singly, at once attained. The intervals in the rows will not be exactly uniform, but they will be sufficiently so for all practical purposes. The width of these intervals will, of course, depend upon the velocity with which the seed-barrel revolves, which can be regulated at pleasure by proper arrangement of the cog-wheels which drive it. By drilling thus we obtain the advantage of the "broadcast" system, also equal distribution, as we can have the rows close together and the grains as thin in the rows as we please."

IMPROVEMENT OF WHEAT IN HUNGARY.

“Mr. Mokry, a farmer in the county of Bekes, Hungary has been experimenting for eight years on the improvement of wheat, by selection of seed, &c. His efforts having attracted the attention of his government, he has lately received an annual grant to aid him in carrying out his experiments on a large scale. Until quite recently he was unacquainted with the system of Major Hallett, the English experimenter, which would appear to have been in advance of his own, and likely to afford him much assistance toward perfecting his practice. The following is an extract from a report made by Mr. Mokry to his government:

“In 1873, I had a field of 40 acres drilled with third-class improved wheat, which gave me 18 metzen (about 34 bushels) per acre, whereas the ordinary seed produced only 5 metzen. I found that a crop of improved wheat was not in the least degree affected by “rost,” and a crop of common wheat was totally ruined by it. I have observed that every year it has maintained its increased reproductiveness even when sown thick and in superficially plowed ground. Seeing, therefore, that in the cases stated the two kinds of seed were drilled under the same conditions of soil and climate, and that one did not receive more care than the other, and that, nevertheless, the pedigree wheat yielded ears as long and as full again as those of the common wheat, I find it demonstrated that the yielding powers of the pedigree wheat can be developed to an almost incredible degree, and and that it will assert its superiority even with ordinary treatment and under untoward circumstances. In the unfavorable year, 1874, my first-class improved seed gave 11 metzen per acre, weighing 84 pounds per metzen; the second-class, 7 metzen, weighing 84 pounds; the third-class (broadcast,) 7 metzen, weighing 83 pounds; and the common seed only 5 metzen per acre, weighing 83 pounds per metzen.”

METHODS OF SEEDING COMPARED.

The following is a report of an experiment made by a member of the Goodhue Farmer's Club, Minnesota, with three fields seeded to spring wheat of the China Tea variety. The statement exhibits, among other points, the great advantage arising from a proper method of drilling, in giving equal growth to the wheat plants and sufficient room for their development.

"Field No. 1, two bushels of seed per acre, sown with broadcast sower and cultivator combined, the seed being planted at depths varying from one to four inches. Field No. 2, five pecks per acre, sown in drills, east and west, two and one-half inches deep. Field No. 3, three pecks per acre, sown in drills, east and west, two and one-half inches deep, eighteen inches apart; cultivated but once, when about a foot high, with a five toothed walking cultivator, at the expense of one dollar per acre."

Results.—"No. 1, good wheat, head medium in length, well filled and standing thick on the ground; unequal in growth, some straws being five and six feet long, others only two feet; some heads very green, others ripe; estimated yield twenty to twenty-five bushels per acre. No. 2 had a better color during growth than No. 1, and was very even in straw and degree of ripeness; heads about even, of extra length; bundles very heavy; estimated yield, thirty bushels per acre. No. 3 was extra at all times, its unusual deep-green color and broad leaves attracting much attention; no one supposed it the same kind of grain as lots 1 and 2; it stooled out much more than either, and was uniform in ripeness and length of straw; estimated yield, thirty-five to forty bushels per acre.

The Club concluded that they had been in the habit of using too much seed for spring wheat, and that wheat needs cultivation."

I will here give my own experience of improving

seed. Some eight years ago I commenced a series of experiments similar to the above with the following results, viz: I sowed a small quantity each year in drills 18 inches apart, and single kernels scattered by hand six inches to a foot apart in the drills. This was hoed about three times each year. When harvested selections were made from the best heads *only*, and sowed and tended in the same manner again. At the end of six years I commenced to increase the quantity, sowing at the rate of three pecks per acre, which produced equally as much wheat per acre as my other wheat sown $1\frac{1}{4}$ and $1\frac{1}{2}$ bushels per acre. My other wheat had been moderately improved by running the seed over a coarse screen, which would take out from $\frac{1}{4}$ to $\frac{1}{3}$ of the wheat. I have not yet succeeded to the extent of others who have preceded me, but I have made a decided improvement, and think that a few years more of similar work would approximate the results of Major Hallett, if it did not equal him.

Perhaps it will not be inappropriate here to put in a selection on the "Cultivation of Wheat."—[Nat'l Agr'l Report, 1868, p. 416.

CULTIVATION OF WHEAT.

"Public attention has been directed, in the recent reports of this department, to the propriety of making experiments in the cultivation of wheat in wide drilling and thin seeding. The fact that millions of acres of wheat are annually overrun with weeds, and that sod lands, imperfectly pulverized, often yield larger crops than the same soil in a better mechanical condition, but thoroughly seeded with wild plants of rampant growth, ought to suggest the probable success of a system of cultivation of growing wheat whereby it might have unchecked opportunity for growth, tillering, and perfect ripening, with such robustness of stalk as to preclude the liability of falling, and consequent imperfection and loss of grain.

Several correspondents of the Department acted upon these suggestions, and reported favorable results. One, in Rock County, Wisconsin, cultivated ten acres, planted in drills fourteen inches apart, with two pecks of seed per acre, with success so marked as to induce him to put in seventeen acres more.

Mr. R. A. Gilpin, of West Chester, Pa., in 1866, planted one acre with three pecks of seed in drills twenty inches apart, and drilled the remainder of the field at intervals of ten inches. In the spring, when the ground had become sufficiently dry, a small garden hoe was run between the rows, working three inches deep. "The wheat took a rapid start, and outgrew the rest of the field. As the season advanced it grew tall and strong, and no amount of wind or rain had any effect to lay it down. When the heads formed, their greater length was apparent. It was backward in ripening, and the rest of the field was cut and hauled in before this was ripe." But the single acre yielded twenty-three bushels, while the remainder of the field produced only nine bushels per acre. Thus a *single hoeing* produced fourteen bushels on an acre, or 155 per cent. increase, worth at the current value \$30, besides saving one-half the value of the seed. A large number of results like these, definite and particular, in varied circumstances of soil, climate, and condition, would test the pecuniary advantage of horse-hoeing wheat "

I have increased the length from an inch to an inch and a half, nearly doubled the number of kernels in a head, and added to the tillering over five fold. I have reduced the seed required per acre from one and one-half bushels to three pecks per acre. I have raised Clawson wheat that has weighed $64\frac{1}{2}$ pounds to the bushel, while the heaviest red wheat raised the same season, raised at the Ohio experimental station, weighed but 64 pounds per bushel. These are positive improvements. The flour

manufactured from wheat raised this season, stone ground, has been preferred to the roller ground flour. This flour presents good evidence of having been improved through the general improvement of the wheat, and it is hoped that the plant has, in some degree, been rendered proof against the ravages of the Hessian Fly. There are five positive improvements, and two possible ones.

I know of nothing more appropriate toward this improvement upon the farmers, than the address delivered by Mr. Dudley W. Adams, to the Granges of Muscatine and Union Counties, Iowa, in October, 1872:

“When physicians meet in convention, as they often do, it is customary for members of the medical profession to read papers for the entertainment and instruction of the assembled M. D.’s.

“When railroad men have a convention, such persons as have had active experience in railroad business do the talking and have charge of the meeting.

“Editorial conventions are attended by editors, and they, as firmly as any other class of people, are of the opinion that they are capable of managing their own business, and they are not in the habit of imploring the members of other callings to furnish the brains to amuse or instruct them.

“Shoemakers have organized themselves into the order of St. Crispins, and consider themselves able to paddle their own canoe.

“Lawyers not only feel competent to address and properly edify conventions of their own profession, but their modesty does not forbid them from rendering valuable assistance to less favored classes by a free use of their surplus talent.

“But when the tillers of the soil have met in an agricultural society of any kind, it has been usually customary to select a lawyer, doctor, editor or politician to tell us

what he knows about farming. The idea has very rarely occurred to the managers of such institutions that it might be possible for a farmer to have anything to say on such occasions which should be either appropriate, interesting, or instructive. When these professional oracles of our professional managers' selection open their mouths, we are edified with a rehash of such ideas as may be prevalent in the community, served up in a great variety of forms, and presented in a great many different and beautiful lights, depending for its coloring upon the business of the orator, as this is the stand-point from which we are viewed, and, of course, this view determines the nature of the picture. Lawyers and doctors in beautiful colors paint the nobleness and independence of the farmer's life. They tell us we are the most intelligent, moral, healthy and industrious class in all the land, and all our present is calm and our future happy. Merchants tell us that no business is so sure and free from care as farming, and that in no other calling do so few men end in bankruptcy. Politicians laud in stentorian tones the 'honest yeomanry,' 'the sinews of the land,' the 'bulwarks of our nation's liberties,' 'the coarse blouse of homespun which covers the true and honest heart,' and deluges more of equally fulsome and nauseating stuff.

"Soft-handed agricultural editors give long dissertations on the necessity of saving all the spare moments, and converting them into some useful purpose. They tell us how rainy days may be laboriously used in mending old rake-handles, and winter evenings utilized by pounding oak logs into basket stuff, while our wives and daughters can nobly assist in averting bankruptcy by weaving the baskets or ingeniously making one new lamp-wick out of the remains of three old ones.

"It has never occurred to these very wise instructors that farmers and farmers' families are human beings, with human feelings, human hopes and ambitions, and human

desires. It will doubtless be a matter of surprise for them to learn that farmers may possibly entertain some wish to enjoy life, and have some other object in life besides everlasting hard work and accumulating a few paltry dollars by coining them from their own life-blood, and stamping them with the sighs of weary children and worn wives.

“What we want in agriculture is a new Declaration of Independence: We must do something to dispel old prejudices, and break down these old notions. That the farmer is a mere animal, to labor from morn till eve, and into the night, is an ancient but abominable heresy. We have heard enough, ten times enough, about the ‘hardened hand of honest toil.’ The supreme ‘glory of the sweating brow,’ and how magnificent the suit of coarse homespun which covers a form bent with overwork, and which has incorporated in its every thread moments of painful labor which the over-worked wife had stolen from her needed rest.

“I tell you, my brother tillers of the soil, there is something in this world worth living for besides hard work. We have heard enough of this professional blarney. Toil is not in itself necessarily glorious. To toil like a slave, raise fat steers, cultivate broad acres, pile up treasures of bonds and lands and herds, and at the same time bow and starve the god-like form, harden the hands, dwarf the immortal mind, and alienate the children from the homestead, is a damning disgrace to any man, and should stamp him as worse than a brute.

“It is not honorable to sacrifice the mind and body to gain. It is not a trait of true nobility to bring up children to thankless, unrequited labor. It is not just or good or noble to wear out the wife of your bosom in the drudgery of the farm without a just return. You have no right to make agriculture so disagreeable as to drive all young men of spirit and enterprise into other branches of business.

“I will be met right here with the thousand time repeated rejoinder, ‘Oh, we farmers have to work hard. We

can't get along as mechanics in town do with ten hours work. We can't afford to hire help. We can't afford to have holidays. We can't get time to make a vegetable, flower, and fruit garden, and supply our wants with vegetables, flowers and fruits, We can't get time to make a lawn and plant trees around the house.' You can't? You can't? Then what are you farming for? As men, as citizens, as fathers, as husbands, you have no right to engage in a business which will condemn yourself and your dependents to a life of unrewarded toil. If the calling of agriculture will not enable you and yours to escape physical degredation, and mental and social starvation; if it does not enable you to enjoy the amenities, pleasures, comforts and necessities of life as well as other branches of business, it is your duty to abandon it at once, and not drag down in misery your dependent family. But I do not believe we need be driven to this alternative. I *do* believe that agrculture, followed as a business, with a reasonable regard to business principles, can be made a business success. I believe that by keeping steadily in view the primary end of life—our happiness, our comfort, our bodily health, our mental improvement and growth—they can be as well attained or better than in any other calling. Right here is the great difficulty; right here with ourselves is the remedy: We *work* too much and *think* too little. We make our hands too hard, while our brains are too soft. The day is long past when muscle ruled the world. Brain is the great motive power of this age, and muscle but a feeble instrument. The locomotive, tearing along, jarring the earth below, outstripping the wind above, and bearing in its train the beauty, honor and treasure of a State, represents brains. The dusty, sweaty footman, wearily plodding along, carrying a pack on his back, symbolizes muscle. The self-raking reaper, driven with gloved and unsoiled hands, sweeping down like a fable, the golden grain, represents brains. The bowed husbandman, painfully

gathering handfuls of straw and cutting them with a sickle, represents muscle. The steamboat, plowing its way with ease against the strongest current of our swift and noble rivers, is brains. The dug-out slowly creeping along the willow-margined shore, propelled by the Indian's paddle, is muscle. The sewing-machine, which stitches faster than the eye can follow, and never eats and tires, is brains. The weary, pale, and worn wife, painfully toiling over the midnight task, is muscle. How futile the attempt, then, for muscle to compete against mind in the great battle of life! A wise man once wrote, 'The wisdom of a learned man cometh with opportunity of leisure;' and in that sentence is food for reflection and thought, sufficient for an entire sermon. Unless farmers devote more time to the use of the brain and the improvement of the mind, and less to wearying and exhausting muscular labor, how can they hope to successfully compete against the vigorous minds of the present age? It is not the skillful hand, the strong arm, or the watchful eye alone that will in these days bring success to the farmer. These are needful, but a cultivated, intelligent, active brain to direct them is of ten times more importance.

"Again, I say, we work too much and think too little. A farmer rises at four o'clock, goes out and does the chores among the stock, chops wood for the day, mends the harness, and is very industrious. By breakfast time he has got all ready for the day's work. All hands then pitch into severe labor till noon. Dinner is called and dispatched in haste, and labor renewed till supper. This unavoidable but necessary hindrance to labor is hurriedly performed, work resumed until darkness compels a cessation of labor in the field, and then the laborers return to the house. A lantern is procured, by the aid of which the milking and other chores are 'done up,' and by nine or ten o'clock at night the day's work is closed, and the family, tired and stupid, retire to bed, only on the following day to repeat the same routine of slavery. And yet such men are called

good, thrifty, industrious farmers. It is a lie! a base slander to call such stupid slavery of body, such starvation of mind, good or thrifty, or in any wise commendable.

“Go into the country, and you will find numberless cases of men with poor health, crushed energies, ruined constitutions, and stunted souls, and women the slaves of habits of excessive labor, more fatal than the pernicious and much-condemned customs of fashionable society. You will find children prematurely old, with the bright light of happy childhood extinguished, and everywhere a lack of that life and cheerfulness which gives to life its greatest charms. Most of these evils can be traced directly to overwork. Is such work necessary or even profitable for a farmer? Most certainly not. Such work is a losing business, and farmers who adopt that course of labor will find at the end of the season that themselves, their wives, and children are worn and discouraged, and have not accomplished as much as had been attempted or expected. Why? Because they have worked like oxen and not like men, and have depended on muscle alone instead of making it an auxiliary of the mind, and they treat themselves to the luxury of a good, long, hearty growl at members of all other industries for combining to oppress the poor farmer. They growl at the shoemaker; they growl at the merchant; they growl at the railroad; they growl at the commission men; they growl at everybody and everything that lives by using its wits in sponging, cheating, and oppressing the hard-working farmer. This horde of cormorants are growled at, whined at, and snarled at, because they filch from the farmer his hard-earned dollars and live in luxury and ease thereon. Speakers at agricultural and political meetings, and writers in agricultural papers repeat these complaints, and ring the same charges over and over again, in season and out of season, until themselves and most farmers really believe that the tillers of the soil are the most industrious, moral, intelligent, hardworking, abused, persecuted

lamb in the world, and everybody else are wolves, seeking whom they may devour.

“Now, as one who was born on a farm, reared on a farm, has spent the flower of his days on a farm, and still earns his bread by tilling the soil, I know my brother farmers will forgive me if I do not follow in and repeat this strain, but tell plainly the naked, disagreeable truth. Many of these complaints are true, and we ought to be ashamed of ourselves that such is the disgraceful fact. Here is a class of people exceeding any other in numbers and wealth, and claiming superior industry, intelligence and morality, complaining of being oppressed. We ought to be ashamed of ourselves, and either cease our boasting or our whining.

“Let us take a candid look at the situation, and see if we cannot discover what is the matter. Let us try and see if there is any good reason why the great majority should be governed and oppressed by a small minority.

“In human affairs effects follow causes; results are accomplished by action, even when the actors are unseen. Look at our State and National Governments, and who are the men to whom we entrust this great responsibility? Look at our boards of trade, industrial expositions, and in fact any great project for the advancement of science, art, liberty or industry, and you will find at its head and the moving spirit thereof, a lawyer, doctor, preacher, student, merchant, or, in fact, almost anything but a farmer. These men rule the nation. They shape the laws; they make the channels of trade, and place trade in the channels. They build ships, harness steam to their wagons, make lightning carry their messages; they compel rivers to turn their saws, twirl their spindles, and throw their shuttles. They use their brains, and mind governs the world.

“Just think of competing against such men by stupidly hoeing corn fifteen hours a day and selling it at twenty cents a bushel, and then laying awake nights, growling at railroad men and merchants. The dog who barks at the

moon comes nearer accomplishing his purpose than such a growler. Why have not farmers taken a position of influence and power in the councils of the nation and otherwise, in proportion to their numbers and wealth? Simply because we have not used our brains.

“The world pays homage to intelligence, to intellect, and puts it in places of honor, of trust, of responsibility. The world is not partial to lawyers, ministers and doctors, but the world wants to use brains, and accepts them wherever found, and uses them to promote its wishes; and if we farmers want to be placed in the foremost rank in the nation and in the world; if we wish to be put in positions where we can have power to aid our fellows; if we wish to have influence and make our mark on the institutions of the land; if we wish to stand where we can do something toward governing the price of our commodities; if we wish to weigh according to our size in the scale of public opinion; if we want to have farmers in demand for places of trust and honor and profit, and for husbands for beautiful, refined and intelligent women; if we want to escape from our present vassalage, we must furnish some brains, sound in quality, liberal in quantity, polished with constant use, refined by study and thought. Show me such a farmer as that, and I will show you a man whom his fellow-men will want to use in places of trust.

“I speak it in sorrow; I admit it with deep and burning shame, that the farmers can furnish but comparatively few men whose minds are fitted to organize great enterprises. Look at the farmers in our Legislature. In numbers they are very small in proportion to the population of the State, and smaller yet in the influence they have upon the legislation. When they come in contact with men who are in the habit of close and logical reasoning, they, with few exceptions, prove wanting. It may, and probably will be said that head-work will not hoe corn or feed the pigs. Granted. But prove to me that an intelligent man is dis-

qualified from performing the duties of a farmer and you will prove to me that farming is a business which it is disgraceful to follow, and that it is grossly unjust to say aught to induce any young man of common sense to become a farmer.

“It is seen that thought, intelligence, mind, brains, used in other branches of business, lead to success. It is found that men with clear heads, sharp wits, sound judgment, and business habits go straight along and compel success even under adverse circumstances. Now, is it any advantage to have and use brains? Can a man with brains get, in tilling the soil, a fair compensation for their use? Can brain work be employed on the farm and return to the owner as much of comfort, wealth, happiness, honor, and general prosperity as in other branches of business at the present time? This is a knotty question, but it is one we have got to meet, and meet it now. There is no use in attempting to evade or ignore this great alternative. If there is anything in agriculture that necessarily dwarfs the mind and makes it secondary to mere physical exertion, then it is a disgrace to be a farmer, and common honesty requires that we cease talking about the honorableness of the noble yeomanry. But, on the contrary, if agriculture will give scope to thought and research; if it will cause a man to think while he works, and study while he has leisure; if his business is such that talent and tact will transform his soil to gold and his house into a beautiful and happy home; if the same amount of bodily and mental labor on the farm will produce as much pleasure, wealth and happiness as in the shops, counting-room, and mines, then we may conscientiously recommend agriculture as one of the desirable employments. Can this be done?

“Brother Patrons of Husbandry, our Order has been formed to assist in answering this great question in the affirmative. How shall we proceed?

“I do not underrate the importance of making an ef-

fort to buy our reapers a few dollars cheaper and sell our wheat a few cents higher, and get our freights a little lower. What is gained in this way is certainly added to the profits of the farm, but I very much fear that many members of the Order place too high a value upon this matter of purchase and sale. This is not what ails us. It does not reach the root of the difficulty at all. It only prunes away a few slender twigs which grow again in a single night. We can never accomplish what we want, and make agriculture respectable, remunerative, and desirable; farmers intelligent, contented and honored; farmers' wives envied and respected, and farmers' sons and daughters eagerly sought by the wise, good, learned and beautiful of the land for husbands and wives; we cannot make beautiful homes, fertile farms, and improving flocks by saving five dollars on a plow, and five cents a bushel on wheat. No! Never! When we build like that we must dig deeper, lay the foundations broader, and use *brains* as the chief stone of the corner. An ox excels us in strength, a horse in speed. The eagle has keener sight, the hare a quicker ear, the deer a finer sense of smell; but man excels them all in mind and rules above them all. So among men, it is not the strong, the swift, the keen-sighted, the quick-eared or fine scented who rules the world, but the clear-headed. Human beings are like pebbles on the sea shore, by rubbing against each other they become rounded, smooth, polished, symmetrical; alone, they are rough, uncouth, repulsive.

“Farmers are too much alone. We need to meet together to rub off the rough corners and polish down into symmetry. We want to exchange views, and above all, we want to learn to think. A man who has performed fourteen hours of severe physical labor is in no condition to think, and we may as well decide at once that any class of men which starts out in life by working at severe labor fourteen hours of the twenty-four, and faithfully adheres to the practice, will fill forever the position of hewers of

wood and drawers of water for men who use the God-given mind, and nourish the soul with liberal and abundant mental food.

“I have already tired your patience, and in closing will only say, that in my opinion the coming farmer will not toil with his hands fourteen hours out of the twenty-four, and compel wife and children to the same slavery. But he will give a liberal share of his time to thought, study and recreation. He will know of what his soil is composed, in what it abounds, in what it is deficient. He will know what elements of earth and air are needed to plant growth, and under what conditions they can be most readily assimilated. He will understand the laws of plant and animal life, that he may more successfully treat them. His house will be abundantly supplied with books and papers on agricultural and matters of general interest. Pictures and abundant amusements will make his home attractive. A beautiful lawn and flower beds, a fruit and vegetable garden, an orchard, groves, and evergreens and deciduous trees for ornament, shelter, and use, will make his home so lovely and homelike that his daughters will not be so disgusted with farm life as to marry a village dolt, or the son so worn, weary and dispirited as to leave the farm at the first opportunity and open a barber shop in some country village. Can this be done, and can the farms really be made the happy homes of refined, intelligent, honored men and women, instead of the abodes of overworked slaves? Yes! emphatically yes! But not by neglecting to rust the God-giving mind, but by rousing it up and making it the compass, the sail and the rudder in the voyage of life. The body is but the hulk. Then set your sails, stand by the rudder, steer by the compass, and start out boldly on the great journey, whose passage is pleasure and whose end is success.”

To this excellent address I would add, that no part of farming requires a greater exercise of brains than the selec-

tion and improvement of seed, and the reervation of our soil. And if the farmer would use his brains upon these subjects, and raise twice as much wheat from half the amount of seed, we should hear less growling about hard times.

A very small exercise of brains will teach any man that a large, plump kernel of wheat will produce more nutriment for the support of the germ, until it can get it from the earth, than it would from that of a small kernel.

The same exercise of brain ought to teach us all that thin sowing will produce more tillers and healthier growth than thick sowing and crowded plants.

This work is designed as a leader, to teach farmers how to think. We have many talkers and few thinkers. "Error will travel a great ways while truth is putting on his boots." It is for the farmer to trace nature to her hiding places, and wring from her the secrets on which she conducts her stupendous empire." How few there are who do it. If these rules could have been observed in the last ten years in our institutes, the farmers might have been much farther advanced, the executive committee might have been saved raising the question of the lessons which they have learned, which questions they have found themselves wholly unable to answer, the President might have been saved the humility of threatening to arrest me because I expose their ignorance, and their brainless Secretary might have had something better to report than the senseless jargon of words which he called "very interesting."

The history of the farmer's attempt to improve his wheat, has been to buy a new variety of wheat that had been improved by careful cultivation, which would produce well for a few years, and then under the careless cultivation of the ordinary farmer would run out, to be succeeded by another new variety, which would share the

same fate from the same cause. Thus it has been, seeking new varieties at a high price, only to degenerate or run them out. In this the farmer has been the dupe and the victim, because he would not pursue a common sense system of farming.

NOTE.

This pamphlet is put before the public to see if the farmers will properly sustain an advanced system of farming, and if they will, it will be immediately followed by a similar one on Green Manuring, to improve the land as well as the seed.

The work on Green Manuring is ready for the press, and its publication, and consequently its usefulness to the farmer, will depend upon the farmers' action in sustaining this.

Farmers have got to adopt better systems of farming and raise better crops, or go to the wall. Take which horn of the dilemma you please.

THE AUTHOR.



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